Spring 2014 Rare Species and Habitat Investigations in the Woodlands and Wetlands of the WHOI parcels bordering Oyster Pond Environmental Trust's Zinn Park Donald Schall and Pamela Polloni

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1.0 Introduction

This Plant and Wildlife Habitat Assessment was prepared for Oyster Pond Environmental Trust in support of the acquisition of the property to protect important open space for Coastal Atlantic plant communities and resident and migratory bird species dependent on interior forest habitat. The presence of interior forest habitat for Neotropical migrants was demonstrated based on field observations completed during the spring 2014 migration period. Area sensitive interior forest species were recorded utilizing the woodland habitat in the avian surveys. In addition to the confirmation of avian use, our field surveys documented general wildlife use and confirmation of amphibian breeding activity in the pools of water in two isolated freshwater wetlands on the property. An inventory of higher vascular plants was also compiled to assess the diversity of plant species.

2.0 Woodland and Wetland Plant Communities

The subject properties include both upland and wetland plant communities – Coastal Forest/Woodlands, Maple Swamp that includes portions dominated by Tupelo or Black Gum, a Shrub-dominated emergent wetland on a cove of the Oyster Pond shore, Shrub Swamps, and two Woodland Vernal Pools.



Figure 1. Unusually dense starflower and Canada mayflower carpet, apparently benefitting from sunlight and caterpillar frass.

Coastal Forest/Woodland (S3 priority habitat type in Massachusetts) is the dominant plant community on the largest parcel. The canopy includes a characteristic mixture of scarlet oak (*Quercus coccinea*), black oak (*Q. velutina*), and white oak (*Q. alba*), pitch pine (*Pinus rigida*), white pine (*Pinus strobus*), red maple (*Acer rubrum*), and American beech (*Fagus grandifolia*), with some pignut hickory (*Carya glabra*), eastern black cherry (*Prunus serotina*), tupelo (*Nyssa sylvatica*) and, eastern red cedar (*Juniperus virginiana*). An occasional mature old scotch pine (*Pinus sylvestris*) indicates an exotic introduction to the acreage once-cleared for pasture.

Juvenile white pines are common in the understory layer and may become more dominant in the canopy layer as the canopy oaks succumb to insect damage and wind injury.

The shrub understory layer is moderately dense and consists of common woodland shrub species including black huckleberry (*Gaylussacia baccata*), dangleberry (*Gaylussacia frondosa*), highbush blueberry (*Vaccinium corymbosum*), lowbush blueberry (*Vaccinium angustifolium*), arrow-wood (*Viburnum dentatum*), sheep laurel (*Kalmia angustifolia*), and sweet pepperbush (*Clethra alnifolia*).



Figure 2. Pink lady's slipper orchid blooms in the coastal woodland

(*Woodwardia virginica*), and swamp candles (*Lysimachia terrestris*). Several sedge species occur along the ditch.

Figure 3. Tupelo and red maple canopy of the swamp on May 20, 2014.

Ground cover in coastal woodlands is usually sparse patches of starflower (*Lysimachia borealis*), wild oats (*Uvularia sessilifolia*), Canada mayflower (*Maianthemum canadense*), wild sarsaparilla (*Aralia nudicaulis*), Pennsylvania sedge (*Carex pensylvanica*), and bracken fern (*Pteridium aquilinum*). This season, following several years of oak defoliation by winter moth larvae, the ground cover and shrub layers have formed large continuous swaths of green (Figure 1), with occasional pink lady's slipper (*Cypripedium acaule*, Figure 2), trailing arbutus (*Epigaea repens*) and yellow stargrass (*Hypoxis hirsuta*) blooming along the paths.

Red Maple Swamp (Figure 3) dominates the second-largest parcel, which is bisected by a seasonally wet mosquito control ditch that flows to "Mosquito Creek", headwaters to Oyster Pond. The trees in this swamp are festooned with lichen (*Usnea strigosa*), demonstrating its proximity to the coast and Quissett's moisture-laden atmosphere. Red maple and tupelo are the canopy trees, and the shrub layer is dominated by sweet pepperbush, with highbush blueberry and swamp azalea (*Rhododendron viscosum*) some chokeberry (*Aronia*), dangleberry (*Gaylussacia frondosa*), shadbush (*Amelanchier canadensis*), poison ivy (*Toxicodendron radicans*) and poison sumac (*Toxicodendron vernix*). Ground cover includes sphagnum and other mosses in the wettest areas along with cinnamon fern (*Osmundastrum cinnamomeum*), water willow (*Decodon verticillatus*) in the ditch, sensitive fern (*Onoclea sensibilis*), royal fern (*Osmunda regalis*), Virginia chainfern



The isolated vegetated wetland in the interior of the properties supports a **Shrub Swamp** with characteristic tall shrubs highbush blueberry, winterberry (*Ilex verticillata*), sweet pepperbush, and young saplings of red maple, gray birch (*Betula populifolia*), and willow (*Salix* sp.). Sphagnum moss is a dominant cover on the floor of the vegetated area, and a semi-permanent pool of open water is confined in the western edge of the wetland where fallen leaves cover the floor of the pool. This open water is a feature of one of two **Woodland Vernal Pools** occurring on this parcel. On Thursday, April 3rd, during our first 3-hour site visit, we searched the two Shrub Swamp wetlands in the larger 17.5 acre parcel, 48 10 009 000C for signs of obligate vernal pool species and recorded chorusing wood frogs in the ponded water in the isolated depression in the southeastern portion of the parcel (Figure 4). In addition, a few spring peepers, a facultative vernal pool species, were recorded calling near the northeast edge of the wetland.



Figure 4. Isolated wetland in the southeastern portion of the largest WHOI parcel.



Figure 5. General view of the open water in the small pool of the interior isolated vegetated wetland.

During the follow-up inspection on April 20th, the small open pool of water on the western edge of the smaller isolated vegetated wetland (Figure 5) was found to provide breeding habitat for spotted salamander, an obligate vernal pool species. This site is shown as a potential vernal pool on MassGIS OLIVER

At least 8 to 10 egg masses were noted attached to a fallen branch in the pool (Figure 6), but since the pool, estimated depth of 2.5 feet to over 3 feet, is in a lagg or moat bordering a shrub swamp with a floating matt of sphagnum moss, the egg masses attached to the fallen branch could not be reached easily to better photograph them. However, five egg masses are visible in the close-up view of the pool (Figure 7). Wood frog chorusing was not heard, but a solitary spring peeper was heard calling in the scrub-shrub wetland area on April 20th. Green frogs were also observed in the vernal pool.

A follow-up site visit on June 6th confirmed that the pool meets the water duration requirement in the vernal pool certification guidelines published by the MA Natural Heritage & Endangered Species Program that the pool confine standing water for at least two-months during the breeding season.



Figure 5. Close-up view of spotted salamander egg masses (left edge) in smaller pool.



The small area of Oyster Pond shore is a **Shrub Swamp/Deep Emergent Marsh** wetland (Figure 8) where a mixture of water willow and sedges is associated with sweet pepperbush, cinnamon fern, and swamp azalea bordered by tupelos. The area was inundated throughout the spring survey.

Figure 6. Oyster Pond shore vegetated wetland.

(USACE BMPs 2014).

Wildlife observations on the Zinn/WHOI parcels were recorded based on direct observation, auditory cues, and signs. (Figure 11 illustrates portions of the routes walked during several of the field surveys.)

Two observation stations were set on April 20th for the spring bird surveys. The stations were established to record the presence of breeding birds on the site. Confirmation of bird species associated with interior forest habitat would demonstrate that this un-fragmented woodland parcel is large enough to offer interior forest habitat for priority species and area sensitive species such as ovenbird, eastern wood-pewee, and scarlet tanager.

Sampling stations were established in general agreement with standard biological survey methods for avian species. Surveys were performed at least five days apart, in the early to mid-morning hours, with start and finish times recorded. All surveys were performed under appropriate weather conditions (clear, sunny, and mild). The vegetative community at the sampling stations was photo-documented (Figures 9 & 10).



Figure 7. General view of sampling station No. 1.



Figure 10. General view of sampling station No. 2, set near the top of slope between the two vernal pools.

The two stations were established within the interior forest habitat, and the center points were marked with a wooden survey stake and pink flagging tape. Each sampling station was located more than 150 feet from the forest edge and nearby residential structures. Bird sampling surveys were conducted on May 5, May 20, and June 6.

In addition to the formal bird surveys, the upland forest community and vegetated wetlands were canvassed along meander transects to record incidental wildlife species based on direct observations, auditory cues, and wildlife signs.

General information on the habitat requirements and migratory status for recorded species was also reviewed (DeGraaf and Yamasaki 2001). The presence of woodland interior species indicates that this un-fragmented woodland is large enough to provide breeding habitat for forest interior species (scarlet tanager, eastern wood-pewee, ovenbird) that are recently reported declining in Massachusetts (Mass Audubon 2013). The combined properties also provide suitable habitat for several high priority species coastal woodlands (BCR30 of Implementation Plan), as well as the MESA-listed threatened northern parula observed near waypoint 593 N41.54472 W70.64228. Wildlife species recorded in the field surveys are summarized in "Habitat loss Table 1. and degradation, fragmentation, invasive species (plant and animal), predation, and human disturbance are the greatest threats to bird populations in BCR 30."

Species Observed	3-Apr	20-Apr	28-Api	5-May	11-May	20-May	30-May	6-Jun	12-Jun	18-Jun
Reptiles and Amphibians										
wood frog (chorus)	larger IVW									
spring peeper (calls)	larger IVW	larger IVW								
spotted salamander egg masses*	U	smaller IVW	x	smaller IV	W					
green frog		x	x	smaller IV	W					
bull frog				x						
eastern garter snake				v						
Custom guitor shake				A						
Mammals										
white-tailed deer scat		x		7						
eastern cottontail				τ ζ						
covote scat			1	v						
aray squirrel				A				v		
asstern chinmunk								•	v	
eastern empiritaink									л	
Birds										
northern cardinal		Х	<u>к у</u>	K 1	X					
black-capped chickadee		х	x 3	x 1,2	x	1,2		2	x	x
northern flicker		X	ζ.							
tufted titmouse		X	<u>к у</u>	1.2				1		
American robin		x	x ,	1.2	x	1.2		2		
mourning dove		X	ζ.							
common grackle		X	- . ,	x 1	x	1		1.2		
red-bellied woodnecker				· 1						
unidentified warbler			2	· 1	x					
American crow			3	x 1		x		1.2		x
red-tailed bawk (fly-over)			1	x 2				-,-		
ovenbird				1 2		1	x	12		
blue jay				1,2	r	1	A	1,2		
nine warbler				1,2	, v	12		1		
Carolina wran				1,2	A	1,2			v	v
caronia wien				1 2					л	А
ospicy (lig-over)				1,2				1.2		<u>л</u>
devide among to design and the second design of the				1,2	X	X	X	1,2		X
double-crested combrant (ny-over)					-	1		1		
eastern townee			2	4	X	1		1		X
golatinch				X						X
song sparrow				X						X
gray catbird			2	X X	X	1,2		1,2, x	X	X
hairy woodpecker					X					
red-eyed vireo						1,2	X		X	
yellow-billed cuckoo						1				
northern parula				X		1			X	X
white-breasted nuthatch				X		2		1		X
herring gull (fly-over)										
red-winged blackbird						X				
cedar waxwing						X		X		
common yellowthroat						X				
eastern wood pewee						X		1,2	X	
red-tailed hawk (perched in red maple)						X				
solitary vireo							X			
downy woodpecker								2		
ruby-throated hummingbird								2		
scarlet tanager								2		
eastern kingbird								X		
redstart?									X	

Table 1. Wildlife observations made during this study, between 3 April and 18 June, 2014. Listening station observations are indicated by number; State threatened in bold; BCR 30 Plan high priority species in italics.

We searched for state-listed plant species likely to occur in forested habitats or in smaller freshwater wetlands, and our investigations throughout the WHOI woodland, wetlands, and Oyster Pond shore expand the Zinn Park higher vascular plant inventory. The Trust's inventory list was updated and is appended to this report. Plant nomenclature follows The Vascular Plants of Massachusetts (Cullina et al. 2011). Some sedges (*Carex* spp.) had not matured during our surveys, and potential rarities have not been identified. Water level in Oyster Pond was high, thus survey was not possible for the MESA-listed saltpond pennywort (*Hydrocotyle verticillata*), once recorded from this shore and documented, in 2012, at the eastern end of the Pond.

In addition to protecting headwater resources of Oyster Pond, conservation of the parcels will protect important woodland interior coastal forest habitat for high priority birds. It will provide breeding, summer wetland, and upland over-wintering habitat for vernal pool obligate species and assure the continuity of a wildlife corridor from the coastal environments to interior woodland habitats and freshwater sources.

4.0 References

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Figure 8. Aerial view of listening station and associated waypoints noted with Garmin eTrex hand-held gps for this study of the Zinn Park and WHOI parcels.

Appendices:

Zinn/WHOI provisional plant list

MOV01281 Wood frogs and spring peepers recorded April 6, 2014 in southeast isolated wetland.

MP4 Video 00064 Red Maple Swamp; near end is Parula Warbler call.