

Hamelin Management Plan

2009



©

Hamlin Reservation: Basic Management Plan

Location: Hamlin Reservation, Ipswich, MA

Acreage: 135 acres (property guide)

Completed by: Adam Kurowski, assistance by Dan Gove, Franz Ingelfinger, Susan Hill Dolan, Jim Younger, and Lisa Vernegaard

Date: May 18, 2009

Supporting Reports and Materials: Property Guide, Trustees' website; NHESP Priority Habitats of Rare Species GIS data;

I. Introduction

- a. Hamlin Reservation's gently rolling fields and marsh meadows — today home to bobolinks and small mammals — were once active farmland. Historically, a dike was created to connect Eagle Island with the mainland so livestock could graze the island's pastures. Today the island is covered by a white pine, oak, and hickory forest. A short loop trail circles the island, revealing remnants of old stone walls that were built along the perimeter of the island. There is also a house and barn on the property.

The Reservation's extensive salt marsh, drained by the Labor-In-Vain Creek, provides habitat for a wide variety of fish and invertebrates and supports many wading birds, such as glossy ibis and snowy and American egrets. Hamlin Reservation represents one of the least disturbed parts of the entire 25,000-acre Great Marsh which is a vital ecological feature in northeastern Massachusetts.

Hamlin Reservation is located in Ipswich and is surrounded by several Trustees' reservations which receive high annual visitation, including Appleton Farms and Crane Reservation. Hamlin Reservation requires and receives much less of the Ipswich-Newbury Management Unit's staff time than the high visitation properties, because it has a management type of C.

- b. Acquisition history: Bequest of Octavia Hamlin in 1993.
- c. Donor's wishes or other clear guiding principles: Octavia Pierson Hamlin's will states that The Trustees' shall never sell, mortgage, alienate or otherwise dispose of the property, except as a gift or sale to another charitable organization with a similar purpose. No structure shall be erected, except to support charitable and conservation activities.

II. Summary of Preliminary Management Goals

- a. Continue to maintain property at current levels.
- b. Collaborate with private renter and local volunteers to assist in meeting property needs.

III. Legal and Management Considerations

- a. None identified

IV. Property Description:

A. Historic and Cultural Resources

Significant Historic Features: The historic dike connecting the mainland to Eagle Island crosses marshland and was built to give grazing livestock access to the island. Remnants of old stone walls exist and remind of the property's agricultural history and early settlement. The large barn and the house, formerly of Argilla Farm across the road, were moved to the present location (the late Octavia Hamlin's estate) about 1916-1917. It is unclear whether the house was stucco before or after the move. Both the house and the barn are significant cultural resources within the landscape.

Although the barn is currently underused, future uses and maintenance needs should be explored.

Threats to Historic Features: Sea level rise could threaten the majority of this property including the dike.

B. Natural Resources

Hamlin Reservation's gently rolling pastures, marsh meadows and historic barn attest to the property's agricultural past. This agrarian history is exemplified by stone walls, an old cellar foundation, and historic dike which connects 17-acre Eagle Island to the mainland and was once used to provide grazing animals access to the island's now wooded pastures. The most prominent feature of the property is the extensive salt marsh. Drained by Labor-In-Vain Creek, a tributary to the Ipswich River, the Hamlin marshes are part of New England's largest marsh, Great Marsh.

Due to the variety of natural habitats on the property, Hamlin Reservation supports a variety of plant and animal species. The salt marsh provides habitat for a wide variety of marine fish and invertebrates and supports large numbers of wading birds such as Glossy Ibis, Snowy and American Egrets. The open pastures provide breeding habitat for bobolink, an uncommon field-nesting bird, feeding habitat for a variety of birds of prey in search of small mammals, and invertebrates. The wooded islands on the property support Eastern coyote, red fox, white-tailed deer, American Fischer, gray and red squirrel, and many other animals. The maturing white pine and oak-hickory hardwood forest is typical of the region's native forest community.

Significant Natural Features:

Cultural grassland (~14 acres) is dominated by cool-season European grasses, provide nesting habitat for bobolinks and the occasional meadowlark,

and nectar and larval host sites for butterflies and other invertebrates. The cultural grassland abuts salt marsh to the north and extensive fields to the south, and its landscape context augments its value to grassland dependant wildlife.

Salt Marsh (~89 acres) provides habitat for several species of marine invertebrate, shellfish, and fish, and is designated as BioMap Core Habitat and Priority Habitat for Common Terns. In 2001, Essex County Mosquito Control and Wetland Management District implemented several acres of Open Marsh Water Management to control mosquito development within the salt pannes that surround Eagle Island.

Woodland (~27 acres) includes several small wooded islands surrounded by salt marsh. With the exception of 17-acre Eagle Island, these islands are less than an acre in size and are dominated by oak-hickory with an understory of huckleberry. A small stone wall, running east-west, divides Eagle Island in two. The smaller, southern half is dominated by a mature oak-hickory woodland with American hop hornbeam in the subcanopy. Huckleberry dominates the shrub layer and Pennsylvania sedge is common throughout. North of the stonewall, the woodland a successional white pine oak woodland dominates. Examining the soil profile in these two areas may elucidate the cause of the abrupt change found on either side of the stone wall. It is likely that the northern side of the island was plowed to improve forage quality. One of the ramifications of past landuse is that invasives have a stronger foothold north of the stonewall, and the shrub layer along the northeast corner of the island is dominated by Morrow's honeysuckle and privet shrub. Oriental bittersweet is also establishing along the northeast boundary as is a small pocket of garlic mustard.

Threats to Natural Features:

Invasives

- Glossy Buckthorn is rapidly colonizing forest uplands. A 2008 effort was undertaken to control mature glossy buckthorn stems on Eagle Island.
- Garlic Mustard is rapidly spreading along Argilla road and is found in the Parking Area and eastern corner of Eagle Island.
- Perennial Pepperweed is spreading throughout the salt marsh-upland fringe. This recent invader to the Great Marsh is spreading quickly and one day may rival phragmites as the primary invader along the marsh-upland edge.
- Other invasives—Oriental bittersweet, privet, honeysuckle, and multiflora rose are scattered throughout the hedgerows that fringe the fields and are establishing in the wooded uplands.

Agricultural Runoff

Runoff from adjacent agricultural fields (located south of Argilla Road) can add sediment and nutrients to the marsh and impact water quality and accelerate the spread and growth of phragmites.

Sea-Level Rise and Climate Change

Wet Trails

Several areas of the trail system are seasonally wet. At a minimum, mitigation is warranted along the portion of the trail accessing the dyke to Eagle Island.

Deer

Deer populations are on the rise throughout the region and are impacting natural resources and public health. Seasonal bow hunting (deer only) is permitted at Hamlin (with Trustees’ permission), but the property is small and opportunity is limited given increasing restrictions associated with the growth in public visitation.

Opportunities:

Grassland Enhancement

The fields at Hamlin were recently enrolled in NRCS’s Wildlife Habitat Improvement Program (WHIP). Over the next ten years, The Trustees will receive \$9,910 to implement several grassland management practices including: late-season mowing, field liming, invasive species control, and hedgerow removal. This program shares the cost of implementing these practices, and along with funding from other WHIP enrolled fields, these funds will provide improved stewardship of grassland habitats region-wide.

Other miscellaneous recommendations

- Implement WHIP Funded Practices
- Trim back trees and limbs encroaching into fields to facilitate field mowing.
- Work with our local farmer to provide organic amendments to the fields he harvests for mulch (spread manure). Hay yield and quality will decline if the fields aren’t amended to replace nutrients removed by in harvesting the mulch hay. Soil tests for Hamlin fields were completed in fall of 2008 and contain recommendations for both Lime and nutrient amendments.

C. Scenic Resources

Significant Scenic Features: Views of Great Marsh and Labor-In-Vain Creek from Eagle Island.

Threats to Scenic Features: Vegetation on stonewall along Argilla Rd needs to be managed to maintain the scenic view from the road.

D. Structural Resources

Structure	Size	Current Use	Current Condition
Barn	1,887 sq ft	Property Support	Good

Superintendent's House	1,755 sq ft	Residence – currently occupied by staff; will be rented to private tenant no later than summer 2010	Good
------------------------	-------------	---	------

E. Opportunity for Engagement and Visitor Services

Current Volunteer Engagement: Periodically, maintenance projects include volunteers.

Opportunities: Volunteers could be used to assist with the tasks found in the Recommended One-time Actions and Routine Management Program.

Visitor Engagement: The bulletin board and brochures provide visitors with self-help.

Opportunities: None identified.

Visitor Services:	Does it Exist?	Specific Description: age, condition, actively updated?
1. Approach signs that lead visitors to the property	N	While this is considered a baseline standard for Trustees' properties, it's not clear that approach signs are needed for this property.
2. Entrance and trailhead signs.	Y	No trailhead signs.
3. Kiosk or Bulletin Board	Y	Routine maintenance occurs on Bulletin Board.
4. Up-to-date Map on bulletin board and website.	N	Bulletin board and trail map exist from 2003, new map scheduled for 2010.
5. Trails are clearly marked	N	While this is considered a baseline standard for Trustees' properties, it's not clear that trail signs are needed for this property.
6. Adequate parking area.	Y	15 vehicle capacity

V. Current Resources Available for Management

- a. Staff and Volunteers. Hamlin Reservation is part of the Ipswich-Newbury Management Unit that includes 7 other properties, including the Crane Estate. Less than 5% of the unit's staff time is spent at Hamlin; ~ 10 hours per week of seasonal staff time between June and August; volunteers assist infrequently.
- b. Equipment – lawn mower, trimmer, and hand tools shared with Castle Hill and Greenwood Farm frequently; chipper and tractor is also shared less frequently.
- c. Operating budget – No dedicated operating budget exist; funds needed are taken from management unit budget.

Recommended One-time Actions

Rec#	Type	Resource Protection Action	Description/Rationale	Phase	Rank	1° staff	2° staff	Phase 1 Staff Hours	Phase 2 Staff Hours	Phase 3 Staff Hours	Total Plan Staff Needs	Vol. Op?	Total Phase 1 Cost	Total Phase 2 Cost	Total Phase 3 Cost	Total Plan Costs all Phases	Budget Source	Operating	Supplemental	Capital	Targetted Funding Source	Notes	Status
1	NR	Implement WHIP Program •Liming •Chemical control •Tree removal •Brush removal •Herbaceous control	This program began in 2008 and continues through 2017	1, 2, 3	N	S		120	120	120	360	yes	\$3,140	\$4,400	\$2,370	\$9,910	O	\$9,910			WHIP (already acquired)	See Appendix A, Wildlife Habitat Incentives Program (WHIP) Schedule for details	IP
2	SR	Perform an energy audit of the energy consumption of the house.	Green objective, assess energy consumption.	I	N	S	PM	4			4	yes	\$0	\$0	\$0	\$0	O					Audit will be conducted by utility company.	NS
3	SR	Implement energy audit recommendations.	Reduce energy consumption, green	I	N	S	PM	8			8	no	\$2,500	\$0	\$0	\$2,500	C			\$2,500		Work to be completed by outsourced contractor	NS
4	NR	Create, maintain or enhance area(s) to provide upland wildlife food and cover.		ongoing	N	S						no	\$0	\$0	\$0	\$0	O						

Key:
 Type: NR – Natural Resource Management
 Phase: 1 – 2009 through 2011, 2 – 2012 through 2014, 3 – 2015 through 2017
 Rank: N – Needed, D - Desired
 Staff: S – Superintendent
 Budget Source: O – Operating
 Status: IP – In Progress

Recommended One-time Actions (cont.)

Rec#	Type	Resource Protection Action	Description/Rationale	Phase	Rank	1° staff	2° staff	Phase 1 Staff Hours	Phase 2 Staff Hours	Phase 3 Staff Hours	Total Plan Staff Needs	Vol. Op?	Total Phase 1 Cost	Total Phase 2 Cost	Total Phase 3 Cost	Total Plan Costs all Phases	Budget Source	Operating	Supplemental	Capital	Targetted Funding Source	Notes	Status
5	NR	Clear woody growth at visitor entrance		I	D	S		40				yes	\$0	\$0	\$0	\$0	O	\$0				Nominal funds may be needed	NS
6	HR	Research the property's land use history and conduct a cultural resource landscape assessment	There is little known about Hamlin's history, and this project will round out our knowledge about the property	3	D	S	HR			8	8	yes	\$0	\$0	\$0	\$0	O					This is a project that we'll do only if volunteer help is available	
TOTAL								172	120	128	380		\$5,640	\$4,400	\$2,370	\$12,410		\$9,910	\$0	\$2,500			

Key:
 Type: NR – Natural Resource Management
 Phase: 1 – 2009 through 2011, 2 – 2012 through 2014, 3 – 2015 through 2017
 Rank: N – Needed, D - Desired
 Staff: S – Superintendent
 Budget Source: O – Operating
 Status: IP – In Progress

Routine Management Program

Line #	Task	Action Type	Acceptable Performance Level (APL)	Acceptable Frequency	Less Than Annual	Season	Who?	Volunteer Op?	Total Hours Needed to Reach APL	Add'l Funds Needed to Reach APL	Notes
1	Bulletin board, sign, and brochure upkeep.	GM	Strong	Weekly	no	Year round	S	yes	52	\$0	Bulletin board and brochure boxes are checked along with the litter check. They are also checked by seasonal staff while performing weekly mowing duties.
2	Cut brush along stonewall	GM	Strong	Annually	no	S	S	no	16	\$0	Stone wall along Argilla Rd. requires extensive maintenance yearly and provides visual access to property. Any invasives and grasses are removed or trimmed.
3	Mow lawn and trimming; trim trees to facilitate mowing	GM	Strong	Weekly	no	SP, S, F	S	no	60	\$0	Lawn mowing includes resident house, swath along stone wall, and grass path at head of trail.
4	Mow field margins	GM	Strong	Annually	no	F	S	no	16	\$0	The bulk of the fields at Hamlin are mowed by a resident farmer in exchange for the mulch hay. Field margins are mowed by a Trustees staff member.
5	Trail inspection (walk, clean up, prune trails)	GM	Strong	Monthly	no	Year round	S	yes	24	\$0	The Hamlin trail is walked and checked monthly for safety hazards and fallen trees. The boardwalk is also checked at this time.
6	Snow plow	GM	Strong	As needed	no	W	S	no	20	\$0	Resident driveway needs plowing frequently to prevent drifting and allow resident access.
7	Work with local farmer to spread manure	NR	Strong	As needed	no	Sp	S, EC	yes	8	\$0	Hay yield and quality will decline if the fields aren't amended to replace nutrients removed by harvesting the mulch hay. Soil tests were completed in 2008.
9	Check gutters and drainage systems around house for proper drainage.	SR	Strong	Twice annually	no	F, Sp	S	no	4	\$0	Additional funds may be needed to prevent water infiltration.
9	Check all buildings systems and renewal needs annually.	SR	Strong	Annually	no	F	S	no	4	\$0	This review compliments house inspections and capital planning
10	Coordinate service contracts for furnace	SR	Strong	Annually	no	F	S	no	2	\$0	

Key:
 Action Type:
 GM – General Property Management
 NR – Natural Resource Management
 SR – Structural Resource Management
 Who?:
 DSR – Dir. of Structural Resources
 EC – Ecologist
 PM – Property Manager
 S – Superintendent
 Performance Level:
 Adequate - The task is currently completed at a level that does not hinder resource protection or the visitor experience.
 Strong - The task is completed in a manner/at a frequency that represents

Routine Management Program (cont.)

Line #	Task	Action Type	Acceptable Performance Level (APL)	Acceptable Frequency	Less Than Annual	Season	Who?	Volunteer Op?	Total Hours Needed to Reach APL	Add'l Funds Needed to Reach APL	Notes
11	Contract with Service Company for annual furnace tune-up.	SR	Strong	Twice annually	no	F,Sp	PM	no	8	\$400	
12	Maintain ornaments and landscape around resident house.	GM	Adequate	Twice per year	no	Sp, S	S	no	12	\$0	The ornaments and landscape around the resident house require maintenance twice a year.
13	Control woody growth along stone walls	GM	Adequate	As needed	no	Sp, F	S	no	10	\$0	Spraying is done on an 'as needed' basis. Past spraying is done mostly for poison ivy.
14	Paint bulletin board and entrance sign post.	GM	Adequate	As needed	yes	S	S	yes	2	\$0	The bulletin board and entrance sign post are painted on an 'as needed' basis. Usually every other year.
15	Pick up litter	GM	Adequate	Twice per week	no	Year round	S	yes	104	\$0	Because the parking lot is hidden, trash is frequently dumped at this location, requiring frequent checks.
TOTAL									388	\$600	

Key:
 Action Type:
 GM – General Property Management
 NR – Natural Resource Management
 SR – Structural Resource Management
 Who?:
 DSR – Dir. of Structural Resources
 EC – Ecologist
 PM – Property Manager
 S – Superintendent
 Performance Level:
 Adequate - The task is currently completed at a level that does not hinder resource protection or the visitor experience.
 Strong - The task is completed in a manner/at a frequency that represents

VI. Conclusions

- a. Hamlin Reservation has a unique combination of important habitat, historic features, residential inhabitants, and visitors that require consistent management and maintenance. WHIP grant money was acquired in 2008 to assist grassland habitat management. These funds will assist with 9 years of property management that is vital to the health of Hamlin. Although Hamlin draws relatively less visitors than the other Trustees' reservations in the area, it still provides an attractive trail system and visitor experience, which have been successfully maintained with only modest staff management.

VII. Monitoring and Review

- a. Property plan should be reviewed annually by staff to ensure progress is being made to complete the recommendations. Future plan revisions may require additional research and field work.

APPENDIX A: Wildlife Habitat Incentives Program (WHIP) Schedule

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE										CONSERVATION PLAN OR SCHEDULE OF OPERATIONS										NRCS-CPA-1155		
PARTICIPANT					COUNTY AND STATE					PROGRAM AND CONTRACT NUMBER					FUND CODE							
TRUSTEES OF RESERVATIONS					ESSEX, MASSACHUSETTS					1090001					15.8							
LAND UNITS OR LEGAL DESCRIPTION										WATERSHED					EXPIRATION DATE							
Tract: 1518 Fields: 1, 3, 1a, 1b, 3a, 3b, 3c, 2a										1090001					15.8							
Contract Item 1																						
Early Successional Habitat Development/Management (647)																						
Mowing/brush hogging: manage successional vegetation mechanically by using a brush hog or similar rotary cutter. Timing of cutting will be established to promote desired plant community. Do not cut between April 15 and July 31. Removal of herbage is acceptable.																						
Fields: Tract: 1518 Fields: 1, 3																						
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Completion Schedule and Estimated Cost Share or Payment by Year							
1	Early Successional Habitat Development/Management (647)	11 ac		\$1018																		
1a	Herbaceous Management	11.0 AC	\$92.53/AC	PR	1018																	
Contract Item 2																						
Early Successional Habitat Development/Management (647)																						
Mowing/brush hogging: manage successional vegetation mechanically by using a brush hog or similar rotary cutter. Timing of cutting will be established to promote desired plant community. Do not cut between April 15 and July 31. Removal of herbage is acceptable.																						
Fields: Tract: 1518 Fields: 1, 3																						
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Completion Schedule and Estimated Cost Share or Payment by Year							
2	Early Successional Habitat Development/Management (647)	11 ac		\$1104																		
2a	Liming	11.0 AC	\$100.31/AC	PR	1104																	
Contract Item 3																						
Early Successional Habitat Development/Management (647)																						
Mowing/brush hogging: manage successional vegetation mechanically by using a brush hog or similar rotary cutter. Timing of cutting will be established to promote desired plant community. Do not cut between April 15 and July 31. Removal of herbage is acceptable.																						
Fields: Tract: 1518 Fields: 1, 3																						
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Completion Schedule and Estimated Cost Share or Payment by Year							
3	Early Successional Habitat Development/Management (647)	11 ac		\$1018																		
3a	Herbaceous Management	11.0 AC	\$92.53/AC	PR			1018															

APPENDIX A: Wildlife Habitat Incentives Program (WHIP) Schedule (continued)

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE				CONSERVATION PLAN OR SCHEDULE OF OPERATIONS				NRCS-CPA-1155			
PARTICIPANT		COUNTY AND STATE		PROGRAM AND CONTRACT NUMBER		FUND CODE					
TRUSTEES OF RESERVATIONS		ESSEX, MASSACHUSETTS									
LAND UNITS OR LEGAL DESCRIPTION		WATERSHED		ACRES		EXPIRATION DATE					
Tract: 1518 Fields: 1, 3, 1a, 1b, 3a, 3b, 3c, 2a		1090001		15.8							

Contract Item 4																					
Pest Management (595)																					
Foliar spray: apply herbicide by thoroughly wetting the plant with the herbicide.																					
Fields: Tract: 1518 Fields: 1, 1a, 1b, 3, 3a, 3b, 3c																					
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/ Method	Completion Schedule and Estimated Cost Share or Payment by Year																
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017							
4	Pest Management (595)	2 ac		\$825/ 100%																	
4a	Invasives Control - Chemical	2.3 AC	\$358.50/AC	PR					825												

Contract Item 5																					
Early Successional Habitat Development/Management (647)																					
Light clearing: manage successional woody vegetation and/or invasive woody plants, averaging less than 4" DBH by mechanical control.																					
Fields: Tract: 1518 Fields: 1a, 1b, 3a																					
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/ Method	Completion Schedule and Estimated Cost Share or Payment by Year																
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017							
5	Early Successional Habitat Development/Management (647)	0 ac		\$187																	
5a	Clear Shrub/sapling up to 4" DBH	0.4 AC	\$466.05/AC	PR					187												

Contract Item 6																					
Early Successional Habitat Development/Management (647)																					
Medium clearing: Cut or clear low economic value and/or non-merchantable trees, averaging 4-8" DBH, in order to create early successional habitat. Clusters of native, food and cover-producing trees and shrubs (apple, blueberry, serviceberry, dogwoods, viburnums, etc.) should be retained. Woody material cut should be mulched on site. Tops can be retained on site and placed in brush piles. Maintenance cutting is done on a 3-10 year interval depending on targeted habitat and wildlife species.																					
Fields: Tract: 1518 Fields: 3b, 3c																					
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/ Method	Completion Schedule and Estimated Cost Share or Payment by Year																
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017							
6	Early Successional Habitat Development/Management (647)	1 ac		\$2203																	
6a	Tree Clearing <8" DBH - No Timber	1.0 AC	\$1,216.05/ AC	100% PR				1217													
6b	Tree Clearing >8" DBH - No Timber	0.4 AC	\$2,464.20/ AC	100% PR				986													

APPENDIX A: Wildlife Habitat Incentives Program (WHIP) Schedule (continued)

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE		CONSERVATION PLAN OR SCHEDULE OF OPERATIONS		NRCS-CPA-1155	
PARTICIPANT TRUSTEES OF RESERVATIONS		COUNTY AND STATE ESSEX, MASSACHUSETTS	PROGRAM AND CONTRACT NUMBER		FUND CODE
LAND UNITS OR LEGAL DESCRIPTION Tract: 1518 Fields: 1, 3, 1a, 1b, 3a, 3b, 3c, 2a		WATERSHED 1090001	ACRES 15.8		EXPIRATION DATE

Contract Item 7 Early Successional Habitat Development/Management (647)																	
Mowing/brush hogging: manage successional vegetation mechanically by using a brush hog or similar rotary cutter. Timing of cutting will be established to promote desired plant community. Do not cut between April 15 and July 31. Removal of herbage is acceptable.																	
Fields: Tract: 1518 Fields: 1, 1a, 1b, 3, 3a, 3b, 3c																	
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year												
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017			
7	Early Successional Habitat Development/Management (647)	13 ac		\$1185													
7a	Herbaceous Management	12.8 AC	\$92.53/AC	100% PR							1185						

Contract Item 8 Early Successional Habitat Development/Management (647)																	
Mowing/brush hogging: manage successional vegetation mechanically by using a brush hog or similar rotary cutter. Timing of cutting will be established to promote desired plant community. Do not cut between April 15 and July 31. Removal of herbage is acceptable.																	
Fields: Tract: 1518 Fields: 1, 1a, 1b, 3, 3a, 3b, 3c																	
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year												
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017			
8	Early Successional Habitat Development/Management (647)	13 ac		\$1185													
8a	Herbaceous Management	12.8 AC	\$92.53/AC	100% PR							1185						

Contract Item 9 Early Successional Habitat Development/Management (647)																	
Mowing/brush hogging: manage successional vegetation mechanically by using a brush hog or similar rotary cutter. Timing of cutting will be established to promote desired plant community. Do not cut between April 15 and July 31. Removal of herbage is acceptable.																	
Fields: Tract: 1518 Fields: 1, 1a, 1b, 3, 3a, 3b, 3c																	
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year												
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017			
9	Early Successional Habitat Development/Management (647)	13 ac		\$1185													
9a	Herbaceous Management	12.8 AC	\$92.53/AC	100% PR													1185

APPENDIX A: Wildlife Habitat Incentives Program (WHIP) Schedule (continued)

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE		CONSERVATION PLAN OR SCHEDULE OF OPERATIONS				NRCS-CPA-1155	
PARTICIPANT TRUSTEES OF RESERVATIONS		COUNTY AND STATE ESSEX, MASSACHUSETTS		PROGRAM AND CONTRACT NUMBER		FUND CODE	
LAND UNITS OR LEGAL DESCRIPTION Tract: 1518 Fields: 1, 3, 1a, 1b, 3a, 3b, 3c, 2a		WATERSHED 1090001		ACRES 15.8		EXPIRATION DATE	

Contract Item 10																	
Upland Wildlife Habitat Management (645)																	
Create, maintain or enhance area(s) to provide upland wildlife food and cover.																	
Fields: Tract: 1518 Fields: 1, 2a, 3																	
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year												
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017			
10	Upland Wildlife Habitat Management (645)	14 ac		\$0													
10a	Management	14.0 AC	\$0.00/AC	NC	0												

Contract Item 11																	
Upland Wildlife Habitat Management (645)																	
Create, maintain or enhance area(s) to provide upland wildlife food and cover.																	
Fields: Tract: 1518 Fields: 1, 2a, 3																	
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year												
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017			
11	Upland Wildlife Habitat Management (645)	14 ac		\$0													
11a	Management	14.0 AC	\$0.00/AC	NC	0												

Contract Item 12																	
Upland Wildlife Habitat Management (645)																	
Create, maintain or enhance area(s) to provide upland wildlife food and cover.																	
Fields: Tract: 1518 Fields: 1, 2a, 3																	
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year												
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017			
12	Upland Wildlife Habitat Management (645)	14 ac		\$0													
12a	Management	14.0 AC	\$0.00/AC	NC	0												

Contract Item 13																	
Upland Wildlife Habitat Management (645)																	
Create, maintain or enhance area(s) to provide upland wildlife food and cover.																	
Fields: Tract: 1518 Fields: 1, 1a, 1b, 2a, 3, 3a, 3b, 3c																	
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year												
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017			

APPENDIX A: Wildlife Habitat Incentives Program (WHIP) Schedule (continued)

U.S. DEPARTMENT OF AGRICULTURE										CONSERVATION PLAN OR SCHEDULE OF OPERATIONS										NRCS-CPA-1155										
NATURAL RESOURCES CONSERVATION SERVICE					COUNTY AND STATE					PROGRAM AND CONTRACT NUMBER					FUND CODE															
PARTICIPANT					ESSEX, MASSACHUSETTS																									
TRUSTEES OF RESERVATIONS					LAND UNITS OR LEGAL DESCRIPTION					WATERSHED					ACRES					EXPIRATION DATE										
					Tract: 1518 Fields: 1, 3, 1a, 1b, 3a, 3b, 3c, 2a					1090001					15.8															
Contract Item		PLANNED CONSERVATION TREATMENT		Planned Amount		Unit Cost		Cost Share Rate/Method		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		
13	Upland Wildlife Habitat Management (645)	16 ac		\$0																										
13a	Management	15.8 AC	\$0.00/AC	NC																										

Contract Item 14										Upland Wildlife Habitat Management (645)																				
Create, maintain or enhance area(s) to provide upland wildlife food and cover.										Fields: Tract: 1518 Fields: 1, 1a, 1b, 2a, 3, 3a, 3b, 3c																				
Contract Item		PLANNED CONSERVATION TREATMENT		Planned Amount		Unit Cost		Cost Share Rate/Method		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		
14	Upland Wildlife Habitat Management (645)	16 ac		\$0																										
14a	Management	15.8 AC	\$0.00/AC	NC																										

Contract Item 15										Upland Wildlife Habitat Management (645)																				
Create, maintain or enhance area(s) to provide upland wildlife food and cover.										Fields: Tract: 1518 Fields: 1, 1a, 1b, 2a, 3, 3a, 3b, 3c																				
Contract Item		PLANNED CONSERVATION TREATMENT		Planned Amount		Unit Cost		Cost Share Rate/Method		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		
15	Upland Wildlife Habitat Management (645)	16 ac		\$0																										
15a	Management	15.8 AC	\$0.00/AC	NC																										

Contract Item 16										Upland Wildlife Habitat Management (645)																				
Create, maintain or enhance area(s) to provide upland wildlife food and cover.										Fields: Tract: 1518 Fields: 1, 1a, 1b, 2a, 3, 3a, 3b, 3c																				
Contract Item		PLANNED CONSERVATION TREATMENT		Planned Amount		Unit Cost		Cost Share Rate/Method		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		
16	Upland Wildlife Habitat Management (645)	16 ac		\$0																										
16a	Management	15.8 AC	\$0.00/AC	NC																										

APPENDIX A: Wildlife Habitat Incentives Program (WHIP) Schedule (continued)

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE				CONSERVATION PLAN OR SCHEDULE OF OPERATIONS				NRCS-CPA-1155			
PARTICIPANT TRUSTEES OF RESERVATIONS		COUNTY AND STATE ESSEX, MASSACHUSETTS		PROGRAM AND CONTRACT NUMBER				FUND CODE			
LAND UNITS OR LEGAL DESCRIPTION Tract: 1518 Fields: 1, 3, 1a, 1b, 3a, 3b, 3c, 2a		WATERSHED 1090001		ACRES 15.8		EXPIRATION DATE					

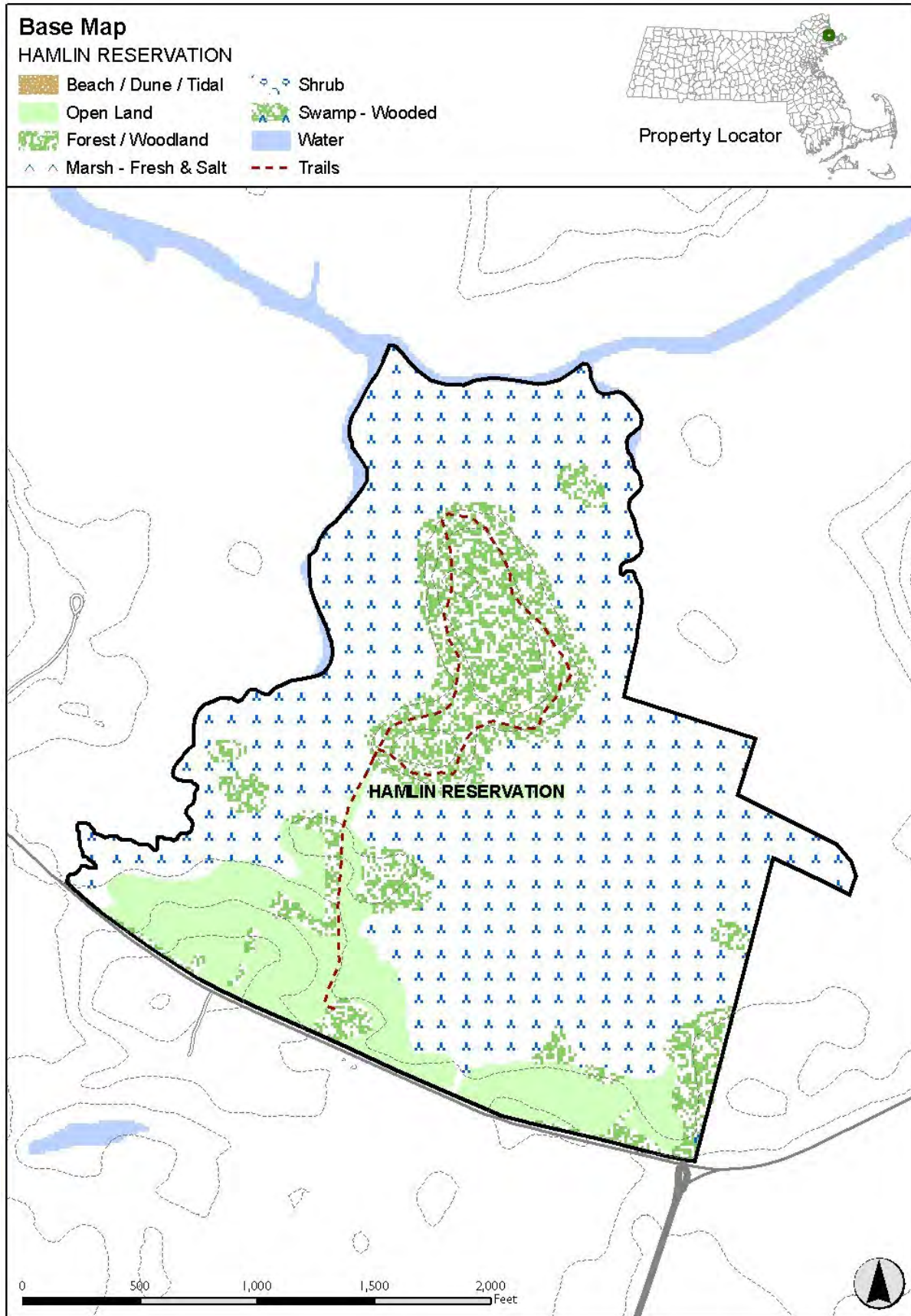
Contract Item 17																						
Create, maintain or enhance area(s) to provide upland wildlife food and cover.																						
Fields: Tract: 1518 Fields: 1, 1a, 1b, 2a, 3, 3a, 3b, 3c																						
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year																	
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017								
17	Upland Wildlife Habitat Management (645)	16 ac		\$0																		
17a	Management	15.8 AC	\$0.00/AC	NC																		0

Contract Item 18																							
Create, maintain or enhance area(s) to provide upland wildlife food and cover.																							
Fields: Tract: 1518 Fields: 1, 1a, 1b, 2a, 3, 3a, 3b, 3c																							
Contract Item	PLANNED CONSERVATION TREATMENT	Planned Amount	Unit Cost	Cost Share Rate/Method	Completion Schedule and Estimated Cost Share or Payment by Year																		
					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017									
18	Upland Wildlife Habitat Management (645)	16 ac		\$0																			
18a	Management	15.8 AC	\$0.00/AC	NC																			0

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE				CONSERVATION PLAN OR SCHEDULE OF OPERATIONS				NRCS-CPA-1155			
PARTICIPANT TRUSTEES OF RESERVATIONS		COUNTY AND STATE ESSEX, MASSACHUSETTS		PROGRAM AND CONTRACT NUMBER				FUND CODE			
LAND UNITS OR LEGAL DESCRIPTION Tract: 1518 Fields: 1, 3, 1a, 1b, 3a, 3b, 3c, 2a		WATERSHED 1090001		ACRES 15.8		EXPIRATION DATE					

Year	Total Cost-Share or Payment by Year							Contract Payment		
	2008	2009	2010	2011	2012	2013	2014		2015	2016
Amount(\$)	1,018	1,104	1,018	3,215	1,185	0	1,185	0	1,185	9,910

APPENDIX B: Base Map



APPENDIX C: Natural Heritage & Endangered Species Program (NHESP) Resources Map

