

1.0 INTRODUCTION

These Land Stewardship Reports contain overviews of ten Harwich Conservation Commission owned parcels to address recreational use, vegetation and wildlife invasive species, existing conditions, potential problems, and administrative and management suggestions. These Land Stewardship Reports were prepared by the BSC Group, Inc. at the request of and under contract to the Town of Harwich Conservation Commission. These evaluations are intended to be used by the Commission as living guidance documents for making management decisions at the ten selected tracks of land, and to assist the Commission in providing safe multiuse recreation areas while protecting wildlife habitat and natural resources. These reports represent BSC Group's findings during multiple site visits to each parcel during the fall of 2011 and spring of 2012.

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1.0 DEPOT STREET

a) Property Summary

The property is situated between the East Reservoir/Herring River and Depot Street/Town of Dennis and abuts the Bells Neck property. It can be accessed using the Depot Street entrance to Bells Neck and the parking area located at the Herring River fish ladder. This area is currently being leased by the Town for cranberry operations, which uses the East Reservoir for irrigation and releases waters through a sluice way into the tidal section of the Herring River below the fish ladder south of the property.

b) Current Recreational Use

The existing site is in agricultural use coincidental to cranberry operations. Due to maintenance and bog operations, it is not recommended that the site be used for recreation due to safety concerns. However, during BSC's survey's it was noted that many dog owners use this parcel for walking their dogs around the bogs. People are also using the northeastern forested upland section of this parcel to access fishing areas along the East Reservoir. This forested area contains many well established walking trails that lead to offsite private parcels; off-road vehicle impacts were occurring on these trails. The southern portion of this parcel also contains a walking trail, which begins at the Herring River fish ladder parking lot on the Bells Neck parcel and travels south along the tidal section of the Herring River. During a site visit, BSC talked with two hunters who were heading out early for deer.

c) Vegetation and Probable Wildlife

Because most of this parcel is currently in agricultural use for cranberry operations, the diversity of vegetation and wildlife is a bit limited. However, it does provide unique niche habitat for birds of prey such as Red Tail Hawks (*Buteo jamaicensis*), Great Blue Heron (*Ardea herodias*), turtles (nest sites located in the banks and borrow pits around the bogs), sedges, rushes, and grasses, and some forested uplands containing Black Oak (*Quercus velutina*), Scrub Oak (*Quercus ilicifolia*), Pitch Pine (*Pinus rigida*), Bearberry (*Arctostaphylos uva-ursi*) and Lowbush Blueberry (*Vaccinium angustifolium*). The streams filled with floodwaters from the East Reservoir contain a variety of fish including Bass, Herring, sunfish and minnows, and Bull Frogs to include tadpoles. BSC also noted a River Otter (*Lontra Canadensis*) fishing in the adjacent East Reservoir and an Otter slide bordering the Bells Neck & Depot Street parcels.

Other wildlife that may be using this area include, but are not limited to, Cottontail Rabbits (*Sylvilagus spp.*), Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), White-Tailed Deer (*Odocoileus virginianus*), Grey Squirrels (*Sciurus carolinensis*), Virginia Opossum (*Didelphis virginiana*), Osprey (*Pandion haliaetus*), Owls, Mice, Voles, and a variety of common birds.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008) document, there are two listed species for this parcel. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover to protect identified species.

d) **Invasive Species**

During BSC's site inspection, no invasive species were found at the site. However, several populations of Common Reed were found in the Bells Neck area and along the tidal section of the Herring River, both of which abuts the property.

e) **Existing Conditions & Potential Problems**

The current conditions at the site include a privately run cranberry farm with access roads, borrow pits, sluice ways, culverts and drainage ditches. The farm utilizes a sluice located on the East Reservoir to flood the bogs as a water supply for daily operations. The location of this sluice is just above the Herring Run fish ladder causing Blueback Herring (*Alosa aestivalis*), among other fish, to be trans-located into the bog altering their normal migration patterns. Further studies should be done to identify the impacts this may be having on the Herring migration and Fry, if any.

- The site contains access from Depot Street with parking at the Herring fish ladder on Bells Neck. Activities at the site are reduced because of the active agricultural operation and walking around the active bogs and borrow pits may be dangerous.
- This site is connected to the Bells Neck Conservation Area and a portion of the Herring River. Many of these areas are currently owned by the Town of Harwich Conservation Commission, Harwich Trails Committee, and Harwich Conservation Trust. There is an area of forested uplands and established trails to the north and northeast that are privately owned. These trails are being used by ORV's and fishermen, and access single-family homes, cranberry bogs, and Depot Street, which borders the Town of Dennis.
- Most of the trails in this area are in good condition. However, they are too wide and are consistently being used by off-road vehicles (ORV). The ORV's are creating some rutting in areas and have created several new trails. Also, some smaller trails lead down steep slopes to the reservoir where erosion and soil compaction have become a problem.
- There are no signs or structures in this area except for small pump storage areas for the cranberry operations. Again, recreational activity in this area is limited because of the active agricultural operations.
- The only real encroachments are ORV users at the site and adjacent lands. During the spring migration of anadromous fish (April-May), access over a dirt road through the cranberry bog should be closed to protect the herring during the next four years while the Division of Marine Fisheries prohibition to the taking of Herring is in effect.

f) **Administrative and Management Suggestions**

- This parcel is directly linked to the Bells Neck parcel and adjacent cranberry operations to the north. Separation between these parcels while cranberry operations are underway should be maintained. If the town were to stop leasing the land, considerations should be given to combine the properties to return the cranberry farm back to a freshwater wetland and reestablish the stream system within its original foot print through the property.

- Signs associated with the agricultural operations should be considered when describing cranberry farming and the history of cranberry farming on Cape Cod and in Harwich. Interpretive signage detailing the life cycle of anadromous fish should also be included.
- Trail maintenance around the bogs is being done by the bog operator. Additional trails to the north that lead off site should be narrowed as they are being used by ORVs. The private land and bogs to the north should be purchased, if available to the town, and connected to the existing Bells Neck and Depot Street parcels. These existing main trails could be used to connect to the Bikeway. However, the small side trails and fishing trails should either be removed or stabilized with water bars and mulch. Supervision of volunteer environmental groups is needed during attempts to provide trail maintenance to prevent inadvertent loss of wildlife habitat.
- The best way to limit prohibited activities is to issue non-criminal citations to anyone in violation of the rules and regulations set by the town. In addition, signage can be used to make people aware of prohibited activities. Large boulders, down trees, roped off areas and plantings can be used to narrow trails to single track and prevent ORV use. Outreach programs should also be considered to work with local fisherman to pack out any trash brought in, and to help monitor and maintain water bars and erosion issues along steep slopes.
- Public access and usage of this area should be kept to a minimum, considering that most of this area is under agricultural use. Consideration should be given to dog walkers and keeping animals on the leash and off the bogs. When the bog operator treats the bogs with herbicides and pesticides, signage should be used to keep all animals and humans away from the site. Alternatively close access during certain cranberry operations (harvesting, spraying, sanding).
- No invasive species were noted onsite. However, there are several areas of Common Reed (*Phragmites australis*) along the Herring River and within Bells Neck, so monitoring should be done and any new areas of invasives should be immediately removed.
- Property boundary surveys should be completed when purchasing the adjacent parcels. Unless encroachment or boundary problems arise with neighboring properties, a property survey is not a high priority in this area.

2.0 ROBBINS POND/HERRING RIVER

a) Property Summary

The property is situated along the Herring River north of Route 6 and out to Hinckleys Pond, and includes a small property along the eastern shoreline of Robbins Pond. This site is also connected to the Great Swamp Bog parcel, which also abuts Robbins Pond. These sites can be accessed off East Gate Road which turns into an unmaintained dirt road connecting North Westgate Road and Birch Drive. The Herring River can be accessed off Azalea Drive and Dogwood Lane where there is a sluice way and herring access at Hinckleys Pond.

b) Current Recreational Use

Currently there is little recreation use along these parcels. There is very limited access to the trails and usage of these land parcels. Robbins Pond is a great fishing pond, canoe and kayak pond, and bird watching pond; however, there is limited access to the pond from the Conservation owned lands. East Gate Road extension has become a dumping ground for trash and a party place for school kids. In this case, it might be necessary to create a secluded parking lot and close the road as it is dangerous to traverse, and creates a dumping and party spot. Walking trails could be created from the roads and allowed to narrow naturally to discourage ORV use. The main road should be left for fire access but the road should be cut off with boulders and vegetation. This area is also being used by hunters. Currently there are several ORV trails that run along the Herring River. Preventing access along the Herring River will help maintain the health of the Herring River by allowing the BVW to expand to prevent erosion, shade the river, and reduce poaching of Blueback Herring (*Alosa aestivalis*) and Alewife (*Alosa pseudoharengus*). These ORV trails should be completely removed and monitored to allow the trails to re-vegetate to a native upland and wetland mix.

c) Vegetation and Probable Wildlife

These areas consist mostly of Black Oak (*Quercus velutina*), Scrub Oak (*Quercus ilicifolia*), Lowbush Blueberry (*Vaccinium angustifolium*), Black Huckleberry (*Gaylussacia baccatta*) and Pitch Pine (*Pinus rigida*) forest with BVW associated with the Herring River. The BVW contains Highbush Blueberry (*Vaccinium corymbosum*), Sweet Pepperbush (*Clethra alnifolia*), Swamp Azalea (*Rhododendron viscosum*), Swamp Leucothoe (*Eubotrys racemosa*), Winterberry Holly (*Ilex verticillata*) and hydrophilic grasses, rushes and sedges. The area contains Great Blue Herons (*Ardea Herodias*), Red Tailed Hawks (*Buteo jamaicensis*), White-Tailed Deer (*Odocoileus virginianus*), Red Fox (*Vulpes vulpes*), and a variety of birds. The river and pond contain a variety of fish including Largemouth Bass (*Micropterus salmoides*), Smallmouth Bass (*Micropterus dolomieu*), Blueback Herring (*Alosa aestivalis*), Chain Pickerel (*Esox niger*), American Eel (*Anguilla rostrata*), sunfish, Trout and minnows.

Other wildlife that may be using this area include, but are not limited to, Cottontail Rabbits (*Sylvilagus spp.*), Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), Owls, Mice, Voles, and a variety of common birds.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008) inventory, there are two listed species for this parcel. Please see the Natural Heritage and Endangered Species

Program's letter in the Endangered Species information packet provided under a separate cover to protect identified species.

d) **Invasive Species**

During BSC's site inspection, Oriental Bittersweet was the only invasive species noted at the site. This species is difficult to remove and it is not listed as a species to be treated at this time. Also, noted at the site were Pitch Pine borers impacting Pitch Pines along some of the trails and roads and Winter Moth (*Operophtera brumata*) activity the spring. A heavy Gypsy Moth (*Lymantria dispar*) infestation was also identified north off East Gate Road.

e) **Existing Conditions & Potential Problems**

Current conditions at the site include forested uplands and wetlands associated with Robbins Pond and the Herring River.

- The Robbins Pond access is from the East Gate Road extension. This access road is in very poor condition and is not monitored by the police because of its condition. This creates a situation where people come to drink and party, as well as dump trash along road. Numerous fire pits and broken glass were found in this area. The Herring River has access from road crossings at Azalea Drive, Tupelo Drive and the end of Dogwood Lane.
- Prohibited activities occurring in this area consist of ORV usage, trash dumping, parties, bon-fires, underage drinking and drug usage and tree cutting.
- This site is connected to private properties, adjacent forested areas, single-family homes, the Conservation Commission owned Great Swamp Bog and Robbins and Hinckleys Ponds.
- Most of the trails in this area are oversized and used by trucks and other ORVs. The ORVs are creating ruts, ponding, soil compaction, erosion and damage to tree roots, as well as several trash dumps noted along the dirt roads.
- There is a sign located off East Gate Road near one of the access roads leading down to Robbins Pond. The only structures noted in this area were an old pump house associated with Great Swamp Bog (discussed later) and the old sluice way at the head of the Herring River and Hinckleys Pond.
- The main encroachments at the Robbins Pond and Herring River sites are associated with ORV use at the site and on adjacent lands. The ORV trails and old roads are wide and allow access to secluded areas being used for dumping and parties. Other encroachments noted were minor impacts to buffer zones at some single-family residences.

f) **Administrative and Management Suggestions**

- This parcel is directly linked to the Great Swamp Bog (cranberry bog) parcel and adjacent forested parcels. Separation between these parcels while cranberry/agricultural operations are underway should be maintained. If the town were to stop leasing the land, considerations should be given to combine the properties and to return the cranberry farm back to a freshwater wetland and create a stream system running through the property.

- Currently there is only one sign identifying the Great Swamp Bog/Robbins Pond parcels located off East Gate Road.
- People should be directed away from the farming operations for safety and protection of property reasons, and this section of East Gate Road and side roads should be considered to be closed and roads narrowed to walking trails. Additional trails could be considered out to Robbins Pond from a parking area to include a bench overlooking the pond. However, trails should be directed away from the current agricultural operations as the bogs are being impacted by parties and ORVs driving over the bogs. Additional damage is being done to trees cut for bon-fires and to the old cranberry pump house. If additional access to these areas is considered, only single track trails leading from a parking area should be created and the area monitored to reduce environmental violations
- The best way to limit prohibited activities is to issue non-criminal citations to anyone breaking the rules and regulations set by the town. In addition, signage can be used to make people aware of prohibited activities. Large boulders, downed trees, roped off areas and plantings can be used to narrow trails to single track and prevent ORV use. Outreach programs should also be considered to work with local fisherman to pack out any trash brought in, and to help monitor and maintain water bars and control erosion along steep slopes. By shutting down the East Gate Road extension, the Town can help reduce underage drinking and drug use, parties, bon-fires (which area extremely dangerous in Pitch Pine forest), and dumping along the roadway. It would also limit access to the Great Swamp Bog Conservation Land currently leased out for agricultural use and being damaged by ORV users and party-goers. ORV trails along the Herring River should be completely shut down and blocked to keep people and gas powered vehicles away from the river.
- Public access and usage of this area should be limited near the agricultural area and Herring River, which are very sensitive areas. Parking lots should be made on either side of East Gate Road, and the roads and trails should be narrowed to single track walking paths. Trails leading down toward the bog should be directed away from the bog and new trails can be created out along the ridge overlooking the pond.
- Limited numbers of invasive species were noted onsite; mainly Bittersweet. Removal and treatment of this species is difficult and costly, and is not listed as a top priority for removal. Over time, these sites should be monitored for spreading or the introduction of other species. If these species become a large problem or additional invasive vegetation is found, treatment may become necessary. Other species include Pitch Pine borers, which is mostly a result of tree root damage from trails and roads. This can be controlled by reducing trail sizes and mulching areas with Oak chips where infestations are impacting trees. Winter Moths (*Operophtera brumata*) and Gypsy Moths (*Lymantria dispar*) were also noted in these areas, are difficult to control, and are not listed as a species needing immediate control. If any treatments are required in the future, a Massachusetts License Chemical Handler should always be used in controlling invasive species using herbicides and pesticides.

- **Property border survey should be completed if purchasing the adjacent parcels. Priority parcels for purchasing would be along the Herring River to increase the protected buffer zones to the river, and the forested areas around Robbins and Hinckleys Ponds.**

3.0 SLOWATYKI PROPERTY

a) **Property Summary**

The property is situated between Lothrop Avenue, Great Western Road, Bassett Woods Road, and Gilbert Lane, and contains a portion of Coy Brook. This site is connected off site to Island Pond to the north and the Herring River south. This site is difficult to access as there are no parking areas associated with this site and much of the site is surrounded by private single-family residences.

b) **Current Recreational Use**

Currently there is little recreation use of this parcel. There is limited access to the existing trails and no parking on site. This site is an environmentally sensitive area. Accordingly, the existing trails should be left to overgrow and people should not be directed to the site. Currently, hunting is occurring on the site and a hunting camp, including a blind, has been left out on a small island on the property. This island is home to an active Otter slide. Hunting should be monitored in this area if possible as it contains sensitive habitat and may interfere with the Otters using the salt marsh and tidal river east of the property.

c) **Vegetation and Probable Wildlife**

These areas consist mostly of Black Oak (*Quercus velutina*), Scrub Oak (*Quercus ilicifolia*), Lowbush Blueberry (*Vaccinium angustifolium*), Black Huckleberry (*Gaylussiacia baccata*), and Pitch Pine (*Pinus rigida*) forest with a BVW associated with the Coy Brook. The BVW contains Highbush Blueberry (*Vaccinium corymbosum*), Sweet Pepperbush (*Clethra alnifolia*), Red Maple (*Acer rubrum*) and several grasses, rushes and sedges, as well as salt marsh. The area contains Great Blue Herons (*Ardea Herodias*), Red Tailed Hawks (*Buteo jamaicensis*), White-Tailed Deer (*Odocoileus virginianus*), River Otters (*Lontra canadensis*) and a variety of birds. The rivers contain a variety of salt water bait fish and crabs.

Other wildlife that may be using this area include, but are not limited to, Cottontail Rabbits (*Sylvilagus spp.*), Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), Owls, Mice, Voles, and a variety of common birds.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008) maps, there is one listed species for this parcel. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover to protect identified species.

d) **Invasive Species**

During BSC's site inspection, Common Reed and Oriental Bittersweet were noted at the site. The Common Reed (*Phragmites australis*) in this area contains very large, dense stands within the salt marsh and BVW. Treating these species will be problematic as the salt marsh will be very difficult to work in and very costly for the town to treat the entire area. An invasive removal specialist should be consulted regarding removal and/or management of invasives in this area.

e) Existing Conditions & Potential Problems

The current conditions at the site include forested uplands and vegetated wetlands associated with Coy Brook. This section of Coy Brook is tidally influenced with brackish water.

- This site contains a variety of unique habitats to include a significant and active Otter slide and endangered species. Therefore, it is BSC's recommendation that the trails in this area be blocked and allowed to overgrow. This sensitive area and its wildlife habitat would benefit greatly from a reduction in activity.
- Hunting in this area should also be monitored to the extent feasible as it may disrupt the natural patterns of the Otters or the endangered species listed at the site. In addition the area is partially surrounded by single-family homes and roads, creating a potential danger to neighbors.
- This site is connected to private properties, adjacent forested areas, single-family homes, the Harwich Conservation Trusts Coy Brook parcel, and tidal section of the Herring River within the Bells Neck parcel. In addition, the freshwater stream entering the parcel is connected, via cranberry bog, to the Island Pond wetlands.
- There is one main trail in this area, formally known as the Eagle Trail. This trail is starting to overgrow in areas and is not frequently used. However, there are hunters and some walkers who appear to continue using this trail system; these smaller trails should all be removed and blocked to reduce usage of this area.
- There are no signs in, or parking for, this area.
- There are no real encroachments at this parcel except for the hunter's camp that has been established on the small island. The camp includes a hunting blind, reflectors on trees and wood crossings to traverse the brook.

f) Administrative and Management Suggestions

- This parcel is linked upstream to an active cranberry bog, Island Pond, and eventually out to the Teixeira property. Downstream it flows through the Coy Brook property, owned by the Harwich Conservation Trust, and out to the Herring River. This property should remain as is and the main Eagle Trail removed to deter access.
- This site contains a sensitive ecosystem which includes a large Otter slide and an endangered species. At this time the best use of this land would be to keep the property as is and remove all trails and restrict activities in this site. BSC recommends this area not be promoted for additional public use at this time.
- The best way to limit prohibited activities is to issue non-criminal citations to anyone breaking the rules and regulations set by the town. In addition, signage can be used to make people aware of prohibited activities. Large boulders, downed trees, roped off areas and plantings can be used to block trails until they are able to re-grow. At a minimum, the existing hunting camp at the site should be removed or monitored, and all debris and tree markings removed. Lastly the area should be posted no hunting, if possible, to protect the Otter slides and endangered species.

- A large area of Common Reed (*Phragmites australis*) was noted onsite. Removal and treatment of this species will be difficult and costly because of its location within the salt marsh, and is not listed as a top priority for removal. Over time, these sites should be monitored for spread or the introduction of other species. A prevention program can be considered in this area to treat the borders of the Reed to reduce its spread on and off site. If any treatments are required in the future a Massachusetts License Chemical Handler should always be used in controlling invasive species using herbicides and pesticides.
- Property border survey should be completed if purchasing the adjacent parcels. Priority parcels for purchasing would be along the Coy Brook wetland and 100-foot buffer as land becomes available to increase the protected buffer zones to the river and protect endangered species habitat. Also, purchasing land along Gilbert Lane would provide a habitat corridor connecting the Lothrop Avenue Parcel.

4.0 TEXEIRA PROPERTY

a) **Property Summary**

The property is situated between Queen Anne Road and Oak Street and contains a large field and old cranberry bog with perennial stream. This site is connected off site to Island Pond to the south and a pond to the north. This site has access and parking off Queen Anne Road with a walking trail around the field and out to the bog.

b) **Current Recreational Use**

This site is a wonderful bird watching site as it has a large population of Eastern Bluebirds (*Sialia sialis*) and swallows, and with Bluebird houses within the field. The walking trails are relatively flat and encompass the field, out to the edge of an old bog. Because of the high quality birding in this area, dogs should be kept off site so as not to disturb the birds.

c) **Vegetation and Probable Wildlife**

This area consist of over one hundred plant species consisting of grasses, rushes, sedges, Asters, Goldenrods and other wildflowers. It also contains a forested Oak and Pine uplands, and BVW containing Highbush Blueberry (*Vaccinium corymbosum*), Sweet Pepperbush (*Clethra alnifolia*), Red Maple (*Acer rubrum*), and several grasses, rushes, and sedges, as well as Swamp Leucothoe (*Eubotrys racemosa*), Sweet Gale (*Myrica gale*), Sheep Laurel (*Kalmia angustifolia*), Leatherleaf (*Chamaedaphne calyculata*), Northern Arrowwood (*Viburnum recognitum*) and Meadowsweet (*Spiraea latifolia*). The area contains Cottontail Rabbits (*Sylvilagus spp.*), White-Tailed Deer (*Odocoileus virginianus*), Bluebirds, Robbins, Sparrows, Crows, Finches, Chickadees, several species of Hawks, and numerous other birds. BSC also noted a Northern Chain Pickerel (*Esox niger*) within the main river at the site. Also noted were areas of potential vernal pools at the site and several identified and listed vernal pools on adjacent properties. During a spring inspection, BSC found numerous egg masses of Mole salamanders (*Ambystoma spp.*) and Gray Treefrogs (*Hyla versicolor*) included in vernal pool certification submittals. Within the old bog ditches which were photo-documented.

Other wildlife that may be using this area include, but are not limited to, Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), Owls, Mice, Voles, Hawks, and a variety of common local and migrating birds. Of particular interest was the capture of a small rabbit by a Red Tail Hawk. The rabbit was recovered and sent to the Massachusetts Division of Fish & Wildlife to determine if it was a New England Cottontail Rabbit (*Sylvilagus transitionalis*).

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008), there are no listed species for this parcel and no vernal pools. Based on the evidence collected, BSC is of the opinion that this site can be certified as a vernal pool. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover.

d) **Invasive Species**

During BSC site inspection the following invasive species were noted Norway Maple (*Acer platanoides*), Sycamore Maple (*Acer pseudoplatanus*), Black Locust (*Robinia pseudoacacia*), Apple (*Malus spp.*) and Pear (*Pyrus spp.*) species, Gray Willow (*Salix atrocinerea*), Japanese Knotweed (*Fallopia japonica*), Oriental Bittersweet (*Celastrus*

orbiculatus), Japanese Barberry (*Berberis thunbergii*) and Morrow's Honeysuckle (*Lonicera morrowii*). This area was not included in BSC's invasive removal GPS-GIS, plans but they should be considered for removal and treatment.

e) Existing Conditions & Potential Problems

The current conditions at the site include forested uplands, open fields, early succession (shrub) fields, and wetlands associated with a partially blocked perennial stream and old cranberry bog.

- This site contains a variety of unique habitats to include a large open field with Bluebird boxes. Some of these boxes have been taken over by House Sparrows (*Passer domesticus*) and swallows. As such, six additional Bluebird boxes were to be donated by Mr. Thompson of Wild Wings of Cape Cod based on his discussion with Norman Hayes, PWS of BSC. The site has access and parking off Queen Anne Road.
- Prohibited activities for this site should include dog walking, limiting cutting of open space to once a year and trails to the minimal width necessary. Eliminating cutting within and *around* the old cranberry bogs and wetland resource areas.
- The old cranberry bogs in this area provide the optimal habitat for the New England Cottontail. BSC found a Cottontail rabbit (deceased) along one of the paths, and BSC brought the rabbit to the Division of Fish and Game for study and analysis to determine if it is the New England Cottontail, listed as "vulnerable" by the International Union for Conservation of Nature (IUCN). The only way to tell the difference is to look at the bone plates in the skull of the animal. As such, the paths (recently widen and cut) along the old bogs should be narrowed to the extent feasible to increase cover for the rabbits. In addition, the old cranberry bog ditches should remain cut off from the main stream as they are providing excellent potential vernal pool habitat, if fish can be kept out of the pools. As such, Cape Cod Mosquito Control should only maintain the main channel through the bog and not the side channels and ponded areas.
- This site is connected to private properties, adjacent forested areas, single-family homes, a Golf Course, and connects to the Island Pond parcel downstream. Several undeveloped properties are located along the stream and should be considered for purchase to expand the protection of the stream and buffer zone. Currently there is a bridge leading from the golf course to a disposal site within the resource area and buffer zone.
- There is one main trail around the field, which extends into and around the old cranberry bogs. Trails through the cranberry bogs should be narrowed or removed to protect the New England Cottontail habitat and potential vernal pools. *Indiscriminate cutting in this rare shrub swamp ecosystem is alarming and is devastating this unique ecosystem, most specifically the rare Sheep Laurel – Swamp Leucothoe shrub habitat critical for rabbit habitat.*
- There is one corkboard sign located at the parking area with general information and warnings for the site. BSC suggests interpretive signage be considered to describe the unique habitat in the fields and why the Bluebird is successful in this

area. It can also describe the historic bogs and how they are functioning as vernal pools (if certified).

- There is a set of stairs on this property, as well as a few picnic tables and benches used for lunch and bird watching.
- There are several encroachments at this parcel. The first is the bridge leading from the golf course over the river to a disposal area full of lawn and woody debris. This area also contains Japanese Knotweed and other invasive species. It is unclear if this land is owned by the Conservation Commission or the Golf Course at this time or if the dumping, cutting and bridge have been approved by Conservation. In addition, some of the old fields to the east are converting into shrub and tree early successional forests. Much of the early successional species are invasives that should be removed and treated to maintain the open fields for birds and bird watching. In addition, BSC noted people driving down the field and dumping yard debris.

f) Administrative and Management Suggestions

- This parcel is linked downstream to an active cranberry bog and the Island Pond parcel. Upstream it flows through a small pond adjacent to a golf course. No recommendation is proposed to cut or split this parcel, however, if land upstream or downstream becomes available it would be in the town's best interest to purchase the land to protect the waterway and the associated buffer zones as well as potential vernal pools. In addition, purchasing the downstream cranberry bogs would create a wildlife corridor connecting this parcel all the way through to Island Pond. The bogs could be returned to flood plain and BVW and the stream recreated to naturally flow through the resource area. Using BSC's data, certify the shrub swamp as a vernal pool. In doing so, it will become an outstanding resource water which will enhance its protection.
- One trail with a small wildlife viewing platform coupled with an interpretative sign on the value of the habitat could be constructed here. *All other trails should be allowed to regrow and all bridges to the interior removed.*
- This site contains a sensitive ecosystem which includes large fields excellent for birding, New England Cottontail habitat (although not currently identified in this area), potential vernal pools and perennial stream. BSC recommends the trails onsite be narrowed, and cutting stopped; this would include removing/relocating trails within the old bogs and BVW. Signage and additional benches should also be considered to describe this unique ecosystem, management and history. All cutting within the shrub swamp should cease, and all but one of bridges within the shrub swamp removed.
- The best way to limit prohibited activities is to issue non-criminal citations to anyone breaking the rules and regulations set by the town and list the cost for each violation onsite. Large boulders, downed trees, roped off areas and plantings can be used to block/narrow trails until they are able to regrow. Because this is a high use area, trash receptacles should also be considered during the summer months and a pack out program established in the off season.

- This site is already a high volume site with many visitors. Additional open fields and removal of invasive species will provide more habitat for birds and bird watchers. Additional benches and picnic tables could also be added to increase use. Working with the Audubon and other organizations and schools could also increase awareness and usage of this area.
- Portions of the open fields and wood lines at this site contain a variety of invasive species. These invasives should be removed and treated and areas returned/maintained as open fields. Treatments should always be done by a Massachusetts License Chemical Handler using herbicides and pesticides. In the fall or spring, the Harwich Fire Department and Massachusetts Division of Fish & Wildlife should consider conducting a prescribed burn to include the overgrown eastern section of old fields and develop a burn plan.
- Property border survey should be completed if purchasing the adjacent parcels. Priority parcels for purchasing would be along the stream and 100-foot buffer as land becomes available to increase the protected buffer zones to the stream and protect habitat. Also, purchasing the downstream cranberry bog would provide a habitat corridor connecting the site to the Island Pond Parcels.

5.0 LOTHROP AVENUE PARCELS

a) Property Summary

The property is situated east of Lothrop Avenue, south of Gilbert Lane and west of Sission Road and contains a large Atlantic White Cedar (*Chamaecyparis thyoides*) swamp (historic cranberry bogs) with elevated walkway. There is also a grave site located in the woods that appears to be a historic small pox burial site. This site is connected to the Herring River and Bells Neck parcels west of Lothrop Avenue. This site has access and parking off Lothrop Avenue and the parcel has been named after Lee W. Baldwin; a historic resident naturalist whose works can be seen at the Cape Cod Museum of Natural History.

b) Current Recreational Use

This site is a wonderful walk through time as the old cranberry bogs have converted into Red Maple (*Acer rubrum*) swamp, and an amazing Atlantic White Cedar swamp, accessed by an elevated walkway. It also contains the historic burial ground and unique wetland habitat containing a dense dark forested wetland and Sphagnum Moss bogs.

c) Vegetation and Probable Wildlife

This area consist of small upland forests of Oak and Pine, and an Atlantic White Cedar swamp containing Highbush Blueberry (*Vaccinium corymbosum*), Sweet Pepperbush (*Clethra alnifolia*), Red Maple and several grasses, rushes and sedges, Sheep Laurel (*Kalmia angustifolia*), Leatherleaf (*Chamaedaphne calyculata*), Northern Arrowwood (*Viburnum recognitum*), Sphagnum Moss bogs and Meadowsweet (*Spiraea latifolia*). The area contains several species of Hawks, Deer, Great Horned Owl (*Bubo virginianus*), four species of woodpeckers, and numerous birds.

Other wildlife that may be using this area include, but are not limited to, Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), White-Tailed Deer (*Odocoileus virginianus*), River Otter (*Lontra canadensis*), Mice, Voles, and a variety of common local and migrating birds. Numerous active tree stands used for deer hunting indicate the presence of Virginia Whitetail Deer. Also, the White Cedar swamp appeared to be used by nesting Great Horned Owls (*Bubo virginianus*) in March 2012.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008), there is one listed species for this area (in connection with the Slowatyki Property) and two potential vernal pools. BSC noted several potential areas for vernal pool monitoring, and possible certification on and adjacent to this property. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover to protect identified species.

d) Invasive Species

During BSC's site inspection, the following invasive species were noted: Black Locust (*Robinia pseudoacacia*), Oriental Bittersweet (*Celastrus orbiculatus*), and Morrows Honeysuckle (*Lonicera morrowii*). This area was not included in BSC's invasive removal plan but the area should be monitored.

e) Existing Conditions & Potential Problems

The current conditions at the site include forested uplands, forested wetlands (Atlantic White Cedar swamp), Sphagnum Moss bogs, potential vernal pools, a historic burial

ground and elevated walkway. The site is all freshwater and drains across Lothrop Avenue into a tidal section of the Herring River. That means identifying this parcel as high value for filtration of water entering the Herring River.

- This site contains a variety of unique habitats to include an Atlantic White Cedar swamp, Sphagnum Moss bogs, potential vernal pools partially exposed shrub swamp, and small forested upland islands. Access is via a parking area off Lothrop Avenue and across from the tidal section of the Herring River salt marsh ecosystem.
- Prohibited activities for consideration for this site should include unleashed dog walking, as much of the site is within a resource area, hunting (other than Deer hunting), as this site contains endangered species habitat, and limiting off walkway access by removing/blocking, and monitoring any trails that are not on the existing elevated walkway.
- This site is connected to private properties, adjacent forested areas, single-family homes, Bells Neck Herring River salt marsh, Slowatyki Property, and Town of Harwich Selectman property. Several undeveloped properties are located around the old bogs and should be considered for purchase to expand the protection of the wetlands, buffer zone, and wildlife habitat and corridors to the Herring River, Slowatyki property and Harwich Selectman property.
- There is one main elevated boardwalk which runs through the Cedar swamp, and a few smaller trails extending out to different areas of the site. Some of the smaller finger trails should be removed, as they enter and are located in resource areas. The historic burial ground would make a great educational stop on a finger trail, which could include a small sign describing the significance of old small pox burial sites on Cape Cod. Also, the White Cedar swamp history and its value to early colonists for ship building and for shingles for colonial homes should be included.
- There is one corkboard sign located at the parking area with general information and warnings for the site and one entrance sign identifying the Lee Baldwin Nature Preserve. BSC suggests interpretive signage be considered to describe the unique Atlantic White Cedar habitat and the small pox burial ground. It can also describe the historic bogs and how they are now potentially functioning as vernal pools (if certified).
- The main structure at the site is the Atlantic White Cedar swamp elevated boardwalk through a bordering vegetated wetland. There is also an old wooden fence around the small pox burial site in the woods.
- The only encroachment at the site are trails created through wetlands off the elevated boardwalk. Some of these trails should be closed off as they go through the resource areas and buffer zones.

f) Administrative and Management Suggestions

- This parcel could be linked to other parcels in this area if purchased by the Commission. It is unnecessary to divide this parcel for assessing purposes.

- Interpretative signage and additional wildlife viewing benches should be considered to enhance enjoyment of this unique ecosystem, detail management objectives and provide site history. Trail maintenance should consist of maintaining the elevated walkway, removing additional trails within resource areas and adding a trail with sign to the historic burial grounds. Also, the old fence around this burial ground should be repaired and consideration given to expand the elevated ground boardwalk into the White Cedar swamp with viewing platform at its terminus.
- The best way to limit prohibited activities is to issue non-criminal citations to anyone breaking the rules and regulations set by the town and list the cost for each violation onsite. Large boulders, downed trees, roped off areas and plantings can be used to block/narrow trails until they are able to regrow.
- This site is a high volume site with many visitors. A walkover structure could be considered if the town purchased the land across the road. The structure could traverse the salt marsh and be used for birding the expansive marsh associated with the Herring River. In addition, local schools may use the area for educational purposes to include the habitats, animals, and historic burial grounds. Research of the history of the people buried here and the reason they are buried in what is today deep woods is educationally and historically significant.
- BSC did not find invasive species at this site; however Common Reed was noted across the roadway and at the Slowatyki Property. Monitoring and treatments should be considered to prevent invasives from spreading to the property. As always, treatments should be done by a Massachusetts Licensed Chemical Handler when using herbicides and pesticides.
- Property border survey should be completed when purchasing the adjacent parcels. Priority parcels for purchasing would be the BVW and 100-foot buffer as land becomes available to increase the protected buffer zones to the BVW and protect habitat. If possible lands connecting the Slowatyki Property and Bells Neck properties should be considered.

6.0 GRASS POND

a) Property Summary

The property is situated east of Forest Street and includes several small parcels along Grass Pond. These parcels contain BVW and buffer zones in between single-family homes on the pond.

b) Current Recreational Use

This site has very little recreational use as there are no parking areas. The only usage of this area would be for fishing access to the pond and possible canoeing or kayaking coincidental to wildlife viewing and birding. Currently, access is off Forest Street at the end of a cul-de-sac.

c) Vegetation and Probable Wildlife

This area consists of small upland forests of Oak and Pine bordering the roadway and BVW containing Highbush Blueberry (*Vaccinium corymbosum*), Red Maple (*Acer rubrum*) and several grasses, rushes and sedges, Sheep Laurel (*Kalmia angustifolia*), Sweetgale (*Myrica gale*), Northern Arrowwood (*Viburnum recognitum*), Sphagnum Moss, Water-willow and Meadowsweet (*Spiraea latifolia*). The area contains several species of Hawks, Great Blue Herons, Deer and numerous birds.

Other wildlife that may be using this area include, but are not limited to, Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), Mice, Voles, and a variety of common local and migrating birds.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008), there is one listed species for this area. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover to protect identified species.

d) Invasive Species

During BSC's site inspection, no real invasive species concerns were noted within the parcel. However, several different invasive species have been noted nearby and this site should be monitored for invasives.

e) Existing Conditions & Potential Problems

The current conditions at the site include forested uplands, forested wetlands (Red Maple Swamp) and open water (Grass Pond). The site contains freshwater resource areas with BVW extending across Forest Street and south to a Golf Course, and draining east across Bank Street and out to Saquatucket Harbor.

- The site currently has no easy access or parking areas but can be accessed off Forest Street.
- Limited recreation activity occurs (fishing, canoeing, and wildlife viewing). No prohibited activities for the site are being proposed at this time.
- This site is connected to private properties, adjacent forested areas, single-family homes, and a large expanse of wetland resource areas leading across Bank Street

and out to the harbor. Several undeveloped properties (mostly BVW) are located south and east of the property.

- There are no signs, trails or structures located at the site. These parcels are small and bisected by single-family homes and private lands.
- The only real encroachments near the site are dumping and cutting associated with the Harwichport Golf Course. However, it appears that the dumping is not on Conservation owned lands.

f) **Administrative and Management Suggestions**

- This parcel could be linked to other parcels in this area if purchased by the Commission to include and protect more of the BVW surrounding Grass Pond and the resource areas extending out to the harbor. If the adjacent parcels segmenting the town's parcels are purchased, the entire area could be combined into on larger parcel.
- There are currently are no signs, trails, parking, or other structures proposed for this site. This site is not really used for recreation as it has been preserved for habitat to include an endangered species.
- Property border survey should be completed when purchasing the adjacent parcels and combining parcels to one large parcel. Priority parcels for purchasing would be the BVW and 100-foot buffer as land becomes available to increase the protected buffer zones to the BVW and protect habitat. If possible the large area of BVW extending east should be purchased and protected.

7.0 SKINEQUIT POND

a) Property Summary

The property is situated east of Skinequit Pond Road and extends east along the pond to Lake Street and Ocean Street, and contains a small BVW (overgrown cranberry bog) associated with the pond. The old bog and BVW were created when an earthen dike was built segmenting the parcel from the pond and connected via culvert and sluice. Skinequit Pond contains an active Herring Run which connects to the ocean via the Red River.

b) Current Recreational Use

This site has limited recreational use aside from access to the pond off Ocean Street for a small boat launch or fishing. The land is all within the resource area so no trails or recreational use is recommended. As a warning to potential users, BSC scientists documented high numbers of deer ticks in the BVW to this pond.

c) Vegetation and Probable Wildlife

This area consist of forested bank hand dug from the uplands and leading into a vegetated Red Maple (*Acer rubrum*) swamp (old cranberry bog) containing Highbush Blueberry (*Vaccinium corymbosum*), and several grasses, rushes and sedges, Sheep Laurel (*Kalmia angustifolia*), Sweetgale (*Myrica gale*), Sphagnum Moss, Sweet Pepperbush (*Clethra alnifolia*) and Meadowsweet (*Spiraea latifolia*). The area contains several species of Hawks, Deer and numerous birds and fish within the pond to include Blueback Herring (*Alosa aestivalis*).

Other wildlife that may be using this area include, but are not limited to, Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), Mice, Voles, and a variety of common local and migrating birds.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008), there are no listed species for this area and no vernal pools. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover.

d) Invasive Species

During BSC's site inspection, no invasive species were noted within the site. However, this area should be monitored as invasive species were noted adjacent to the property.

e) Existing Conditions & Potential Problems

The current conditions at the site include forested uplands, hand dug dikes excavated during cranberry operations and forested wetlands (Red Maple swamp), which was previously the old cranberry bog. The site is all freshwater and filters water associated with the pond via a culvert under the manmade dike created for bog operations. The pond itself drains into the Red River, a Herring run, and into the Atlantic Ocean. Caution must be taken due to high numbers of Deer Ticks (*Ixodes scapularis*) found within the old bog north of the pond.

- This site has limited access off Ocean Street and Skinequit Pond Road. There is no real onsite parking for this site.

- Very limited activities occur at the site. Currently only fishing or boat access are available. The only prohibited activity proposed is the taking of Herring. Please note the Massachusetts Division of Marine Fisheries has recently extended this prohibited activity for another three years.
- This site is connected to private properties, adjacent forested areas, single-family homes, and a large expanse of wetland resource areas leading across Uncle Venies Road and out to the Red River and harbor. The property located directly east was for sale during BSC's site inspection.
- There are no signs or structures located at the site. There is a small access trail off Ocean Street that can be used to access the pond.
- There are no encroachments onto the property. However, many homeowners have cleared to the water's edge around the pond.
- The river from Skinequit Pond flows through a small sluice under a cranberry pump house (now converted to a shed) crossing over the stream. The town should purchase the old pump house at the head of the pond, remove it, and rebuild the small wooden fish ladder to ensure anadromous and catadromous spawning access to the pond. If necessary, this small parcel could be taken by eminent domain by the Town. This would ensure Blueback Herring and Alewife (*Alosa pseudoharengus*) can reach the pond, and catadromous North American fish such as American Eel (*Anguilla rostrata*) can reach the sea to spawn. Further, the Cape Cod Mosquito Control should be called to clear the anadromous fish run to the sea through an area of Common Reed (*Phragmites australis*) which is restricting flow and providing breeding habitat for mosquitoes.

f) Administrative and Management Suggestions

- This parcel could be linked to the property for sale to the east if purchased by the Commission. The purchased home could be removed and a native grassland habitat provided for wildlife. The home also has a small dock that could be used for recreational purposes.
- There are currently are no signs, trails, parking, or other structures proposed for this site. This site is not really used for recreation as it has been preserved for habitat other than a small access way to water off Ocean Street.
- BSC did not find invasive species at this site. However, Oriental Bittersweet and Morrows Honeysuckle were noted nearby and may expand to the property. At that time additional action may be needed to remove and treat.
- Property border survey should be completed if purchasing the adjacent parcel. Additional survey is not needed for this property.

8.0 MONOMOY RIVER – ISABELLA SMITH PROPERTY

a) Property Summary

The property is situated north of the Monomoy River out to Bay Road and crossing the utility right of way with a small segmented parcel located north of Bay Road and east of Church Street. The site can be accessed via the parking area and trail system off Bay Road.

b) Current Recreational Use

Currently this site contains a large trail network which extends through the uplands from the parking lot south to the top of the coastal bank associated with the Monomoy River. The trail system leads along the top of the bank to include a look out area with a bench and other loop trails. The Monomoy River is excellent for birding and this area already posts a no dog sign to prevent interactions between dogs and birds. The river itself is also used for fishing, boating and crabbing. BSC located multiple crab traps along the river.

c) Vegetation and Probable Wildlife

The upland areas consist mostly of Black Oak (*Quercus velutina*), Scrub Oak (*Quercus ilicifolia*), Lowbush Blueberry (*Vaccinium angustifolium*) and Pitch Pine (*Pinus rigida*) forest with a BVW associated with the Monomoy River. The BVW contains Highbush Blueberry (*Vaccinium corymbosum*), Sweet Pepperbush (*Clethra alnifolia*), salt marsh, Common Reed (*Phragmites australis*) and Cattails (*Typha spp.*). The area contains Great Blue Herons (*Ardea herodias*), Red Tailed Hawks (*Buteo jamaicensis*), Ospreys (*Pandion haliaetus*), White-Tailed Deer (*Odocoileus virginianus*), Mink (*Mustela vison*) and a variety of migrating and common land and water fowl and Red Backed Salamanders (*Plethodon cinereus*). The river contains a large variety of fish including Striped Bass (*Morone saxatilis*), Mummichogs (*Fundulus heteroclitus*), American Eel (*Anguilla rostrata*), Blueshell Crab (*Callinectes sapidus*), Green Crab (*Carcinus maenas*) and Rock Crab (*Cancer spp.*) and even Codfish fry, or Tommy Cod (*Microgadus tomcod*), were found in the crab traps along the river.

Other wildlife that may be using this area include, but are not limited to, Cottontail Rabbits (*Sylvilagus spp.*), Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), Owls, Mice, Voles, and a variety of common and migrating birds.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008), there is one listed species for this parcel. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover to protect identified species. This parcel is also listed as an Area of Critical Environmental Concern extending from the river to the top of the coastal banks.

d) Invasive Species

BSC found the following invasive species during our site inspections: Norway Maple (*Acer platanoides*), Sycamore Maple (*Acer pseudoplatanus*), Japanese Knotweed (*Polygonum cuspidatum*), Common Reed (*Phragmites australis*), Oriental Bittersweet (*Celastrus orbiculatus*), Black Locust (*Robinia pseudoacacia*), Morrow's Honeysuckle (*Lonicera morrowii*), Spotted Knapweed (*Centaurea maculosa*) and Multi-flora Rose (*Rosa multiflora*) were noted at the site. These species are difficult to remove and control,

and BSC has prioritized three separate areas for invasive removal at this site (see Management Activities Map, Appendix H-5).

e) Existing Conditions & Potential Problems

The current conditions at the site include forested uplands and wetlands associated with Monomoy River, an Area of Critical Environmental Concern, and Endangered Species habitat. The site contains several walking trails and a bench overlooking the river from the top of coastal bank and a parking area.

- Access to the site is available off Bay Road at the Isabella Smith Property parking lot. An extensive trail system exists from this lot into and around the property. Additional access can be gained from Route 28, and walking the River and the power line right of way provides an access to the northern segmented parcel.
- Prohibited activities in this area consist of ORV usage, trash dumping, taking of shellfish from the river, and dog walking. Despite signs, dumping of loads of shucked sea scallops was noted off the parking lot during BSC site visits.
- This site is connected to private properties, adjacent forested areas, single-family homes, utility line right of way corridor and the Monomoy River, which divides Chatham and Harwich.
- The trails in this area are mostly single track trails, which help prevent ORV use. Some cutting and widening of trails has taken place, unfortunately; *trails should be left narrow and single track*. If trees fall across the trail they should be left with branches removed to continue preventing ORV usage.
- There is a sign located off Bay Road identifying the parcel, and a corkboard kiosk describing the rules and regulations for the site, as well as general information about the area. The only structures noted in this area are the signs, wooden fences around the parking area and overlook, and a wooden bench at the overlook.
- BSC did not find any encroachments at this site, other than dumping off the parking lot and the unfortunate widening of a trail creating additional loss of Pitch Pine to Pine Borers.

f) Administrative and Management Suggestions

- This parcel is directly linked to a large stretch of forested upland extending out to Bay Road, and additional forested areas adjacent to the parcel located north of Bay Road. If purchased, these parcels could be combined to include one large protected area broken into two parcels bisected by Bay Road. Consideration should also be taken to improve the stream crossing on Route 28, currently consisting of undersized culverts. The quality of the river would be greatly improved by installing an open box culvert or open span to allow better tidal flushing of the river. This would improve water quality, fish migration, shellfish beds and crab spawning grounds. *The presence of Tommy Cod in crab traps indicated that a portion of the river is being used as a nursery for juvenile codfish. Also, the increase in tidal volume would reduce Phragmites spread.*

- This area is heavily used by dog walkers even though there is a rule and regulations sign saying no dogs. Additional signage should be used to further control dogs using the area with descriptions regarding why this area is sensitive to dogs. Additionally, a dog park could be considered by the town to designate a safe area to allow dogs to run freely off leash without impacting the sensitive habitat.
- The trails in this area are in good condition and should be maintained as such. BSC did note some areas contained down trees across the trail that were cut and removed and widening of trails by cutting vegetation. Trail widths should be kept minimal and single track and down trees should be left if easy to step over to deter ORVs. Some Pitch Pine borers were also noted damaging trees. The best method of reducing impacts by borers is to place oak chips in eroded areas to protect the Pitch Pines exposed roots. In one area, a large trail was created; Stumps were pulled up and debris was discarded. Opportunist pine borers, smelling fresh resin, moved in killing additional pines. Further, an underground seep flowing a beautiful Sphagnum Moss, Spinulose Wood Fern, herbaceous small ecosystem off a slope was identified. *The widening of the trail, grubbing and increased sunlight has all but destroyed the micro-ecosystem. Great strides must be taken to prevent uneducated volunteers from continuing this type of work which, in this case, was environmentally destructive.*
- The best way to limit prohibited activities is to issue small non-criminal citations to anyone breaking the rules and regulations set by the town. In addition, signage can be used to make people aware of prohibited activities and associated fines. Large boulders, downed trees, roped off areas and plantings can be used to maintain narrow trails to single track and prevent ORV use.
- Public access and usage of this site is at a high volume and should continue. The current parking area and trails provide access to the site. Additional outreach could be done by contacting local birders and the Audubon to promote the excellent bird watching opportunities at the site.
- This area and surrounding areas along Route 28 have a large number of invasive species that have been identified for treatment and removal. Removal and treatment of these species is difficult but this site is listed as a top priority for removal. The priority species to be removed is the Japanese Knotweed expanding adjacent to the overlook and the Common Reed patches popping up along the shoreline of the river thus replacing native Cattails. Other species include Pitch Pine borers, mostly a result of tree root damage from trails. This can be controlled by reducing trail sizes and mulching areas with Oak chips where infestations are impacting trees. Winter Moths (*Operophtera brumata*) were also noted in these areas and are difficult to control and not listed as a species needing immediate controls. If treatments are done in the future, a Massachusetts License Chemical Handler should always be used in controlling invasive species when using herbicides and pesticides.
- Property border survey should be completed when purchasing the adjacent parcels. Priority parcels for purchasing would be the forested uplands adjacent to both parcels to the north and parcels along the river.

9.0 MERCKEL BEACH

a) Property Summary

The property is situated east at the end of Snow Inn Road and contains an area of coastal dunes and coastal beach.

b) Current Recreational Use

This site has limited recreational use aside from access to beach off Snow Inn Road. There is no parking associated with this parcel or nearby so public use of the parcel is limited. The entire parcel is within a resource area which limits the use of the parcel.

c) Vegetation and Probable Wildlife

This area consists of coastal dune and beach, and supports species such as American Beach Grass (*Ammophila breviligulata*), Dusty Miller (*Artemisia stelleriana*), Northern Bayberry (*Myrica pensylvanica*), Beach Plum (*Prunus maritima*), Pitch Pine (*Pinus rigida*), Japanese Black Pine (*Pinus thumbergii*), Seaside Goldenrod (*Solidago sempervirens*), Seaside Rose (*Rosa rugosa*), Eastern Red Cedar (*Juniperus virginiana*) and Poplar (*Populus spp.*). The area provides habitat for White-Tailed Deer (*Odocoileus virginianus*), Osprey (*Pandion Haliaeetus*), several species of Hawks salt water fish, and numerous shore birds.

Other wildlife that may be using this area include, but are not limited to, Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), Mice, Voles, and a variety of common and migrating birds. Both Common Terns (*Sterna Hirundo*) and Least Terns (*Sternula antillarum*) observed in flight at the site.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008), there is one listed species for this area and no vernal pools. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover to protect identified species.

d) Invasive Species

During BSC site inspection Morrow's Honeysuckle (*Lonicera morrowii*), Spotted Knapweed (*Centaurea maculosa*), Gill-over-the-ground (*Glechoma hederacea*), and Oriental Bittersweet (*Celastrus orbiculatus*) were noted within the site. The impacts of invasives on this area is minimal because of the proximity to the ocean and the nutrient poor saline soils. Invasive control and management is not being suggested at this time.

e) Existing Conditions & Potential Problems

The current conditions at the site include mostly coastal dune and coastal beach low growth vegetation. There is a walking trail and wooden platform off Snow Inn Road that leads to the beach. Also noted were several personal trails leading from private residences through the dunes and onto the beach. BSC was unsure if any of these paths were on town owned property.

- This site has limited access off Snow Inn Road and has no parking, therefore usage of this access is limited to neighboring households and adjacent condominiums. Additional access can be gained down the beach at a town owned parking lot with direct beach access off Bank Street.

- Very limited activities occur at the site. Currently, only fishing and beach access are available. The only prohibited activity proposed is keeping off the dunes, keeping dogs off the beach and littering.
- This site is connected to private properties, adjacent coastal beach, single-family homes, a large development of condominiums, and the inlet to the harbor.
- There are no signs or structures located at the site except a small wooden walkway keeping people off the dune extending from Snow Inn Road to the edge of the coastal beach.
- There may be encroachments onto the property by abutting homeowners who have each created trails through the dunes to the beach.

f) Administrative and Management Suggestions

- This parcel is small and can only be expanded to if additional purchases can be made along the dunes and beach.
- Currently there are no signs or parking at this site. The Commission could consider installing a small parking lot at the end of Snow Inn Road to increase access to the beach. However, there is limited space and it could impact the coastal dune adversely.
- Invasives at this site were minimal and are being kept in-check by the surrounding environment. No invasive removal work is being proposed at this time.
- Property boundary survey should be completed if purchasing the adjacent parcels, if action is taken against property owners crossing the dunes on Commission property or if a parking area is to be considered.

10.0 GREAT SWAMP BOG

a) Property Summary

The property is situated east of the Herring River north of Route 6 and west of the Robbins Pond parcel. This site is also connected to the Robbins Pond. This site can be accessed off East Gate Road which turns into an unmaintained dirt road connecting to North Westgate Road and Birch Drive.

b) Current Recreational Use

Currently there is little recreation use on this parcel, as it is being used as an agricultural operation. There are some trails around the bogs, which are being impacted by ORV use leading to damage of the bog. Robbins Pond is a great fishing pond, canoe and kayak pond, and bird watching pond. However, there is limited access to the pond from the Conservation owned lands. East Gate Road extension has become a dumping ground for people getting rid of trash and a party place for school kids. In this case, it might be better to install a parking lot and close the road, as it is dangerous to traverse, provides access and there-by is creating problems with dumping and partying. Walking trails could be installed and most of the roads should be narrowed to prevent ORV use. The main road should be left for fire access but the road access should be cordoned off with boulders and vegetation. This area is also being used by hunters. Currently there are several ORV trails that run along the Herring River and lead to the site. Preventing access along the Herring River and East Gate Road will reduce the damaging ORV use and damage to the environment. These ORV trails should be completely removed and monitored to allow the trails to re-vegetate.

c) Vegetation and Probable Wildlife

The uplands in this area consist mostly of Black Oak (*Quercus velutina*), Scrub Oak (*Quercus ilicifolia*), Lowbush Blueberry (*Vaccinium angustifolium*) and Pitch Pine (*Pinus rigida*) forest with a small BVW associated with Robbins Pond. The BVW contains Highbush Blueberry (*Vaccinium corymbosum*), Sweet Pepperbush (*Clethra alnifolia*) and several grasses, rushes and sedges. The bog itself is operational but not for cranberries. The operator leasing the land has planted a variety of other crops in this area. The area contains Great Blue Herons (*Ardea Herodias*), Red Tailed Hawks (*Buteo jamaicensis*), White-Tailed Deer (*Odocoileus virginianus*), Red Fox (*Vulpes vulpes*), and a variety of birds. The pond contain a variety of fish including Bass, sunfish, Trout and minnows.

Other wildlife that may be using this area include, but are not limited to, Cottontail Rabbits (*Sylvilagus spp.*), Striped Skunk (*Mephitis mephitis*), Common Raccoon (*Procyon lotor*), Coyotes (*Canis latrans*), Owls, Mice, Voles, and a variety of common and migrating birds.

According to the Natural Heritage and Endangered Species Program's most current Priority Habitat and Estimated Habitat for Rare Species (2008), there are two listed species for this parcel. Please see the Natural Heritage and Endangered Species Program's letter in the Endangered Species information packet provided under a separate cover to protect identified species.

d) Invasive Species

During BSC's site inspection, Oriental Bittersweet (*Celastrus orbiculatus*) was the only invasive species noted at the site. This species is difficult to remove and it is not listed as a species to be treated at this time. Also, noted at the site were Pitch Pine borers

impacting Pitch Pines along some of the trails and roads and Winter Moths (*Operophtera brumata*).

e) Existing Conditions & Potential Problems

The current conditions at the site include forested uplands and wetlands associated with Robbins Pond and the agricultural operations (bog).

- Robbins Pond and Great Swamp Bog access is from the East Gate Road extension. This access road is in very poor condition and is not monitored by the police because of its condition. This creates a situation where people come to drink and party as well as dump trash along road.
- Prohibited activities occurring in this area consist of ORV usage, trash dumping, parties, bon-fires, underage drinking and drug use, and tree cutting. ORV users are driving over the bogs damaging crops and causing rutting and erosion on steep slopes around the bogs.
- This site is connected to private properties, adjacent forested areas, single-family homes, cranberry bogs and farm, the Conservation Commission owned Robbins Pond and Herring River Parcels and Robbins Pond itself.
- Most of the trails in this area are oversized and used by trucks and other ORVs. The ORVs are creating ruts, ponding, soil compaction, erosion and damage to tree roots as well as several trash dumps noted along the dirt roads.
- There is a sign located off the East Gate Road near one of the access roads leading down to Robbins Pond. The only structures noted in this area are an old pump house associated with Great Swamp Bog and the old sluice ways within the bog. The old pump at the pump house is not going to be replaced because of costs and property damage by party goers.
- The main encroachments at the Great Swamp Bog are ORV users at the site and adjacent lands. The ORVs trails and old roads are wide and allow access to secluded areas and are being used for dumping and parties.

f) Administrative and Management Suggestions

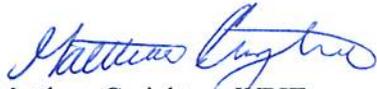
- This parcel is directly linked to the Herring River and Robbins Pond parcels and adjacent forested parcels. Separation between these parcels while cranberry/agricultural operations are underway should be maintained. If the town were to stop leasing the land, considerations should be given to combine the properties and return the cranberry farm back to a freshwater meadow by continued flooding of the property. This would require repairing the pump and sluice (stop logs) to hold back water as the bog is up-gradient to Robbins Pond.
- Currently there is only one sign identifying the Great Swamp Bog/Robbins Pond parcels located off East Gate Road. The bog itself contains several sluice ways and the old pump house structure. The pump house structure should be completely removed and a culvert should be installed with a sluice to maintain flooding the bog. The existing structure is large and deep, and a danger to kids out drinking and partying in this area. If the structure is not to be repaired to flood and flow the bog, it constitutes a safety hazard and should be removed.

Upon removal the BVW in this area can be reestablished to improve the quality of the resource area and buffer zone.

- People should be directed away from farming operations for safety and protection of property. This section of East Gate Road and the two side roads should be considered to be closed and roads narrowed to walking trails. Trails leading to Robbins Pond should avoid the agricultural operation to the extent feasible. If additional access to these areas is considered, only single track trails leading from a parking area should be installed and the area monitored to fine violators.
- The best way to limit prohibited activities is to issue non-criminal citations to anyone breaking the rules and regulations set by the town. In addition, signage can be used to make people aware of prohibited activities and associated fine amount. Large boulders, downed trees, roped off areas and plantings can be used to narrow trails to single track and prevent ORV use. Outreach programs should also be considered to work with local fisherman to pack out any trash brought in, and to help monitor and maintain water bars to reduce erosion issues along steep slopes. Shutting down the East Gate Road extension will help reduce underage drinking and drug use, parties, bon-fires (which area extremely dangerous in Pitch Pine forest), and dumping along the roadway. It would also limit access to the site currently leased out for agricultural use and reduce damage by ORV users and party goers. ORV trails along the Herring River should be completely shut down and blocked to keep people and gas powered vehicles away from the river and bog operations.
- Public access and usage of this area should be limited near the agricultural area. Parking lots should be made on either side of East Gate Road and the roads and trails should be narrowed to single track walking paths. Trails leading down toward the bog should be directed away from the bog and new trails created along the ridge overlooking the pond. If fire access is a concern, roads can be planted with smaller shrubs and grasses (Lowbush Blueberry, Pennsylvania Sedge (*Carex pensylvanica*)) to maintain access for forest fire response vehicles.
- Limited numbers of invasive species were noted onsite, mainly Oriental Bittersweet. Removal and treatment of this species is difficult and costly and is not listed as a top priority for removal. Over time the site should be monitored for spreading or the introduction of other species. If these species become a large problem or additional invasive vegetation is found, treatment may become necessary. Other invasives include Pitch Pine borers, mostly a result of tree root damage from trails and roads. This can be controlled by reducing trail sizes and mulching areas with Oak chips where infestations are impacting trees. Winter Moths and Gypsy Moths (*Lymantria Dispar*) were noted in these areas and are difficult to control and not listed as a species needing immediate controls. If any treatments are required in the future a Massachusetts License Chemical Handler should always be used in controlling invasive species using herbicides and pesticides.
- Property boundary survey should be completed if purchasing the adjacent parcels. Priority parcels for purchasing would be forested areas around Robbins Pond and adjacent forested uplands.

After you have had a chance to review these Land Stewardship Reports, please do not hesitate to call me with your questions

Sincerely Yours,
BSC Group, Inc.

A handwritten signature in blue ink, appearing to read "Matthew Creighton".

Matthew Creighton, WPIT
Project Manager
Environmental Scientist