

# The Southern Woodlands Reservation Oak Bluffs, Massachusetts



## Management Plan

October 13, 2011

*Approved by the Oak Bluffs Town Advisory Board (March 08, 2011)*

*Approved by the Martha's Vineyard Land Bank Commission (March 14, 2011)*

*Approved by the Secretary of the Executive Office of Energy & Environmental Affairs  
(October 13, 2011)*

Julie Russell – Ecologist

Maureen McManus Hill – Administrative Assistant

Matthew Dix – Property Foreman

Jeffrey Komarinetz, Jean-Marc Dupon and James Dropick – Conservation Land Assistants

## *Executive Summary*

The Southern Woodlands Reservation is a 234-acre parcel located in Oak Bluffs between Lagoon Pond and Sengekontacket Pond. Based on maps of Martha's Vineyard from 1784, 1888 and 1930 the reservation and surrounding area has long been predominantly wooded. It was part of the historic "Great Woods" a 2-to-3-hundred-acre tract of woodland located south of the "Gore" and north of old Holmes Hole Road. The reservation was also the location of Webb's campground, operated by Harold Webb in the mid-1900s. More recently the reservation was the contemplated site of a golf course.

Six rare wildlife species – [REDACTED] – and two rare plant species – [REDACTED] were observed on the property.

The management plan proposes to maintain nearly 2.0 miles of ancient ways and create a 1.4-mile through trail using 0.3 miles of existing trail for passive recreational use; close 1.5 miles of old road from the Webb's Campground site; remove remaining outbuildings from the Webb's Campground; designate an area in the southeast corner of the reservation for primitive campground use and lease accordingly; fill borrow pits along Barnes Road; create a modest trailhead for no more than three vehicles off the County Road; expand the existing 5.8-acre grassland off Barnes Road by 5.1n acres; maintain 6.3 acres of the entire grassland through annual mowing and lease the balance of 4.6 acres to a farmer for agricultural use; allow Category "B" hunting; protect the archaeological value of the reservation by siting uses outside of sensitive areas and through control of trail erosion, stump grinding and limiting need for excavation to implement projects; continue to maintain garage and access road for use as land bank maintenance shop; and work with a forester and local fire chief to create a forestry management plan for the reservation that addresses woodland health and safety concerns. The existing and abutting Featherstone Farm trailhead is designated as the trailhead for the reservation.

All planning goals, objectives and strategies are outlined in detail in the final section of this management plan. To be implemented, this plan must be presented at a public hearing and approved by the land bank's Oak Bluffs town advisory board, the Martha's Vineyard land bank commission and the Massachusetts secretary of the executive office of energy and environmental affairs (EOEEA). Additionally, a request for determination will be filed with the Oak Bluffs Conservation Commission for work proposed within 200' of the bordering vegetated wetland of the Upper Lagoon Pond and a Massachusetts endangered species act (MESA) review will be filed with the commonwealth natural heritage and endangered species program (MA-NHESP) for work proposed within any estimated/ priority habitat for rare species.

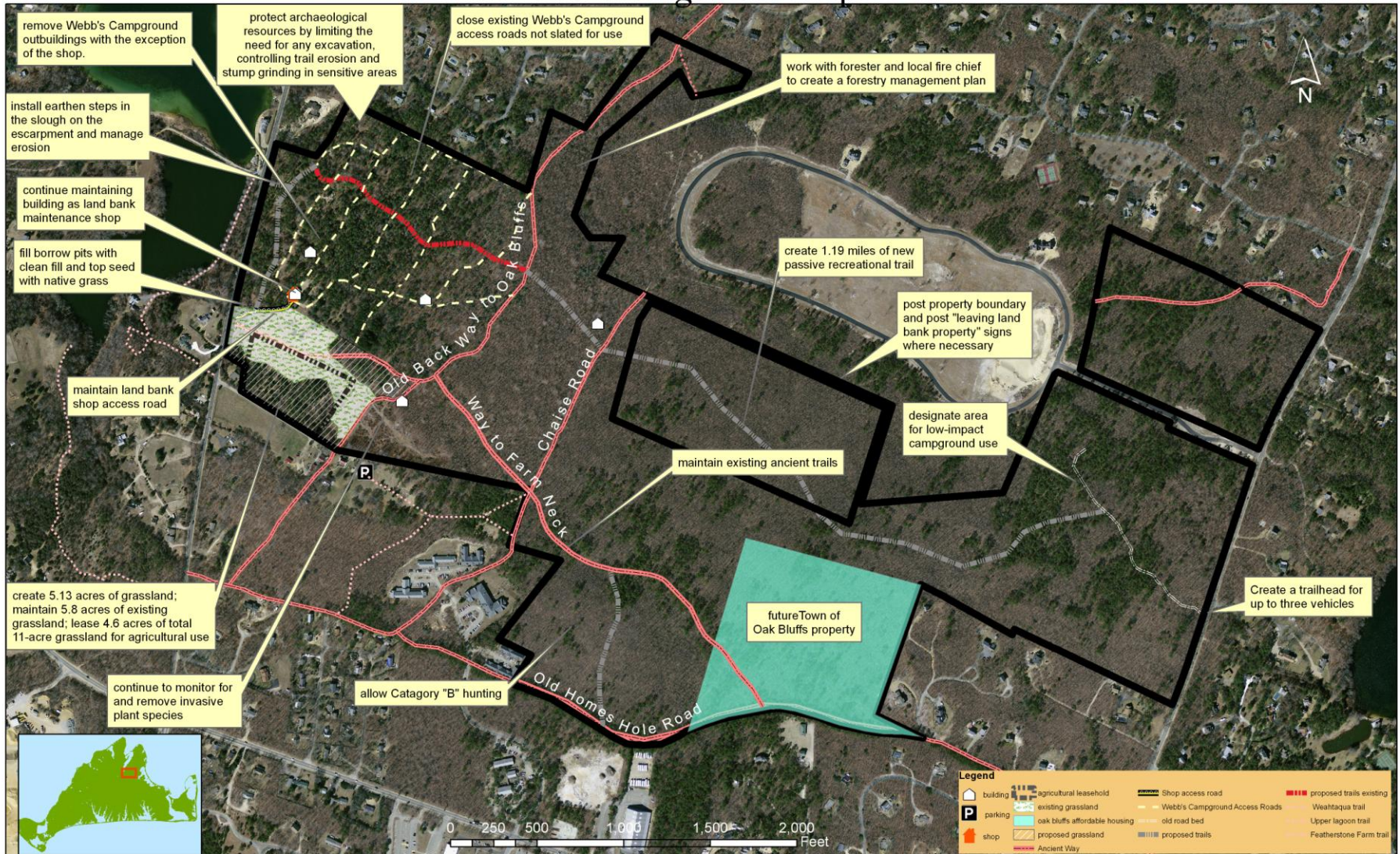
*About the authors*

Julie Russell is the primary author and has been the land bank ecologist since August 1999. She is certified as a Wildlife Biologist by the Wildlife Society and holds a Master of Science in zoology from the Cooperative Wildlife Research Lab at Southern Illinois University, Carbondale, and a B.S. in wildlife biology from the School of Natural Resources at the University of Vermont. Property Foreman Matthew Dix has worked on land bank properties since 1990. He attended the School of Natural Resources at the University of Vermont and has extensive knowledge of the region's agriculture, natural history and local geography. Jeffery Komarinetz began as a conservation land assistant in March 2000; James Dropick began as a conservation land assistant in February 2006; and Jean-Marc Dupon began as a conservation land assistant in July 2007. Maureen McManus-Hill has been the administrative assistant since July of 2006; she has a B.A. in economics from Lafayette College.



# Southern Woodlands Reservation, Oak Bluffs, MA

## Site Management Map



Source: Office of Geographic and Environmental Information (MassGIS)  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Cartography: MVLBC (J.R.)  
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## I. Natural Resource Inventory

### A. Physical Characteristics

#### 1. Locus

The Southern Woodlands Reservation is located at roughly 41°25' 35" N latitude and 70° 35' 36" W longitude. The property consists of 234 acres located between Barnes Road and County Road in Oak Bluffs, MA and is shown on Oak Bluffs tax maps as 41-2, 42-2 (town of Oak Bluffs land slated for land bank ownership in exchange for equal acreage elsewhere on the reservation), 42-1, 43-54.1 and 43-53. A **Locus Map** (USGS Topo 1973 1:24,000) and **Aerial Photography Map** (MassGIS color orthophotographs from 2009) follow as Appendix A.

#### 2. Survey Maps, Deeds and Preliminary Management Plan Goals

Larger copies of all surveys are on file at the land bank office and are available for inspection by appointment. Deeds, preliminary management plan goals, easement agreements and reduced copies of surveys are included in Appendix B.

#### 3. Geology and Soils

The **General Soils Map** (Appendix C) depicts general classes of soils across Martha's Vineyard. A star indicates the location of the Southern Woodlands Reservation in the "Outwash Atop Martha's Vineyard Moraine" general soil geology.

The SCS (1986) mapped two soil series – Carver loamy coarse sand and Riverhead sandy loam. The majority of the reservation is in Carver soils. Both soil series are typically located in wooded areas. The low water capacity of the soils makes them less suitable for crops and pasture. The complete list of soil series and a discussion for each are included in Appendix C following a **Detailed Soils Map**.

#### 4. Topography

The elevations at the Southern Woodlands Reservation span from 20 to 120 feet above sea level. The land rises steeply 40 feet from the Lagoon Pond side of the reservation and levels off at 60 feet above sea level. There are several sloughs in this escarpment. Once on the bluff, the land continues to gradually rise to 100 feet above sea level, plateaus for the central part of the reservation and dips back down to 60 feet above sea level as the reservation nears County Road. There are three gradual ridges that run north-south through the reservation. Although contrast in the topography exists on the property the trail system runs along a similar contour throughout and is relatively level. The highest point on the reservation is a hilltop at 120 feet above sea level in the most southern corner of the property between Old



Homes Hole Road and Way to Farm Neck. The contours of the property are illustrated in a portion of the USGS Vineyard Haven and Edgartown quadrangles labeled **USGS Topographic Maps** in Appendix A.

## 5. Hydrology

The Southern Woodlands Reservation is part of the Upper Lagoon Pond watershed which comprises 4465 acres and the Sengekontacket Pond watershed which comprises 5228 acres. There are no wetland resource areas on the reservation. However, the western boundary is within the 200' buffer zone of the bordering vegetated wetland of Upper Lagoon Pond.

## 6. Ecological Processes

Succession of the back portion of the grassland that was cut in 2003 is well underway with oak re-sprouts at 15 feet and pine sprouts at or below 15 feet. The dense understory of goldenrods and briers is typical of woodland succession after a clear-cut.

The grassland is undergoing an invasion of exotic plants; bittersweet and honeysuckle are the two primary invaders. Disturbance possibly from old farming practices and the development of Barnes Road opened the door to exotic invasive plants that may have otherwise been out-competed by plants in established grasslands.

The woodland is split between pitch pine/mixed conifer and deciduous mixed-oak. The dominant understory sapling is black oak throughout all of the woodland. Although not extensive, there is evidence in the form of pitch pine saplings that the pine woodland is continuing to advance into the mixed-oak woodland where opportunities in light present themselves.

There are several areas of oak die-off throughout the deciduous woodland due to a combination of caterpillar defoliation and drought in recent years. In 2009 several acres of oaks did not leaf out and appeared to have had a 100% die-off. However, in 2010, these same areas had only 40% die-off with remaining trees alive. The remaining live trees did not come through the experience unscathed; according to Justin Free, an arborist and intern with Polly Hill Arboretum, the black oaks experienced die-off of larger canopy branches after their year of dormancy while smaller branches in the canopy of white oaks died. Water sprouts on oaks from dormant latent buds are prevalent throughout the affected areas and the ericaceous understory appears lush and thick. It is possible that more pitch pine saplings will appear in these affected areas due to a thinned canopy and increased light.

## **B. Biological Characteristics**

### **1. Vegetation**

The Southern Woodlands Reservation comprises two general habitat communities – open grassland (5.8 acres) and woodland (228.2 acres). The woodland community is further divided among mixed-oak woodland; pitch pine woodland; and mixed-conifer woodland. The ecological communities are described in detail and shown on the **Ecological Communities Maps** in Appendix D.

A total of 173 plant species is known to occur on the Southern Woodlands Reservation. The fields contribute the greatest to the floristic richness of plants occurring on the reservation; it is represented by approximately 76% of the total number of plant species known to occur on the property. However, the grassland only covers 2% of the reservation. Species richness is the number of species present in a community (Begon et al. 1990). Many of the grassland species are introduced and are not native. A handful of the introduced plants are actually invasive (Table 1, Appendix D)

There are two Massachusetts-listed species – [REDACTED] – that occur on the reservation in the open grassland habitat that occurs along the old campground trail on the bluff.

Several invasive exotic plants occur on the reservation. These species include black locust, oriental bittersweet, honeysuckle, autumn olive and multiflora rose. All are located in and around the grassland where disturbance and light are prevalent.

### **2. Wildlife Habitat**

The Southern Woodlands Reservation provides opportunities for nesting roosting and foraging wildlife species. Tall trees in the woodland provide for nesting, roosting and foraging habitat for birds, small mammals and an assortment of insects, including some rare moth species. Snags provide habitat for cavity nesters and insects and for forage by insectivores. The dense conifer woodland provides cover for larger mammals. Fruiting shrubs and vines in the understory and edge habitats provide for summer and fall forage. The open grassland provides hunting grounds for birds of prey as well as forage and nesting habitat for that prey. The dense edge habitat around the grassland provides cover for birds and small mammals.

Formal avian surveys and invertebrate black-light traps were the primary tools used for analysis of rare wildlife habitat. Additional direct observations of wildlife occurrences and signs throughout the year contribute to the understanding of habitat value at the reservation. Six Massachusetts-listed



wildlife species – five moth species and one butterfly species – were recorded during surveys on the reservation.

(a) Invertebrates

A variety of invertebrate species inhabits the Southern Woodlands Reservation. The reservation provides forage, breeding habitat and cover for invertebrates predominantly in the leaf litter and snags of the conifer and mixed-oak woodlands; and forage in nectar-producing herbs and shrubs such as goldenrods, huckleberry, blueberry, milkweeds, roses and sumac mostly in the open grassland.

Nocturnal black-light trap surveys conducted in 2005, 2006 and 2009 led to the identification of 235 nocturnal moth species including five Massachusetts-listed species – [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] and one butterfly species – [REDACTED] for the Southern Woodlands Reservation (Appendix E, Table 3).

Direct observations of invertebrates on the reservation revealed additional species including five butterflies, the [REDACTED] [REDACTED], a spider wasp species and a variety of ants, ticks, crickets and mosquitoes.

(b) Amphibians, Reptiles and Fish

No evidence of amphibians was observed on The Southern Woodlands Reservation during walk-throughs of the property in the spring, summer and fall of 2004, 2008 and 2009. The lack of wetlands on or in close proximity to the reservation explains their absence.

One snake species – the common garter snake – was observed in the grassland of the reservation.

(c) Birds

Avian five-minute point count surveys were conducted on the Southern Woodlands Reservation during the fall in 2004, year-round in 2005, and in the summer in 2006 and 2009. Owl surveys were conducted using a wildlife caller in August of 2009 and 2010. Thirty-nine bird species were observed on the property during diurnal avian count surveys by land bank staff. No owl species were observed on

the property during a nighttime owl survey. An additional eleven avian species were observed during formal avian surveys by an independent consulting firm, Dru Associated, conducted for the Down Island Golf Club Environmental Impact Report in 1998 and 1999. No Massachusetts-listed avian species were observed on the reservation during and outside any of the survey periods.

(d) Mammals

Common animals of woodland and field occur on the Southern Woodlands Reservation (Appendix E, Table 2). The woodland provides adequate forage in the warmer seasons for white-tailed deer. The dense understory of the conifer woodland in the eastern portion of the reservation provides winter cover while the western woodland with its sparse understory provides little winter cover.

The mast-bearing trees throughout the reservation provide squirrels and chipmunks with food and cover. These same trees provide a solid ground cover of leaves and cavities and tree limbs for nesting.

Scatological evidence of raccoons and skunks was present during on-going property surveys. The woodland provides ample opportunities for cavities; however the woodland nearest to the fresh water of the Upper Lagoon Pond may attract more of these mammals for breeding periods than the dry woodland in the northwest of the reservation that is further from a dependable water source.

The mix of shrubs, herbs and graminoid species in the grassland provide forage and cover for small mammals such as the eastern cottontail, white-footed mouse and meadow vole that were observed on the reservation.

Domestic mammals such as dogs and horses are common occurrences on the reservation throughout the year as there are several well-established old roads on the property that connect densely inhabited neighborhoods as well as two major roads to Oak Bluffs center – Barnes Road and County Road.

(e) Rare and Endangered Species

The Massachusetts natural heritage and endangered species program (MA NHESP) designates that the entire reservation is located within priority habitat of rare species. Details about the various species and a copy of the Endangered Species Maps are located in Appendix G.



## C. Cultural Characteristics

### 1. Land History

17<sup>th</sup> century – 19<sup>th</sup> century

The earliest purchase of land in the area of the reservation was made by Thomas Mayhew Sr. and Jr. in 1600s from Sagamore Wampamag for the purpose of acquiring farm land (Mayhew 1956). At this time the area of the reservation was considered part of Edgartown. Many of the early land owners in this area were residents of “Great Harbour”, also known as downtown Edgartown. John Daggett came into approximately 500 acres of farm in 1642/1660. He was one of the early patentees of Edgartown and was granted a home lot in Great Harbour as well as farmland in the Sanchacantacket region of modern-day Oak Bluffs by Thomas Mayhew Sr. in 1642. However, the grant was not fulfilled and Mr. Daggett proceeded to purchase the rights to the soil in 1660 from Wampamag, the chief of the Sanchacantacket tribe. The purchase was contested in court and Mr. Daggett won. His son Joseph Daggett married Wampamag’s daughter, Ahoma, and was recognized as the first European settler of Oak Bluffs. His farm was located north of the reservation in what is known as “Hart Haven” (Banks Vol. II 1966). The remainder of the 500 acres passed out of the Daggett family and into the hands of the Nortons, Luces, Beetles, Davises and Smiths (Mayhew 1956). It was not until 1880 that the land upon which the reservation is situated was separated from Edgartown and incorporated as Cottage City, later renamed Oak Bluffs in 1908. The oldest houses on the Upper Lagoon Pond off Barnes Road near the old pumping station belonged to the Norton, Luce and Smith families and date back at least to the 18<sup>th</sup> century (Banks Vol II 1966). This was also the location of a bustling Wampanoag village due to the close proximity to fresh water from Stepping Stones Brook, the dividing line between two sachemships and later between Tisbury and Oak Bluffs (Mayhew 1956).

The land west of Chase Road to the Upper Lagoon Pond was the Darius Norton Farm. Isaac Norton, born in 1709, was a farmer at the head of the Lagoon Pond (Census of Dukes County 1880). He is descended from Joseph Norton who was the county sheriff in 1699 and lived at Major’s Cove. Isaac Norton’s grandson, Darius Norton, was born to Darius Norton Sr. in 1805 and also farmed the family land (Census of Dukes County 1880). It is from this Norton that the modern name of Darius Norton Farm was used to describe this portion of the reservation.

The eastern portion of the reservation extends from Chase Road to County Road. This general area of Oak Bluffs from Pecoy Point south along Sengekontacket Pond to Major’s Cove was also settled by the Norton Family. Isaac Norton was born in 1641 and was the brother to Joseph Norton (the county sheriff in 1699); he settled on the north side of Major’s Cove near Pecoy Point. Peter Norton was born in 1718 and was the son of Ebenezer Norton and

grandson of Joseph Norton (the county sheriff in 1699); he owned property along the entire western cove of Sengekontacket Pond. He was a major in the Dukes County regiment and for him Major's Cove was named (Banks Vol. II and III 1966).

In summary, the reservation was historically woodland that was flanked by farmland located on the shores of the Upper Lagoon Pond and Major's Cove of Sengekontacket Pond and is rich in Norton family history.

20<sup>th</sup> century – 21<sup>st</sup> century

Darius D. Norton sold the western portion of the reservation to Harold L. Webb in 1936. Harold was married to Ruth May Webb and was the son of Aaron and Lottie Norton Webb. Mr. Webb was born in his ancestors' homestead on Barnes Road and lived there for nearly his entire life. He was a police officer in Tisbury in the 1940s and owned and operated a farm-to-home poultry and egg delivery business for 15 years. Mr. Webb developed the Webb's Campsite after the poultry business ended due to the rise in poultry farming costs (Vineyard Gazette, June 18, 1985). Mr. Webb and his wife owned and operated the campground for 25 years and then sold it to Arlene Bodge, a nurse, and Nancy Douthiel, a teacher, in 1972. They were both campers at one time and in 1969 and 1971 were assistant managers with Mr. Webb (Vineyard Gazette, August 6, 1982, January 14, 1972).

The various land parcels now comprising the reservation were purchased over a number of years by Corey Kupersmith who, after attempting to create a golf course on the property, sold a portion of his land holdings to the Martha's Vineyard Land Bank in 2005 for \$18,622,940.

## **2. Planning Concerns**

### **(a) Massachusetts Endangered Species Act:**

All management activities proposed in this management plan are within the boundaries of priority habitat for rare species (NHESP Map Appendix G). The creation of 6258 ft (0.86 acres) of trail; creation of 100' (0.01 acres) of earthen steps; creation of up to three vehicle trailhead (0.02 acres) maintenance of 5.8 acres of grassland and restoration of an additional 5.13 acres of abutting grassland including removal of 4 acres of invasive species and lease of 4.6 acres of grassland for agricultural use, the designated use of 2 acres along an old road bed (1335' in length) for primitive campground use and the filling of a borrow pit (0.01 acres) near the access road will generate a Massachusetts endangered species act project review filing for a total of 13.31 acres.



(b) Local and regional planning concerns:

The entire property is within the Town of Oak Bluffs Southern Woodlands District of Critical Planning and Concerns (DCPC) (Section XVIII, F. of the Oak Bluffs Zoning Bylaw), which involves site-plan reviews from the planning board for most activities in the district.

A portion of the property off Barnes Road is within the Islands Roads District (Section XVIII 1. B. of Oak Bluffs Zoning Bylaw April 2003) which involves restrictions on movement and removal of stonewalls, fences, structure heights and vehicular access to the public road. The management plan does not propose any activity that is restricted by the Islands Roads District.

(c) Land exchange

A 23-acre property owned by the town of Oak Bluffs is landlocked and surrounded by the reservation. The town of Oak Bluffs and the land bank have entered into an agreement to transfer a 23-acre portion of the reservation with access through an existing town of Oak Bluffs building lot off the Edgartown-Vineyard Haven Road in exchange for the landlocked town lot in the center of the reservation. An agreement to create trails on the landlocked town of Oak Bluffs parcel will be necessary between the land bank and the town of Oak Bluffs prior to the completion of an official land transfer.

(d) Wetlands Protection Act

A portion of the trail proposed to connect the bluff trail with Barnes Road is within the land subject to coastal storm flowage of the Upper Lagoon Pond. A request for determination will be filed to determine if the project requires a Notice of Intent filing for the 30' of trail and earthen steps that are proposed for the slough on the escarpment.

### **3. Abutters**

A list of those owning land abutting or within 200 feet of the Southern Woodlands Reservation appears in Appendix H, as does the Oak Bluffs Assessors' Maps 35, 36, 41, 42, 43, 49 and 50.

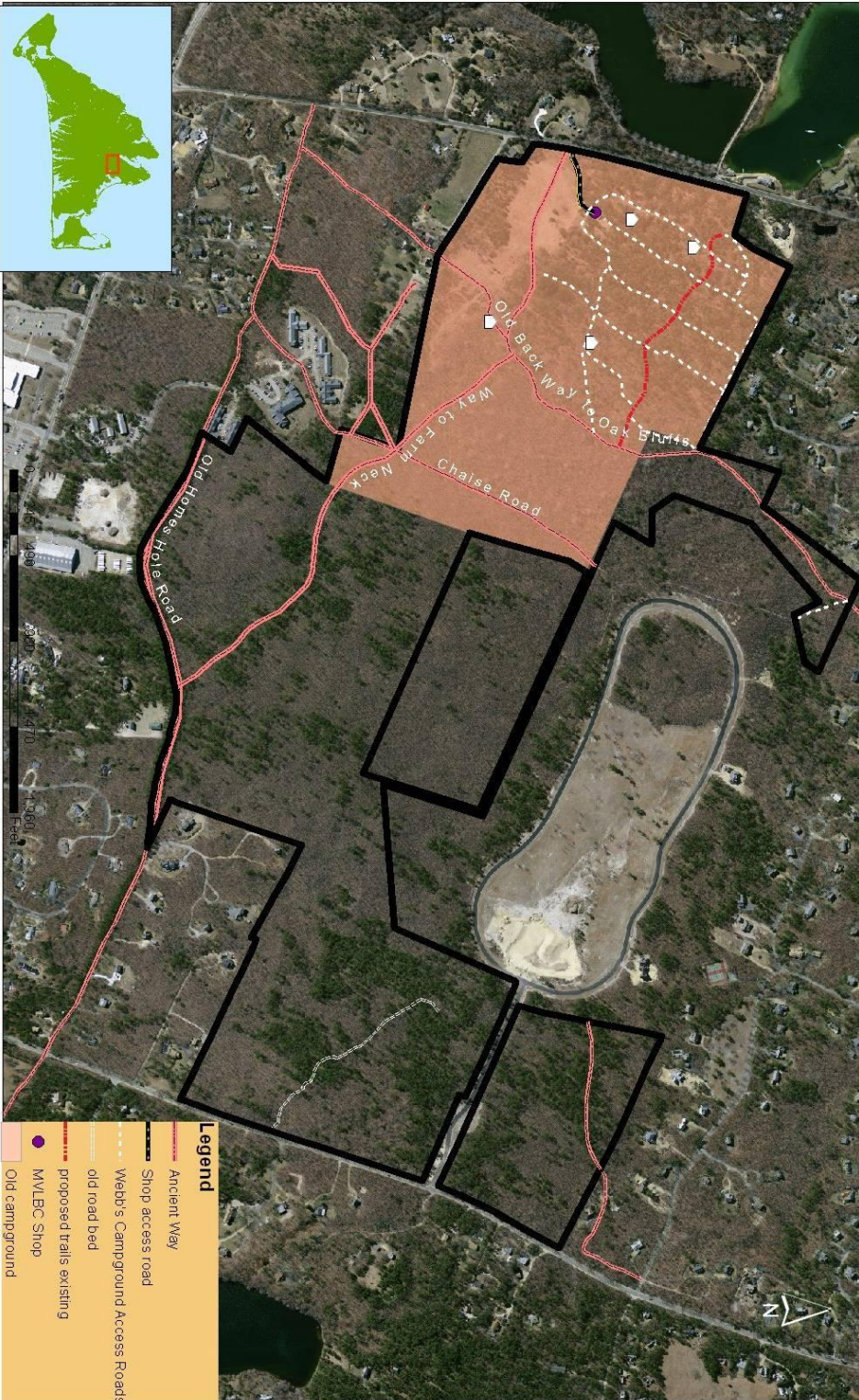
### **4. Existing Use and Infrastructure**

The following are existing uses:

1. Webb's Campground Roads: A total of 1.49 miles of old road (8' wide) meander through the mixed-conifer woodland.
2. Access driveway: A 12'-wide paved access drive, approximately 400' in length, exists from Barnes Road to the land bank maintenance shop.

3. Maintenance shop: A 36'x48' existing campground maintenance building was converted to the land bank maintenance shop in 2007.
4. Ancient Ways: Three major ancient ways – Old Back Road to Oak Bluffs, Chaise Road and Way to Farm Neck – traverse the property.
5. Campground Facility Buildings: Two shower/restroom buildings and two outhouse buildings exist on the reservation.
6. Picnic tables: 30-plus rotting picnic tables exist throughout the old campground bounds.
7. Old Road Bed: A 1335' long old road bed occurs off County Road and dead-ends in the woods of the property.

Souther Woodlands Reservation, Oak Bluffs, MA  
Existing Use Map



## II. Inventory Analysis

In this section, problems and opportunities that may arise in the management of the Southern Woodlands Reservation are analyzed.

### A. Constraints & Issues

#### 1. Ecological Context

The Southern Woodlands Reservation is an expansive continuous stretch of woodland in an otherwise densely developed area of Oak Bluffs. It is located between two large watersheds and helps filter the ground water that enters the Upper Lagoon and Sengekontacket Ponds. The close proximity of the property to open water, extensive woodland and existing snags and isolated trees in and around the reservation provide perching and hunting habitat for many birds of prey. The open grassland also provides forage habitat for the white-tailed deer that inhabit the surrounding woodland.

#### 2. Natural and Cultural Resource Concerns

There are three main areas of concern at the Southern Woodlands Reservation, each briefly addressed below and then addressed in more detail in the land management section of the plan:

(a) *State-listed rare species*

Five rare moth species, one rare butterfly species and two rare plant species occur on the reservation. The rare plant species – [REDACTED] – depend on open habitats such as the grassland and the majority of rare moths and butterfly species depend on various trees in the woodland. The [REDACTED] and the [REDACTED] prefer grasslands and heath or open scrub habitat which occurs in limited form on the reservation. The [REDACTED] prefer more wooded habitat with pitch pine and oaks. [REDACTED] as its name implies, prefers oak woodlands for habitat and nectars in nearby weedy or scrubby areas (Nelson 2007). Protecting both the grassland and woodland habitat is important to the survival of these species. The plan sites trails and activities to avoid rare wildlife habitats.

(b) *Succession*

Succession is a natural process. Without the use of mechanical mowing, fire or grazing, the grassland component of the reservation will naturally



succeed into the surrounding oak woodland component. Valuable agricultural land would be lost if the grasslands were permitted to succeed into shrub-dominated habitats. Species such as birds-of-prey are dependent on the grassland ecosystem for food. Over time trees or taller shrubs may become more dominant.

(c) *Invasive Species*

Invasive species are a concern on any property. Annual monitoring and quick control and removal of invasive species are important to maintain an ecological balance and integrity of habitats on the reservation. The invasive species of main concern are oriental bittersweet and Japanese and Morrow's honeysuckle.

Oriental bittersweet is a common invasive that grows as a vine and can engulf and damage trees by its sheer weight. It reproduces through root suckers and seeds. Oriental bittersweet can be hand-pulled or cut and treated with an herbicide. Invasive honeysuckle is a woody vine that can spread quickly in disturbed areas, thus strangling existing vegetation and preventing new growth of native plants. Japanese honeysuckle can be hand-pulled; all roots and shoots must be removed. Herbicide use should occur in mid- to late-fall. Morrow's honeysuckle is a bush honeysuckle that can form large thick stands that out-compete native plants. Birds are a natural disperser of the fruits and seeds. Bush honeysuckles can be uprooted with a weed wrench or cut and painted with an herbicide.

(d) *Archaeological Resources*

An archaeological site evaluation was conducted on the reservation in 1999. The study revealed the presence of archaeologically sensitive areas on the reservation. The area surrounding Lagoon Pond has been well-documented as an important archaeological resource. The Head of the Lagoon Pond was occupied by Wampanoags for an extensive period of time. Designing projects to limit the need for excavation, controlling erosion on trails using woodchips and stump-grinding cut trees will help protect the archaeological resources that occur in the soil of the reservation.

### **3. Sociological Context**

The Southern Woodlands Reservation is located in Oak Bluffs between Barnes Road and County Road. It is surrounded by developed property on three sides and an undeveloped subdivision on the north side. It is one of the last expansive and contiguous woodland in Oak Bluffs.

#### **4. Neighborhood Concerns**

The land bank considers the concerns of neighbors as part of the planning process. All abutting property owners and the local conservation commission are sent written notice of a public hearing on the draft plan. All neighbors -- and all members of the public -- are invited to review the draft plan, attend the public hearing and make written or oral comments. The land bank's Oak Bluffs town advisory board and the Martha's Vineyard land bank commission review all comments and can change the draft plan if desired. Anyone may also express concerns at any public meeting of the Martha's Vineyard land bank commission and Oak Bluffs town advisory board, or may simply contact land bank staff.

No planning concerns have been brought to the attention of the land bank by neighbors. However, two members of the public have requested the old Webb's Campground be used for the following:

- an outdoor recreational children's camp
- a daycare facility.

### **B. Addressing Problems and Opportunities**

#### **1. Land Bank Mandate**

In 1986, the voters of Martha's Vineyard created the land bank to acquire, hold, and manage land in a predominantly natural, scenic, or open condition. The land bank keeps open space open and allows modest public use. Its "shared-use" policy strives to provide a range of public benefits, from low-impact recreation and aesthetics to wildlife conservation and watershed protection. Protection of natural resources is the land bank's highest priority, yet "shared-use" demands balancing the public use of natural resources with protection of the same.

#### **2. Goals at Purchase**

The purchase of the Southern Woodlands Reservation meets seven of the land bank's nine criteria for property acquisition: land to protect existing and future well fields; aquifers and recharge areas; agricultural lands; forest land; scenic vistas; wildlife habitats; trails; and sites for passive recreation. Preliminary management plans were adopted by the land bank commission and Oak Bluffs town advisory board and are attached as Appendix B.

### 3. Opportunities

- (a) *Access:* The proposed public vehicular access to the Southern Woodlands Reservation will be through the existing 5-vehicle trailhead at Featherstone Farm. If additional parking is deemed necessary it will be sited in such a way as to minimize the need for the creation of additional access driveways.
- (b) *Agriculture:* The property contains land suited to agriculture such as cropland, hayfield and pastureland. The soils are droughty and may need improvement of water-retention capabilities. The plan proposes leasing half of the proposed grassland for agriculture.
- (c) *Trails:* A through trail is proposed that connects County Road with Barnes Road.
- (d) *Grassland maintenance:* The grassland supports a mixture of typical ruderal grassland species. The plan proposes to maintain the grassland as an open habitat and improve the native species composition through annual early spring mowing and in-season mowing for exotic invasive species management.
- (e) *Hunting:* The reservation is an extensive, contiguous woodland that was recommended for Category “B” hunting by the land bank’s hunting subcommittee.
- (f) *Primitive Campground:* The use of an old road bed off County Road provides a location for the creation of a low-impact campground with modest facilities and drinking water. The proposed location for the campground is easily accessible by the bike path and on the public transportation route. Drive-up camping would not be necessary.

### 4. Universal Access (UA)

The Southern Woodlands Reservation is moderately suited for universal accessibility. Although the existing ancient ways are relatively flat, distance is an obstacle. The plan proposes to harden 200’ of existing Old Back Way to Oak Bluffs with 3/4” dense mix. The hardened trail would not require excavation and would join the existing Featherstone Farm trailhead with views of the Upper Lagoon Pond over the existing grassland and proposed grassland restoration areas. The plan also proposes that if the lease for the County Road campground were implemented a portion of the sites would be universally-accessible but without vehicle access. Additionally, the County Road trailhead would have one universal access space.

The reservation's ROS ('Recreation Opportunities Spectrum') classification is "less-developed." Further details are included in Appendix I.

### **III. Land Management Planning**

This final section of the management plan states goals for the Southern Woodlands Reservation and outlines strategies for achieving them. These goals and strategies are designed to fit within the social and ecological constraints defined previously. The plan addresses five areas of planning concern: nature conservation, recreation and aesthetics, natural products, community interaction and land administration.

#### **A. Nature Conservation**

**Provide long-term protection for plants, animals and natural processes occurring at the Southern Woodlands Reservation.**

Objective 1 Protect and encourage rare and endangered species on the reservation.

*Strategies:*

- a. Work with a forester to create a forestry management plan to ensure the health of the woodland is promoted.
- b. Monitor the property for rare plants and animals during regular property checks
- c. Develop and implement a strategy to protect any additional rare species observed on the property.
- d. Report new observations of rare and endangered species to the proper commonwealth authority.
- e. Preserve any patches of scrub oak understory in the woodland to protect Gerhard's underwing and faded gray geometer habitat.
- f. Restore 5.13 acres surrounding the existing grassland and promote 6.33 acres as native grassland through annual spring mowing and in-season mowing of certain areas to manage invasive species.
- g. Remove invasive plants including but not limited to honeysuckles, bittersweet, autumn olive and multiflora roses
- h. Use existing trails and ancient ways where possible to minimize the cutting of new trails.

Objective 2: Reduce and control erosion of trails

*Strategies:*

- a. Install water bars where necessary.
- b. Reroute or temporarily close any trail where necessary.
- c. Use switchbacks whenever necessary when sitting new trails on a



slope.

- d. Install earthen steps to traverse the slope from the bluff to Barnes Road opposite the causeway between the Lagoon and Upper Lagoon Pond.

Objective 3: Protect the value of the reservation as migratory and breeding habitat for avian and other wildlife species

*Strategies:*

- a. Retain snags in woodland where these trees do not pose unacceptable safety or fire hazard.
- b. Retain a portion of existing cedars for perching in native grassland complex.
- c. Monitor changes in vegetation cover during regular property checks and by updating ecological inventory in 2020.

Objective 4: Control the spread of invasive species.

*Strategies:*

- a. Cut or uproot invasive species as they are observed.
- b. Monitor for re-growth and continue to manage invasive plants.
- c. Explore other control methods and implement with permission of the MVLBC if physical control methods fail or physical control methods are not possible due to the archaeological significance, if any, of the reservation.

Objective 5: Reduce forest fire danger in woodland on the reservation.

*Strategies:*

- a. Prohibit open flame fires on the reservation unless special permission is granted by the land bank property staff and local fire department.
- b. Work with a forester to create a forest management plan to address fire safety in the woodland with respect the close proximity to dense development.

## **B. Recreation and Aesthetics**

**Allow limited, low-impact recreational use of the area for hiking, bicycling, horseback-riding and picnicking and maintain attractive views and landscapes provided that these uses do not preclude attainment of nature conservation objectives.**

Objective 1: Create trail system as shown on the Site Management Map.

*Strategies:*

- a. Create trail network as shown on the Site Management Map:
  - i. create 1.19 miles of passive recreational trail
  - ii. harden 200' of existing Old Back Way To Oak Bluffs with  $\frac{3}{4}$  inch dense mix to make it universally-accessible;
  - iii. make trail corridors six feet wide and eight feet tall when possible;
  - iv. free trails of rocks, roots and other obstacles where practical;
  - v. install erosion control measures where needed;
  - vi. mark trails with colored markers
  - vii. site trails so that they are as unobtrusive as possible to nearby homes and prospective homesites;
  - viii. site trails so that they connect, as well as possible, to other conservation land, ancient ways and trail easements.
- b. Screen houses as necessary from the trail and views using native vegetation.
- c. Install logo markers and low-impact sign stations on the trail entrance off Barnes Road and County Road.
- d. Install signs on the Featherstone Farm sign station with property rules, maps and ecological interests of the reservation.
- e. Allow land bank staff discretion to close or relocate trails or add new trails, such as spur trails for off-property trail connections.
- f. Allow multiple uses of trails where appropriate by hikers, Nordic skiers, horseback-riders and bicyclists.
- g. Prohibit use of motorized vehicles by visitors, such as but not limited to dirt bikes and all-terrain vehicles, on the property.
- h. Check and maintain trails monthly.

Objective 2: Create a modest trailhead off County Road.

*Strategies:*

- a. Install a trailhead to accommodate up to three vehicles with one universal access space.
- b. Use  $\frac{3}{4}$  inch dense mix to harden the portion of the trailhead designated for universal access.

- c. Mark trailhead with a land bank logo off County Road.

Objective 3: Close old campground roads not slated for use in the trail system and remove outbuildings.

*Strategies:*

- a. Use logs and fencing as necessary to close trails.
- b. Allow native surrounding vegetation to grow into the roads.
- c. Post trails "closed".
- d. Remove outbuildings in such a way as to minimize disturbance of the ground.

Objective 4: Designate a  $\pm 2$ -acre area of the reservation off County Road along an old road bed to be used for a low-impact campground; prohibit camping elsewhere on the property.

*Strategies:*

- a. Allow the general area, as shown on the Site Management Map close-up, to be leased for use as a low-impact campground for  $\pm 40$  sites.
- b. Arrange for a resident manager to oversee operations during the season; drawing a salary from the proceeds; determine in advance which aspects of the infrastructure will be financed by the manager and which will be financed by the land bank.
- c. Allow for the installation of water for drinking.
- d. Allow for the installation of facilities including toilets and showers; require all portable facilities be removed during the off-season.
- e. Allow the installation of a temporary tent platform such as a yurt or a more permanent cabin the resident manager so that round-the-clock oversight is available.
- f. Allow charcoal fires for cooking in approved grills providing permission is granted by the Oak Bluffs fire chief.
- g. Allow the campground to operate on a seasonal basis only (June 1 – September 30, approximately).
- h. Require that all the necessary town and commonwealth permits are obtained to create and conduct such an operation.

- i. Require that all aspects of the campground use – establishment, design, continuing use, possible termination – be subject to the approval of the Oak Bluffs town advisory board and land bank commission.
- j. Require a nitrogen plan be created for the campground including a plan for monitoring the use.

Objective 5: Entertain possibilities for other trail links.

*Strategies:*

- a. Create links to other conserved land as it becomes available encourage visitors to clean up after their pets.
- b. Activate trail easements as their use becomes necessary and practical.

Objective 6: Require all dogs be leashed while on the reservation.

*Strategies:*

- a. Encourage visitors to clean up after their pets.
- b. Post the dog policy at the various sign stations and property entrances and in the land bank map.

Objective 7: Fill borrow pit off Barnes Road near access driveway

*Strategies*

- a. Use clean fill.
- b. Overseed with native seed.

Objective 8: Restore 5.13 acres of the wooded habitat surrounding the existing grassland to open grassland to restore the views of the Lagoon Pond from the Old Back Way to Oak Bluffs.

*Strategies:*

- a. Cut and stump-grind trees in the designated area as shown on the Site Management map.
- b. Overseed with native grass seed, if necessary, to promote native grasses.
- c. Mow annually in the spring regardless of agricultural lease status (mowing done by either the lessee or the land bank staff).

Objective 9: Direct visitors to access the reservation via the Featherstone Farm trailhead.

*Strategies:*

- a. Extend the existing Featherstone Farm trailhead onto the Southern Woodlands Reservation, as needed.
- b. If the expansion of the Featherstone Farm trailhead proves to be legally or otherwise infeasible create a trailhead elsewhere on the reservation with the siting of such a trailhead subject to the approval of the Oak Bluffs town advisory board and land bank commission.

**Mow annually in the spring regardless of agricultural lease status (mowing done by either the lesse**

### **C. Natural Products**

**Allow agricultural, hunting, woodlot and camping use of the reservation.**

Objective 1: Allow Category “B” hunting on the reservation.

*Strategies:*

- a. Post hunting regulations clearly at all sign stations during hunting season.
- b. Consult with hunting subcommittee regarding lottery limits for deer shotgun season.
- c. Post property “closed” to all non-permitted users during deer shotgun hunting season.

Objective 2 Create a community woodlot program if such a need arises.

*Strategies:*

- a. Consult with Massachusetts regional forester to develop a forestry plan for the woodland with the possibility of future use as a woodlot.
- b. Develop community woodlot program if such a need arises and with approval of land bank commission.

Objective 3: Allow agricultural use of 4.6 acres of the grassland including a portion of the existing grassland and a portion of the area proposed for grassland restoration.

*Strategies:*



- a. Allow farmer to fence the areas as needed.
- b. Lease areas according to the land bank's farmland leasing policy.
- c. Require the agricultural lessee attain the necessary local and regional permits to conduct agricultural uses in the leasehold and adhere to the Southern Woodlands DCPC.
- d. Require agricultural lessee to include a plan for nitrogen in their proposal and a plan for monitoring the use.

#### **D. Community Interaction**

##### **Provide helpful and interesting information about the property for visitors and allow educational use of the property.**

Objective 1: Help people find the property and avoid trespassing.

*Strategies*

- a. Mark the property on land bank website ([www.mvlandbank.com](http://www.mvlandbank.com)) and map and provide directions.
- b. Direct visitors in the land bank map to access the reservation by vehicle via the Featherstone Farm trailhead.
- c. Install land bank logo markers on property.
- d. Install gates or fencing as needed.
- e. Post map of property and trails as well as an aerial overview of the connecting conservation land and trails on sign station and website.
- f. Plant vegetation, as necessary, where residential dwellings are visible from the trail, in order to blend in with the natural context of its environs.

Objective 2: Present useful and interesting information about the Southern Woodlands Reservation to the public.

*Strategies:*

- a. Provide the Oak Bluffs public library and conservation commission with copies of this management plan if so desired.
- b. Make a copy of this plan available at the land bank office.
- c. Post information about the cultural and natural history of the reservation at the trailheads.

## **E. Land Administration**

### **Maintain the land bank maintenance shop and oversee and police the Southern Woodlands Reservation on a regular basis and develop good neighborhood relations**

Objective 1. Maintain good relations with abutters and neighbors.

*Strategies*

- a. Establish contact and working relations with neighbors.
- b. Maintain contact and working relations with the Oak Bluffs conservation commission; send a draft copy of the plan to the Oak Bluffs conservation commission prior to the public hearing.
- c. Implement easement and agreements (Appendix B).
- d. Post the activities allowed and prohibited on the preserve.

Objective 2. Keep property well-maintained.

*Strategies*

- a. Inspect property at least monthly.
- b. Clean up any litter and junk which may occur.
- c. Promptly respond to problems.
- d. Employ adequate staff to effectively implement land management goals.

Objective 3. Maintain set hours for use.

*Strategies*

- a. Open property every day of the year from sunrise to sunset.
- b. Prohibit nighttime use (with the exception of the proposed campground use).
- c. Post "closed at dark" signs on the sign station.

Objective 4. Keep well-maintained boundaries.

*Strategies*

- a. Locate corners and walk boundaries annually.
- b. Keep photographic record of corners.
- c. Post boundary flags where appropriate.

- d. Correct encroachments as they occur.

Objective 5. Keep good records of all land management activities and natural events.

*Strategies*

- a. Record all significant events, natural or otherwise.
- b. Continue to update plant and animal inventories.
- c. Maintain photographic record of landscape appearance.

Objective 6. Maintain land bank maintenance shop and access road.

*Strategies*

- a. Screen using native vegetation the maintenance building.
- b. Maintain paved access road.
- c. Maintain building as needed.

Objective 7. Comply with all applicable regulations and agreements.

*Strategies*

- a. Comply with any applicable DCPCs and local planning board and zoning regulation.
- b. Comply with Massachusetts Endangered Species Act laws and apply for MESA review of the proposed management plan activities.
- c. Comply with Massachusetts Wetlands Protection Act and Oak Bluffs town wetland bylaws for the construction of 30' of new trail in the slough on the escarpment off Barnes Road.
- d. Consult with the Massachusetts Historical Commission to minimize disturbance of significant archaeological sites through trail erosion control, minimizing excavation and proper siting of uses.

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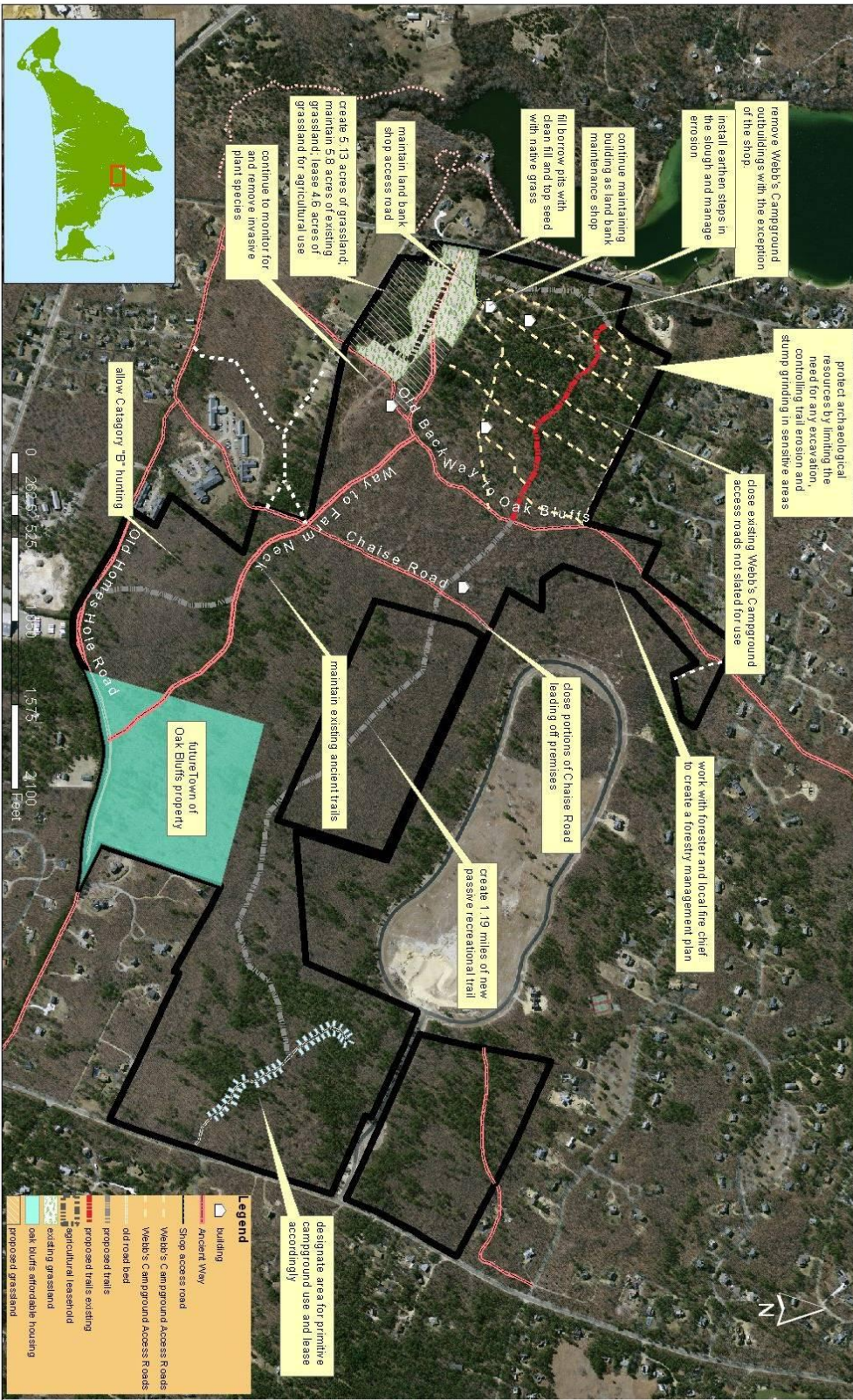


## Southern Woodlands Reservation, Oak Bluffs, MA Site Management Map





## Southern Woodlands Reservation, Oak Bluffs, MA Site Management Map



Source: Office of Geographic and Environmental Information (MassGIS)  
Commonwealth of Massachusetts Executive Office of Environmental Affairs



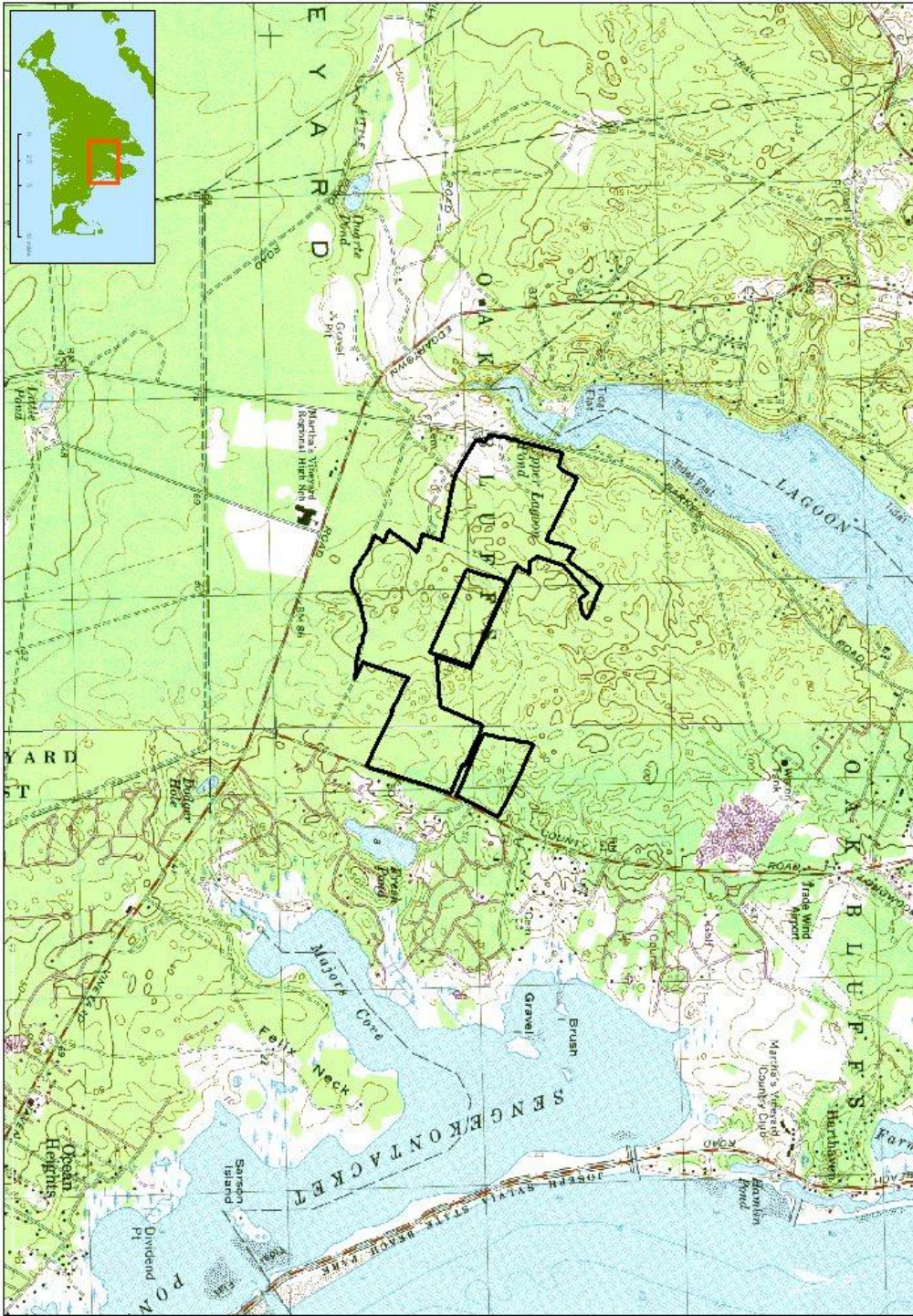
Southern Woodlands Reservation, Oak Bluffs, MA  
Site Management Map





Appendix A: Locus and Topography Maps

Southern Woodlands Reservation, Oak Bluffs, MA - Locus Map



Source: Office of Geographic and Environmental Information (MassGIS)  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Cartography: MVLBC  
09-10-10 created (J.E.) 12-10-10 edited (J.R.)



Southern Woodlands Reservation, Oak Bluffs, MA - Aerial Photograph Map (2009)

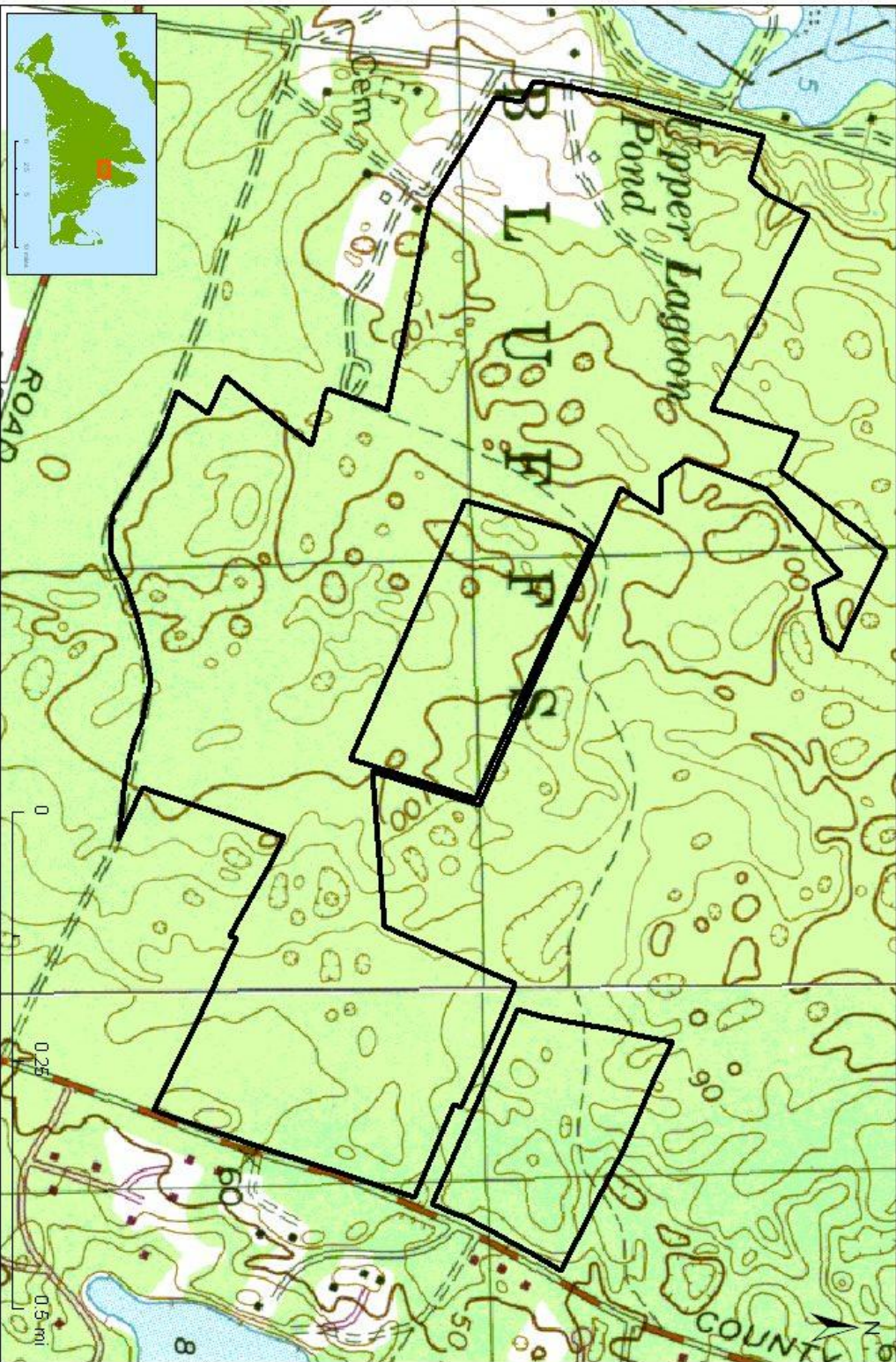


Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Cartography: MWLBC  
09-10-10 created (J.E.) 12-10-10 edited (J.R.)



# Southern Woodlands Reservation, Oak Bluffs, MA Topographic Map



Source: Office of Geographic and Environmental Information (MassGIS)  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Cartography: MVLBC (I.E.)  
August 10th, 2010



## Appendix B: Surveys, Deeds and Preliminary Management Plan Goals

Deeds and larger copies of the surveys are on file at the land bank office. They include the following:



March 22, 2004

### Martha's Vineyard Land Bank Commission

Southern Woodlands Reservation \*  
preliminary management plan

acreage	± 180.0 acres *
tax parcel nos.	41-2, 42-27, 43-54
nature conservation goals	(1) conduct biological survey of property to serve as base for formulation of management objectives
	(2) identify rare and endangered species, if any, and create plan to protect and encourage their populations
natural products goals	(1) designate property in the land bank's hunting policy as a category "b" property, i.e., general hunting
scenic goals	(1) complete work on Barnes Road field creation commenced by prior owner
recreational goals	(1) open property for hiking, non-motorized bicycling, horseback-riding and other like passive uses; maintain existing trails and install new trails, as needed and appropriate
	(2) access property via land bank trailhead at abutting Featherstone Farm; create additional trailhead(s) as needed and appropriate
	(3) investigate feasibility of resurrecting former public camp-

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ground here, in fitting location, via requests-for-proposals for third-party manager who would create and oversee business subject to a land bank lease

- (4) work to connect property with other conservation areas and neighborhoods by means of the cross-Oak Bluffs trail and other trails and nearby roads

administrative goals

- (1) oversee and police land on regular basis in order to maintain property as an attractive conservation area
- (2) complete management plan before December of 2005

\* expands and will be consolidated with the land bank's existing holdings along the County Road, i.e., tax parcel nos. 43-53, 43-54.1 and 49-1 (total acreage: 45 acres), for a grand total of 225 acres

approved by vote of the Oak Bluffs town advisory board: March 22, 2004

approved by vote of the land bank commission: March 22, 2004



MARTHA'S VINEYARD LAND BANK FEE  
 PAID \$ \_\_\_\_\_  
 EXEMPT \$ A  
39437 3/25/05 RmY  
NO. DATE CERTIFICATION



Bk: 1035 Pg: 66 Doc: DEED  
Page: 1 of 9 03/25/2005 10:25 AM

**QUITCLAIM DEED**

(Southern Woodlands, Oak Bluffs, Dukes County, Massachusetts)

**MILLENIUM PAR HOLDINGS, LLC**, a Delaware limited liability company, with its principal offices at c/o TVGC, Inc., 2 Cowdray Park Drive, Greenwich, Connecticut 06831, and **COREY A. KUPERSMITH, a/k/a COREY KUPERSMITH**, with an address of 2 Cowdray Park Drive, Greenwich, Connecticut 06831 (collectively, the "Grantor"), for consideration paid, and in full consideration of Eighteen Million Six Hundred Twenty-Two Thousand Nine Hundred Forty and No/100 Dollars (\$ 18,622,940.00) grant to the **MARTHA'S VINEYARD LAND BANK COMMISSION**, a corporate body politic, with a principal place of business at 167 Upper Main Street, P.O. Box 2057, Edgartown, Massachusetts 02539 (the "Grantee") with QUITCLAIM COVENANTS, a certain parcel of land, known as the Southern Woodlands, situated off County Road in Oak Bluffs, Dukes County, Massachusetts, shown as "Parcel D 8,278,046 S.F. ± 190.03 AC±" (hereinafter referred to as "Parcel D") on that certain plan entitled "Plan of Land, Oak Bluffs, Massachusetts" prepared by Ducharme & Wheeler, Inc., dated March 7, 2005, and recorded with the Dukes County Registry of Deeds simultaneously herewith (the "Plan"), as more particularly described in Exhibit A attached hereto and incorporated herein.

The Grantor hereby reserves for itself, and its successors and assigns, as owner of Parcel A, the perpetual, non-exclusive right and easement, in common with the Grantee, and its successors and assigns, as owner of Parcel D:

Property Address: Southern Woodlands  
Oak Bluffs, MA

1. to pass and repass by foot and by vehicles over the way identified as "Chaise Way" on the Plan for purposes of emergency ingress and egress only, provided that the Grantor shall not pave, widen or otherwise alter said way from its condition as of the date hereof, unless required by the Town of Oak Bluffs in connection with said emergency access;
2. to use and to grade the areas upon Parcel D shown as (i) "15' Wide Slope Easement, 1,742+- Sq.Ft.," (ii) "Drainage Easement, 559+- Sq.Ft.," and (iii) "10' Wide Slope Easement, 6,903+- Sq.Ft." on the Plan for slope and drainage purposes; and
3. to enter upon Parcel D, after thirty (30) days prior notice as provided herein, in the area shown as "View Easement Area E" on the Plan (the "View Easement Area") for purposes of selective cutting and/or topping of trees to maintain and/or improve views over the View Easement Area, at the Grantor's sole cost and expense. At least thirty (30) days prior to any such cutting or topping, the Grantor shall provide the Grantee with a plan and written notice reasonably describing any proposed cutting, trimming, clearing and removal of vegetation, the means to be employed in performing any such work, the areas to be affected and traversed, and the proposed date(s) on which the proposed activities shall be exercised, for Grantee's review. All cutting, trimming, clearing and removal of vegetation shall be performed so as to create a natural appearing flow of



canopy; shall be designed to minimize the impact of any such work to Parcel D; shall employ proper horticultural, forestry and landscape management practices; shall proceed in accordance with all applicable laws, by-laws, rules and regulations; and all significant cuttings, trimmings or removals of vegetation as a by-product of such activities shall be removed from Parcel D within a reasonable period of time. The Grantor shall indemnify and hold harmless the Grantee from any and all liability, costs, expenses or damages which the Grantee may incur arising out of the exercise of any of the rights reserved by the Grantor herein. In no event shall the rights reserved herein be interpreted to allow anything other than the selective cutting and/or topping of trees in order to improve and/or maintain views from Parcel A to the surrounding ocean, marsh or inland salt water areas.

Parcel D is hereby conveyed subject to the restriction, for the benefit of Parcel A and enforceable by the owner(s) from time to time of Parcel A, that the Grantee, and its successors and assigns, shall never erect or place any structure or personal property or equipment of any nature in, on, under, over or through the View Easement Area, other than a "trail head" access parking area and structures, personal property or equipment associated therewith.

Such rights, easements and restrictions are for the benefit of and appurtenant to Parcel A, and are reserved to the Grantor subject to the right of the Grantee to enjoy the use of said Parcel D for all purposes not inconsistent with the rights herein reserved.

The Grantor hereby restricts Parcel A, for the benefit of Parcel D and enforceable by the owner(s) from time to time of Parcel D, to residential and other uses as permitted by that certain Decision of the Oak Bluffs Planning Board entitled "Town of Oak Bluffs, Special Permit and Site Plan Review Approval, The Preserve at the Woodlands, Land Off County Road" dated November 12, 2004 and recorded with said Deeds in Book 1031, Page 610, and by that certain Decision of the Martha's Vineyard Commission (DRI No. 555-2) dated April 16, 2004 and recorded with said Deeds in Book 996, Page 165 (collectively, the "Permits"), as the Permits may be amended from time to time; provided, however, that in no event shall Grantor construct or develop more than 26 residential dwellings on Parcel A.

The above restrictions are imposed in accordance with Massachusetts General Laws, Chapter 184, Section 26, as amended from time to time, and shall run with the land and shall bind Parcel D and Parcel A, respectively, and the owners of record from time to time of all or any portion of each of Parcel D and Parcel A, and all successors, heirs, transferees, assigns, grantees, legal representatives, mortgagees and all other persons and parties who may take a legal or equitable interest therein for a period of thirty (30) years from the date of recording this Deed and for such further periods as the same may be from time to time extended by the holder(s) of the benefit thereof for successive periods of twenty (20) years each, in the manner provided in Massachusetts General Laws, Chapter 184, Section 17, as amended from time to time, but in any event, all of said restrictions shall expire ninety nine (99) years from the date of recording this deed.



## SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

Parcel D is hereby conveyed subject to and with the benefit of all other rights, restrictions, easements and reservations of record, if any, insofar as the same may now be in force and applicable.

Grantor hereby releases to Grantee, its successors and assigns, all rights in and to the "Way to Farm Neck," the "Old Back Way to Oak Bluffs," the "Chaise Way" and the "Back Way Connector," all as shown on the Plan, to the extent such ways are located on Parcel D (the "Ways"). Notwithstanding the foregoing, the Grantor reserves for itself, and its successors and assigns, the right to pass and repass on the Ways by foot, hoof and by non-motorized bicycle, subject to reasonable rules and regulations adopted by Grantee to protect the interests specified in Grantee's enabling act. Such reservation is for the benefit of and appurtenant to Parcel A, and is reserved to the Grantor subject to the right of the Grantee to enjoy the use of said Parcel D for all purposes not inconsistent with the rights herein reserved.

For the Grantor's title, see: Confirmatory Deed in Lieu of Foreclosure by Down Island Golf Club, Inc. dated March 22, 2005 and recorded with said Deeds herewith; Commissioner's Deed by J. Timothy Nealon dated March 21, 2005 and recorded with said Deeds in Book 1034, Page 427; Commissioner's Deed by J. Timothy Nealon dated March 21, 20005 and recorded with said Deeds in Book 1034, Page 429; Deed of the New England Antiquarian Realty Trust, dated July 24, 2000, recorded with said Deeds in Book 805, Page 608; Deed of George Manry, Sr. dated May 1, 2000, recorded with said Deeds in Book 808, Page 727; Deed of George Manry, Jr. dated May 9, 2000, recorded with said Deeds in Book 808, Page 725; Deed of Elizabeth Osborn dated May 7, 2000, recorded with said Deeds in Book 808, Page 729; Deed of Donna Woloshen dated May 4, 2000, recorded with said Deeds in Book 808, Page 731; Deed of Sandra Wells dated May 1, 2000, recorded with said Deeds in Book 808, Page 733; Deed of John C. Nevin dated May 3, 2000, recorded with said Deeds in Book 808, Page 735; Deed of Elizabeth O. Ward dated May 2, 2000, recorded with said Deeds in Book 810, Page 144; Deed of William Sweeney dated May 1, 2000, recorded with said Deeds in Book 808, Page 737; Deed of Carolina Osborn Seacord dated April 29, 2000, recorded with said Deeds in Book 808, Page 739; Deed of Peter Bettencourt dated May 1, 2000, recorded with said Deeds in Book 808, Page 741; Deed of Marlene Kinkelear dated May 1, 2000, recorded with said Deeds in Book 808, Page 743; Deed of Gloria Haase dated April 29, 2000, recorded with said Deeds in Book 808, Page 745; Deed of John W. Osborn, Jr. dated April 29, 2000, recorded with said Deeds in Book 808, Page 747; Deed of Kenneth Osborn dated April 28, 200, recorded with said Deeds in 808, Page 749; Deed of Diane Crawford dated May 1, 2000, recorded with said Deeds in Book 808, Page 757; Deed of Joanne Broccoli dated May 4, 2000, recorded with said Deeds in Book 808, Page 753; Deed of Helen Nevin dated April 29, 2000, recorded with said Deeds in Book 808, Page 755; Deed of Loraine Kornek dated April 28, 2000, recorded with said Deeds in Book 808, Page 781; Deed of Arthur Herrick dated June 21, 2000, recorded with said Deeds in Book 808, Page 757; Deed of William Herrick dated June 17, 2000, recorded with said Deeds in Book 808, Page 759; Deed of Abigail Herrick dated June 17, 2000, recorded with said Deeds in Book 808, Page 761; Deed of Julia Herrick dated June 17, 2000, recorded with said Deeds in Book 808, Page 763; Deed of Betty Hickey dated June 30, 2000, recorded with said Deeds in Book 808, Page 765; Deed of Edward Bannon, Jr. dated July 3, 2002, recorded with said Deeds in Book 808, Page 767; Deed on Linda Puleo dated June 29, 2000, recorded with said Deeds in Book 808, Page 769; Deed of Thomas Mullen dated July 5, 2000, recorded with said Deeds in Book 808, Page 771; Deed of



## SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

Jane Manning dated July 5, 2000, recorded with said Deeds in Book 808, Page 773; Deed of Carol Ann Miller dated July 5, 2000, recorded with said Deeds in Book 808, Page 775; Deed of Ralph Bennet dated July 3, 2000, recorded with said Deeds in Book 808, Page 777; Deed of Edmond Hurtubise dated July 14, 2000, recorded with said Deeds in Book 808, Page 779; Deed of Nancy White dated July 21, 2000, recorded with said Deeds in Book 808, Page 783; Deed of Norma Herrick dated July 17, 2000, recorded with said Deeds in Book 808, Page 785; Deed of Edgar Sampson, Jr. dated July 31, 2000, recorded with said Deeds in Book 810, Page 796; Deed of Susan Fitzpatrick dated August 1, 2000, recorded with said Deeds in Book 810, Page 782; Deed of George Harvey Herrick dated August 7, 2000, recorded with said Deeds in Book 810, Page 788; deed of Robert Sampson dated August 11, 2000, recorded with said Deeds in Book 810, Page 798; Deed of Edward McDade dated August 2, 2000, recorded with said Deeds in Book 810, Page 792; Deed of Thomas Taylor dated August 21, 2000, recorded with said Deeds in Book 810, Page 800; Deed of Alicia Quiroz dated August 14, 2000, recorded with said Deeds in Book 810, Page 794; Deed of Margaret Curley dated August 22, 2000, recorded with said Deeds in Book 810, Page 780; Deed of Victoria Johnson dated August 14, 2000, recorded with said Deeds in Book 810, Page 790; Deed of Doris Herrick dated September 11, 2000 and recorded with said Deeds in Book 810, Page 784; Deed of Robert Herrick dated September 27, 2000, recorded with said Deeds in Book 818, Page 524; Deed of Frederick Herrick dated September 27, 2000, recorded with said Deeds in Book 810, Page 786; Clarence Leonard dated October 11, 2000, recorded with said Deeds in Book 818, Page 524; Deed of Lois Haskins dated October 11, 2000, recorded with said Deeds in Book 818, Page 518; Deed of Laura Dugan dated October 12, 2000, recorded with said Deeds in Book 818, Page 520; Deed of Darlene Herrick dated December 12, 2000, recorded with said Deeds in Book 831, Page 670; Deed of E. Natalie Herrick dated December 19, 2000, recorded with said Deeds in Book 831, Page 672; Deed of Deborah P. Sampson dated November 13, 2000, recorded with said Deeds in Book 831, Page 674; Deed of Herrick Family Trust dated November 24, 2000, recorded with said Deeds in Book 831, Page 666.

MILLENIUM PAR HOLDINGS, LLC hereby warrants and represents that the property conveyed herein does not constitute all or substantially all of the assets MILLENIUM PAR HOLDINGS, LLC.



Exhibit A

Legal Description

Parcel of land in Oak Bluffs, Dukes County, Massachusetts located westerly of County Road, the easterly side of Barnes Road and shown as Parcel D on the Plan.

Beginning	at the Southwesterly corner of the property at a concrete bound on the easterly side of Barnes Road as shown on the Plan; thence
S 57°48'52" E	a distance of 126.70 feet to a point; thence
S 09°40'08" W	a distance of 140.89 feet to a point; thence
S 57°45'46" E	a distance of 649.27 feet to a point; thence
S 76°56'24" E	a distance of 1140.94 to a point; thence
S 27°57'36" W	a distance of 46.76 feet to a point; thence
S 19°14'32" W	a distance of 293.33 feet to point; thence
S 75°39'12" E	a distance of 4.60 feet to a point; thence
S 72°05'58" E	a distance of 302.86' feet to a point; thence
S 38°43'20" W	a distance of 175.03 feet to a point; thence
S 38°43'53" W	a distance of 388.64 feet to a point; thence
S 65°29'40" E	a distance of 206.33 feet to a point; thence
S 33°27'39" W	a distance of 203.82 feet to a point; thence
S 67°38'50" E	a distance of 239.22 feet to a point; thence
S 57°44'29" E	a distance of 292.22 feet to a point; thence
S 58°19'28" E	a distance of 124.24 feet to a point; thence
S 61°45'59" E	a distance of 85.62 feet to a point; thence
S 80°42'37" E	a distance of 109.90 feet to a point; thence
N 80°05'46" E	a distance of 104.44 feet to a point; thence

SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

N 63°52'56" E	a distance of 148.00 feet to a point; thence
N 75°08'48" E	a distance of 443.06 feet to a point; thence
S 88°58'32" E	a distance of 179.93 feet to a point; thence
S 73°05'44" E	a distance of 346.90 feet to a point; thence
S 81°21'50" E	a distance of 231.36 feet to a point; thence
S 82°22'57" E	a distance of 172.18 feet to a point; thence
N 63°22'23" W	a distance of 268.04 feet to a point; thence
N 19°47'11" E	a distance of 804.33 feet to a point; thence
S 60°13'19" E	a distance of 602.25 feet to a point; thence
N 19°54'40" E	a distance of 30.98 feet to a point; thence
N 20°21'30" E	a distance of 859.40 feet to a point; thence
S 65°01'52" E	a distance of 457.98 feet to a point; thence
N 28°12'26" E	a distance of 576.98 feet to point; thence
N 64°36'06" W	a distance of 104.13 feet to a point; thence
N 25°23'55" E	a distance of 40.00 feet to a point; thence
N 64°36'05" W	a distance of 692.27 feet to a point; thence
Southwesterly	on a curve turning to the left with an arc length of 39.96 feet, a radius of 25.00 feet, a chord bearing of S 69°36'54" W, and a chord length of 35.84 feet; thence
S 23°49'47" W	a distance of 754.91 feet to a point; thence
S 86°06'43" W	a distance of 818.65 feet to a point; thence
N 17°31'16" E	a distance of 597.72 feet to a point; thence
N 65°01'52" W	a distance of 1842.79 feet to a point; thence
N 30°34'42" E	a distance of 247.16 feet to a point; thence



SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

N 89°06'57" W	a distance of 188.07 feet to a point; thence
N 34°10'45" W	a distance of 160.00 feet to a point; thence
N 20°40'11" E	a distance of 465.72 feet to a point; thence
N 50°16'35" E	a distance of 577.17 feet to a point; thence
S 32°05'52" E	a distance of 149.00 feet to a point; thence
N 78°48'23" E	a distance of 280.44 feet to a point; thence
N 31°26'13" E	a distance of 101.45 feet to a point; thence
N 64°41'59" W	a distance of 572.69 feet to a point; thence
S 30°47'21" W	a distance of 58.41 feet to a point; thence
S 38°37'44" W	a distance of 671.00 feet to a point; thence
N 61°27'33" W	a distance of 213.00 feet to a point; thence
S 14°54'01" W	a distance of 473.00 feet to point; thence
N 63°07'56" W	a distance of 1154.70 feet to a point; thence
S 28°49'49" W	a distance of 240.16 feet to a point; thence
S 39°11'54" W	a distance of 131.96 feet to a point; thence
N 68°41'37" W	a distance of 242.78 feet to a point; thence
S 15°30'39" W	a distance of 746.86 feet to a point; thence
Southerly	by the easterly sideline of Barnes Road on a curve turning to the left with an arc length of 513.86 feet, a radius of 4970.00 feet, a chord bearing of S 12°32'56" W, and a chord length of 513.63 feet to the point of beginning.

SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

Excepting from the above described parcel is a separate parcel shown as "N/F Oak Bluffs Resident Homesite Committee, 42-2" ("Parcel 42-2") on the Plan more fully described as follows:

Beginning at the Southeasterly corner of Parcel 42-2 and a bearing of N 50 22' 50" W, a distance of 550.92 feet from a Drill Hole in a Concrete Bound at a point on the perimeter of Parcel D all as shown on the Plan; thence

N 64 33' 20" W a distance of 1491.66 feet to a point; thence

N 16 57' 13" E a distance of 568.63 feet to a point; thence

N 33 11' 39" E a distance of 122.80 feet to a point; thence

S 65 01' 52" E a distance of 1476.15 feet to a point; thence

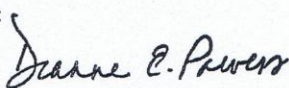
S 19 03' 03" W a distance of 538.58 feet to a point; thence

S 17 19' 33" W a distance of 162.73 feet to the point of beginning. The last six (6) six courses by Parcel D as shown on the above referenced plan.

Area of Parcel D 8,278,046 square feet, 190.037 acres

N:\U8\05\egmar\MVLB\_Kupersmith Deed Rev 032405.doc

Attest:

 Register



SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

IN WITNESS WHEREOF, the Grantor has caused this Quitclaim Deed to be duly executed as an instrument as of the 23 day of March, 2005.

GRANTOR

Corey Kupersmith  
Corey A. Kupersmith

Millenium Par Holdings, LLC, a Delaware limited liability company


By: Corey Kupersmith  
Corey A. Kupersmith, its authorized representative

State of Florida  
~~COMMONWEALTH OF MASSACHUSETTS~~

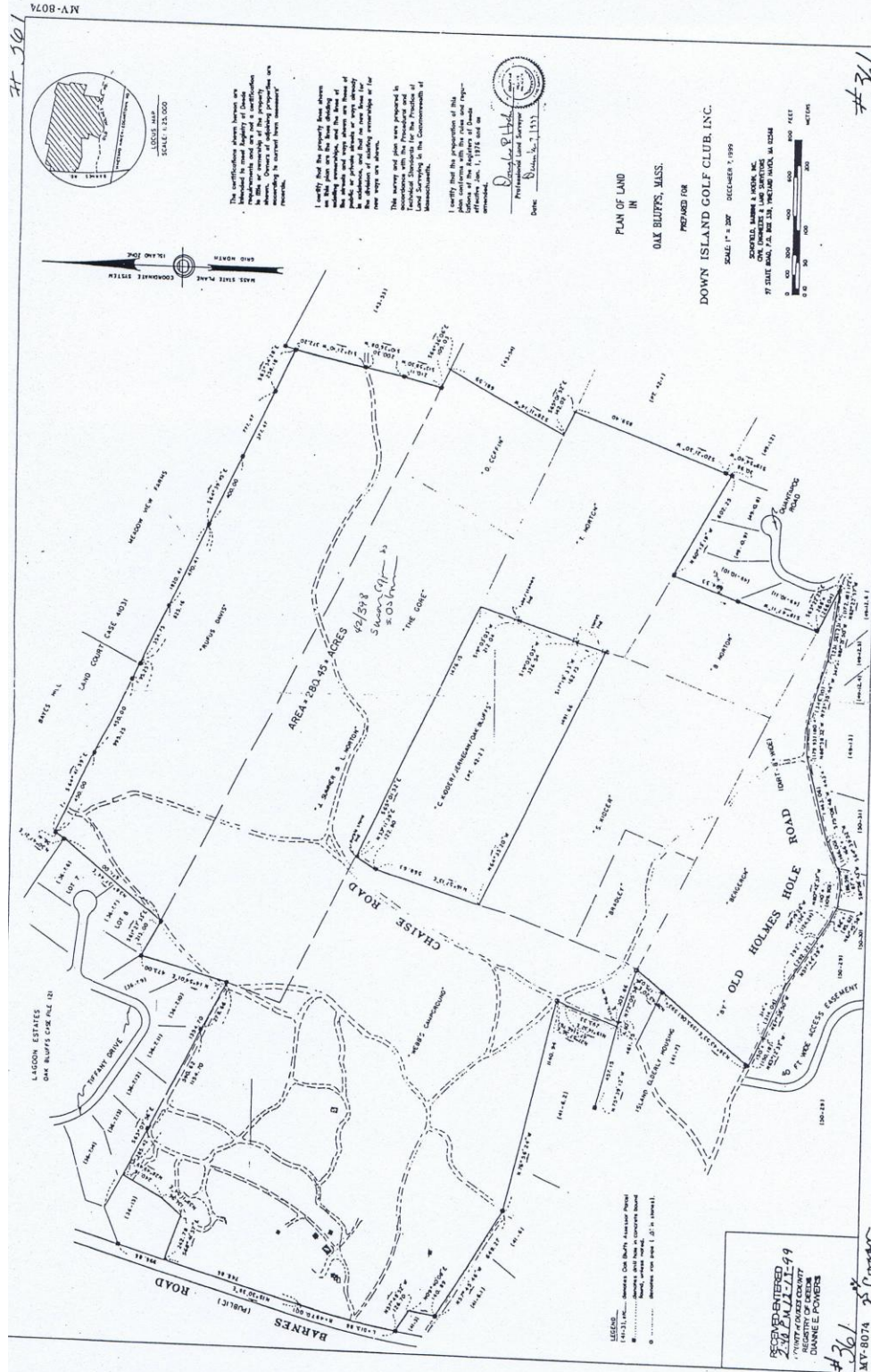
MARIN Co,  
~~Suffolk, ss.~~

On this 23<sup>rd</sup> day of March, 2005, before me, the undersigned notary public, personally appeared Corey A. Kupersmith, individually and as the authorized representative of Millenium Par Holdings, LLC, proved to me through satisfactory evidence of identification, which was CT. Drivers License to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

[Signature]  
Notary Public  
My commission expires:

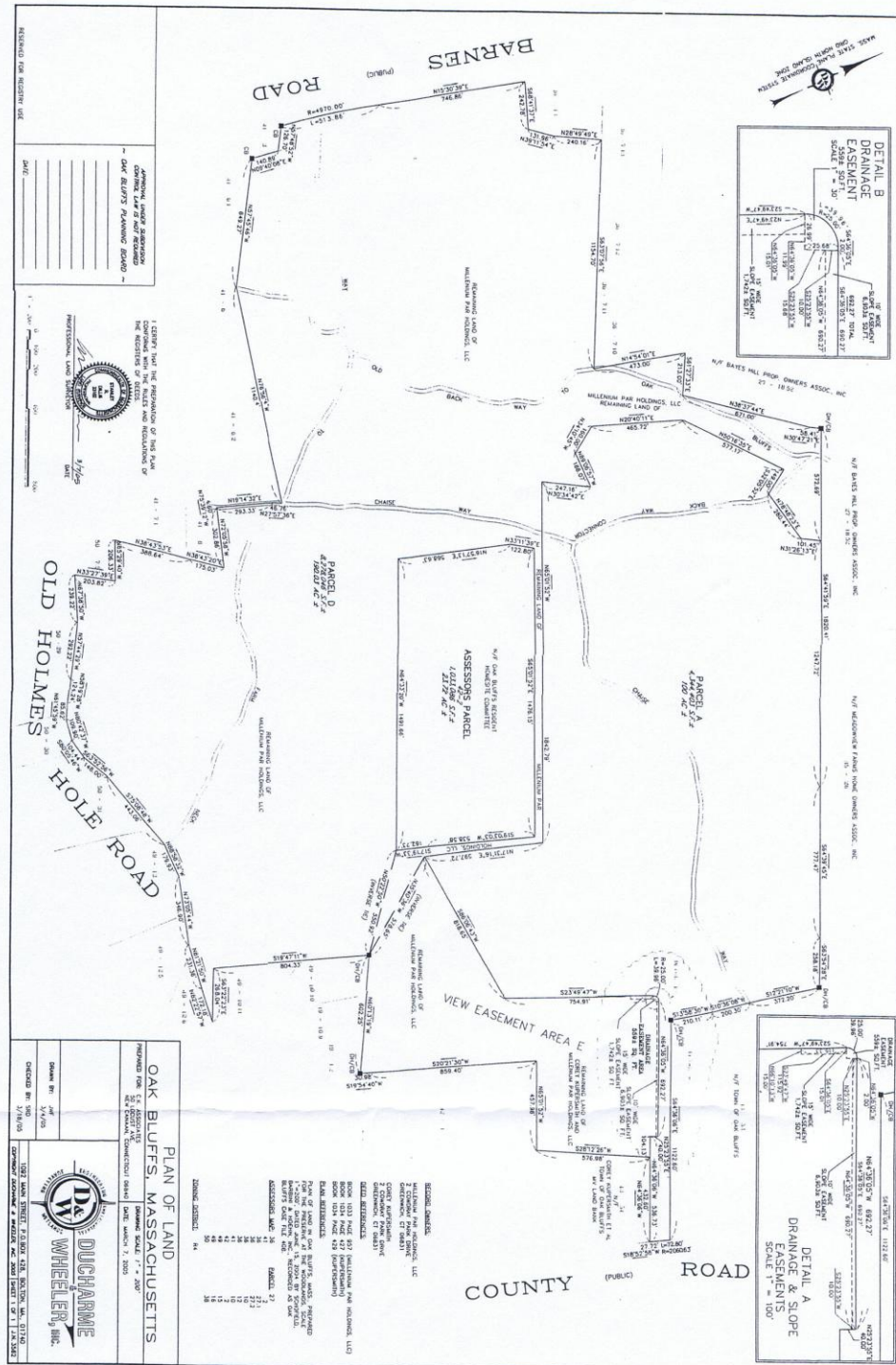
 Anthony R. Sementelli  
My Commission DD337565  
Expires September 15, 2008

SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN



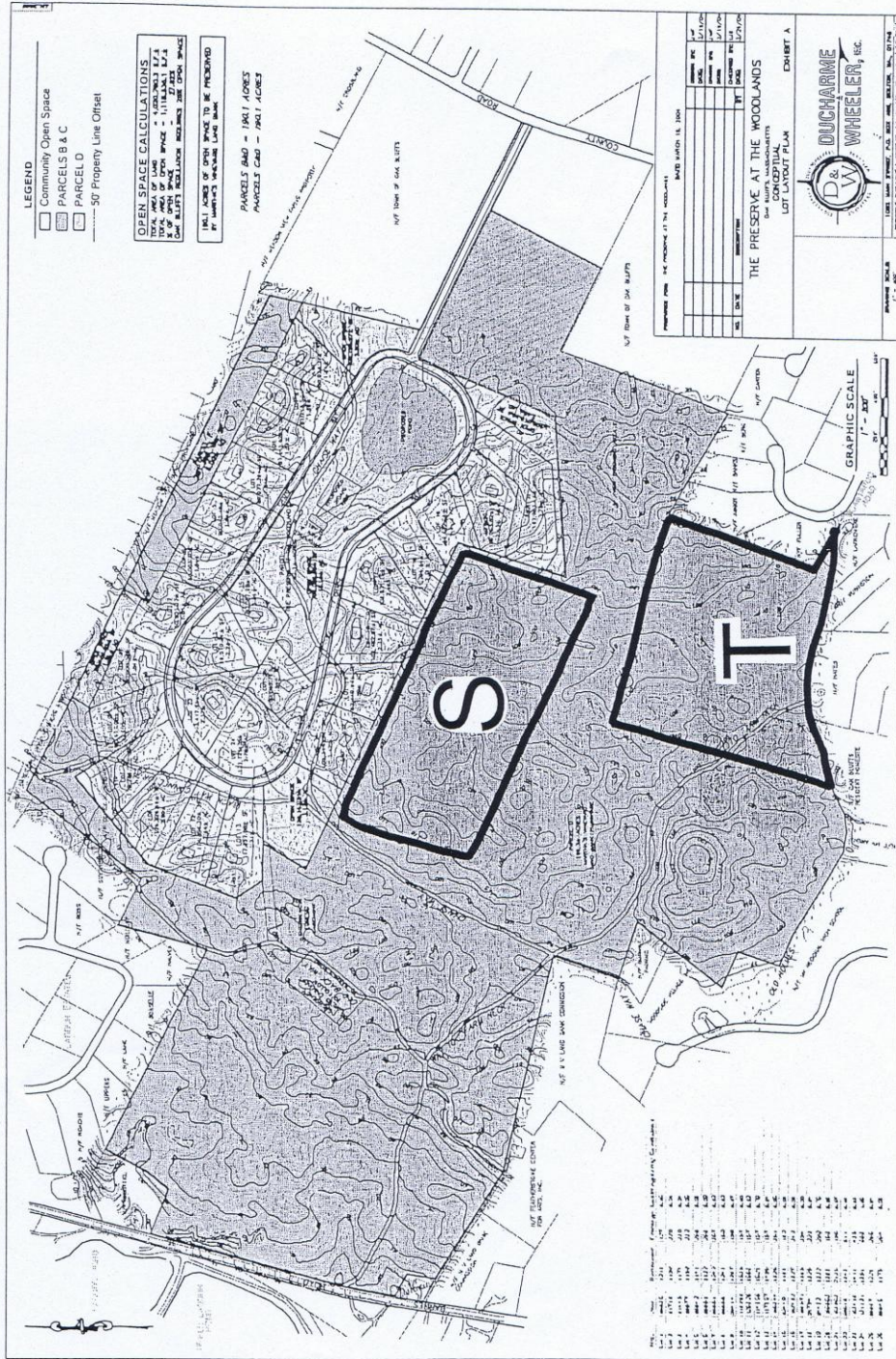


# SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN





# SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN







**EASEMENT AGREEMENT**

This Easement Agreement is made as of this 18<sup>th</sup> day of August, 2005, by and between **Millenium Par Holdings, LLC**, a Delaware limited liability company, with an address of 50 Locust Avenue, New Canaan, Connecticut, ("**Millenium**"), **Corey A. Kupersmith**, a natural person, with an address of 50 Locust Avenue, New Canaan, Connecticut ("**Kupersmith**"), together with Millenium ("**Grantor**"), and **Martha's Vineyard Land Bank Commission**, a corporate body politic, with a principal place of business at 167 Upper Main Street, P.O. Box 2057, Edgartown, Massachusetts 02539 ("**Grantee**").

**BACKGROUND**

A. Grantor is the owner of that certain parcel of land, situated off County Road in Oak Bluffs, Dukes County, Massachusetts, shown as "Parcel A 4,344,403 S.F.± 100 AC±" on that certain plan entitled "Plan of Land, Oak Bluffs, Massachusetts" prepared by Ducharme & Wheeler, Inc., dated March 7, 2005 and recorded with the Dukes County Registry of Deeds in Plan Book 15, Page 15 (the "**Plan**") (the "**Grantor Property**").

B. Grantee is the owner of that certain parcel of land, with the buildings and other improvements located thereon, situated off County Road in Oak Bluffs, Dukes County, Massachusetts, shown as "Parcel D 8,278,046 S.F.± 190.03 AC±" on the Plan (the "**Grantee Property**").

**AGREEMENT**

Now, therefore, Grantor and Grantee, for Ten and No/100 Dollars (\$10.00) and other good and valuable consideration paid, the receipt and sufficiency of which are hereby acknowledged, do hereby mutually act and agree as follows:

1. **Easement:** Grantor hereby grants to Grantee, with quitclaim covenants, as appurtenant to the Grantee Property, the perpetual non-exclusive right and easement, in common with Grantor as owner of the Grantor Property, on the area shown as "Open Space 3" (the "**Easement Area**") on that certain plan entitled "Definitive Subdivision of Land in Oak Bluffs Key Sheet" prepared by Ducharme & Wheeler, Inc., and dated November 29, 2004, recorded with the Dukes County Registry of Deeds in Plan Book 15, Page 36, and incorporated herein, for access from and egress to the Grantee Property (the "**Easement**").

2. **Conditions:** It is expressly understood and agreed that the Easement is herein granted subject to the following terms and conditions:

- (a) the Easement shall only be used for providing pedestrian, equestrian and non-motorized bicycle access to the Grantee, its guests and invitees to be used solely for the purpose of passive recreation, nature study and scenic enjoyment and shall not be used for other purposes such as, without limitation, passage through the Easement Area and onto the Grantor Property;

- (b) Grantee shall be solely responsible for all costs associated with its use of the Easement.

3. The Grantee shall have the right, within the Easement Area, to cut, trim, clear and remove outgrowths of brush, other vegetation and any other obstructions (collectively, "Clearing"), to the extent reasonably necessary to facilitate the uses intended hereby, provided that no rights granted hereunder shall interfere with the Grantor's use of the water supply well in the Easement Area. All such Clearing shall be performed utilizing good forestry practices, and shall be subject to the prior approval of the Grantor, which approval shall not be unreasonably withheld. Notwithstanding the foregoing, however, all such Clearing performed within the ancient ways located in the Easement Area shall not require the Grantor's prior approval.

4. Compliance with Laws: Grantee hereby agrees that its use of the Easement and the exercise of its rights and obligations hereunder shall be performed in accordance with all applicable laws and regulations.

5. Mechanic's Liens; Encumbrances. Grantee hereby agrees it shall not permit or allow any mechanic's or materialman's liens to attach to the Grantor Property due to the conduct of Grantee or anyone claiming by, through or under Grantee. Without limiting any other rights under this Agreement, if any such lien arises, Grantee shall immediately take all steps as are necessary to discharge or otherwise to remove the lien.

6. Risk of Loss. All of Grantee's personal property, and Grantee's contractors', subcontractors', agents', employees', workmen's or vendor's personal property, located within the Easement, is at Grantee's and Grantee's contractors', subcontractors', agents', employees', workmen's or vendors' sole risk and Grantor under no circumstances is responsible for any loss or damage to the same unless caused by Grantor.

7. Indemnification. Grantee, on behalf of itself and its employees, agents, contractors, subcontractors, licensees, invitees, and guests, indemnifies and holds Grantor and Grantor's officers, directors, employees, agents and shareholders, as the case may be, harmless from and against any and all claims, liabilities, suits, damages, injuries, losses, property damage and costs (including reasonable attorneys' fees) and expenses (collectively, "Claims") that Grantor or any of its officers, directors, employees, agents or shareholders, as the case may be, may incur or suffer as a result of the use by Grantee or any one acting through or on behalf of such party of the rights and easements granted in this Agreement. Further, Grantee, on behalf of itself and its employees, agents, contractors, subcontractors, licensees, invitees, guests and vendors, hereby unconditionally releases Grantor and its subsidiaries, officers, directors, employees, agents and shareholders from any claims that it any of its/his employees, agents, contractors, subcontractors, licensees, invitees, guests and vendors may have, incur or suffer as a result of the use of the rights and easements granted in this Agreement. Such indemnity and release shall not apply, however, to the extent that the subject of the indemnification is or was caused by or arises out of the sole or gross negligence or willful misconduct of Grantor.



8. Bind and Inure: The rights, covenants and agreements herein shall run with the land and are binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

9. Counterparts: This Agreement may be executed in counterparts, each of which shall constitute an original but all of which when taken together shall constitute but one Agreement.

10. Severability. If any term or provision of this Agreement or the application thereof to any person or circumstance shall, to any extent, be declared to be invalid or unenforceable, then the remainder of this Easement or the application of such term or provision to other persons or circumstances, other than those as to which it would become invalid or unenforceable, shall not be affected thereby, and each term and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

11. Governing Law. This Agreement and the performance hereof shall be interpreted and governed by the laws of the Commonwealth of Massachusetts.

12. Excise Tax: The consideration for this grant is such that no Massachusetts deed excise tax stamps are required.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

WITNESS the execution hereof under seal as of the 18<sup>th</sup> day of August, 2005.

**GRANTOR:**

MILLENNIUM PAR HOLDINGS, LLC  
By: Corey Kupersmith  
Name: Corey Kupersmith  
Its: Corey Kupersmith  
Corey A. Kupersmith


**GRANTEE:**

MARTHA'S VINEYARD LAND BANK  
COMMISSION  
By: Edith W. Potter  
Edith W. Potter, its Chairman

COMMONWEALTH OF MASSACHUSETTS

Greenwich, ss.

On this 7<sup>th</sup> day of August, 2005, before me, the undersigned notary public, personally appeared Corey Kupersmith, proved to me through satisfactory evidence of identification, which was Driver License, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose (as \_\_\_\_\_ for Millenium Par Holdings, LLC).

  
Notary Public  
My commission expires: **KAREN Y. SILPOT**  
**NOTARY PUBLIC**  
MY COMMISSION EXPIRES AUG. 31, 2007

COMMONWEALTH OF MASSACHUSETTS

Greenwich, ss.

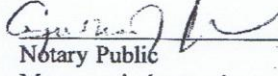
On this 9<sup>th</sup> day of August, 2005, before me, the undersigned notary public, personally appeared Corey A. Kupersmith, proved to me through satisfactory evidence of identification, which was Driver License, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

  
Notary Public  
My commission expires: **KAREN Y. SILPOT**  
**NOTARY PUBLIC**  
MY COMMISSION EXPIRES AUG. 31, 2007

COMMONWEALTH OF MASSACHUSETTS

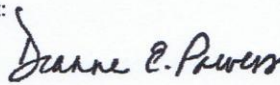
Dukes County, ss.

On this 18<sup>th</sup> day of August, 2005, before me, the undersigned notary public, personally appeared Edith W. Potter, proved to me through satisfactory evidence of identification, which was Identities Knowledge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that she signed it voluntarily for its stated purpose (as Chairman for Martha's Vineyard Lank Bank Commission).

  
Notary Public  
My commission expires: **CYNTHIA J. GLAZIER**  
**MY COMMISSION EXPIRES**  
**DECEMBER 15, 2006**

N:\U8\05\cgaug\MVLB\_Kupersmith Easement 081605.doc

1440498.1

Attest:  Register



SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN



41.3562

CONSENT THAT THE REPLICATION OF THIS PLAN FOR ANY PURPOSES OTHER THAN THAT FOR WHICH IT WAS PREPARED IS STRICTLY PROHIBITED WITHOUT THE WRITTEN PERMISSION OF THE ENGINEER.

DATE: 6/27/05

RECORD OWNERS:

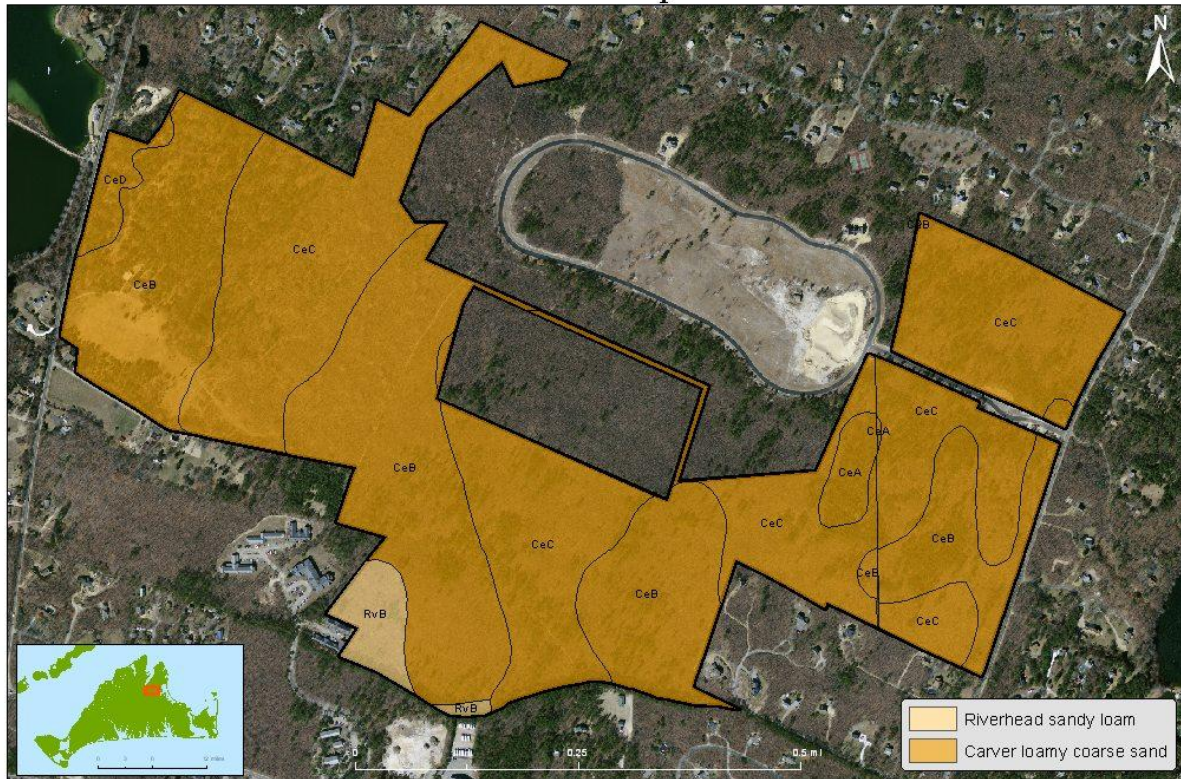
WHEELER INC. 1092 MAIN STREET, P.O. BOX 428, BOSTON, MA, 01740

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## Southern Woodlands Reservation, Oak Bluffs, MA Soils Map



Source: Office of Geographic and Environmental Information (MassGIS)  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Cartography: MVLBC (I.E.)  
August 10th, 2010

The dominant soil on the reservation is Carver Loamy Coarse Sand. The following soil descriptions are derived from the SCS (1986) and Latimer (1925) Dukes County Soil Surveys.

a. Carver Loamy Coarse Sand (CeA, CeB, CeC, CeD)

This Carver soil is very deep and well drained. As a result, it is poorly suited to agriculture without soil modifications to increase the organic matter and increase water retention in the soil. Land with this soil type is typically in woodland dominated by pitch pine and oaks and occasionally in residential development slope permitting.

- CeA : 0 – 3 percent slopes
- CeB : 3 – 8 percent slopes
- CeC : 8-15 percent slopes
- CeD : 15-25 percent slopes

b. Riverhead Sandy Loam (RvB)

This soil is also very deep and well drained with slopes of 3 to 8 percent. This soil is more suited to woodland productivity and typically contains oaks, eastern white pine and red pine. The riverhead soils are suited to agriculture as well as building sites.



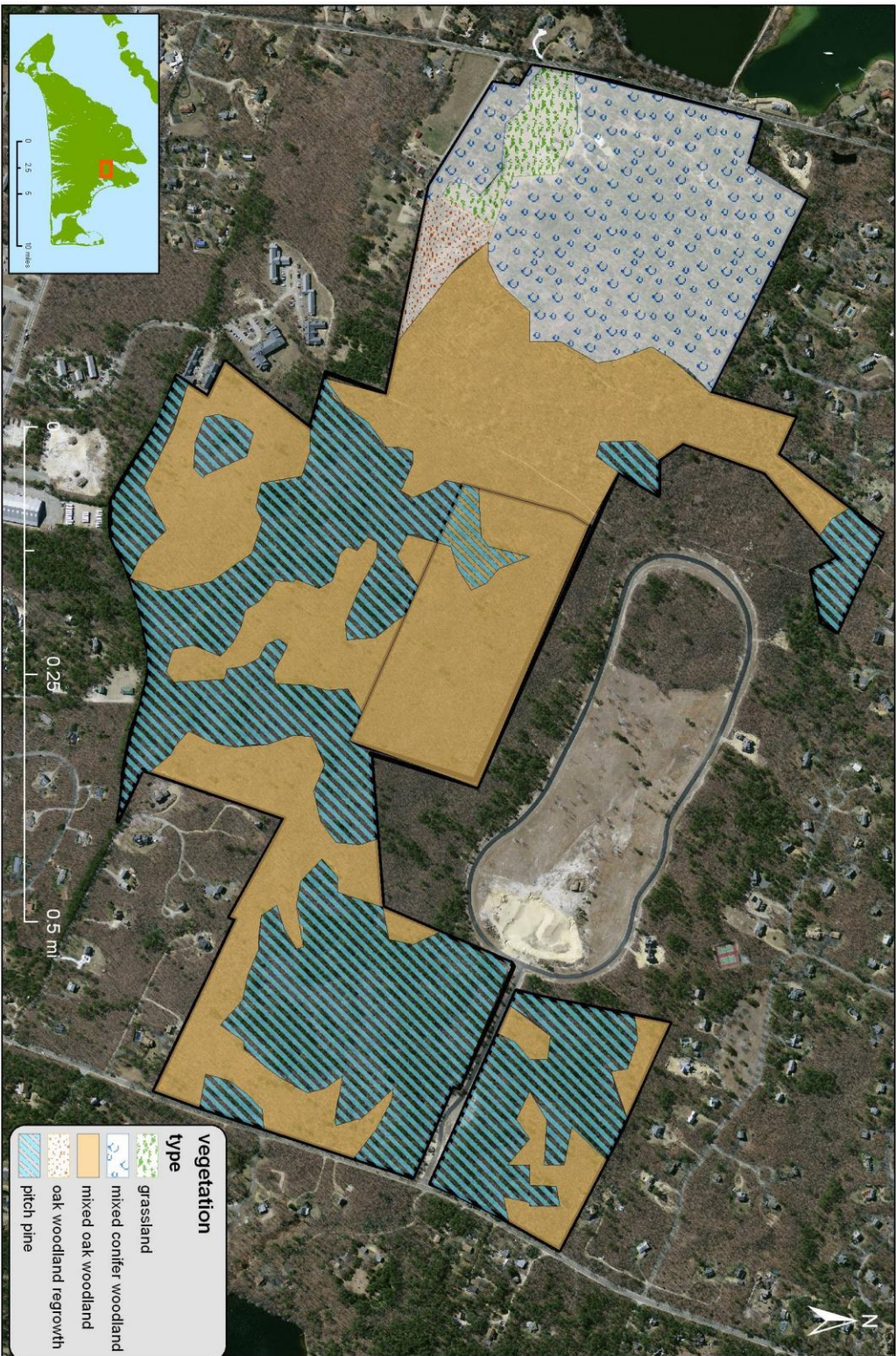
## **Appendix D: Vegetation**

Vegetation inventories and surveys of the Southern Woodlands Reservation were conducted in 2005, 2006, 2009 and 2010. A total of 173 species was observed by land bank staff during regular property checks and formal vegetative surveys. An additional 18 species were observed by other field botanists and reported in an environmental impact report written for the Down Island Golf Club in 1999.

The point sampling method as described by Avery and Burkhart (1994) was used to inventory the trees of the woodlands. A total of 47 points were inventoried in the mixed-oak woodland (39 points) and conifer woodland (8 points). Three-meter squared circular plots were used to inventory the understory at each woodland point. Density and percent cover of understory vegetation was recorded for all plots. The grassland was inventoried in 2009 following methods described by Dunwiddie (1986). Species diversity and density were recorded within thirty-eight 1-m<sup>2</sup> circular plots located at random locations along six transects running: three running SW 24° and two running SE 46.5° in the grassland off Barnes Road. Rare species were inventoried on the reservation during ongoing plant inventories conducted by land bank staff ecologist, in May, July and September of 2004; August of 2005; May and August of 2009; and June, July and August of 2010.

Flora at the Southern Woodlands Reservation is listed in Table 1 with proper nomenclature according to Gleason and Cronquist (1991). A description of each cover type and quantitative summary of surveys follows:

# Southern Woodlands Reservation, Oak Bluffs, MA Ecological Communities



Source: Office of Geographic and Environmental Information (MassGIS)  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Cartography: MVLBC (I.E.)  
December 16th, 2010

## Habitat description

### a. Grassland (5.8 acres)

The grassland is one of the smallest habitats on the reservation but the richest in species diversity. The general structure of this community is one of open herbaceous and graminoid dominated field with few shrubs. It supports a combination of native grassland species as well as an assortment of introduced ruderal species such as red top, sweet vernal grass, orchard grass, fescue, timothy grass, yarrow, chickweed, prickly lettuce, sorrel, bouncing bet, bull thistle, oxeye daisy, Queen-Anne's lace and white campion. The most dominant species in the grassland were rough-stemmed goldenrod and prickly dewberry with importance values of 56 and 53, respectively. Importance values are based on a combination of relative dominance, relative density and relative frequency. The most frequent species in the grassland were red top, rough stemmed goldenrod, oriental bittersweet and sheep fescue. Less common but still in at least a third of the plots were little bluestem, cats ear and poison ivy.

### b. Woodland (228.2)

Woodland trees are on average, 43 feet high and 8 inches in diameter at breast height. The estimated basal area per acre is 125 square feet. There are an estimated 43 trees per acre in the dbh class of 10 inches and greater.

**Mixed- Oak Woodland (104 acres)** Oak woodland trees are, on average, 40 feet high and 6.9 inches in diameter at breast height. The mixed-oak woodland exhibits the greatest diversity of the upland wooded communities and is habitat to 36% of the total species known to occur on the property (Table 1).

The mixed-oak woodland comprises a dominant mixture of oak trees, isolated pockets of American beech and scattered sassafras and smooth shadbush. Black and white oaks co-dominate the overstory with scrub and scarlet oak occurring less frequently. Other trees observed in the woodland as isolated occurrences include bigtooth aspen and red cedar.

Throughout the mixed-oak woodland small patches less than one-acre in size have died from consecutive years of defoliation by the caterpillars of gypsy moths, winter moths and fall canker worm. Other oaks in the woodland have suffered merely limb die-off in the canopy.

The next generation of canopy trees growing under the shade of the overstory trees in the mixed-oak woodland consists of black oak, the dominant sapling, and pitch pine, white oak and big tooth aspen, all relatively infrequent saplings. Understory vegetation in the mixed-oak woodland is contiguous and dominated by ericaceous species. Areas where the trees have suffered canopy defoliation the understory ericaceous shrubs are lush and dense. Black huckleberry and low



bush blueberry are the most dominant plants in the understory of the woodland and have importance values of 131 and 51, respectively. They occurred in greater than 68% of plots sampled.

A diverse array of herbaceous and graminoid species ranging from <1-4 feet dots the woodland floor in areas where light can penetrate the wooded canopy cover and are ubiquitously along old roads and wildlife trails that meander and cut through the mixed-oak woodland. The flowers of star flower, pink ladies slipper, Canadian mayflower, trailing arbutus, dwarf cinquefoil bring color to the otherwise drab woodland during the spring. White and purple blooms of asters and yellow blooms of goldenrods bring fall color to the woodland edge.

**Mixed-Conifer Woodland (38.2 acres)** The mixed conifer woodland is located where the Webb's Campground once was. The woodland has the composition of a pitch pine woodland with a mixture of Norway spruce, blue spruce, red pine, douglas fir and red cedar added to provide a denser woodland for the campground.

**Pitch Pine Woodland (83 acres)** The pine woodland occurs in pockets throughout the reservation. The woodland was used in the past as a woodlot and the pitch pines are fully capable of taking advantage of the light created from a cut tree and the lack of competition from other trees for the well-drained and denuded soils in the area.

Pine woodland trees are, on average, 51 feet high and 12 inches in diameter at breast height. The pine woodland is nearly as diverse as the oak woodland and comprises 22% of the total species known to occur on the property (Table 1). Other species such as black oak and scrub oak occur in the pine woodland. The dominant understory cover in the pine woodland is black huckleberry followed low-bush blueberry as it is in the mixed-oak woodland. The dominant sapling in the understory is black oak followed by scrub oak. It will be no surprise when the next generations of trees growing in the understory to replace the older pines as they fall are oaks. Without abandoned open space, fire or mechanical clearing of understory species to reduce regeneration competition between pine and other species, the existing pine woodland eventually will evolve into the surrounding mixed-oak woodland or slowly spread where new opportunities in the oak woodland present themselves. Oaks are shade-tolerant and can grow under the shade-intolerant pines, resulting in the next generation of overstory species.

**Woodland regrowth (3 acres)** A portion of woodland was cut in 2003 by the previous owner. It has been left to regrow into woodland. The dominant trees are approximately 15 feet tall and include black oak, white oak and pitch pine. Goldenrods and huckleberry shrubs comprise the understory.

SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

Table 1. Flora of The Southern Woodlands Reservation, Oak Bluffs, MA

	scientific name	common name	Status	Family	developed Land	grassland	mixed-oak woodland understory	mixed-oak woodland overstory	pine woodland understory	pine woodland overstory	1998-1999	2004	2005	2009
	<b>FERN</b>													
1	<i>Dennstaedtia punctulebis</i>	hay-scented fern	AN	Dennstaedtiaceae	x				x		x			
2	<i>Pteridium aquilinum</i>	bracken fern	AN	Dennstaedtiaceae		u	u		u					x
	<b>GRAMINOID</b>													
3	<i>Carex lurida</i>	sallow sedge	FN	Cyperaceae		u								x
4	<i>Carex nova-angliae</i>	New England sedge	?	Cyperaceae	x	x			x		x			
5	<i>Carex pensylvanica</i>	Pennsylvania sedge	AN	Cyperaceae		u	u		u					x
6	<i>Carex vulpinoides</i>	fox sedge	UN	Cyperaceae		x								x
7	<i>Cyperus filiculmis</i>	sandflat sedge	ON	Cyperaceae		u								x
8	<i>Scirpus cyperinus</i>	wool grass	FN	Cyperaceae		x								x
9	<i>Juncus bufonius</i>	toad rush	UN	Juncaceae		x					x			
10	<i>Juncus effusus</i>	soft rush	AN	Juncaceae		u								x
11	<i>Juncus greenei</i>	Greene's rush	FN	Juncaceae		u								x
12	<i>Juncus tenuis</i>	path rush	AN	Juncaceae		u	x-p		x-p				x	x
13	<i>Agrostis gigantea</i>	redtop	FI	Poaceae		a						x	x	x
14	<i>Agrostis hyemalis</i> var. <i>hyemalis</i>	northern ticklegrass	UN	Poaceae		u	u		u			x		x
15	<i>Andropogon gerardii</i>	big bluestem	RN	Poaceae		u								x
16	<i>Andropogon virginicus</i> var. <i>virginicus</i>	boomsedge	ON	Poaceae		u								x
17	<i>Anthoxanthum odoratum</i>	sweet vernal grass	FI	Poaceae		u								x
18	<i>Dactylis glomerata</i>	orchard grass	FI	Poaceae		u							x	x

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	scientific name	common name	Status	Family	developed Land	grassland	mixed-oak woodland understory	mixed-oak woodland overstory	pine woodland understory	pine woodland overstory	1998-1999	2004	2005	2009
19	<i>Danthonia spicata</i>	poverty grass	AN	Poaceae		u							x	x
20	<i>Deschampsia flexuosa</i>	crinkled hair grass	FN	Poaceae		x	u		c			x	x	x
21	<i>Eragrostis megastachya</i>	stink grass	?	Poaceae		x					x			
22	<i>Eragrostis spectabilis</i>	purple lovegrass	ON	Poaceae		u								x
23	<i>Festuca filiformis</i>	hair fescue	UI	Poaceae		u								x
24	<i>Festuca ovina</i>	sheep fescue	FI	Poaceae		c			x-p				x	x
25	<i>Festuca rubra</i>	red fescue	FN	Poaceae		u								x
26	<i>Holcus lanatus</i>	velvet grass	AI	Poaceae		c	u						x	x
27	<i>Lolium perenne</i>	English ryegrass	AI	Poaceae		x					x			
28	<i>Panicum clandestinum</i>	deer tongue grass	FN	Poaceae		u								x
29	<i>Panicum lanuginosum</i> var. <i>lanuginosum</i>	panicum species	U?	Poaceae		u								x
30	<i>Paspalum sp.</i>	Paspalum sp.	?	Poaceae		u								x
31	<i>Phleum pratense</i>	timothy	AI	Poaceae		x							x	
32	<i>Poa annua</i>	annual bluegrass	UI	Poaceae		x					x			
33	<i>Schizachyrium scoparium</i>	little blue stem	FN	Poaceae		c	u		u			x		x
	<b>HERB</b>													
34	<i>Solidago canadensis</i>	tall goldenrod	UN	Aceraceae		x					x			x
35	<i>Angelica atropurpurea</i>	great angelica	?	Apiaceae		u								x
36	<i>Daucus carota</i>	Queen Anne's Lace	FI	Apiaceae		x							x	x
37	<i>Aralia nudicaulis</i>	wild sarsaparilla	FN	Araliaceae			x		x		x			x
38	<i>Aclepias syriaca</i>	common milkweed	AN	Asclepiadaceae		u								x



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	scientific name	common name	Status	Family	developed Land	grassland	mixed-oak woodland understory	mixed-oak woodland overstory	pine woodland understory	pine woodland overstory	1998-1999	2004	2005	2009
39	<i>Asclepias tuberosa</i>	butterflyweed	FN	Asclepiadaceae		x							x	x
40	<i>Euthamia tenuifolia</i>	slender-leaved goldenrod	AN	Asteraceae		u								x
41	<i>Lactuca canadensis</i>	wild lettuce	FN	Asteraceae		x							x	x
42	<i>Solidago nemoralis</i>	grey goldenrod	FN	Asteraceae			x-p						x	
43	<i>Solidago odora</i>	sweet goldenrod	AN	Asteraceae		u								x
44	<i>Achillea millefolium</i>	yarrow	AI	Asteraceae		c							x	x
45	<i>Aster divaricatus</i>	white wood aster	FN	Asteraceae	x		x		x		x			x
46	<i>Aster dumosus</i>	bushy aster	FN	Asteraceae		x	x							x
47	<i>Aster ericoides</i>	many flowered aster	ON	Asteraceae			u						x	x
48	<i>Aster linariifolius</i>	stiff golden aster	AN	Asteraceae		u								x
49	<i>Aster novi-belgii</i>	New York aster	FN	Asteraceae		u								x
50	<i>Aster racemosus</i>	small white aster	RN	Asteraceae		x	x		x		x			
51	<i>Aster undulatus</i>	wavyleaf aster	FN	Asteraceae			x-p						x	
52	<i>Chrysanthemum leucanthemum</i>	oxeye-daisy	AI	Asteraceae		u						x		x
53	<i>Chrysopsis falcata</i>	sickle-leaved golden-aster	AN	Asteraceae		x								x
54	<i>Cichorium intybus</i>	chicory	OI	Asteraceae		x					x			x
55	<i>Cirsium vulgare</i>	bull thistle	UI	Asteraceae		u							x	x
56	<i>Conyza canadensis</i>	horseweed	FN	Asteraceae		u								x
57	<i>Erigeron annuus</i>	daisy fleabane	ON	Asteraceae		u								x
58	<i>Eupatorium hyssopifolium</i>	hyssop-leaved boneset	FN	Asteraceae		u								x
59	<i>Euthamia graminifolia</i>	lance-leaved goldenrod	AN	Asteraceae		u								x

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	scientific name	common name	Status	Family	developed Land	grassland	mixed-oak woodland understorey	mixed-oak woodland overstorey	pine woodland understorey	pine woodland overstorey	1998-1999	2004	2005	2009
60	<i>Gnaphalum abtusifolium</i>	sweet everlasting	AN	Asteraceae		u								x
61	<i>Hieracium aurantiacum</i>	orange hawkweed	?	Asteraceae		x					x			
62	<i>Hieracium kalmii</i> var. <i>fasciculatum</i>	Canadian hawkweed	UN	Asteraceae		u								x
63	<i>Hieracium paniculatum</i>	panicked hawkweed	?	Asteraceae		x					x			
64	<i>Hypochoeris radicata</i>	cat's ear	FI	Asteraceae		c						x		x
65	<i>Lactuca serriola</i>	prickly lettuce	UI	Asteraceae		u								x
66	<i>Prenanthes trifoliolata</i>	gall-of-the-earth	ON	Asteraceae		u								x
67	<i>Solidago elliotii</i>	Elliott's goldenrod	FN	Asteraceae		u								x
68	<i>Solidago rugosa</i>	rough-stemmed goldenrod	AN	Asteraceae		c	u					x		x
69	<i>Taraxacum officinale</i>	common dandelion	AI	Asteraceae		x					x			x
70	<i>Cerastium fontanum</i>	mouse-ear chickweed	AI	Caryophyllaceae		u	x							x
71	<i>Saponaria officinalis</i>	bouncing bet	FI	Caryophyllaceae		u							x	x
72	<i>Silene latifolia</i>	white campion	FI	Caryophyllaceae		u						x		x
73	<i>Stellaria media</i>	common chickweed	UI	Caryophyllaceae		x					x			x
75	<i>Hudsonia ericoides</i>	golden heather	AN	Cistaceae			x							x
76	<i>Hypericum gentianoides</i>	orange grass	FN	Clusiaceae		x					x			
77	<i>Hypericum mutilum</i>	dwarf St. John's-wort	ON	Clusiaceae		u								x
78	<i>Hypericum perforatum</i>	common St. John's-wort	FI	Clusiaceae		u							x	x
79	<i>Epigaea repens</i>	trailing arbutus	AN	Ericaceae			u		u					x
80	<i>Gaultheria procumbens</i>	wintergreen	AN	Ericaceae			u							

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	scientific name	common name	Status	Family	developed Land	grassland	mixed-oak woodland understory	mixed-oak woodland overstory	pine woodland understory	pine woodland overstory	1998-1999	2004	2005	2009
81	<i>Baptisia tinctoria</i>	wild indigo	FN	Fabaceae			x		x		x			
82	<i>Lotus corniculatus</i>	birdsfoot trefoil	OI	Fabaceae		u								x
83	<i>Trifolium pratense</i>	red clover	FI	Fabaceae		u								x
84	<i>Vicia villosa</i>	hairy vetch	UI	Fabaceae		u								x
85	<i>Vicia villosa</i>	hairy vetch	UI	Fabaceae		x						x		x
86	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]		x								x
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]										
88	<i>Convallaria majalis</i>	lily-of-the-valley	OI	Liliaceae		x	x				x			x
89	<i>Maianthemum canadensis</i>	Canada mayflower	AN	Liliaceae			x					x		x
90	<i>Monotropa hypopithys</i>	piresap	ON	Monotropaceae			x				x			
91	<i>Monotropa uniflora</i>	Indian pipe	FN	Monotropaceae			u		c					x
92	<i>Oenothera biennis</i>	common evening primrose	FN	Onagraceae		x								x
93	<i>Cypripedium acule</i>	pink lady's slipper	FN	Orchidaceae			x							
94	<i>Spiranthes tuberosa</i>	little laddies tresses	ON	Orchidaceae		x								x
95	<i>Phytolacca americana</i>	pokeweed	FN	Phytolaccaceae		u								x
96	<i>Plantago lanceolata</i>	English plantain	AI	Plantaginaceae		x					x			
97	<i>Polygala polygama</i>	racemed milkwrot	ON	Polygalaceae		u								x
98	<i>Polygonum hydropiper</i>	common smartweed	UN	Polygonaceae		u								x
99	<i>Rumex acetocella</i>	sheep sorrel	AI	Polygonaceae			x							x
100	<i>Rumex acetostella</i>	field sorrel	AI	Polygonaceae		u								x
101	<i>Rumex crispus</i>	curled dock	FI	Polygonaceae		x					x			x



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102	<i>Rumex obtusifolius</i>	bitter dock	OI	Polygonaceae		x							x	x
103	<i>Lysimachia quadrifolia</i>	whorled loosestrife	FN	Primulaceae		u								x
104	<i>Trientalis borealis</i>	star flower	FN	Primulaceae			u		u					x
105	<i>Chimaphila maculata</i>	striped wintergreen	FN	Pyrolaceae			u		u				x	x
106	<i>Potentilla canadensis</i>	dwarf cinquefoil	FN	Rosaceae		u						x		x
107	<i>Potentilla simplex</i>	common cinquefoil	FN	Rosaceae		x				x				x
108	<i>Rosa carolina</i>	pasture rose	FN	Rosaceae		u								x
109	<i>Galium mollugo</i>	field madder	UI	Rubiaceae		x				x				x
110	<i>Hedyotis caerulea</i>	bluets	FN	Rubiaceae		x						x		x
111	<i>Mitchella repens</i>	partridgeberry	RN	Rubiaceae			x		x	x				
112	<i>Linaria canadensis</i>	blue toadflax	FN	Scrophulariaceae		x						x		x
113	<i>Linaria canadensis</i>	blue toad flax	FN	Scrophulariaceae		x								x
114	<i>Linaria vulgaris</i>	butter-and-eggs	FI	Scrophulariaceae		u								x
	<b>BRYOPHYTE</b>													
115	<i>Cladina rangiferina</i>	reindeer lichen	X	Cladoniaceae			x							x
116	<i>Dicranum montanum</i>	windblown moss	X	Dicranaceae			x					x		x
117	<i>Polytrichum sp.</i>	haircap moss	X	Polytrichaceae			u							x
118	<i>Thuidium delicatulum</i>	fern moss	X	Thuidiaceae			x					x		x
	<b>SHRUB</b>													
119	<i>Rhus copallinum</i>	winged sumac	FN	Anacardaceae		x						x		

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120	<i>Rhus glabra</i>	smooth sumac	ON	Anacardiaceae		u								x
121	<i>Toxicodendron radicans</i>	poison ivy	AN	Anacardiaceae		c	u		x			x	x	x
122	<i>Ilex verticillata</i>	winterberry	FN	Aquifoliaceae			u							x
123	<b><i>Lonicera cf. morrowii</i></b>	<b>Morrow's honeysuckle</b>	<b>FI</b>	<b>Caprifoliaceae</b>		<b>u</b>	<b>u</b>					<b>x</b>		<b>x</b>
124	<i>Viburnum dentatum</i>	southern arrowwood	UN	Caprifoliaceae		x						x		
125	<i>Viburnum recognitum</i>	northern arrowwood	AN	Caprifoliaceae		u	u		u			x		x
126	<i>Viburnum acerifolium</i>	maple leaf viburnum	?	Caprifoliaceae	x						x			
127	<i>Gaylussacia baccata</i>	black huckleberry	AN	Ericaceae		u	a		a			x		x
128	<i>Gaylussacia frondosa</i>	dangleberry	FN	Ericaceae		u	u							x
129	<i>Kalmia angustifolia</i>	sheep laurel	FN	Ericaceae		x		x		x	x			x
130	<i>Vaccinium angustifolium</i>	late lowbush blueberry	AN	Ericaceae		u	a		a			x		x
131	<i>Vaccinium corymbosum</i>	highbush blueberry	FN	Ericaceae			u							x
132	<i>Vaccinium pallidum</i>	lowbush blueberry	FN	Ericaceae		u	c		c			x		x
133	<i>Comptonia peregrina</i>	sweet-fern	AN	Myricaceae			x							x
134	<i>Comptonia peregrina</i>	sweet-fern	AN	Myricaceae					x-p				x	
135	<i>Myrica pennsylvanica</i>	bayberry	AN	Myricaceae		u	u					x		x
136	<b><i>Rosa multiflora</i></b>	<b>multiflora rose</b>	<b>AI</b>	<b>Rosaceae</b>		<b>x</b>						<b>x</b>		<b>x</b>
	<b>TREE</b>													
137	<i>Acer pseudoplatanus</i>	sycamore maple	RI	Aceraceae	x						x			x
138	<i>Betula populifolia</i>	grey birch	ON	Betulaceae		x								x
139	<i>Juniperus virginiana</i>	red cedar	AN	Cupressaceae		x		U				x		x

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	scientific name	common name	Status	Family	developed Land	grassland	mixed-oak woodland understory	mixed-oak woodland overstory	pine woodland understory	pine woodland overstory	1998-1999	2004	2005	2009
140	<i>Elaeagnus umbellata</i>	Autumn olive	UI	Elaeagnaceae		x						x		x
141	<i>Robinia pseudo-acacia</i>	black locust	FI	Fabaceae		u		U				x		x
142	<i>Fagus grandifolia</i>	American beech	FN	Fagaceae				U	x			x		x
143	<i>Quercus alba</i>	white oak	AN	Fagaceae		u	u	A	x			x		x
144	<i>Quercus coccinea</i>	scarlet oak	AN	Fagaceae		x	x	C						x
145	<i>Quercus ilicifolia</i>	scrub oak	AN	Fagaceae		u	u			U				x
146	<i>Quercus stellata</i>	post oak	FN-WL	Fagaceae		x								x
147	<i>Quercus velutina</i>	black oak	AN	Fagaceae		u	c	A		C		x		x
148	<i>Sassafras albidum</i>	sassafras	FN	Lauraceae				x		x	x			x
149	<i>Abies balsamea</i>	balsam fir	U?	Pinaceae					x			x		
150	<i>Picea abies</i>	Norway spruce	OI	Pinaceae						x	x			x
151	<i>Picea pungens</i>	blue spruce	?	Pinaceae						x	x			x
152	<i>Pinus resinosa</i>	red pine	OI	Pinaceae						x	x			x
153	<i>Pinus rigida</i>	pitch pine	AN	Pinaceae		x	u	A		A		x	x	x
154	<i>Pinus strobus</i>	white pine	FI	Pinaceae					x			x		
155	<i>Pseudotsuga taxifolia</i>	Douglas fir	?	Pinaceae	x						x			
156	<i>Amelanchier canadensis</i>	shadbush	FN	Rosaceae				x			x			x
157	<i>Prunus serotina</i>	black cherry	AN	Rosaceae		u	u	U		C		x		x
158	<i>Populus grandidentata</i>	bigtooth aspen	ON	Salicaceae			x	U						x
	<b>VINE</b>													
159	<i>Lonicera japonica</i>	Japanese honeysuckle	AI	Caprifoliaceae		u	u							x



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160	<i>Celastrus orbiculatus</i>	oriental bittersweet	AI	Celastraceae		c	u						x	x
161	<i>Vicia sativa</i>	narrowleaf vetch	OI	Fabaceae		x					x			
162	<i>Rhus allegheniensis</i>	blackberry	FN	Rosaceae		u								x
163	<i>Rubus allegheniensis</i>	common blackberry	FN	Rosaceae		x							x	
164	<i>Rubus flagellaris</i>	prickly dewberry	FN	Rosaceae		c	u					x		x
165	<i>Rubus hispida</i>	bristly dewberry	AN	Rosaceae		x					x			
166	<i>Rubus idaeus</i>	common red raspberry	FN	Rosaceae		x					x			x
167	<i>Rubus occidentalis</i>	black raspberry	UN	Rosaceae		u	u					x		x
168	<i>Smilax rotundifolia</i>	common greenbrier	AN	Smilacaceae			u		u					x
169	<i>Solanum dulcamara</i>	bittersweet nightshade	OI	Solanaceae		x					x			x
170	<i>Parthenocissus quinquefolia</i>	Virginia creeper	AN	Vitaceae		u	u					x		x
171	<i>Vitis riparia</i>	riverbank grape	?	Vitaceae		x					x			
172	<i>Vitis labrusca</i>	fox grape	ON	Vitaceae		x								x
173	<i>Vitis palmata</i>	cat grape	X	Vitaceae		x						x		
	Total # of abundant species				0	1	2	3	2	1				
	Total # of common species				0	9	2	1	3	2				
	Total # of uncommon species				0	69	30	5	9	1				
	Total # of species present outside of survey				6	54	22	3	15	5				
	Total # of species by habitat				6	133	62		38					
	% of total species				3%	76%	36%		22%					

<sup>1</sup>Rarity of plants on Martha's Vineyard: U= unknown, A=abundant (almost always occur in typical habitat), F = frequent (often occur in typical habitat), O = occasional (occur in

more than 10 sites but are not expected to occur in typical habitat ), R = rare (occur in 10 or fewer sites, H = historic (recorded but not sighted in past 40 years), N = native, I = introduced, WL = watch listed by MA, SC = special concern by MA, E = endangered, T = threatened.

<sup>2</sup> Survey results: A = abundant (percent occurrence  $\geq 50\%$ ), C = common (percent occurrence  $>21\%$  and  $<50\%$ ), U = uncommon (percent occurrence  $\leq 20\%$ ), x = present on the reservation but not detected during survey. Capital letters denotes overstory survey and lowercase denotes understory survey results

<sup>3</sup>1998-1999: Summer 1998, Fall 1998, Spring 1999, Summer 1999, Fall 1999 Meander surveys (ESS)

2004: spring, fall, summer avian surveys and summer vegetation inventories (JR)

2005: August vegetation inventory and avian survey (JR, LH, AH)

2009: May vegetation inventory and August vegetation survey (JR, AF, SE)

JR = Julie Russell, LH = Leif Hopkins, AH = Allen Highland, AF = Ashley Free, SE=Steve Epting, ESS – D. Klinch, A. Doherty and S. Komorowski

Sources: Swanson and Knapp 1999, Gleason and Cronquist 1991, Hale 1979 and Newcomb 1977. State-listed species are highlighted, invasive species are in bold.

## Appendix E. Wildlife

Vegetation and Avian property surveys in 2004, 2005, 2008 and 2009 resulted in direct observation of a number of wildlife species as well as evidence of species occurrence (scat, tracks, nests, etc.). Nocturnal moth species were surveyed in late spring and early summer over four trap nights in 2005, in late spring, summer and early fall over five trap nights in 2006 and in late spring and summer over eleven trap nights in 2009. An 18-inch, 15-watt black light "leptrap" with plexiglass or stainless-steel rigid vanes was set in each habitat for the night with a photoelectric switch and two killing jars of Ethyl Acetate. A ½ and ¼ inch perforated beetle screen was also used to reduce damage to the collection caused by trapped beetles. The trap was set during nights with no moon or ¼ moon and mild weather with wind averaging 9 miles per hour (<14 mph) and temperatures ranging from 61-74° Fahrenheit. The collection was sorted and sent the following morning to Mark Mello, research director of the Lloyd Center for the Environment, Dartmouth, Massachusetts for positive identification and spreading of voucher specimen. Additional moth trapping was conducted by Mark Mello on the site in 1999 in June, July and August.

A total of 235 moth species were observed on the property during the land bank surveys (Appendix F, Table 3). Diversity of species was greatest in the pine or conifer dominated woodlands followed by the mixed-oak woodland and lastly the grassland. The pitch pine /mixed-conifer woodland were trapped a total of thirteen nights during June, July, August and September (Traps: LB2, LB3, LB5). The mixed-oak woodland was trapped a total of three nights during June July and August (Traps: LB1). The grassland was trapped a total of four nights during June and July (Trap: LB4). The fewer trap nights account for some of the differences in diversity observed between the grassland and the other habitats.

The following list is a survey of moth species that occur on the property and it represents a foundation for the actual number of species that might eventually be documented in a long-term study on the property. The table does not include the moth species trapped by Mark Mello in 1999. However, the entire report by Mr. Mello is appended.

The following tables 2. and 3. list the wildlife species that are known to occur on the reservation. These lists represent a foundation for the actual number of species that might eventually be documented in a long-term study on the property.



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Table 2. Wildlife at The Southern Woodlands Reservation, Oak Bluffs, MA excluding moth species.

Scientific name	Common name	Woodland <sup>1</sup>	Grassland	Occurrence <sup>2</sup>
<b>Kingdom Animalia</b>				
<b>Phylum Arthropoda</b>				
<b>Class Insecta</b>				
<b>Order Hymenoptera (sawflies, ants, wasps, and bees)</b>				
Family Formicidae: <i>Monomorium</i>	black ants	S		D
Family Formicidae: <i>Solenopsis invicta</i>	red ants	S		D
Family Pompilidae: <i>Pompilidae sp.</i>	spider wasp	Sp		D
<b>Order Lepidoptera (butterflies and moths)<sup>3</sup></b>				
<b>Superfamily Papilionoidea (butterflies)</b>				
Family Danaidae: <i>Danaus plexippus</i>	monarch		<b>S</b>	<b>D</b>
Family Papilionidae: <i>Papilio glaucus</i>	tiger swallowtail	S		<b>D</b>
Family Lycaenidae: <i>Celastrina argiolus</i>	spring azure	Sp	Sp	D
Family Nymphalidae: <i>Cercyonis pegala</i>	common wood-nymph		S	D
Family Nymphalidae: <i>Nymphalis antiopa</i>	mouming cloak	Sp		D
<b>Order Diptera (flies)</b>				
Family Culicidae: species unknown	mosquitoes	S	S	D
Family Tabanidae: <i>Chrysops sp.</i>	deer flies	S	S	D
<b>Order Coleoptera (beetles)</b>				
Family Cicindelidae: <i>Cicindela sexguttata</i>	six-spotted tiger beetle	S		D
<b>Order Orthoptera (grasshoppers and crickets)</b>				
Family Gryllidae: <i>Gryllus pennsylvanicus</i>	field cricket		S	D
<b>Class Arachnida</b>				
<b>Order Araneae (spider)</b>				
Family Gryllidae: <i>Gryllus pennsylvanicus</i>	eastern daddy-long-legs		S	D
<b>Order Acarina</b>				
Family Araneidae: <i>Argiope aurantia</i>	deer tick	Sp, S, F	Sp, S, F	D
<b>Phylum Chordata</b>				
<b>Class Mammalia</b>				

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Scientific name	Common name	Woodland <sup>1</sup>	Grassland	Occurrence <sup>2</sup>
<b>Order Perissodactyla</b>				
Family Equidae: <i>Equus caballus</i>	horse	S, Sp, F, W		D, I
<b>Order Lagomorpha</b>				
Family Leporidae: <i>Sylvilagus floridanus</i>	eastern cottontail	W	W	I
<b>Order Rodentia</b>				
Family Sciuridae: <i>Sciurus carolinensis</i>	grey squirrel	S, Sp, F, W		D, I
Family Sciuridae: <i>Tamias striatus</i>	eastern chipmunk		S	I
Family Muridae: <i>Peromyscus leucopus</i>	white-footed mouse	S, Sp, F, W	S	D, I
Family Muridae: <i>Microtus pennsylvanicus</i>	meadow vole		S	I
<b>Order Carnivora</b>				
Family Canidae: <i>Canis lupus familiaris</i>	domestic dog	S, F, W, Sp		D, I
Family Procyonidae: <i>Procyon lotor</i>	raccoon	S		I
Family Mephitidae: <i>Mephitis mephitis</i>	striped skunk	W		I
<b>Order Artiodactyla</b>				
Family Cervidae: <i>Odocoileus virginianus</i>	white-tailed deer	S, F	F	D, I
<b>Class Reptilia</b>				
<b>Order Squamata</b>				
Family Colubridae: <i>Thamnophis sirtalis</i>	garter snake		S	D

<sup>1</sup> Season and frequency of occurrence: SP = spring, S = summer, F = fall, W = winter.

<sup>2</sup> Occurrence: D=direct observation; I=indirect observation in form of tracks, scat, nests, burrows

<sup>3</sup> complete list of moth species known to occur on the property follows in an independent table.

Highlighted row denotes Massachusetts listed species.

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Table 3. Summary of macrolepidoptera by date and station documented for The Southern Woodlands Reservation during 2005, 2006 and 2009.

		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	TOTAL	
		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5		
	<b>THYATRIDAE</b>																						
6237	<b>Thyatridae</b>																						
	<i>Pseudothyatira cymatophor</i>		1																			1	
	<b>GEOMETRIDAE</b>																						
	<b>Ennominae</b>																						
6270	<i>Protitame virginalis</i>				1	1	1															3	
6273	<i>Itame pustularia</i>		1	1	1																	3	
6282	<i>Itame argillacea</i>					1				1	1		1									4	
6339	<i>Macaria transitaria</i>	1	1		1		1			1									1	1	1	8	
6340	<i>Macaria minorata</i>					1		1														2	
6341	<i>Macaria bicolorata</i>		1							1						1			1			4	
6342	<i>Macaria bisignata</i>		1			1		1	1						1							5	
6347	<i>Macaria pinistrobata</i>							1														1	
6352	<i>Macaria granitata</i>				1			1	1			1			1				1		1	7	
6362	<i>Digrammia continuata</i>									1												1	
6386	<i>Digrammia ocellinata</i>		1				1															2	
6449	<i>Glena cribrataria</i>		1			1										1				1		4	
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6582	<i>Iridopsis vellivolata</i>				1																	1	
6597	<i>Ectopis crepuscularia</i>				1	1	1		1						1							5	
6598	<i>Protoboarmia porcelaria</i>					1			1		1	1			1							5	
6620	<i>Melanolophia canadaria</i>				1		1															2	
6621	<i>Melanolophia signataria</i>				1																	1	
6638	<i>Eufidonia notataria</i>	1	1			1																3	
6654	<i>Hypagyrtis unipunctata</i>		1	1		1								1	1	1						6	
6655	<i>Hypagyrtis esther</i>													1	1		1					3	
6667	<i>Lomographa vestaliata</i>	1																				1	
6720	<i>Lytrosis unitaria</i>		1	1		1																3	
6724	<i>Euchlaena serrata</i>			1													1			1		3	
6728	<i>Euchlaena effecta</i>														1	1						2	
6739	<i>Euchlaena irraria</i>										1	1		1	1							4	
6753	<i>Pero honestaria</i>																				1	1	



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		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	TOTAL
		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5	
6754	<i>Pero ancetaria</i>				1			1														2
6763	<i>Nacophora quernaria</i>		1																			1
6796	<i>Campaea perlata</i>	1								1	1	1										4
6798	<i>Ennomos subsignaria</i>						1															1
6826	<i>Metarranthis hypochraria</i>	1	1	1		1								1	1							6
6827	<i>Metarranthis refractaria</i>										1											1
6836	<i>Anagoga occiduaria</i>																				1	1
6844	<i>Plagodis alcoolaria</i>										1											1
6884	<i>Besma endropiaria</i>					1										1						2
6885	<i>Besma quercivoraria</i>				1			1	1		1								1		1	6
6892	<i>Lambdina pellucidaria</i>	1												1	1							3
6894	<i>Lambdina fervidaria</i>										1											1
6941	<i>Eusarca confusaria</i>		1	1		1	1	1							1	1						7
6963	<i>Tetracis crocallata</i>			1																		1
6964	<i>Tetracis cachexiata</i>										1											1
6966	<i>Eutrapela clemataria</i>											1										1
6974	<i>Patalene olyzonaria puber</i>			1													1					2
6982	<i>Prochoerodes transversata</i>							1	1													2
	<b>Geometrinae</b>																					
7046	<i>Nemoria bistriaria</i>				1																	1
7048	<i>Nemoria mimosaria</i>											1										1
	<b>Sterrhinae</b>																					
7126	<i>Idaea dimidiata</i>	1																				1
7139	<i>Cyclophora pendulinaria</i>				1			1						1						1	1	5
7159	<i>Scopula limboundata</i>		1			1	1	1							1	1				1	1	8
	<b>Larentiinae</b>																					
7290	<i>Coryphista meadii</i>				1																	1
7292	<i>Rheumaptera prunivorata</i>				1		1															2
7414	<i>Orthonama obstipata</i>							1														1
7416	<i>Costaconvexa centrostrigaria</i>		1																			1
	<i>Eupithecia spp.</i>														1	1				1		3
7625	<i>Chloroclystis rectangulata</i>	1														1						2
	<b>LASIOCAMPIDAE</b>																					

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		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5	TOTAL
		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	
	<b>Macromphalinae</b>																					
7663	<i>Apatelodes torrefacta</i>					1									1							2
7673	<i>Tolype laricis</i>									1												1
	<b>Lasiocampinae</b>																					
7698	<i>Malacosoma disstria</i>		1	1	1		1									1	1					6
7701	<i>Malacosoma americanum</i>	1	1	1																		3
	<b>SATURNIIDAE</b>																					
	<b>Ceratocampinae</b>																					
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7715	<i>Dryocampa rubicunda</i>					1																1
7716	<i>Anisota stigma</i>	1	1	1	1	1	1															6
7719	<i>Anisota senatoria</i>	1	1											1	1	1	1	1	1			8
7723	<i>Anisota virginiensis</i>														1							1
	<b>Hemileucinae</b>																					
7746	<i>Automeris io</i>	1	1			1								1	1	1						6
	<b>Saturniinae</b>																					
7757	<i>Antheraea polyphemus</i>						1															1
7758	<i>Actias luna</i>		1									1		1								3
	<b>SPHINGIDAE</b>																					
	<b>Sphinginae</b>																					
7810	<i>Sphinx gordius/poecilla</i>			1		1	1				1	1		1	1				1			8
7816	<i>Lapara coniferarum</i>		1																			1
7817	<i>Lapara bombycoides</i>						1															1
	<b>Smerinthinae</b>																					
7824	<i>Paonias excaecatus</i>																			1	1	2
7825	<i>Paonias myops</i>																1					1
7826	<i>Paonias astylus</i>														1							1
	<b>Macroglossinae</b>																					
7885	<i>Darapsa myron</i>						1					1										2
7886	<i>Darapsa pholus</i>		1	1								1				1						4
	<b>NOTODONTIDAE</b>																					
	<b>Phalerinae</b>																					
7902	<i>Datana ministra</i>					1		1														2
7904	<i>Datana drexelii</i>		1		1							1		1	1	1				1		7

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		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	TOTAL
		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5	
7906	<i>Datana contracta</i>																1		1	1		3
	<b>Notodontinae</b>																					
7915	<i>Nadata gibbosa</i>	1	1	1	1	1	1				1	1		1	1	1					1	1
7917	<i>Hyperaeschra georgica</i>	1									1	1										3
7920	<i>Peridea angulosa</i>		1		1		1	1			1			1	1	1		1		1		1
7931	<i>Gluphisia septentrionis</i>																			1		1
7951	<i>Symmerista albifrons</i>	1					1					1				1			1			5
	<b>Heterocampinae</b>																					
7975	<i>Macruocampa marthesia</i>				1		1							1		1	1			1		1
7983	<i>Heterocampa obliqua</i>						1	1								1		1	1	1		6
7990	<i>Heterocampa umbrata</i>										1	1								1		3
7994	<i>Heterocampa guttivitta</i>										1											1
7995	<i>Heterocampa biundata</i>							1														1
8005	<i>Schizura ipomoeae</i>						1	1														2
8007	<i>Schizura unicornis</i>						1								1							2
8009	<i>Schizura apicalis</i>																1					1
8012	<i>Oligocentria semirufescens</i>				1																	1
8017	<i>Oligocentria lignicolor</i>				1			1	1							1						4
	<b>NOCTUIDAE</b>																					
	<b>Eublemminae</b>																					
8490	<i>Pangrapta decoralis</i>						1	1			1	1		1	1	1				1	1	9
8499	<i>Metalectra discalis</i>						1															1
8505	<i>Metalectra richardsi</i>				1																	1
	<b>Herminiinae</b>																					
8322	<i>Idia americalis</i>		1				1	1								1	1	1	1			8
8323	<i>Idia aemula</i>				1		1				1				1	1	1			1		7
8326	<i>Idia rotundalis</i>				1		1	1						1	1					1		6
8328	<i>Idia julia</i>											1										1
8329	<i>Idia diminuendis</i>															1				1		2
8334	<i>Idia lubricalis</i>				1		1															2
8341	<i>Zanclognatha theralis</i>		1		1		1	1								1	1			1	1	8
8345	<i>Zanclognatha laevigata</i>																			1		1
8347	<i>Zanclognatha obscuripennis</i>	1														1						2



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		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	TOTAL
		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5	
8349	<i>Zanclognatha protumnusalis</i>				1	1									1							3
8353	<i>Zanclognatha jacchusalis</i>				1	1	1	1								1						5
8355	<i>Chytolita morbidalis</i>										1	1			1							3
8364	<i>Phalaenostola larentioides</i>						1										1					2
8370	<i>Bleptina caradrinalis</i>	1	1		1									1	1	1	1		1			8
8378	<i>Renia salusalis</i>					1								1	1	1						4
8379	<i>Renia factiosalis</i>							1														1
8381	<i>Renia discoloralis</i>				1		1															2
8384.1	<i>Renia flavipunctalis</i>							1														1
8386	<i>Renia "adspergillus" (small, plain)</i>				1		1															2
8387	<i>Renia sobrialis</i>						1															1
	<b>Hypeninae</b>																					
8442	<i>Hypena baltimoralis</i>				1	1	1	1														4
	<b>Scolecocampinae</b>																					
8514	<i>Scolecocampa liburna</i>															1						1
8522	<i>Gabara subnivosella</i>		1	1	1		1												1	1		6
9818	<i>Gabara fessa</i>			1			1															
9821	<i>Amolita roseola</i>			1																1		2
	<b>Catocalinae</b>																					
8587	<i>Panopoda rufimargo</i>	1	1	1			1								1	1	1		1			8
8695	<i>Zale undularis</i>	1																				1
8697	<i>Zale minerea</i>	1	1										1									3
8699	<i>Zale obliqua</i>	1	1	1	1	1								1					1	1		8
8707	<i>Zale metatoides</i>	1																				1
8717	<i>Zale horrida</i>						1															1
8719	<i>Euparthenos nubilis</i>						1															1
8721	<i>Allotria elonympha</i>															1						1
8738	<i>Caenurgina crassiuscula</i>		1		1												1					3
8745	<i>Mocis texana</i>				1			1														2
8774	<i>Catocala muliercula</i>				1																	1
8775	<i>Catocala antinympa</i>				1																	1
8801	<i>Catocala ilia</i>							1										1	1			3
8846	<i>Catocala sordida</i>			1	1														1			3
8849	<i>Catocala andromedae</i>				1		1															2

SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	TOTAL
		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5	
8851	<i>Catocala coccinata</i>				1																	1
8857	<i>Catocala ultronia</i>				1		1			1												3
8864	<i>Catocala grynea</i>						1															1
8876	<i>Catocala micronympha</i>				1		1	1														3
8878.1	<i>Catocala lineella</i>				1			1														2
8878.2	<i>Catocala undescr. sp. nr. lineella</i>								1													1
	<b>Euteliinae</b>																					
8955	<i>Marathyssa inficita</i>		1			1																2
8957	<i>Paectes oculatrix</i>				1																	1
	<b>Nolinae</b>																					
8983	<i>Meganola minuscula</i>											1										1
8983.1	<i>Meganola phylla</i>											1			1	1						3
8983.2	<i>Meganola spodia</i>	1	1			1								1	1	1						6
8996	<i>Nola clethrae</i>				1																	
	<b>Arctiinae</b>																					
8072	<i>Cisthene packardi</i>													1								1
8045.1	<i>Crambidia pallida</i>									1											1	2
8072	<i>Cisthene packardi</i>	1							1													2
8107	<i>Haploa clymene</i>							1														1
8118	<i>Verbia (= "Holomelina") opella</i>				1		1	1	1		1		1		1	1			1	1	1	1
8121	<i>Verbia aurantiaca</i>	1		1		1			1						1							5
8169	<i>Apantesis phalerata</i>												1									1
8171	<i>Apantesis nais</i>														1							1
8129	<i>Pyrrharctia isabella</i>		1	1	1												1					4
8134	<i>Spilosoma congrua</i>	1	1			1					1	1			1	1						7
8146	<i>Hypercompe (= "Ecpantheria") scribonia</i>					1																1
8171	<i>Apantesis nais</i>	1	1			1																3
8238	<i>Euchaetes egle</i>			1										1								2
8203	<i>Halysidota tessellaris</i>	1	1	1		1									1	1	1	1	1	1	1	0
8211	<i>Lophocampa caryae</i>	1				1						1										3
8230	<i>Cycnia tenera</i>						1															1
	<b>Lymantriinae</b>																					

SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	TOTAL
		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5	
8302	<i>Dasyshira obliquata</i>				1																	1
8314	<i>Orgyia definita</i>								1													1
8316	<i>Orgyia leucostigma</i>									1												1
8318	<i>Lymantria dispar</i>		1		1																	2
8505	<i>Metalectra euteliinae</i>				1																	1
	<b>Plusiinae</b>																					
8904	<i>Chrysanympa formosa</i>															1						1
8908	<i>Autographa precatonis</i>							1														1
	<b>Eustrotiinae</b>																					
9046	<i>Deltote bellicula</i>					1										1						2
9039	<i>Hyperstrotia flaviguttata</i>				1																	1
9049	<i>Maliattha synochitis</i>	1				1																2
9062	<i>Cerma cerintha</i>				1																	1
	<b>Raphiinae</b>																					
9193	<i>Raphia frater</i>					1																1
	<b>Acronictinae</b>																					
9228	<i>Acronicta hasta</i>										1											1
9238	<i>Acronicta lobeliae</i>	1									1									1		3
9243	<i>Acronicta ovata</i>		1		1	1	1						1	1	1				1	1	1	0
9244	<i>Acronicta modica</i>												1									1
9245	<i>Acronicta haesitata</i>	1											1	1								3
9249	<i>Acronicta increta</i> (+"inclara")													1	1							2
9251	<i>Acronicta retardata</i>			1																		1
9254	<i>Acronicta afflicta</i>											1			1							2
9257	<i>Acronicta impleta</i>					1							1									2
9259	<i>Acronicta noctivaga</i>	1	1			1							1									4
9266	<i>Acronicta lithospila</i>							1		1	1									1		4
9281	<i>Agriopodes fallax</i>									1							1					2
9285	<i>Polygrammate hebraeicum</i>				1	1	1															3
9286	<i>Harrisimemna trisignata</i>						1															1
	<b>Agaristinae</b>																					
9301	<i>Eudryas grata</i>		1	1																		2
	<b>Oncocnemidinae</b>																					

SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	TOTAL
		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5	
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	<b>Amphipyridae</b>																					
9638	<i>Amphipyra pyramidoides</i>									1												1
	<b>Condicinae</b>																					
9065	<i>Leuconycta diphtheroides</i>	1			1																	2
	<b>Eriopinae</b>																					
9633	<i>Callopietria cordata</i>			1																		1
	<b>Xyleninae</b>																					
9669	<i>Spodoptera ornithogalli</i>																		1			1
9678	<i>Elaphria versicolor</i>		1		1																	2
9681	<i>Elaphria festivooides</i>	1				1				1			1		1							5
9647	<i>Proxenus miranda</i>											1										1
9333	<i>Apamea lignicolora</i>		1	1	1		1								1							5
9364	<i>Apamea sordens</i>	1																				1
9454	<i>Amphipoea velata</i>		1	1	1																	3
9457	<i>Amphipoea americana</i>						1										1					2
9547	<i>Phlogophora periculosa</i>								1													1
9815	<i>Cosmia calami</i>				1	1																2
9556	<i>Chytonix palliatricula</i>	1	1		1	1									1	1						6
	<b>Cucullinae</b>																					
9961	<i>Anatrix ralia</i>						1															1
	<b>Hadininae</b>																					
10291	<i>Morrisonia latex</i>			1											1							2
10301	<i>Spiramater lutra</i>	1									1	1			1							4
10431	<i>Faronta diffusa</i>																			1		1
10438	<i>Mythimna unipuncta</i>	1		1																		2
10444	<i>Leucania phragmatidicola</i>											1	1									2
10445	<i>Leucania linda</i>									1												1
10447	<i>Leucania commoides</i>			1												1						2
10449	<i>Leucania insueta</i>														1							1
10454	<i>Leucania latiuscula</i>			1																		1
10459	<i>Leucania inermis</i>											1										1
10397	<i>Lacinipolia renigera</i>									1	1		1									3



SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

		SW1	SW1	SW2	SW1	SW3	SW3	SW3	SW3	SW3	SW4	SW5	SW6	SW4	SW7	SW5	SW6	SW6	SW5	SW6	SW5	TOTAL
		06-28-2005	07-10-2005	07-10-2005	07-31-2005	06-27-2006	07-16-2006	07-30-2006	08-13-2006	09-19-2006	06-17-2009	06-17-2009	06-17-2009	06-30-2009	06-30-2009	07-14-2009	07-14-2009	07-22-2009	07-28-2009	07-28-2009	08-12-2009	
10524	<i>Nephelodes minians</i>									1												1
10585	<i>Orthodes majuscula</i> ("crenulata")			1																		1
10587	<i>Orthodes cynica</i>	1	1			1																3
10288	" <i>Polia</i> " <i>detracta</i>		1	1							1	1		1		1	1					7
	<b>Noctuidae</b>																					
10705	<i>Euxoa messoria</i>									1												1
10903	<i>Anicla illapsa</i>	1	1							1			1									4
10805	<i>Euxoa tessellata</i>		1	1			1													1	1	5
10663	<i>Agrotis ipsilon</i>		1																			1
10870	<i>Dichagyris acclivis</i>							1														1
11010	<i>Lycophotia phyllophora</i>		1	1	1										1	1				1		6
11012	<i>Noctua pronuba</i>					1						1	1	1	1	1	1	1	1	1	1	9
10944	<i>Xestia smithii</i>									1												1
10967	<i>Xestia praevia</i>									1												1
10969	<i>Xestia dilucida</i>									1												1
11006	<i>Protolampra brunneicollis</i>		1	1		1	1	1		1						1	1					9
11029	<i>Abagrotis alternata</i>		1				1	1		1										1	1	7
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Total number of species	42	56	38	64	42	53	39	16	23	27	30	7	32	48	47	19	13	41	18	14	235

SW1 = Southern Woodlands 1: mixed conifer woodland central located in campground  
 SW2 = Southern Woodlands 2: successional field  
 SW3 = Southern Woodlands 3: pitch pine woodland on bluff  
 SW4= Southern Woodlands 4: mixed oak  
 SW5= Southern Woodlands 5: pitch pine/ mixed oak  
 SW6= Southern Woodlands 6: grassland  
 SW7= Southern Woodlands 7: pitch pine woodland on bluff

note: state-listed species are highlighted

SURVEY OF STATE-LISTED LEPIDOPTERA  
AT THE PROPOSED DOWN ISLAND GOLF CLUB SITE

Mark J. Mello  
Barry Stephenson

Final Report

to

Robert A. & Leslie M. Cenci Foundation

via

Environmental Science Services, Inc.  
888 Worcester St., Suite 240  
Wellesley, MA 02482

from

Lloyd Center for Environmental Studies  
430 Potomska Rd.  
Dartmouth, MA 02748



Report #99-9

## INTRODUCTION

At least twenty state-listed Lepidoptera have been documented on Marthas Vineyard since 1972 (MA Natural Heritage & Endangered Species database; Paul Goldstein, pers. com.). Regal fritillaries have since been extirpated. The remaining species are as follows, listed by primary flight period of the adults.

### Late April

*Lycia ypsilon* (pine barrens lycia)

*Lithophane viridipallens* (pale green pinion moth)

### Late May - early June

*Zale* sp. 1; undescribed (pine barrens zale)

*Metarranthis pilosaria* (coastal swamp metarranthis)

### Middle - mid-late June

*Cicinnus melsheimeri* (Melsheimer's sack bearer)

*Cycnia inopinatus* (unexpected cycnia)

*Eacles imperialis* (imperial moth)

*Metarranthis apiciaria* (barrens metarranthis)

*Metarranthis pilosaria* (coastal swamp metarranthis)

*Semiothisa eremiata* (three-lined angle moth)

*Hypomecis buckholtzaria* (Buchholz's gray)

### Middle July

*Acronicta albarufa* (barrens daggermoth)

*Itame* sp.1; undescribed (pine barrens itame)

### Late July

*Abagrotis crumbi benjamini* (coastal heathland cutworm)

*Catocala herodias gerhardi* (Gerhard's underwing)

*Cicinnus inopiatus* (unexpected cycnia)

### Mid-late September

*Cingilia catenaria* (chain dot geometer)

*Papaipema sulphurata* (water-willow borer)

*Abagrotis crumbi benjamini* (coastal heathland cutworm)  
(post-diapause adults)

### Early-mid October

*Hemileuca maia maia* (coastal barrens buckmoth)

Although not all of these have been documented within the town of Oak Bluffs, the potential exists that one or more of these species could be found on the property being proposed as the site for The Down Island Golf Club (previously referred to as The Bluffs Golf Club). Most of these species are either pine barrens affiliates, obligates or species inhabiting wetlands within or adjacent to coastal barrens. Pitch pine/scrub oak barrens is a globally rare community with roughly 50,000 acres remaining in Massachusetts (Cryan, 1985). However, Mello et al (1999) through a three-year inventory at Massachusetts Military Reservation on Cape Cod, demonstrated that only a small portion of "the pine barrens" may serve as appropriate breeding habitat for the scrub-oak feeding community,



and that different species may have different habitat preferences. Therefore the Lloyd Center for Environmental Studies was contracted to inventory this site for state-listed Lepidoptera.

#### Site Survey

In order to assess the potential for listed species of moths occurring at the site proposed for The Down Island Golf Club (Figure 1), this site was visited on April 22, 1999. The trails throughout the property were traversed by the author on foot along with David Klinch. Nine habitats were identified and mapped by Environmental Science Services, Inc. (ESS -Figure 2), which formed the base map entitled:

"Figure 9"  
"Existing Vegetative Community Cover Types"  
"The Bluffs Golf Club"  
Oak Bluffs, MA  
11-30-98

Three of the mapped habitat types were considered to be potential habitat for listed species:

- pitch pine dominant upland forest
- white oak/pitch pine mix dominant forest
- scarlet/white oak dominant upland hardwood forest

Each of these three habitats were assessed for its potential to support state-listed Lepidoptera. The assessment was based upon finding both appropriate larval host plants and a community type in which listed species have been previously been located on Marthas Vineyard or elsewhere in eastern Massachusetts pine barrens, particularly relying on detailed habitat preference information collected in a three-year study at Camp Edwards Training Site on Cape Cod. The pitch pine forest which has some remnants of a scrub oak understory showed the most promise as listed species habitat, followed by the pitch pine/oak mix. The oak upland forest was thought to be marginal for listed species.

Based upon this site visit, it was determined that following listed species potentially could inhabit the property:

- Itame* sp. 1 undescribed (Barrens Itame) - Special Concern
- Eacles imperialis* (Imperial Moth) - Threatened
- Anisota stigma* (Spiny Oakworm) - Special Concern
- Zale* sp. 1 undescribed (Barrens Zale) - Special Concern
- Catocala herodias gerhardi* (Gerhard's Underwing) - Threatened
- Bagisara rectifascia* (Straight-lined Mallow Moth) - Special Concern
- Acrionicta albarufa* (Barrens Daggermoth) - Threatened
- Apharetra dentata* (Blueberry Sallow) - Special Concern

One or more of these species are on the wing from late May/early June through mid-August.

Four stations were established in order to survey each of the target habitats.

Station 1 - located within the pitch pine upland forest in the vicinity of campsite 35. Small, scattered patches of scrub oak occur along the campsite openings.



Station 2 - located within the oak-dominated forest shorter after the first intersection past the beech forest. There is a primarily ericaceous understory with sparse sapling oaks, including a very few scrub oaks.

Station 3 - located within the pitch pine/white oak forest mix on the south-central border of the property, on the north side of the trail just past a sharp D-bend in the trail. There is primarily an ericaceous understory with sapling oaks, including a few scrub oak.

Station 4 - located within the pitch pine/white oak forest mix on the eastern border of the property about 30 meters southeast of the T-intersection of the trail.

Station 4A - same as station 4, but located approximately 50 meters north of the trail T-intersection.

These stations are depicted on a Xerox reduction of the above referenced base map (Figure 2).

## METHODS

The site was inventoried using portable ultraviolet light traps operated by a 12 volt battery. Traps were charged with either potassium cyanide or ethyl acetate, set out before dusk and retrieved after dawn. All macrolepidoptera (which includes all families of state-listed species) were brought to the lab for sorting and counting. At least one voucher of each species was pinned and added the Lloyd Center's reference collection. The remainder have been frozen and will be retained for the duration of this project.

## RESULTS

### Light trap surveys

Three thousand two hundred seventy-two macrolepidoptera comprising 196 species (Table 1) were collected on the following 5 nights:

June '99	July '99	August '99
3	14	3
23	29	

Seventeen samples were taken across 5 stations during this period. Four individuals representing three species listed as rare in Massachusetts were documented (Table 2):

- 1 *Eacles imperialis* (Imperial Moth) - Threatened
- 2 *Anisota stigma* (Spiny Oakworm) - Special Concern
- 1 *Zale* sp. (undescribed) (Barrens Zale) - Special Concern

Listed species comprised slightly greater than 0.1% of all macrolepidoptera collected.

Listed species were documented in the following habitats:

- Mature pitch pine forest - Station 1
- Mature black oak/pitch pine mixed forest - Station 4
- Scarlet/white oak forest - Station 2

Two additional species that are not listed but worth noting were also documented at this site. *Zale curema* (Noctuidae) was encountered at Station 1 on June 3 and 23 as



well as at Station 2 on June 3. This species is also a pine barrens affiliate. *Stenoporpia polygrammaria* (Geometridae) was documented on June 23 at Station 3. It was first recorded in Massachusetts on Marthas Vineyard in 1997 and is at or near its northern range limit. *Galium* sp. (bedstraw) has been recorded as its larval host plant (Tietz, 1972).

## DISCUSSION

### Habitat requirements of listed species documented at proposed Down Island Golf Club site.

Habitat criteria on listed Lepidopteran fauna documented at the proposed site for The Bluffs Golf Club are discussed below by individual species.

[REDACTED]  
A single [REDACTED] (wings only) was found at Station 2, the oak upland forest. Birds such as blue jays, chickadees and nuthatches feed upon moths which land on or around, but do not fall into the traps by plucking off their wings before ingesting the body. This was the likely fate of the above individual.

[REDACTED] larvae feed almost exclusively on pitch pine on Marthas Vineyard (Goldstein, pers. com.) despite a broader array of trees as host plants elsewhere in its range. Although three Imperial moths have been collected at light in Dartmouth by the author, these are likely strays from the Vineyard, as no other recent records for this species have been documented in Massachusetts. This Station 2 record most likely flew over from adjacent pitch pine woodland, the nearest of which is the pine/oak mix less than 150 meters east of the trap site (Figure 2).

Appropriate habitat (68.18 acres) for this species at this site was mapped as "pitch Pine Dominant Upland Forest" by ESS, and is presented on their:

"The Down Island Golf Club"

"Vegetative Cover Map "

Wed Oct 27 16:46:36 1999

[REDACTED] was documented at Stations 1 and 4. This species is found in barrens habitats in southeastern Massachusetts and is an oak feeder. On Cape Cod and in Plymouth County, spiny oakworms clearly prefer open canopy barrens and presumably utilize primarily scrub oak as a larval host plant. On the Vineyard, Goldstein (1994) reports this species as abundant in frost bottoms ...and less frequently in other scrub oak habitats. The above stations have scrub oak in the understory albeit as a minority component.

Because of the likelihood that spiny oakworms utilize more than one species of oak as larval host plants, there may be a broader range of significant habitat on Marthas Vineyard than is seen for this species on the "mainland" or for other barrens affiliates (Goldstein, pers. com.). Based upon this survey at the proposed Down Island Golf Club



Site, however, appropriate habitat includes the pitch pine as well as the mixed pitch pine/oak forests, although the low number (2 individuals) is not decisive.

One [REDACTED] was documented at Station 2. On Cape Cod and in Plymouth County, this species occurs primarily in open to closed canopy habitats with primarily a pitch pine canopy and scrub oak understory. Goldstein (1994) refers to this species as a frost pocket affiliate. This does not match Station 2, which is dominated by an oak canopy with an ericaceous understory.

#### **Habitat for listed Lepidoptera at proposed Down Island Golf Club site.**

It is difficult to ascertain significant habitat from the low number of listed species encountered in this study, particularly when single records (Barrens Zale, Imperial Moth) occur in habitat that appears to be marginal at best for the species. This year's drought conditions and some low nighttime temperatures on a few of the trap dates appeared to have depressed the overall number of moths caught. Although total number (4) of listed species captured is low, this does not necessarily reflect of the actual species abundance. Thus, the presence of listed species in appropriate breeding habitat would be considered significant but their presence in non-breeding or marginal habitat adds an element of guesswork as to their origin.

Also, the results of this study is indicative of what was present, but cannot be used to prove the negative (i.e., if it wasn't found it's not there). As is the case with most surveys, additional field work will turn up additional species. However, based upon this survey and what is known about habitat for these species in southeastern Massachusetts, the following should be considered habitat for the three listed species documented at this site:

#### **\* the pitch pine dominant upland forest (68.18) acres .**

This habitat contains pitch pine, the larval host plant for *Eacles imperialis*, as well as most of the scrub oak that is on the property. These 68 acres at Down Island Golf Club do not appear to be "an area of critical concern" for these species as defined by the state, but instead is an area of marginal habitat.

During the course of this survey, the presence Butterfly Weed (*Asclepias tuberosa*) was documented in the successional old field (SOF) near the entrance to this property. Evidence (stems with seed pods) of this plant were searched for but not found during the April site visit, therefore the field was not sampled. Another listed species, *Cygnia inopinatus*, utilizes this plant as its larval host plant. Although the host plants were small and not abundant, they possibly could serve at least as a temporary breeding site.

#### **Possible Mitigation Measures**

Although the abundance and diversity of listed species at this site is low, marginal habitat may exist for three species. Because completion of this project will entail unavoidable loss of habitat for listed Lepidopteran species, accounting for this loss will be necessary. Because the pitch pine dominant upland forest has the highest value for rare Lepidoptera at this site and includes a scrub oak component, this is the habitat for



which mitigation efforts should be concentrated. Successful efforts should address the following issues:

- \* Avoid bulldozing extant pitch pine forest wherever possible, especially where scrub oak occurs in the understory.
- \* Replicate or use existing pitch pine forest as barriers between fairways (but not to the extent that mature oak forest is bulldozed)
- \* Acquire or replicate pitch pine barrens elsewhere.

Butterfly Weed - Presence of the host plant for *C. inopinatus* is more important than habitat type, therefore, planting a equivalent number of plants in areas of high rough should provide adequate mitigation for this species.

#### ACKNOWLEDGMENTS

Thanks are extended to Lloyd Center research interns, Brian Frederick and Ross Kessler, for their assistance in specimen preparation and data management. We also thank David Klinch for his assistance with the site visits and initial tour of the property.

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SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

Figure 1. Location of the proposed Bluffs Golf Club site in Oak Bluffs, Marthas Vineyard, MA.

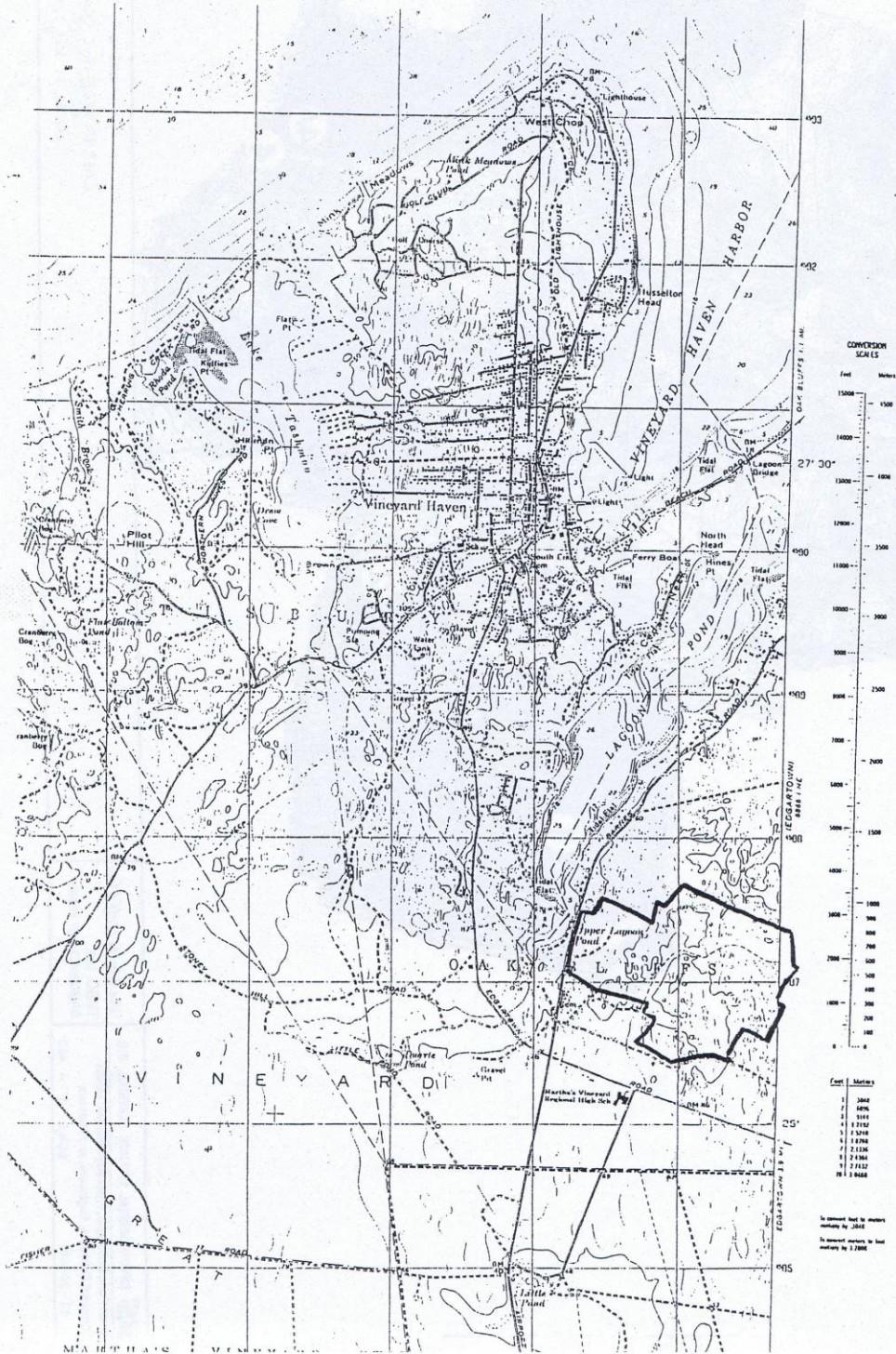
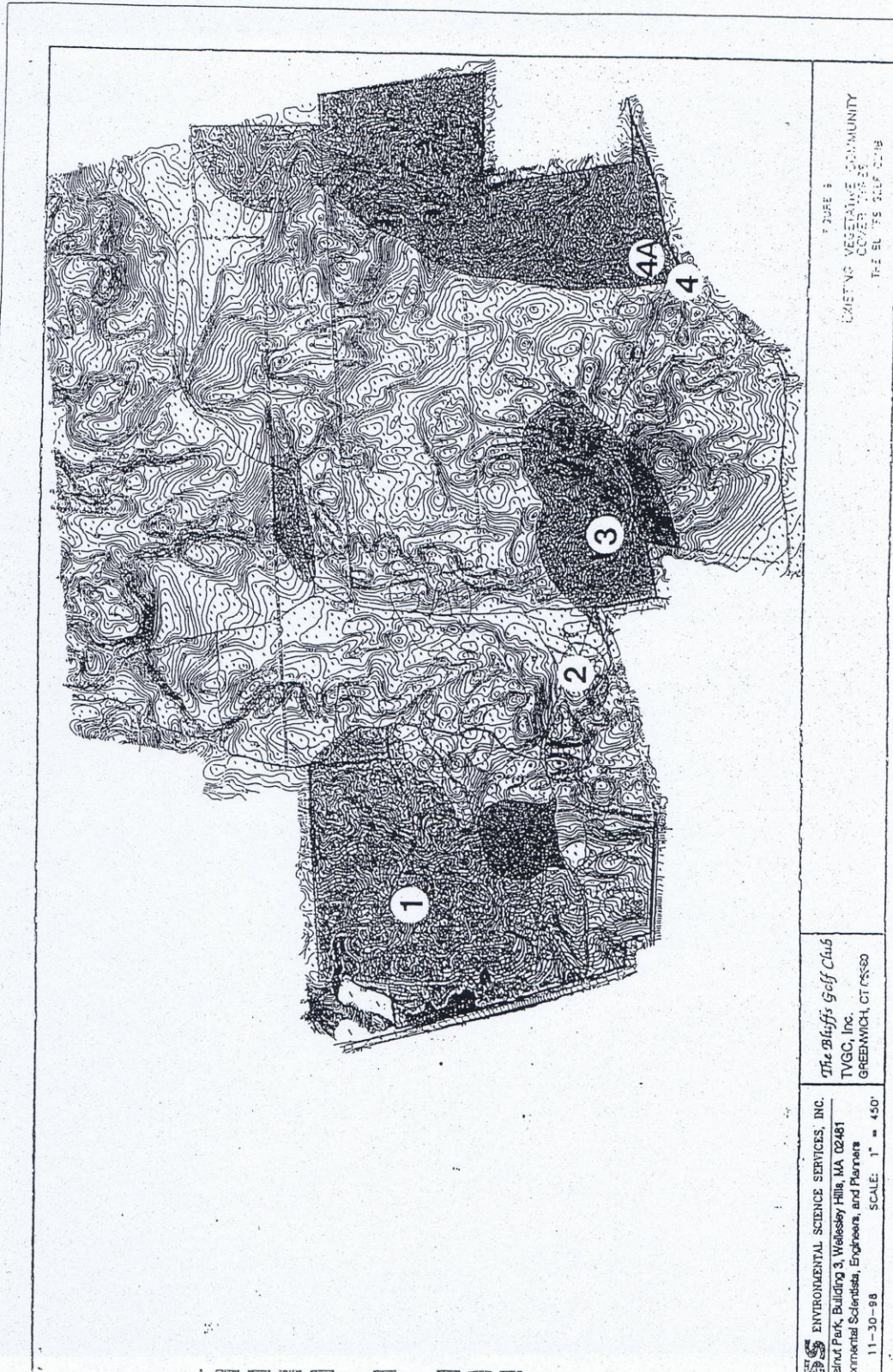




Figure 2. Location of light trap stations operated during 1999 at site proposed for The Bluffs Golf Club.

- 1 = pitch pine forest
- 2 = oak forest
- 3, 4 & 4A = oak/pitch pine mix





SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN

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# = number of individuals

MONA #	Species	Month June					July							August				Total	
		Day	3	3	3	23	23	14	14	14	14	29	29	29	3	3	3		3
		Site	1	2	3	1	3	1	2	3	4	2	3	4	1	2	3		4A
Method	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV		
6251	<i>Drepana arcuata</i>		1																1
6273	<i>Itame pustularia</i>							1											1
6282	<i>Itame argillacearia</i>																		1
6326	<i>Semiothisa aemulitaria</i>		2																2
6339	<i>Semiothisa transitaria</i>		1																1
6341	<i>Semiothisa bicolorata</i>				3			2					1	1	2			1	10
6342	<i>Semiothisa bisignata</i>		1	1			2											1	1
6352	<i>Semiothisa granitata</i>		5		2			1				1		6	3		1	1	15
6353	<i>Semiothisa multilineata</i>					1					2		3	5	2	1	1	1	22
6449	<i>Glana cribrataria</i>		1	8	2	12	4	1	2		2		1			2		1	5
6459	<i>Stenoporia polygrammaria</i>						1												32
6582	<i>Anacamptodes vellivolata</i>		1		1														1
6588	<i>Iridopsis larvata</i>		1	1															3
6597	<i>Ectropis crepuscularia</i>					1													2
6598	<i>Protoboamia porcelaria</i>			1															1
6621	<i>Melaniolepha signataria</i>			6															1
6637	<i>Eufidonia convergaria</i>		1																6
6638	<i>Eufidonia notataria</i>		2	1															1
6640	<i>Biston betularia cognataria</i>						1												3
6654	<i>Hypagyrtis unipunctata</i>					1		1	2	2									1
6655	<i>Hypagyrtis esther</i>			1		1		2							1		2		9
6667	<i>Lomographa vestaliata</i>		8	1	3	7													4
6734	<i>Euchlaena marginaria</i>		5	1	2														19
6739	<i>Euchlaena irraria</i>					10	2												8
6754	<i>Pero hubneraria</i>			6	2	1	1												12
6763	<i>Nacophora quemaria</i>			4	3		1					3	2	1	6		1	3	26
6796	<i>Campaea perlata</i>			4															8
6822	<i>Metarranthis duaria</i>		7	4	12														4
6823	<i>Metarranthis angularia</i>		5	46	20		1												23
6826	<i>Metarranthis hypocharia</i>			1		3													72
6826.1	<i>Metarranthis broweri</i>		2	1	1	1													4
6832	<i>Metarranthis obfirmaria</i>				1														5
6837	<i>Probole alienaria</i>		1																1
	<i>Probole sp.</i>			1															1
6840	<i>Plagodis serinaria</i>			7	1														8
6843	<i>Plagodis fervidaria</i>			2	1														8
6844	<i>Plagodis alcoolaria</i>			13	6											3		2	19
6884	<i>Besma endropiaria</i>				1														1
6885	<i>Besma quercivoraria</i>			1															1
6892	<i>Lambdina pellucidaria</i>		3	31	9	2					1		1	3	1	2	2		11
6894	<i>Lambdina fervidaria</i>		2	28	25														45
6941	<i>Eusarca confusaria</i>																		55
6964	<i>Tetracis cachexiata</i>		14	40	22	2						1							1
6966	<i>Eutrapela clemataria</i>		2	2															78
6982	<i>Prochoerodes transversata</i>																		4
6987	<i>Antepione thiosaria</i>							1				1		1	3				5
7046	<i>Nemoria bistrinaria</i>								2										1
7048	<i>Nemoria mimosaria</i>		1		1		1							2	3				7
7053	<i>Dichorda indaria</i>			1															3
7058	<i>Synchlora aerata</i>							1											1
7084	<i>Hethemia pistasciaria</i>		46	51	63														160
7094	<i>Lobocleta ossularia</i>															1			1
7136	<i>Cyclophora packardii</i>			1									1						3
7139	<i>Cyclophora pendulinaria</i>		1	12	10				2			17	5	8		1		9	73
7159	<i>Scopula limboundata</i>					2		3	3	3		6		2		1	4	1	26
	<i>Hydriomena sp.</i>		1		1														2
7292	<i>Hydria prunivorata</i>							1	1						1				3
7390	<i>Xanthorhoe lacustrata</i>																		1
7414	<i>Orthonama obstipata</i>																		1
7416	<i>Orthonama centrostrigaria</i>			9	2				1			3		4		1			20
	<i>Eupithecia sp.</i>		3	4	2			3	4			2				1			18
7625	<i>Chloroclystis rectangulata</i>					4													4
7635	<i>Acasis viridata</i>		1																1
7640	<i>Lobophora nivigerata</i>				1														1
	<i>Geometridae spp.</i>		5	1															6

5/27  
5/28  
5/29



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MONA #	Species	Month June					Month July							Month August				Total	
		Day	3	3	3	23	23	14	14	14	14	29	29	29	3	3	3		3
		Site	1	2	3	1	3	1	2	3	4	2	3	4	1	2	3		4A
7659	<i>Lacosoma chiridota</i>	Method	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	
7663	<i>Apatelodes torrefacta</i>				1	3	5												
7670	<i>Tolype velleda</i>				1														
7701	<i>Malacosoma americanum</i>													1					
7704	<i>Eacles imperialis</i>					6													
7716	<i>Anisota stigma</i>										1								
7719	<i>Anisota senatoria</i>							1							1				
7723	<i>Anisota virginensis</i>							1	1										
7746	<i>Automeris io</i>							1	1										
7758	<i>Actias luna</i>		4	4	3	6	3												
7810	<i>Sphinx gordius</i>		1	1															
7810.1	<i>Sphinx poecilla</i>					1			1										
7816	<i>Lapara coniferarum</i>																	1	
7817	<i>Lapara bombycoides</i>							1											
7824	<i>Paonias excaecatus</i>							1											
7886	<i>Darapsa pholus</i>							3					1	1	1	5	1	1	
7896	<i>Clostera inclusa</i>								1										
7902	<i>Datana ministra</i>			1															
7904	<i>Datana drexellii</i>																	1	
7906	<i>Datana contracta</i>									5	4				1				
7915	<i>Nadata gibbosa</i>									1	2	1							
7917	<i>Hyperaeschra georgica</i>		2	1		7	1	12	3	7	11		2	5	1		1	12	
7920	<i>Peridea angulosa</i>			8	3								1						
7936	<i>Furcula borealis</i>							4		1					1		1	1	
7951	<i>Symmerista albifrons</i>										1								
7975	<i>Macrurocampa marthesia</i>			1				3	6	4	3		1		2	1	1	1	
7983	<i>Heterocampa obliqua</i>			3				1	6	2	2	3		2		1	3	2	
7990	<i>Heterocampa umbrata</i>							3	1	7	2	1	1	3	1				
7994	<i>Heterocampa guttivitta</i>		1	1	1	1					1		1	4	1			2	
7998	<i>Lochmaeus manteo</i>		1	1	1	1									3			1	
8005	<i>Schizura ipomoeae</i>					1		1	1				1		1	1	3		
8007	<i>Schizura unicornis</i>												1						
8017	<i>Oligocentra lignicolor</i>										1								
8022	<i>Hyparpax aurora</i>			1											1				
8045.1	<i>Crambidia pallida</i>																		
8072	<i>Cisthene packardii</i>				2							1		5	1		4	2	
8090	<i>Hypoprepia fucosa</i>																		
8118	<i>Holomelina opella</i>				1	4		28	87	44	78	52	43	50	30	29	41	31	
8134	<i>Spilosoma congrua</i>			3		11		3											
8137	<i>Spilosoma virginica</i>																		
8171	<i>Apantesis nais</i>		22	9	2	2									1				
8188	<i>Grammia figurata</i>		1																
8203	<i>Halysidota tessellaris</i>					2		12	15	6	8		1		3				
8211	<i>Halysidota caryae</i>		1	2	3														
8302	<i>Dasychira obliquata</i>																		
8316	<i>Orgyia leucostigma</i>											2		2	3	2		2	
8318	<i>Lymantria dispar</i>										1								
8322	<i>Idia americalis</i>			2		2		1	5			6			1	2	2	7	
8323	<i>Idia aemula</i>			1				5	2					2	1	1		1	
8326	<i>Idia rotundalis</i>							3	19	4	4	28	4	4	6	19	5	7	
8327	<i>Idia forbesi</i>									1		1							
8328	<i>Idia julia</i>										1	1							
8329	<i>Idia diminuendis</i>					1						3	1	4				2	
8334	<i>Idia lubncalis</i>							17	58	34	35	58	38	31	12	20	10	29	
8341	<i>Zanclognatha theralis</i>							1											
8345	<i>Zanclognatha laevigata</i>																1	1	
8347	<i>Zanclognatha obscuripennis</i>					2				1				1					
8352	<i>Zanclognatha jacchusalis</i>																		
8353	<i>Zanclognatha ochreipennis</i>							1											
	<i>Zanclognatha spp.</i>							2	1			1			1	5	2	2	
8355	<i>Chytolita morbidalis</i>		6	49	39	2	2					2							
8370	<i>Bleptina caradrinalis</i>																		
8378	<i>Renia salusalis</i>					2					1								
8380	<i>Renia nemoralis</i>														1				
8381	<i>Renia discoloralis</i>														1			2	
8384.1	<i>Renia flavipunctalis</i>													2	1	3	1	4	
											1		1		3		3		



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		Day	3	3	23	23	14	14	14	14	29	29	29	3	3	3	3			
		Site	1	2	3	1	3	1	2	3	4	2	3	4	1	2	3	4A		
Method	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV			
8386	<i>Renia adspersigillus</i>																			
	<i>Renia sp.</i>																	1		
8397	<i>Palthis angulalis</i>	1																2		
8401	<i>Redectis vitrea</i>							1	1									2		
8421	<i>Hyphenodes fractilinea</i>			nc	nc		nc											2		
8427	<i>Dyspyralis puncticosta</i>										9	6	2		7	2	3	29		
8428	<i>Dyspyralis nigella</i>									1	1			2	1	2	6	7		
8442	<i>Bomolocha baltimoralis</i>	1	1						1	1	1	1				1	2	7		
8490	<i>Pangrapta decoralis</i>	1	3	6	2	4												5		
8505	<i>Metalectra richardsi</i>					3					9	5	12	13	34	26	85	200		
8522	<i>Gabara subnivoseella</i>							2		1								3		
8587	<i>Panopoda rufimargo</i>		1			1		1	2	1								3		
8697	<i>Zale minerea</i>	2	5	2														7		
8699	<i>Zale obliqua</i>	1				8		1										11		
8704	<i>Zale helata</i>		1															10		
8707	<i>Zale metatoides</i>	1	2			1												2		
8709	<i>Zale curema</i>	2	1			1												3		
8713.1	<i>Zale sp. 1</i>		1															4		
8717	<i>Zale homida</i>					1												1		
8717.1	<i>Zale sp.</i>			1														1		
8745	<i>Mocis texana</i>																	1		
8764	<i>Argyrostromis anilis</i>					1									1			1		
8805	<i>Catocala unijuga</i>																	1		
8846	<i>Catocala sordida</i>								1								1	1		
8849	<i>Catocala andromedae</i>											4		1	1	2	1	10		
8864	<i>Catocala grynea</i>														1			1		
8983	<i>Meganola minuscula</i>	1	27	7	3									1				1		
8983.1	<i>Meganola phylla</i>					1					2	1			4	1		46		
8983.2	<i>Meganola spodia</i>					2				1				1				3		
8996	<i>Nola clethrae</i>									1								3		
9038	<i>Hyperstrotia villificans</i>		2			8	10								2	1		3		
9039	<i>Hyperstrotia flaviguttata</i>																1	21		
9047	<i>Lithacodia muscosula</i>									1					1			1		
9062	<i>Cerma cerintha</i>																	1		
9183	<i>Panthea furcilla</i>					1		1										2		
9226	<i>Acronicta superans</i>					1									1			2		
9237	<i>Acronicta interrupta</i>																	1		
9238	<i>Acronicta lobellae</i>							1			1							2		
9243	<i>Acronicta ovata</i>					2	1		1	7	4	3	1	4	9		1	1		
9244	<i>Acronicta modica</i>		2	2							1	1					3	39		
9245	<i>Acronicta haesitata</i>		2	2														6		
9249	<i>Acronicta increta</i>		2	2	2													4		
9259	<i>Acronicta noctivaga</i>	1	9	5													2	8		
9266	<i>Acronicta lithospila</i>			2				1										15		
9281	<i>Agriopodes fallax</i>														5		1	2		
9556	<i>Chytonix palliatricula</i>	3	7	7	2	2		10	4	5	1	2	2					1		
9681	<i>Elaphria festivooides</i>	10	12	14	3	1									1		1	47		
9688	<i>Galgula partita</i>	1				1												40		
9815	<i>Cosmia calami</i>							2	5	2				1				2		
9821	<i>Amolita roseola</i>																	10		
10288	<i>Polia detracta</i>	2	57	46	1													2		
10291	<i>Polia latex</i>		2	2					1	2								109		
10301	<i>Spiramater lutra</i>		1	2	2	2												4		
10397	<i>Lacinipolia renigera</i>	2				1												7		
10431	<i>Faronta diffusa</i>																	3		
10449	<i>Leucania insueta</i>														1			1		
10459	<i>Leucania inermis</i>					3												3		
10461	<i>Leucania ursula</i>					1												1		
10532	<i>Homorthodes furfurata</i>	3	6															1		
10567	<i>Ulolonche culea</i>	6	1	3														9		
10585	<i>Orthodes crenulata</i>								1		1							10		
10587	<i>Orthodes cynica</i>	2	2			18												2		
10817	<i>Euxoa obeliscoides</i>																	22		
10891	<i>Ochropleura implecta</i>	2															1	1		
10967.1	<i>Xestia praevia</i>																	2		
11006	<i>Protolampra brunneicollis</i>					1		1							2			2		
																		2		



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		Day	3	3	23	23	14	14	14	14	29	29	29	3	3	3	3		
		Site	1	2	3	1	3	1	2	3	4	2	3	4	1	2	3	4A	
Method	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV		
11010	<i>Lycophotia phyllophora</i>				2	1	2	4	4	2									15
	<i>Noctua pronuba</i>		1			1					1								4
11029	<i>Abagrotis alternata</i>										5	2	1					1	8
	<i>Noctuidae spp.</i>										1								1
	TOTAL	200	530	358	170	58	144	264	144	168	240	126	183	135	177	122	253	3272	



Table 2. State-listed macrolepidoptera documented at site proposed for The Bluffs Golf Club, Oak Bluffs, MA during 1999.  
# = number of individuals

MONA #	Month						July						August						Total			
	Day	3	3	23	23	23	14	14	14	14	14	29	29	29	29	29	3	3		3	3	3
	Site	1	2	3	1	2	3	3	4	3	4	2	3	4	3	4	1	2	3	4A	UV	UV
	Method	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV	UV
	Species																					
7704												1										
7716							1							1								
8713																						
	TOTAL	0	1	0	0	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	4

## Appendix F: Avian Checklist and Seasonal Tables

Land bank staff conducted avian 5-minute point count surveys on the Southern Woodlands Reservation in the fall in 2004, year-round in 2005, and in the summer in 2006 and 2009. The presence of occasional migrants and resident birds throughout each season were recorded during a total of 2 visits in 2004, 4 visits in 2005, 2 visits in 2006 and 3 visits in 2009. Birds were sampled from three dissimilar habitat points – grassland, mixed-oak woodland and conifer woodland. All birds seen or heard during a five-minute period were recorded. Birds seen or heard by land bank staff outside of the count period were noted as present on the property but were not included in quantitative analyses. Additional formal avian surveys were conducted by an independent consulting firm – Dru Associates – for an environmental impact report for the Down Island Golf Club in 1998 and 1999. Additional birds observed during the Dru Associates survey that were not observed by land bank staff in their surveys are included in the summary table (Table 4.) but are not included in any quantitative analysis.

The grassland accounts for the greatest number of bird species throughout each season. The greater species richness observed in the grassland is in part attributed to the amount of edge habitat that exists. Scientific studies have documented that the junction of forest and field habitats results in an increase of avian species richness (Gates and Gysel 1978). The edge habitat is typically denser vegetation with greater floristic variety than the interior woodland habitat. The edge habitat also provides predator birds with perch sites over hunting grounds in the grassland. Additionally, the close proximity of the grassland to the fresh water of the Upper Lagoon Pond contributes to the increased species diversity in the grassland. The well-established dry woodland that occupies the majority of the reservation provides few options for forage and water and suitable nesting habitat for a limited number of cavity nesters and tree nesters that prefer taller oaks and confers.

Additionally, species richness was highest in the summer breeding season followed by spring. Once more the dense edge habitat along the perimeter of the field contributes to the species richness during the breeding season by providing desirable food and nesting habitat. The remaining wooded habitat on the reservation has a low ericaceous understory that does not provide much in terms of cover in the winter and fall although the understory berries are a food source to avian fauna in the spring.

Observations of behaviors associated with nesting or rearing of young such as adults carrying nesting material or food to a nest, carrying fecal sacs from a nest or attending hatch-year birds can confirm that a species is breeding on the property, as can locating an active nest. A species is likely breeding if singing territorial males are present on the property on two occasions at least a week apart. A species is possibly breeding if it is detected in suitable breeding habitat during the breeding season. Of the 29 bird species observed during the summer, there are two confirmed breeders – gray catbird and blue jay –; seven are probable breeders; thirteen are possible breeders; and only

two species – the herring gull and yellow-bellied sapsucker – are non-breeders (Table 6). Five species were observed on the reservation during the breeding season but not in suitable breeding habitat that exists elsewhere on the reservation.

Table 4. List of avian species known to occur on the Southern Woodlands Reservation, Oak Bluffs, MA.

Common Name <sup>1</sup>	Surveyed <sup>2</sup>	Observed	Year-round	Seasonal breeding	Winter resident/migrant
<b>Hawks and Eagles</b>					
Red-tailed hawk – <i>Buteo jamaicensis</i>		X	X		
<b>Falcons</b>					
Merlin – <i>Falco columbarius</i>		Z <sup>3</sup>	X		X
<b>Gulls and Terns</b>					
Herring Gull – <i>Larus argentatus</i>	X			X	
<b>Pigeons and Doves</b>					
Mourning Dove – <i>Zenaida macroura</i>	X		X		
<b>Woodpeckers</b>					
Yellow-bellied Sapsucker – <i>Sphyrapicus varius</i>		X		X	
Downy Woodpecker – <i>Picoides pubescens</i>	X		X		
Hairy Woodpecker – <i>Picoides villosus</i>		X	X		
Red-bellied Woodpecker – <i>Melanerpes carolinus</i>	X		X		
Red-headed Woodpecker – <i>Melanerpes erythrocephalus</i>	X		X		
Northern Flicker – <i>Colaptes auratus</i>	X		X		
<b>Tyrant Flycatchers</b>					
Eastern Wood Peewee – <i>Contopus virens</i>	X			X	
Eastern Phoebe – <i>Sayornis phoebe</i>	X			X	
Great Crested Flycatcher – <i>Myiarchus crinitus</i>	X			X	
Eastern Kingbird – <i>Tyrannus tyrannus</i>	X			X	
<b>Crows and Jays</b>					
Blue Jay – <i>Cyanocitta cristata</i>	X		X		
American Crow – <i>Corvus brachyrhynchos</i>	X		X		
<b>Swallows</b>					
Tree Swallow – <i>Tachycineta bicolor</i>	X			X	
<b>Chickadees</b>					
Black-capped Chickadee – <i>Parus atricapillus</i>	X		X		
Tufted Titmouse – <i>Parus bicolor</i>		X	X		
<b>Nuthatches</b>					
White-breasted Nuthatch – <i>Sitta Canadensis</i>	X		X		



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Red-breasted Nuthatch – <i>Sitta carolinensis</i>		Z	X		
<b>Wrens</b>					
Carolina Wren – <i>Thryothorus ludovicianus</i>	X		X		
<b>Thrushes</b>					
American Robin – <i>Turdus migratorius</i>	X		X		
Hermit thrush – <i>Catharus guttatus</i>		Z		X	
<b>Thrashers and Mockingbirds</b>					
Gray Catbird – <i>Dumetella carolinensis</i>	X		X		
Northern Mockingbird – <i>Mimus polyglottos</i>	X		X		
<b>Waxwings</b>					
Cedar waxwing – <i>Bombycilla cedrorum</i>		Z	X		
<b>Starlings</b>					
European starling – <i>Sturnus vulgaris</i>		Z	X		
<b>Vireos</b>					
Red-eyed vireo – <i>Vireo olivaceus</i>		Z		X	
<b>American Warblers</b>					
Yellow warbler – <i>Dendroica petechia</i>		Z		X	
Black-and-white warbler – <i>Mniotilta varia</i>		Z		X	
Yellow-rumped Warbler – <i>Dendroica coronata</i>	X				X
Pine Warbler – <i>Dendroica pinus</i>	X			X	
Prairie Warbler – <i>Dendroica discolor</i>	X			X	
Ovenbird – <i>Seiurus aurocapillus</i>	X			X	
American Redstart – <i>Setophaga ruticilla</i>		X		X	
Common Yellowthroat – <i>Geothlypis trichas</i>	X			X	
<b>Tanagers</b>					
Scarlet Tanager – <i>Piranga olivaceae</i>	X			X	
<b>Sparrows</b>					
Chipping Sparrow – <i>Spizella passerina</i>		X		X	
Song Sparrow – <i>Melospiza melodia</i>		X	X		
Eastern Towhee – <i>Pipilo erythrophthalmus</i>	X			X	
American tree sparrow – <i>Spizella arborea</i>		Z			X
<b>Cardinals, Grosbeaks and Allies</b>					
Northern Cardinal – <i>Cardinalis cardinalis</i>	X		X		
<b>Blackbirds and Orioles</b>					
Red-winged Blackbird – <i>Agelaius phoeniceus</i>	X		X		
Baltimore Oriole – <i>Icterus galbula</i>		X		X	
Common grackle – <i>Quiscalus quiscula</i>		Z	X		
Brown-headed cowbird – <i>Molothrus ater</i>		Z	X		

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<b>Finches</b>					
American Goldfinch – <i>Carduelis tristis</i>	X		X		
Purple finch – <i>Carpodacus purpureus</i>		Z	X		
House finch – <i>Carpodacus mexicanus</i>		Z	X		

<sup>1</sup>Species rank: E=endangered, T=threatened, SC=special concern; highlighted species are designated as rare by the Commonwealth of Massachusetts.

<sup>2</sup>Surveyed: birds seen or heard during a 5-minute point count survey conducted by land bank staff;

<sup>3</sup>Observed: x= birds observed on the reservation outside of survey period by land bank staff from 2004-2010 and z= birds observed by Dru Associates in an Environmental Impact Report for the Down Island Golf Club, Martha's Vineyard from 1998 to 1999.

sources: All about birds-Cornell Ornithology Laboratory

**Highlighted species denotes protected status as determined by NHESP**

Table 5. Avian species observed during the spring on the Southern Woodlands Reservation, Oak Bluffs, MA following 5-minute point count surveys.

<b>Spring</b>	Grassland	Mixed-oak Woodland	Conifer Woodland
Species	N=5	N=5	N=5
<b>Year-Round Residents</b>			
American robin	O		U
American crow	O	U	O
American goldfinch	C		
Black-capped chickadee	C	C	C
Blue jay	C	U	C
Carolina wren		U	
Grey catbird	C		
Mourning dove	U		
Northern cardinal	C	O	U
White-breasted nuthatch	O	U	
<b>Summer Breeders</b>			
Chipping sparrow	U		
Common yellowthroat	U		U
Downy woodpecker		O	
Eastern wood pewee	U		
Eastern towhee	U	U	
Mockingbird	U		
Pine warbler	C	C	C
Prairie warbler	U		
Red winged blackbird	U		
Scarlet tanager			U
Tree swallow	C		
Yellow-rumped warbler	U	C	

<sup>a</sup> Seasonal grouping organized according to Peterson Field Guides Eastern Birds (1980) and Felix Neck Bird Checklist (1992); OH = observed flying overhead and P = observed in pond.

<sup>b</sup> C=common birds (detected in more than 50% of the survey visits), O=occasional birds (detected in 26-50% of the survey visits), U=uncommon birds (detected in 25% and fewer of the survey visits) and P=present birds (not detected during a survey period but observed on the property). Highlighted species are state-listed.



Table 6. Avian species observed during the summer breeding season on the Southern Woodlands Reservation, Oak Bluffs, MA following 5-minute point count surveys.

Summer	Nest Type <sup>a</sup>			Status <sup>b</sup>	Grassland	Mixed-oak Woodland	Conifer woodland
	Ground	Raised in tree/shrub	Cavity or burrow				
Species					N=9	N=9	N=9
<b>Year-Round Residents</b>							
American crow		X		PR	C	O	C
American goldfinch		X		PR	O		U
American robin		X		PR	O	O	U
Black-capped chickadee			X	PR	O	C	C
Blue jay		X		CO-CF	O	O	O
Carolina wren			X	PO	U		U
Gray catbird		X		CO-CF	C		U
Hairy woodpecker			X	PO		U	U
Herring gull	X			NB	O		
Mourning dove		X		PO	U		
Northern cardinal		X		PO	U	U	
Red-bellied woodpecker			X	PO	P	U	U
Red-tailed hawk		X		NB-P	P		
Song sparrow		X		PO	P		
White-breasted nuthatch			X	PR	P	O	O
Chipping sparrow		X		PO	U		
<b>Summer Breeders</b>							
Baltimore oriole		X		PO	P		
Common yellowthroat		X		PO	P		
Downy woodpecker			X	PO	P	U	U
Eastern phoebe		X		NB-P	U		U
Eastern towhee	X			PR	O	U	
Eastern wood pewee		X		PR		O	U
Great-crested flycatcher			X	NB-P	U		U
Eastern Kingbird		X		NB-P	U		
Ovenbird	X			PO		U	
Pine warbler		X		PO	U	P	O
Tree swallow			X	NB-P	U		
Tufted titmouse			X	PO		P	
<b>Winter Resident/ Migrant</b>							
Yellow-bellied sapsucker			X	NB		P	

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<sup>a</sup> seasonal and nest type data from Cornell ornithology lab range and species information data ([www.allaboutbirds.org](http://www.allaboutbirds.org)) and the Felix Neck Field Checklist of Martha’s Vineyard Birds, December 1992; \* = breeding in, under or on buildings

<sup>b</sup> Breeding status: NB= observed during spring or summer but breeding habitat does not occur on the property, NB-P= observed during the spring or summer but not in breeding habitat although breeding habitat exists on the property; PO= possible breeding (species detected in suitable breeding habitat during breeding period), PR=probable breeding (species heard singing on two occasions over one week apart in suitable breeding habitat during breeding period). CO=confirmed breeding (species carrying food, CF; feeding young, FY; with begging hatch-year fledglings, HY; or a located nest, N), OS= observed out of breeding season and without suitable habitat on the property, OS-H= observed out of breeding season but with suitable habitat on the property.

<sup>c</sup> frequency values used to determine common, occasional or uncommon frequency are based on average of each survey year relative to the number of visits for that year for example 2004 = 4 visits observed 3 times; 2003 = 4 visits observed once; 1993 = 10 visits observed 6 times : = (((3/4)+(1/4)+(6/10))/3)\*100 answer is 53% which would be “C”

<sup>d</sup> C= common (birds were detected in more than 50% of the survey visits)

O= occasional (birds were detected in 26-50% of the survey visits)

U= uncommon (birds were detected in 25% and fewer of the survey visits)

P= present (birds were not detected during a survey period but were observed on the property)

Highlighted species are state-listed

Table 7. Avian species observed during the fall on the Southern Woodlands Reservation, Oak Bluffs, MA following 5-minute point count surveys.

<b>Fall</b>	Grassland	Mixed-oak Woodland	Conifer Woodland
Species	N=6	N=6	N=6
<b>Year-Round Residents</b>			
American crow	U	U	C
American goldfinch	O	U	
American robin	U		
Black-capped chickadee	C		C
Blue jay	C	O	C
Carolina wren	O		
Grey catbird	U	U	
Northern cardinal	C		
Northern flicker	U		
White-breasted nuthatch	O	U	C
<b>Summer Breeders</b>			
Common yellowthroat	U		
Downy woodpecker	U	O	
Eastern towhee	O		
Pine warbler			U
Yellow rumped warbler	U		

<sup>a</sup> seasonal and nest type data from Cornell ornithology lab range and species information data

([www.allaboutbirds.org](http://www.allaboutbirds.org)) and the Felix Neck Field Checklist of Martha’s Vineyard Birds, December 1992

<sup>b</sup> frequency values used to determine common, occasional or uncommon frequency are based on average of each survey year relative to the number of visits for that year for example 2004 = 4 visits observed 3 times; 2003 = 4 visits observed once; 1993 = 10 visits observed 6 times : = (((3/4)+(1/4)+(6/10))/3)\*100 answer is 53% which would

be “C”

- <sup>c</sup> C= common (birds were detected in more than 50% of the survey visits)
- O= occasional (birds were detected in 26-50% of the survey visits)
- U= uncommon (birds were detected in 25% and fewer of the survey visits)
- P= present (birds were not detected during a survey period but were observed on the property)

Table 8. Avian species observed during the Winter on the Southern Woodlands Reservation, Oak Bluffs, MA following 5-minute point count surveys.

Winter	Grassland	Mixed-oak Woodland	Conifer Woodland
Species	N=4	N=4	N=4
<b>Year-Round Residents</b>			
American crow	C	U	O
American robin	U		
Black-capped chickadee	C	C	C
Blue jay	C		U
Carolina wren	U		
Northern cardinal	U		
White-breasted nuthatch	O	C	

<sup>a</sup> seasonal and nest type data from Cornell ornithology lab range and species information data

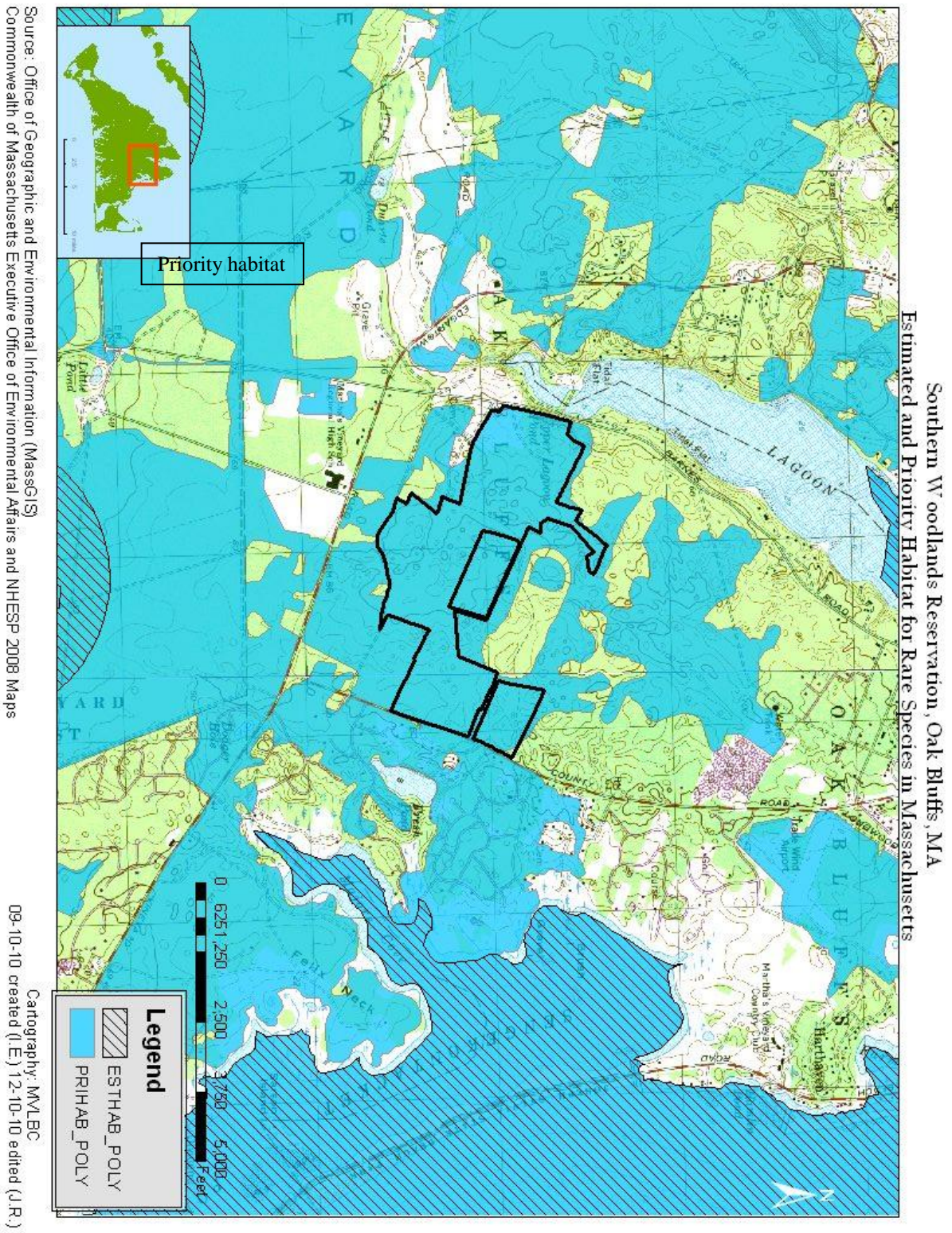
([www.allaboutbirds.org](http://www.allaboutbirds.org)) and the Felix Neck Field Checklist of Martha’s Vineyard Birds, December 1992

<sup>b</sup> frequency values used to determine common, occasional or uncommon frequency are based on average of each survey year relative to the number of visits for that year for example 2004 = 4 visits observed 3 times; 2003 = 4 visits observed once; 1993 = 10 visits observed 6 times : = (((3/4)+(1/4)+(6/10))/3)\*100 answer is 53% which would be “C”

- <sup>c</sup> C= common (birds were detected in more than 50% of the survey visits)
- O= occasional (birds were detected in 26-50% of the survey visits)
- U= uncommon (birds were detected in 25% and fewer of the survey visits)
- P= present (birds were not detected during a survey period but were observed on the property)

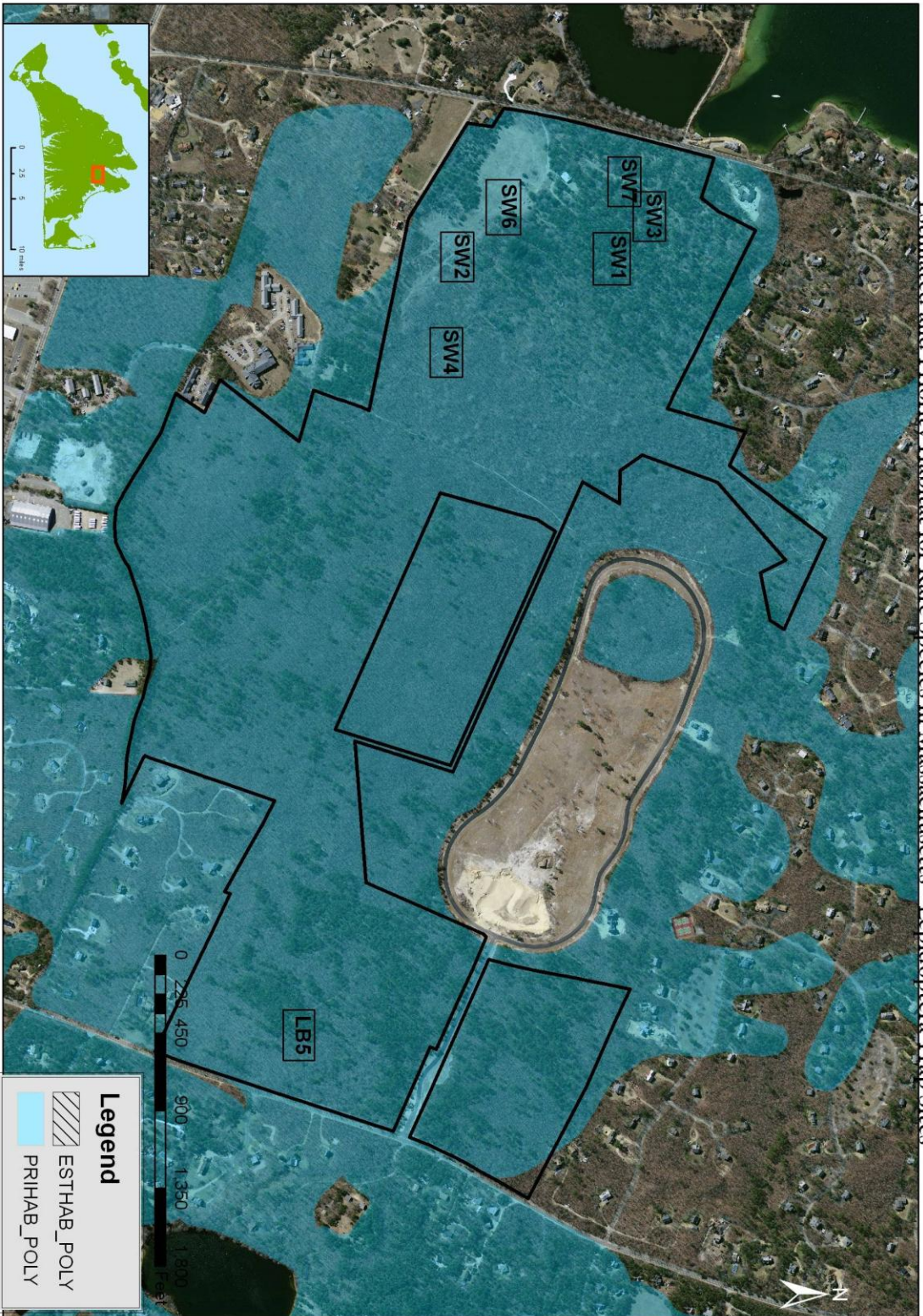


### Appendix G. Endangered Species





Southern Woodlands Reservation, Oak Bluffs, MA  
Estimated and Priority Habitat for Rare Species in Massachusetts - Lepidoptera Trap Sites



Source: Office of Geographic and Environmental Information (MassGIS)  
Commonwealth of Massachusetts Executive Office of Environmental Affairs and NHEESP 2008 Maps

Cartography: MVLBC  
09-10-10 created (I.E.) 12-10-10 edited (J.R.)

Eight Massachusetts-listed species were observed on the Southern Woodlands Reservation by land bank staff during quantitative and qualitative surveys of the property in 2005, 2006, 2009 and 2010.

[REDACTED]

[REDACTED]

The management plan proposes minimal cutting of woodland moth habitat. A total of 5 acres of the 228 acres woodland are proposed to be restored to grassland. A total of 2 acres of woodland is proposed for use as a primitive campground. The creation of new trails will not involve any tree cutting. The future woodland management plan will include tree cutting. However, the overall goal of the plan is to promote woodland health which will benefit the woodland moth species habitat.



[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

**Appendix H. Abutters**

Table 10. Abutters within 200 feet of the Southern Woodlands Reservation as recorded in the 2010 Oak Bluffs assessors' book.

41/1	Jean Barbey	4040 Chancery Court NW	Washington, DC 20007
40/1.3	Rebecca & James Greer	PO box 2535	Oak Bluffs, MA 02557
41/4	Alfred & Olga Covino	102 B Wendover Drive	Monroe, CT 06468
41/8	Padraic & Ikuko Burns Hines Point Realty Trust	9 Downing Street	Brookline, MA 02445
41/1.1	Dennis Maxwell	219 Hunters Ridge Road	Concord, MA 01742
41/1.2	Elio Silva	PO Box 997	Vineyard Haven, MA 02568
41/10,35/86 36/27-29 45/27.05- 27.11 42/27	Farlap Development Corp	2 Cowdray Park Drive	Greenwich, CT 06831
42/2, 50/31	Oak Bluffs Homesite Committee	PO box 1327	Oak Bluffs, MA 02557
41/6	Featherstone Center for the Arts	PO Box 1145	Oak Bluffs, MA 02557
41/71A, 71 50/7.5, 7.5A	Woodside Village, Inc.	60B Village Road	Vineyard Haven, MA 02568
50/29	MVRHS	PO Box 1385	Oak Bluffs, MA 02557
50/30	MV Arena	Vineyard Haven Road	Oak Bluffs, MA 02557
49/13	Adam & Elizabeth Hayes	455 State Road PO Box 303	Vineyard Haven, MA 02568
49/13.3	Virginia Carranza	27 Oakland Street	Wilbraham, MA 01905
49/12.4	Kathleen Minehan	176 Milton Street	Dorchester, MA 02124
49/12.5	Jeffrey Rubinstein	1399 E. Poplar Place	Littleton, CO 80121
49/12.6	Leon & Susan Lafreniere	3102 Pomegranate Court	Escondido, CA 92027
49/12.7	Jean Eppers c/o Karen Lea Eppers	8306 Wilshire Blvd Suite 556	Beverly Hills, CA 90211
49/10.11	Carol Sue Fuller Diane Fandy	PO box 3326	Oak Bluffs, MA 02557
49/10.6	John & Martha Leite	PO box 995	Oak Bluffs, MA 02557
49/10.10	Christopher & Diane Abbott, trustees	PO box 2037	Vineyard Haven, MA 02568
49/10.9	William & Patricia Banks	34 Hapgood Way	Shrewsbury, MA 01545
49/10.8	Celeste Drouin	RR #1, Box 472-B	Edgartown, MA 02539
49/1.2	Joseph & Rae Manson Carter	PO Box 2844	Oak Bluffs, MA 02557
49/1.1	Timothy & Nora Dyke, Trustees TND Realty Trust	RR 1, 66C Coffins Field Road	Edgartown, MA 02539
49/1	Nancy Soliz	10 Winslow Road	White Plains, NY 10606
49/2	Eastern Bank	11350 McCormick Road	Hunt Valley, NY 21031
49/3	John & Mona Kronholm	697 Pequot Trail	Stonington, CT 06378
49/4	Marc Petricone, Petricone Family Trust	50 Village Road	Vineyard Haven, MA 02568
48/4	Richard Barbieri & Christine Savini	40 Hillsview Road	Milton, MA 02186

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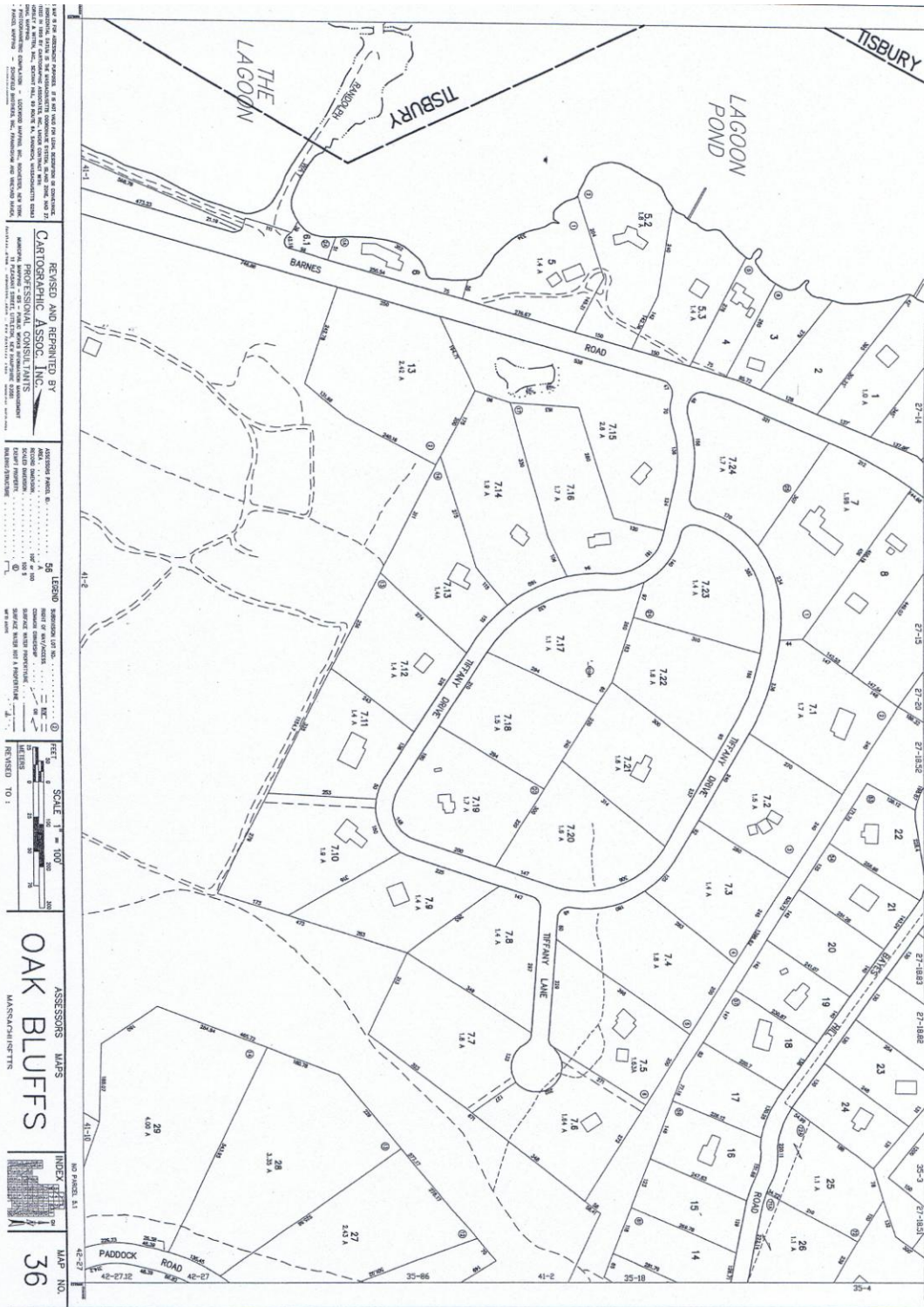
Map/Lot	Owner	Address 1	Address 2
48/3	Sengekontacket Community Corp c/o CL Gildroy	RR1, 475 Y	Edgartown, MA 02539
48/2.1	Stephen & Constance Hill	17 Ten Broech Street	Albany, NY 12210
27/18.52	Bayes Hill Property Owners Assoc. c/o Katherine May-Waite	PO box 404	Edgartown, MA 02539
36/14	Eulalie Regan	PO Box 728	Oak Bluffs, MA 02557
36/15	William & Barbara Jones	PO Box 2699	Oak Bluffs, MA 02557
36/16	Ralph & June Shunk, trustees	6000 Riverside Drive, Apt. A559	Dublin, OH 43017
36/7.6	Vernon & Patricia Harris	PO Box 909	Oak Bluffs, MA 02557
36/7.7	Wayne & Mary Ellen Guyther	RR 3, Box 102	Vineyard Haven, MA 02568
36/7.8	Gordon O. Thompson	PO box 451	Oak Bluffs, MA 02557
36/7.9	Maryann McIllduff	340 Sonstrom Road	Hartford, CT 06010-2898
36/7.10	Daniel J. Nalven c/o Colonial Savings, FA Escrow Dept. 054	PO box 2988	Fort Worth, TX 76112
36/13	Cassandra Matthews	287 Langley Road Unit #40	Newton Center, MA 02459
36/7.11	Carol J. Borselle, trustee	PO Box 1414	Edgartown, MA 02539
36/7.12	Robert & Jill Lane	PO Box 672	Vineyard Haven, MA 02568
36/7.13	Sandra Lippens	PO Box 310	West Tisbury, MA 02575
36/7.14	Michel & Philip Roache	One Park Lane Apt. 5A	Mt. Vernon, NY 10552
36/7.16	Philip & Joan Hughes	PO box 99	Oak Bluffs, MA 02557
36/7.15	Stephen & Lynne Halem	47 Sargent Street	Newton, MA 02458-2317
36/6.1	Angela Laikin	917 Carsons Run Road	Aberdeen, MD 21001
36/6	John Reveruzzi	60 Popieluszko Court	Hartford, CT 06106
35/84	Millenium Par Holdings, LLC	2 Cowdray Park Drive	Greenwich, CT 06831
35/18	Robert & Tamara Perry	PO box 1854	Edgartown, MA 02539
35/17	Sandep Datta	PO Box 477	Oak Bluffs, MA 02557
35/16	Harinder & Uma Datta	PO box 477	Oak Bluffs, MA 02557
35/15	Kerry B. Long, trustee	241 Ebb Point Lane	Annapolis, MD 21401
42/27.04	Robert J. Natter	507 Rutile Drive	Ponte Verde, FL 32082
42/1, 43/53, 43/54.1	Town of Oak Bluffs	PO Box 1327	Oak Bluffs, MA 02557
43/56	Keith & Kyle Crossland	459 County Road Realty Trust	PO box 2310
43/57	Noreen J. Bettencourt	PO box 173	Edgartown, MA 02539
34/52.4	Valci & Sandra Carvalho	PO Box 2809	Tisbury, MA 02568
43/31, 31.1	William, Susan Quinn & Glen Yates	253 South Union Street	Burlington, VT 05401
43/32	Evelyn Christopher	PO Box 105	Oak Bluffs, MA 02557
43/33	Jeff & Sarah Trudel	PO Box 19	Oak Bluffs, MA 02557
43/35	David Amaral	PO Box 467	Edgartown, MA 02539
43/34.2	Peter Bergeron	PO box 2063	Oak Bluffs, MA 02557
43/34	Richard Coutinho etal	PO box 1197	Oak Bluffs, MA 02557



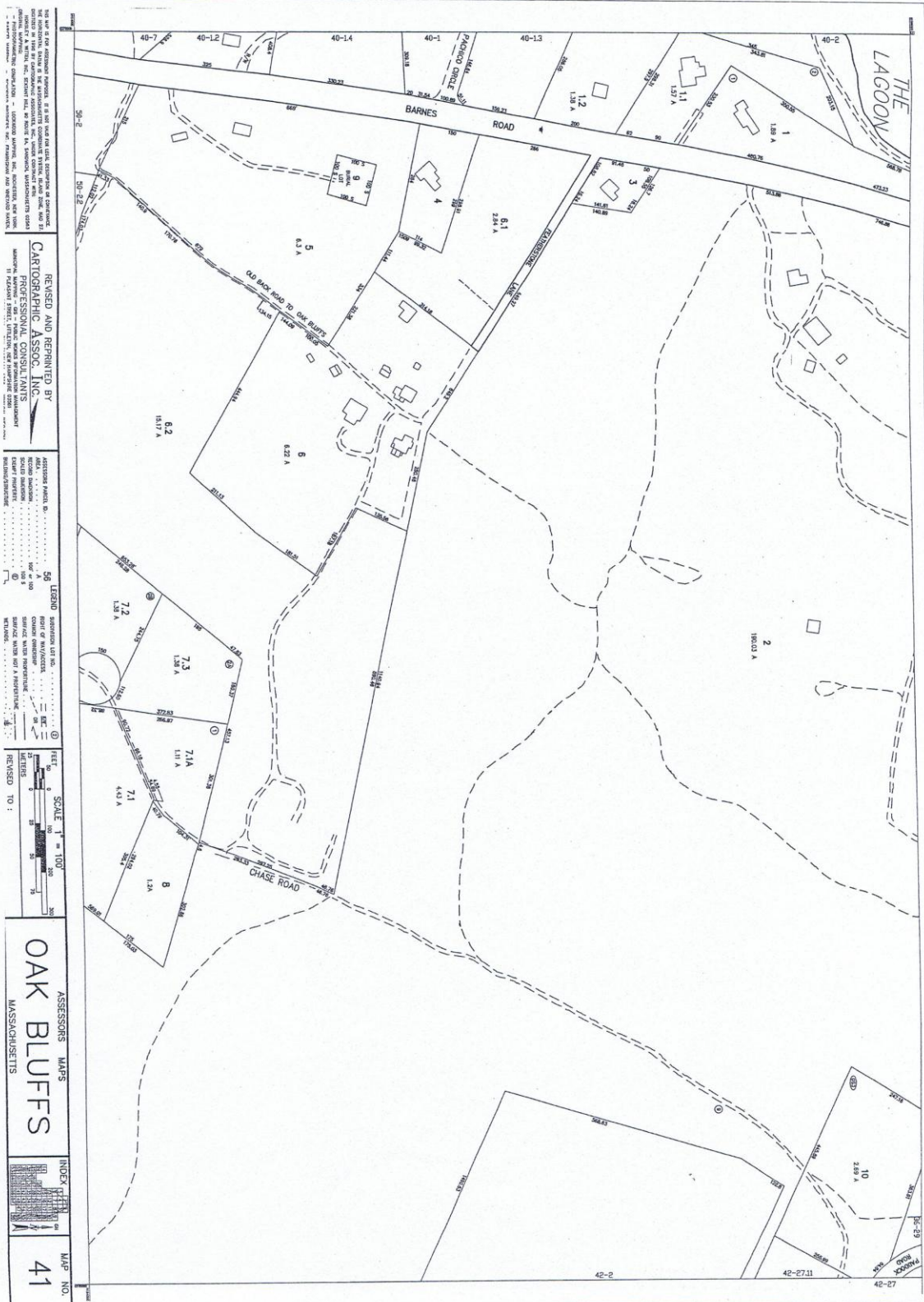
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Map/Lot	Owner	Address 1	Address 2
43/55	Jeff & Sandy Ciciora	PO Box 1960	Vineyard Haven, MA 02568
48/2	Mark & Samuel Carter	3314 Rte 66	Valatie, NY 12184
48/2.3	Louis & Lisa Keyes	605 S. Lucerne Blvd	Los Angeles, CA 90005

Oak Bluffs Assessors' Map

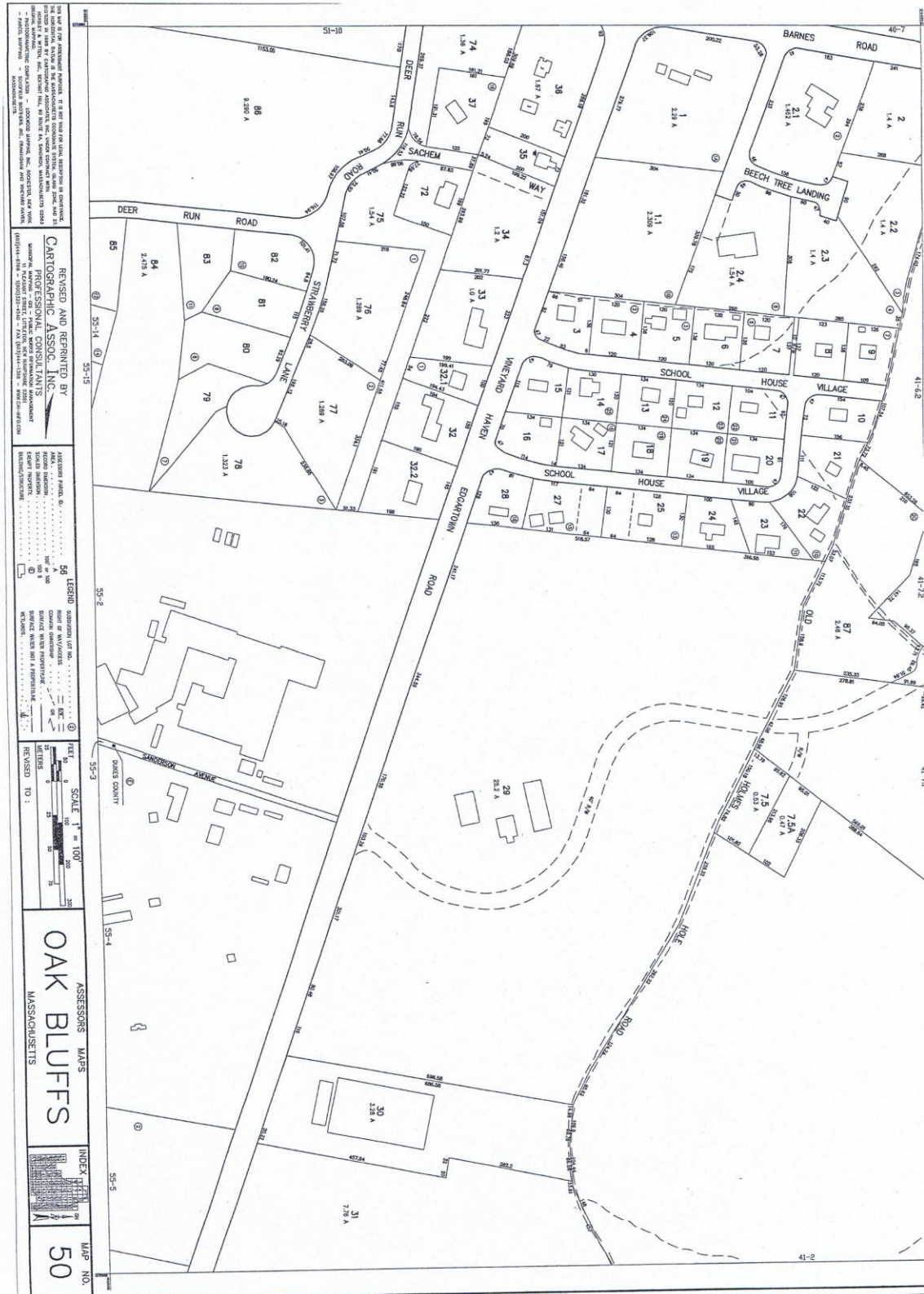


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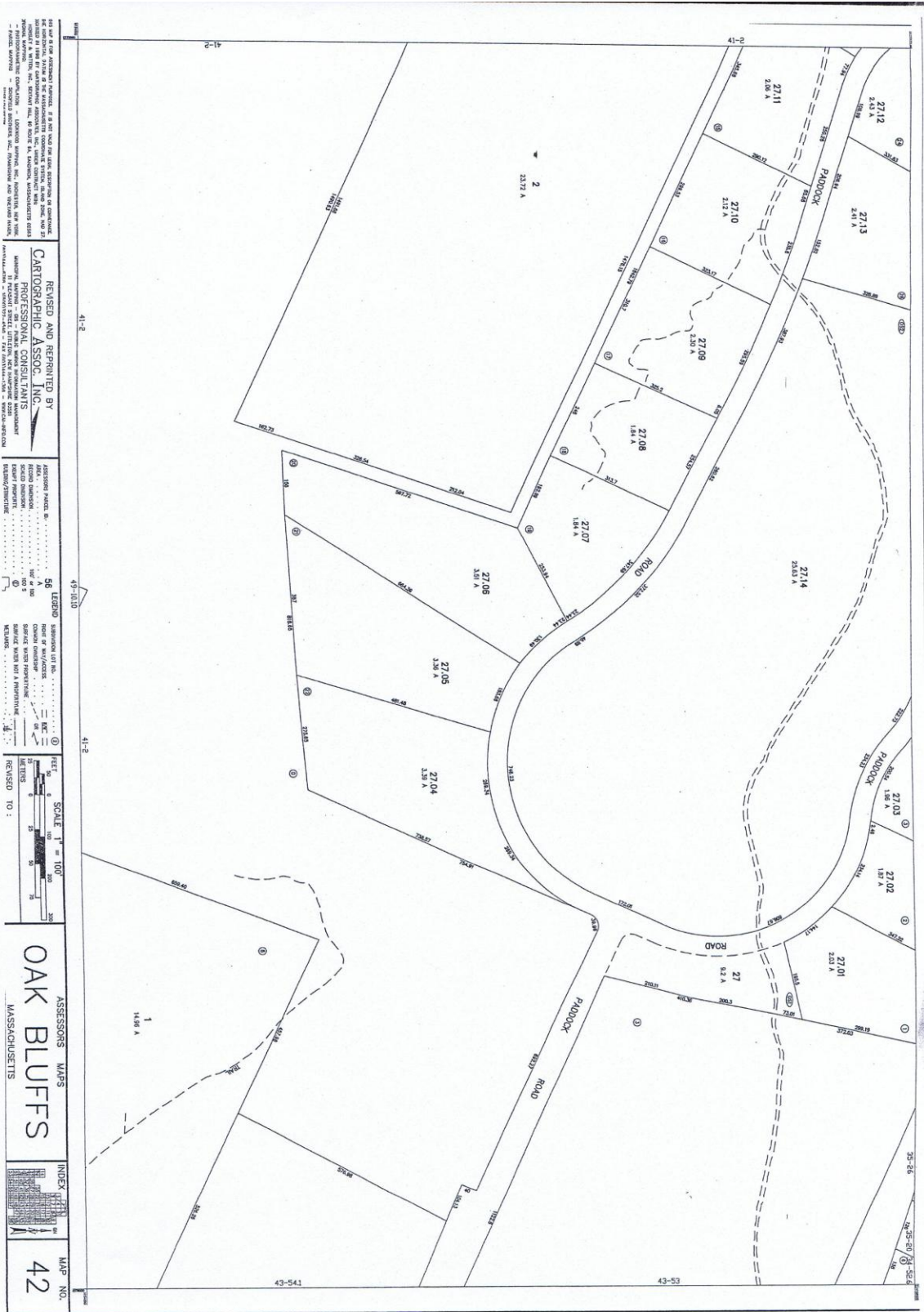


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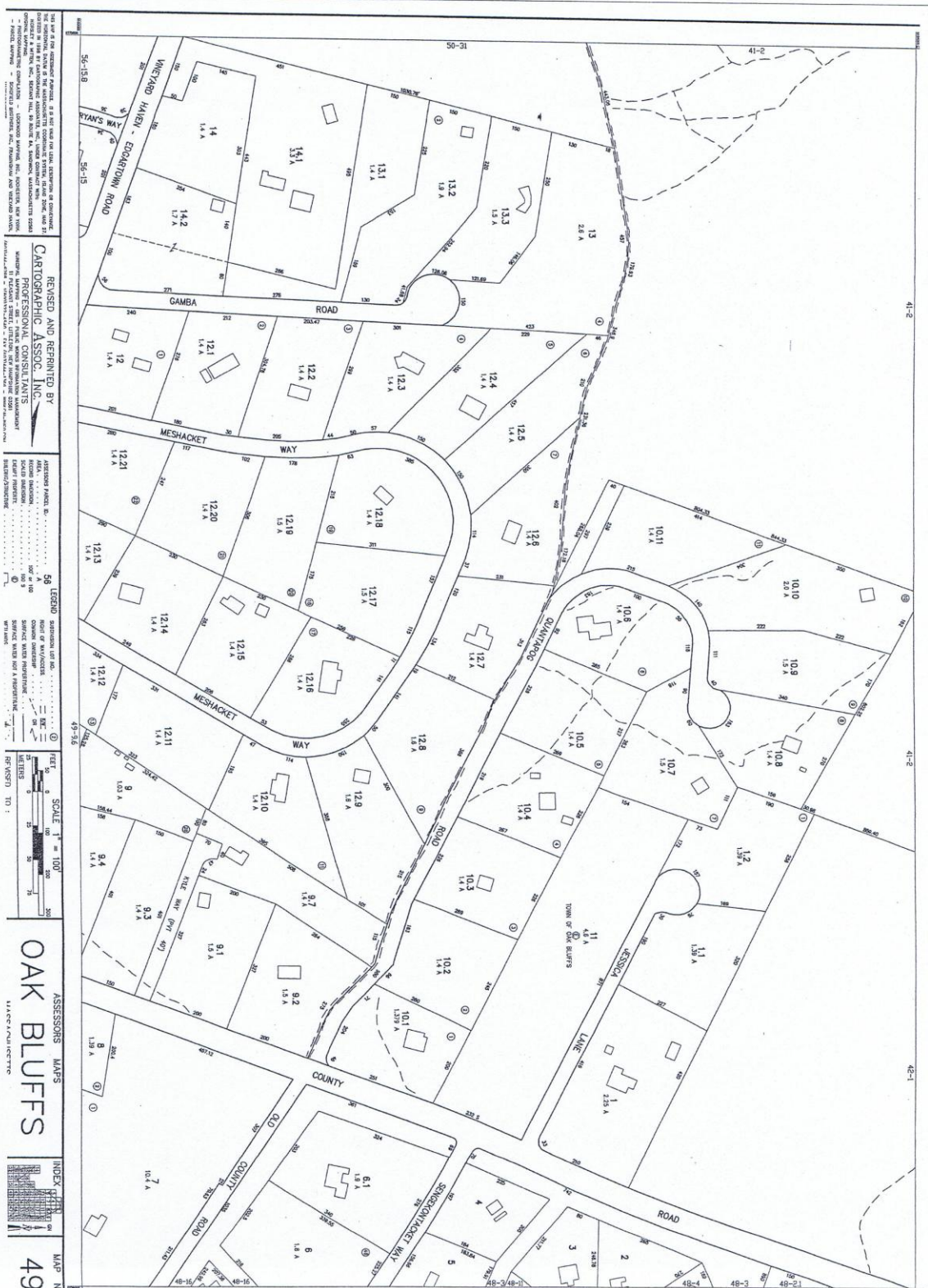
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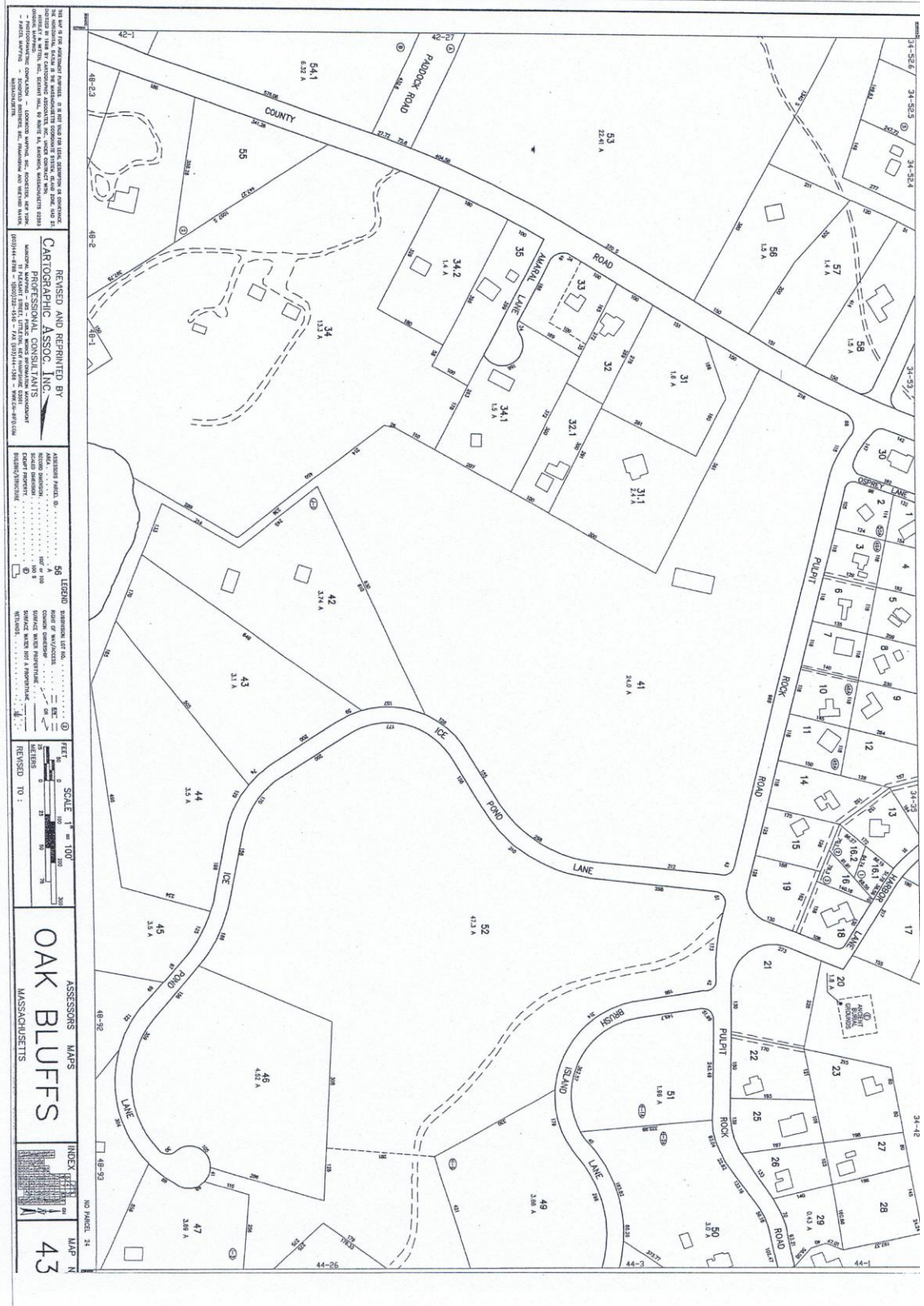
INDEX MAP NO. 42  
 OAK BLUFFS MASSACHUSETTS



# SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN



SOUTHERN WOODLANDS RESERVATION MANAGEMENT PLAN



## Appendix I. Universal Access

The Recreational Opportunities Spectrum (ROS) classification for Southern Woodlands Reservation is “less developed”. The ROS is a model designed and used by the U.S.D.A. Forest Service to categorize conservation areas or universal access planning. The land bank framework for describing the accessibility of its properties is applied to the reservation as follows.

<b>Property Name:</b>	Southern Woodland Reservation
<b>Size:</b>	234 acres
<b>Primary Activities:</b>	birding, hiking, bicycling and horseback-riding
<b>Primary Elements:</b>	two sign station
<b>Primary Spaces:</b>	views of the Upper Lagoon Pond
<b>Obstacles that Limit Accessibility:</b>	distance from a trailhead
<b>Existing or Potential Alternatives:</b>	bike path, Pecoy Point Preserve, Trade Wind Fields Preserve
<b>Proposed ROS Classification:</b>	less-developed
<b>Proposed Expectation of Accessibility:</b>	possible

For all less-developed land bank conservation areas, the Universal Access Plan states the following (Potter 1997):

Use outdoor recreation access routes to link primary elements and primary spaces within one-quarter mile of a trailhead or drop-off and use accessible recreation trails to connect other primary elements and primary spaces on all less-developed land bank conservation areas.

Universal access is proposed for a portion of the Old Back Way to Oak Bluffs to connect the Featherstone Farm trailhead with views of the Upper Lagoon Pond. The plan proposes to harden approximately 200’ of the trail with ¾ inch dense mix. The plan also proposes to require of the campground area lessee that a portion of the primitive campsites be designated universally-accessible.