Trade Wind Fields Preserve
Oak Bluffs, MA

Management Plan

April 4, 2003

Approved by the Oak Bluffs Town Advisory Board (February 4, 2003)
Approved by the Martha's Vineyard Land Bank Commission (January 27, 2003)
Approved by the Secretary of the Executive Office of Environmental Affairs (April 4, 2003)

Julie Russell, Ecologist
Matthew Dix, Property Foreman
Jeffrey Komarinetz, Conservation Land Assistant
Vernon Welch, Conservation Land Assistant
Executive Summary

Trade Wind Fields Preserve is home to one of two grass-strip airfields still in operation on Martha’s Vineyard. The preserve comprises four natural communities: a pitch pine woodland, mixed-oak woodland, mixed-oak/pine woodland, and sandplain grassland. It is a popular spot for dog walkers and their canine friends; in addition, approximately 90 pilots use the active grass-strip airfield. As many as 200 take-offs and landings occur in a typical year. Four Massachusetts state-listed plants — — and two state-listed wildlife species — — were observed on the property.

The 71.9 acres of Trade Wind Fields Preserve are located along County Road in Oak Bluffs. Conservation land in close proximity to Trade Wind Fields Preserve includes Farm Pond Preserve (MVLBC), Pecoy Point Preserve (MVLBC), Waban Park (Town of Oak Bluffs, TOOB), Viera Park (TOOB), Ocean Park (TOOB) and Farm Neck Golf Club (open to public for a fee). The land bank purchased the property on 16 June 1989 from Joseph A. Eosco, Trustee of Trade Wind Trust, for $2,750,000.

Plans for Trade Wind Fields Preserve include relocation of an existing 20-vehicle trailhead; maintenance of a private restricted landing area, including runway and taxiway, and 1.9 miles of existing trails; and restoration of existing 20-vehicle trailhead to sandplain grassland. The portion of the trail from the trailhead to the runway-taxiway intersection will be universally accessible.

Trade Wind Fields Preserve will provide public access for birding, hiking, bicycling, airplane landing and take-off and other uses. No hunting will be permitted on the property due to the Preserve’s proximity to houses. Use of the preserve is expected to be intense. No property attendant will be posted on this property. However, random visits by summer property attendants and staff will be conducted when needed to inform visitors of property regulations. An airport services coordinator will manage the grass-strip airport on this property.

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 commonwealth executive office of environmental affairs.

About the authors

Julie Russell has been the land bank ecologist since August 1999. She holds a Master of Science in zoology from Southern Illinois University, Carbondale, and a B.S. in wildlife biology from the University of Vermont. Property foreman Matthew Dix has worked on land bank properties since 1989. He has a background in natural resources and extensive knowledge of the region’s natural history and local geography. Jeffrey Komarinetz has been a conservation land assistant since March 2000 and Vernon Welch has been a conservation land assistant since March 2002.
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I. Natural Resource Inventory

A. Physical Characteristics

1. Locus

Trade Wind Fields Preserve is located at roughly 41°20’ N latitude and 70°35’ W longitude. The Preserve is 71.9 acres in size and is located along County Road in the town of Oak Bluffs. The property is shown as Parcel 121 on Oak Bluffs assessors maps 20-21. The Locus Map (page 4) is a section of the U.S.G.S. Edgartown quadrangle topographical map (U.S.G.S. 1972). An Aerial Photograph (page 5) taken in April 1996 follows this map (Col-East 1996).

2. Base Map

The Base Map (page 6) shows the location of basic elements of Trade Wind Fields Preserve, such as boundaries, roads, runways, and the like. It is composed from surveys, photographs, and direct observations.

3. Survey Maps

A survey of Trade Wind Fields Preserve was prepared on September 25, 1984 by Donald A. Voltz. This survey is shown on page 7 as Survey Map 1. Larger copies of this map are on file at the land bank office and are available for inspection by appointment.

4. Geology and Soils

The General Soils Map (page 8) depicts general classes of soil across Martha’s Vineyard. An arrow indicates the location of Trade Wind Fields Preserve. The preserve lies in soils generally identified as outwash atop Martha’s Vineyard moraine. Outwash is material, primarily sand, that dropped out of suspension in glacial meltwater streams as these streams slowed and spread on their advance to the Atlantic Ocean.

The soil conservation service (1986) has mapped two types of soil at Trade Wind Fields Preserve. These are depicted on the Soils Map on page 9. The soils present are Carver loamy coarse sand on zero to three percent slopes and Carver loamy coarse sand on three to eight percent slopes (SCS 1986).

According to the SCS (1986), the Carver loamy coarse sands are very deep, level to gentle sloping and excessively drained. Water permeates rapidly through the soil and available water capacity is very low. The soil can be droughty in late summer and the depth to seasonal high water is over six feet (SCS 1986). These soils are poorly suited to cultivated crops and woodland productivity due to drought conditions. Typical trees species on this soil are pitch pine, scrub oak, scarlet oak, black oak, and white oak (SCS 1986).

5. Topography and Hydrology

Trade Wind Fields Preserve is a gently rolling landscape. The contours of the property are illustrated on the Topography Map on page 10. Elevation ranges from approximately 10 to 50 feet above sea level.
Trade Wind Fields Preserve is situated in a transition zone from one watershed to another. The preserve is within the Farm Pond, Sengekontacket Pond and Ice House Pond watersheds (Wilcox 2002).

7. Ecological Processes

The primary ecological process occurring at Trade Wind Fields Preserve is succession. The pitch pine, a shade-intolerant tree species, is encroaching on the grassland where light is prevalent and competition scarce. Aerial photographs depict the pitch pine woodlands as grassland in 1938. During the past 66 years pines have established themselves in what was once open land. Since land bank ownership pine saplings have been pulled from the grassland to hold off encroachment of the woodland into the grassland. Without this continual maintenance the pines would replace the grassland. In turn, shade-tolerant oaks that dominate the pitch pine understory are waiting for their chance to grow and dominate the overstory in spaces created by fallen pines. This process is evident on the property in the mixed-oak/pine woodland, a vegetation community of coexisting oaks and pines naturally created between the oak- and pine-dominated woodlands (Ecological Communities Map, page 11). Within the grassland community small areas of shrubs are displacing graminoid species. These areas if left alone will continue to expand into the grasses, sedges and rushes of the grassland creating a coastal heathland.
Locus Map

Trade Wind Fields Preserve, Oak Bluffs, Massachusetts
Portion of U.S.G.S. Oak Bluffs Quadrangle, 1972
**Arial Photograph**

**Trade Wind Fields Preserve**, Oak Bluffs, Massachusetts

Aerial photograph taken April 16, 1996
Base Map
Survey Map
General Soils Map of Martha’s Vineyard (Soil Conservation Service 1986)
Soils Map
Topography Map
Ecological Communities Map
B. Biological Characteristics

1. Vegetation

Four cover types compose Trade Wind Fields Preserve, as shown on the Ecological Communities Map (Page 11). Much of the Preserve is divided between sandplain grassland (29.8 acres) and pitch pine woodland (32 acres). The remaining two habitat types include mixed-oak woodland (3 acres) and a larger area of mixed-oak/pine woodland (7 acres) comprised of oaks and pitch pine.

The sandplain grassland contributes the greatest to the floristic richness of the Preserve and is represented by 83% of the total number of plant species known to occur on the property (Table 1). Species richness is the number of species present in a community. Species richness and relative abundance of a species determine species diversity (Begon et al. 1990). Ecologists propose that species richness is a factor of predation and productivity (Begon et al. 1990). The less productive a community is the less likely any one species will have adequate resources to thrive and dominate. The increased richness among plants leads to increased richness among their predator in the food chain, the herbivores. Herbivores, such as, moles, mice, and voles, are aggressive gardeners; they weed through the plants as they eat, keeping all desirable plant species in check through consumption. Many exotic invasive plants have no gardening herbivores to keep them in check and they flourish to the point of excluding other species, thus reducing species richness (Begon et al. 1990). Trade Wind Fields Preserve does not have an abundance of exotic invasive plants. A total of 100 species are known to occur on the property (Table 1).

Four Massachusetts state-listed species occur on this Preserve. All four species are specific to sandplain grasslands and typically occur in dry, open sandy fields (MA NHESP 1985, MA NHESP 1990, MA NHESP 2015a, MA NHESP 2015b).

In 1992, John Potter and Robert Culbert inventoried the sandplain grassland at Trade Wind Fields Preserve following methods described by Dunwiddie (1986). Species diversity and density were recorded within 1 m² and 0.2 m² square plots located at ten-meter intervals along randomly situated transects. The balance of the Preserve was sampled using a non-quantitative vegetation survey performed by Robert Culbert, Wendy Culbert, and Julie Russell. Plant species at Trade Wind Fields Preserve are listed in Table 1. with proper nomenclature according to Gleason and Cronquist (1991). A description or qualitative summary of each community type follows:

a. Pitch Pine Woodland

Thirty acres of the Preserve consist of pitch pine woodland. Pitch pines dominate the overstory leaving the understory well shaded and sparse with vegetation. Oak saplings, tolerant of the darkness created by the pines, scrub oak, post oak, huckleberry, bayberry, and blueberry shrubs are scattered in patches throughout the understory. Poison ivy grows ubiquitously in the understory. Where light does penetrate the woodland floor, mats of hair grass and clumps of switchgrass, beadgrass, panic grass and little bluestem occur. These grasses are more commonly associated with grasslands and represent a time when the pitch pine woodland was open grassland (Swain and Kearsley 2000). Small patches of bearberry grow along the trails, also in the light created by the opening. Other ground cover species observed that are commonly associated with pitch pine woodlands are wintergreen, sweet fern, pink lady’s slipper, trailing arbutus, Indian pipes, and sweet goldenrod. The pitch pine woodland is fire-dependent and well-adapted to forest fires (Jorgensen 1978). Fire thins out understory
species, reducing regeneration competition between pine and other species and thus ensuring the next
generation will be one dominated by pines (Jorgensen 1978). The woodland exhibits moderate diversity and is
habitat to 31% of the total species known to occur on the Preserve (Table 1).

b. Mixed-Oak Woodland

Three acres of the Preserve consist of a mixed-oak woodland with a canopy comprised of black oak, scarlet
oak, and white oak. The canopy of mixed-oak woodlands is typically somewhat open (Swain and Kearsley
2000). Sassafras and black cherry are present in the understory. A shrub layer of huckleberry and blueberry
hangs over a spotty herbaceous layer of wintergreen, hawkweed, asters, and goldenrod species. This is less
diverse than the pitch pine woodland and represents 10% of the Preserve’s flora.

c. Mixed-Oak/Pine Woodland

Where the pitch pine woodland meets the mixed-oak woodland a transition zone exists. In this zone pitch pine
and oak species coexist in the canopy. This woodland is seven acres in size. Patches of huckleberry and
blueberry species are scattered throughout the understory. Chumps of switch grass and little bluestem occur
along the trails and mats of hair grass grow where other shrub species are not.

d. Sandplain grassland

The 29.8-acre sandplain grassland at Trade Wind Fields Preserve comprises four vegetation communities. They
are 1) a little bluestem-dominated grassland, 2) a Pennsylvania sedge-dominated grassland, 3) disturbed soil
patches with bare soil or a thin cover of lichens, mosses, herbaceous and graminoid species and 4) heathland
patches dominated by either lowbush blueberry or bearberry. All five of the state-listed species occurring on
the Preserve are sandplain grassland species.

Much of the grassland consists of bunch-forming little bluestem with approximately seven patches of
Pennsylvania sedge-dominated grassland scattered throughout. Sheep fescue is widespread throughout the little
bluestem-dominated grassland; it also grows in clumps. Sheep fescue is a cool-season grass that forms dense
mats. Fescue, other cool-season grasses, and several exotic species change the character of the grassland
community and threaten the existence of the sandplain grassland (Swain and Kearsley 2000). Commonly
established in the bare soil between the clumps of fescue and little bluestem are a variety of herbs and grasses,
including sickle-leaved golden aster, Greene’s rush, hyssop-leaved boneset, and dwarf cinquefoil. Species such as
mat-forming stiff aster, beadgrass, prickly dewberry, redtop, cat’s ear, Pennsylvania sedge, gray goldenrod, pasture rose, blackberry, field hawkweed, fascicled panic grass, and blunt-leaved milkweed are characteristic of open spaces but are less abundant in between clumps of
bluestem and fescue. In even less abundance but still present are grasses such as poverty grass (a typical sandplain grassland species), purple lovegrass, toothed white-topped aster, beach pinweed, racemel milkwort,
slender goldenrod, pineweed, field sorrel, butterfly weed, milkweed. In 1992, a population of little ladies’ tresses was transplanted from the site of the new long-term care
facility of the Martha’s Vineyard hospital to Trade Wind Fields Preserve. The Pennsylvania sedge-dominated
grassland consists of nearly a solid cover of Pennsylvania sedge with a sparse occurrence of Greene’s rush,
beach fescue, and prickly dewberry. In one patch, towards the eastern end of the taxiway, redtop and switch
gress clumps also occur. In all the grassland, pitch pine seedlings take advantage of light and space.

The disturbed soil patches predominately occur at the western end of the taxiway and along the northern
boundary of the taxiway. The area at the western end of the taxiway near the parking and road has a higher
diversity of herbs and grasses than the area to the north of the taxiway that is nearly completely covered with dry brittle Cladonia lichen and moss species. Bushy rockrose and ______________ also occurs in sparse numbers in these areas.

The blueberry-dominated heathland, occurring along the eastern edge of the runway, consists of a variety of low shrub species interspersed with herbaceous and graminoid species. Lowbush blueberry, pasture rose, prickly dewberry, and slender-leaved goldenrod account for the commonly occurring species in this heathland. Second in abundance are black cherry seedlings, eastern red cedar seedlings, bayberry, and highbush blueberry seedlings. Least common in the blueberry heathland are shrubs such as huckleberry, shining sumac, and goat’s rue, a good indicator of sandplain grasslands (Swain and Kearsley 2000). The bearberry-dominated heathland located predominately along the southeastern border of the runway is nearly solid with bearberry. Little bluestem and sickle-leaved golden aster are commonly associated with these bearberry flats.
### Vegetation Table

**Table 1. Flora of Trade Wind Fields Preserve, Oak Bluffs, MA.**

<table>
<thead>
<tr>
<th>scientific name</th>
<th>common name</th>
<th>morphology</th>
<th>grassland</th>
<th>shrubland</th>
<th>woodland</th>
<th>woodland</th>
<th>survey*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>non vascular plants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1  Cladonia rangiferina</td>
<td>reindeer moss lichen</td>
<td>lichen</td>
<td>x</td>
<td></td>
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<td></td>
<td>2</td>
</tr>
<tr>
<td>2  Cladonia speciosa</td>
<td>lichens</td>
<td>lichen</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>1, 2, 4</td>
</tr>
<tr>
<td>3  Polytrichum species</td>
<td>haircap moss species</td>
<td>moss</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td><strong>vascular plants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  Achillea millefolium</td>
<td>yarrow</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>1, 2</td>
</tr>
<tr>
<td>5  Aegopis gigantea</td>
<td>redtop</td>
<td>graminoid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td>6  Ambrosia artemisiifolia</td>
<td>common ragweed</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7  Andropogon virginicus</td>
<td>broomsedge</td>
<td>graminoid</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td>8  Arctostaphylos uva-ursi</td>
<td>bearberry</td>
<td>shrub</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
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</tr>
<tr>
<td>9  Aster linarifolius</td>
<td></td>
<td>graminoid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10 Aronia melanocarpa</td>
<td>black chokeberry</td>
<td>shrub</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>11 Asscleias amplicicahsis</td>
<td>bluet-leaved milkweed</td>
<td>herb</td>
<td>x</td>
<td>x</td>
<td></td>
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<td>12 Asscleias syriaca</td>
<td>common milkweed</td>
<td>herb</td>
<td>x</td>
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<tr>
<td>13 Asscleias tuberosa</td>
<td>butterfly weed</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
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<td>1, 2, 4</td>
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<tr>
<td>14 Aster dumosus</td>
<td>bushy aster</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>15 Aster linarifolius</td>
<td>stiff aster</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td>16 Aster patensus</td>
<td>toothed white-topped aster</td>
<td>herb</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>17 Aster species</td>
<td>asters</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>18 Baptisia tinctoria</td>
<td>wild indigo</td>
<td>herb</td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td>19 Carex pensylvanica</td>
<td>pensylvania sedge</td>
<td>graminoid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
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<tr>
<td>20 Chimaphila maculata</td>
<td>striped wintergreen</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>21 Cynosurus falcata</td>
<td>sickle-leaved golden aster</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>1, 2, 4</td>
</tr>
<tr>
<td>22 Comptonia peregrina</td>
<td>sweet fern</td>
<td>shrub</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>23 Conyza canadensis</td>
<td>horseweed</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>24 Cypres pilulina</td>
<td>sedge</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>25 Cyripedium caeruleum</td>
<td>pink lady's slipper</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>26 Dianthus caeruleus</td>
<td>poverty grass</td>
<td>graminoid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td>27 Deschampsia flexuosa</td>
<td>hairgrass</td>
<td>graminoid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>1, 4</td>
</tr>
<tr>
<td>28 Dianted armeria</td>
<td>deptford pink</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>29 Epigaea repens</td>
<td>trailing arbutus</td>
<td>vinca</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td>30 Ericogloss spectabilis</td>
<td>purple love grass</td>
<td>graminoid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td>31 Erioglossum hyssopifolium</td>
<td>hyssop-leaved honeyset</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td>32 Erioglossum graminifolium</td>
<td>lance-leaved goldenrod</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>33 Erioglossum tenellifolium</td>
<td>slender-leaved goldenrod</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td>34 Festuca ovina</td>
<td>sheep fescue</td>
<td>graminoid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2, 4</td>
</tr>
<tr>
<td>35 Gaultheria procumbens</td>
<td>wintergreen</td>
<td>shrub</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>36 Gaylussacia baccata</td>
<td>black huckleberry</td>
<td>shrub</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>1, 2, 4</td>
</tr>
<tr>
<td>37 Gaylussacia frondosa</td>
<td>dangleberry</td>
<td>shrub</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>38 Gnaphalium obtusifolium</td>
<td>sweet everlasting</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>39 Heliantheum canadense</td>
<td>frostweed</td>
<td>herb</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
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<td>golden heather</td>
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<td>x</td>
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<td>56  Monotropa uniflora</td>
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<td>57  Myrica pensylvanica</td>
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<td>58  Panicum clandestinum</td>
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<td>59  Panicum dichotomum</td>
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<td>65  Pinus rigida</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>66  Plantago lanceolata</td>
<td>english plantain</td>
<td>herb</td>
<td>x</td>
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<td>67  Polygala polygama</td>
<td>racemed milkwort</td>
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<td>x</td>
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<td>68  Polygala articulata</td>
<td>sand jointweed</td>
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<td>69  Potentilla canadensis</td>
<td>dwarf cinquefoil</td>
<td>herb</td>
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<td>70  Potentilla recta</td>
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<td>71  Potentilla simplex</td>
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<td>72  Prunus serotina</td>
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<td>x</td>
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<td>73  Pteridium aquilinum</td>
<td>bracken fern</td>
<td>fern</td>
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<td>74  Quercus alba</td>
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<td>75  Quercus ilicifolia</td>
<td>scrub oak</td>
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<td>x</td>
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<td>76  Quercus stellata</td>
<td>post oak</td>
<td>tree</td>
<td>x</td>
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<td>77  Quercus velutina</td>
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<td>tree</td>
<td>x</td>
<td>x</td>
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<td>78  Rhododendron calophyllum</td>
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<td>x</td>
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<td>79  Rosa carolina</td>
<td>pasture rose</td>
<td>shrub</td>
<td>x</td>
<td>x</td>
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<td>80  Rosa species</td>
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<td>81  Rubus allegheniensis</td>
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<td>vine</td>
<td>x</td>
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<td>82  Rubus flagellaris</td>
<td>prickly dewberry</td>
<td>vine</td>
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<td>83  Rumex acetosella</td>
<td>field sorrel</td>
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<td>x</td>
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<td>84  Sassafras albidum</td>
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<td>85  Schizachyrium scoparium</td>
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<td>graminoid</td>
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<td>86  Solidago virgaetipes</td>
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<td>87  Solidago nemoralis</td>
<td>gray goldenrod</td>
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<td>morphology</td>
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<td>woodland</td>
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<td>88  Solidago adenora</td>
<td>sweet goldenrod</td>
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<td>89  Solidago cf. puberula</td>
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<td>90  Solidago rugosa</td>
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<td>herb</td>
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<td>91  Spiranthus tuberosus</td>
<td>little ladies' tresses</td>
<td>herb</td>
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<tr>
<td>92  Tephrosia virginiana</td>
<td>goat's rue</td>
<td>herb</td>
<td></td>
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<tr>
<td>93  Toxicodendron radicans</td>
<td>poison ivy</td>
<td>vinca</td>
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<td>94  Trifolium arvense</td>
<td>rabbit-foot clover</td>
<td>herb</td>
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<td>96  Vaccinium angustifolium</td>
<td>lowbush blueberry</td>
<td>shrub</td>
<td>x</td>
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<td>highbush blueberry</td>
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<td>98  Vaccinium pallidum</td>
<td>lowbush blueberry</td>
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<td>99  Vicia spicata</td>
<td>vetch species</td>
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<td>x</td>
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<tr>
<td>100 Yucca filamentosa</td>
<td>yucca</td>
<td>herb</td>
<td></td>
<td>x</td>
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</tbody>
</table>

* Survey:
1=1988 Baystate Environmental Consultants, Inc. field (Baystate Environmental Consulting 1988)
2=1992 MVLBC vegetation monitoring study by R. Culbert, 9/2-9/25 (CK, EK, RC)*
3=1994 MVLBC vegetation inventory, 7/15-10/24 (WM)
4=1995 MVLBC ongoing vegetation inventory, 6/29, 8/24 (WM)
5=1998 MVLBC ongoing vegetation inventory, 4/2 - 5/? (WM)
6=1999+ ongoing inventories (JR)
* * CK=Carol Knapp, EK=Ed Knapp, RC=Robert Culbert, WM=Wendy Malpass, JR=Julie Russell
2. Wildlife Habitat

Quality of wildlife habitat on Trade Wind Fields Preserve depends on the characteristics of the vegetation communities. Formal avian surveys were the primary tools used for analysis of wildlife habitat. Additional direct observations of wildlife occurrences and signs throughout the year contribute to the understanding of habitat value at Trade Wind Fields Preserve. One Massachusetts-listed wildlife species of special concern, the purple tiger beetle, occurs on the property in the sandplain grassland.

a. Habitat Features

The woodland (43 acres) of Trade Wind Fields Preserve has a closed canopy. The shrub layer is dense in the mixed oak woodland and sparse in the pitch pine woodland. There are tall trees for nesting, roosting, and foraging wildlife species; tall snags with dbh greater than ten inches for nesting and foraging wildlife (i.e. insectivorous birds, small mammals and bats); mast-bearing trees (i.e. oak and hickory) for fall foraging; fruiting shrubs and vines (i.e. huckleberry, shadbush, blueberry, greenbrier, red chokeberry, bayberry and winterberry) for summer and fall foraging; and understory cover for foraging and ground nesting insects (i.e. beetles, ants and spiders), amphibians (i.e. red-backed salamander), reptiles (i.e. snakes and turtles), birds (i.e. towhee), and mammals (i.e. mice, shrews, raccoons and skunks).

The sandplain grassland (29.8 acres) has a dense cover of graminoid and herbaceous plants that provide forage and cover habitat for a variety of wildlife species including several game birds such as Canada geese and bobwhite quail. Scarified soil patches offer breeding and feeding habitat to a variety of ground-dwelling invertebrates. The grassland-woodland ecotone provides perching sites and cover for nesting and foraging wildlife. Various birds of prey hunt in the grassy field where an abundant supply of rodents exists. The heathland in the grassland provide cover and food for mammals such as eastern cottontails, rats, mice, and voles. The nectar-producing flowering plants, bearberry patches and cedar trees growing in and around the grassland are a superb food source for invertebrates namely, species in the Lepidoptera order.

b. Invertebrates

i. Observed Invertebrates

Varieties of invertebrates inhabit Trade Wind Fields Preserve and occur primarily in the grassland. Matthew Pelikan, a local naturalist with a vast knowledge of local invertebrate fauna, conducted butterfly observations over the past five seasons from mid-August 1997 to early May 2002 (Appendix C). Direct observation by Mr. Pelikan revealed 34 species of butterflies. This is diverse for a small property with few vegetation communities (Pelikan 2002). Little bluestem is an important food source for several butterfly species and the few wildflowers – milkweeds, asters, and goldenrods – and heathland species – blueberry and bearberry – together provide good nectar sources throughout much of the season (Pelikan 2002). Several butterfly species associated with sandplain grasslands (i.e. northern and southern cloudy wing, grey hairstreak, and eastern tailed blue) are absent or scarce. Limited variety of native grassland species and absence of important larval hosts, such as, bush-clovers and trefoils, contributes to the dearth of these common butterflies (Pelikan 2002). The Leonard’s skipper, crossline skipper, juniper hairstreak and Indian skipper are but a few of the butterfly species inhabiting Trade Wind Fields that are uncommon in Massachusetts and are more common to Martha’s Vineyard, forming core populations at sites such as Trade Wind Fields Preserve (Pelikan 2002). None of the butterfly species observed on Trade Wind Fields Preserve are state-listed.
Mr. Pelikan also has conducted tiger beetle searches for the past two years in the grassland of Trade Wind Fields Preserve. Two tiger beetle species were observed along the sandy trails in the grassland. The oblique-lined tiger beetle (*Cicindela tranquebarica tranquebarica*) is widespread on the Vineyard and the most commonly occurring tiger beetle at Trade Wind Fields. The [redacted] is less abundant and state-listed as “special concern” (MA-NHESP 2015d). Tiger beetles belong to the ancient ground-beetle family Carabidae. They have extremely large eyes for detecting prey, the tiger beetle’s favorite prey being ants. Digestive enzymes of the mouth help dissolve the flesh of prey (Leonard and Bell 1999). The larvae live in burrows in the soil. Some tiger beetle species are in decline and in danger of becoming extinct due to habitat loss and alteration of microhabitat (Leonard and Bell 1999).

Other invertebrates observed on the Preserve included mosquitoes (*Culicidae* species), bee flies (*Bombyliidae* species), crickets (*Gryllus pennsylvanicus*), bees (*Apidae* species), praying mantis (*Mantis religiosa*) and ticks (*Ixodidae* species).

### ii. Potential Invertebrates

Several invertebrates potentially live in upland soils and vegetation of Trade Wind Fields Preserve but were not observed on the property. Future studies using light traps and pit falls would provide further insight into the diversity of invertebrate fauna at Trade Wind Fields.

### c. Amphibians and Reptiles

#### i. Observed Amphibians and Reptiles

There were no amphibian species observed on Trade Wind Fields Preserve. An eastern box turtle was observed along the woodland-grassland edge. The eastern box turtle (*Terrapene Carolina*) is a state-listed species of special concern that inhabits uplands and breeds in grasslands (MA-NHESP 2015c). Lack of wetlands on the property contributes to the absence or scarcity of breeding amphibians and reptiles that depend on wetland habitats for a portion if not all of their life cycle.

#### ii. Potential Amphibians and Reptiles

Nearby Farm Pond and Ice House Pond and adjacent wetlands provide necessary breeding habitat to many amphibian and reptile species. The woodland and grassland of Trade Wind Fields Preserve provides non-breeding habitat to a variety of amphibians and reptile species (Table 2). Many amphibian species depend on wetlands for the larval stage of their life cycle and upland woods and fields for adult life. Most adult amphibians have lungs, but all species absorb water and oxygen through their skin. The skin must remain moist for this exchange to take place, thus they secrete a mucus-like substance to coat their skin and inhabit moist environments (Jergensen 1978). Other amphibian and reptile species depend on wetland vegetation communities for foraging habitat. Salamanders, apart from the redback, and certain frog species are rare on the island after heavy pesticide spraying wiped out whole populations of amphibians several decades ago (Lazell 1976). Some isolated populations of rare salamanders and frogs do exist on the island and therefore it is still possible for them to be using Trade Wind Fields as non-breeding habitat.
Table 2. Potential amphibian and reptile species that can find suitable habitat at Trade Wind Fields Preserve, Oak Bluffs, MA.

<table>
<thead>
<tr>
<th>Amphibian species</th>
<th>Scientific name</th>
<th>Woodland</th>
<th>Grassland</th>
</tr>
</thead>
<tbody>
<tr>
<td>eastern spadefoot</td>
<td><em>Scaphiopus b. holbrookii</em></td>
<td>NB</td>
<td></td>
</tr>
<tr>
<td>red-spotted newt</td>
<td><em>Notophthalmus v. viridescens</em></td>
<td>NB(^a)</td>
<td>NB</td>
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<tr>
<td>redback salamander</td>
<td><em>Plethodon cinereus</em></td>
<td>BR,NB,F</td>
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<tr>
<td>northern spring peeper</td>
<td><em>Pseudacris c. crucifer</em></td>
<td>NB</td>
<td>NB</td>
</tr>
<tr>
<td>eastern American toad</td>
<td><em>Bufo americanus</em></td>
<td>NB</td>
<td>NB</td>
</tr>
<tr>
<td>Fowler’s toad</td>
<td><em>Bufo woodhousii fowleri</em></td>
<td>NB</td>
<td>NB</td>
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<tr>
<td>pickerel frog</td>
<td><em>Rana palustris</em></td>
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</table>

<table>
<thead>
<tr>
<th>Reptile Species</th>
<th>Scientific name</th>
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<th>Grassland</th>
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<td><em>Terrapene c. carolina</em></td>
<td>B, NB</td>
<td>B, NB</td>
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<tr>
<td>eastern garter snake</td>
<td><em>Thamnophis s. sirtalis</em></td>
<td>B, NB</td>
<td>B, NB</td>
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<tr>
<td>northern ringneck snake</td>
<td><em>Diadophis punctatus edwardsii</em></td>
<td>B, NB</td>
<td>B, NB</td>
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<tr>
<td>eastern milk snake</td>
<td><em>Lampropeltis t. triangulum</em></td>
<td>B, NB</td>
<td>B, NB</td>
</tr>
<tr>
<td>northern black racer</td>
<td><em>Coluber c. constrictor</em></td>
<td>B, NB</td>
<td>B, NB</td>
</tr>
<tr>
<td>smooth green snake</td>
<td><em>Opheodrys vernalis</em></td>
<td>B, NB</td>
<td>B, NB</td>
</tr>
</tbody>
</table>

\(^a\) BR = breeding, NB, non-breeding.

Trade Wind Fields Preserve Management Plan

d. Birds

Surveys of birds on Trade Wind Fields Preserve were conducted from 26 May – 10 July 1992 and 14 September – 3 October 1992 by Robert Culbert and 13 September – 24 October 1994 and 4 November – 31 January 1994 by Wendy Culbert. The presence of both occasional migrants and resident birds throughout the late fall migration, winter and breeding season were recorded during a total of six visits in 1992 and fourteen visits in 1994. Birds were sampled from three point-count survey locations. One point was located in the woodland and two were located in the grassland. All birds seen or heard during a five-minute period were recorded. Birds seen or heard outside of the count period were noted as present on the property but were not included in quantitative analyses.

Bird species in the two broad habitat types are seasonally dependent (Table 4). Some bird species occur in more than one habitat type and during more than one season. Total species counts do not include multiple sightings of an individual species. Species that occur on the property during the fall months (early October – early November) include fall migrants as well as year-round residents and bird species that occur during the winter (late November – early April) include year round dwellers and winter migrants. However, bird species that occur during the summer breeding season (May – September) include both late spring and early fall migrants, year-round residents and early summer breeding birds just returning from southern wintering areas.

Table 3. Seasonal change in number of bird species at Trade Wind Fields Preserve, Oak Bluffs, MA.

<table>
<thead>
<tr>
<th>Season</th>
<th>Woodland</th>
<th>Grassland</th>
<th>Total(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>22</td>
<td>29</td>
<td>33</td>
</tr>
<tr>
<td>Fall</td>
<td>17</td>
<td>18</td>
<td>24</td>
</tr>
<tr>
<td>Winter</td>
<td>10</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Total(^b)</td>
<td>32</td>
<td>43</td>
<td>47</td>
</tr>
<tr>
<td>Seasonal specific species(^c)</td>
<td>53%</td>
<td>67%</td>
<td>57%</td>
</tr>
</tbody>
</table>

\(^a\) Total number of species per season.
\(^b\) Total number of species per habitat type.
\(^c\) Percent of species specific to one season in a given habitat type.

A total of 47 bird species were observed at Trade Wind Fields Preserve during the fall, winter and breeding seasons (Appendix D). Diversity of bird species is greatest during the summer in both the woodland and grassland (Table 3). A greater percentage of all bird species observed are specific to the grassland than the woodland during a particular season. The grassland not only offers a diverse habitat for forage, but the shrub ecotone created between the grassland and woodland offers great cover and nesting habitat to a variety of bird species.
i. Breeding Season

Thirty-three bird species occurred in the grassland and woodlands of Trade Wind Fields Preserve during the breeding season. The majority of these bird species observed during the summer were year-round residents (Table 4). A greater diversity of bird species was observed in the grassland than the woodland (Table 3). Likewise, more bird species were common occurrences in the grassland than the woodland. The American crow, American goldfinch, American robin, black-capped chickadee, Carolina wren, chipping sparrow, common grackle, house finch, northern mocking bird, pine warbler, red-winged blackbird, great crested flycatcher, and tree swallow were all commonly observed in the grassland during the breeding season. Three bird species were commonly observed in the woodland during the summer breeding months and they are the American goldfinch, gray catbird, and rufous-sided towhee.

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, attending hatch-year birds can confirm that a species is breeding on the property, as can locating an active nest. A species is probably 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 33 bird species observed during the summer, four were confirmed breeders (Table 4). The eastern bluebird and tree swallow were observed nesting in boxes in the grassland and the black-capped chickadee and hairy woodpecker were observed nesting in cavities in the woodland. Fifteen bird species were probable breeders and thirteen were possible breeders in the grassland and woodland (Table 4). Only one species, the herring gull, was considered a non-breeding bird species observed flying overhead of the grassland during the breeding season (Table 4)
Table 4. Birds observed during the breeding season at Trade Wind Fields Preserve, Oak Bluffs, MA.

<table>
<thead>
<tr>
<th>Bird Species</th>
<th>Grassland*</th>
<th>Woodland</th>
<th>Breeding Status***</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year-round Residents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American crow</td>
<td>common</td>
<td>occasional</td>
<td>PR</td>
</tr>
<tr>
<td>American goldfinch</td>
<td>common</td>
<td>common</td>
<td>PR</td>
</tr>
<tr>
<td>American robin</td>
<td>common</td>
<td>uncommon</td>
<td>PR</td>
</tr>
<tr>
<td>black-capped chickadee</td>
<td>common</td>
<td>occasional</td>
<td>CO (N)</td>
</tr>
<tr>
<td>blue jay</td>
<td>common</td>
<td>occasional</td>
<td>PR</td>
</tr>
<tr>
<td>brown-headed cowbird</td>
<td>occasional</td>
<td>uncommon</td>
<td>PR</td>
</tr>
<tr>
<td>Carolina wren</td>
<td>common</td>
<td></td>
<td>PR</td>
</tr>
<tr>
<td>chipping sparrow</td>
<td>common</td>
<td>uncommon</td>
<td>PR</td>
</tr>
<tr>
<td>common grackle</td>
<td>common</td>
<td>uncommon</td>
<td>PR</td>
</tr>
<tr>
<td>downy woodpecker</td>
<td>uncommon</td>
<td></td>
<td>PO</td>
</tr>
<tr>
<td>European starling</td>
<td>uncommon</td>
<td></td>
<td>PO</td>
</tr>
<tr>
<td>eastern bluebird</td>
<td>present</td>
<td></td>
<td>CO (N)</td>
</tr>
<tr>
<td>gray catbird</td>
<td></td>
<td>common</td>
<td>PR</td>
</tr>
<tr>
<td>hairy woodpecker</td>
<td></td>
<td>present</td>
<td>CO (N)</td>
</tr>
<tr>
<td>herring gull <strong>OH</strong></td>
<td>occasional</td>
<td></td>
<td>NB</td>
</tr>
<tr>
<td>house finch</td>
<td>common</td>
<td>occasional</td>
<td>PR</td>
</tr>
<tr>
<td>house sparrow</td>
<td>uncommon</td>
<td></td>
<td>PO</td>
</tr>
<tr>
<td>mourning dove</td>
<td>uncommon</td>
<td></td>
<td>PO</td>
</tr>
<tr>
<td>northern bobwhite</td>
<td>uncommon</td>
<td>uncommon</td>
<td>PO</td>
</tr>
<tr>
<td>northern cardinal</td>
<td>uncommon</td>
<td>uncommon</td>
<td>PO</td>
</tr>
<tr>
<td>northern flicker</td>
<td>uncommon</td>
<td>occasional</td>
<td>PR</td>
</tr>
<tr>
<td>northern mockingbird</td>
<td>common</td>
<td></td>
<td>PR</td>
</tr>
<tr>
<td>pine warbler</td>
<td>common</td>
<td>uncommon</td>
<td>PR</td>
</tr>
<tr>
<td>red-breasted nuthatch</td>
<td></td>
<td>present</td>
<td>PO</td>
</tr>
<tr>
<td>red-tailed hawk</td>
<td>occasional</td>
<td></td>
<td>PO</td>
</tr>
<tr>
<td>red-winged blackbird</td>
<td>common</td>
<td>uncommon</td>
<td>PO</td>
</tr>
<tr>
<td>rufous sided towhee</td>
<td>occasional</td>
<td>common</td>
<td>PR</td>
</tr>
<tr>
<td><strong>Spring/Fall Migrants</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>great-crested flycatcher</td>
<td>common</td>
<td>uncommon</td>
<td>PR</td>
</tr>
<tr>
<td><strong>Summer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>barn swallow</td>
<td>present</td>
<td></td>
<td>PO</td>
</tr>
<tr>
<td>common yellowthroat</td>
<td>uncommon</td>
<td>uncommon</td>
<td>PO</td>
</tr>
<tr>
<td>eastern kingbird</td>
<td>uncommon</td>
<td></td>
<td>PO</td>
</tr>
<tr>
<td>osprey</td>
<td>uncommon</td>
<td></td>
<td>PO</td>
</tr>
<tr>
<td>tree swallow</td>
<td>common</td>
<td>occasional</td>
<td>CO (N)</td>
</tr>
</tbody>
</table>

* "common" birds were detected in more than 50% of the survey visits, “occasional” birds were detected in 26-50% of the survey visits, “uncommon” birds were detected in 25% and fewer of the survey visits, “present” birds were not detected during a survey period but were observed on the property.

** **OH** = bird was observed flying overhead.

*** Breeding status: NB = nonbreeding, PO = possible breeding (species detected in suitable breeding habitat), PR = probable breeding (species heard singing on two occasions over one week apart in suitable breeding habitat), CO = confirmed breeding (species carrying for, CF; feeding young, FY; with begging hatch-year fledglings, HY; or a located nest, N.

ii. Fall

Twenty-four bird species were observed during the fall on Trade Wind Fields Preserve (Table 5). Nearly the same number of bird species was observed in both the woodland and grassland.

Eighteen bird species were observed in the grassland during the fall (Table 5). The American kestrel, chipping sparrow, common grackle, downy woodpecker, herring gull, red-winged blackbird, and solitary vireo were specific to the grassland. The downy woodpecker and herring gull are not typical species of grasslands and were observed flying overhead. The commonly observed birds in the grassland were the American crow, American goldfinch, black-capped chickadee, blue jay, and herring gull.

Seventeen bird species were observed in the woodland during the fall (Table 5). The gray catbird, great-black-backed gull, hairy woodpecker, pine warbler, red-bellied woodpecker, and yellow-rumped warbler were specific to the woodland and were not observed in the grassland during the fall. The great black-backed gull is not a woodland species and was observed flying overhead. The commonly observed birds in the woodland were the black-capped chickadee and blue jay.
Table 5. Birds observed during the fall at Trade Wind Fields Preserve, Oak Bluffs, MA.

<table>
<thead>
<tr>
<th>Bird Species</th>
<th>Grassland*</th>
<th>Woodland</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year-round Residents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American crow</td>
<td>common</td>
<td>occasional</td>
</tr>
<tr>
<td>American goldfinch</td>
<td>common</td>
<td>occasional</td>
</tr>
<tr>
<td>American robin</td>
<td>present</td>
<td>occasional</td>
</tr>
<tr>
<td>black-capped chickadee</td>
<td>common</td>
<td>common</td>
</tr>
<tr>
<td>blue jay</td>
<td>common</td>
<td>common</td>
</tr>
<tr>
<td>chipping sparrow</td>
<td>occasional</td>
<td></td>
</tr>
<tr>
<td>common grackle</td>
<td>occasional</td>
<td></td>
</tr>
<tr>
<td>downy woodpecker</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>golden-crowned kinglet</td>
<td>uncommon</td>
<td>uncommon</td>
</tr>
<tr>
<td>gray catbird</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>great black-backed gull OH</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>hairy woodpecker</td>
<td></td>
<td>uncommon</td>
</tr>
<tr>
<td>herring gull OH</td>
<td>common</td>
<td></td>
</tr>
<tr>
<td>house finch</td>
<td>uncommon</td>
<td>uncommon</td>
</tr>
<tr>
<td>mourning dove</td>
<td>occasional</td>
<td>uncommon</td>
</tr>
<tr>
<td>northern flicker</td>
<td>occasional</td>
<td>uncommon</td>
</tr>
<tr>
<td>pine warbler</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>red-bellied woodpecker</td>
<td></td>
<td>present</td>
</tr>
<tr>
<td>red-winged blackbird</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>white-breasted nuthatch</td>
<td>uncommon</td>
<td>occasional</td>
</tr>
<tr>
<td>yellow-rumped warbler</td>
<td></td>
<td>uncommon</td>
</tr>
<tr>
<td><strong>Spring/Fall Migrants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>laughing gull OH</td>
<td>occasional</td>
<td>present</td>
</tr>
<tr>
<td>solitary vireo</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td><strong>Summer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American kestrel</td>
<td>uncommon</td>
<td></td>
</tr>
</tbody>
</table>

* “common” birds were detected in more than 50% of the survey visits, “occasional” birds were detected in 26-50% of the survey visits, “uncommon” birds were detected in 25% and fewer of the survey visits, “present” birds were not detected during a survey period but were observed on the property.

** OH = bird was observed flying overhead.
ii. Winter

Twenty-one bird species were observed during the winter on Trade Wind Fields Preserve (Table 6). Nearly twice as many bird species were observed in the grassland than the woodland during the winter survey. The diversity of grassland, heathland, and shrubland ecotone between grassland and woodland offers more of a variety of habitats to wintering birds that the monotypic woodland does not.

Nineteen bird species were observed in the grassland during the winter (Table 6). The brown creeper, Canada goose, chipping sparrow, European starling, field sparrow, golden-crowned kinglet, laughing gull, great black-backed gull, mourning dove, ring-billed gull and white-throated sparrow were specific to the grassland during the winter. The four species of gulls are not typical species of grasslands and were observed flying overhead. The commonly observed birds in the grassland were the American crow, black-capped chickadee, blue jay, and herring gull (Table 6).

Ten bird species were observed in the woodland during the winter (Table 6). The downy woodpecker, red-breasted nuthatch, and white-breasted nuthatch were specific to the woodland and were not observed in the grassland during the winter. The American crow and black-capped chickadee were most commonly observed in the woodland during the winter (Table 6).
Table 6. Birds observed during the winter of at Trade Wind Fields Preserve, Oak Bluffs, MA.

<table>
<thead>
<tr>
<th>Bird Species</th>
<th>Grassland*</th>
<th>Woodland</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year-round Residents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American crow</td>
<td>common</td>
<td>common</td>
</tr>
<tr>
<td>American goldfinch</td>
<td>occasional</td>
<td>occasional</td>
</tr>
<tr>
<td>black-capped chickadee</td>
<td>common</td>
<td>common</td>
</tr>
<tr>
<td>blue jay</td>
<td>common</td>
<td>uncommon</td>
</tr>
<tr>
<td>brown creeper</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>Canada goose (^{OH})</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>chipping sparrow</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>dark-eyed junco</td>
<td>uncommon</td>
<td>uncommon</td>
</tr>
<tr>
<td>downy woodpecker</td>
<td>uncommon</td>
<td>occasional</td>
</tr>
<tr>
<td>European starling</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>field sparrow</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>golden-crowned kinglet</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>great black-backed gull</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>herring gull (^{OH})</td>
<td>common</td>
<td>uncommon</td>
</tr>
<tr>
<td>mourning dove</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>northern flicker</td>
<td>uncommon</td>
<td>uncommon</td>
</tr>
<tr>
<td>red-breasted nuthatch</td>
<td>present</td>
<td></td>
</tr>
<tr>
<td>ring-billed gull (^{OH})</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>white-breasted nuthatch</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>white-throated sparrow</td>
<td>uncommon</td>
<td></td>
</tr>
<tr>
<td>yellow-rumped warbler</td>
<td>uncommon</td>
<td>occasional</td>
</tr>
<tr>
<td><strong>Spring/Fall Migrants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>laughing gull (^{OH})</td>
<td>uncommon</td>
<td></td>
</tr>
</tbody>
</table>

* “common” birds were detected in more than 50% of the survey visits, “occasional” birds were detected in 26-50% of the survey visits, “uncommon” birds were detected in 25% and fewer of the survey visits, “present” birds were not detected during a survey period but were observed on the property.

** \(^{OH}\) = bird was observed flying overhead.
c. Mammalian Fauna

i. Observed Mammals

Nine mammal species were observed on Trade Wind Fields Preserve. The woodland provides good forage and breeding habitat for gray squirrels (*Sciurus carolinensis*). The gray squirrel is a tree nester and forages for nuts, such as acorns and hickory nuts (Sutton and Sutton 1923). White-tailed deer (*Odocoileus virginianus*) forage and breed in the woodland and bed down in the grassland at night. Evidence of deer bedding was observed in the tall grass. A graduate study conducted by Kendra Buresh (1999) determined that *myotis* species as well as five other bat species occur in the sandplain grassland of Martha’s Vineyard. One of the echolocation recording sites was located at the hangar on the Trade Wind’s airfield. The species recorded in sandplain grasslands were little brown bat (*Myotis lucifugus*), red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), eastern pipistrelle (*Pipistrellus subflavus*), big brown bat (*Eptesicus fuscus*) and silver-haired bat (*Lasionycteris noctivagans*). The domestic dog (*Canis familiaris*) also is a common visitor of Trade Wind Fields, as the property is well known as a prime dog-walking spot on the Vineyard.

ii. Potential Mammals

Trade Wind Fields Preserve is potential habitat for several mammal species observed in similar habitat types on Martha’s Vineyard. Various rodent species may meet some of their habitat needs in the grassland habitat on the property. They include the common shrew (*Sorex cinereus*), northern short-tailed shrew (*Blarina brevicauda*), eastern mole (*Scalopus aquaticus*), meadow vole (*Microtus pennsylvanicus*), Norway rat (*Rattus norvegicus*), eastern cottontail (*Sylvilagus floridanus*), house mouse (*Mus musculus*), meadow jumping mouse (*Zapus hudsonius*), white-footed mouse (*Peromyscus leucopus*) and woodland jumping mouse (*Napaeozapus insignis*). The eastern chipmunk (*Tamias striatus*), striped skunk (*Mephitis mephitis*) and raccoon (*Procyon lotor*) meet some if not their entire habitat needs in the woodland of Trade Wind Fields.

f. Rare and Endangered Species

The Massachusetts natural heritage and endangered species program (MA NHESP) designates that Trade Wind Fields Preserve is located within Priority Habitat #PH 1781, delineated for the following species of special concern:

Matthew Pelikan observed the [redacted] along the dirt path around the circumference of the runway and taxiway. An [redacted] was observed in the woodland-grassland edge community of the Preserve. Both the [redacted] observed on the Preserve are state-listed species of special concern. Two “special concern” plant species [redacted] were observed in the grassland. [redacted] likely received its name from flowers that first appear in a dense purple-brown panicle (MA NHESP 1990).
Endangered species map 1
C. Cultural Characteristics

1. Land History

Trade Wind Fields Preserve was once part of the large expanse of farmland that stretched across the Vineyard in the 1800s. The land was a successful dairy farm run by the Chase family (Michie 1999). The Chase and later the Woodsedge Farm were larger than the current area of Trade Wind Fields and included part of Farm Neck golf course. In 1930 the Chase family sold the farm to Antone S. Sanchos, who, through his fascination for airplanes, started the first Vineyard repair shop for airplanes. Eventually Mr. Sanchos opened one of the fields for airplanes (Michie 1999). The farm was sold in 1946 to W. Gerould Clark. His wife, Major Helen Mary Clark, U.S. Air Force, leased the airport to two other women, retired Captain Carolyn Cullen, U.S. Air Force, and partner Rachael William, who became the first women in the United States to operate an airport. They formed the Trade Wind Flying Service Inc. Carolyn Cullen was the backbone of the airport (Michie 1999). Before joining the Women’s Air Force Service she taught flying in Western Massachusetts. During World War II she trained pilots at the Naval Air Base in Schenectady, New York. After her discharge from the Women’s Air Force Service she joined the Air Force Reserves and was promoted to the rank of captain (Michie 1999). In the early 1980s the property was slated for development as a recreational facility with housing. In 1986, the Martha’s Vineyard Commission rejected the development plan proposed by owner, Benjamin J. Boldt. A team of developers, Joseph A. Eosco and Edward N. Jigarji, purchased the land and proposed to develop it. The voters of Oak Bluffs proposed to save the airfield and take the land by eminent domain. The town of Oak Bluffs did not take the land by eminent domain but the land bank did purchase the property (Michie 1999, Tonti 2002). Joseph Costa, a flight student of Carolyn Cullen, became the airport services coordinator in 1989 and remained in that position until 2001.

Ms. Cullen telephoned the land bank office prior to her death to note that she had named the property “Trade Wind Airport” rather than “Trade Winds Airport”. She asked that the land bank honor her original name.

2. Planning Concerns

Trade Wind Fields Preserve has no wetland resource areas; consequently, no project undertaken at Trade Wind requires the approval of the Oak Bluffs Conservation Commission.

3. Abutters

The following is a list of those owning property abutting or within 300 feet of Trade Wind Fields Preserve.

<table>
<thead>
<tr>
<th>Map</th>
<th>Lot</th>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>108</td>
<td>Dorthothy and Katharine Granfield</td>
<td>P.O. Box 843, Tisbury, MA 02568</td>
</tr>
<tr>
<td>21</td>
<td>118</td>
<td>James P. O'Brien</td>
<td>P.O. Box 4638, Tisbury, MA 02568</td>
</tr>
<tr>
<td>21</td>
<td>119</td>
<td>Agnes B. Kiley</td>
<td>4 Elm Drive, Canton, MA 02021</td>
</tr>
<tr>
<td>21</td>
<td>120</td>
<td>Kerry Scott</td>
<td>P.O. Box 1855, Oak Bluffs, MA 02557</td>
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<td>Lee R. Gillian</td>
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## Trade Wind Fields Preserve Management Plan

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<td>Derek Cruz</td>
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<tr>
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<td>Albert E Sylvia</td>
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<td>Marney and Rishard Toole</td>
<td>RRI Box 256 Farm Neck Road, Oak Bluffs, MA 02557</td>
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</table>
Abutters Map – produced from Oak Bluffs Tax Maps
4. Existing Use and Infrastructure

Trade Wind Fields Preserve has extensive existing use and moderate infrastructure (Existing Use Map).

_Airport_ – A private restricted landing area complete with runway and taxiway is currently in use. Two airplane hangars are on the Preserve. One was used to house the airport services coordinator’s airplane and the other was and still is being used as a storage facility for land bank maintenance equipment and supplies. Three tie-downs exist near the airport services coordinator’s hangar. Pilots with permission to land at Trade Wind Fields were surveyed in 2001 to determine the level of aviation activity at the airport. Of the approximately 90 pilots who hold permission-to-land slips from the land bank, 40 responded to the survey. During a one-year period, between August 2000 and July 2001, 158 operations occurred (a landing operation is defined as one takeoff-landing). The statistic does not include the airport services coordinator’s response to the survey.

_Trails_ – A series of trails exist on the Preserve and are used extensively by joggers, dog walkers, birders, and general walkers and hikers. One series of trails leads through the pitch pine woodland to Farm Pond Preserve, one trail loops around the taxiway and runway, and another series of trails wanders through the mixed oak woodland and oak-pine woodland and connects to the planned Cross-Oak Bluffs trail.

_Encroachments_ – A small portion of the Farm Neck golf club, cart path wanders onto the Preserve along the far eastern boundary.

_Split-rail fences_ – Split-rail fences separate the northwestern boundary of Trade Wind Fields from County Road; the northeastern boundary of the property from Farm Neck golf course; the southern boundary of the Preserve from Farm Neck Way; the northern boundary of abutter Cyndie Taylor’s property from the preserve; and the grassland loop trail from the western end of the taxiway and the taxiway-runway intersection.
Existing Use Map
III. Inventory Analysis

In this section, problems and opportunities that may arise in the management of Trade Wind Fields Preserve are analyzed.

A. Constraints & Issues

1. Ecological Context

Trade Wind Fields Preserve is host to a habitat, the sandplain grassland, which is globally rare (Godfrey and Apert 1985). Sandplain grasslands are part of the coastal heathland community that extends along the eastern seaboard of North America. Many rare plants and wildlife species depend on sandplain grasslands for survival. Development in coastal zones and encroachment of woody species and non-native agricultural grasses threatens the stability and existence of the grasslands that so many species depend on for survival (Swain and Kearsley 2000). Paleoecological studies indicate that much of the sandplain grasslands that are succeeding into woodlands were once woodlands that were cleared and managed for grazing and other agricultural purposes over several hundred years (Dunwiddie 1986). Prior to colonization by people, the sandplain grassland was probably a narrow strip of vegetation along the coast, managed as grassland by the wind and salt spray (Dunwiddie and Caljouw 1990). That area is now developed and thus efforts to protect and encourage areas of sandplain grasslands created over time by people is vital to the survival of the entire coastal heathland ecosystem.

2. Natural Resource Concerns

Rare species

Four state-listed plant species – [redacted] – and two state-listed wildlife species – [redacted] – were observed on Trade Wind Fields Preserve. These plant and wildlife species are located in the sandplain grassland. Maintaining and expanding the grassland are essential to the survival of these rare plants and wildlife species.

Succession

Succession is a natural process. However, maintaining the grassland in its pre-successional state is necessary to the survival of various wildlife and plant species rare and common.

3. Sociological Context

Trade Wind Fields Preserve lies in and near a relatively developed area of Martha’s Vineyard. The property fronts a busy town road and bike path. It is a relatively active airport for day fliers. Airplanes are not allowed to be stored overnight on the airstrip. While many thousands of people will view the location as motorists or passengers on County Road, a great number of people are likely to walk on the property, for it is a popular dog walking location on the island. People who live in the neighborhood, who walk dogs, and who jog or ride along the bike path that is only a short distance away are most likely to visit Trade Wind Fields. The property is located adjacent to Farm Neck golf club and may receive visitors from the club as well. Trade Wind offers moderate-distance hikes and is a link to other conservation properties.
4. Neighborhood Concerns

The land bank considers the concerns of neighbors as part of the planning process. All abutting property owners 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 or the Oak Bluffs town advisory board or may simply contact land bank staff.

Neighbors of the Preserve have expressed concern about the following matters:
- dogs interacting aggressively with other dogs and people.
- dogs and people interfering with the use of the runway and taxiway by pilots.
- dogs and people trespassing onto private abutting property.
- camping on land bank property.
- littering of dog feces.
- fire hazard of pitch pine woodland.
- safety of access via Trade Wind Road, a one-way road.

Other neighborhood concerns may include unauthorized nighttime use, loitering and vandalism. The land bank has addressed such problems on other properties through regular patrol and checking of properties, periodic nighttime checks, clear posting of boundaries, hours of use and property rules, and by cooperation with the local police department.
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 use of natural resources with protection of the same.

2. Goals at Purchase

The land bank's initial goals for Trade Wind Fields Preserve are outlined in its original management plan for the property. The secretary of environmental affairs adopted this original plan, which serves as a historic document for the current plan, on October 16, 1991. The land bank commission adopted the plan on August 26, 1991 and the Oak Bluffs town advisory board on July 23, 1991. It is attached as Appendix E.

3. Opportunities

Access Trade Wind Fields may be accessed by vehicle from County Road in Oak Bluffs. Foot or bicycle traffic may access the Preserve directly via the bike path along County Road, and via trail connections from Farm Pond and the cross-Oak Bluffs trail system.

Historical The Martha’s Vineyard chapter of the Experimental Aviation Association (EAA) expressed interest in creating a small museum of historical aeronautical photographs in the southern hangar. It is also interested in establishing a “home build” project in the southern hangar.

Model Airplane The openness of the taxiway and surrounding grassland lends itself to the flying of model airplanes. Multiple use of the taxiway by airplanes and model airplanes is a safety consideration.

Birding Trade Wind Fields offers good opportunities to observe birds. Vantage points exist along the edges of the grassland. As the berry-producing heath species in the open grassland of the Preserve make the place a magnet for hungry, migrating birds.

Ecological Sandplain grassland communities are in decline on Martha’s Vineyard, having yielded to development and succession by pitch pine, red cedar and oaks. This process is underway at Trade Wind Fields Preserve and is currently being arrested through management practices. Expansion of the grassland would encourage the persistence of species, rare and common, that depend on sandplain grasslands for survival. Native seed used for propagation of native plants may continue to be harvested from the sandplain grassland.

Public Safety The runway at Trade Wind Fields Preserve may act as an alternative runway to the Martha’s Vineyard Airport and Katama airport for an emergency landing of a plane in distress.

Trails Trade Wind Fields has a moderate trail system linking the different habitat types on the
Preserve together and linking the Preserve to other conservation areas. Walkers, bicyclists, joggers, and horseback riders use the trails. The property is flat enough that a wheelchair-accessible trail here is possible.
4. Universal Access

The small size and gentle contours of Trade Wind Fields Preserve create opportunities for moderate degree of universal access. The Preserve’s ROS (“Recreation Opportunities Spectrum”) classification is “more-developed.” 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 Trade Wind Fields Preserve as follows.

Property Name: Trade Wind Fields Preserve.
Size: 71.8 acres.
Primary Activities: birding, hiking, horseback riding and picnicking.
Primary Elements: 15-vehicle trailhead; one sign station.
Primary Spaces: meadow; pine woodlands.
Obstacles that Limit Accessibility: fences; sand and some roots on trails.
Existing or Potential Alternatives: Corellus State Forest; Katama Airfield.
Proposed ROS Classification: more-developed (moderately-developed/roaded natural).
Proposed Expectation of Accessibility: moderate

For all more-developed Land Bank conservation areas, the Universal Access Plan states the following (UAC 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 more-developed land bank conservation areas.

A universal access trail at Trade Wind Fields could lead from the trailhead into the pitch pine woodland and will follow the edge of the grassland for one-quarter mile. The trail will end at a bench 100 feet into the grassland with views of both runway and taxiway.

The following two tables address compliance with the Universal Access Plan. The first lists features of Trade Wind Fields Preserve (“primary elements and spaces”), their distance from the trailhead, and possible obstacles to making these features accessible. The second table is a checklist for compliance with objectives of the Universal Access Plan.

Table 12. Primary Elements and Spaces at Trade Wind Fields Preserve

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<th>Primary Element or Space</th>
<th>Distance from trailhead (feet)</th>
<th>Conflict for trailhead linking</th>
<th>Overcome conflict</th>
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<tr>
<td>1. trailhead</td>
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<td>2. sign station</td>
<td>10</td>
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<td>3. pitch pine woodland</td>
<td>0</td>
<td>surface</td>
<td>yes</td>
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<td>4. grassland/meadow</td>
<td>1145</td>
<td>surface</td>
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<td>7. bicycle path</td>
<td>300</td>
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Table 13. Universal Access Plan Compliance Checklist.

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<td>2. Solicit opinion</td>
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<td>3. Inform public</td>
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<td>4. Parking</td>
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<tr>
<td>5. Toilets</td>
<td>0%</td>
<td>Small size. Toilets nearby in town center.</td>
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<tr>
<td>6. More-developed trails</td>
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<td>State-listed Purple tiger beetle habitat.</td>
</tr>
<tr>
<td>7. Less-developed trails</td>
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<td>8. Facilities</td>
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<td>Small size. Facilities nearby in town center.</td>
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<td>9. Chemicals</td>
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<td>10. Site information</td>
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IV. Land Management Planning

This final section of the management plan states goals for Trade Wind Fields Preserve 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

Goal: Provide long-term protection for plants, animals and natural processes occurring at Trade Wind Fields Preserve.

Objective 1: Protect and encourage rare and endangered species at Trade Wind Fields.

Strategies
A. Monitor the property for rare plants and animals during regular property checks.
B. Devise and implement a strategy to protect and encourage new populations of known listed species on the Preserve as well as populations of new species observations.
C. Maintain disturbed soils of trails along grassland-woodland border, as shown on Site Management Map, to protect purple tiger beetle habitat and promote grassland.
D. Maintain areas of disturbed soil that are bare or lichen-covered to create and maintain tiger beetle habitat.
E. Clear vegetation around rare purple needle grass to allow for population expansion.

Objective 2: Maintain sandplain grassland.

Strategies
A. Annually pull encroaching pines, cedars, and hardwoods to arrest succession in grassland.
B. Maintain grassland in an open, grassy condition through limited mowing, at discretion of land bank staff. Use mowing only to reduce woody material in grassland and to encourage the growth of native grasses. Exclude taxiway and runway from grassland management practices and mow and roll the taxi- and runway on a regular basis.
C. Till and seed areas of stubborn woody sprouts in grassland.
D. Restore existing 20-vehicle trailhead to sandplain grassland.
E. Maintain variety of native plants in grassland to provide habitat for regionally rare invertebrate populations and other wildlife species through limited mowing and planting.

Objective 3: Promote habitat characteristics that make Trade Wind Fields desirable to migrating and breeding birds.

Strategies:
A. Retain snags in woodland where these trees do not pose unacceptable safety or fire hazard.
B. Retain perching trees along edges of grassland.
C. Install bluebird boxes and American kestrel boxes along edge of field to encourage specific cavity nesters.

Objective 4: Control invasive species and succession.

Strategies:
A. Cut or uproot invasive species.
B. Monitor for re-growth and continue to cut or uproot invasive plants.
C. Maintain pitch pine woodland as a pitch pine-dominated woodland.
Objective 5: Maintain the quality of the Preserve as habitat for breeding wildlife species.

**Strategies:**

A. Retain a mixture of habitats on the Preserve to provide a variety of habitat requirements to wildlife species.

Objective 6: Reduce forest fire danger in pitch pine woodlands.

**Strategies:**

A. Monitor for and reduce “ladder” fuels.

**B. Recreation and Aesthetics**

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

Objective 1: Maintain view of property from County Road.

**Strategies:**

A. Cut or uproot insignificant, woody vegetation along County Road to maintain views of the grassland, runway, and taxiway from the road.

B. Cut or uproot woody vegetation in and around the grassland and restore native grasses and herbs to grassland to create sweeping, scenic views from the County Road.

C. Plant vegetation where necessary that blends in with the natural context of its environs to define and screen the boundaries where residential dwellings are visible from the trail.

Objective 2: Relocate existing 20-vehicle trailhead from the west side of the north hangar to the oak woodland near the southwest boundary along Farm Neck Way, as shown on Site Management Map, and dedicate two spaces there for universal access.

**Strategies:**

A. Create vehicle access to the trailhead via a loop driveway off County Road.

B. Create a 15-vehicle trailhead with two universally accessible vehicle spaces closest to sign station for persons with disabilities.

C. Designate universal access vehicle spaces with signs indicating handicapped plates or insignia are required.

D. Surface 2-vehicle universal access trailhead with ¾” dense mix.

E. Site location for potential future 5-vehicle overflow parking as shown on Site Management Map.

F. Retain existing sign station at existing trailhead for walkers and bicycle traffic and create a sign station at the new trailhead at a height that is legible to people in wheelchairs and those walking.

G. Close off pedestrian access to trailhead located off County Road.

Objective 3: Create a universally accessible trail to meet standards for a “more-developed” land bank property that provides views of Trade Wind’s grassland and pitch pine woodland for the general public.
Strategies:

A. Make universal access trail leading from trailhead into the pitch pine woodland and ending at a turn-around location in the grassland with views of the runway-taxiway intersection.
B. Create trail of firm, slip-resistant material, and design trail to meet universal access standards for width, slope, cross-slope, etc.
C. Install rustic wooden benches every 300 feet along universal access trail.

Objective 4: Establish and maintain trail system.

Strategies:

A. Create trail network as shown on the Site Management Map.
   a. Make trail corridors six feet wide and eight to ten feet tall when possible.
   b. Free trails of rocks, roots, and other obstacles where practical.
   c. Install erosion control measures where needed.
   d. Mark trails with colored markers.
C. Comply with universal access standards for a more-developed property.
D. Allow multiple use of trails by walkers, equestrians, riders of non-motorized bicycles, and cross-country skiers.
E. Allow land bank staff the discretion to create alternative trails for these uses or restrict these uses if significant erosion is observed or if conflicts result.
F. Indicate trail difficulty on trail map.
G. Make hand-held trail maps available at the trailhead.
H. Check and maintain trails monthly.
I. Minimize signage by installing signs only where necessary.
J. Prevent off-trail excursions.

Objective 5: Entertain possibilities for other trail links.

Strategies:

A. Maintain existing links to other conserved properties.
B. Create links to other conserved land.

Objective 6: Retain hangars.

A. Allow land bank staff to continue to use the northern hangar as a workshop and for the storage of maintenance equipment.
B. Allow airport services coordinator to use a portion of the southern hangar for storage of one airplane in exchange for services.
C. Entertain proposal from EAA to create a small museum of historical airplane photographs and/or a “home-build” project for children in the southern hangar.

Objective 7: Retain and operate the grass-strip runway and taxiway as a private restricted landing area.

Strategies:

A. Engage airport services coordinator to oversee airport operations in accordance with corresponding job description, Appendix F.
B. Allow airport services coordinator to use a portion of the southern hangar for storage of one airplane in exchange for services.
C. Retain the three existing tie-downs in present location, east of southern hangar.
D. Allow for location and maintenance of windsock and other airport operation facilities where necessary.
E. Prohibit pedestrians and their pets from the runway and taxiway.
F. Forbid helicopters from using the airport.
G. Allow kite flying on the taxiway of the Preserve from October 1 to May 31; it will not be permitted during the remainder of the year because this is when the airstrip is likely to be most active.
H. Allow limited model airplane to use on the taxiway during designated times and with written permission from airport services coordinator.
I. Allow non-commercial hot-air balloons to take off and land on the runway providing that a valid permission-to-land slip was issued in advanced.
J. Allow airplanes to take off and land only along the north-south runway; designate the east-west runway as a taxiway.
K. Prohibit overnight tie-down of airplanes.
L. Roll and mow the north-south airstrip regularly to maintain a flat landing surface.
M. Mow the taxiway to maintain a flat taxiing surface.
N. Clear the runway and taxiway of debris on a regular basis to maintain a viable air-taxi surface.
O. Top trees at either end of runway and work with neighbors to top trees on abutting property to the extent necessary to facilitate aviation use.

C. Natural Products

Goal: Prohibit hunting on the Preserve.

Objective 2: Prohibit hunting.

Strategies:
A. Refer to Trade Wind Fields Preserve in the land bank’s hunting policy as a property on which no hunting is allowed due to close proximity to private dwellings.
B. Post "no hunting" signs on sign station during hunting seasons and at regular intervals on the property boundary.

D. Community Interaction

Goal: Provide helpful and interesting information about the property for visitors; allow educational use of the property.

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

Strategies:
A. Mark the property on land bank map as universally accessible and provide directions.
B. Maintain land bank logo marker on County Road.
C. Limit trespassing by marking boundaries as trails meet them.
D. Install gates or fencing as needed.
E. Provide directions to nearby conservation land.
F. Post map of property and trails on sign station.

Objective 2: Provide useful and interesting information about the property and its surroundings.

Strategies:
A. Post information about animals, plants, and natural processes occurring on the property.
B. Maintain copy of this plan at the land bank office, the Oak Bluffs library and Oak Bluffs school.
Objective 3: Post signs that explain the rules of property.

Strategies
A. Quote the town dog bylaw, Chapter III Animal Control, C.1., “All dogs owned or kept within the limits of the Town shall be restricted from running at large or shall be kept within the immediate control of their owners or keepers”.
B. Explain the dangers of unleashed dogs.
C. Instruct visitors to keep dogs and themselves off the runway and taxiway. Leash pets if needed to accomplish this goal.
D. Instruct visitors to clean up after their pets for several reasons, including the danger of animal feces to airplane tires and brakes.
E. Communicate aircraft operation procedures to the visitors.

E. Land Administration

Goal: Maintain, oversee, and police the Preserve.

Objective 1: Comply with all applicable regulations.

Strategies:
A. Comply with Federal Aviation Agency regarding operation of airport.
B. Comply with any applicable zoning regulations.

Objective 2: Work with local dog-walking group to promote positive dog interactions on the Preserve.

Strategies:
A. Encourage local dog walkers who frequent Trade Wind to inform the land bank of problems and to police themselves.
B. Encourage the public to bring doggie bags for removal of pet feces and provide doggie bags for dog walkers to pick up and carry-out dog feces.

Objective 2: Regulate use by maintaining set hours.

Strategies:
A. Open property every day of year from one half-hour before sunrise to one half-hour after sunset.
B. Other than stargazing, allow nighttime use only with special permission from land bank commission.

Objective 3: Keep well-maintained boundaries and monitor for encroachment.

Strategies:
A. Locate corners and walk boundaries annually.
B. Post boundaries with land bank boundary markers.
C. Keep photographic record of corners.
D. Work to correct any encroachments.

Objective 4: 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 5: Employ adequate staff to effectively implement land management goals.

Strategies:
A. Inspect property at least monthly.
B. Promptly respond to problems.
C. Monitor property as needed in accordance with land bank patrol policy.

Objective 6: Develop good working relationships with neighbors.

Strategies:
A. Consider neighborhood requests for signs, fencing, screening, etc. to prevent trespass.
B. Promptly respond to questions and address concerns.
V. Site Management Map
VI. Literature Cited


MA-NHESP. 2015a. Fact sheet. 2 pp


Appendix A: Deeds and Easements

Deeds and easements are filed at the land bank office for public review.
Appendix B: Taxonomic List of Non-vascular and Vascular Plants at Trade Wind Fields Preserve, Oak Bluffs, MA

Non-vascular Plants
Division Bryophyta (Mosses and Liverworts)
Polytrichaceae
   Polytrichum sp.       a haircap moss

Cladonaceae
   Cladonia rangiferina  reindeer moss
   Cladonia species   

Vascular Plants
Division Polypodiophyta (Ferns)
Dennstaedtiaceae (Bracken Family)
   Pteridium aquilinum  bracken fern

Division Pinophyta (Gymnosperms)
Cupressaceae (Cypress Family)
   Juniperus virginiana  eastern red cedar

Pinaceae (Pine Family)
   Pinus rigida  pitch pine

Division Magnoliophyta (Flowering Plants)
Anacardiaceae (Cashew Family)
   Rhus copallinum  shining sumac
   Toxicodendron radicans  poison-ivy

Asteraceae (Aster Family)
   Achillea millefolium  common yarrow
   Aster dumosus  bushy aster
   Aster linariifolius  stiff aster
   Aster patens  toothed white-topped aster
   Chrysopsis falcatata  sickle-leaved golden-aster
   Conyza canadensis  horseweed
   Eupatorium hyssopifolium  hyslop-leaved boneset
   Eutrochium graminifolium  grass-leaved goldenrod
   Eupatorium purpureum  slender-leaved goldenrod
   Gnaphalium obtusifolium  sweet everlasting
   Hieracium cespitum  field hawkweed
   Hypericum radicatum  cat’s ear
   Solidago odora  sweet goldenrod
   Solidago puberula  downy goldenrod
   Solidago rugosa  rough-stemmed goldenrod
   Solidago nemoralis  gray goldenrod
   Spiranthes tuberosa  little ladies’ tresses
<table>
<thead>
<tr>
<th>Family</th>
<th>Species/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asclepiadaceae (Milkweed Family)</td>
<td>A. syriaca: common milkweed</td>
</tr>
<tr>
<td></td>
<td>A. amplexicaulis: blunt-leaved milkweed</td>
</tr>
<tr>
<td></td>
<td>A. tuberosa: butterfly-weed</td>
</tr>
<tr>
<td>Agavaceae (Yucca Family)</td>
<td>Yucca filamentosa: yucca</td>
</tr>
<tr>
<td>Caryophyllaceae (Chickweed Family)</td>
<td>Dianthus armeria: deptford pink</td>
</tr>
<tr>
<td>Cistaceae (Rock-rose Family)</td>
<td>Helianthemum canadense: frostweed</td>
</tr>
<tr>
<td></td>
<td>H. dumosum: bushy rockrose</td>
</tr>
<tr>
<td></td>
<td>H. ericoides: golden heather</td>
</tr>
<tr>
<td></td>
<td>H. tomentosa: false heather</td>
</tr>
<tr>
<td></td>
<td>Lechea s. maritima: beach pinweed</td>
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<tr>
<td></td>
<td>L. intermedi: intermediate pinweed</td>
</tr>
<tr>
<td>Clusiaceae (Mangosteen Family)</td>
<td>Hypericum gentianoides: pineweed</td>
</tr>
<tr>
<td></td>
<td>H. perforatum: common St. Johnswort</td>
</tr>
<tr>
<td>Cyperaceae (Sedge Family)</td>
<td>Carex pennsylvanica: pennsylania sedge</td>
</tr>
<tr>
<td></td>
<td>Cyperus filiculmis: button flatsedge</td>
</tr>
<tr>
<td>Ericaceae (Heath Family)</td>
<td>Arctostaphylos uva-ursi: bearberry</td>
</tr>
<tr>
<td></td>
<td>Epigaea repens: trailing arbutis</td>
</tr>
<tr>
<td></td>
<td>Gaultheria procumbens: wintergreen</td>
</tr>
<tr>
<td></td>
<td>Gaultheria hiscat: black huckleberry</td>
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<tr>
<td></td>
<td>Gaultheria frondosa: dangleberry</td>
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<tr>
<td></td>
<td>Vaccinium angustifolium: common lowbush blueberry</td>
</tr>
<tr>
<td></td>
<td>V. corymbosum: highbush blueberry</td>
</tr>
<tr>
<td></td>
<td>V. pallidum: lowbush blueberry</td>
</tr>
<tr>
<td>Fabaceae (Bean Family)</td>
<td>Baptisia tinctoria: wild indigo</td>
</tr>
<tr>
<td></td>
<td>Trifolium arvense: rabbit-foot clover</td>
</tr>
<tr>
<td></td>
<td>Tephrosia virginiana: goat’s rue</td>
</tr>
<tr>
<td></td>
<td>Vicia sativa: vetch</td>
</tr>
<tr>
<td>Fagaceae (Beech Family)</td>
<td>Quercus alba: white oak</td>
</tr>
<tr>
<td></td>
<td>Q. ilesii: scrub oak</td>
</tr>
<tr>
<td></td>
<td>Q. velutina: black oak</td>
</tr>
<tr>
<td></td>
<td>Q. stellata: post oak</td>
</tr>
<tr>
<td>Iridaceae (Iris Family)</td>
<td></td>
</tr>
</tbody>
</table>
Juncaceae (Rush Family)
   Juncus tenuis            path rush

Lauraceae (Laurel Family)
   Sassafras albidum       sassafras

Monotropaceae (Indian Pipe Family)
   Monotropa uniflora      indian pipe

Myricaceae (Bayberry Family)
   Comptonia peregrina     sweetfern
   Myrica pensylvanica     bayberry

Orchidaceae (Orchid Family)
   Cypripedium acaule      pink lady's slipper

Plantaginaceae (Plantain Family)
   Plantago lanceolata     english plantain

Poaceae (Grass family)
   Agrostis gigantea       redtop
   Andropogon virginicus  broomsedge
   Dactyliosperma scoparia poverty grass
   Deschampsia flexuosa   hairgrass
   Eragrostis spectabilis  purple love grass
   Festuca ovina          sheep fescue
   Panicum virgatum       switchgrass
   Panicum clandestinum   deer-tongue grass
   Panicum dichotomum     forked-panic-grass
   Panicum cf. lamoginosum panic-grass
   Paspalum setaceum       beadgrass
   Schizachyrium scoparium  little bluestem

Polygonaceae (Smartweed Family)
   Rumex acetosa           red sorrel
   Polygonum pugnacia      racemed milkwort
   Polygonum articulata    sand jointweed

Pyrolaceae (Shinleaf Family)
   Chimaphila maculata     striped wintergreen

Rosaceae (Rose Family)
   Aronia melanocarpa      black chokeberry
   Prunus serotina         black cherry
   Potentilla canadensis   dwarf cinquefoil
   Potentilla simplex      common cinquefoil
   Rosa carolina           pasture rose
   Rubus allegheniensis    common blackberry
   Rubus flagellaris      prickly dewberry

Scrophulariaceae (Figwort Family)
   Linaria vulgaris        butter-and-eggs
Linaria canadensis  blue-toadflax
Appendix C: Butterflies at Trade Wind Fields Preserve, Oak Bluffs, MA.

Butterflies at Trade Wind Fields Preserve

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This informal report summarizes the results of almost five seasons (mid-August 1997 - early May 2002) of butterfly observations at the Land Bank's Trade Wind Fields Preserve in Oak Bluffs. It should be noted that this report doesn't present the results of a systematic study; while I visit this location quite frequently, since I live only a half-mile away, fairly long periods sometimes pass with no observations, and I've made no attempt (e.g., walking transects) to provide comprehensive coverage of the entire property. As a result, the records summarized here undoubtedly have gaps. Some species missing from the list can safely be assumed to occur least occasionally at Trade Wind, based on the regularity of their occurrence nearby (Red Admiral, Vanessa atalanta, is only one example), and many species that do appear on the list may be more regular or common than my observations have so far indicated (many skippers may fall into this category). Still, I've found a total of 34 species of butterflies here, which is impressive diversity for a fairly small property with a limited range of habitats. Even though some of these species have been noted only infrequently or in small numbers, the sheer diversity found here indicates that Trade Wind represents a valuable ecological resource from the standpoint of Vineyard butterfly populations.

The Land Bank presumably has a more or less exhaustive inventory of the flora of this location, but it is worth offering a few observations on the vegetation at Trade Wind as it pertains to butterflies. Generally speaking, the conditions and vegetation at Trade Wind are typical of dry grassland (open areas) and dry pine forest (wooded areas) on the Vineyard, and as one might expect, butterflies associated with wet habitats or deciduous woodland are mostly scarce or absent here. While a few exotic yard and agricultural weeds are established here, native vegetation vastly predominates; indeed, the absence of exotic vegetation probably accounts for the scarcity here of some butterflies, like Cabbage White and Clouded and Orange Sulphurs, that are associated with agricultural plants and weeds. Much of the open area is dominated by little bluestem grass, an important food plant for some butterflies; on the other hand, the relative scarcity of other kinds of native grasses and sedges may account for the low density at which some skipper species (which use these as their larval host plants) are found here. A few species of wildflowers -butterfly-weed, blunt-leaved milkweed, hyssop-leaved boneset, sickle-leaved golden-aster, stiff aster, and slender-leaved goldenrod -are abundant at Trade Wind and provide good nectar sources for butterflies through much of the season, at least making butterflies easy to find and perhaps attracting them to the property or enhancing their success here. Bearberry and blueberry represent important nectar sources early in the season, but wildflowers are scarce here from late May through June, and this may affect either the ease of detecting butterflies or perhaps their actual abundance during that portion of the season.

A few plants that are important larval hosts for several of the Vineyard's butterflies are rather scarce here (notably bush-clovers, or Lespedeza, and trefoils, or Desmodium), which probably
accounts for the absence (Northern and Southern Cloudywing) or scarcity (Gray Hairstreak, Eastern Tailed Blue) of associated butterfly species. It is possible that efforts to increase the floral diversity (and perhaps structural diversity, since many open-country species prefer elevated perches for waiting for mates) at Trade Wind would result in a corresponding increase in butterfly numbers or diversity at this location.

Many of the butterflies observed at Trade Wind have been shown or can be presumed to be breeders here. No species listed as being of conservation concern by state or federal agencies have been found here, but a number of Trade Winds' butterflies are of local or regional ecological interest. A few species found at Trade Wind, such as Leonard's Skipper and Crossline Skipper, can be thought of as "Vineyard specialties": butterflies that are more common on the Vineyard than elsewhere in the state. Populations of these butterflies seem worth protecting because their relative abundance here suggests that they are species particularly well adapted to our native coastal sandplain grasslands. Trade Wind also supports some butterflies that, while not of state-wide conservation concern, have limited distribution in our portion of the Bay State. Juniper Hairstreak, for example, has a wide but rather sparse distribution in Massachusetts, but has been found to be common at several Oak Bluffs locations, including Trade-Wind; this butterfly, however, is uncommon on the Vineyard outside of Oak Bluffs, and so its population here can be thought of as a regional "core population." Indian Skipper is at best uncommon on the southeastern coastal plain of Massachusetts, and it appears to be rare or absent on most of Martha's Vineyard. But several Oak Bluffs locations (including Trade Wind) host this species regularly, and protection of populations at these locations may well be crucial to the security of this species on the Island. Finally, a few species that can be considered rare or uncommon immigrants to the region have turned up here: for example, Cloudless Sulphur, Common Buckeye, and Painted Lady. In general, such occurrences are associated with region-wide influxes of these species.

**Summary of Records**

**BLACK SWALLOWTAIL (Papilio polyxenes):** Occasional visitor, probably overlooked. I have only one record- 8/7/98, 2- but this species is regularly encountered elsewhere in Oak Bluffs and has frequently been observed ovipositing or in larval form nearby. Suitable food plants, such as Queen Anne's Lace, appear to be rare or absent at Trade Wind, which probably accounts for the infrequency with which it is observed here.

**EASTERN TIGER SWALLOWTAIL (Papilio glaucus):** One record: 8/7/98, 1. Like Black Swallowtail, this species probably visits Trade Wind more frequently than the single record suggests: it is a frequent visitor at good nectar sources elsewhere in Oak Bluffs. However, as a breeding butterfly, it is associated with deciduous woodland, meaning the Trade Wind probably has limited appeal for this butterfly.

**CABBAGE WHITE (Pieris rapae):** Frequently present as small numbers of apparently transient individuals.

**CLOUDED SULPHER (Colias philodice):** Single or, occasionally, two or three individuals are encountered here on a fairly regular basis. Records span the period from late April to late September. This species, like Orange Sulphur, is more generally associated with agricultural or residential areas on the Vineyard, and suitable food plants are probably rare or absent at this location.
ORANGE SULPHER (*Colias eurytheme*): Somewhat more numerous here than Clouded Sulphur, with a maximum of five individuals on 9/28/97. All records are from late summer or early fall. As with most other pierids, a dearth of food plants means that breeding at Trade Wind is unlikely.

CLOUDLESS SULPHER (*Phoebis sennae*): Rare visitor: 1, 9/11/98. This individual was associated with an exceptional autumn 1998 incursion by this southern immigrant.

AMERICAN COPPER (*Lycaena phlaeas*): Fairly common and presumed to breed here: maximum count of 14, 9/28/97. Records range from mid-May to mid-October.

CORAL HAIRSTREAK (*Satyrium titus*): One record: 1, 7/10/98. This species, while fairly common on the Vineyard generally, is not often encountered in Oak Bluffs.

JUNIPER HAIRSTREAK (*Calliphrys gryneus*): Regular and fairly common breeding butterfly at Trade Wind. Eggs and ovipositing females have been observed on a number of occasions. A small group of red cedars behind the hanger adjacent to the parking area is one easy place to observe this species, but it has also been observed on cedars elsewhere on the property. Records range from late April to early August, and a half-dozen or more individuals can usually be found at the peak of a flight period.

EASTERN PINE ELFIN (*Calliphrys niphon*): Regular in small numbers in spring. Maximum about three individuals; usually encountered nectaring on bearberry. Since pitch pine appears to be the favorite larval host for this species on the Vineyard, Eastern Pine Elfin may actually be a common but infrequently detected breeder here.

GRAY HAIRSTREAK (*Strymon melinus*): Uncommon, recorded annually but in small numbers. Most likely in early September. On the Vineyard, this species is often associated with bush clovers (*Lespedeza*).

EASTERN TAILED BLUE (*Everes comyntas*): Regular in small numbers, May through September. I’ve never found more than two individuals at this location. Like Gray Hairstreak, it favors *Lespedeza* as a larval host.

AZURE SPP. (*Celestina ladon*, etc.): Regular and sometimes fairly common in April and May. More than one species may be involved, with two distinct flights exhibited; the second flight, usually beginning during the second week of May, is probably a form that has been proposed as a full species, Cherry Gall Azure (unnamed *Celestina* species). "Summer" Azure, sometimes considered a full species *C. neglecta*, has never been noted here to my knowledge.

PEARL CRESCENT (*Phyciodes tharos*): Unaccountably scarce at this location: I have just a few records and have never seen more than two individuals here. The species uses asters as its larval host plant, but perhaps the asters found at Trade Wind are not among this butterfly's favorites.
MOURNING CLOAK (*Nymphalis antiopa*): Rare visitor: one record, 10/2/01. I have no early-season records of overwintering individuals, but spring Mourning Cloaks are sometimes found in pitch pine woodland elsewhere on the Vineyard. Associated with willows as a breeding species, Mourning Cloaks probably don’t breed at Trade Wind but late, summer or autumn migrants may well have been overlooked.

AMERICAN LADY (*Vanessa virginiensis*): Regular and sometimes fairly common: May to September. American Ladies can be encountered virtually anywhere on the Vineyard; as a breeding butterfly, this species is closely associated with "everlasting" composites such as *Anaphalis* and *Antennaria*, both of which gravid American Ladies have an uncanny ability to sniff out.

PAINTED LADY (*Vanessa carduz*): Irregular: the species was common here during the exceptional invasion of this species during September 2001, with as many as 16 individuals noted in the course of a single visit. In contrast, the species has gone unrecorded here for entire years.

COMMON BUCKEYE (*Junonia coenia*): Nearly annual but uncommon visitor in late summer, mainly September. Maximum: 2 on 9/10/98.

RED-SPOOTTED PURPLE (*Limenitis arthemis*): A few records of single individuals, from June to early September. This butterfly is generally found near deciduous woodland, and individuals noted at Trade Wind are probably transients.

LITTLE WOOD SATYR (*Megisto cymela*): Common to abundant late spring butterfly at Trade Wind, with as many as 30 individuals encountered in early June.

COMMON WOOD NYMPH (*Coenonympha tullia*): Common most years from mid-July to early September. Interestingly, this is often one of the last locations at which I encounter this species as its flight period winds down. Maximum 10 on 7/21/98.

MONARCH (*Danaus plexippus*): Infrequent visitor, usually late in the season. Although a couple of milkweed species are common at Trade Wind, I’ve never seen evidence of breeding by Monarchs at this location.

JUVENAL’S DUSKYWING (*Erynnis juvenalis*): Regular but not numerous at Trade Wind. This species is abundant on the Vineyard but associated with oak woodland. Maximum 7 on 5/20/98. All my records for this species at this location fall in the month of May.

WILD INDIGO DUSKYWING (*Erynnis baptisia*): Regular in small numbers, mid-May to early June and again in late July and early August. Maximum 5 on 8/7/98. As its name suggests, this species is usually associated with wild indigo.

LEONARD’S SKIPPER (*Hesperia leonardus*): Common to abundant from late August into the first few days of October. Counts in excess of 30 are routine here during the first half of September. Most individuals are detected nectaring on slender-leaved goldenrod. Trade Wind may the best location on the Vineyard, or even in Massachusetts, for finding this species.

COBWEB SKIPPER (*Hesperia metea*): Regular in small numbers, mid- to late May. Maximum 5, 5/14/98. It is possible that this species is under-reported at this location, which seems to
Offer pretty good habitat for it. Cobweb-skippers can be fairly difficult to detect if they are present at relatively low density.

INDIAN SKIPPER (*Hespana sasacus*): Uncommon but regular here, in late May or early June, and this species has been observed ovipositing on an unidentified grass at Trade Wind. This species is quite scarce on the Vineyard, and indeed throughout the Bay State's southeastern coastal plain. Maximum 7 on 6/4/98. Care must be taken to distinguish from the more common Long Dash, which also flies at this season.

PECK'S SKIPPER (*Polites peckius*): Perhaps surprisingly, I find only one record for this species at Tracie Wind: a single individual noted on 6/4/98. This butterfly is quite common at several nearby locations and tolerates a wide range of open, grassy habitats, so it is possible that it has been overlooked.


CROSSLINE SKIPPER (*Polites origenes*): Regular in small numbers during July: maximum 5 on 7/2/98. This species, which seems to prefer native grassland habitats, is somewhat more common on the Vineyard than in the rest of Massachusetts.

LONG DASH (*Polites mystic*): Irregular in small numbers; this species tends to prefer somewhat damper habitats than are available at Trade Wind. All of my records for this location are from early June 1998, but Long Dash may well be of more regular occurrence than this suggests.

NORTHERN BROKEN DASH (*Wallengria egeremef*): Irregular in small numbers: maximum 5 on 7/21/98.

HOBOMOK SKIPPER (*Poanes hobomok*): Uncommon and irregular. Like Long Dash, this species tends to frequent wetter habitats than are found here. Maximum 2 on 6/6/98.

DUNSKIPPER (*Euphyes vestris*): My only record for this species at Trade Wind is 6 on 7/10/98. It may well have been overlooked, since the habitat appears suitable and one of this butterfly's favorite nectar sources, blunt-leaved milkweed, is fairly common here.
Appendix D: Taxonomic List of Avian Species at Trade Wind Fields Preserve, Oak Bluffs, MA.

**Family Anatidae (swans, geese, and ducks)**
- Canada goose *Branta canadensis* granivore, water forager
- great black-backed gull *Larus marinus* carnivore, coastal scavenger
- ring-billed gull *Larus delawarensis* carnivore, coastal scavenger

**Family Laridae (gulls and terns)**
- herring gull *Larus argentatus* carnivore, coastal scavenger
- laughing gull *Larus atricilla* carnivore, coastal scavenger
- great black-backed gull *Larus marinus* carnivore, coastal scavenger
- ring-billed gull *Larus delawarensis* carnivore, coastal scavenger

**Family Accipitridae (hawks and eagles)**
- red-tailed hawk *Buteo jamaicensis* carnivore, ground pouncer
- osprey *Pandion haliaetus* carnivore, ground pouncer

**Family Falconidae (falcons)**
- American kestrel *Falco sparverius* carnivore, ground pouncer

**Family Phasianidae (grouse)**
- northern bobwhite *Colinus virginianus* omnivore, ground gleaner

**Family Columbidae (pigeons and doves)**
- mourning dove *Zenaida macroura* granivore, ground gleaner

**Family Picidae (woodpeckers)**
- red-bellied woodpecker *Melanerpes carolinus* insectivore, bark gleaner
- northern flicker *Colaptes auratus* s: insectivore, ground gleaner w: omnivore, ground gleaner
- downy woodpecker *Picoides pubescens* insectivore, ground gleaner
- hairy woodpecker *Picoides villosus* insectivore, ground gleaner

**Family Tyrannidae (tyrant flycatchers)**
- eastern kingbird *Tyrannus tyrannus* s: insectivore, air sallier
- great crested flycatcher *Myiarchus crinitus* s: insectivore, air sallier

**Family Hirundinidae (swallows)**
- tree swallow *Tachycineta bicolor* s: insectivore, air screener
- barn swallow *Hirundo rustica* s: insectivore, air screener

**Family Corvidae (jays and crows)**
- blue jay *Cyanocitta cristata* omnivore, ground gleaner
- American crow *Corvus brachyrhynchos* omnivore, ground gleaner

**Family Paridae (titmice and chickadees)**
- black-capped chickadee *Parus atricapillus* s: insectivore, low canopy gleaner
- w: omnivore, low canopy gleaner

**Family Sittidae (nuthatches)**
- white-breasted nuthatch *Sitta carolinensis* insectivore, bark gleaner
- red-breasted nuthatch *Sitta canadensis* insectivore, bark gleaner
Family Vireonidae (vireos)
solitary vireo  
*Vireo solitarius*  
insectivore, foliage gleaner

Family Troglodytidae (wrens)
Carolina wren  
*Thryothorus ludovicianus*  
insectivore, lower canopy gleaner

Family Muscicapidae (thrushes)
golden-crowned kinglet  
*Regulus satrapa*  
insectivore, lower canopy gleaner
eastern bluebird  
*Sialia sialis*  
omnivore, ground gleaner
American robin  
*Turdus migratorius*  
omnivore, ground gleaner

Family Mimidae (mimic thrushes)
gray catbird  
*Dumetella carolinensis*  
s: omnivore, ground gleaner
w: frugivore, lower canopy gleaner
northern mockingbird  
*Minus polyglotis*  
omnivore, foliage-ground gleaner

Family Sturnidae (starlings)
European starling  
*Sturnus vulgaris*  
omnivore, ground gleaner

Family Emberizidae (warblers and sparrows)
yellow-rumped warbler  
*Dendroica coronata*  
w: omnivore, lower canopy gleaner
pine warbler  
*Dendroica pinus*  
s: insectivore, bark gleaner
common yellowthroat  
*Geothlypis trichas*  
s: insectivore, lower canopy gleaner
northern cardinal  
*Cardinalis cardinalis*  
s: omnivore, ground gleaner
w: granivore, ground gleaner
dark-eyed junco  
*Junco hyemalis*  
s: omnivore, ground gleaner
eastern towhee  
*Pipilo erythrophthalmus*  
s: omnivore, ground gleaner
chipping sparrow  
*Spizella passerina*  
s: omnivore, ground gleaner
field sparrow  
*Spizella pusilla*  
s: omnivore, ground gleaner
house sparrow  
*Passer domesticus*  
s: omnivore, ground gleaner
white-throated sparrow  
*Zonotrichia albicollis*  
s: omnivore, ground-foliage gleaner
red-winged blackbird  
*Agelaius phoeniceus*  
s: omnivore, ground gleaner
brown-headed cowbird  
*Molothrus ater*  
s: omnivore, ground gleaner
w: granivore, ground gleaner
common grackle  
*Quiscalus quiscula*  
s: omnivore, ground gleaner

Family Certhiidae (creepers)
brown creeper  
*Certhia americana*  
insectivore, bark gleaner

Family Fringillidae (finches)
American goldfinch  
*Carduelis tristis*  
s: omnivore, ground gleaner
w: granivore, ground gleaner
house finch  
*Carpodacus mexicanus*  
s: omnivore, ground gleaner
w: granivore, ground gleaner

**m = foraging guild during spring or fall migration, s = foraging guild during summer (breeding season), w = foraging guild during winter (or nonbreeding seasons).*
Appendix E: Initial management plan for Trade Wind Fields Preserve.

Martha’s Vineyard Land Bank Commission

Trade Wind Fields Preserve
Management Plan

acreage 71.9 acres

conservation significance and reason for acquisition
(1) land to protect existing and future well fields, aquifers, and recharge areas
(2) agricultural lands
(3) forest lands
(4) scenic vistas
(5) wildlife preserves
(6) passive recreational use

special features
(1) Presence of sandplain grassland habitat, a rare and globally disappearing ecosystem
(2) Existence on-site of four plants (butterfly weed, bushy rockrose, ladies' tresses and bearberry) and one animal species (tiger beetle) cited by the Massachusetts Natural Heritage Program as "species of special concern"
(3) Site of a viable grass-strip airport, one of a handful of such airports remaining in the United States
(4) Views of the Sengekontacket and Farm Neck Ponds

origin of property name
The property operated for many years following World War II as local grass-strip airfield known as the "Trade Wind Airport."

limitations and restrictions
Regular mowing and other maintenance activities will take place in a manner which protects the "species of special concern" located on the tract.

acquirers
(1) Town of Oak Bluffs, Water Department.
(2) William H. Hart Realty, Inc.
(3) Barbara Dutton
(4) Howard and Julia Stagg
(5) Links of Martha's Vineyard, Inc.
(6) Valorie Colebrook and Carolyn Cullen
This property operated for years as a grass-strip airport; it is due to this unusual use that the tract remained as a sandplain grassland rather than evolve into a pine forest, as did its environs. The Land Bank will maintain this property as a conservation tract, with a portion of it continued to be used as a restricted, non-commercial grass-strip airport.

Landings and take-offs may only occur within a designated airdrip inside the former north-south runway. The property's former east-west runway will be abandoned as to active aviation use; airplanes will be permitted here only when taxiing between the hangars and the north-south airstrip. Only those pilots operating non-commercial airplanes and possessing a written permission-to-land slip issued in advance by the land bank will be permitted to use the airstrip. The Land Bank Commission shall enter into an agreement with a local pilot to serve as the property's "Airport Services Coordinator" and to issue these slips in accordance with this management plan.

The outlines of the north-south airstrip, as well as the taxiway on the former east-west runway, will be lined in lime to channel airplanes away from the remainder of the tract. Moving airplanes will not be permitted outside of these lined areas. Overnight parking of airplanes is prohibited, except in those cases involving inclement weather or mechanical problems and only then with the permission of the Airport Services Coordinator.

Helicopters are forbidden at all times on the property. Non-commercial hot-air balloons may land and take off on the north-south airstrip, provided that a valid permission-to-land slip has been issued in advance by the Airport Services Coordinator.

The existing hangars on-site shall be retained. A Caretaker and an Airport Services Coordinator shall be contracted to assist in the management of the property; in exchange for providing these services, each shall be permitted to use either the northerly or the southerly hangar for the storage of their respective airplanes, the particular hangar to be selected at the Land Bank Commission's discretion. Hangar space shall also be reserved for use by the Land Bank Commission as a workshop and for the storage of maintenance equipment.
A skateboarding ramp may be erected on this property by local students, provided (1) that it is safely constructed, (2) that legal agreements absolving the Land Bank Commission of all liability in the event of injury are in place during any term of use of the ramp and (3) that permission to install and use the ramp is granted on a perpetually experimental basis so that the ramp can be removed at any time if it is determined that it is not successful.

**Vehicular access and parking**

The parking clearing off of the Farm Neck Road shall be maintained, as necessary.

No motor vehicles shall be permitted on the preserve, with the exception of Land Bank Commission maintenance vehicles.

**Bicycle racks**

The bicycle rack installed in the parking area shall be maintained, as necessary.

**Trails**

Trails throughout the preserve shall be maintained, as necessary.

**Fencing**

Split-rail fencing installed along the County Road, along the trails, and around the parking lot shall be maintained, as necessary. Such fencing shall also be installed as necessary throughout the preserve to prohibit motor vehicle access to the tract.

The Land Bank Commission shall consult with any abutters who post "no trespassing" signs along their boundary with the preserve and shall offer to install split-rail fencing and boundary markers, as necessary, as an alternative to the signs.

**Vegetation**

Any derelict areas shall be scarified and re-vegetated with bluestem or like grasses. Vines and small bushes shall be planted as necessary, but no trees shall be planted in order to maintain the open vistas of the preserve from nearby public roads.

**Fields**

Special management techniques will be in effect in order to properly maintain the sandplain grassland habitat. The objective of such techniques is to halt the invasion of woody plants into the plain.

All pedestrian trails, as well as the north-south airstrip and the east-west taxiway, will be mowed several times during the season to maintain access. No regular mowing of the other sandplain areas will take place in order that the grasses there may
approved by vote of the Oak Bluffs Town Advisory Board: July 23, 1991

approved by vote of the Land Bank Commission: August 26, 1991

approved by the secretary of environmental affairs: October 16, 1991
Appendix F: Airport services coordinator job description.

Airport services coordinator

The airport services coordinator, under the supervision of the property foreman and in accordance with the Trade Wind Fields Preserve management plan, oversees the administration of the private restricted landing area at Trade Wind. The airport services coordinator serves as the land bank’s liaison between the pilots, who have permission to use the landing area, and the land bank. The airport services coordinator works year-round.

**Responsibilities**

1. **Property oversight and administration**

The airport services coordinator ensures that the private restricted landing area at Trade Wind Fields Preserve is operated safely. In order to accomplish this, the airport services coordinator:

   (a) processes all applications to the land bank for permission to land at Trade Wind Fields Preserve using the attached form as amended;

   (b) processes all requests for model airplane use on the taxiway.

   (c) may request past and future applicants to demonstrate their piloting skills:

   (d) may reject or rescind permission to land at Trade Wind Fields Preserve.

   (e) consults with land bank property foreman prior to allowing uses other than landing planes on the runway and taxiway.

The airport services coordinator maintains a registry of permission-to-land slips and supplies them regularly to the land bank.

The airport services coordinator maintains the southern hangar in a good, timely, and workmanlike manner. The airport services coordinator is responsible for ordinary repairs to the southern hangar. All other repairs must be reported to the land bank foreman for completion.

2. **Airstrip operations**

The airport services coordinator ensures that planes land and depart in a safe manner by instructing pilots as to the following guidelines from Chapter 1215 of the Experimental Aviation Association.

**Landing**

(a) Pilots listen to A.T.I.S. on frequency 126.25 prior to entering Martha’s Vineyard airspace.

(b) Pilots declare their intention to land at Trade Wind Fields Preserve to the Martha’s Vineyard tower on frequency 121.40.

(c) Pilots fly down the center of the active runway at 800 ft. to signal
people on the ground that their aircraft is about to land. While making the pass the pilot observes that the runway is clear for landing. The pilot makes additional passes if the runway is not clear before entering the normal traffic patterns.

(d) Pilots use landing lights if aircraft has them.

Departing

(a) Prior to departing the pilot is visually aware of walkers and dogs on the Preserve.
(b) Prior to departure the pilots contacts Martha’s Vineyard tower on frequency 121.40.
(c) Aircraft equipped with landing lights will turn them on.
(d) Pilots are prepared to abort any take-off and be prepared for emergency shut downs.
(e) Pilots taxiing their aircraft give people and dogs the right of way.

The airport services coordinator creates and distributes a pilot handbook with operation rules that is approved by the Martha's Vineyard Land Bank Commission.

3. Public relations and education

The airport services coordinator communicates with pilots to ensure that they use Trade Wind Fields in accordance with the adopted management plan. The airport services coordinator communicates to pilots the aviation use rules, and any changes thereto. The airport services coordinator works, as needed, in collaboration with the land bank property foreman and with town authorities to coordinate efforts. He or she recommends policies that ensure safety for all.

4. Remuneration

The airport services coordinator is permitted to store his airplane on the Premises in the southern hangar adjacent to County Road in exchange for the above services.
APPLICATION
FOR PERMISSION TO LAND
AT TRADE WIND FIELDS
PREserve
OAK BLUFFS, MASSACHUSETTS

Please supply the following information:

NAME

MAILING ADDRESS

DAYTIME AND EVENING TELEPHONE NUMBERS

once you have completed the above please send this application plus

(1) a photocopy of your pilot’s certificate,
(2) a photocopy of your current physical,
(3) a photocopy of your aircraft’s registration certificate,
(4) a photocopy of your last two pages of your logbook,
(5) dates of biennial check flights and
(6) a self-addressed stamped envelope

to the Martha’s Vineyard land bank commission at the address listed below.

Your application will receive a preliminary review at the land bank office. It will then be forwarded to the land bank’s airport services coordinator, who issues all permission-to-land slips. You will receive a telephone call from the land bank office when your application has been sent to the airport services coordinator so that you may telephone him for a final review. Thank you.