

TRADE WIND FIELDS PRESERVE OAK BLUFFS, MA

MANAGEMENT PLAN



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 – [REDACTED] – and two state-listed wildlife species – [REDACTED] 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 (MVLB), 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 Preserves 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).

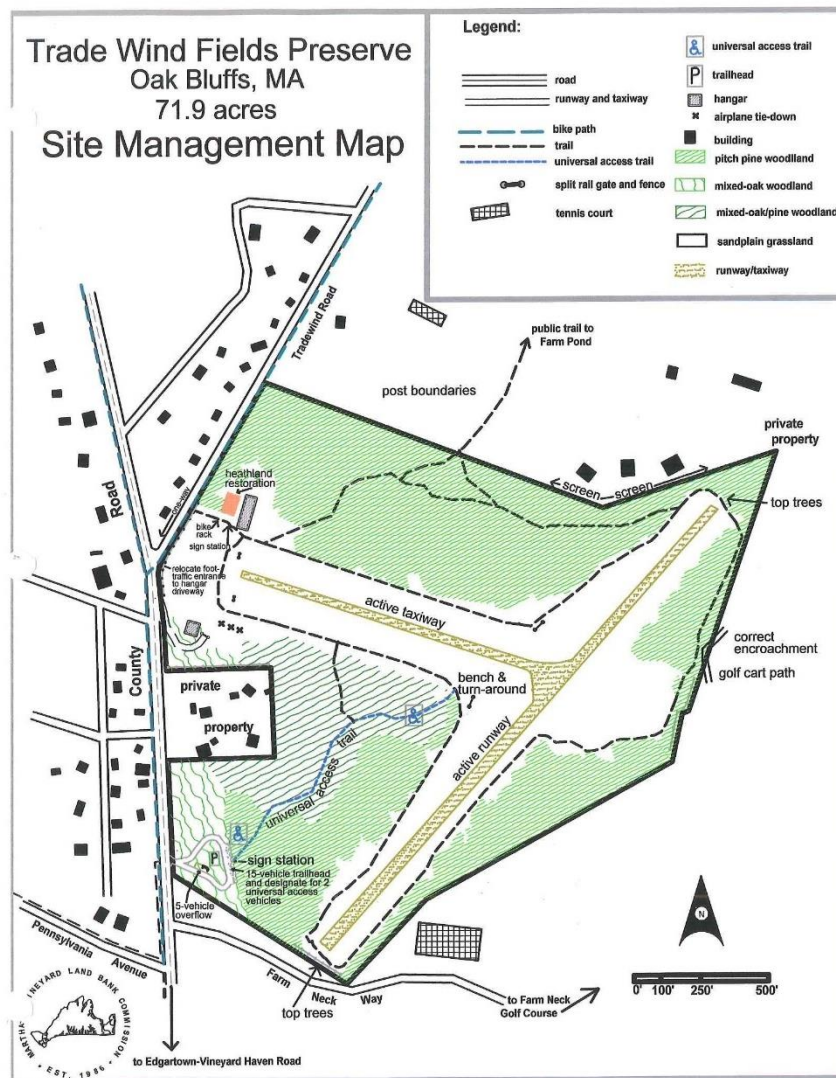
5. Topography and Hydrology

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.

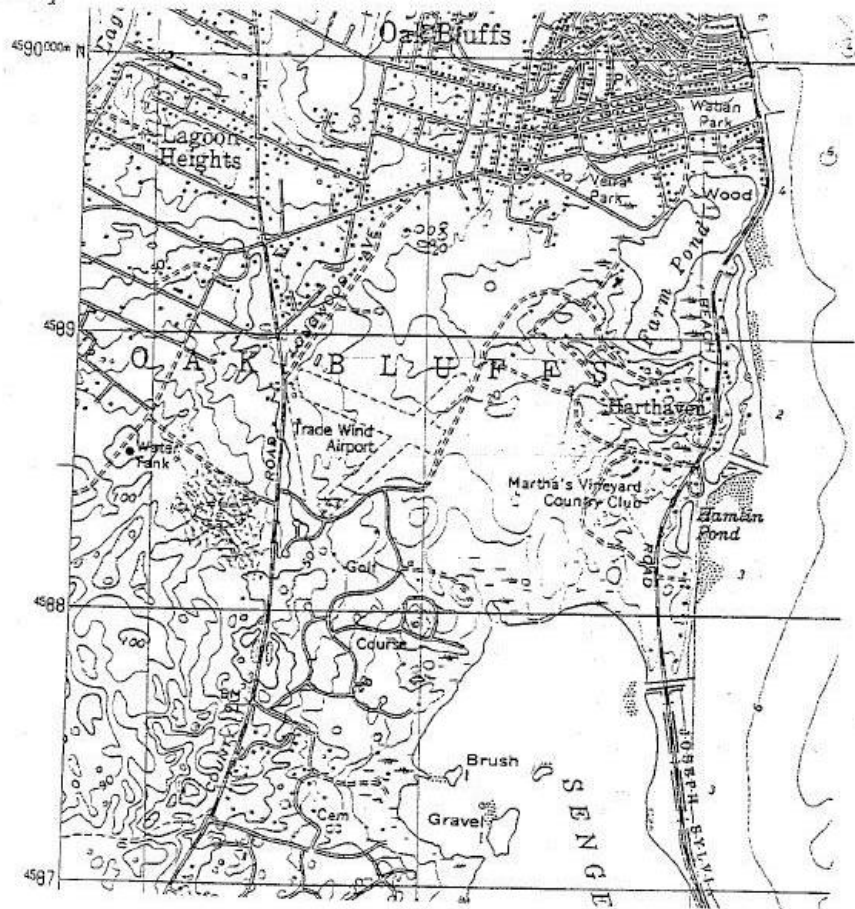


TRADE WIND FIELDS PRESERVE MANAGEMENT PLAN

Locus Map

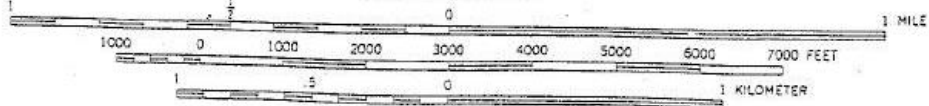
Trade Wind Fields Preserve, Oak Bluffs, Massachusetts

Portion of U.S.G.S. Oak Bluffs Quadrangle, 1972



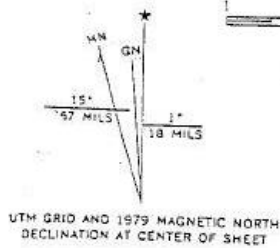
EDGARTOWN QUADRANGLE
MASSACHUSETTS—DUKES CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:25 000



CONTOUR INTERVAL 10 FEET

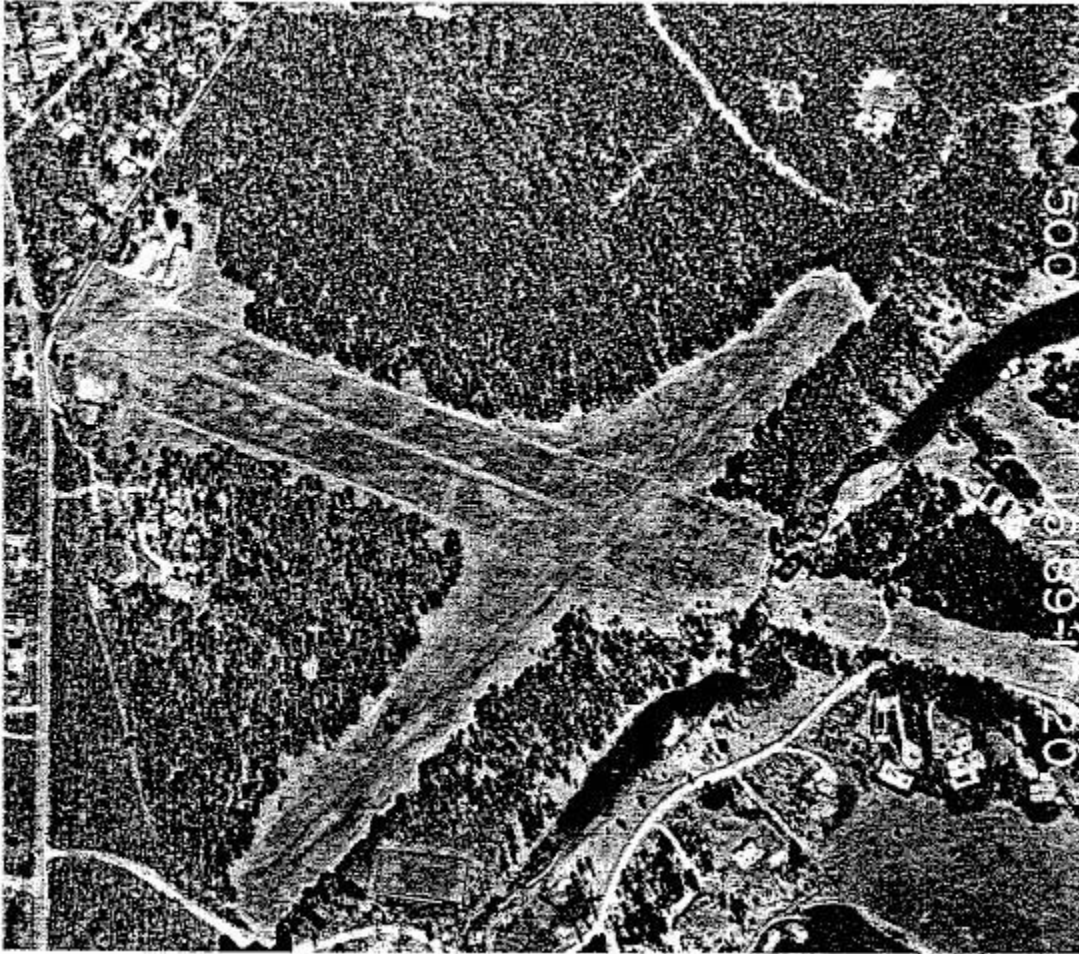
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1.9 FEET



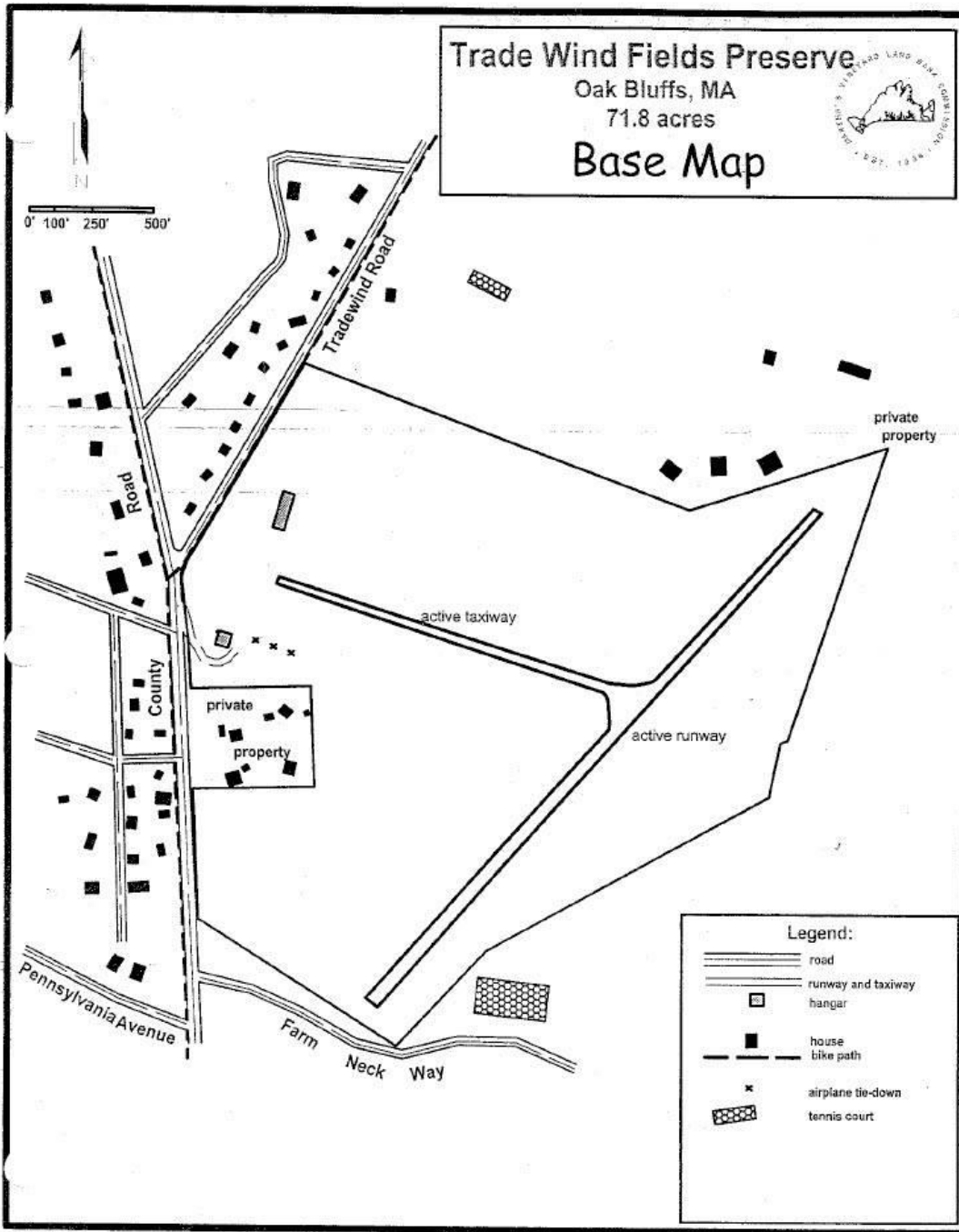
Aerial Photograph

Trade Wind Fields Preserve, Oak Bluffs, Massachusetts

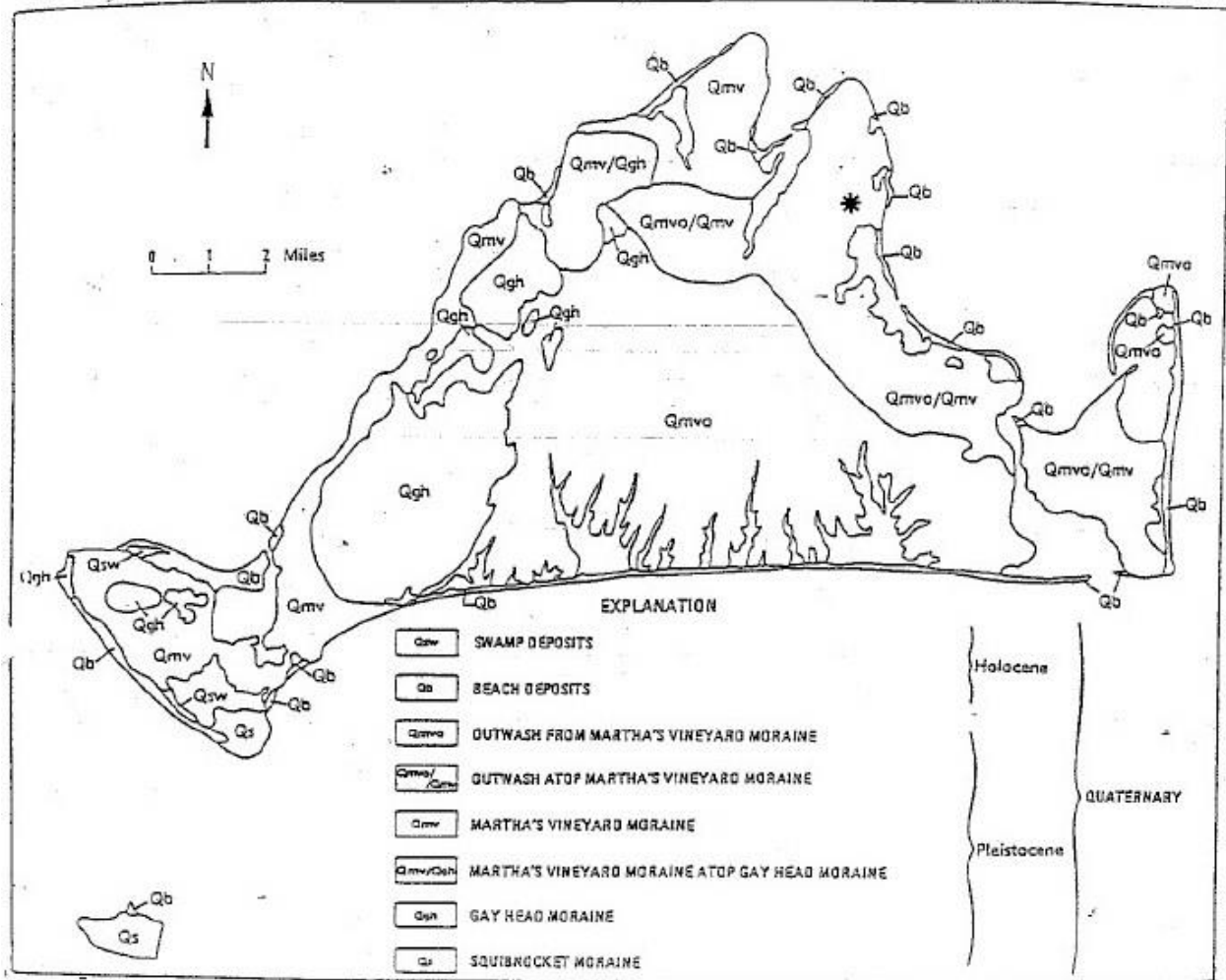
Aerial photograph taken April 16, 1996



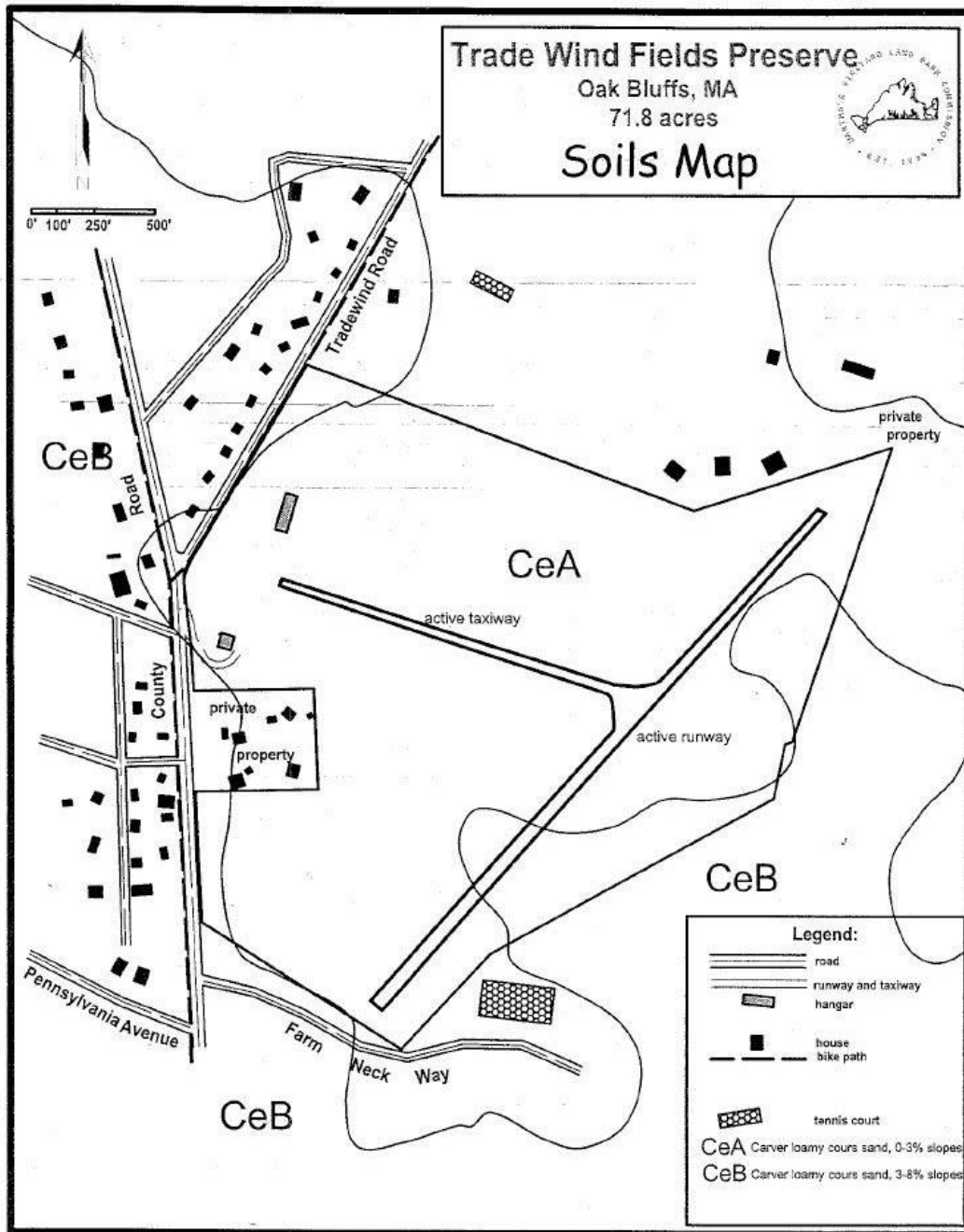
Base Map



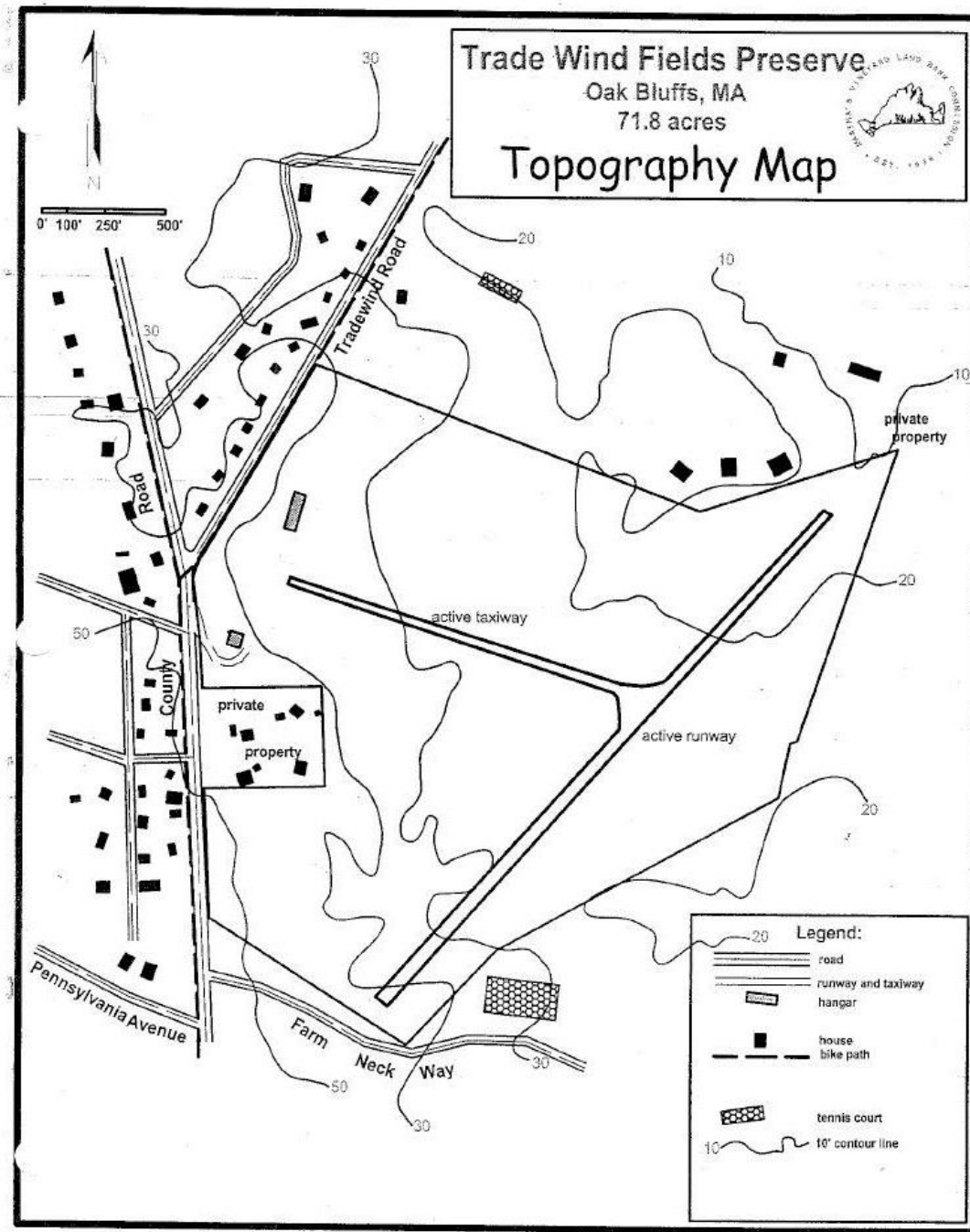
General Soils Map of Martha's Vineyard (Soil Conservation Service 1986)



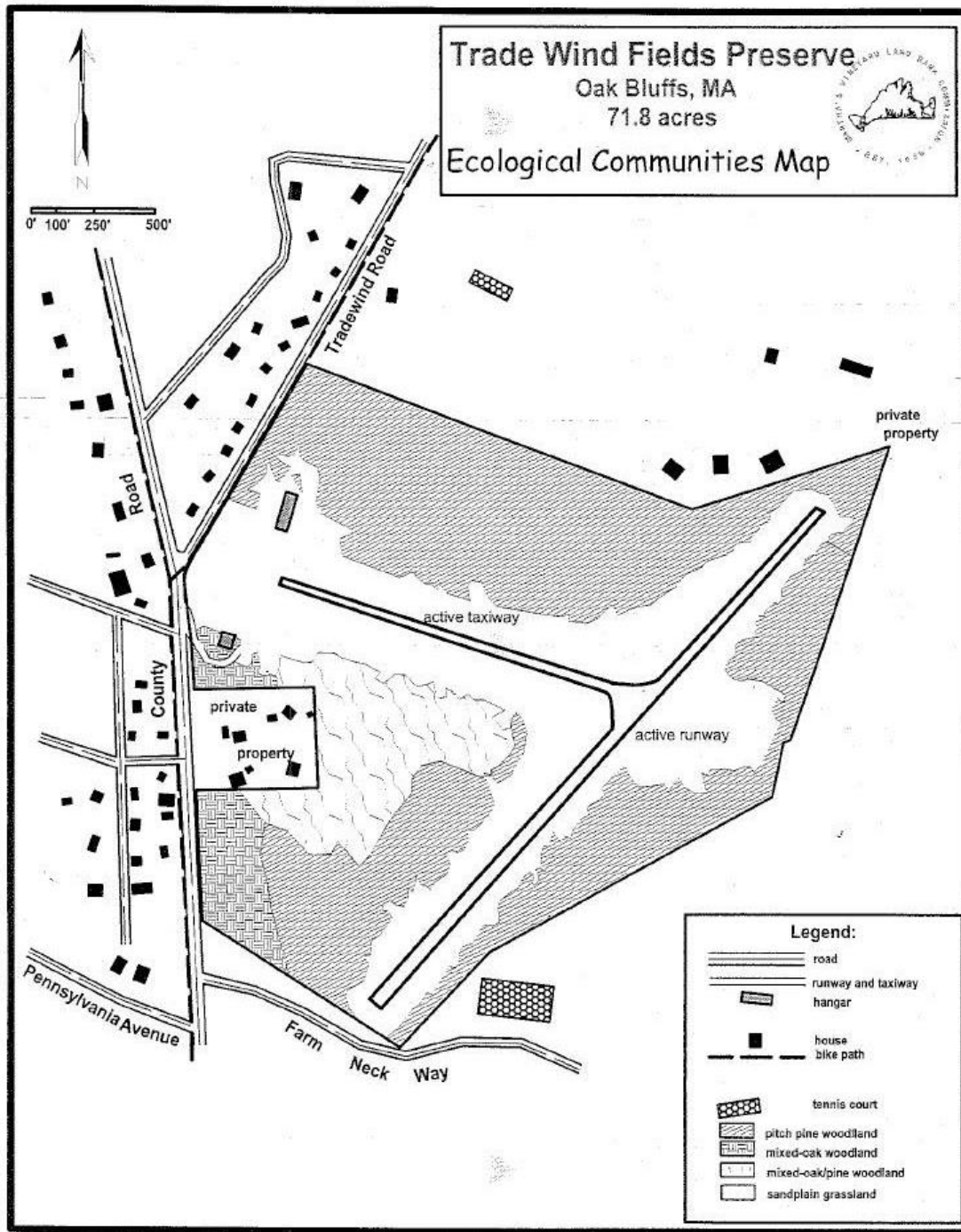
Soils Map



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. [REDACTED]

[REDACTED] are listed as “special concern” species. 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, bay berry, 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. Clumps 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, [REDACTED] 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, racemed milkwort, slender goldenrod, pinweed, field sorrel, butterfly weed, [REDACTED]

[REDACTED] 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, sheep fescue, and prickly dewberry. In one patch, towards the eastern end of the taxiway, redtop and switch grass 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 [REDACTED] 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.

	scientific name	common name	morphology	Community Type				survey*
				grassland	shrubland	woodland	woodland	
	non vascular plants							
1	<i>Cladonia rangiferina</i>	reindeer moss lichen	lichen	x				2
2	<i>Cladonia species</i>	lichens	lichen	x	x		x	1, 2, 4
3	<i>Polytrichum species</i>	haircap moss species	moss	x				2, 4
	vascular plants							
4	<i>Achillea millefolium</i>	yarrow	herb	x				1, 2
5	<i>Agrostis gigantea</i>	redtop	graminoid	x				2, 4
6	<i>Ambrosia artemisiifolia</i>	common ragweed	herb	x				2
7	<i>Andropogon virginicus</i>	broomsedge	graminoid	x				5
8	<i>Arctostaphylos uva-ursi</i>	bearberry	shrub	x			x	1
9	██████████	██████████	graminoid	x				2
10	<i>Aronia melanocarpa</i>	black chokeberry	shrub		x			4
11	<i>Asclepias amplexicaulis</i>	blunt-leaved milkweed	herb	x			x	2, 4
12	<i>Asclepias syriaca</i>	common milkweed	herb	x				1, 2
13	<i>Asclepias tuberosa</i>	butterfly weed	herb	x				1, 2, 4
14	<i>Aster dumosus</i>	bushy aster	herb	x				3
15	<i>Aster linariifolius</i>	stiff aster	herb	x				2, 4
16	<i>Aster paternus</i>	toothed white-topped aster	herb	x			x	2, 4
17	<i>Aster species</i>	asters	herb			x		1
18	<i>Baptisia tinctoria</i>	wild indigo	herb	x			x	1, 2, 4
19	<i>Carex pennsylvanica</i>	pennsylvania sedge	graminoid	x				2, 4
20	<i>Chimaphila maculata</i>	striped wintergreen	herb				x	4
21	<i>Chrysopsis falcata</i>	sickle-leaved golden aster	herb	x			x	1, 2, 4
22	<i>Comptonia peregrina</i>	sweet fern	shrub	x	x		x	1
23	<i>Conyza canadensis</i>	horseweed	herb	x				2
24	<i>Cyperus filiculmis</i>	sedge	graminoid	x				2
25	<i>Cypripedium acaule</i>	pink lady's slipper	herb				x	4
26	<i>Danthonia spicata</i>	poverty grass	graminoid	x				2, 4
27	<i>Deschampsia flexuosa</i>	hairgrass	graminoid	x			x	1, 4
28	<i>Dianthus armeria</i>	deptford pink	herb	x				2
29	<i>Epigaea repens</i>	trailing arbutus	vine	x			x	2, 4
30	<i>Eragrostis spectabilis</i>	purple love grass	graminoid	x				2, 4
31	<i>Eupatorium hyssopifolium</i>	hyssop-leaved boneset	herb	x				2, 4
32	<i>Euthamia graminifolia</i>	lance-leaved goldenrod	herb	x				2
33	<i>Euthamia tenuifolia</i>	slender-leaved goldenrod	herb	x				2, 4
34	<i>Festuca ovina</i>	sheep fescue	graminoid	x				2, 4
35	<i>Gaultheria procumbens</i>	wintergreen	shrub			x	x	1
36	<i>Gaylussacia baccata</i>	black huckleberry	shrub	x			x	1, 2, 4
37	<i>Gaylussacia frondosa</i>	dangleberry	shrub				x	4
38	<i>Gnaphalium obtusifolium</i>	sweet everlasting	herb	x				4
39	<i>Helianthemum canadense</i>	frostweed	herb	x			x	2, 4
40	<i>Helianthemum dumosum</i>	bushy rockrose	herb	x				1, 4
41	<i>Hieracium caespitosum</i>	field hawkweed	herb	x				2, 4
42	<i>Hieracium species</i>	hawkweed species	herb	x		x		1

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	scientific name	common name	morphology	Community Type				survey*
				grassland	shrubland	woodland	pitch pine woodland	
43	<i>Hudsonia ericoides</i>	golden heather	shrub	x				1, 4
44	<i>Hudsonia tomentosa</i>	false heather	shrub	x				2, 4
45	<i>Hypericum gentianoides</i>	orange grass	herb	x				2, 4
46	<i>Hypericum perforatum</i>	common St. Johnswort	herb	x				2
47	<i>Hypochaeris radicata</i>	cat's ear	herb	x				2, 4
48	<i>Juncus species</i>	rush species	graminoid	x				2
49	<i>Juncus tenuis</i>	path rush	graminoid	x				2, 4
50	<i>Juniperus virginiana</i>	red cedar	tree	x				1, 2, 4
51	<i>Lecbea intermedia</i>	intermediate pinweed	herb	x				2
52	<i>Lecbea cf. maritima</i>	beach pinweed	herb	x				2, 4
53			herb	x				5
54	<i>Linaria canadensis</i>	blue toadflax	herb	x				2
55	<i>Linaria vulgaris</i>	butter-and-eggs	herb	x				4
56	<i>Monotropa uniflora</i>	Indian pipes	herb				x	3
57	<i>Myrica pensylvanica</i>	bayberry	shrub		x		x	4
58	<i>Panicum clandestinum</i>	deer-tongue grass	graminoid	x				4
59	<i>Panicum dichotomum</i>	forked panic-grass	graminoid	x			x	1
60	<i>Panicum cf. lanuginosum</i>	panic-grass	graminoid	x				2, 4
61	<i>Panicum species</i>	a panic-grass	graminoid	x				2
62	<i>Panicum virgatum</i>	switchgrass	graminoid	x			x	4
63	<i>Paspalum setaceum</i>	a beadgrass	graminoid	x			x	1, 4
64	<i>Paspalum species</i>	a beadgrass	graminoid	x				2
65	<i>Pinus rigida</i>	pitch pine	tree	x	x	x	x	2, 4
66	<i>Plantago lanceolata</i>	english plantain	herb	x				1, 2, 4
67	<i>Polygala polygama</i>	racemed milkwort	herb	x				2, 4
68	<i>Polygonella articulata</i>	sand jointweed	herb	x				3
69	<i>Potentilla canadensis</i>	dwarf cinquefoil	herb	x				2, 4
70	<i>Potentilla recta</i>	rough-fruited cinquefoil	herb	x				4
71	<i>Potentilla simplex</i>	common cinquefoil	herb	x				2
72	<i>Prunus serotina</i>	black cherry	tree	x		x	x	1, 4
73	<i>Pteridium aquilinum</i>	bracken fern	fern	x		x	x	1, 2
74	<i>Quercus alba</i>	white oak	tree			x	x	1
75	<i>Quercus ilicifolia</i>	scrub oak	tree		x		x	1
76	<i>Quercus stellata</i>	post oak	tree				x	1
77	<i>Quercus velutina</i>	black oak	tree	x		x	x	1, 2
78	<i>Rhus copallinum</i>	shining sumac	shrub	x	x			4
79	<i>Rosa carolina</i>	pasture rose	shrub	x	x			1, 4
80	<i>Rosa species</i>	rose species	shrub	x				2
81	<i>Rubus allegheniensis</i>	common blackberry	vine		x			4
82	<i>Rubus flagellaris</i>	prickly dewberry	vine	x				2, 4
83	<i>Rumex acetosella</i>	field sorrel	herb	x				2, 4
84	<i>Sassafras albidum</i>	sassafras	tree			x		1
85	<i>Schizachyrium scoparium</i>	little bluestem	graminoid	x			x	1, 2, 4
86			herb	x				1, 4
87	<i>Solidago nemoralis</i>	gray goldenrod	herb	x				2, 4

TRADE WIND FIELDS PRESERVE MANAGEMENT PLAN

	scientific name	common name	morphology	Community Type				survey*
				grassland	shrubland	woodland	pitch pine woodland	
88	<i>Solidago odora</i>	sweet goldenrod	herb	x			x	3
89	<i>Solidago cf. puberula</i>	downy goldenrod	herb	x				4
90	<i>Solidago rugosa</i>	rough-stemmed goldenrod	herb			x		1
91	<i>Spiranthes tuberosa</i>	little ladies' tresses	herb	x				2, 4
92	██████████	██████████	herb	x				1
93	<i>Tephrosia virginiana</i>	goat's rue	herb	x				2, 4
94	<i>Toxicodendron radicans</i>	poison ivy	vine		x		x	4
95	<i>Trifolium arvense</i>	rabbit-foot clover	herb	x				4
96	<i>Vaccinium angustifolium</i>	lowbush blueberry	shrub	x	x		x	1, 4
97	<i>Vaccinium corymbosum</i>	highbush blueberry	shrub		x			4
98	<i>Vaccinium pallidum</i>	lowbush blueberry	shrub	x				2, 4
99	<i>Vicia species</i>	vetch species	herb		x			4
100	<i>Yucca filamentosa</i>	yucca	herb		x			4

* 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.

Amphibian species	Scientific name	Woodland	Grassland
eastern spadefoot	<i>Scaphiopus b. holbrookii</i>		NB
red-spotted newt	<i>Notophthalmus v. viridescens</i>	NB ^a	NB
redback salamander	<i>Plethodon cinereus</i>	BR,NB,F	
northern spring peeper	<i>Pseudacris c. crucifer</i>	NB	NB
eastern American toad	<i>Bufo americanus</i>	NB	NB
Fowler's toad	<i>Bufo woodhousii fowleri</i>	NB	NB
pickerel frog	<i>Rana palustris</i>		NB
Reptile Species	Scientific name	Woodland	Grassland
eastern box turtle	<i>Terrapene c. carolina</i>	B, NB	B, NB
eastern garter snake	<i>Thamnophis s. sirtalis</i>	B, NB	B, NB
northern ringneck snake	<i>Diadophis punctatus edwardsii</i>	B, NB	B, NB
eastern milk snake	<i>Lampropeltis t. triangulum</i>	B, NB	B, NB
northern black racer	<i>Coluber c. constrictor</i>	B, NB	B, NB
smooth green snake	<i>Ophedrys vernalis</i>		B, NB

^a BR = breeding, NB, non-breeding.

Source: Lazell 1976, DeGraaf and Rudis 1986.

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.

Season	Woodland	Grassland	Total ^a
Summer	22	29	33
Fall	17	18	24
Winter	10	19	21
Total ^b	32	43	47
Seasonal species ^c	53%	67%	57%

^aTotal number of species per season.

^bTotal number of species per habitat type.

^cPercent 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.

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

* “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).

Source: Whiting and Pesch 1993.

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.

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

* “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 than 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.

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

* “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.

e. 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 Buresch (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 pipistrellus (*Pipistrellus subflavus*), big brown bat (*Eptesicus fuscus*) and silver-haired bat (*Lasionycterus 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 racoon (*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: [REDACTED]

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).

TRADE WIND FIELDS PRESERVE MANAGEMENT PLAN

Endangered species map 1

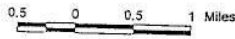
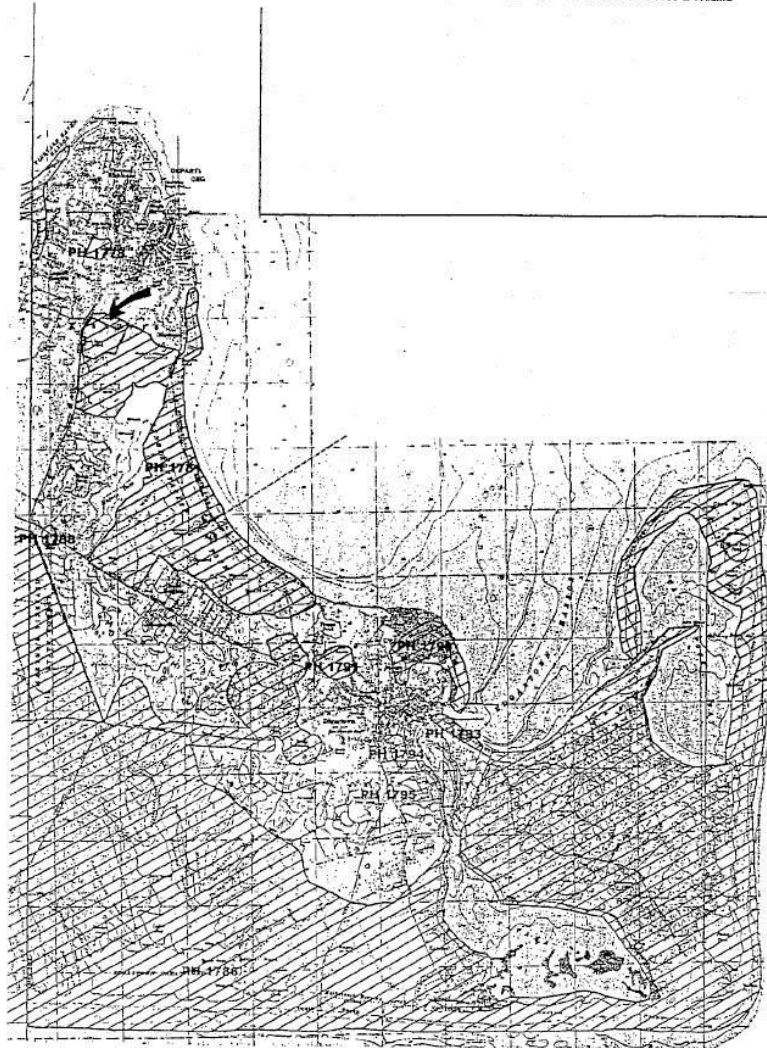


PRIORITY HABITATS OF RARE SPECIES

For species protected under MA Endangered Species Act regulations (321 CMR 10)
Note: NOT equivalent to Significant Habitat

Effective October 1, 1999 through December 31, 2001

Produced by the Natural Heritage & Endangered Species Program, MA Division of Fisheries & Wildlife



See County Index Maps to locate adjacent quadrangles
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EDGARTOWN QUAD

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. Jigarjian, 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.

Map	Lot	Name	Address
21	108	Dorothy and Katharine Granfield	P.O. Box 843, Tisbury, MA 02568
21	118	James P. O’Brien	P.O. Box 4638, Tisbury, MA 02568
21	119	Agnes B. Kiley	4 Elm Drive, Canton, MA 02021
21	120	Kerry Scott	P.O. Box 1855, Oak Bluffs, MA 02557
21	100	James and Margaret Wray	P.O. Box 1839, Oak Bluffs, MA 02557
21	100.4	“	
21	100.1	“	
21	94	Deborah and Ronald Whitney	RRI Box 432, Edgartown MA 02539
21	99	John E. Cisek	P.O. Box 648, Oak Bluffs, MA 02557
21	98	John Leite	P.O. Box 995, Oak Bluffs, MA 02557
21	96	Lee R. Gillian	52R Wyman Street, Newton, MA 02165

TRADE WIND FIELDS PRESERVE MANAGEMENT PLAN

Map	Lot	Name	Address
21	97.1	The Neal Family	P.O. Box 2598, Edgartown, MA 02539
21	97.2	Paul and Tina Belanger	P.O. Box 1870, Tisbury, MA 02568
21	97.3	Elio M. Santos and Marluca dos Santos	P.O. Box 2355, Edgartown, MA 02539
21	95	Jos and Patricia Pelczarski	10 Lake Avenue, Georgetown, MA 01833
21	93.1	Robert Jacobs	P.O. Box 1939, Oak Bluffs, MA 02557
21	93.2	Deborah J. Magiera	11 Apple Valley Parkway # 9, Smithfield, RI 02828
21	92	Derek Cruz	P.O. Box 2828, Oak Bluffs, MA 02557
21	91	Claude R. Deharo	P.O. Box 2005, Oak Bluffs 02557
21	89	Albert E Sylvia	P.O. Box 7, North Reading, MA 01864
29	153	"	
29	153.1	"	
21	90	Oak Bluffs Resident Homesite Committee	P.O. Box 1327, Oak Bluffs, MA 02557
29	154.2	Ian MacLachlan	3031 Tischway #400, San Jose, CA 95128
29	154	Caroll and Ivery H. Callaway	2113 Hunter Street, Cinneminfor, NY 08077
29	154.1	Eliz Glynn	P.O. Box 2683, Edgartown, MA 02539
20	39	David McD. Dulron	P.O. Box 1833, Oak Bluffs, MA 02557
20	38	Kristin W. Zammit, Callaway L. Zuccarello, Hoyt W. Ludington	240 Coconut Palm Road, Vero Beach, FL 32963
20	36	Marjorie Yoars	P.O. Box 973, Oak Bluffs, MA 02557
20	37	Grace V. Conlin	P.O. Box 1174, Oak Bluffs, MA 02557
20	35	Hart Realty Company	52 Chamberlain Highway, Kensington, CT 06037
20	151	The Links at MV, Inc.	P.O. Box 1656, Oak Bluffs, MA 02557
21	40	Robert and Scott Bacon, Trustees Bacon Realty Trust	32 Atherton Lane, Amherst, NH 03031
20	41	Martha Pease Bronson	#716-74 D7, Merrill Lynch, Jacksonville, FL 32203-0546
20	150	Ronald Moore	P.O. Box 582, Oak Bluffs, MA 02557
20	150	Hart Realty Company, c/o Barbara Dulton	P.O. Box 1168, Oak Bluffs, MA 02557
16	147	Town of Oak Bluffs	P.O. Box 1327, Oak Bluffs, MA 02557
21	121.3	Michael Jampel	P.O. Box 180, Tisbury, 02568
21	121.2	Kenneth Bailey	P.O. Box 1668, Tisbury, MA 02568
21	121.1	Calvin J. and Madeline V. Speight	2703 Branch Pike, Cinnaminson, NJ 08077
21	121.4	Gilford D. and Jean D. Clemons	RRI Box 420, Edgartown, MA 02539
21	109	Paula Adams	P.O. Box 403, Oak Bluffs, MA 02557
21	117	Robert I. and Estelle R. Reagan	P.O. Box 428, Oak Bluffs, MA 02557
16	138	"	
16	139	Ann and Frank H. Case	6009 Pike Branck Drive, Alexandria, VA 22310
21	112	James T. Ciciora	P.O. Box 1202, Tisbury, MA 02568
21	113	Sylvia Metell	P.O. Box 3038, Oak Bluffs, MA 02557
21	114	Marie T. Doubleday	P.O. Box 2671, Oak Bluffs, MA 02557
21	111	Jean A. Neble	347 Andover Street, Georgetown, MA 01833
21	110	Marney and Rishard Toole	RRI Box 256 Farm Neck Road, Oak Bluffs, MA 02557

4. Existing Use and Infrastructure

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

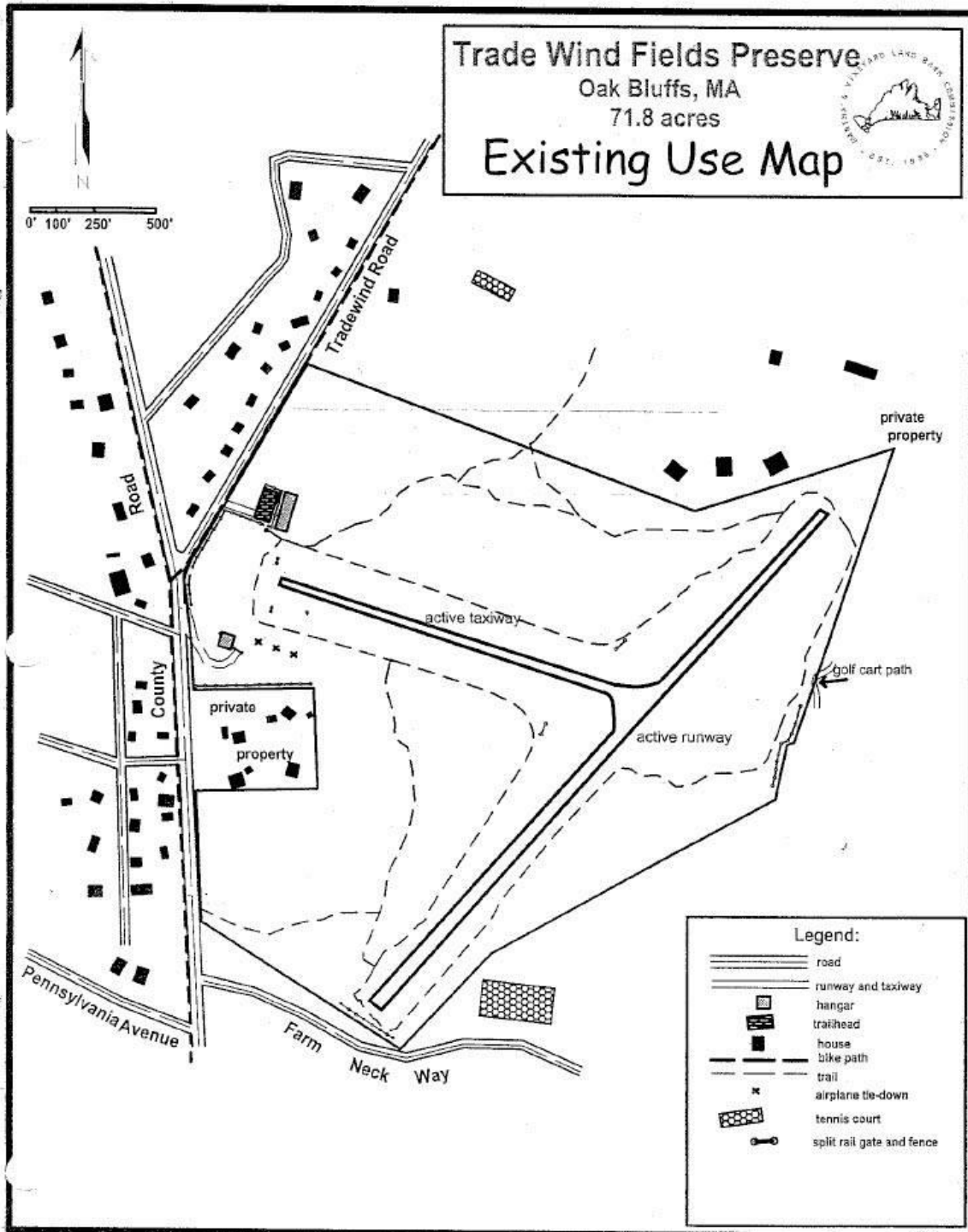
Airport – A private restricted landing area complete with runway and taxiway is currently in use. Two airplane hangars are on the Preserve. One was used to house the airport services coordinator's airplane and the other was and still is being used as a storage facility for land bank maintenance equipment 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

<u>Primary Element or Space</u>	<u>Distance from trailhead (feet)</u>	<u>Conflict for trailhead linking</u>	<u>Overcome conflict</u>
1. trailhead	0	none	yes
2. sign station	10	none	yes
3. pitch pine woodland	0	surface	yes
4. grassland/meadow	1145	surface	yes
7. bicycle path	300	surface	yes

TRADE WIND FIELDS PRESERVE MANAGEMENT PLAN

Table 13. Universal Access Plan Compliance Checklist.

<u>Objective</u>	<u>Expected Degree of Compliance</u>	<u>Reason for non-compliance</u>
1. ROS Category	100%	None
2. Solicit opinion	100%	None
3. Inform public	100%	None
4. Parking	100%	None.
5. Toilets	0%	Small size. Toilets nearby in town center.
6. More-developed trails	0%	State-listed Purple tiger beetle habitat.
7. Less-developed trails	100%	None.
8. Facilities	0%	Small size. Facilities nearby in town center.
9. Chemicals	100%	None
10. Site information	100%	None

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.

- D. Maintain grassland as a native sandplain species-dominated grassland.
- E. Allow staff to relocate small red cedars for future transplanting.

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.

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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.
- D. 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.
- E. Allow land bank staff the discretion to close or relocate trails.
- 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.

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

Strategies:

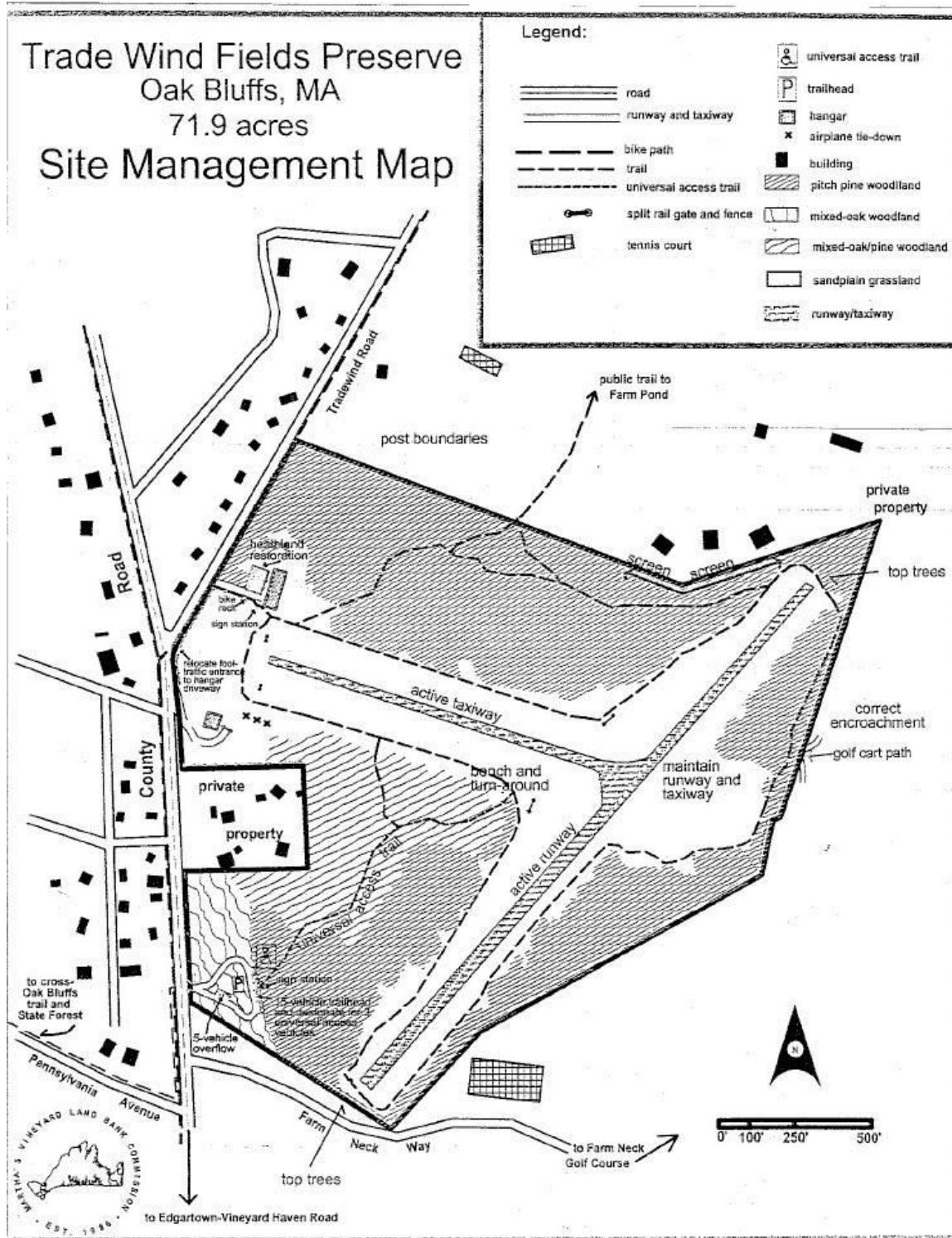
- A. Inspect property at least monthly.
- B. Promptly respond to problems.
- C. Monitor property as needed in accordance with land bank patrol policy.

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

- Baystate Environmental Consulting. 1988. Ecological Constraints Analysis of the Proposed Tradewinds Development Site, Oak Bluffs, Massachusetts.
- Begon M., J.L. Harper and C. R. Townsend. 1990. Ecology: Individuals, Populations and Communities. Blackwell Scientific Publications. Boston, MA. 945 pp.
- Buresch, K. 1999. Season Pattern of Abundance and Habitat use by Bats on Martha's Vineyard, Massachusetts. Master of Science Thesis, University of New Hampshire. 69 pp.
- Culbert, R.A. 1993. 1992 Vegetation Monitoring of Meadows: Ripley's Field preserve, Tisbury Meadow Preserve, and Trade Wind Fields Preserve. Martha's Vineyard Land Bank Commission Report. 15 pp.
- DeGraaf, R. M. and D. Rudis. 1986. New England Wildlife: Habitat, Natural History, and Distribution. Gen. Tech. Rep. NE-108. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 491 pp.
- Dunwiddie, P.W. and C. Caljouw. 1990. Prescribed Burning and Mowing of Coastal Heathlands and Grasslands in Massachusetts. New York State Museum Bulletin 471. 271-274 pp.
- Dunwiddie, P.W. 1986. Holocene Vegetation history of Nantucket Island, Massachusetts. IV international Congress of Ecology Abstracts. 138 p.
- Dunwiddie, P.W. 1986. Terrestrial vegetation Field Manual, second edition. Massachusetts Audubon Society, Lincoln MA.
- Ehrlich, P. R., D. S. Dobkin and D. Wheye. 1988. The Birder's Handbook. Simon and Schuster Inc. New York, NY. 785 pp.
- Gleason, H. A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. 2nd Edition. The New York Botanical Garden, Bronx, New York, NY. 901 pp.
- Godfrey, P.J. and P. Alpert. 1985. Racing to Save the Coastal Heathlands. Nature Conservation News. vol 35: 10-13 pp.
- Jorgensen, N. 1978. A Sierra Club Naturalist's Guide. Sierra Club Books, San Francisco. 417 pp.
- Lazell J. and M. Michener. 1976. This Broken Archipelago: Cape Cod and the Islands, Amphibians and Reptiles. The New York Times Book Co. New York. 260 pp.
- Leonard, J.G. and R.T. Bell. Northeastern tiger beetles: A Field Guide to Tiger Beetles of New England and Eastern Canada. CRC Press, London. 176 pp.
- Pelikan, M. 2002. Butterflies at Trade Wind Fields Preserve. Local report. 5pp.
- MA-NHESP. 1985. Massachusetts Rare and Endangered Plants: [REDACTED]
[REDACTED]. Fact sheet. 2 pp.

- MA-NHESP. 1990. Massachusetts Rare and Endangered Plants: [REDACTED]
Fact Sheet. 2 pp.
- MA-NHESP. 2015a. [REDACTED] Fact sheet. 2 pp
- MA-NHESP. 2015b. [REDACTED] Fact sheet. 2 pp.
- MA-NHESP. 2015c. Natural Heritage and Endangered Species Program: [REDACTED]
[REDACTED] Fact Sheet. 3pp.
- MA-NHESP. 2015d. Natural Heritage and Endangered Species Program: [REDACTED]
[REDACTED] Fact Sheet. 2pp.
- Michie, L. 1999. Where the Wheels Touch Grass. Martha's Vineyard Magazine. 60-62 pp.
- Soil Conservation Service. 1986. Soil Survey of Dukes County, Massachusetts. United States
Department of Agriculture. 144 pp.
- Sutton, A. and M. Sutton. 1923. Eastern Woodland. Alfred A. Knopf, New York, New York. 639
pp.
- Swain, P.C. and J. B. Kearcley. 2000. Classification of the Natural Communities of Massachusetts. NHESP,
Westborough, MA. T-29-T-95.
- Swanson, D.L. and C. Knapp. 1999. The Flora of Martha's Vineyard. Martha's Vineyard Sandplain
Restoration Project. 129 pp.
- Tonti, A. 2002. Historic Airfield Celebrates 75 Years. Vineyard Gazette, September 6, 2002.
- Whiting, S. B. and B. B. Pesch. 1993. Vineyard Birds. Concord Press. Concord, MA. 117 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

Cladoniaceae

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 paternus toothed white-topped aster

Chrysopsis falcata sickle-leaved golden-aster

Conyza canadensis horseweed

Eupatorium hyssopifolium hyssop-leaved boneset

Euthamia graminifolia grass-leaved goldenrod

Euthamia tenuifolia slender-leaved goldenrod

Gnaphalium obtusifolium sweet everlasting

Hieracium caespitosum field hawkweed

Hypochoeris radicata cat's ear

Solidago odora sweet goldenrod

Solidago puberula downy goldenrod

Solidago rugosa rough-stemmed goldenrod

Solidago nemoralis gray goldenrod

[REDACTED]

Spiranthes tuberosa little ladies' tresses

TRADE WIND FIELDS PRESERVE MANAGEMENT PLAN

Asclepiadaceae (Milkweed Family)

<i>Asclepias syriaca</i>	common milkweed
<i>Asclepias amplexicaulis</i>	blunt-leaved milkweed
<i>Asclepias tuberosa</i>	butterfly-weed

Agavaceae (Yucca Family)

<i>Yucca filamentosa</i>	yucca
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Caryophyllaceae (Chickweed Family)

<i>Dianthus armeria</i>	deptford pink
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Cistaceae (Rock-rose Family)

<i>Helianthemum canadense</i>	frostweed
<i>Helianthemum dumosum</i>	bushy rockrose
<i>Hudsonia ericoides</i>	golden heather
<i>Hudsonia tomentosa</i>	false heather
<i>Lecbea cf. maritima</i>	beach pinweed
<i>Lecbea intermedia</i>	intermediate pinweed

Clusiaceae (Mangosteen Family)

<i>Hypericum gentianoides</i>	pinweed
<i>Hypericum perforatum</i>	common St. Johnswort

Cyperaceae (Sedge Family)

<i>Carex pennsylvanica</i>	pennsylvania sedge
<i>Cyperus filiculmis</i>	button flatsedge

Ericaceae (Heath Family)

<i>Arctostaphylos uva-ursi</i>	bearberry
<i>Epigaea repens</i>	trailing arbutis
<i>Gaultheria procumbens</i>	wintergreen
<i>Gaylussacia baccata</i>	black huckleberry
<i>Gaylussacia frondosa</i>	dangleberry
<i>Vaccinium angustifolium</i>	common lowbush blueberry
<i>Vaccinium corymbosum</i>	highbush blueberry
<i>Vaccinium pallidum</i>	lowbush blueberry

Fabaceae (Bean Family)

<i>Baptisia tinctoria</i>	wild indigo
<i>Trifolium arvense</i>	rabbit-foot clover
<i>Tephrosia virginiana</i>	goat's rue
<i>Vicia species</i>	vetch

Fagaceae (Beech Family)

<i>Quercus alba</i>	white oak
<i>Quercus ilicifolia</i>	scrub oak
<i>Quercus velutina</i>	black oak
<i>Quercus stellata</i>	post oak

Iridaceae (Iris Family)

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TRADE WIND FIELDS PRESERVE MANAGEMENT PLAN

Juncaceae (Rush Family)	
<i>Juncus tenuis</i>	path rush
Lauraceae (Laurel Family)	
<i>Sassafras albidum</i>	sassafras
Monotropaceae (Indian Pipe Family)	
<i>Monotropa uniflora</i>	indian pipe
Myricaceae (Bayberry Family)	
<i>Comptonia peregrina</i>	sweetfern
<i>Myrica pennsylvanica</i>	bayberry
Orchidaceae (Orchid Family)	
<i>Cypripedium acaule</i>	pink lady's slipper
Plantaginaceae (Plantain Family)	
<i>Plantago lanceolata</i>	english plantain
Poaceae (Grass family)	
<i>Agrostis gigantea</i>	redtop
<i>Andropogon virginicus</i>	broomsedge
<i>Danthonia spicata</i>	poverty grass
<i>Deschampsia flexuosa</i>	hairgrass
<i>Eragrostis spectabilis</i>	purple love grass
<i>Festuca ovina</i>	sheep fescue
<i>Panicum virgatum</i>	switchgrass
<i>Panicum clandestinum</i>	deer-tongue grass
<i>Panicum dichotomum</i>	forked-panic-grass
<i>Panicum cf. lanuginosum</i>	panic-grass
<i>Paspalum setaceum</i>	beadgrass
<i>Schizachyrium scoparium</i>	little bluestem
Polygonaceae (Smartweed Family)	
<i>Rumex acetosella</i>	red sorrel
<i>Polygala polygama</i>	racemed milkwort
<i>Polygonella articulata</i>	sand jointweed
Pyrolaceae (Shinleaf Family)	
<i>Chimaphila maculata</i>	striped wintergreen
Rosaceae (Rose Family)	
<i>Aronia melanocarpa</i>	black chokeberry
<i>Prunus serotina</i>	black cherry
<i>Potentilla canadensis</i>	dwarf cinquefoil
<i>Potentilla simplex</i>	common cinquefoil
<i>Rosa carolina</i>	pasture rose
<i>Rubus allegheniensis</i>	common blackberry
<i>Rubus flagellaris</i>	prickly dewberry
Scrophulariaceae (Figwort Family)	
<i>Linaria vulgaris</i>	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 SULPHUR (*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 SULPHUR (*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 SULPHUR (*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 (*Callophrys 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 (*Callophrys 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. (*Celestrina 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 *Celastrina* 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 cardui*): 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-SPOTTED 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 be 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 (*Hespena sassacus*): 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 Trade 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.

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TAWNY-EDGED SKIPPER (*Polites themistocles*): Regular in small numbers, early June to early September. Maximum 3 on 6/4/98.

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 bobomok*): 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	<i>Branta canadensis</i>	granivore, water forager omnivore, water forager
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Family Laridae (gulls and terns)

herring gull	<i>Larus argentatus</i>	carnivore, coastal scavenger
laughing gull	<i>Larus atricilla</i>	carnivore, coastal scavenger
great black-backed gull	<i>Larus mainus</i>	carnivore, coastal scavenger
ring-billed gull	<i>Larus delawarensis</i>	carnivore, coastal scavenger

Family Accipitridae (hawks and eagles)

red-tailed hawk	<i>Buteo jamaicensis</i>	carnivore, ground pouncer
osprey	<i>Pandion haliaetus</i>	carnivore, ground pouncer

Family Falconidae (falcons)

American kestrel	<i>Falco sparverius</i>	carnivore, ground pouncer
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Family Phasianidae (grouse)

northern bobwhite	<i>Colinus virginianus</i>	omnivore, ground gleaner
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Family Columbidae (pigeons and doves)

mourning dove	<i>Zenaidura macroura</i>	granivore, ground gleaner
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Family Picidae (woodpeckers)

red-bellied woodpecker	<i>Melanerpes carolinus</i>	insectivore, bark gleaner
northern flicker	<i>Colaptes auratus</i>	s: insectivore, ground gleaner w: omnivore, ground gleaner
downy woodpecker	<i>Picoides pubescens</i>	insectivore, bark gleaner
hairy woodpecker	<i>Picoides villosus</i>	insectivore, bark gleaner

Family Tyrannidae (tyrant flycatchers)

eastern kingbird	<i>Tyrannus tyrannus</i>	s: insectivore, air sallier
great crested flycatcher	<i>Myiarchus crinitus</i>	s: insectivore, air sallier

Family Hirundinidae (swallows)

tree swallow	<i>Tachycineta bicolor</i>	s: insectivore, air screener
barn swallow	<i>Hirundo rustica</i>	s: insectivore, air screener

Family Corvidae (jays and crows)

blue jay	<i>Cyanocitta cristata</i>	omnivore, ground gleaner
American crow	<i>Corvus brachyrhynchos</i>	omnivore, ground gleaner

Family Paridae (titmice and chickadees)

black-capped chickadee	<i>Parus atricapillus</i>	s: insectivore, low canopy gleaner w: omnivore, low canopy gleaner
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Family Sittidae (nuthatches)

white-breasted nuthatch	<i>Sitta carolinensis</i>	insectivore, bark gleaner
red-breasted nuthatch	<i>Sitta canadensis</i>	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

northern mockingbird *Mimus polyglottos* w: frugivore, lower canopy gleaner
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

dark-eyed junco *Junco hyemalis* w: granivore, ground gleaner
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

common grackle *Quiscalus quiscula* w: granivore, ground gleaner
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

house finch *Carpodacus mexicanus* w: granivore, ground gleaner

s: omnivore, ground gleaner

w: granivore, ground gleaner

* Sources: DeGraaf & Rudis (1987) and Ehrlich, Dobkin & Wheye (1988).

** 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.

Appendix E: Initial management plan for Trade Wind Fields Preserve.

October 16, 1991



Martha's Vineyard Land Bank Commission

Trade Wind Fields Preserve Management Plan

<i>acreage</i>	71.9 acres
<i>conservation significance and reason for acquisition</i>	<ul style="list-style-type: none"> (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
<i>special features</i>	<ul style="list-style-type: none"> (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
<i>origin of property name</i>	The property operated for many years following World War II as local grass-strip airfield known as the "Trade Wind Airport."
<i>limitations and restrictions</i>	Regular mowing and other maintenance activities will take place in a manner which protects the "species of special concern" located on the tract.
<i>abutters</i>	<ul style="list-style-type: none"> (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

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land
use

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 airstrip 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.