

**Gateway National Recreation Area
Jamaica Bay Unit**

1999

Inventory and Monitoring Report



Gray Treefrog (photo by Don Riepe)

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Jamaica Bay Wildlife Refuge District**

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Compilation of 1999 butterfly sightings at the Jamaica Bay Unit

Following is a summation of the Butterfly sightings of the Jamaica Bay Unit. These data were collected opportunistically by staff and volunteers, they do not represent a systematic or standardized search method. The information is reported separately by district showing the first date sighted, the last date sighted, and the date on which the maximum number were sighted. On dates where the maximum occurred on more than one occasion the last date of the maximum will be shown. The species names are in taxonomic order showing all species ever recorded at each District. A (N) will appear following the early date if it is a new record for the dist. An (S) will appear next to a species which is represented by only a single record. A (R) appears next to species that are rare. The word **Single** in the maxima column indicates that only one individual was sighted of that species on any particular date. Annual butterfly count data are presented separately, and are not incorporated into these data.

Wildlife Refuge District

SPECIES	EARLY DATE	LATE DATE	MAXIMA
Pipevine Swallowtail (<i>Battus philenor</i>)			
Black Swallowtail (<i>Papilio polyxenes</i>)	4/19	8/30	Single
Eastern Tiger Swallowtail (<i>Papilio glaucus</i>)	5/10	8/10	Single
Spicebush Swallowtail (<i>Papilio triolus</i>)	5/9	8/30	Single
Checkered White (<i>Pontia protodice</i>)			
Cabbage White (<i>Pieris rapae</i>)	3/29	11/16	Single
Clouded Sulphur (<i>Colias philodice</i>)	8/30		Single
Orange Sulphur (<i>Colias eurytheme</i>)	3/29	12/4	Single
Cloudless Sulphur (<i>Phoebis sennae</i>)	8/30	11/16	Single
Little Yellow (<i>Eurema lisa</i>)			
Harvester (<i>Feniseca tarquinius</i>)(S)			
American Copper (<i>Lycaena phlaeas</i>)	5/5	8/10	
Coral Hairstreak (<i>Satyrium titus</i>)			
Banded Hairstreak (<i>Satyrium calanus</i>)			
Striped Hairstreak (<i>Satyrium liparops</i>)			
Red-banded Hairstreak (<i>Calycopis cecrops</i>)	8/25		Single
White M Hairstreak (<i>Parrhasius m-album</i>)			
Gray Hairstreak (<i>Strymon melinus</i>)	7/26	8/30	8/10(2)
Eastern Tailed Blue (<i>Everes comyntas</i>)	7/26	8/30	
Summer Azure	4/3	8/30	
Spring Azure (<i>Celastina ladon</i>)			
American Snout (<i>Libytheana carinenta</i>)			
Variegated Fritillary (<i>Euptoieta claudia</i>)			
Great Spangled Fritillary (<i>Speyeria cybele</i>)	7/27		Single
Pearl Crescent (<i>Phyciodes tharos</i>)	7/27	8/30	7/27(5)

Compilation of 1999 butterfly sightings at the Jamaica Bay Unit

Jamaica Bay District			
SPECIES	EARLY DATE	LATE DATE	MAXIMA
Black Swallowtail (<i>Papilio polyxenes</i>)			
Eastern Tiger Swallowtail (<i>Papilio glaucus</i>)			
Cabbage White (<i>Pieris rapae</i>)			
Clouded Sulfer (<i>Colias philodice</i>)			
Orange Sulpher (<i>Colias eurytheme</i>)			
American Copper (<i>Lycaena phlaeas</i>)			
Coral Hairstreak (<i>Satynium titus</i>)			
Red-banded Hairstreak (<i>Calycopis cecrops</i>)			
Gray Hairstreak (<i>Strymon melinus</i>)			
Eastern Tailed Blue (<i>Everes comyntas</i>)			
Aphrodite Fritillary (<i>Speyeria aphrodite</i>)			
Pearl Crescent (<i>Phyciodes tharos</i>)			
Mourning Cloak (<i>Nymphalis antiopa</i>)			
American Lady (<i>Vanessa virginiensis</i>)			
Monarch (<i>Danaus plexippus</i>)			
Common Sootywing (<i>Pholisora catullus</i>)			
Swarthy Skipper (<i>Nastra iherminier</i>)			
Least Skipper (<i>Ancyloxypha numitor</i>)			
European Skipper (<i>Thymelicus lineola</i>)			
Delaware Skipper (<i>Atrytone logan</i>)			
Broad-winged Skipper (<i>Poanes viator</i>)			
Ocola Skipper (<i>Panoquina ocola</i>)			
No new data were collected for the Jamaica bay District in 1999. The complete butterfly list up to 1998 is reprinted above.			

Compilation of 1999 butterfly sightings at the Jamaica Bay Unit

Species			
Question Mark (<i>Polygonia interrogationis</i>)	7/10	10/28	Single
Eastern Comma (<i>Polygonia comma</i>)	10/28		Single
Mourning Cloak (<i>Nymphalis antiopa</i>)	3/18	4/29	3/18(2)
Compton Tortoiseshell (<i>Nymphalis vau-album</i>)			
Small tortoiseshell (<i>Nymphalis urticae</i>)			
American Lady (<i>Vanessa virginiensis</i>)	3/29	7/27	7/10(5)
Painted Lady (<i>Vanessa cardui</i>)	8/25		Single
White Admiral (<i>Limenitis arthemis arthemis</i>)(S)			
Red Admiral (<i>Vanessa atalanta</i>)	5/9	8/10	Single
Common Buckeye (<i>Junonia coenia</i>)	7/27	11/6	8/25(5)
Red-spotted Purple (<i>Limenitis arthemis astyanax</i>)	6/1	7/10	Single
Viceroy (<i>Limenitis archippus</i>)	7/10	8/30	7/10(3)
Tawney Emperor (<i>Asterocampa clyton</i>)			
Little Wood Satyr (<i>Megisto cymela</i>)			
Common Wood Nymph (<i>Cercyonis pegala</i>)			
Monarch (<i>Danaus plexippus</i>)	5/29	11/16	8/10(15)
Silver Spotted Skipper (<i>Epargyreus clarus</i>)	7/27	8/10	Single
Long-tailed Skipper (<i>Urbanus proteus</i>)			
Northern Cloudywing (<i>Thorybes pylades</i>)			
Juvenal's Duskywing (<i>Erynnis juvenalis</i>)			
Horace's Duskywing (<i>Erynnis horatius</i>)			
Wild Indigo Duskywing (<i>Erynnis baptisiae</i>)			
Common Checkered Skipper (<i>Pyrgus communis</i>)			
Common Sootywing (<i>Pholisora catullus</i>)			
Swarthy Skipper (<i>Nastra iherminier</i>)	8/30		Single
Clouded Skipper (<i>Lerema accius</i>)			
Least Skipper (<i>Ancyloxypha numitor</i>)			
European Skipper (<i>Thymelicus lineola</i>)			
Fiery Skipper (<i>Hylephila phyleus</i>)	7/27	8/30	7/27(3)
Cobweb Skipper (<i>Hesperia metea</i>)			
Peck's Skipper (<i>Polites peckius</i>)	8/10		8/10(3)
Tawny-edged Skipper (<i>Polites themistocles</i>)			
Crossline Skipper (<i>Polites origenes</i>)			
Northern Broken Dash (<i>Wallengrenia egermet</i>)			
Little Glasswing (<i>Pompeius verna</i>)			
Sachem (<i>Atalopedes campestris</i>)	8/30		8/30(2)
Delaware Skipper (<i>Atrytone logan</i>)			
Zabulon Skipper (<i>Poanes zabulon</i>)	8/13		8/13(2)
Broad-winged Skipper (<i>Poanes viator</i>)	7/10	8/10	7/27(80)
Dun Skipper (<i>Atrytonopsis hianna</i>)			
Salt Marsh Skipper (<i>Panoquina panoquin</i>)			
Ocola Skipper (<i>Panoquina ocola</i>)			

Compilation of 1999 butterfly sightings at the Jamaica Bay Unit

Breezy Point District			
SPECIES	EARLY DATE	LATE DATE	MAXIMA
Black Swallowtail (<i>Papilio polyxenes</i>)	7/3	8/14	Single
Eastern Tiger Swallowtail (<i>Papilio glaucus</i>)	6/10	8/2	7/1(2)
Spicebush Swallowtail (<i>Papilio troilus</i>)			
Cabbage White (<i>Pieris rapae</i>)	4/8	10/27	7/3(20)
Clouded Sulphur (<i>Colias philodice</i>)	4/30		Single
Orange Sulphur (<i>Colias eurytheme</i>)	4/8	11/21	7/19(10)
Cloudless Sulphur (<i>Phoebis sennae</i>)	9/11	10/30	9/11(2)
Little Sulphur (<i>Eurema lisa</i>) (N)	8/14		Single
American Copper (<i>Lycaena phlaeas</i>)	4/24	12/5	4/30(11)
Red-banded Hairstreak (<i>calyccopsis cecrops</i>) (N)	8/10		8/10(3)
Gray Hairstreak (<i>Strymon melinus</i>)	8/10		8/10(2)
Eastern Tailed Blue (<i>Everes comyntas</i>)	7/19	7/25	Single
Marine Blue (<i>Leptotes marina</i>) (s)			
Variegated Fritillary (<i>Euptoieta claudia</i>)			
Great Spangled Fritillary (<i>speyeria cybele</i>)(N)	7/27		Single
Pearl Crescent (<i>Phyciodes tharos</i>)	7/7	8/14	8/14(3)
Question Mark (<i>Polygonia interrogationis</i>)			
Mourning Cloak (<i>Nymphalis antiopa</i>)			
American Lady (<i>Vanessa virginiensis</i>)	4/30	7/6	Single
Painted Lady (<i>Vanessa cardui</i>)			
Red Admiral (<i>Vanessa atalanta</i>)	5/9		Single
Common Buckeye (<i>Junonia coenia</i>)	7/3	12/5	10/7(3)
Red-spotted Purple (<i>Limenitis arthemis astyanax</i>)(N)			
Viceroy (<i>Limenitis archippus</i>)			
Little Wood Satyr (<i>Megisto cymela</i>)	6/25	7/1	7/3(2)
Monarch (<i>Danaus plexippus</i>)	5/9	12/5	9/18(200+)
Common Sootywing (<i>Pholisora catullus</i>)	7/16		Single
Swarthy Skipper (<i>Nastra iherminier</i>)			
Northern Broken Dash (<i>Wallengrenia egermet</i>) (N)	7/16		Single
Delaware Skipper (<i>Atrytone logan</i>)	8/14		Single
Zabulon Skipper (<i>Poanes zabulon</i>) (N)	8/14	9/11	Single
Broad-winged Skipper (<i>Poanes viator</i>)	7/16	7/26	7/16(2)
Dun Skipper (<i>Attronopsis hianna</i>) (N)	8/14		Single

North American Butterfly Association Annual Butterfly Count

Jamaica Bay Unit Butterfly Census - July 5, 1999

Species		JBWR	FBF	Ft. Tilden	Rockaway
Total					
Tiger Swallowtail	8	2	3	2	15
Black Swallowtail	3	2	6	-	11
Spicebush Swallowtail	2	-	2	-	4
Pipevine Swallowtail	6	11	2	-	19
Cabbage White	40	11	25	14	90
Clouded Sulphur	-	-	3	-	3
Orange Sulphur	18	5	19	2	44
Little Yellow	-	-	1	-	1
American Copper	11	6	39	-	56
Coral Hairstreak	-	1	1	-	2
Gray Hairstreak	-	1	4	1	6
Eastern T-Blue	3	1	11	2	17
Summer Azure	2	1	-	-	3
American Snout	1	-	-	-	1
Variegated Fritillary	1	-	1	-	2
Gt Spangled Fritillary	-	-	1	-	1
Pearl Crescent	2	-	4	-	6
Question Mark	2	1	-	-	3
American Lady	1	1	1	-	3
Red Admiral	2	1	-	-	3
Common Buckeye	4	-	14	1	19
Red-spotted Purple	1	-	-	-	1
Viceroy	1	-	-	-	1
Little Wood Satyr	-	-	1	-	1
Monarch	7	2	13	3	25
Silver-spotted Skipper	1	-	5	-	6
Common Sootywing	4	-	2	-	6
Swarthy Skipper	1	-	-	-	1
Least Skipper	-	-	1	-	1
Crossline Skipper	-	-	2	-	2
Northern Broken Dash	1	-	18	1	20
Delaware Skipper	-	1	7	1	9
Broad-winged Skipper	1	-	-	1	2
Dun Skipper	-	-	1	-	1
Ocala Skipper*	1	-	-	-	1

Total Species = 35
386

Total numbers =

Participants: Tom Burke, Nancy Corona, Steve Finn, Cheryl Heyman, Kathy Kraus, John Lawrenson, Alice Mayo, Don Riepe, Nancy Ryan, John Zuzworsky

Jamaica Bay Unit Annual Late Summer Butterfly Count

Date of survey: Sept. 12, 1999

Species	JBWR	Nep	FBF	Breezy	Gerr	Total
Black Swallowtail	1	-	1	-	-	2
Cabbage White	54	22	43	80	5	204
Orange Sulphur	53	10	10	72	5	150
Clouded Sulphur	3	4	2	6	2	17
Cloudless Giant Sulphur	4	2	9	4	1	20
American Copper	42	2	-	20	-	64
Red-banded Hairstreak	2	-	-	1	-	3
Gray Hairstreak	12	3	15	8	-	38
Eastern Tailed Blue	1	-	2	1	-	4
Summer Azure	1	-	-	-	-	1
Variegated Fritillary	-	4	-	4	-	8
Pearl Crescent	93	-	3	8	3	107
Question Mark	3	-	-	-	-	3
American Lady	10	1	5	15	-	31
Common Buckeye	26	14	2	54	1	101
Red-spotted Purple	2	-	-	-	-	2
Viceroy	1	-	-	-	-	1
Monarch	43	8	34	56	3	144
Wild Indigo Duskywing	1	-	-	-	1	2
Common Checkered Skipper	-	-	3	-	-	3
Silver-spotted Skipper	2	-	-	-	-	2
Swarthy Skipper	2	4	-	1	-	7
Fiery Skipper	7	18	6	10	-	41
Sachem	12	54	22	19	-	107
Delaware	-	-	-	1	-	1
Zabulon Skipper	-	-	1	4	-	5
Peck's Skipper	2	-	-	1	-	3
Broad-winged Skipper	1	-	-	-	-	1
Dun Skipper	-	-	-	2	-	2
Ocola Skipper	1	-	1	-	-	2

Total Species = 30

Total Numbers = 1,076

Participants: Skip & Jane Blanchard, Tom Burke & Gail Benson, Pat Caro, Nancy Corona, Steve Finn, Rich Kelly, Don Riepe, John Zuzworsky

Weather: Sunny, temp. 75-80 degrees F.

JBWR = Jamaica Bay Wildlife Refuge

Nep = Neponsit Field

FBF = Floyd Bennett Field

Breezy = Ft. Tilden/Breezy Point

Gerr = Gerritsen Beach

Moths of the Jamaica Bay Unit 1999

The moth species listed below represent records from the Jamaica Bay Unit, and are separated by district. A (99) will appear in the column of any species observed in 1999. A (*) appears in the column of each district next to the species name when that species has been recorded in a previous year. A (N) in the column indicates that this is a new species for the District and will be followed by the date of the sighting and the number of individuals observed. **WRD** refers to the Wildlife Refuge District (Jamaica Bay Wildlife Refuge), **JBD** refers to the Jamaica Bay District (Floyd Bennett Field), and **BPD** refers to the Breezy Point District (Fort Tilden).

Data contributions to this section were made by: Kathy Krause, Park Ranger WRD, and John Zuzworsky, Refuge Operations Specialist WRD.

	WRD	JBD	BPD
Ello Sphinx (<i>Erinnyis ello</i>)	.		
Achemon Sphinx (<i>Eumorpha achemon</i>)	.		
Pandorus Sphinx (<i>Eumorpha pandorus</i>)	• 99		
White-Lined Sphinx (<i>Hyles lineata</i>)	.		
Great Ash Sphinx (<i>Sphinx chersis</i>) (N)	99		
Abbots Sphinx (<i>Sphecodina abbottii</i>)	.		
Hog Sphinx (<i>Darapsa myron</i>)	.		
Lettered Sphinx (<i>Deidamia inscripta</i>)	.		
Nessus Sphinx (<i>Amphion floridensis</i>)	.		
Tersa Sphinx (<i>Xylophanes tersa</i>)	.		
Hummingbird Clearwing (<i>Hemaris thysbe</i>)	• 99		•
Bumblebee or Snowberry Clearwing (<i>Hemaris diffinis</i>)	• 99		•
Pink-Spotted Sphinx (<i>Agrius cingulatus</i>)	.		
Five-Spotted Hawk Moth (<i>Manduca quinquemaculata</i>)	.		
Carolina Sphinx (<i>Manduca sexta</i>)	.		
Elm Sphinx (<i>Ceratomia amyntor</i>)	• 99		
Waved Sphinx (<i>Ceratomia undulosa</i>)	.		
Pawpaw Sphinx (<i>Dolba hyloeus</i>)	.		
Plebian Sphinx (<i>Paratraea plebeja</i>)	.		
Catalpa Sphinx (<i>Ceratomia catalpae</i>)	.		
Small-Eyed Sphinx (<i>Paonias myops</i>)	.		
Blinded Sphinx (<i>Paonias excaecatus</i>)	.		
Twin-Spotted Sphinx (<i>Smerinthus jamaicensis</i>)	.		
Walnut Sphinx (<i>Laothoe juglandis</i>)	.		
Polyphemus Moth (<i>Antheraea polyphemus</i>)	.		
Luna Moth (<i>Actias luna</i>)	.		
Ailanthus Silkmoth (<i>Samia cynthia</i>)	.		
Promethea Moth (<i>Callosamia promethea</i>)	.		
Cecropia Moth (<i>Hyalophora cecropia</i>)	• 99		•
Io Moth (<i>Automeris io</i>)	.		
Pink-Stripped Oakworm Moth (<i>Anisota virginensis</i>)	.		
Rosy Maple Moth (<i>Dryocampa rubicunda</i>)	.		
Eastern Tent Caterpillar (<i>Malacosoma americanum</i>)	• 99		
SPECIES	WRD	JBD	BPD
Forest Tent Caterpillar Moth (<i>Malacosoma disstria</i>)	.		

Moths of the Jamaica Bay Unit 1999

Yellow-Collared Scape Moth (<i>Cisseps fulvicollis</i>)	.		
Virginia Ctenucha (<i>Ctenucha virginica</i>)	.		
Banded Tussock Moth (<i>Halysidota tessellaris</i>)	.		
Milkweed Tussock Moth (<i>Euchaetes egle</i>)	.		
Pink-Legged Tiger Moth (<i>Spilosoma latipennis</i>)	.		
Virginian Tiger Moth (<i>Spilosoma virginica</i>)	99		
Primrose Moth (<i>Schinia florida</i>)	.		
Isabella Tiger Moth (<i>Pyrrharctia isabella</i>)	.		
Locust Underwing (<i>Euparthenos nubilis</i>)	.		
Graphic Moth (<i>Drasteria graphica</i>)	.		
Girlfriend Underwing (<i>Catocala amica</i>)	.		
Wonderful Underwing (<i>Catocala mira</i>)	.		
Little Nymph (<i>Catocala micronympha</i>)	.		
Ultonia Underwing (<i>Catocala ultonia</i>)	99 (10)		
Woody Underwing (<i>Catocala grynea</i>)	.		
Praeclara Underwing (<i>Catocala praeclara</i>)	.		
Judith's Underwing (<i>Catocala judith</i>)	.		
Mourning Underwing (<i>Catocala flebilis</i>)	.		
The Little Wife (<i>Catocala muliercula</i>)	.		
Bay or Badia Underwing (<i>Catocala badia</i>)	.		
Sleepy or Pink Underwing (<i>Catocala concumbens</i>)	.		
Herodias Underwing (<i>Catocala herodias</i>)	.		
Ilia Underwing (<i>Catocala ilia</i>)	.		
Locust Underwing (<i>Euparthenos nubilis</i>)	.		
The Penitent (<i>Catocala piatrix</i>)	.		
The Sweetheart (<i>Catocala amatrix</i>)	.		
Mother Underwing (<i>Catocala parta</i>)	.		
Darling Underwing (<i>Catocala cara</i>)	.		
Lunate Zale (<i>Zale lunata</i>)	.		
Colorful Zale (<i>Zale minerea</i>)	.		
Green-dusted Zale (<i>Zale aeruginosa</i>)	.		
Horrid Zale (<i>Zale horrida</i>)	.		
Forage Looper Moth (<i>Caenurgina erechtea</i>)	.		
Double-lined Doryodes (<i>Doryodes bistrialis</i>)	.		
Black-dotted Brown (<i>Cissusa spadix</i>)	.		
Red-lined Panopoda (<i>Panopoda rufimargo</i>)	.		
The Herald (<i>Scoliopteryx libatrix</i>)	.		
American Idia (<i>Idia americalis</i>)	.		
Common Idia (<i>Idia aemula</i>)	.		
Smoky Idia (<i>Idia scobialis</i>)	.		
Glossy Black Idia (<i>Idia lubricalis</i>)	.		
Variable Zanclognatha (<i>Zanclognatha laevigata</i>)	.		
Chocolate Renia (<i>Renia nemoralis</i>)	.		
Greater Black Letter Dart (<i>Xestia dolosa</i>)	.		
Brown-Collared Dart (<i>Protolampra brunneicollis</i>)	.		
Grand Arches (<i>Lacanobia grandis</i>)	.		
Tufted Bird-Dropping Moth (<i>Cerma cerintha</i>)	.		
Eyed Paectes (<i>Paectes oculatrix</i>)	.		
American Dagger Moth (<i>Acronictina americana</i>)	.		
Beautiful Wood-Nymph (<i>Eudryas grata</i>)	.		
Chocolate Prominent (<i>Peridea ferruginea</i>)	.		
White-Marked Tussock Moth (<i>Orgyia leucostigma</i>)	.		
SPECIES	WRD	JBD	BPD
Tufted Thyatirid (<i>Pseudothyatira cymatophoroides</i>)	.		
Rose Hooktip (<i>Oreta rosea</i>)	.		
Arched Hooktip (<i>Drepana arcuata</i>)	.		

Moths of the Jamaica Bay Unit 1999

Wavy-lined Emerald (<i>Synchlora aerata</i>)	.		
Chickweed Geometer (<i>Haematopsis grataria</i>)	.		
Large Lace-Border (<i>Scopula limboundata</i>)	.		
Ferguson's Scallop Shell (<i>Hydria prunivora</i>)	.		
Lesser Grapevine Looper Moth (<i>Eulithis diversilineata</i>)	.		
The Gem (<i>Orthonama obstipata</i>)	.		
Lesser Maple Spanworm Moth (<i>Itame pustularia</i>)	.		
Pale Beauty (<i>Campaea perlata</i>)	.		
Dimorphic Gray (<i>Tornos scolopacinaris</i>)	.		
Blurry Chocolate Angle (<i>Semiothisa transitaria</i>)	.		
The Saw-wing (<i>Euchlaena obtusaria</i>)	.		
Obtuse Euchlaena (<i>Euchlaena obtusaria</i>)	.		
Melanophia sp.	.		
Common Gray (<i>Anavitrinella pampinaria</i>)	.		
Small Purplish Gray (<i>Anacamptodes humaria</i>)	.		
Ruddy Metarranthis (<i>Metarranthis duaria</i>)	.		
Oak Besma (<i>Besma quercivoraria</i>)	.		
Juniper Geometer (<i>Patalene olyzonaria</i>)	.		
Pepper-and-Salt Geometer (<i>Biston betularia</i>)	.		
Horned Spanworm Moth (<i>Nematocampa limbata</i>)	.		
Variable Antepione (<i>Antepione thisoaria</i>)	.		
Yellow Slant-line (<i>Tetracis crocallata</i>)	.		
White Slant-line	.		
Large Maple Spanworm (<i>Prochoerodes transversata</i>)	.		
Urola nivalis	.		
Crambus agitatellus	.		
Vagabond Crambus (<i>Agriphila vulgivaagella</i>)	.		
Tetralopha Asperatella	.		
Grape Leafroller (<i>Desmia funeralis</i>)	.		
Spotted Beet Webworm Moth (<i>Hymenia perspectalis</i>)	.		
Melonworm Moth (<i>Diaphania hyalinata</i>)	.		
Nomophila nearctica	.		
Blepharomastix ranalis	.		
Pyrausta signatalis	.		
Herculia olinalis	.		
Carpenterworm Moth (<i>Prionoxystus robiniae</i>)	.		
Leopard Moth (<i>Zeuzera Pyrina</i>)	.		
Yucca Moth (<i>Tegeticula yuccasella</i>)	.		
Three-lined Leafroller (<i>Pandemis limitata</i>)	.		
Bidens Borer Moth (<i>Epiblema otiosana</i>)	.		
Maple Callus Borer Moth (<i>Synanthedon acerni</i>)	.		
Squash Vine Borer Moth (<i>Melittia cucurbitae</i>)	.		
Ailanthus Webworm (<i>Atteva punctella</i>)	.		
American Ermine Moth (<i>Yponomeuta multipunctella</i>)	.		
Mompha eloisella	.		
Evergreen Bagworm Moth (<i>Thyridopteryx ephemeraeformis</i>)	.		

Dragonflies and Damselflies of the Jamaica Bay Unit 1999

Species	WRD	JBD	BPD
Damselflies (Zygoptera)			
Civil Bluet (<i>Enallagma Civilli</i>)	C / 99	C	C
Bog Bluet (<i>Enallagma aspersum</i>)	C / 99		
Big Bluet (<i>Enallagma durum</i>)	(N)		
Citrine Forktail (<i>Ischnura hastata</i>)	C	C	
Fragile Forktail (<i>Ischnura posita</i>)	C / 99	C	
Rambers Forktail (<i>Ischnura ramberii</i>)	C	C	
Slender Spreadwing (<i>Lestes rectangularus</i>)	C		
Common Spreading (<i>Lestes Disjunctus</i>)	C	C	
Amber-winged Spreading (<i>Lestes eurinus</i>)	S		
Dragonflies (Anisoptera)			
Green Darner (<i>Anax junius</i>)	C / 99	C	C
Hero Darner (<i>Epiaschna heros</i>)	C / 99	C	C
Salt Marsh Skimmer (<i>Erythrodiplax berenice</i>)	C		
White Tail (<i>Libellula lydia</i>)		C	C
Ten Spot (<i>Libellula pulchella</i>)	C		
Painted Skimmer (<i>Libellula semifasciata</i>)	C	C	
Great Blue Skimmer (<i>Libellula vibrans</i>)	C	C	
Blue Pirate (<i>Pachydiplax longipennis</i>)	C	C	
Spot Winged Glider (<i>Pantala hymenaea</i>)		C	
Wandering Glider (<i>Pantala flaveces</i>)	C	C	
Common Amberwings (<i>Perithemis tenera</i>)	C		
Variegated Meadowfly (<i>Sympetrum curiptum</i>)	S		
Cherry Faced Meadowfly (<i>Sympetrum internum</i>) ###	C	C	
Yellow-legged Meadowfly (<i>Sympetrum vincium</i>)		C	
Red Mantled Glider (<i>Tamea carolina</i>)	C	C	C
Black Mantled Glider (<i>Tamea lacerata</i>)	C	C	C
### = Possibly a newly described species: Jane's Meadowfly (<i>Sympetrum janeae</i>)			
KEY WRD = Wildlife Refuge District / JBD = Jamaica Bay District BPD = Breezy Point District C = Commonly occurs in the Unit/ (N) = New species for unit or district 99 = Species was recorded in 1999 or year indicated S = Only a single record exists for that species			

FLORA 1999

This section documents new plant records for the Jamaica Bay Unit that are either not listed in the "Flora Of Gateway National Recreation Area" (revised 1997), or where instances of additional district occurrences have been observed. It includes information on new herbarium voucher collections for 1999, as well as the status of visual sightings listed in the 1998 Inventory and Monitoring Report.

Records of new vegetation plantings for 1999, data on the Seabeach Amaranth population at the Breezy Point District, and information on a vegetation survey conducted on Canarsie Pol Island are also included.

New Plant Records 1999 – WRD

Common Plantain (*Plantago psyllium*) Non-native. Collected 7/21/99, Crossbay Boulevard. Listed only as visual sighting for WRD on Gateway list.

Mockernut (*Carya tomentosa*) Native. Collected 7/30/99, West Fire Break. Only one tree (mature, with spring flowers) was observed. Not on Gateway list.

Pinkweed (*Polygonum pensylvanicum*) Native. Collected 9/6/99, East Pond valve. Listed only as a visual sighting for WRD on Gateway list.

Mild Water Pepper (*Polygonum hydropiperoides*) Native. Collected 9/6/99, East Pond valve. (previously collected 9/16/93) Not listed for WRD on Gateway list.

Turtlehead (*Chelone glabra*) Native. Collected 9/7/99, East side trail. Approximately four plants were observed. Not on Gateway list.

Status of 1998 I&M Report Plant Sightings – WRD

Cheeses (*Malva neglecta*) Non-native. Visual sighting 6/30/98, Visitor Center lawn. Not listed for WRD on Gateway list. COLLECT IN 2000.

White Avena (*Avena canadense*) Native. Visual sighting 7/19/98, East Pond shoreline trail. Not on Gateway list. COLLECT IN 2000.

Ash (*Fraxinus sp.*) Visual sightings 1992, North and South Garden. Not listed for WRD on Gateway list. COLLECT IN 2000.

Narrow-leaved Willow Herb (*Epilobium leptophyllum*) Native. Visual sighting 1992. Not on Gateway list. COLLECT IN 2000.

Sweet Gum (*Liquidambar styraciflua*) Native. Visual sighting 1997. Collected 8/2/99, East side boardwalk trail. Only one tree (mature with fruit) was observed. Not listed for WRD on Gateway list.

Black Gum (*Nyssa sylvatica*) Native. Visual sighting 1995. Collected 7/30/99, East Fire Break. One mature tree with approximately 20 possible root sprouts was observed. Not listed for WRD on Gateway list.

Narrow-leaved Vetch (*Vicia angustifolia*) Non-native. Visual sighting 1993. Collected 5/26/99, (New) Upland Trail Post #1. Not on Gateway list.

Cleavers (*Galium aparine*) Native. Visual sighting 1993. Collected 5/26/99, South Garden Bird Blind.

New Plantings 1999 -WRD

(See attached map for exact location of plantings)

Apocynum cannabinum (200)

Ammophila breviligulata (50)

Asclepias incarnata (150)

Asclepias tuberosa (200)

Prunus maritima (20)

Spartina alterniflora (50)

Spartina patens (50)

New Plantings 1999 – BPD

Pinus strobus – (2) saplings at Fort Tilden

Ammophila breviligulata – (100) transplanted to Fort Tilden Beach

Acer sp. – (8) possibly non-native. planted as landscape trees at Fort Tilden

New Plantings 1999 – JBD

Quercus prinus (approx. 10) 1 ft seedlings at Dead Horse Bay

Seabeach Amaranth - BPD

Seabeach Amaranth (*Amaranthus pumilus*) has been listed as an endangered species since 1993. In 1999 monitoring efforts located a total of 14 plants at BPD at the following locations: 12 West Beach, 2 Ocean Side, 2 Fort Tilden Beach.

Canarsie Pol Vegetation Survey

On July 3, 1999 and August 5, 1999 (???? Insert correct dates!!!!) a non-systematic vegetation survey was conducted at Canarsie Pol by WRD staff and volunteers. A fairly complete walk through of the island took place and plant species visually observed were recorded. A listing of species identified follows.

Flora of Canarsie Pol

GENUS	SPECIES	COMNAME
**FAMILY ACERACEAE		
Acer	negundo	Box Elder
Acer	platanoides	Norway Maple
Acer	pseudoplatanus	Sycamore Maple
Acer	rubrum	Red Maple
Acer	saccharinum	Silver Maple
**FAMILY ANACARDIACEAE		
Rhus	copallinum	Dwarf Sumac, Winged sumac
Rhus	typhina	Staghorn Sumac
Toxicodendron	radicans	Poison Ivy
**FAMILY APOCYNACEAE		
Apocynum	cannabinum	Indian Hemp
**FAMILY ASCLEPIADACEAE		
Asclepias	syriaca	Common Milkweed
**FAMILY ASPLENIACEAE		
Onoclea	sensibilis	Sensitive Fern
**FAMILY ASTERACEAE		
Achilla	millefolium	Common Yarrow
Anthemus	botula	Stinking Chamomille
Artemisia	vulgaris	Mugwort
Baccharis	halimifolia	Groundsel Tree
Centaurea	maculosa	Spotted Knapweed
Cirsium	arvense	Canada Thistle
Cirsium	vulgare	Bull Thistle, Common Thistle
Conyza	canadensis	Horseweed
Eupatorium	hyssopifolium	Hyssop-Leaved Thoroughwort
Eupatorium	rugosum	White Snakeroot
Euthamia	graminifolia	Flat Top Goldenrod
Euthamia	tenuifolia	Slender Fragrant Goldenrod
Gnaphalium	obtusifolium	Cudweed
Heterotheca	subaxillaris	Camphorweed
Iva	frutescens	Marsh Elder
Lactuca	seriola	Prickly Lettuce
Solidago	elioni	Elliot's goldenrod
Solidago	rugosa	Rough Stemmed Goldenrod
Solidago	sempervirens	Seaside Goldenrod
Xanthium	strumarium	Clothbur

**FAMILY EUPHORBIACEAE		
Chamaesyce	polYGONIFOLIA	Seaside Spurge
Euphorbia	CYPARISSIAS	Cypress Spurge
**FAMILY FABACEAE		
Coronilla	VARIA	Crown Vetch
Staphosyles	HELVELIA	Wild Bean
**FAMILY LAMIACEAE		
Lycopus	AMERICANUS	Cut-Leaved Water-Horehound
**FAMILY LYTHRACEAE		
Lythrum	SALICARIA	Purple Loosestrife
**FAMILY MALVACEAE		
Malva	NEGLECTA	Common Mallow
**FAMILY MIMOSACEAE		
Albizia	JULIBRISIN	Mimosa
**FAMILY MOLLUGINACEAE		
Mollugo	VERTICILLATA	Carpet Weed
**FAMILY MORACEAE		
Morus	ssp.	Mulberry
**FAMILY MYRICACEAE		
Myrica	PENNSYLVANICA	Bayberry
**FAMILY NYCTAGINACEAE		
Mirabilis	ALBIDUS	Pale Umbrellawort
**FAMILY ONAGRACEAE		
Oenothera	BIENNIS	Common Evening Primrose
**FAMILY PHYTOLACCACEAE		
Phytolacca	AMERICANA	Pokeweed, Pokeberry
**FAMILY PLANTAGINACEAE		
Plantago	LANCFOLIA	Rib Plantain, English Plantain
Plantago	PSYLLIUM	Common Plantain, Sand Plantain

****FAMILY BETULACEAE**

Betula	populifolia	Grey Birch, White Birch
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****FAMILY BIGNONIACEAE**

Catalpa	bignonioides	Catalpa Tree
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****FAMILY BRASSICACEAE**

Cakile	edentula	Sea Rocket
Lepidium	virginicum	Poor Man's Pepper
Sisymbrium	altissimum	Tumbling Mustard

****FAMILY CAESALPINIACEAE**

Gleditsia	tracanthos	Honey Locust
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****FAMILY CAPRIFOLIACEAE**

Lonicera	japonica	Japanese Honeysuckle
Sambucus	canadensis	Common Elder

****FAMILY CARYOPHYLLACEAE**

Lychnis	alba	Evening Lychnis, White Champion
Saponaria	officinalis	Bouncing Bet

****FAMILY CELASTRACEAE**

Celastrus	orbiculatus	Oriental Bittersweet
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****FAMILY CHENOPODIACEAE**

Atriplex	patula	Sparscale
Chenopodium	album	Lamb's Quarters
Chenopodium	ambrosioides	Mexican Tea, Wormseed
Cycloloma	atriplicifolium	Winged Pigweed
Salsola	kali	Saltwort, Russian Thistle
Suaeda	maritima	Lesser Sea Blite

****FAMILY CLUSIACEAE**

Hypericum	mutilum	Dwarf ST. Johnswort
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****FAMILY CONVULVULACEAE**

Calystegia	sepium	Hedge Bindweed
Convolvulus	arvensis	Field Bindweed
Cuscuta	gronovii	Dodder

****FAMILY CUPRESSACEAE**

Juniperus	virginiana	Eastern Red Cedar
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**FAMILY POACEAE

Ammophila	breviligulata	Dune Grass, Beach Grass
Eragrostis	spectabilis	Purple Love Grass, Tumblegrass
Panicum	virgatum	Switch Grass
Phragmites	australis	Common Reed, Phragmites
Schizachyrium	scoparium var. littorale	Little Bluestem
Spartina	alternifolia	Salt Marsh Grass, Cord Grass

**FAMILY POLYGONACEAE

Polygonella	articulata	Jointweed
Rumex	acetosella	Sheep Sorrel
Rumex	crispus	Curly Dock

**FAMILY PORTULACACEAE

Portulaca	oleracea	Purselane
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**FAMILY RHAMNACEAE

Rhamnus	frangula	Smooth Buckthorn
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**FAMILY ROSACEAE

Malus	ssp.	Apple
Potentilla	argentea	Silvery Cinquefoil
Potentilla	norvegica	Rough Cinquefoil, Three-Leaf
Potentilla	recta	Rough Fruited Cinquefoil
Prunus	persica	Peach
Prunus	serotina	Black Cherry
Pyrus	communis	Pear
Rosa	multiflora	Multiflora Rose
Rosa	rugosa	Salt Spray Rose
Rosa	ssp.	(Ornamental)
Rubus	ssp.	Blackberry

**FAMILY SALICACEAE

Populus	alba	White Poplar
Populus	deltoides	Cottonwood
Populus	tremuloides	Quaking Aspen
Salix	discolor	Pussy Willow
Salix	(exigua ?)	(Sandbar Willow ?)
Salix	(pentandra ?)	(Bay-Leaf Willow ?)

**FAMILY SCROPHULARIACEAE

Linaria	canadensis	Blue Toadflax
Linaria	vulgaris	Butter & Eggs
Verbascum	thapsus	Common Mullein
Paulownia	tormentosa	Paulownia

**FAMILY SIMAROUBACEAE

Ailanthus	altissima	Tree-of-Heaven
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****FAMILY SMILACACEAE**

Smilax	ssp.	Greenbrier
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****FAMILY SOLANACEAE**

Datura	stramonium	Jimsonweed
Solanum	carolinense	Horse Nettle
Solanum	dulcamara	Bittersweet Nightshade
Solanum	nigrum	Black Nightshade

****FAMILY ULMACEAE**

Ulmus	ssp.	Elm
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****FAMILY VERBENACEAE**

Verbena	hastata	Blue Vervain
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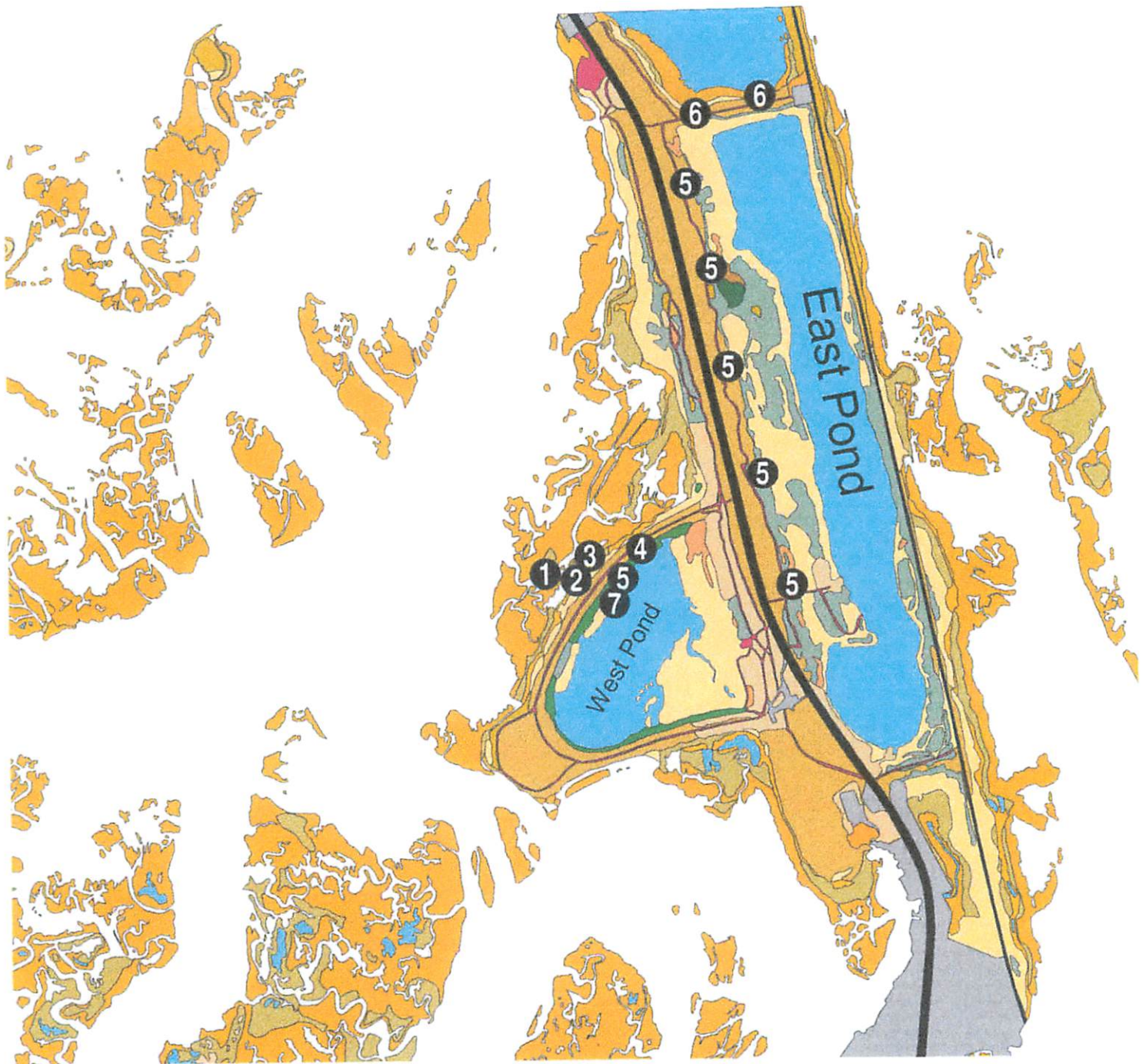
****FAMILY VIOLACEAE**

Viola	(arvensis ?)	European Field Pansy
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****FAMILY VITACEAE**

Ampelopsis	ssp.	Porcelain-Berry
Parthenocissus	quinquefolia	Virginia Creeper

Location of plantings at the Wildlife Refuge in 1999



Location Codes for Plantings

- 1 = *Spartina alterniflora*
- 2 = *Spartina patens*
- 3 = *Ammophila breviligulata*
- 4 = *Asclepias incarnata*
- 5 = *Asclepias tuberosa*
- 6 = *Prunus maritima*
- 7 = *Apocynum cannabinum*



Breezy Point Annual Breeding Surveys

ABSTRACT

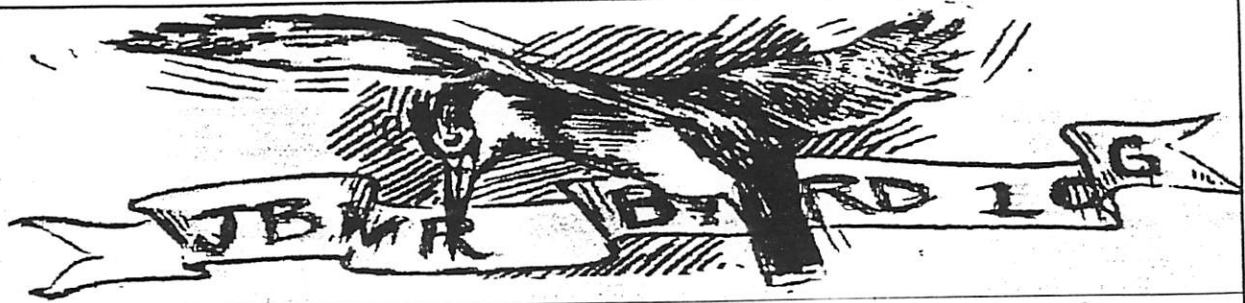
Nine pairs of piping plover (*Charadrius melodus*) were monitored from March 25th to September 6th, 1999 on four sections of beach at Gateway National Recreation Area-Breezy Point Site. The piping plovers began laying eggs at the end of April and continued into the first week of June. Hatching dates ranged from June 9th to June 27th, 1999. Hatching success (number of eggs hatched/number of eggs laid) was 52% for all areas. Seven out of thirteen nests hatched. Six nests were unsuccessful with gulls, cats, crows and humans as possible causes for nest failure. Fledging dates ranged from July 8 to July 26. Fledging success was 73% (16 out of 22 survived). Five of the six chicks disappeared within the first seven days.

Total productivity of the Breezy Point Site was 16 chicks produced by 9 breeding pairs. The mean number of chicks fledged per pair was 1.77.

The number of nesting common terns (*Sterna hirundo*) was down by approximately 50% compared to last year. Approximately 1850 adults utilized the beaches at the Breezy Point Tip for breeding purposes. It is estimated that 800 birds abandoned the Tip colony after approximately 10 days on territory. Predation pressures by a feral cat is believed to be the cause.

One pair of roseate terns (*Sterna dougallii*) was observed scraping but we had no further evidence to confirm nesting. The black skimmer (*Rynchops niger*) numbers continue to drop in 1999 to 230 breeding adults. Least terns (*Sterna albifrons*) continued their movement east by at least 300 yards and nested entirely on the Breezy Point Cooperative property.

The above data was collected by Sue Gilmore, Resource Management Specialist BPD.



Date	Time	Sighting	Location
1/4	09:30	Adult & Imm. Peregrine Falcons, Cooper's hawk, Rough-legged hawk, Cedar Waxwing, Snipe	West Pond Trail Bench #10
1/4	11:00	500 Yellow-rumped Warblers	Big John's Pond
1/26	12:00	500+ Snow Geese	Big Egg Marsh
1/30	03:30	Eurasian Green-winged Teal	Bench # 7
2/27	01:30	Red-winged Black Bird (First of Year)	West Pond Trail
3/21	03:00	Laughing Gull (First of Year)	Black Wall Marsh
4/4	10:00	Palm Warbler, Brown Creeper, Rusty Blackbird	North Garden
4/10	1:15 -17:00	70 Dunlin	Terrapin Trail
4/11	10:30	Vesper Sparrow	Bench #9
4/24	08:45	Purple Martin	Parking Lot
4/27	03:30	Canada Goose hatchling (first of the year)	West Pond
5/1		Long-eared Owl, Caspian Tern	South Garden / West Pond
6/2	10:30	Mourning Warbler	East Garden
6/16	18:00	Nesting Diamond-backed Terrapin (first of the Year)	West Pond Trail
7/10	05:30	White-winged dove	South End of East Pond
7/14	09:00	170 Short-billed Dowitchers, 180 Greater Yellow Legs	East Pond
8/1	8:00-15:00	Reeve, 5 Western Sandpipers	East Pond
9/18	09:30	Clay-colored Sparrow	East Garden
9/23	09:30	Probable Kirtland's Warbler	South Garden
10/17	11:00	Seaside, Saltmarsh, and Henslow's Sparrows, Dickcissel and 2 Meadowlarks	Big Egg Marsh
12/7	11:30	2 common Goldeneye and 2 Rough-legged hawks, Ruby-crowned Kinglets	Big Egg Marsh
12/24	11:30	Snowy Owl, 2 Rough-legged hawks	Little Egg Marsh

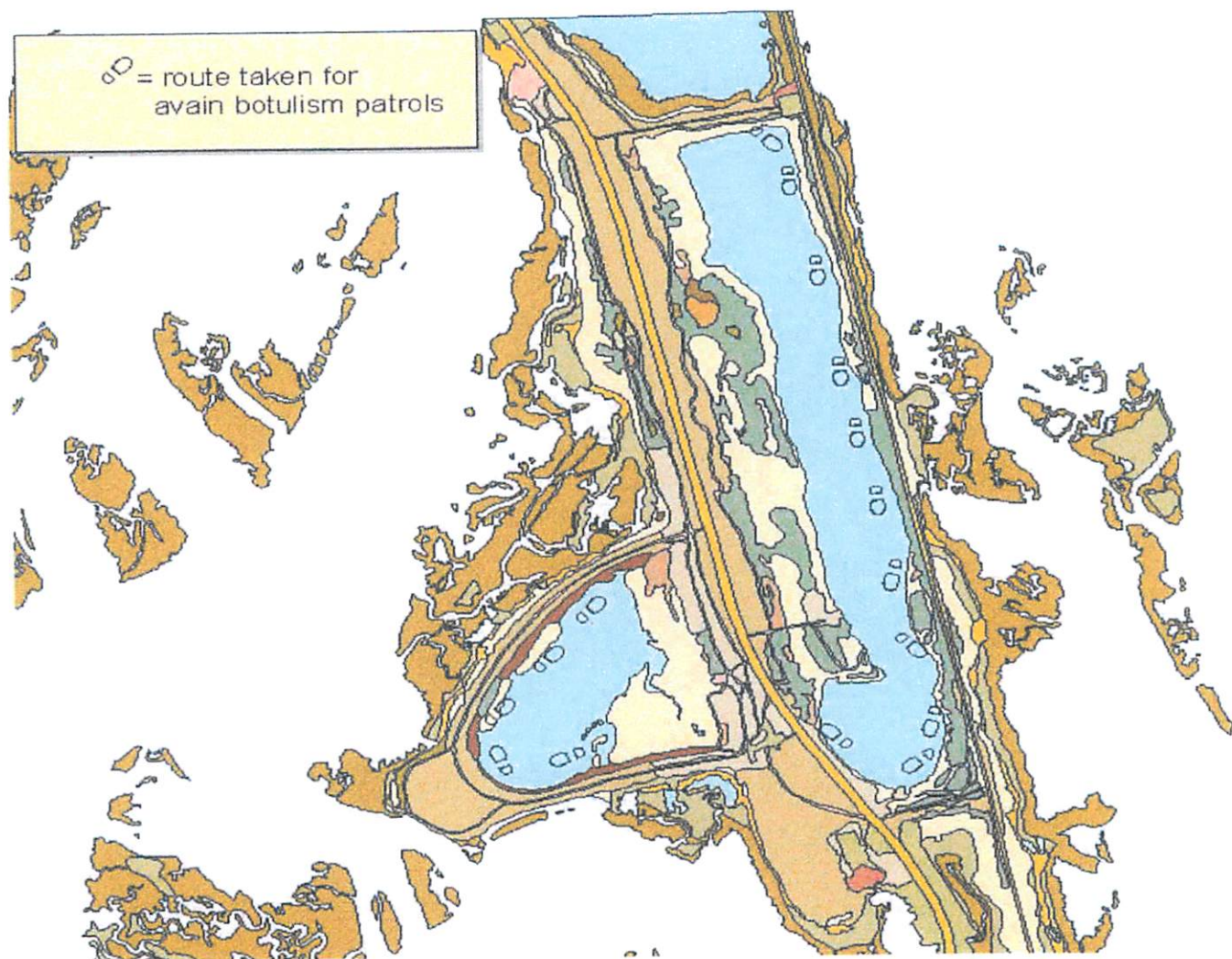
In 1999 eighty-three pages of wildlife sightings were filled out by visitors in the log located outside the Visitor Center. Above is a summary of some of the highlights from those pages.

Pond Avian Botulism Control Patrol Results 1999

Routine Patrols are conducted on the East and West Ponds of the Jamaica Bay Wildlife Refuge to locate and remove dead bird carcasses as part of an avian botulism control plan.

Summary of Dead Bird Patrol results 1999

Pond	Total Duck	Total Gull	Total Geese	Total other	Unidentified	Total Birds
East Pond	2	13	6	1	0	22
West Pond	0	3	6	3	0	12



Big John's Pond Drift Fence Monitoring Results 1999

This year was the fourth year in the five-year Herptile monitoring cycle. The target species were the reptiles and amphibians that breed in Big John's Pond. One hundred and forty-six animals (excluding invertebrates) were captured in a drift fence set up near Big John's Pond. These animals represented sixteen species: four amphibians, seven reptiles, two mammals and three birds.

Species	Total #	Early Date	Late Date	Maximum # / Dat
Reptiles				
Snapping Turtle <i>Chelydra serpentina</i>	4	6/1	9/25	(1) Single
E. Mud Turtle <i>Kinosternon s. subrubrum</i>	2	4/7	4/8	(1) Single
N. Diamondback Terrapin <i>Malaclemys t. terrapin</i>	2	5/24	5/27	(1) Single
E. Painted Turtle <i>Chrysemys p. picta</i>	6	4/27	7/7	(2) April 27
N. Brown Snake <i>Storeria d. dekayi</i>	20	4/19	8/28	(3) July 22
E. Garter Snake <i>Thamnophis s. sirtalis</i>	8	4/9	9/29	(2) Sep 15
E. Milk Snake <i>T. triangulum</i>	3	6/1	4/12	(1) All Single
Amphibians				
Red-spotted Newt <i>Notophthalmus v. viridescens</i>	54	3/10	10/2	(10) March 25
Grey Tree frog <i>Hyla versicolor</i>	11	7/6	7/9	(6) July 7
Spring Peeper <i>Pseudacris crucifer</i>	14	2/25	7/16	(4) April
Wood Frog <i>Rana sylvatica</i>	1	3/19	N/A	(1) Single
Incidental captures				
Mammals				
White-Footed Mouse <i>Peromyscus leucopus</i>	6	3/1	8/23	(1) All Single
Meadow Vole <i>Microtus pennsylvanicus</i>	9	5/19	9/27	(3) June 21
Birds				
American Woodcock <i>Philohela minor</i>	1	6/1	N/A	(1) Single
Common Flicker <i>Colaptes auratus</i>	2	7/19	N/A	(2) July 19
Gray Catbird <i>Dumetella carolinensis</i>	3	6/18	7/19	(2) July 19

Incidental Reptile and Amphibian Sightings in the Jamaica Bay Unit 1999

The following is a list of reptile and amphibian species observed but not part of any annual or formal survey. By compiling this list annually, the park is able to remain current as to the continued presence of these species .

Date	Location	#	Species	Sex/Size	comments
Wildlife Refuge District					
3/19/99	East Garden	1	Box Turtle		Released
3/29/99	BJP	21	Painted Turtle		
3/30/99	East Pond	1	Red-eared Slider	Adult	Relocated
4/28/99	East Pond	2	Snapping Turtle	Adults	
	BJP	1	Spotted Turtle		
5/9/1999	East Garden	1	Box Turtle	Female	
5/9/1999	Building 101	1	Box Turtle	Female	
5/9/1999	?	1	Box Turtle	Tag # 711	visitor report
5/10/99	BJP/ Boardwalk	3	Spotted Turtle		
5/13/99	BJP	1	Snapping Turtle		
6/16/99	BJP	1	Red-eared Slider		
6/17/99	North Grove	1	Box Turtle	Male	Tag # 755
6/21/99	X Bay Blvd	1	Box Turtle	Female	L / 10 R
6/24/99	North Spur	1	Box Turtle	Male	Tag #755
6/17/99	BJP	1	Box Turtle	Male	Tag # 744
Breezy Point District					
3/3/99	Battery Harris E	1	Brown Snake		
7/24/99	Near Chapel	1	Gray Treefrog	Male	Calling

Snake Board monitoring in the Jamaica Bay Unit 1999

7/2/1999:28E/38W	E11	Garter Snake	M/ 43.5	Ready to Shed
	E11	Brown Snake	F/ 32.0	Gravid
	E17	Brown Snake	F/ 34.5	Gravid
	E21	Milk Snake	M/ 51.0	Ready to Shed
	E25	Brown Snake	F/ 33.0	Gravid
7/9/1999:28E/54W	E5	Garter Snake	F/ 53.0	Gravid
	E11	Brown Snake	F/ 32.0	
7/15/99:28E		NSF		
7/22/99:28E/54W	E4	Garter Snake	F/ 57.0	
	E11	Brown Snake	F/ 32.0	
8/2/1999:28E		NSF		
Jamaica Bay District				
5/19/99:30	N40	Black Racer	F/ 142.5	
		Garter Snake	F/ 62.0	
		Garter Snake	F/ 55.0	
<u>Legend</u> E = East W = West N40 = North Forty NSF = No Species Found Gravid = Carrying Eggs All measurments are for total length (tip of nose to tip of tail) and are given in centimeters.				

Snake Board monitoring in the Jamaica Bay Unit

1999

Snakes were monitored in 1998 as part of the five year herp cycle. However due to a variety of factors, possibly extreme dry weather among them, few snakes were captured. In order to fill this gap a new attempt was made at the Wildlife Refuge in 1999. In all thirteen separate searches were made of the eighty-two plywood cover boards to capture and record data on resident snakes. One short transect of ten boards was also conducted at the Jamaica Bay District. At the Wildlife Refuge thirty-five individual snakes were captured and two at the Jamaica Bay District.

Date	Number of boards checked	Board #	Species	Sex/Size	comments
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Wildlife Refuge District

3/23/99	27E / 35W	W2	Brown Snake	14.5cm	
4/15/99	28E / 44 W	NSF			
4/29/99	28E / 44W	E11	Garter Snake	F / 51.5	
5/13/99	28E / 44W	E1	Garter Snake	M / 41.0	
		E21	Milk Snake	F / 64.0	
		E21	Garter Snake		46
5/19/99	28E / 54W	E21	Milk Snake	M / 46.0	
		E1	Garter Snake	M / 43.5	
6/9/1999	28E / 54W	W22	Black Racer	? / 37.0	Ready to Shed
		E17	Brown Snake	F / 33.5	
		E21	Garter Snake	M / 65.5	
6/17/99	28E / 54W	E4	Garter Snake	F / 56.0	Light Rain
		E6	Black Racer	F / 52.0	
		E11	Garter Snake	F / 38.5	
		E12	Brown Snake	F / 31.5	
		E17	Brown Snake	F / 33.5	
		E21	Garter Snake	F / 65.5	Ready to Shed
		W22	Black Racer	? / 45.0	
	South M		Brown Snake	F / 37.5	
6/21/99	28E / 54W	W17	Green Snake	F / 55.0	Rain
		W21	Black Racer	? / 46.0	
		E4	Garter Snake	F / 55.0	
		E11	Garter Snake	F / 39.5	
		E17	Brown Snake	F / 33.5	
		E21	Garter Snake	F / 65.5	
		E21	Garter Snake	F / 54.0	
		E27	Brown Snake	F / 38.0	

Date	# of boards checked	Board #	Species	Sex/Size	comments
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Wildlife Refuge District Platform & Cavity Nesting Bird Program

Osprey platform nesting results

Seven Osprey platforms were available for nesting during the 1999 nesting season. Four platforms were used and produced young. The total production was eleven chicks: three nests produced three chicks and one produced two chicks.

Seven platforms were available

4 of the platforms were used	4 / 7	57%
4 platforms produced young (11 Total)	4 / 4	100%

Tree Swallow \ House Nesting Results

One hundred and seven nesting boxes were available for use in the 1999 nesting season. Eighty seven boxes were used: Sixty nine by Tree Swallows and seventeen by House Wrens. Fifty five Tree Swallows and twelve House Wrens were successful. Success is determined by checking nesting remains post season. Determining the total number of fledgling is, therefore, not possible.

107 Nesting boxes were available

87 nesting boxes were used.	87 / 107	81%
69 were used by Tree Swallows	69 / 87	79%
55 Tree Swallow nests were successful	55 / 69	79%
17 were used by House Wrens	17 / 87	19%
12 House Wren nests were successful	12 / 17	70%

Seven of the twenty of the unused nesting boxes were found to be damaged beyond possible use after the nesting season and may have been unavailable during the nesting season. The House Wren unsuccessful numbers also reflect false nests constructed in boxes to reduce competition. Other factors that may affect the success rates listed are damage to predator guards and tall brush grown over predator guards. In 1998, the Krusos Foundation installed 55 new nesting boxes with new predator guards. In many cases, these boxes replaced old damaged boxes.

Barn Owl nesting results

Twenty-two Barn Owl nesting boxes were available for use during the 1999 nesting season. Fifteen boxes were used, ten of which were successful and produced forty young. Twenty-nine young and four adults were banded.

22 nesting boxes were available in the 1999 nesting season.

15 boxes were used by barn owls	15 / 22	68%
10 boxes produced eggs	10 / 15	67%
10 boxes fledged young (40 Total)	10 / 10	100%

1999 DEC Breeding Waterfowl Survey Plot Results

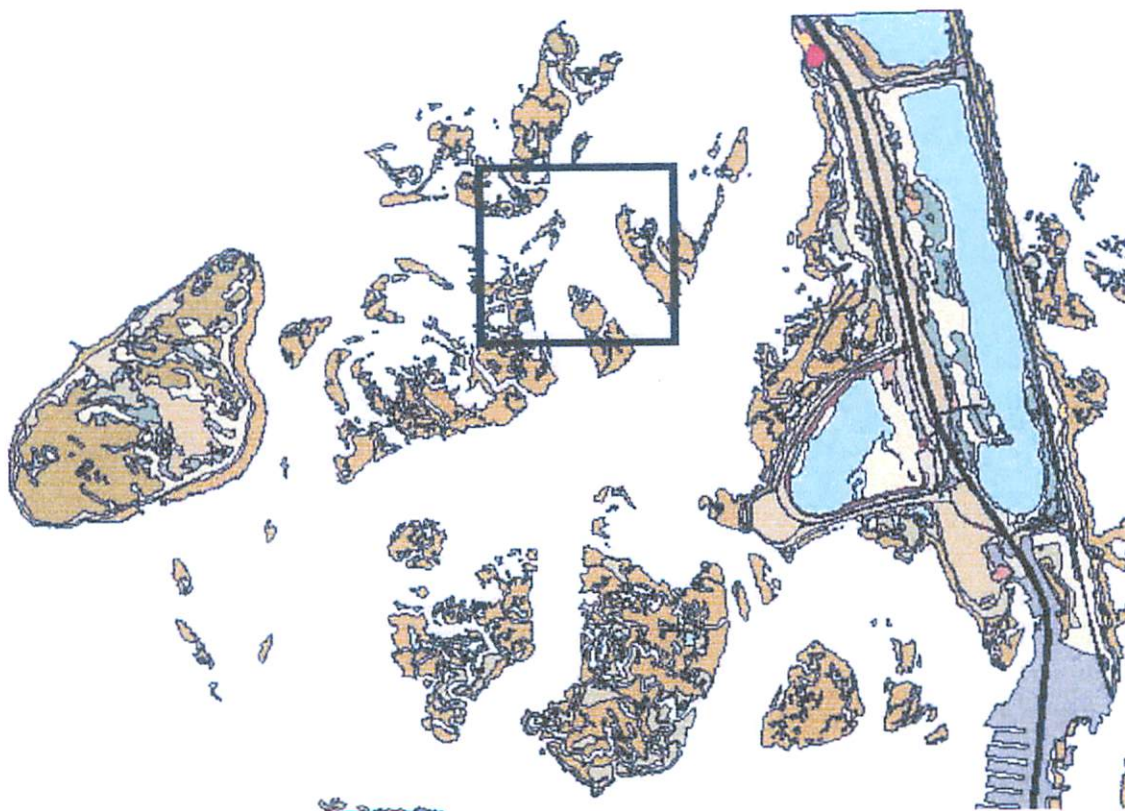
Each year wildlife refuge staff in conjunction with Department of Environmental Conservation conduct a survey of waterfowl present in a preselected study plot in Jamaica Bay. The plot was chosen by the DEC and is consistent from year to year. The survey is conducted during the waterfowl breeding season.

April 22, 1999

Species	Pairs	Lone Males	Groups of 2 Males	Groups of 3 Males	Groups of Four Males	Lone Females W/brood	Other Birds
Mallard							
Black Duck	1						
Wood Duck							
Canada Geese							
Blue-winged Teal							
Mute Swan							
Gadwall							
Green-winged Teal							
Hooded Merganser							
Common Merganser							
Other: Brant	57 *						
Other: Bufflehead	5 *						

* = Wintering Birds

Note: Marshes are regularly flooded. Birds would have difficulty breeding in area plot.



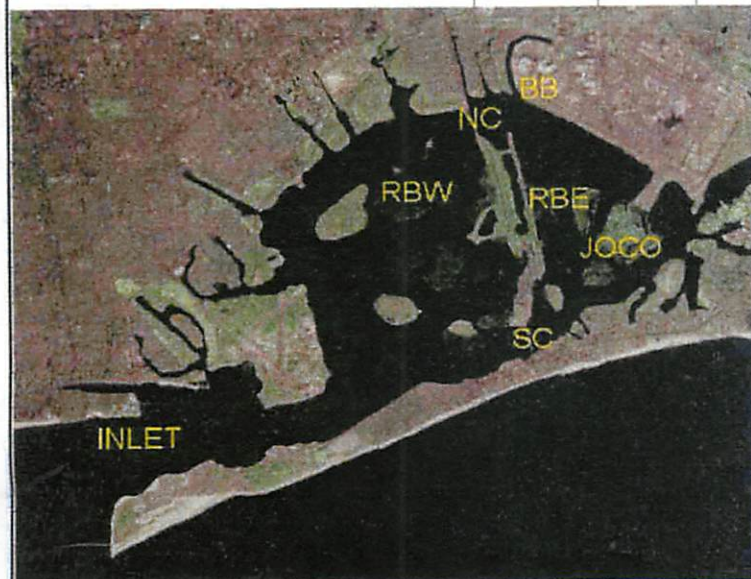
Annual Winter Waterfowl Survey Results 1999

Each winter a count of waterfowl is conducted in Jamaica Bay. The results are also sent to the Federation of New York State Bird clubs, where the data is compiled with the results of other counts taken during the same period

Species	NC	SC	Inlet	BB	RBE	RBW	Jo-co	Total
Horned Grebe	8	10	10					28
Double-crested Cormorant		5		5				10
Great Cormorant	55	20	32					107
Snow Goose					10	720		730
Canada Gose	143	705		40	568	895	140	2491
Brant Goose	197	190	34		763	434	14	2142
Mute Swan	6			2	3	3		14
Gadwall	2			8	6	2		15
American Wigeon	10	13			6	2		31
American Black Duck	45	58	39	10	133	87	527	899
Mallard	2	10	13	35	89	42		189
Northern Shovler					18			18
Northern Pintail					5	5		10
Green-winged Teal					17			17
Greater Scaup	110				289	274		673
Oldsquaw			12					12
Bufflehead	260	244	55	25	82	69	45	780
Common Goldeneye					4			4
Hooded Merganser					5			5
Common Merganser								
Red-breasted Merganser	87	65	35		39	21	2	249
Ruddy Duck					953	451	220	1624

Grand Total

10,048



Legend

NC = North Channel

SC = South Channel

Inlet = The inlet into Jamaica Bay

BB = Bergen Basin

RBE = Rulers Bar East

RBW = Rulers Bar West

Jo-co = Jo-co Marsh

**Population Dynamics of Songbirds at Fort Tilden, Gateway National Park,
Rockaway, Long Island, New York 1999**

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We operated a M.A.P.S. (Mapping Avian Productivity and Survival) banding station at Fort Tilden for our third year in 1999. We operated our standard set of eight 12 meter mist nets on eight dates between 29 May and 6 August. We banded 159 new birds (not previously captured), and retrapped 44 birds previously banded by us at Fort Tilden. The most unusual species that we caught was an Acadian Flycatcher, the first we have caught at Fort Tilden. This is a species that breeds primarily to the south of Long Island, and it is rare transient and breeder in the New York area. We have yet to analyze our data to detect trends or differences in reproduction and survival between 1999 and previous years.

In addition to the MAPS effort, we also banded at Fort Tilden during fall migration, on 25 September. We banded 75 birds of twelve species on that day, attesting to the value of scrub habitats on coastal barrier beaches to migrant birds during the fall. One of the Gray Catbirds that we banded on that day has been recaptured; we are awaiting word from the bird- banding lab as to where the recapture was made.

Nesting ecology of diamondback terrapins

Jeremy Feinberg

The nesting ecology of diamondback terrapins (*Malaclemys terrapin*) was studied in 1998 and 1999 at Gateway National Recreation Area. I found populations of nesting terrapins at three different locations. Most of my research was conducted at the Jamaica Bay Wildlife Refuge.

Female terrapins nested from early June through late July, and laid up to two clutches per season, depositing an average of 10.9 eggs per nest. Nesting activity increased with daily high temperature and high tide. The majority of females were captured when there was 25-75% cloud cover. The majority of nests were counted in shrub-land, mixed-grassland, and dune habitats, but nest density was highest on a man-made, sandy trail and on beaches. Raccoons depredated 92.2% of terrapin nests. Only 5.2% of terrapin nests survived to produce hatchlings. I counted 1,319 and 1,840 depredated nests in 1998 and 1999, respectively, at the Refuge. I also found the carcasses of 23 female terrapins that were apparently killed by raccoons as they came on land to nest.