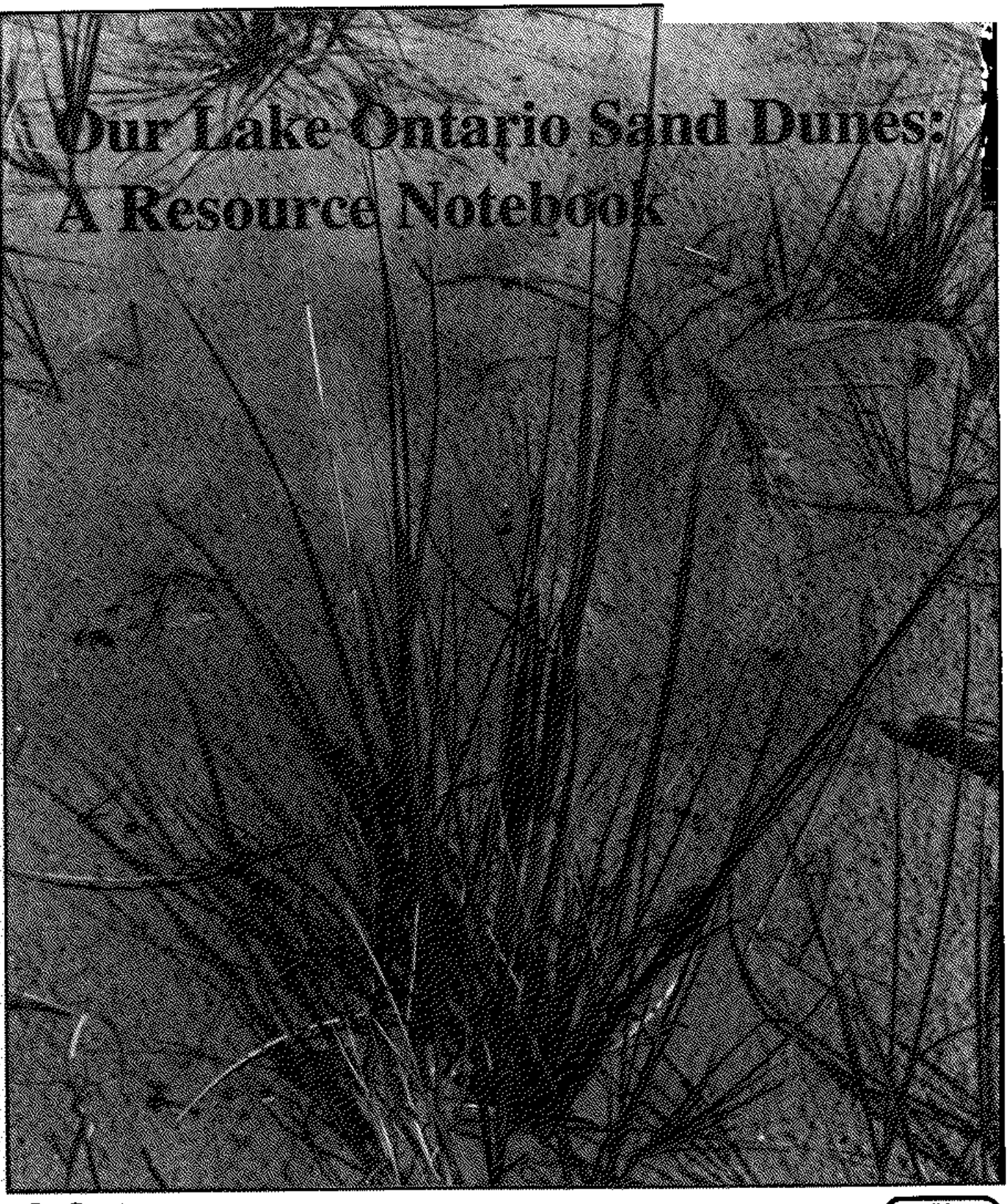
# Our Lake Ontario Sand Dunes: A Resource Notebook



New York Sea Grant

The ONTARIO Dune Coalition

U.S. Fish & Wildlife Service

# OUR LAKE ONTARIO SAND DUNES: A RESOURCE NOTEBOOK

The sand dunes along the eastern shore of Lake Ontario are an integral part of a coastal barrier environment that consists of beaches, sand dunes, embayments and wetlands. This barrier system, which extends for roughly 16.7 miles, contains the largest and most extensive freshwater sand dune formations in New York State.

This coastal barrier, associated wetlands and near-shore waters are especially important to maintain the natural productivity of the coastal environment and provide invaluable habitats for fish and wildlife. In addition, this area contains rare plants, animals and natural communities that are restricted to this type of shoreline area. The marshes and bays protected by the barriers are among the most valuable and productive of all ecosystems. The extensive aquatic habitats behind the barriers developed only after the barrier was formed and would be quickly destroyed if the barrier were eroded and lost. This barrier also provides aesthetic and cultural values, with numerous recreational opportunities which contribute to making these environments desirable places to live and visit.

This resource notebook has been developed by the New York Sea Grant Extension Program in cooperation with the United States Fish and Wildlife Service and The Ontario Dune Coalition to provide resources for those wishing to learn more about this unique system and its use and management. It is our hope that you will share its contents with others so that we can all work toward wise use and conservation of this very valuable and fragile ecosystem.

David G. White
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1993

Sea Grant New York

The ONTARIO Dune Coalition

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# OUR LAKE ONTARIO SAND DUNES: A RESOURCE NOTEBOOK

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Sea Grant New York

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Sea Grant

Coastal Resource
FACTSHEET
August 1993

Cornell Cooperative Extension • State University of New York

# OUR LAKE ONTARIO SAND DUNES: AN OVERVIEW

by David G. White
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## INTRODUCTION

The sand dunes along the eastern shore of Lake Ontario are an integral part of a coastal barrier environment consisting of beaches, sand dunes, embayments and wetlands. This barrier system, which extends for roughly 16.5 miles, contains the largest and most extensive freshwater sand dune formations in New York State. In fact, the only dunes higher than these in the entire northeastern United States are on Cape Cod in Massachusetts.

## DEVELOPMENT OF THE BARRIER SYSTEM

The bedrock formations and topography of the eastern Lake Ontario region have a geologic history of more than 400 million years. The surface formations and landforms, however, have a history no further back than the final advance and retreat of the last glacier 10,000 to 20,000 years ago. As the last glacier (Wisconsin glaciation) receded across the present Lake Ontario basin, melting water from the glacier formed Lake Iroquois, which extended far south of the existing Lake Ontario shoreline. The Lake Iroquois time period (approximately 12,000 years ago) serves as one benchmark used in describing the formation of existing landforms, including the sand dunes, in the eastern Lake Ontario region. Following the Lake Iroquois period, four distinct lake-level stages (Sandy Creek, Skinner Creek, Dune, and North Pond) resulted in sand deposits of different types and in different locations on the coastal and upland areas of the Lake Ontario basin. These geologic phases resulted in what many consider the most dramatic feature of the eastern Lake Ontario coastal barrier system: the extensive formations of sand dunes, some cresting at more than 70 feet above the surface of the lake.

## OWNERSHIP OF THE BARRIER SYSTEM

Of the approximately 16.5 miles of Lake Ontario shoreline (measured between the Salmon River and Black Pond) contained in the eastern Lake Ontario barrier system, an estimated 6.7 miles (41%) is publicly owned, and an estimated 9.8 miles (59%) is privately owned. Of the publicly owned shorefront, 6 miles (90%) is contained within three state Wildlife Management Areas, with the remaining 10% (less than one mile) within state park land. Of the privately owned shorefront, roughly 7 miles (73%), is in residential use, less than a mile of shoreline

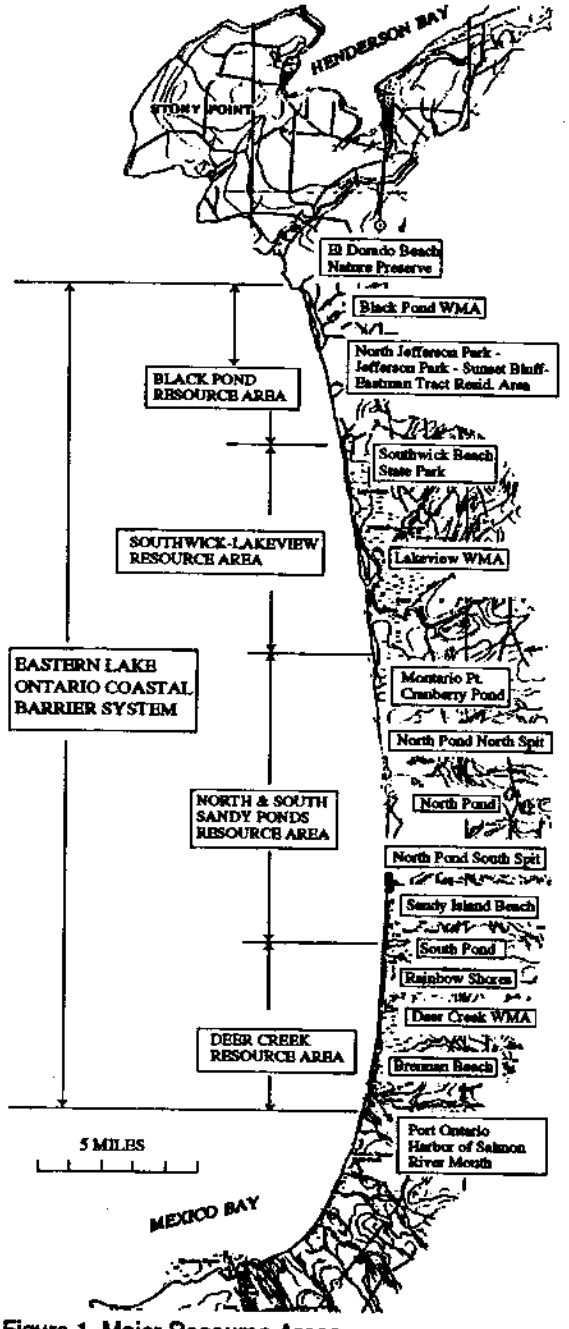


Figure 1. Major Resource Areas.

is in commercial campground use, and roughly 1.7 miles is undeveloped.

## MAJOR RESOURCE AREAS

Four major resource areas can be identified within the coastal barrier system. These resource areas are defined by the major aquatic habitat areas (wetlands and embayments) protected by the eastern Lake Ontario barrier system. These are the: Black Pond Resource Area; Southwick-Lakeview Resource Area; North and South Sandy Ponds Resource Area; and Deer Creek Resource Area.

### Black Pond Resource Area

This area contains the northernmost of the major wetlands protected by the coastal barrier system. The barrier contains a nature preserve owned and managed by The Nature Conservancy at El Dorado Shores and Black Pond, the state's Black Pond Wildlife Management Area, and shorefront residential development. The barrier is particularly notable for the well-developed and preserved high sand dune formations found in The Nature Conservancy preserve and the Wildlife Management Area and for the regionally significant habitat provided for large concentrations of shorebirds, waterfowl, and other migratory birds.

### Southwick-Lakeview Resource Area

This area contains Southwick Beach State Park and the Lakeview Wildlife Management Area and is entirely owned by the state of New York. The Wildlife Management Area contains two barrier sections separated by the mouths of Sandy and South Sandy creeks. The northern section of the Wildlife Management Area, bounded by the state park, is used for swimming and picnicking by people entering the area through the park; the southern section is less accessible by foot and less disturbed by human use. When the natural outlet of South Colwell Pond is open and flowing, marking the southern boundary of the Wildlife Management Area, the southern barrier section becomes a barrier island.

### North and South Sandy Ponds Resource Area

The Sandy Ponds Resource Area is characterized by two barrier spits: the shifting North Sandy Pond inlet and the two sets of high dunes that flank it. The sand flats of each spit near the inlet provide regionally significant habitat for shorebirds and migratory species. The northern portion of the south spit contains the largest undeveloped, privately owned piece of land in the overall barrier system.

Found in this resource area are shorefront residential development and a commercial day-use beach site. Because it is sheltered from the open waters of Lake Ontario, North Sandy Pond supports intensive recreational activities (boating and fishing) during the summer months, and several boating and marina-access facilities have been developed on the pond.

### Deer Creek Resource Area

This resource area contains the Deer Creek Wildlife Management Area and privately owned sections of the Deer Creek marsh. Included in the Wildlife Management Area is the barrier system's fourth set of high sand dunes and a commercial campground.

## FUTURE OF THE BARRIER SYSTEM

These dunes are vital to the continuing integrity of the barrier system. The climatic and geomorphic conditions under which the dunes were formed no longer exist. If destroyed, these dunes are unlikely to ever regain their current natural resource values.


## ACKNOWLEDGMENTS

Special thanks to Dieter Busch, Lee Chamberlaine, Tom Cutter, John DeHollander, Diane Jackson, Diane Kuehn, Pat Peterson, and Jennifer Pultz for their review and assistance with this publication.



Copies of this publication are available from:

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Sea Grant

Coastal Resource
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September 1993

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# OUR LAKE ONTARIO SAND DUNES: AN OVERVIEW OF THEIR FLORA

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## INTRODUCTION

Sand dunes are a very challenging habitat for plant life. The dunes hold plant nutrients very poorly and are constantly subjected to wind and water erosion. Few plants can tolerate the low fertility, unstable conditions, and extreme fluctuations in temperature and moisture found in dunes. Without these plants, though, lakeshore dunes would resemble desert dunes, constantly changing and moving across the landscape. The dune ridges that line the eastern shore of Lake Ontario are stabilized by plants that are specially adapted to the harsh conditions.

In total, 315 vascular plant species have been reported living on our dune system. These can be grouped into four recognizable plant communities: the American beachgrass community; the poison ivy-dune grape-cottonwood community; the red oak-red maple forest community; and the alder thicket community. The following description of the dune flora of eastern Lake Ontario includes a general discussion of each community and the dominant plants that make up at least half of the cover found in each. A checklist is also provided. It includes the 46 most common dune species, plus 23 additional species that are readily visible from public access points.

## THE AMERICAN BEACHGRASS COMMUNITY

Immediately adjacent to the beach lie long, sparse stands of American beachgrass and tall wormwood, punctuated by stands of cottonwood saplings and shrubby dune willows. This is the beachgrass community that occurs on our foredunes, the first line of dunes above the beach. This community can also be found on blowout areas on the interior dunes, and at the back of the barrier in disturbed areas.

American beachgrass (or marram grass) is a tough, coarse grass that may grow to knee height; it spreads by underground runners known as rhizomes. The rhizomes travel in a line parallel to the surface, a few inches down, sending up new shoots called tillers every foot or so. Beachgrass tillers form a barrier that slows down wind, especially in the first few inches above the surface where most sand movement occurs. In this way beachgrass acts as a wind break, much as a snow fence does in the winter.

American Beachgrass

Not only can beachgrass endure the onslaught of the wind, it also thrives under burial by sand. It responds by growing vigorously up through the sand and by starting new rhizomes as the old ones become buried. The successive layers of rhizomes, with fine roots growing from them, form a tight network that holds sand in place, allowing dunes to grow and stabilize. American beachgrass grows throughout the Great Lakes area and along the Atlantic coast from Maine to North Carolina.

Tall wormwood is a biennial plant that grows scattered among the beachgrass tillers. It germinates from seed in early summer, producing small, lacy gray-green tufts of vegetative growth as summer progresses. While

many individuals succumb to desiccation or burial before fall, some survive to produce tall, bushy stems that bloom late the following summer. Several similar species of wormwood occur on most United States seacoast dunes and throughout the Great Lakes. Tall wormwood is closely related to the ornamental dusty miller, and to the sagebrush of the western plains.

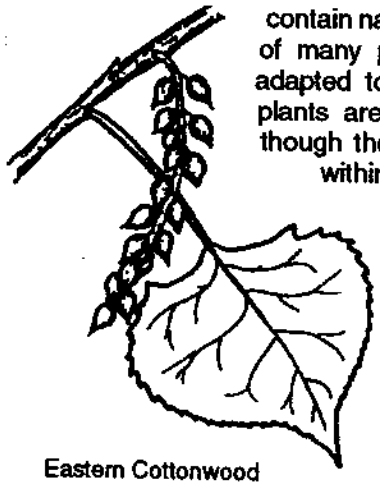
Eastern cottonwood, a tree that commonly grows along riverbanks throughout the eastern and midwestern United States, has windblown seeds that are released in June, blanketing the lakeshore area. The seeds germinate in damp, open sites in the drift line at the upper limit of summer waves, with seedlings appearing in late June to early July. Although most of them are washed away, in some years high water levels do not reach the seedlings, and a new line of cottonwood trees is established to grow up and join beachgrass in trapping sand to build dunes. As sand continues to accumulate, cottonwoods can sprout new roots along the buried portion of their trunks, thus enabling cottonwood to be the only dune-forming tree on the eastern shore of Lake Ontario.

Sand-dune (heart-leaf) willow and sand cherry are two rare shrubs that belong to the beachgrass community. Sand-dune willow has broad, leathery, heart-shaped leaves densely covered with white hairs. It spreads by rhizomes, forming loose, multi-stemmed colonies that rarely grow more than 8 to 10 feet tall. Sand-dune willow is restricted to the Great Lakes dunes, and is listed as threatened in New York State. However, it is common on our Lake Ontario eastern shore, where it grows along the tops of the foredunes, into low interior areas called swales, and even onto stabilized secondary dunes.

Sand cherry is a low shrub, rarely growing more than three to four feet high, that remains vigorous only where sand continues to accumulate. It is most conspicuous in early June when covered with delicate white blossoms. Sand cherry is easily visible from the beach when in bloom, but is very rare on the eastern shore dunes. Sand cherry is listed as rare in New York State.

A few hardy beach annuals are scattered near the beachward toe of the foredunes, especially in the rows of wind-driven debris. They are entirely at the mercy of waves, wind, and human activity, but somehow they manage to germinate, grow, and reproduce each summer before fall and winter storms wash them away. Beach clotbur has rough, sandpapery, triangular leaves and sharp burry fruits. It is the most common beach plant on the eastern shore. Sea rocket grows only on sandy beaches and is quite uncommon on the eastern shore. It has thick fleshy leaves and tiny white flowers with four petals.

In some years after a strong wind, the beach will contain narrow lines of seedlings of many plants not particularly adapted to beach living. These plants are fun to explore even though they are generally gone within a few weeks.



Eastern Cottonwood

## THE POISON IVY - DUNE GRAPE - COTTONWOOD COMMUNITY

The beachgrass community changes growing conditions on the sand it occupies and on the interior dunes behind it. Plants shade the surface, moderating temperature fluctuations and moisture availability. Leaves that drop each year decompose and release plant nutrients. Moving sand falls as wind velocity drops, so both wind speed and sand movement decrease behind the first dune. Terrain is rolling on the interior dunes, with damp swales and dry secondary dunes, and some blowout areas where sand is still moving. The poison ivy-dune grape-cottonwood community takes advantage of these improved but variable conditions, featuring several new plants in addition to declining proportions of beachgrass community members.

Dominants of this community are common, widely distributed plants that live together in an uncommon arrangement on the dunes. Cottonwoods, still the only trees in evidence, are clumped on the tops of the secondary dunes. In most habitats poison ivy and dune (or riverbank) grape have strong climbing tendencies, but not on the dunes. Here they grow together in large, tangled, bushy patches two to five feet high.

Chokecherry, a shrub with clusters of bitter, deep purple berries, is abundant in this community. Another common plant is the European buckthorn, a shrub with deep green, glossy leaves and poisonous black berries. On the ground, beachgrass has given way to gray and Canada goldenrod, spotted knapweed, and a variety of grasses and grasslike plants. Baltic rush is one grasslike plant that is characteristic of Great Lakes dunes. This plant can be recognized by its 12-to 18-inch tall, dark green, slender stems, growing in a line from an underground rhizome. These plants form dense stands in damp swales.

American Beech

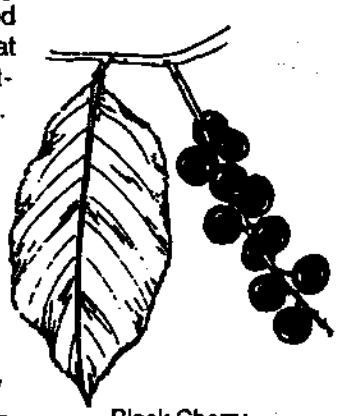
## THE RED OAK - RED MAPLE DUNE FOREST COMMUNITY

High dunes are scattered along Lake Ontario's eastern shore. The high dunes support a red oak-red maple dune forest. The red

oaks and red maples are joined by American beech, sugar maple, and black cherry to form an open-canopied overstory. Thriving understory trees include striped maple, shadbush and chokecherry. Dune grape and poison ivy are still present, but in lower proportions. The beachgrass community species are entirely gone, needing full sun to survive. On the ground, dense patches of red raspberry alternate with poison ivy-dune grape thickets. Dominant species on the ground include late- and blue-stem goldenrods and wild sarsaparilla. All of the aforementioned plants are common upland species of the surrounding area.

## THE ALDER THICKET COMMUNITY

The transition zone between dunes and wetlands is an almost impenetrable tangle of shrub thickets. This community can be viewed from ponds and streams that course through the wetlands behind the barrier. Speckled alder, which dominates the closed canopy, forms multi-stemmed clumps about 20 feet tall. Sometimes winterberry or nannyberry dominate, particularly near the bottom of forested high dunes. A few large, multi-stemmed hybrid willows rise above the thicket, as do some young green ash trees. Dune grape is abundant and climbs in this dense community. Black cherry saplings, smaller shrubs of arrowwood, and chokecherry are scattered among the dominants. On the ground, patches of red raspberry are found on drier mounds alternating with sensitive ferns, wetland grasses, and sedges in the wet depressions.



Black Cherry

Vegetation of the interior and back dunes is dependent on the stabilized conditions provided by an intact foredune. Beachgrass is adapted to the natural challenge of nature, but not to the added stress of human intrusion. When beachgrass cover is disturbed, sand blows into the barrier, burying and killing the plants.


## ACKNOWLEDGMENTS

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# FIELD CHECKLIST

This checklist includes 69 common vascular plants of our eastern Lake Ontario dunes.

| | COMMUNITIES | | | |
|---|---|---|---|---|
| **TREES** | **1** | **2** | **3** | **4** |
| __ Ash, green | | | O | A |
| __ Beech, American | | | O | |
| __ Cherry, pin (fire) | | R | | |
| __ Cherry, black | | O | O | O |
| __ Cottonwood, eastern | A | A | | |
| __ Maple, sugar | | | O | |
| __ Maple, striped | | | O | |
| __ Maple, red | | | A | A |
| __ Oak, northern red | | O | A | R |
| __ Poplar, lombardy | R | R | | |
| __ Poplar, balsam | R | R | | |
| __ Willow, hybrid | R | O | | O |
| **SHRUBS** | | | | |
| __ Alder, speckled (hazel) | | | | A |
| __ Arrowwood | | | O | |
| __ Blackberry | | R | A | O |
| __ Buckthorn, European | | O | O | |
| __ Cherry, choke | | A | A | O |
| __ Cherry, sand | R | R | | |
| __ Dogwood, silky | R | | | O |
| __ Nannyberry | | | O | O |
| __ Raspberry, red | | A | A | O |
| __ Shadbush | | O | | |
| __ Willow, sand-dune (heart-leaf) | O | O | | |
| __ Winterberry | | | A | O |
| **VINES** | | | | |
| __ Grape, riverbank (dune) | R | A | O | O |
| __ Greenbrier, bristly | | | O | O |
| __ Poison ivy | R | A | O | R |
| **FERNS AND FERN ALLIES** | | | | |
| __ Horsetail, field | R | O | | O |
| __ Horsetail, shore | R | O | | |
| __ Sensitive fern | | | O | O |

| | COMMUNITIES | | | |
|---|---|---|---|---|
| **WILD FLOWERS** | **1** | **2** | **3** | **4** |
| __ Bedstraw, sweet-scented | | | | O |
| __ Beggar ticks | O | | | O |
| __ Bindweed, fringed | | | A | |
| __ Blue flag, larger | | | | R |
| __ Bouncing bet | | A | O | |
| __ Bugleweed, Virginia | R | | | O |
| __ Clotbur, beach | O | | | |
| __ Evening primrose, common | O | O | | |
| __ Fleabane, daisy | | O | | |
| __ Goldenrod, blue-stem | | O | A | O |
| __ Goldenrod, Canada | | A | O | R |
| __ Goldenrod, gray | | A | | |
| __ Goldenrod, late | | O | O | A |
| __ Goldenrod, rough-stemmed | | | | A |
| __ Iris, yellow | | | | R |
| __ Knapweed, spotted | | A | | |
| __ Lady's tresses, nodding | | R | | |
| __ Mayflower, Canada | | O | A | O |
| __ Milkweed, common | R | O | | |
| __ Pea, beach | O | | | |
| __ Sandwart, blunt-leaved | | O | A | O |
| __ Sarsaparilla, wild | | | A | |
| __ Sea rocket | R | | | |
| __ Silverweed | O | | | O |
| __ Solomon's seal, star-flowered false | O | A | O | |
| __ Sorrel, sheep | | A | | |
| __ Spurge, seaside | O | | | |
| __ Touch-me-not, spotted | | | | O |
| __ Wormwood, tall | A | A | | |
| __ Yarrow | O | O | R | |
| **GRASSES & GRASS-LIKE PLANTS** | | | | |
| __ Beachgrass, American | A | A | | |
| __ Bluegrass, Canada | | A | O | R |
| __ Bluegrass, Kentucky | | O | | |
| __ Fescue, sheep | | A | | |
| __ Hairgrass, common | | | O | |
| __ Mannagrass, fowl | | | | A |
| __ Reed canary-grass | | | | A |
| __ Rush, Baltic | R | A | | O |
| __ Wild-rye, Canada | O | O | | |

**KEY**

Communities:

1 American beachgrass
2 Poison ivy – dune grape – cottonwood
3 Red maple – red oak forest
4 Alder thicket

Abundance categories:

**A** abundant
**O** occasional
**R** rare

Poison Ivy

Sensitive Fern

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by
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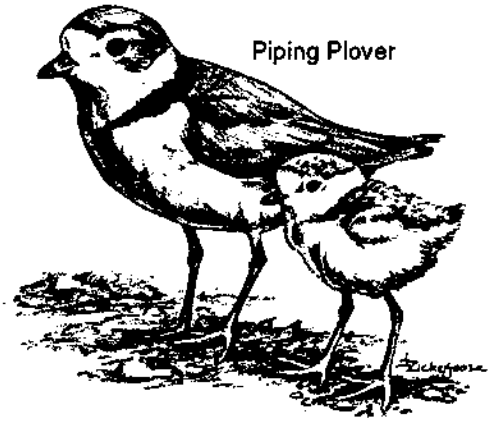
## INTRODUCTION

Our Lake Ontario dune system supports a variety of distinctly different faunal habitats. The open, sandy beach provides access to fresh water and a variable drift line of decomposing plant and animal remains. Primary and low secondary dunes offer patches of herbaceous plants and low shrubs, alternating with bare sand. Though cover and food are sparse for large mammals, the soil is easily excavated. Also, small patches of forest attract various fauna that never venture out onto the exposed beach. The dense, wet shrub thickets that lie between the dunes and the marsh provide habitats that overlap somewhat with both of them.

## BEACH FAUNA

Resident fauna on the beach are mostly arthropods: a variety of mites, beetles, flies, springtails, booklice, and small moths in the beach driftline on Lake Ontario sand beaches. These arthropods feed on washed-up plant, fish, mammal and bird detritus, fungi that grow on these materials, and each other. Tiny worms are also seen in the beach sand. Wolf spiders, resident in the more protected dunes above the beach, forage at night amidst the litter. The burrows of predatory wasps are sometimes seen in the fall. Female wasps lay eggs in the burrow, and line the chambers with insects as food for the emerging larvae.

Shorebirds prey on these beach invertebrates; they can be seen running along the water's edge in spring and again from midsummer to late fall. Shorebirds stop to feed during migration, which takes them from their Arctic breeding grounds to South American wintering areas and back each spring. Our eastern Lake Ontario shore dunes, and especially the flat rocky shores just north of the dune area, constitute the only substantial fall feeding grounds for these migrants between James Bay, Ontario, and Cape May, New Jersey. Sanderling, semi-palmated sandpiper, least sandpiper, and semi-palmated plover are seen in substantial numbers. Spotted sandpiper and killdeer nest in the foredunes, laying their eggs on the ground in shallow depressions scraped in the sand.



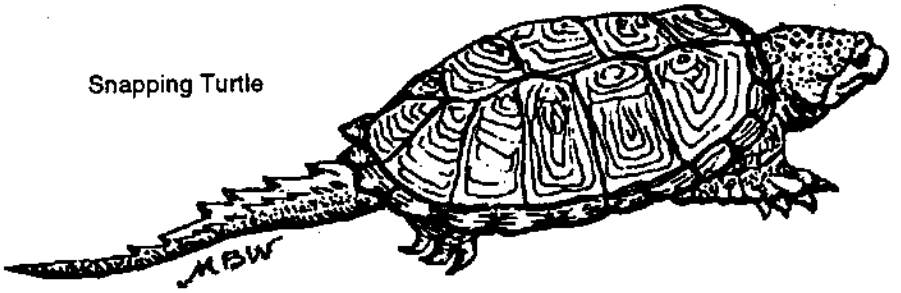
Piping Plover

The piping plover, which once nested at the lakeward edge of our dunes is no longer seen here because it is completely intolerant of human presence.

Ring-billed, herring, and great black-backed gulls congregate on the shore, foraging for bird and fish detritus. Great squadrons of double-crested cormorants commute offshore from their island breeding grounds to feeding areas on the lake. Caspian and common terns rest among the gulls and fish in the shal-

lows, particularly where streams and ponds flow into the lake. Black terns commute across the barrier to fish in shallow sandbar waters as well. Of special interest are the common tern (NYS threatened species) and the black tern (NYS species of special concern). Both species breed in areas protected by the dunes and have declined in abundance in recent years.

Signs of wildlife to be found in the beach sand include tracks of white-tailed deer, red and gray fox, great blue heron, painted and snapping turtle, and various caterpillars. Among the migrants that follow the shoreline are monarch butterflies as well as a great many raptors and Neotropical songbirds.



Snapping Turtle

## FAUNA OF THE DUNE AND SWALE

Habitat conditions on primary and low secondary dunes and swales provide more opportunities for food and shelter. Small rodents abound, both in brushy cover and open, herbaceous dunes, especially the white-footed mouse. These and other herbivores become prey for red and gray fox and eastern coyote. Well-established animal trails are regularly used by foxes and coyotes as well as by white-tailed deer. Snapping and painted turtles haul out of the marshes in June to dig nests and lay eggs in patches of bare sand. The eggs are subject to heavy predation by skunk, raccoon, red and gray foxes, oppossums, and possibly minks. Excavated turtle nests are a common sight on the bare sand of interior dunes.

Among the arthropods, there are 36 species of mites found in cottonwood litter as well as an abundance of spiders, beetles, ants, solitary bees, robber flies, digger wasps, deer flies, mosquitoes, butterflies, and moths. Chrysomelid beetles, especially the tiny, steel blue imported willow leaf beetle, feed in substantial numbers on cottonwood leaves and various kinds of willow leaves. Antlion nymphs excavate steep, cone-shaped traps 1 to 2 inches deep in patches of bare sand, then lie in wait just below the surface to snatch unwary prey. The tiger beetle flies about in search of its insect prey.

The abundance of insect prey attracts a variety of breeding birds to the interior dunes and swales. Yellow warbler and song sparrow nest in great numbers in shrubby cover on the interior dunes, while tree-cavity nesters such as house wrens and black-capped chickadees find nesting habitat in the cottonwoods. These and other shrub and cavity nesters supplement their diet with seeds of grasses, goldenrods, and other herbaceous perennials, and fruits of chokecherry, poison ivy, dune grape, and other shrubs. Brown-headed cowbirds have also been found to parasitize nests in this open habitat.

## FAUNA OF THE FOREST AND THICKET

The white-tailed deer find cover and forage, while the red and gray fox and eastern coyote find the red-backed vole abundant. Fox and deer share well-defined trails here, as they do in the open interior dunes. Beaver move among the alders selecting stems to harvest. Snapping and painted turtles may travel through these habitats to reach the open sand of the interior dunes for nesting. Young turtles returning to the marsh provide prey for raccoons, weasels, striped skunks, and other predators.

Insects are abundant: mosquitoes, mayflies, midges, oak apple galls, eastern tent caterpillars, mourning cloak butterflies, and a variety of moths, some of them rare. Inchworms and other green larvae of these moths feed on the foliage. A great many other arthropods abound, but little specific data exist for the area.

The abundant insect forage base and dense cover provide breeding habitat for ruffed grouse, and other shrubland and forest birds. The yellow warbler, common in the open habitat, is joined here by common yellowthroat, gray catbird, American redstart, great crested flycatcher, and veery, among others. The tree frog, wood frog, and garter snake feed on the insects as well as various slugs, grubs, and worms.


American Bull Frog

## SUMMARY

Our eastern Lake Ontario dunes provide a mosaic of habitats for a wide variety of common fauna, as well as unique opportunities for several rare species. The migrating shorebirds, in particular, depend on these feeding grounds.

Some shorebirds that nest on our shores, like killdeer and spotted sandpiper, need quiet stretches of sand. The piping plover, which once nested at the

lakeward edge of our dunes is no longer seen here because it is completely intolerant of human presence.

## ACKNOWLEDGMENTS

Specific data on the fauna of our Lake Ontario dunes are sparse. The information provided here is based on Gordon, (1986), Jankowitz (1988), Norton (1973), Bonanno and Smith (1991); field notes of the New York Natural Heritage Program and knowledgeable local ecologists; and various field guides (Borror and White 1970, Ehrlich et al. 1988, Stokes 1983).

We thank Lee Chamberlaine for information on all groups of fauna, and Gerry Smith for insight on birds. We also thank Paul Novak and Kathy Schneider for information on arthropods, and Diane Chepko-Sade for information on bats. Special thanks to Dieter Busch, Tom Cutter, John DeHollander, Diann Jackson, Diane Kuehn, Pat Peterson, and Jennifer Pultz for their review and assistance with this publication. Illustrations by Mary Burdette Watkins and Julie Zickefoose.

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# FIELD CHECKLIST

This checklist includes some of the mammals and birds that are known or suspected to inhabit or visit our Lake Ontario dunes and associated shrub thickets. It does not include birds that breed and remain in the marshes, sands, and streams behind the dunes.

**MAMMALS**

___ Bat, big brown
___ Bat, hoary
___ Bat, little brown
___ Bat, red
___ Bat, silver-haired
___ Beaver
___ Chipmunk, eastern
___ Coyote, eastern
___ Deer, white-tailed
___ Fox, gray
___ Fox, red
___ Mink - rare
___ Mole, star-nosed
___ Mouse, house
___ Mouse, meadow jumping
___ Mouse, prairie deer - rare
___ Vole. red-backed
___ Mouse, white-footed
___ Opposum
___ Rabbit, cottontail
___ Raccoon
___ Shrew, masked
___ Shrew, short-tailed
___ Skunk, striped
___ Squirrel, gray
___ Squirrel, red
___ Weasel, long-tailed
___ Weasel, short-tailed
___ Woodchuck
___ River Ooter
___ Muskrat

**BIRDS**

***Gulls, Terns, Shorebirds, and Waterbirds***

___ Cormorant, double-crested
___ Duck, mallard
___ Duck, wood
___ Goose, Canada
___ Gull, Bonaparte
___ Gull, great black-backed
___ Gull, herring
___ Gull, ring-billed
___ Heron, great blue
___ Killdeer
___ Loon, common
___ Plover, semi-palmated
___ Sanderling
___ Sandpiper, least
___ Sandpiper, semi-palmated
___ Sandpiper, spotted
___ Tern, black
___ Tern, Caspian
___ Tern, common
___ Turnstone, ruddy
___ Yellowlegs, lesser
___ Yellowlegs, greater

***Hawks, Owls, and Goatsuckers***

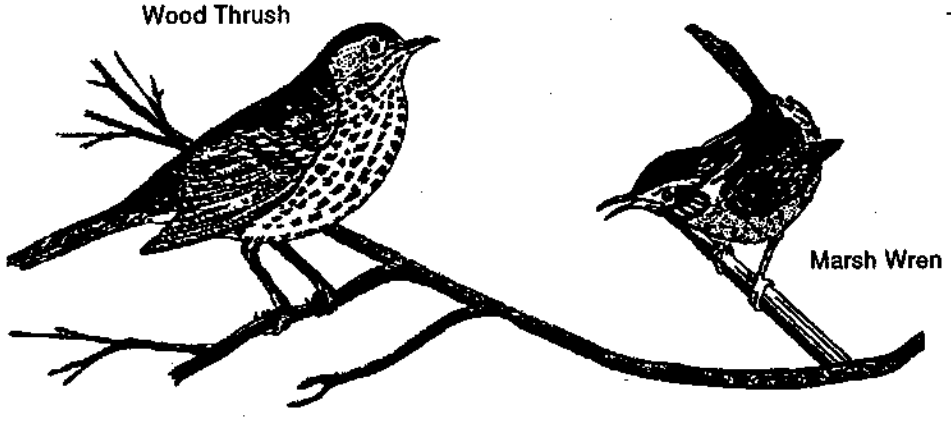
___ Eagle, bald
___ Eagle, golden
___ Falcon, peregrine
___ Harrier, northern
___ Hawk, red-tailed
___ Hawk, rough-legged
___ Nighthawk, common
___ Osprey
___ Owl, great horned
___ Owl, snowy
___ Vulture, turkey

***Fowl***

___ Grouse, ruffed

***Passerines***

___ Blackbird, red-winged
___ Cardinal, northern
___ Catbird, gray
___ Chickadee, black-capped
___ Cowbird, brown-headed
___ Dove, mourning
___ Flicker, northern
___ Flycatcher, great crested
___ Flycatcher, willow
___ Goldfinch, American
___ Grackle, common
___ Grosbeak, rose-breasted
___ Hummingbird, ruby-throated
___ Jay, blue
___ Kingbird
___ Nuthatch, white-breasted
___ Oriole, northern
___ Redstart, American
___ Robin, American
___ Sparrow, song
___ Sparrow, swamp
___ Starling, European
___ Swallow, bank
___ Swallow, tree
___ Thrasher, brown
___ Thrush, wood
___ Towhee, rufous-sided
___ Veery
___ Vireo, red-eyed
___ Vireo, warbling
___ Warbler, black-poll
___ Warbler, chesnut-sided
___ Warbler, yellow
___ Waxwing, cedar
___ Woodpecker, downy
___ Wood-pewee, eastern
___ Wren, house
___ Yellowthroat, common



Sea Grant

Coastal Resource
FACTSHEET
September 1993

Cornell Cooperative Extension • State University of New York

# OUR LAKE ONTARIO SAND DUNES: MINIMIZING IMPACTS OF YOUR VISIT

by
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New York Sea Grant Institute

and

David G. White
Program Coordinator
New York Sea Grant Extension

## INTRODUCTION

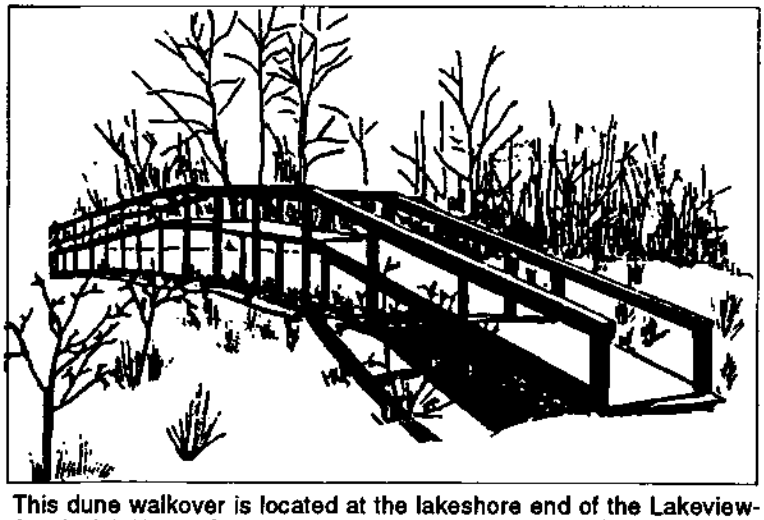
Our eastern Lake Ontario dune-wetland system is a priceless treasure. Freshwater dune barriers of this magnitude are found nowhere else in New York. Our dune area is treasured by seasonal visitors for swimming, sunbathing, picnicking, camping, hiking and bird watching. Sunsets over the lake are second to none.

Our dune area includes approximately 16.7 miles of shoreline owned and managed by the state of New York and open to limited public use. Thousands of visitors use the area each year, and the number continues to grow annually.

The value of our dune system for recreation is tremendous, both personally to each visitor, and economically to the eastern shore economy. Dunes have very important natural values as well. Our dunes provide habitat for a variety of birds and wildlife. Two rare or threatened plant species thrive there. But most importantly, our dunes form a barrier that absorbs the energy of storm-driven lake waves, creating calmer conditions in the low-lying expanses behind the barrier where extensive high quality wetlands have developed. The eastern shore dune-wetland complex includes the highest concentration of state-designated Significant Coastal Fish and Wildlife Habitats in New York State (NYS).

Wetlands are an important buffer that protects Lake Ontario water quality from the impact of activities that occur on adjacent uplands. Wetlands trap sediments, pollutants, and excess nutrients carried by runoff. They also store excess water during high-water periods and release it during drought. Without an intact and healthy dune barrier on our Lake Ontario eastern shore, these wetlands would be lost.

Our dune barrier is always changing. Its protective capacity is not based on the ability to stand firm before the forces of wind and waves, but rather on the ability to give way during storms and high water and rebuild in times of gentle breezes and low water. This cycle of erosion and rebuilding occurs as long as:



This dune walkover is located at the lakeshore end of the Lakeview-Southwick Nature Trail.

- Sand is available and not prevented from moving on, off, and along the shore;

- Plants adapted to shore conditions are available to trap newly deposited sand; and
- The necessary growing conditions for these plants are present.

We can enjoy the recreational use of our Lake Ontario dunes as long as these three factors are allowed to rebuild them.

## THE IMPACT OF RECREATION ON OUR DUNES

How we affect the dunes is based on the impact we have on the growing conditions for plants. While dune plants are specially adapted to the challenges nature presents, they are particularly sensitive to human disturbance. Within six weeks, two people per day entering the dunes and returning to the beach along the same path can severely damage the vegetation. As few as 25 round trips on a path over one summer can destroy half the vegetation in the path. Similar intensity of use by an off-road vehicle will totally destroy the vegetation.


Damaged vegetation is less capable of providing a windbreak, and as a result wind velocity increases near the ground where sand movement occurs. These changes result in larger areas of bare sand on the beach and in the dunes. Wind then scours the sides of small paths, increasing their width and depth. As the paths become deeper, wind funnels through them; the constriction causes wind velocity to increase, further scouring the sides of the path. Progressive wind erosion results in the blowouts seen at intervals on our dunes. Thus, when foredune plant growth is damaged, vegetation on the interior dunes is also damaged, since an intact foredune shelters and greatly contributes to better growing conditions on interior dunes. In extreme cases sand can move rapidly inland, burying the wetlands it helped foster and any other vegetation or structure in its path. Examples of such runaway dunes also exist on our eastern shore.

Other consequences of recreational use of our dunes may include harassment of waterbirds, migrating shorebirds, and nesting shorebirds. They are extremely intolerant of visitors and are easily denied nesting habitat by the very presence of recreational beach/dune users.

While dried driftwood makes great campfires, this and other natural debris washed up by the lake help trap sand; and are the only source of nutrients available for plant growth on the foredunes. Also, beach campfires leave unsightly scars and pose a fire threat to surrounding vegetation in this dry habitat.

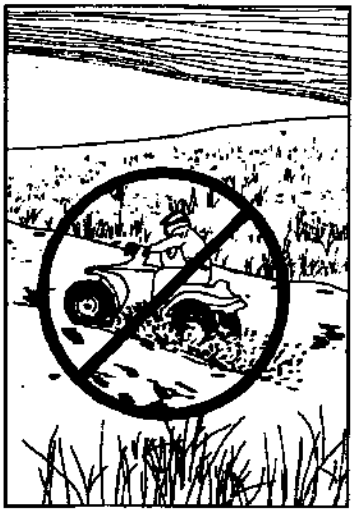
Dunes can and do recover from overuse, as long as the three above-mentioned conditions exist. However, along some stretches of our Lake Ontario sandy beach, nature no longer provides sufficient sand for damaged dunes to be rebuilt to their present extent. As a result, it is very important that our dune areas be used in ways that do not contribute to their destabilization.

## REGULATIONS GOVERNING OUR USE OF DUNES

New York State created a variety of laws that protect our dunes from destabilizing uses. These laws regulate what we may legally do on our Lake Ontario sand dunes. A variety of agencies enforce these laws: the NYS Police, the NYS Department of Environmental Conservation, the NYS Park Police, and county Sheriffs' Departments. The following synopsis outlines these laws.

The NYS Coastal Erosion Hazard Act (CEHA) limits activities in dune and other sensitive coastal areas so that these resources continue to provide the natural functions necessary for both nature and civilization. The CEHA in our dune area focuses primarily on regulating development, but also includes provisions that prohibit:

- the operation of vehicles on foredunes;
- disturbance of bird nesting and breeding sites;
- foot traffic heavy enough to cause foredune erosion; and
- development of surface-level foot trails across foredunes.



Much of the public access to our Lake Ontario dunes is on NYS Wildlife Management Areas (WMAs), where visitors may find a measure of solitude. Along with the above regulations, WMAs also include provisions that prohibit:

- camping, fires, swimming, horse riding, or overnight mooring of a boat;
- disturbing or removing plants or rocks; and
- vandalism.

Due to its high natural value, the beach and dune at Lakeview WMA has an additional designation as a "National Natural Beach Landmark." As a result, it carries additional rules beyond those listed above:

- No hunting, trapping, or discharge of guns;
- No excess noise, including use of audio equipment; and
- No picnicking.

These additional regulations are designed to protect nesting and migrating birds and other wildlife, as well as provide for human enjoyment of the resource.

Recreational enjoyment of the sandy beach shoreline is one of the missions of Southwick Beach State Park. The park provides access to the beach and dunes as well as camping, concessions, and other amenities. Park rules ensure everyone's safety and also protect the natural resource. The rules:

- Quiet hours are from 10 p.m. to 7 a.m.
- Pets must be leashed (they are banned from the beach and picnic areas);
- Swimming is allowed only in guarded area, when guards are on duty; and
- No hunting.

## COMPLYING WITH THE LAW

When we relax, we want to be able to turn our hard-working minds and bodies loose, stop worrying about everything, and just do what comes naturally. It's still possible. While on our beaches and dunes remember to think of others, and let those others include the plants and animals. To ensure compliance with the rules that apply to the site you are using, the following tips will help minimize your impacts:

- **Stay on the beach.** The foredunes are fragile, and the interior dunes are a haven for poison ivy and deer flies. If you must cross the foredune, pick your way between the plants and avoid already-eroded trails and steep approaches. If there is more than one person, select spots where the dune is shallow and spread out; return to the beach by a different route.
- **Do not sunbathe or picnic in the interior, or on the foredunes.** Existing vegetation cannot endure it, and new plants cannot establish themselves under such use.
- **Respect private property.** Most shore landowners do not mind if you walk the beach quietly, much as you would walk a city sidewalk, but reserve more intensive use for public land. Use public access to approach the beach, and park in designated public parking areas

If you want to go beyond being an environmentally conscious visitor, there are a number of ways you can become proactive in the protection of our Lake Ontario dunes:

- Pick up trash as you walk along the shore, and recycle or dispose of it properly.
- Encourage better behavior by other users; point out regulations and the reasons for them.
- Report any serious violation you see to the proper authorities.
- Participate in volunteer projects for dune restoration. These may include fence placement or dune grass planting.
- Check for notice of planned projects in dune areas for which permits are being sought. Provide the appropriate agency with your input.
- Encourage agencies that manage our public dune areas to practice sound dune management.

## ACKNOWLEDGMENTS

Special thanks to Dieter Busch, Lee Chamberlaine, Tom Cutter, John DeHollander, Diann Jackson, Diane Kuehn, Pat Peterson, and Jennifer Pultz for their review and assistance with this publication.

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# OUR LAKE ONTARIO SAND DUNES: A RESOURCE NOTEBOOK

## Activities for Learning More

by
Diann C. Jackson, SUNY College at Oswego
David G. White, Program Coordinator, New York Sea Grant

### OVERVIEW

There are many natural and human factors that influence the dune ecosystem found along the eastern shore of Lake Ontario. Comprehensive stewardship and coordinated management of this fragile resource is essential to its wise use and preservation. One way to accomplish this goal is by participating in activities designed to enhance our understanding of this unique system. It is only with an increase in our awareness and understanding of the dune system that the value of this irreplaceable natural resource can be recognized, protected, and used wisely.

To develop a better understanding, and to provide additional information on the eastern Lake Ontario dune system, *"Our Lake Ontario Sand Dunes: A Resource Notebook"* has been developed jointly by the New York Sea Grant Extension Program, The Ontario Dune Coalition, and the Lower Lakes Office of the US Fish and Wildlife Service.

The **Activities for Learning More** that follow, focus on the use, management, and conservation, of the dune ecosystem. These activities are designed to be used with the information presented in *"Our Lake Ontario Sand Dunes: A Resource Notebook."* They can be used before, during, or after a field trip or visit to the dunes by both adult and youth groups. These activities focus on dune issues and can be done informally or integrated into existing school curriculums or educational programs. They will supplement and enrich subjects such as science, mathematics, social studies, language arts, and arts.

You are encouraged to try these activities and become more familiar with our unique dune system. You may need to consult a dictionary to become familiar with some terms that are introduced in *"Our Lake Ontario Sand Dunes: A Resource Notebook."* We recommend that these activities and the resource notebook be used together. If these activities become separated from the resource notebook, copies of the notebook are available by contacting: New York Sea Grant, Swetman Hall, SUNY College at Oswego, Oswego, New York, 13126, 315-341-3042.

Sea Grant New York
The ONTARIO Dune Coalition
U.S. FISH & WILDLIFE SERVICE

## ADDITIONAL ACTIVITIES

The following "activities" are focused mainly on the dunes. Other recommended resources containing information and activities on wetlands, successional fields and upland forest often associated with dune systems are listed in the Reference/Bibliography section.

Several activities in *Aquatic WILD* may be appropriate and can be easily adapted to address dune issues. A brief sampler follows:

* **Wetland Metaphors**: Learn the characteristics of wetlands by making connections between wetland features, functions, and everyday objects.

* **The Edge of Home**: Identify the features of ecotones and understand the importance of edges in overlapping ecosystems.

* **Blue Ribbon Niche**: Create organisms suited for a particular niche or habitat.

* **Migration Headache**: Understand the factors that influence migrating waterfowl (or shorebirds).

* **Dragonfly Pond**: Participate in a wetland land use planning simulation.

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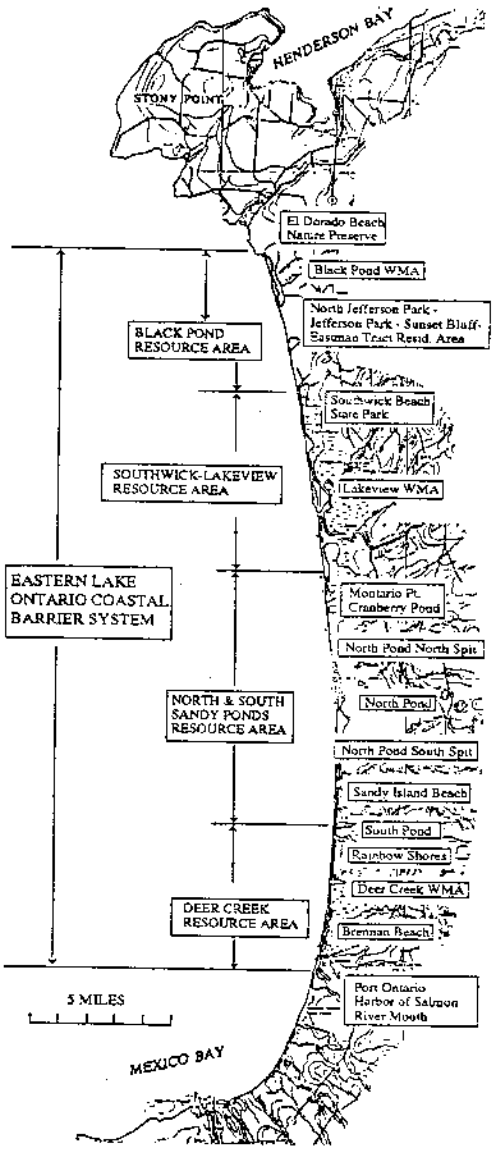
## Activities for Learning More

### Maps and Landforms

To conduct this activity you will need to use a United States Geologic Service (USGS) topographic map or a map with contour lines. If you do not have a USGS topographic map, they are available at many bookstores and sporting good stores. (Topographic maps of New York State are indexed as:Pulaski 1956, Ellisburg 1958, and Henderson 1959. They correspond to the dune system found along the eastern shore of Lake Ontario.) You will first need to understand the symbols found on the map. After you familiarize yourself with the symbols, study the map legend to learn and recognize the different landforms and features represented on the map.




To begin this activity, locate the four major dune resource areas, Black Pond, Lakeview - Sandy Creek, North and South Sandy Ponds, and Deer Creek. Locate and mark the places with the highest and lowest elevations on the map. By examining the relationship between the different elevations, landforms and determining the presence or absence of dune systems, several questions can be asked:

* What is the elevation of the tallest dune on the map?

* What is unique about the locations of the dunes, wetlands, ponds, or marshes?

* How do the dunes help to protect these wetland areas from damaging lake storms?

To learn more about the geologic changes that have occurred in this area, you may wish to visit a nature center or museum that has exhibits on the ice age. Some questions to investigate are:

* Why are there dunes found along the eastern shore of Lake Ontario?

* Where else are there dunes in New York State? (or along the Great Lakes system)

* How do the Lake Ontario sand dunes compare to these other dune systems?

To learn more about the formation of the Great Lakes basin, you may want to view the film/video titled *Rise and Fall of the Great Lakes*.

## Activities for Learning More

### Dune Model

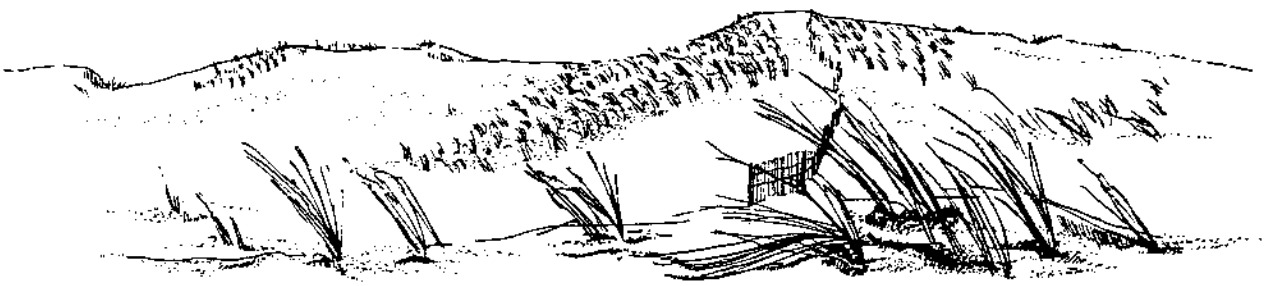
This activity is designed to assist you in creating a miniature dune system modeled after those found along the eastern shore of Lake Ontario. You will first need to consult a map to determine the correct north, south, east, and west directional orientations for your dune. Materials that might be used include twigs for trees and drift wood, tiny bits of grass for dune grass, and toy or Monopoly houses for homes. To build the beaches and dunes you can use sand, or a mixture of brown sugar, salt and flour.

Once you have constructed your model, you can conduct several experiments including one to determine the impact of wind on dune systems. This can be done by using a drinking straw and gently blowing from the direction of the prevailing winds.

* What happens?

* What do you think will happen if the "wind" is stronger, or blows from another direction? Try it and record what happens.

If you visit a dune area, be sure to look for examples of the role the wind plays in creating and changing the dune ecosystem. Make a list of these examples and try them on your model. By investigating the way wind changes dune systems, you can begin to think about what the area looked like the year you were born. We know that the wind will keep blowing and the dunes will continue to change. Draw a picture that shows what this section of the dunes will look like in 5 years, or in 50 years.

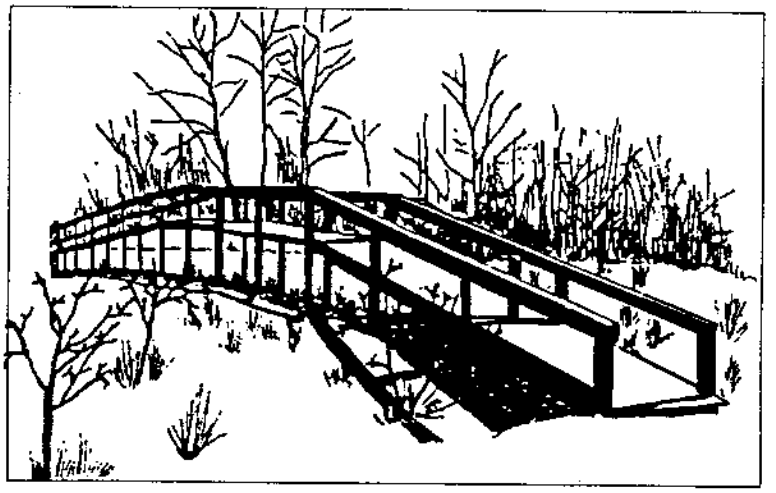


## Activities for Learning More

### A Visit to the Dunes

**PLANNING YOUR VISIT**

The best way to learn about the features of a dune ecosystem is by a visit or field trip. The eastern shore of Lake Ontario has about 16.5 miles (26.4 kilometers) of dunes. The four major dune systems are referred to as the Black Pond, Lakeview - Sandy Creek, North and South Sandy Pond and Deer Creek resource areas. These unique resources are either held by private landowners and conservation organizations, or are part of state owned and managed properties.



This dune walkover is located at the lakeshore end of the Lakeview-Southwick Nature Trail.

The first step in planning your visit is to select an appropriate area to visit. For example, Southwick Beach State Park and the Lakeview Wildlife Management Area in southern Jefferson County maintain a dune trail. The Dune Trail Interpretive Guide is included in *"Our Lake Ontario Sand Dunes: A Resource Notebook."* This trail guide is also available at the park office. It provides a trail map and specific information on the ecology, plants, animals and use of this area.

Because dune ecosystems are fragile and in constant change, it is important to consider the impact your visit may have. The visit should not cause damage to the dunes, vegetation or wildlife. Some areas have been posted or closed to protect the dunes, plants, and wildlife. Existing regulations and management plans or policies need to be followed. You should also consider what are appropriate activities when visiting a dune area. For example:

* you must stay on the trails where they exist and not climb on the dunes.

* you should avoid trampling dune plants.

* as a rule, collection of natural items is not allowed. Make sketches, take pictures, slides, or videos of your visit.

Your visit should also be limited to the times of year when sensitive natural activities such as nesting are not occurring. Also, you should be aware that there are endangered, threatened, and rare plant and animal species in this area.

Your visit will also be enhanced by learning more about the rare plants and animals found in the dunes along the eastern shore of Lake Ontario. Further information about the dunes can be found at the Snow Memorial Library in Pulaski. The Ontario Dune Coalition (TODC) has established a dune resource collection there. The collection includes books, articles, and newspaper clippings about the dunes. When you visit the library, ask to see the "TODC Reference Library."

## ORGANIZING AND PREVIEWING A GUIDED WALK

If you will be leading a walk for your family, organization, club or class, it is advisable to take a practice walk before the planned visit. During your preview walk, take pictures (slides or video) to show to others before the guided walk. It is also helpful to make notes using a tape recorder during your preview walk to supplement any written materials you have. You may need to visit the area more than once before the planned walk to become familiar with the features of the area. You should learn to recognize **poison ivy**. It is commonly found growing near or in dune areas.

Before your visit, make a list of things to look for during your walk. Be sure to include plants, animals, features of the dune ecosystem, evidence of people (positive and negative impacts), erosion, storm damage, etc.

There are other activities that you can do after or instead of a walk. You or your group can participate in a conservation project in your area or in the Sand Dune Appreciation Day activities held each summer. Sand Dune Appreciation Day usually includes a guided walk or canoe trip. Your group could also plan its own canoe trip or invite a speaker to your class or meeting. There are several federal, state, county, and local agencies as well as conservation organizations that can provide you with information.

## Activities for Learning More

### Sand is Sand...or Is It?

This activity is to be done as part of your visit to the dune area. Answer the following questions to help you learn more about this resource. A hand lens or small magnifying glass will be helpful.

* What do you see? (sand, rocks, water, plants, animals, people, litter, etc.)

* What is sand? Pick up some and examine it. Is it wet or dry, smooth or rough?

* What can you find? Record everything you find in your handful of sand.

* What size, shape, and color are the bits of shell, rocks, and minerals?

* What happens when you pour the sand through your hand?

* What evidence of moving sand can you find? (Hint: look at the trees, grasses and other plants, man-made structures, your foot prints)

The sand you are looking at probably originated from the south shore of Lake Ontario.

* How do you think the sand got to this location?

* What are the roles of wind, waves, and high water in this process?

* Where might this sand go from here?

* What will happen when this supply of sand has been depleted?

You can also spend time examining the plants growing in the sand.

* Do you find many plants growing here?

* What do they look like?

* Where are they growing? (sun, shade, sloped land or flat, near water)

* How far apart are they spaced? Compare them to the plants that grow in your yard at home.

* How do the characteristics of sand influence the plants growing here?

You may also want to compare a section of dune that has plants growing on it with a section that does not. Sketch a picture showing what these sections look like. Be sure to include grasses, shrubs, and trees.

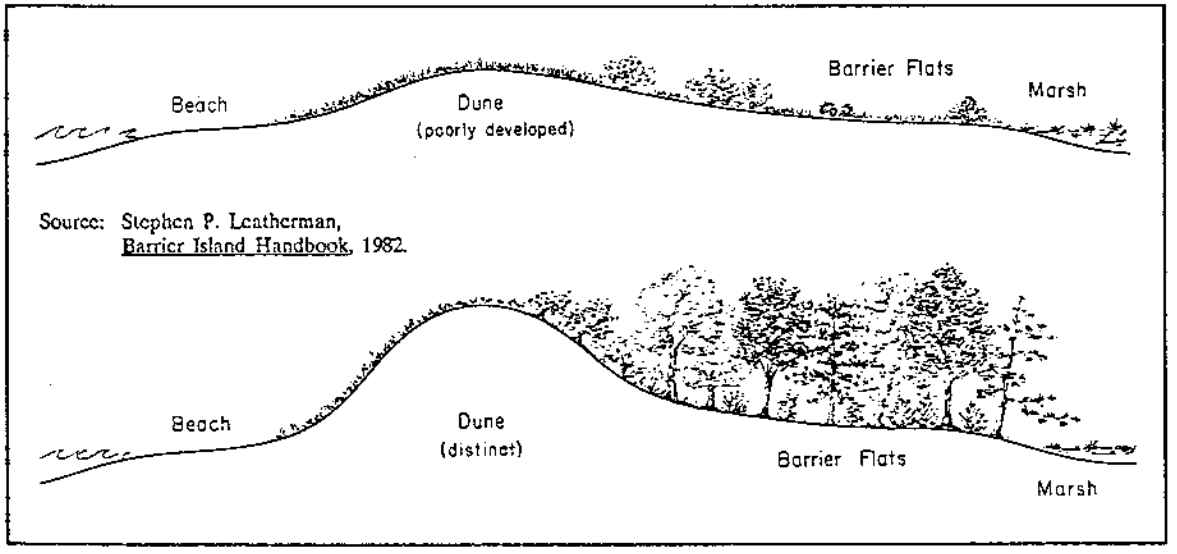
* How do the plants help to protect the dunes from the effects of wind, waves, and water?

* What happens to the dune when plants are removed or trampled or trees die and fall over?

## Activities for Learning More

### Life in the Dunes

With some preparation beforehand, you can involve your group in a study of the various habitats that make up the dune ecosystem. Using a bed sheet attached to poles that can be anchored in the sand, draw a profile on the sheet representing the lakeshore, foredune, secondary dune, wetlands, and forested uplands of the back dune area. You can also create a profile on a blackboard or a long sheet of newsprint and do this activity before or after the visit to the dunes.




Using drawings or magazine pictures, have members of your class or group place the different elements of the dune system in their proper habitat on the dune profile. Attach the different dune components to the profile using either tape or velcro. Be sure to include plants, animals, human activities, etc., and put them in their proper places. You can discuss what is found in the different habitats and their roles in the food chain or web of life. You can also discuss what factors influence the formation and destruction of dunes (natural succession, the role of Lake Ontario, wind, water, human activities). Try to figure out which areas shown on the profile are, or are not suited for different activities such as conservation, development, and recreation.

You may want to contact shoreline landowners and local historical society personnel to create an oral history of the dune area. You can describe how the area has changed over time, the kinds of plants and animals, natural "disasters", and past and present uses by man. You can use the information you have collected to create a time line to illustrate the dune area's history.

Another way to provide a record of the dune is to take a picture or video from the same spot at the same time each year. This could be done once a year on a particular date or once each season. By organizing or participating in a photography exhibit or a poster contest you can help to increase the awareness of this unique resource.

# The ONTARIO Dune Coalition

## The Ontario Dune Coalition (TODC)

The Ontario Dune Coalition is an organization of organizations interested in the stabilization of Lake Ontario dunes. This coalition of state and local agencies, private landowner/resource associations, and federal agencies are working in concert to:

1) assist in the stabilization of dunes as natural systems;
2) develop measures to maintain their stability; and
3) achieve optimum public use in keeping with private property considerations and dune protection and restoration objectives.

The following is a list of agencies and associations active in TODC:

Eastman Place Association
Jefferson County Environmental Management Council
Jefferson County Planning Department
Jefferson County Soil and Water Conservation District
Jefferson-Sunset Bluff Landowners Association
North Jefferson Park Landowners Association
North Rainbow Shores Landowners Association
North-South Sandy Pond Association
New York Sea Grant Extension
New York State Department of Environmental Conservation
New York State Office of Parks, Recreation & Historic Preservation
New York State Department of State
Onondaga Audubon Society
Oswego County Environmental Management Council
Oswego County Planning Department
Oswego County Soil and Water Conservation District
Renshaw Beach Association
St. Lawrence-Eastern Ontario Commission
Sandy Island Beach Property Owners Association
Save Oswego County
Seaway Trail, Inc.
Selkirk Beach Association
The Nature Conservancy
Town of Ellisburg
Town of Richland
Town of Sandy Creek
U.S. Army Corps of Engineers

For further information on The Ontario Dune Coalition, contact:

The Ontario Dune Coalition
c/o St. Lawrence-Eastern Ontario Commission
317 Washington Street
Watertown, NY 13601

# The ONTARIO Dune Coalition

Summer 1992 | Annual Newsletter | Issue No. 6


## Seventh Annual Sand Dune Appreciation Day Scheduled

The Ontario Dune Coalition is pleased to announce Sand Dune Appreciation Day, Saturday August 1, 10 AM to noon (rain date: Sunday August 2). Take your pick – a guided canoe tour of Lakeview Marsh or a guided hike to the dunes from Pierrepont Place boat launch. Bring a picnic lunch. Picnic tables will be provided.

Those Lake Ontario eastern shore sand dunes and marshes have been in your back yard all your life. Maybe you fish the ponds or creeks; maybe you go out to Southwick Beach or Sandy Pond to swim and sunbathe. But do you know how those beautiful, quiet spots protect your home? Do you know how many different rare and protected birds, plants, and fish live there? How many of them have you seen? Do you know the story of how our forefathers used the eastern shore?

Sand Dune Appreciation Day will be an opportunity to get out in the sun and explore the dunes and marshes with new eyes. Experienced guides will lead small groups on a two hour outing. Bring canoe gear if you choose the water route, hiking shoes for the land route. Curiosity, lunch and a water bottle are essential. Binoculars, field guides, insect repellant, hat and camera are optional. The event is free, but we ask you to preregister so we can plan for an appropriate number of guides.

In the event of inclement weather, cancellation will be announced on radio stations WRVJ FM 91.7 in Watertown and WRVO 89.9 in Oswego-Syracuse.

### Sand Dune Appreciation Day
### Saturday, August 1, 1992
### (Rain date: Sunday August 2)

Pierrepont Place state boat launch in Lakeview Wildlife Management Area.
Approximately 1/2 mile south of Southwick Beach State Park, off NY Rt. 3.

Canoe tour of Lakeview Marsh or hiking tour to the dunes
from 10 AM to noon, followed by picnic lunch.

Bring: All canoeing gear if canoeing (don't forget life jackets); sturdy shoes if hiking; picnic lunch; water bottle.

Please **register by July 24.** The event is free.

For more information, or to register, call:

| | | |
|---|---|---|
| In Watertown | Tom Cutter (at SLEOC) | 785–2469 |
| In Oswego | John DeHollander (at Oswego Co. SWCD) | 343–0040 |
| In Syracuse/Fulton | Sandy Bonanno | 695–3639 |

# Interpreting Dunes.....

## TODC Calls for Action

At its June 1991 meeting, The Ontario Dune Coalition unanimously resolved to support the development of an implementation plan for a dune-wetland interpretive program for the seventeen-mile stretch of sand dunes along the eastern shore of Lake Ontario. This resolution was shared with all federal, state, local government agencies and private organizations with an interest in the dune area. All responses received were supportive of this concept and several member organizations of the Coalition have moved this process forward. The following articles describe three of these activities.

## Seaway Trail Inc. Develops an Interpretive Feasibility and Concept Plan

by Teresa Mitchell
Seaway Trail, Inc.

An Eastern Lake Ontario Dune and Wetland Environmental Interpretive Center feasibility study and concept plan has been prepared for Seaway Trail, Inc. The document builds on the primary recommendation in the Seaway Trail 1990 Oswego Eastern Shore Communities Tourism Development Plan to develop an environmental interpretive center to educate the public about the dune and wetland resource of this region which is unique in the 454-mile Seaway Trail system.

The plan was researched, written and illustrated by Ms. Terry Barney, a graduate student in Landscape Architecture at the SUNY College of Environmental Science & Forestry (ESF) at Syracuse. It contains a rationale, goals and objectives, general design and program features, study area, the process to determine potential sites, exhibit and program opportunities, phased plan ideas, and marketing demands.

The plan proposes that the center be oriented toward protection of the natural dune and wetland environment but compliment the increasing tourism based economy which depends on outdoor recreation. A number of phased ideas are included for consideration.

Limited numbers of the printed study with illustrations and maps are available from Seaway Trail, Inc., 109 Barracks Drive, Sackets Harbor, NY 13685, (315) 646–1000.

## Developing an Environmental Education Program and Center

by Nancy Rucks
Department of State

In response to The Ontario Dune Coalition (TODC) letter seeking support for a dune and wetland interpretive program, the Department of State (DOS) Division of Coastal Management and Waterfront Revitalization provided funds to continue the work of Seaway Trail Inc. and graduate landscape architect student, Terry Barney.

This implementation plan describes a stewardship program for the Lake Ontario dunes region. The stewardship program would be designed to enhance resource protection through public education. The plan provides a conceptual description of a three-phased dune and wetland environmental interpretive program at Southwick Beach State Park and Lakeview Wildlife Management Area (WMA).

The first phase would include: an interpretive station featuring a dune blowout restoration project; an expanded self-guided interpretive nature trail system; a wildlife observation blind; and, a beach grass nursery to provide stock for system-wide dune restoration.

The interpretive station and dune blow-out restoration

*continued on page 3*

*Great Blue Heron*

# .....TODC Member Organizations Respond

### Environmental Education Program and Center

*continued from page 2*

are projects that can get underway. A small kiosk, located in the southern section of Southwick Beach State Park near the beach, would greet people as they enter Lakeview WMA. In addition to the current posting of regulations, user-friendly information about the fragility and importance of dunes would be provided. Examples of the messages presented on the kiosk could include: a map of the Southwick-Lakeview Interpretive Trail; information on how to protect the dunes and marsh when walking through Lakeview WMA; an explanation of the dune restoration project; announcements of special events; and, time and dates for upcoming naturalist-guided tours.


In the second phase, modest improvements such as expanded nature trails and additional wildlife observation blinds would allow for supervised interpretation of the area's wildlife values through programmed hikes and canoe excursions. Facilities at Southwick Beach State Park would provide the base for a summer naturalist and a place for people to gather for excursions and special events.

A regional environmental education center along Route 3 is described in the final phase. Such a facility could provide a formal educational program for the 17-mile dune and wetland system and function as the center for satellite interpretive facilities. Although this proposal needs further development, initial suggestions include: environmental educational displays, scientific research facilities, structured school programs, meeting and office space, intern housing, and tourism information. An important next step in the development of an environmental education center would be to create an interpretive curriculum and implementation plan.

For further information, contact Nancy Rucks, Department of State, 162 Washington Ave., Albany NY 12231, at (518) 474–6000.

## Dune Vegetation Study Nears Completion

by Sandy Bonanno
SUNY, ESF

Over the past two years, under the sponsorship of the New York Sea Grant Institute, and with the support of many members of the Ontario Dune coalition, I have sampled and inventoried the plant communities on the eastern shore dunes and compared the condition of those plant communities under high and low visitor use.

With permission from the DEC and private landowners, I sampled at Deer Creek WMA, Sandy Island Beach, Lakeview WMA, and the El Dorado Preserve. I found 321 species of plants, more than some have found on comparable sea coast dunes, fewer than on upper Great Lakes dunes. Two species are found almost nowhere else in New York: heart-leaf willow (which has thick, fuzzy leaves and is common on foredunes the length of our barrier), and the dune variety of sand cherry (which is shrubby and grows on foredunes; it is rare even on our dunes). Searches of the alder thickets and mud flats, as well as the dunes, turned up four other rare plant species, all of them new records for our dune barrier (Ontario aster, rough avens, a clearweed, and a sedge).

The plants found change dramatically with distance inland from the beach. In the areas where visitor traffic is low and mostly restricted to the beach, beach grass, wormwood, and cottonwood trees are abundant on the foredunes but absent on back dunes. On dunes under heavy visitor use, beach grass, wormwood, and cottonwood are sparser on foredunes but present all the way to the back of the barrier. These three plants are pioneers, adapted to grow successfully under the very difficult conditions presented by bare sand. The presence of the pioneers at the back of a barrier is strong evidence that the dunes are not stable, that sand is blowing into the wetland. On the eastern shore, dunes under low use have tangled, formidable alder thickets at the back of the barrier. Under heavy use, the back of the barrier features open bare sand with beach grass, wormwood, and cottonwood trees.

Dunes are a resource always under construction. Wind and waves are constantly reworking them. Use can hasten reworking, unless wisely done.

## Thanks, Theresa!


Have you been out to the beach at Sandy Pond lately, birding at El Dorado Beach, or walking at Lakeview? If so you probably noticed a series of tastefully designed signs gently reminding you that sand dunes are fragile, and that you should stay on the beach. Last summer Theresa Groman, a Cornell University student from Sandy Pond, created many of those signs, both for her family's property and for use on state and Nature Conservancy properties. Theresa volunteered many precious summer hours to build and paint 20 new signs to help protect the dunes up and down the eastern shore barrier. Thanks, Theresa!

**Onondaga Audubon**
**c/o Sandy Bonanno**
**837 Main St.**
**Phoenix NY 13135**

## Southwick Beach State Park Master Plan Scoping Session

The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) is preparing a comprehensive Master Plan for Southwick Beach State Park. Southwick Beach State Park consists of 475 acres along the eastern shoreline of Lake Ontario in the Town of Ellisburg, Jefferson County, New York.

As part of the master plan process, a scoping session will be held to obtain public input to guide staff of the OPRHP in planning for this important recreational resource. Interested agencies, organizations, and individuals will have an opportunity to review and discuss existing and potential park resources, programs, and facilities.

The scoping process will assist the OPRHP in identifying issues, options, and impacts that should be considered in the Draft Master Plan, and in determining the level of detail that should be given to these topics.

For further information contact the Office of Parks, Recreation and Historic Preservation, Thousand Islands Region, PO Box 247, Alexandria Bay, NY 13607.

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*Illustrations on pages 3 and 4 by Mary Burdette Watkins*

# OUR LAKE ONTARIO SAND DUNES: THEIR VALUE AND PROTECTION

## WHAT IS THE DUNE SYSTEM OF EASTERN LAKE ONTARIO?

Coastal dunes are created over thousands of years by waves, currents and winds forming sand ridges landward of the beach. On the eastern shore of Lake Ontario a dune system extends about 17 miles from the mouth of the Salmon River north to the outlet of Black Pond. Ours is one of the most significant dune systems on the Great Lakes.

## WHY ARE DUNES IMPORTANT?

Dunes protect shorelines from erosion and property damage caused by storm winds and waves. Lake Ontario dunes also protect coastal bays, ponds and marshes that provide important breeding areas for many species of fish, waterfowl and other wildlife. The dunes, beaches, and the shore environments they protect, provide habitat for rare and unusual wildlife and plant species including Common Tern, Black Tern, Piping Plover and Sand Dune Willow.

## OUR LAKE ONTARIO DUNES ARE THREATENED

Area residents, conservation organizations and state and local officials are concerned about considerable damage occurring to the dunes. Much damage is done not by storms, but by people. This brochure describes how damage to dunes occurs and what can be done to prevent further damage.

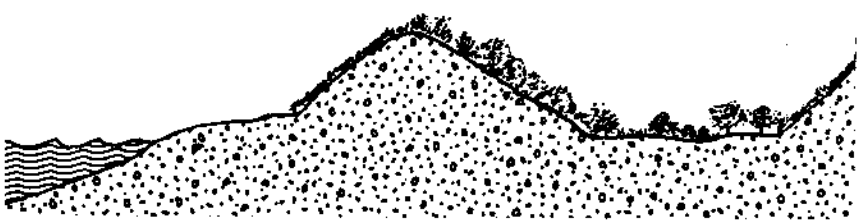
## WHAT IS "DESTABILIZATION"?

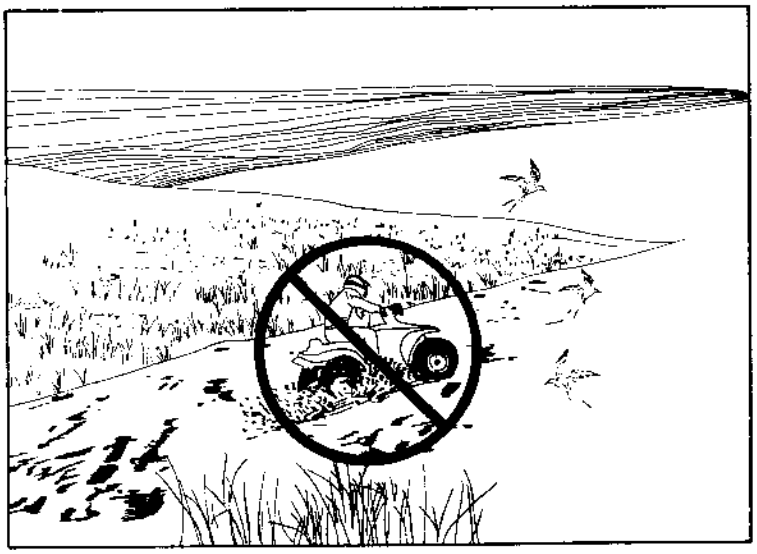
Dunes are inherently unstable formations, continually exposed to harsh environmental conditions. A healthy growth of vegetation helps protect the dune, anchoring its soil and shielding its surface from wind and water. Plants found on dunes must survive drought conditions, temperature extremes, high winds and infertile soils. Species such as beach grass, wormwood, and cottonwood are well adapted to these conditions.

It takes years for plants to become established on dunes. When dune vegetation is damaged or removed, wind erosion can prevent its regrowth and enlarge the damaged area. This process is called *destabilization*. A destabilized dune can waste away as sand is blown inland, or drift, burying everything in its path. The stability of an entire dune formation can be jeopardized by damage in only a few strategic places.

## HOW ARE EASTERN LAKE ONTARIO DUNES BEING DAMAGED?

One of the most damaging of human activities in dune areas is the use of vehicles. Off-road usage of vehicles on dune slopes results in areas of destabilization. Vehicles cause damage to dunes far more rapidly than foot traffic. However, when beach users regularly traverse or play on dunes, they also damage vegetation. Careless recreational activities are not the only threat to dune areas. On private lands, mining and construction in the dunes may cause extreme destabilization.





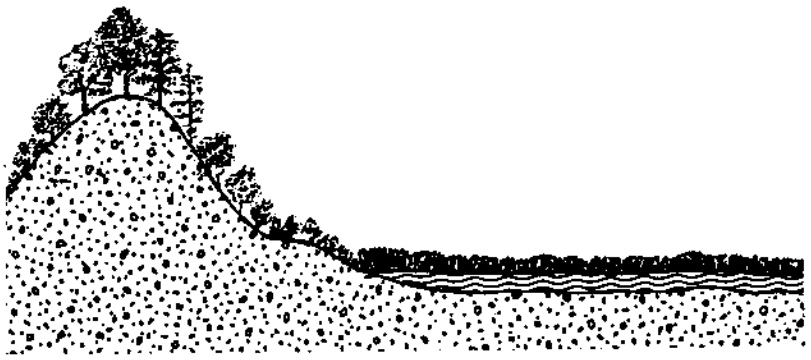
## WHAT ARE THE RESULTS OF CARELESS USE OF LAKE ONTARIO DUNES AND BEACHES?

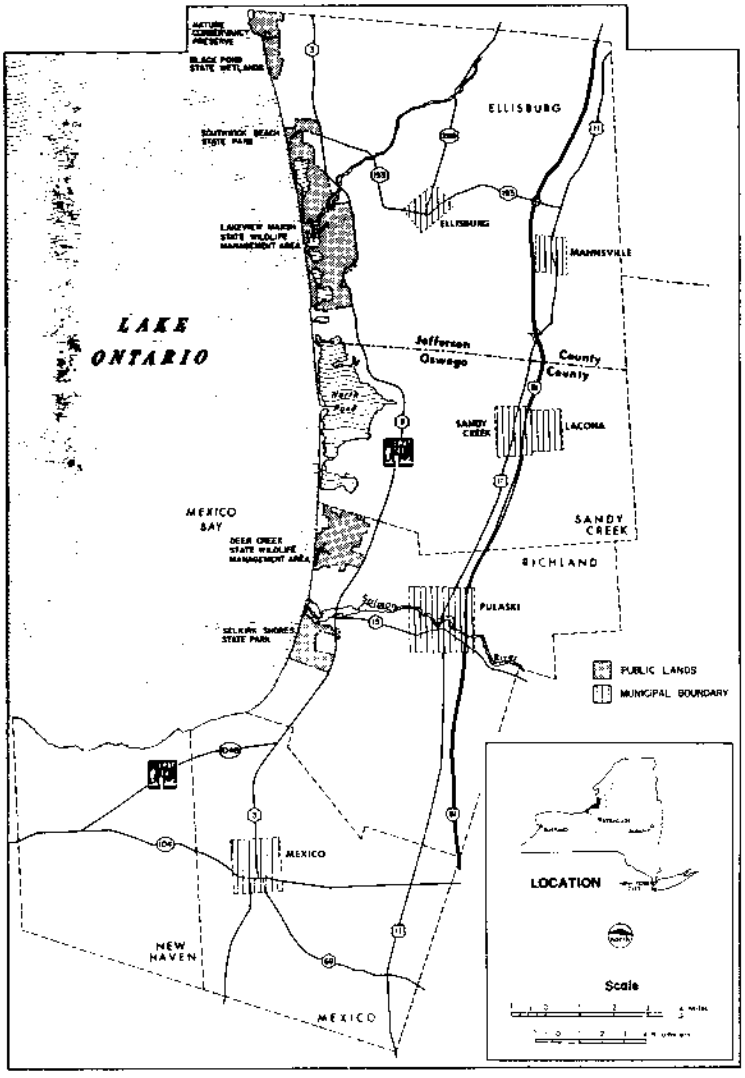
* loss of vegetation; destabilization and drifting of dunes

* property damage from drifting dunes or loss of protection that stable dunes afford from storms

* loss of dune habitat supporting rare and unusual plant and wildlife populations

Due to loss of habitat, and disturbance of feeding and breeding activities, the Common Tern and Piping Plover, both considered threatened in New York State, are not now nesting on the eastern shore of Lake Ontario.






## WHAT CAN BE DONE TO HELP OUR DUNES?

While visiting beaches in dune areas, stay on marked trails (where they exist), and avoid climbing on the dunes.

Do not remove or trample dune vegetation.

Keep your distance from wildlife observed on dunes and associated beaches.

Respect areas that have been closed or posted for protection of dunes and their native plants ar wildlife.

Keep vehicles out of dune areas! Remember that off-road travel by vehicles is prohibited by law in NYS Wildlife Management Areas.

Report vehicles being illegally operated in restricted dune areas to an Environmental Conservation Officer.

Help your local government take action to protect our dune system.

For a NYS Environmental Conservation Officer, phone:

Weekdays: (315) 785-2231 (Watertown)
Weekdays: (315) 428-4501 (Syracuse)
Weekends: (315) 232-4862

For further information call or write:

St. Lawrence-Eastern Ontario Commission
317 Washington Street
Watertown, NY 13601-3788
(315) 785-2460

NYS Department of Environmental Conservation
Coastal Erosion Management Section
50 Wolf Road
Albany, NY 12233
(518) 457-3157

Save Oswego County, Inc.
P.O.Box 828
Oswego, NY 13126

# The ONTARIO Dune Coalition

## DUNE WATCH DATA FORM

NAME_____

DATE_____

ADDRESS_____

PHONE_____

DATE AND TIME OF INCIDENT_____

DESCRIBE INCIDENT_____

IF INCIDENT INVOLVED A VEHICLE (3 OR 4 WHEEL ATV, TRUCK, ETC.)

TYPE, COLOR, MAKE_____

ID OR PLATE #_____

DRIVER DESCRIPTION (NAME IF KNOWN)_____

WHERE VEHICLE CAME FROM/DIRECTION OF TRAVEL_____

ACTIVITY OBSERVED (CLIMBING ON DUNE, CAMPING, ETC.)

DESCRIPTION OF ACTIVITY_____

LOCATION_____

IF ACTIVITY INVOLVED ANY EVENT OR ITEM THAT COULD RISK PUBLIC HEALTH (NEEDLES,FIREARMS)

DESCRIPTION OF ITEM_____

LOCATION_____

WAS A CALL MADE TO THE AUTHORITIES

DATE AND TIME OF CALL_____

AGENCY CALLED_____

NAME OF PERSON YOU SPOKE WITH_____

DESCRIBE RESPONSE_____

AGENCIES TO CALL

JEFFERSON COUNTY SHERIFF, 786-2600

OSWEGO COUNTY SHERIFF, 343-5490

NY STATE POLICE, 298-5161

DEC OFFICE, WATERTOWN, 785-2231

DEC OFFICE, SYRACUSE, 426-7400

RETURN FORM TO :_____

OR MAIL TO: THE ONTARIO DUNE COALITION, %SLEOC, 317 WASHINGTON AVE, WATERTOWN, NY, 13601.

# OUR LAKE ONTARIO SAND DUNES: A RESOURCE NOTEBOOK

## Additional Resources

The following resources are available for loan from the New York Sea Grant Extension Office, 52 Swetman Hall, SUNY, Oswego, NY, 13126. All of these *additional resources* directly address a concern or issue relevant to *Our Lake Ontario Sand Dunes.*

A Proposed Coastal Management Program for the Eastern Shore Dune-Bay-Wetland Complex. 1979. St. Lawrence-Eastern Ontario Commission. NYS Department of State. 36 pages.

Eastern Lake Ontario Dune Wetland Environmental Interpretive Center, A Feasibility Study and Concept Plan. 1991. Terry Barney. Seaway Trail, Inc. 14 pages.

New York's Eastern Lake Ontario Sand Dunes. 1989. L. R. Johnston Associates. NYS Department of State Division of Coastal Resources and Waterfront Revitalization. 148 pages.

Oswego-Eastern Shore Communities Tourism Development Action Plan. 1990. Tommy Brown, Chad Dawson, Nancy Connelly, Paula Horrigan. Seaway Trail, Inc. 32 pages.

Oswego-Eastern Shore Communities Tourism Development Plan: Resource Document. 1990. Tommy Brown, Chad Dawson, Nancy Connelly, Paula Horrigan. Seaway Trail, Inc. 142 pages.

Sandy Pond Resource Management Study. 1989. L. R. Johnston Associates. Sandy Pond Resource Management Committee. 7 pages.

Stabilizing Your Sand Dunes with Beach Grass (Video). New York Sea Grant Extension. Learning Resources, SUNY Oswego.

Vegetative Analysis of Deer Creek Barrier Beach. 1981. Jim Uhlig. St. Lawrence-Eastern Ontario Commission. 16 pages.

Vegetation of a Lake Ontario Dune Barrier, Oswego and Jefferson Counties, NY, under High and Low Recreation Pressure. 1992. Sandra Bonanno. 78 pages.

1988 Dune Naturalist Intern Report to The Ontario Dune Coalition. 1988. Sandra Bonanno. 16 pages.

1989 Dune Naturalist Intern Summary Report. 1989. Betsy Schrader. 38 pages.

1990 Dune Naturalist Report. 1990. Suzanne Ravenscroft. 24 pages.

Sea Grant New York

The ONTARIO Dune Coalition

U.S. Fish & Wildlife Service

# OUR LAKE ONTARIO SAND DUNES: A RESOURCE NOTEBOOK

## For More Information

Black River/St. Law. RC&DC
RD#2, Box 376B
Watertown, NY 13601

Cornell Cooperative Extension
Jefferson County
223 JB Wise Place
Watertown, NY 13601

Cornell Cooperative Extension
Oswego County
Main Street
Mexico, NY 13114

Jefferson Co. Dept. of Planning
175 Arsenal St., Rm. 304
Watertown, NY 13601

Jefferson County EMC
175 Arsenal St.
Watertown, NY 13601

Jefferson County S&WCD
Box 487
Henderson Harbor, NY 13650

NYSDEC, Region 6
317 Washington St.
Watertown, NY 13601

NYSDEC, Region 7
615 Erie Blvd.
Syracuse, NY 1320

NYSDOS, Coastal Management
162 Washington Ave.
Albany, NY 12231

NYS OPR&HP, Central Region
Clark Reservation
Jamesville, NY 13078

NYS OPR&HP, 1000 Island Region
RD#1, Box 60A
Woodville, NY 13698

New York Sea Grant
52 Swetman Hall, SUNY
Oswego, NY 13126

Onondaga Audubon
PO Box 312
Phoenix, NY 13135

Oswego County EMC
70 Bunner St.
Oswego, NY 13126

Oswego County Planning Dept.
46 E. Bridge St.
Oswego, NY 13126

Oswego County S&WCD
2 Erie St.
Oswego, NY 13126

St. Lawrence Eastern Ontario Comm.
317 Washington St.
Watertown, NY 13601

Save Oswego County
PO Box 828
Oswego, NY 13126

Seaway Trail, Inc.
109 Barracks Dr.
Sackets Harbor, NY 13685

The Nature Conservancy
PO Box 38
Henderson Harbor, NY 13650

US Army Corps of Engineers
1776 Niagara St.
Buffalo, NY 14207

US Fish and Wildlife Service
1300 Elmwood Ave.
SUNY Buffalo Science 253
Buffalo, NY 14222

Sea Grant
New York

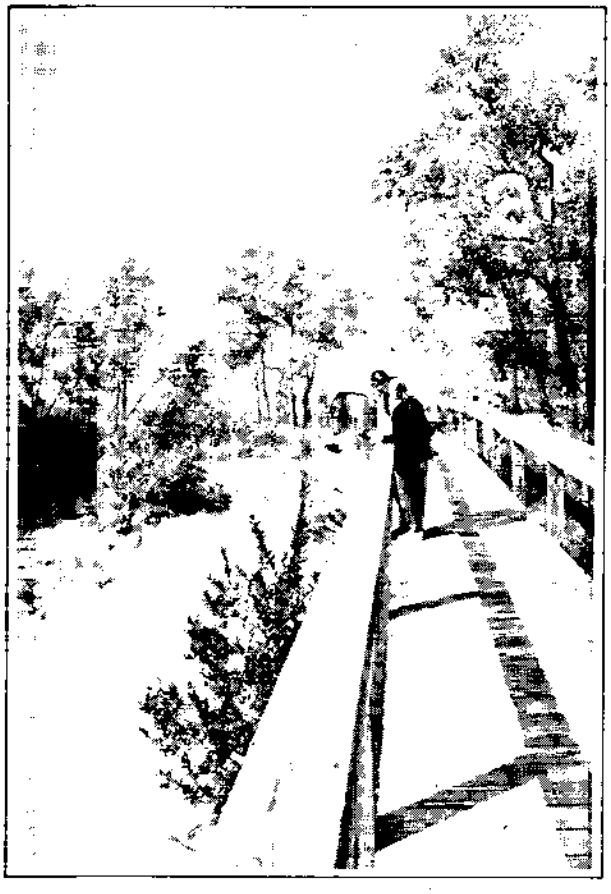
*The ONTARIO Dune Coalition*

U.S. FISH & WILDLIFE SERVICE

FILMORE BROOK/LAKE ONTARIO

# DUNE TRAIL
## Interpretive Guide

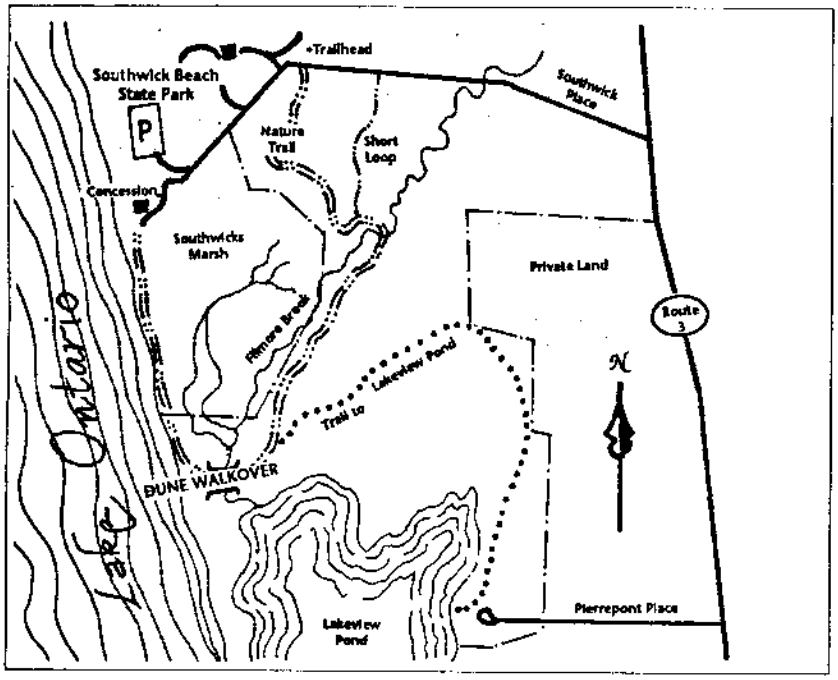
SOUTHWICK BEACH STATE PARK &
LAKEVIEW WILDLIFE MANAGEMENT AREA



*A walk to and through the only freshwater sand dunes in New York State... a rare and fragile habitat.*

# *Introduction*

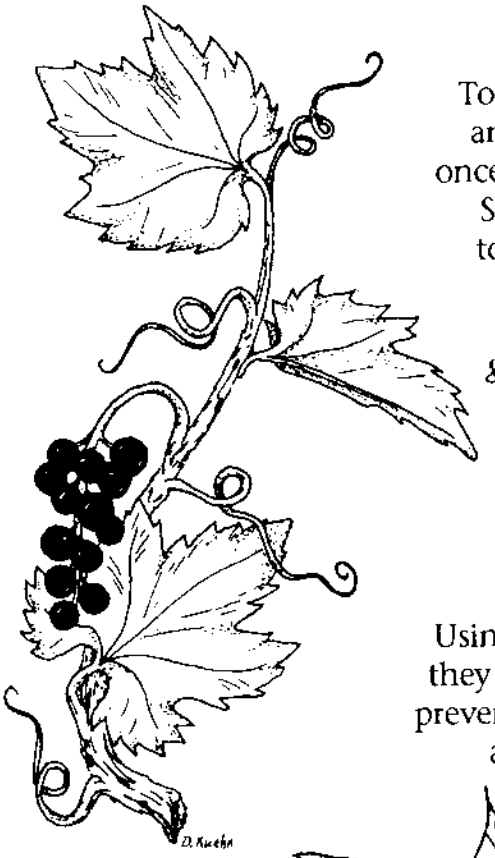
The ***Filmore Brook/Lake Ontario Dune Trail*** is beautiful as well as informative. It will guide you through abandoned fields, upland wooded areas, fresh water marshes, sand dunes and barrier beaches. Enjoy this self-guided tour as you grow in awareness of the unique and important nature of the area.




***The following actions are <u>prohibited</u> on Lakeview Wildlife Management Area:***

1. The erecting of any signs or notices is prohibited..
2. Fires of any kind are prohibited.
3. The operation of any musical instrument, radio, television, phonograph or tape recorder, or making any excessive noise in any manner.
4. Camping, tenting or the erection of any structure.
   *Camping <u>is allowed</u> in designated areas at Southwick Beach State Park.*
5. Injuring, defacing, disturbing or befouling any part of an area.
6. Removing, injuring or destroying any tree, flower, fern, shrub, rock, sand, or other plant or mineral.
7. Littering of any kind. *<u>Do</u> dispose of litter in receptacles provided.*
8. Trapping, hunting or discharging firearms.
9. Swimming or bathing are prohibited. *Swimming <u>is allowed</u> in designated areas at Southwick Beach State Park.*
10. Using motorized vehicles is prohibited.
11. Picnicking is prohibited. *Picnicking <u>is allowed</u> in designated areas at Southwick Beach State Park.*

# 1. The Abandoned Orchard



To your right remains
an ***apple*** tree from a
once productive orchard.
Straight ahead and
to the left the more
shade- and
moisture-loving
***green ash*** tree has
flourished.

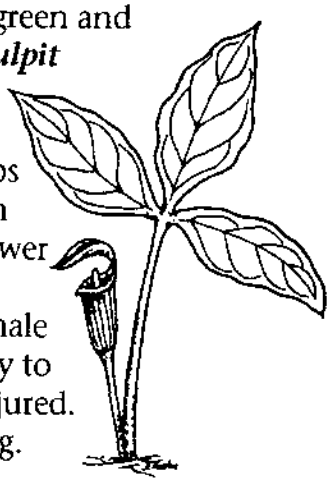
***Wild grape vines***
are here as well.
Using the ash for support,
they slowly choke the tree,
preventing it from obtaining
available sunlight.

*Wild Grape*

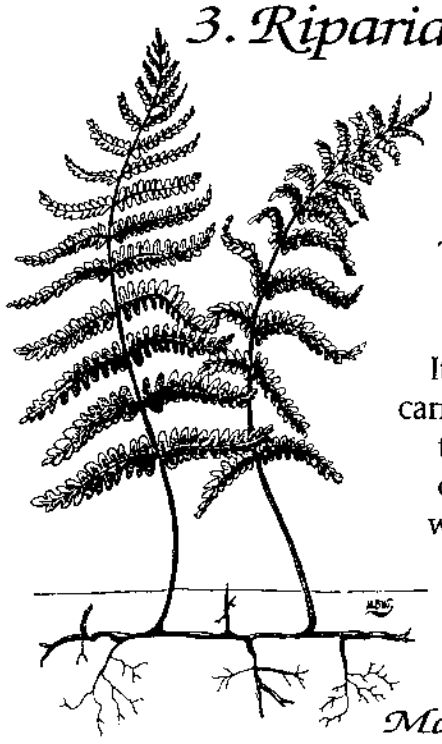
*Green Ash*

## 2. Northern Jack-in-the-Pulpit

Also known as "Indian Turnip", the green and white striped northern ***Jack-in-the-pulpit*** is less common than the woodland Jack-in-the-pulpit. The northern species is more likely found in swamps and bogs of Canada and the Southern Appalachian Mountains. This wildflower functions as a pollen producing male when small and a seed-producing female as it grows larger. It also has the ability to revert back to the male form if it is injured. Watch for its flower in the early spring.

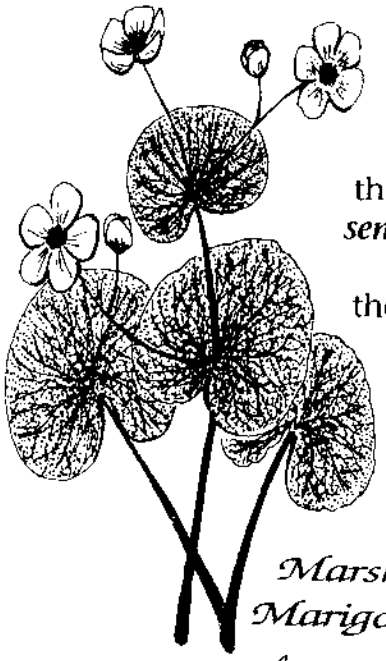


## 3. Riparian Wetland



*Marsh Fern*

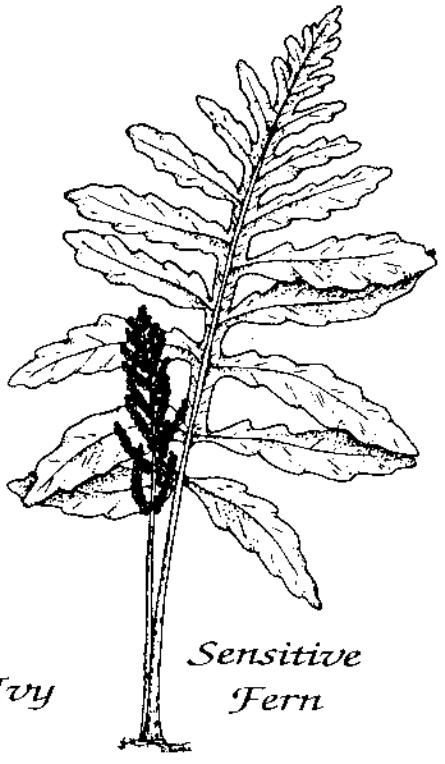
A riparian wetland is a seasonally wet area adjacent to a freshwater river. This brook and its adjacent wetland empty into Southwicks Marsh. It serves the dual purpose of carrying runoff from the farm to the east to the marsh to be cleaned and filtered by the wetland soil. The brook also carries available nutrients to the plants growing on its banks.



Marsh Marigold

Moisture-adapted plants thriving here include: ***marsh fern***, ***sensitive fern*** and ***marsh marigold***. Please take special notice of the shiny, three-leaved ***poison ivy*** flourishing on the ***green ash*** tree behind you. It thrives along the entire trail, so be careful to recognize and avoid it!

Poison Ivy



Sensitive Fern

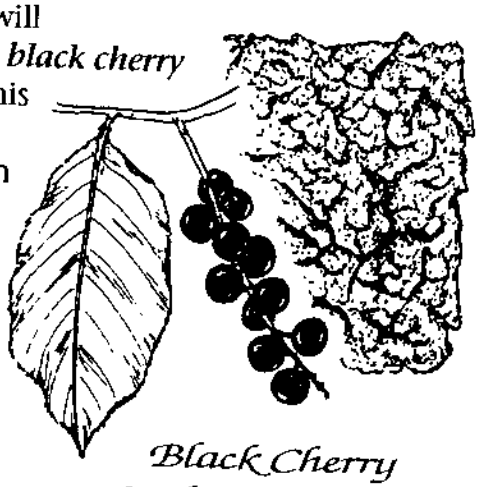
## 4. Flooded Standing Timber

May Apple

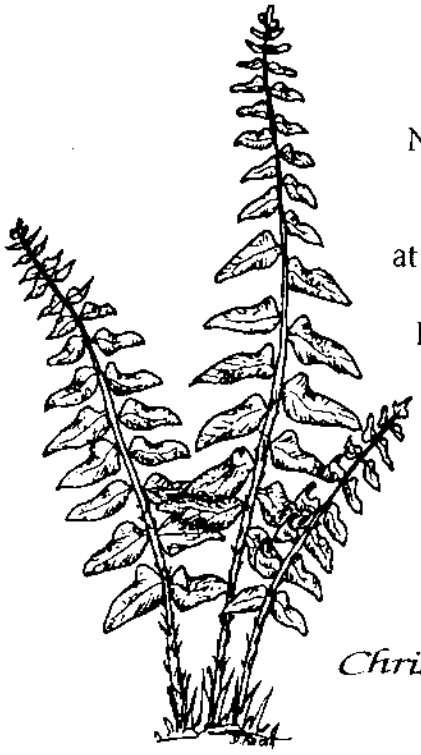
Most trees can not withstand long periods of water-logged soil. Look along the trail for signs of beaver. They have dammed the area southwest of here, causing the flooded conditions that killed some of these ***green ash*** trees. This area would make ideal osprey habitat if it remains flooded and undisturbed. Directly in front of you is a healthy colony of ***may apples***. These plants have two umbrella-like leaves which produce a large berry.

## 5. Trees Get Diseases, Too!

Nature has and always will eliminate the unfit. The ***black cherry*** and ***green ash*** trees at this stop have ***canker***, a tree disease similar to human cancer. All life forms, including trees, are subject to disease. Like humans, the healthier the individual, the more resistant it is to sickness.



Black Cherry
Leaf, Fruit & Bark



Notice the shiny evergreen
***Christmas fern.***
By looking closer
at its stocking-shaped leaves,
it becomes obvious
how it received its name.

*Christmas Fern*

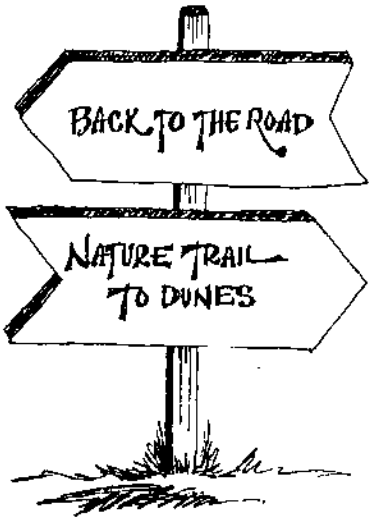
## 6. American Beech Tree

This immense ***American beech*** began its life during an agricultural period that allowed it full sunlight. As the beech ages and declines in vigor, it will provide nesting sites for wildlife and permit other trees around and under it to receive the sunlight they need to thrive. The ***beech nut*** is one of the most versatile and nutritious wildlife foods. Given an abundant crop, the wild animals of the forest will choose this food source first. The large, ***white paper birch*** trees around you are more common on front lawns than in the wild.

*American Beech*

## 7. Trail Decision

If you prefer a shorter hike, make a ***left*** and the loop will bring you back to the road. The Filmore Brook/Lake Ontario Dune Trail continues to the ***right***.

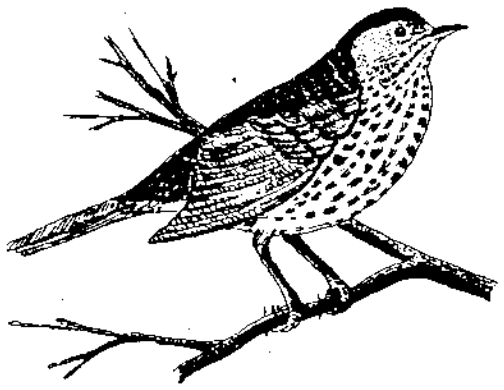



## 8. Old Field/Meadow Edge

Where forest meets field, an "edge" is created. Edges are important to wildlife seeking food, cover and other features provided by the two very different environments. Look for abundant wildlife such as ***rabbits, wood chucks, white-tailed deer, northern leopard frogs*** and a variety of ***songbirds***.

*Northern Leopard Frog*

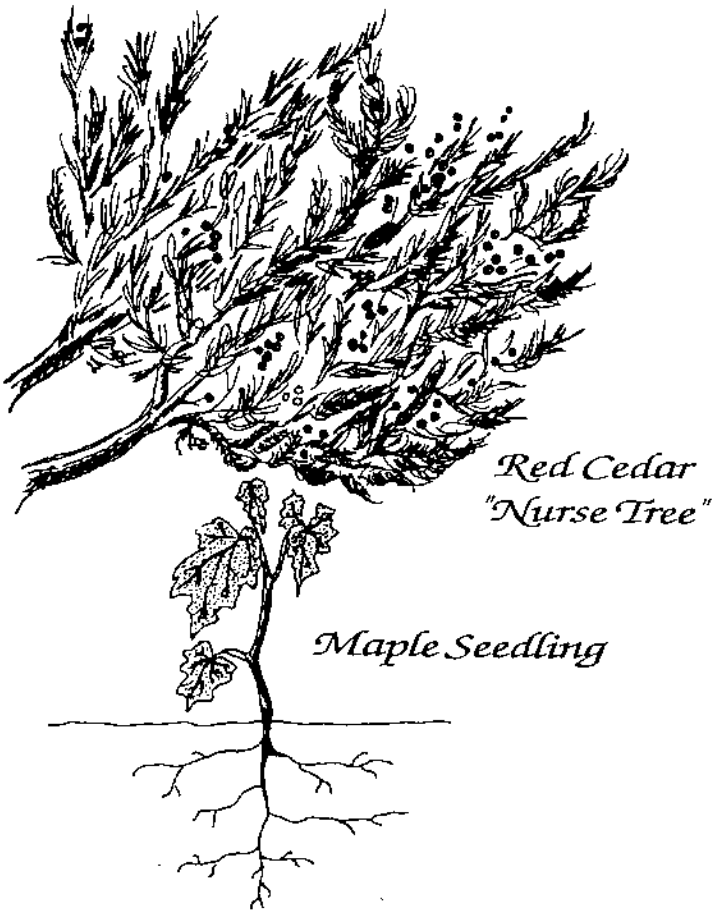
This abandoned farm field has quickly been covered with perennial weeds and grasses; young trees such as ***red cedar*** thrive in the direct sunlight. If left undisturbed, it will eventually become a forest like the one you are about to enter.



*Wood Thrush*

# 9. Cooperation in Nature

This area was once used
for grazing; the ***red cedar***
shielded the ***maple*** seedlings
beneath them from the
hungry jaws of foraging
cows and deer.
Protected, the maple
was able to reach maturity
aided by the now dying red
cedar ***"nurse trees."***

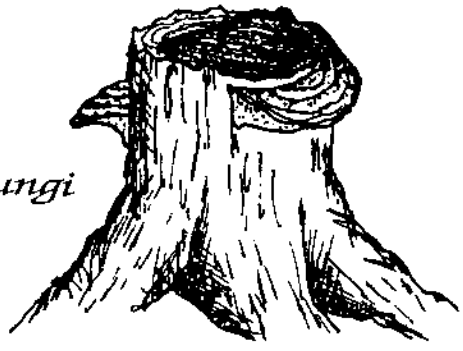


# 10. Sugar Maple

This gigantic ***sugar maple*** may well be over 200 years old and is on the decline. It is harboring a healthy population of ***shelf fungi***. The wood-hungry fungi enter trees through bark damaged by wood-boring insects and animals. Once present, fungal spores grow and their mycelia (roots) travel throughout the trunk, eventually reducing it to a powdery mass. What we see on the surface of the tree is but a small part of the entire fungus.

*Sugar Maple Leaf & Fruit*

*Shelf Fungi*



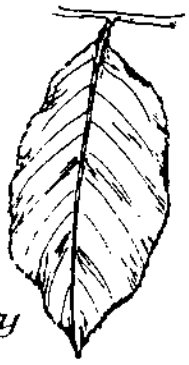
*Note:*

There is a bit of a hike before our next information marker. Take notice of the changes in soil, temperature, tree cover, and sunlight as you hike through the drier conditions of the upland forest.

# 11. Mature Timber

These mature ***black cherry*** and ***ash*** trees were spared from fuel and lumber removal. As a result they grew to this large size, shaded the forest floor beneath them, and made it difficult for any other tree to compete for sunlight and available soil nutrients.

*Ash*

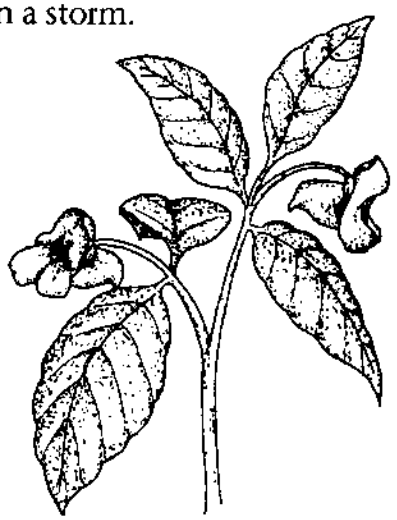


*Black Cherry*

# 12. Wind Throw

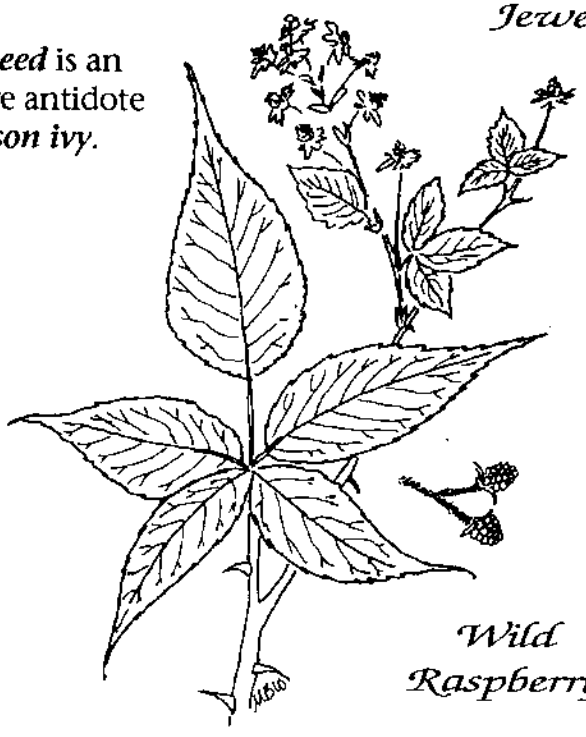
This wind thrown tree, inadequately anchored by its roots, was blown down in a storm. Adequate sunlight is now available for the sun-loving species below it. Through the process of decay, the tree will be returned to the soil for reuse. Recycling is a continual process of the forest community.

The ***black raspberries*** indicative of disturbance are edible by late summer.

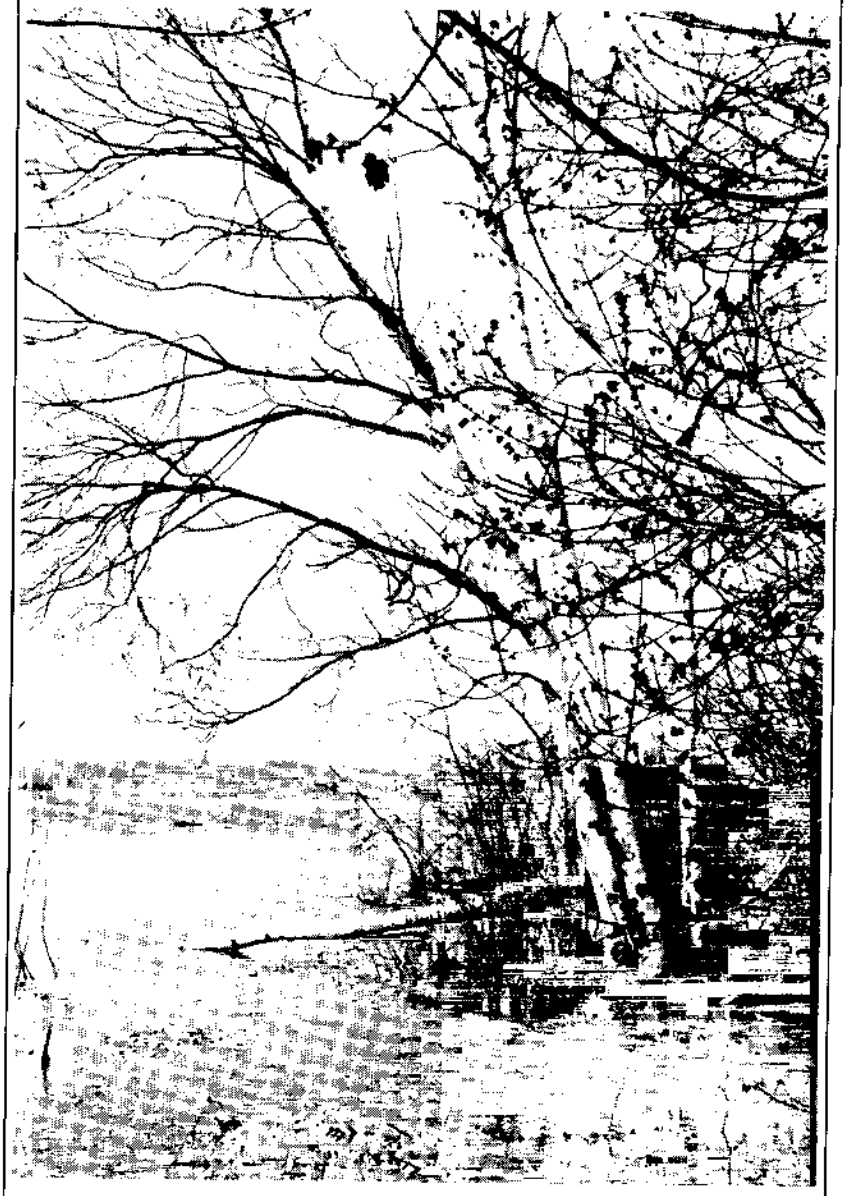


*Jewelweed*

***Jewelweed*** is an effective antidote for ***poison ivy***.



*Wild Raspberry*



*Lakeview Marsh*

# 13. Lakeview Marsh

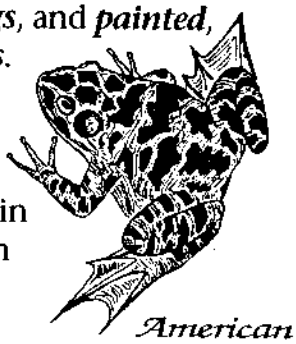
This fresh water marsh is valuable to humans as well as wildlife. It aids in flood control, protects groundwater by filtering out pollutants, and is simply a beautiful and peaceful place to visit. It provides habitat for populations of migrating, nesting, resting and feeding birds such as: the ***great blue heron, black duck (above), marsh wren, least bittern*** and the currently threatened ***black tern***. When wetlands are dredged or filled, these important values are lost. The Lakeview Marsh is protected from erosive lake storms by the dunes and the barrier beach through which you are about to travel.


*Great Blue Heron*

Marsh Wren

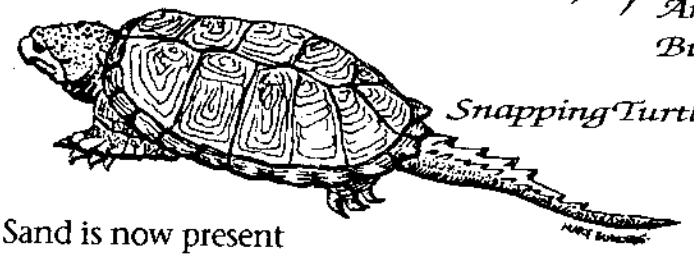
# 14. Beaver Dam

In the early spring Filmore Brook is an important spawning area for fish such as the ***bowfin***, ***carp*** and ***northern pike***. Also present are ***eastern water snakes (non-venomous)***, ***bull frogs***, and ***painted***, ***spotted***, and ***snapping turtles***.



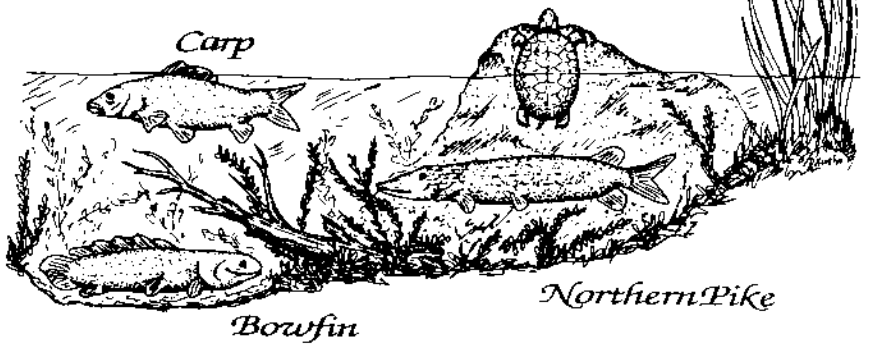
American Bull Frog

The beaver dam directly ahead of you raises the water level of the marsh behind it, creating variations in habitat such as the flooded trees seen at marker number four.



Snapping Turtle

Sand is now present on the trail and has been transported from the beach and the dunes. This is the beginning of a harsher environment. The ***eastern cottonwood*** tree is one of the only tree species present, because of its ability to withstand constant sand burial.

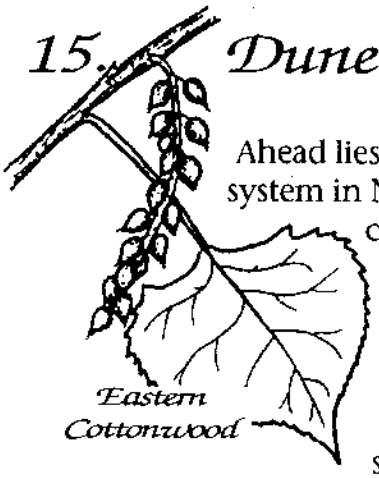


Carp

Northern Pike

Bowfin

# 15. Dune Walkover




Ahead lies part of the only fresh water dune system in New York State. This walkover was constructed to protect this unique area from foot traffic, which removes vegetation and causes "blow outs." The ***American beach grass***, which anchors sand inplace, forming and stabilizing the dune, is easily destroyed by traffic. Loss of the grass allows the erosive force of the wind to blow through, depositing sand in the marsh as well as destabilizing and eventually removing the dune itself.

Plants tolerant of the harsh conditions found here include: ***eastern cottonwood***, ***artemisia***, ***American beachgrass***, and the rare ***sand dune willow*** (to the left of the walkover). Over a dozen birds and mammals such as the ***red fox*** and ***white-tailed deer*** live here as well.

The ***foredune*** (the dune closest to the shore) protects the ***secondary dune*** (behind the foredune), and supports sparser, smaller plants. Feel the speed and force of the wind increase as you walk towards the lake. The dunes that shielded you from the wind also protect life on the back dunes and the marsh beyond.

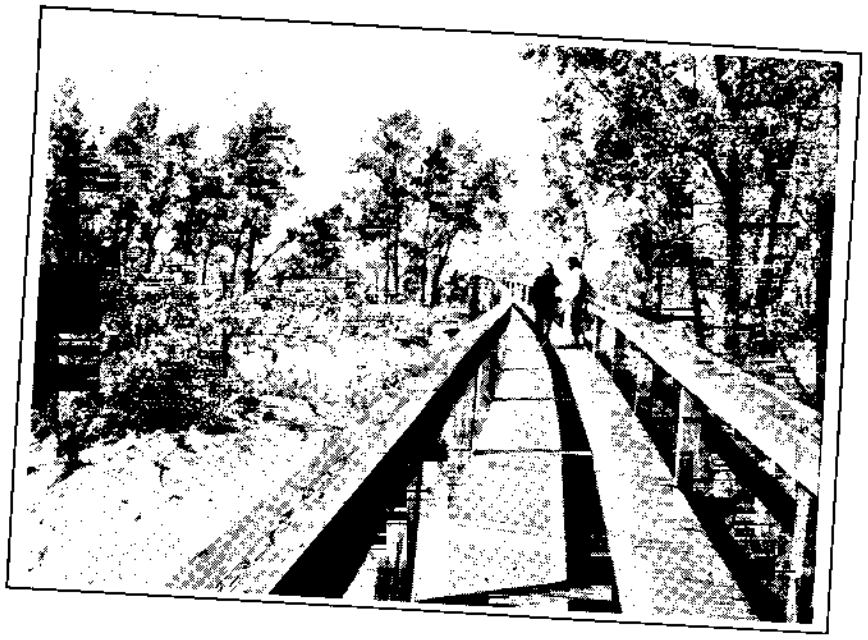
*Artemisia*

# 16. Dune Walkover

***Beachgrass*** traps sand blown from the beach and continues to grow upward as it is buried. This process enables the dune to grow higher while remaining stable underneath.

Please continue on the loop as it takes you along the lake and back to the road. Watch for ***gulls***, ***terns***, and small ***shore birds*** as you walk along the lake shore. We hope you enjoyed the trail and learned more about this unique and precious resource.

*American Beach Grass*



# *Acknowledgements*

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Diane Kuehn

***Photography:***
Bill Huff, Jr.
Diane Kuehn

***Installation of trail markers:***
New York State Office of
Parks, Recreation, and Historic Preservation

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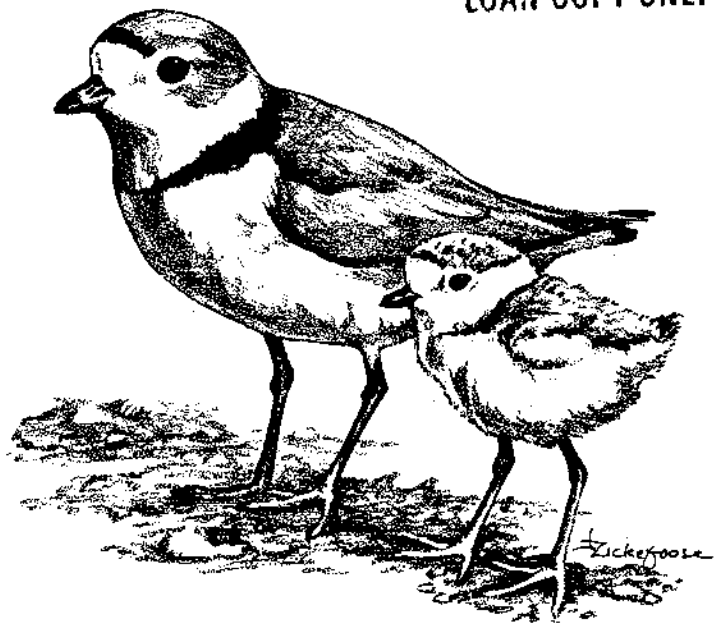
Alexandria Bay, NY

*You Can Help Protect*





# The Piping Plover

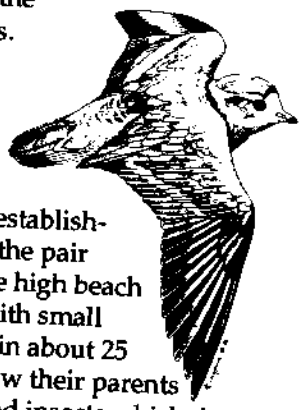
## *Description*

The piping plover is a small, stocky, sandy-colored bird resembling a sandpiper. The adult has yellow-orange legs, a black band across the forehead from eye to eye, and a black ring around the base of its neck. Like other plovers, it runs in short starts and stops. When still, the piping plover blends into the pale background of open, sandy habitat on outer beaches where it feeds and nests. The bird's name derives from its call notes, plaintive bell-like whistles which are often heard before the birds are seen.

## *Distribution and Abundance Along the Atlantic Coast*

The piping plover breeds on coastal beaches from Newfoundland and southeastern Quebec to North Carolina. These birds winter primarily on the Atlantic Coast from North Carolina to Florida, although some migrate to the Bahamas and West Indies.

Piping plovers were common along the Atlantic Coast during much of the 19th century, but nearly disappeared due to excessive hunting for the millinery trade. Following passage of the Migratory Bird Treaty Act in 1918, numbers recovered to a 20th century peak which occurred during the 1940's. The current population decline is attributed to increased development and recreational use of beaches since the end of World War II. The most recent surveys place the Atlantic population at less than a thousand pairs.



## *Breeding and Feeding Habits*

Piping plovers return to their breeding grounds in late March or early April. Following establishment of nesting territories and courtship rituals, the pair forms a depression in the sand somewhere on the high beach close to the dunes. The nest is sometimes lined with small stones or fragments of shell. The four eggs hatch in about 25 days, and the downy young are soon able to follow their parents in foraging for the marine worms, crustaceans, and insects which they pluck from the sand. Both the eggs and young are so well camouflaged that they are apt to go undetected unless stepped on. When predators or intruders come close, the young squat motionless on the sand while the parents attempt to attract the attention of the intruders to themselves, often by feigning a broken wing. Surviving young fledge and are flying

in about 30 days. However, stormtides, predators, or intruding humans sometimes disrupt nests before the eggs hatch. When this happens, the plovers often renest in the vicinity and young hatched from these late nesting efforts may not be flying until late August. Plovers often gather in groups on undisturbed beaches prior to their southward migration. By mid-September, both adult and young plovers will have departed for their wintering areas.

## *Threats*

Several factors are contributing to the decline of the piping plover along the Atlantic Coast.

- Commercial, residential, and recreational development have decreased the amount of coastal habitat available for piping plovers to nest and feed.

- Human disturbance often curtails breeding success. Foot and vehicular traffic may crush nests or young. Excessive disturbance may cause the parents to desert the nest, exposing eggs or chicks to the summer sun and predators. Interruption of feeding may stress juvenile birds during critical periods in their development.

- Pets, especially dogs, may harass the birds.

- Developments near beaches provide food that attracts increased numbers of predators such as raccoons, skunks, and foxes. Domestic and feral cats are also very efficient predators of plover eggs and chicks.

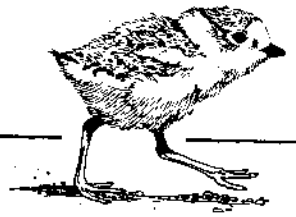
- Stormtides may inundate nests.

## *Protection Under the Endangered Species Act*

The piping plover became a protected species under the Endangered Species Act on January 10, 1986. Along the Atlantic Coast it is designated as threatened, which means that the population would continue to decline if not protected. The Endangered Species Act provides penalties for taking, harassing or harming the piping plover and affords some protection to its habitat.

## *Things You Can Do To Help Protect the Piping Plover*

- Respect all areas fenced or posted for protection of wildlife.
- Do not approach or linger near piping plovers or their nests.
- If pets are permitted on beaches used by plovers, keep your pets leashed.
- Don't leave or bury trash or food scraps on beaches. Garbage attracts predators which may prey upon piping plover eggs or chicks.



The piping plover is protected under the Endangered Species Act.

For further information, contact the Office of Endangered Species, U.S. Fish and Wildlife Service, One Gateway Center, Newton Corner, Massachusetts 02158, or contact your State Natural Resource Agency.

Illustrations by Julie Zickefoose



Prepared by the U.S. Fish and Wildlife Service, Region 5
February 1991

| | W | Sp | Su | Fl |
|---|---|---|---|---|
| Swainson's Thrush | | | | + |
| Hermit Thrush | | | | + |
| Wood Thrush | | + | + | + |
| American Robin | R | + | + | + |
| Gray Catbird | | + | + | + |
| Northern Mockingbird | | + | + | + |
| Brown Thrasher | | + | + | + |
| Water Pipit | | + | | + |
| Cedar Waxwing | | + | + | + |
| Northern Shrike | + | | | + |
| Loggerhead Shrike | | R | R | |
| European Starling | + | + | + | + |
| Solitary Vireo | | | | + |
| Yellow-throated Vireo | | | + | + |
| Warbling Vireo | | + | + | + |
| Philadelphia Vireo | | | | + |
| Red-eyed Vireo | | + | + | + |
| Golden-winged Warbler | | R | | |
| Tennessee Warbler | | + | | + |
| Nashville Warbler | | + | | + |
| Northern Parula | | + | | + |
| Yellow Warbler | | + | + | + |
| Chestnut-sided Warbler | | + | | + |
| Magnolia Warbler | | + | | + |
| Cape May Warbler | | + | | + |
| Black-thrtd. Blue Warbler | | + | | + |
| Yellow-rumped Warbler | | + | | + |
| Black-thrtd.Green Warbler | | + | | + |
| Blackburnian Warbler | | + | | + |
| Palm Warbler | | + | | + |
| Bay-breasted Warbler | | + | | + |
| Blackpoll Warbler | | + | | + |
| Black-and-white Warbler | | + | | + |
| American Redstart | | + | + | + |
| Ovenbird | | + | + | + |
| Northern Waterthrush | | + | + | + |
| Mourning Warbler | | | | + |
| Common Yellowthroat | | + | + | + |
| Wilson's Warbler | | + | | + |
| Canada Warbler | | | | + |
| Scarlet Tanager | | + | + | + |

| | W | Sp | Su | Fl |
|---|---|---|---|---|
| Northern Cardinal | + | + | + | + |
| Rose-brstd. Grosbeak | | + | + | + |
| Indigo Bunting | | + | + | + |
| Rufous-sided Towhee | | + | + | + |
| American Tree Sparrow | + | + | | + |
| Chipping Sparrow | | + | + | + |
| Clay-colored Sparrow | | | | A |
| Field Sparrow | | + | + | + |
| Vesper Sparrow | | | R | + |
| Savannah Sparrow | | + | + | + |
| Song Sparrow | R | + | + | + |
| Lincoln's Sparrow | | | | + |
| Swamp Sparrow | | + | + | + |
| White-thrtd. Sparrow | | + | + | + |
| White-crnd. Sparrow | | + | | + |
| Dark-eyed Junco | | + | R | + |
| Lapland Longspur | + | | | |
| Snow Bunting | + | + | | + |
| Bobolink | | + | + | + |
| Red-winged Blackbird | | + | + | + |
| Eastern Meadowlark | | + | + | + |
| Rusty Blackbird | | | | + |
| Common Grackle | | + | + | + |
| Brown-headed Cowbird | | + | + | + |
| Orchard Oriole | | A | | |
| Northern Oriole | | + | + | + |
| Purple Finch | | | + | + |
| House Finch | | | R | |
| Common Redpoll | + | | | |
| Pine Siskin | | | | + |
| American Goldfinch | | + | + | + |
| Evening Grosbeak | + | + | | + |
| House Sparrow | | + | + | + |

This checklist has been donated by:

ADIRONDACK LIFE MAGAZINE
420 East Genesee Street
Syracuse, New York 13202

The El Dorado Beach Preserve contains a diverse variety of ecological communities including windswept rock and dune shoreline. This diversity, combined with its location along a major flyway between James Bay and the Atlantic coast, results in high usage by large numbers of migrant shorebirds and waterbirds. Invertebrates that abound in the Cladophora algae piled high on shore by wind and wave action provide a rich food source for long distance migrant shorebirds. Shallow shoal-filled offshore waters attract prey for a variety of fish-eating birds.

This unique 355 acre refuge exists due to the protective efforts of The Central New York Chapter of The Nature Conservancy. The Conservancy employs a seasonal preserve manager to protect and maintain the Preserve. Please enjoy your visit to this wild stretch of Lake Ontario shore. We hope that you may wish to aid the Conservancy in protecting El Dorado and other parts of our natural heritage for future generations. If you would like further information and/or wish to report a species not on this checklist, please write:

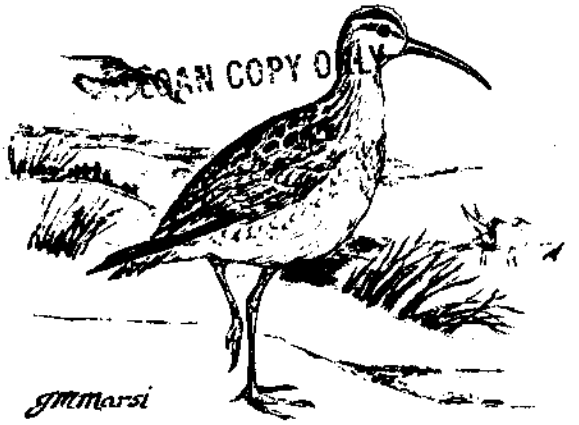
Preserve Manager
El Dorado Beach Preserve
P.O. Box 38
Henderson, New York 13650



National Office
1800 North Kent Street
Arlington, Virginia 22209
(703) 841-5300

# Birds





JMMarsi

# of El Dorado Beach Preserve

## Jefferson County, New York

THE NATURE CONSERVANCY

A list of species that have been recorded on the Preserve.

| | | | | |
|---|---|---|---|---|
| Winter | - | 12/11 | - | 2/29 |
| Spring | - | 3/1 | - | 5/31 |
| Summer | - | 6/1 | - | 7/31 |
| Fall | - | 8/1 | - | 12/10 |

\+ - Sighted regularly
R - Rare (not sighted every year)
A - Accidental (less than 5 records)

| | W | Sp | Su | Fl |
|---|---|---|---|---|
| Red-throated Loon | | | | + |
| Common Loon | | + | R | + |
| Pied-billed Grebe | | + | | + |
| Horned Grebe | | + | | + |
| Red-necked Grebe | | R | | + |
| White Pelican | | | A | |
| Dbl-cr. Cormorant | | + | + | + |
| American Bittern | | + | + | + |
| Great Blue Heron | | + | + | + |
| Great Egret | | | | A |
| Snowy Egret | | | | A |
| Tricolored Heron | | | | A |
| Green-backed Heron | | + | + | + |
| Bl-cr. Night-Heron | | + | + | + |
| Yw-cr. Night-Heron | | | A | |
| Tundra Swan | | | | R |
| Mute Swan | | R | R | R |
| Snow Goose | | | | + |
| Brant | | | | + |
| Canada Goose | R | + | R | + |
| Wood Duck | | + | R | + |
| Green-winged Teal | | + | + | + |
| American Black Duck | + | + | + | + |
| Mallard | + | + | + | + |
| Northern Pintail | | + | R | + |
| Blue-winged Teal | | + | + | + |
| Northern Shoveler | | | R | + |
| Gadwall | | + | + | + |
| American Wigeon | | + | R | + |
| Canvasback | | + | | + |
| Redhead | | | | + |
| Ring-necked Duck | | | | + |
| Greater Scaup | + | + | R | + |
| Lesser Scaup | | | | + |
| Common Eider | | A | | |
| Oldsquaw | + | + | | + |
| Black Scoter | | | | + |
| Surf Scoter | + | R | | + |
| White-winged Scoter | + | + | R | + |
| Common Goldeneye | + | + | R | + |
| Bufflehead | + | + | R | + |

| | W | Sp | Su | Fl |
|---|---|---|---|---|
| Hooded Merganser | | + | | + |
| Common Merganser | + | + | R | + |
| Red-br. Merganser | | + | R | + |
| Ruddy Duck | R | | | + |
| Turkey Vulture | | + | + | + |
| Osprey | | + | + | + |
| Bald Eagle | | R | R | R |
| Northern Harrier | | + | + | + |
| Sharp-shinned Hawk | | + | R | + |
| Cooper's Hawk | | | R | + |
| Northern Goshawk | + | | R | + |
| Red-shouldered Hawk | | | | + |
| Broad-winged Hawk | | + | R | + |
| Red-tailed Hawk | + | + | + | + |
| Rough-legged Hawk | + | + | | + |
| American Kestrel | + | + | + | + |
| Merlin | | | | + |
| Peregrine Falcon | | | | R |
| Gyrfalcon | | | | A |
| Ruffed Grouse | + | + | + | + |
| Virginia Rail | | | + | + |
| Sora | | | + | |
| Common Moorhen | | + | + | + |
| American Coot | | + | | + |
| Black-bellied Plover | | + | A | + |
| Lesser Golden-Plover | | | | + |
| Semipalmated Plover | | + | + | + |
| Piping Plover | | | | A |
| Killdeer | | + | + | + |
| American Avocet | | | A | A |
| Greater Yellowlegs | | + | + | + |
| Lesser Yellowlegs | | + | + | + |
| Solitary Sandpiper | | + | + | + |
| Willet | | A | | A |
| Spotted Sandpiper | | + | + | + |
| Upland Sandpiper | | | | + |
| Whimbrel | | R | R | R |
| Hudsonian Godwit | | | | R |
| Marbled Godwit | | | | A |
| Ruddy Turnstone | | + | + | + |
| Red Knot | | + | R | + |

| | W | Sp | Su | Fl |
|---|---|---|---|---|
| Sanderling | R | + | + | + |
| Semipal. Sandpiper | | + | + | + |
| Western Sandpiper | | | | + |
| Least Sandpiper | | + | + | + |
| White-rumped Sandpiper | + | + | A | + |
| Baird's Sandpiper | | | A | + |
| Pectoral Sandpiper | | + | + | + |
| Purple Sandpiper | R | A | | R |
| Dunlin | | + | A | + |
| Stilt Sandpiper | | | + | + |
| Buff-brstd. Sandpiper | | | | R |
| Short-b. Dowitcher | | + | + | + |
| Common Snipe | | + | + | + |
| American Woodcock | | + | + | R |
| Wilson's Phalarope | | | + | + |
| Red-necked Phalarope | | | + | + |
| Red Phalarope | R | | | + |
| Parasitic Jaeger | | | | R |
| Franklin's Gull | | | | A |
| Little Gull | | | | R |
| Bonaparte's Gull | | + | + | + |
| Ring-billed Gull | + | + | + | + |
| Herring Gull | + | + | + | + |
| Iceland Gull | + | + | | |
| Glaucous Gull | + | + | | + |
| Great Bl-backed Gull | + | + | + | + |
| Bl-legged Kittiwake | | | | R |
| Caspian Tern | | + | + | + |
| Common Tern | | + | + | + |
| Forster's Tern | | | | + |
| Black Tern | | + | + | + |
| Rock Dove | | + | + | + |
| Mourning Dove | | + | + | + |
| Black-billed Cuckoo | | | + | + |
| Yellow-billed Cuckoo | | | + | + |
| Eastern Screech-Owl | | | + | + |
| Great Horned Owl | + | + | + | + |
| Snowy Owl | + | | | |
| Common Nighthawk | | | | + |
| Whip-poor-will | | | R | |
| Chimney Swift | | + | + | + |

| | W | Sp | Su | Fl |
|---|---|---|---|---|
| Ruby-th. Hummingbird | | + | + | + |
| Belted Kingfisher | | + | + | + |
| Red-headed Woodpecker | | | + | + |
| Yw.-bellied Sapsucker | + | | | + |
| Downy Woodpecker | + | + | + | + |
| Hairy Woodpecker | + | + | + | + |
| Northern Flicker | | + | + | + |
| Pileated Woodpecker | | + | + | + |
| Olive-sided Flycatcher | | | | + |
| Eastern Wood-Pewee | | + | + | + |
| Yw.-bellied Flycatcher | | | | + |
| Alder Flycatcher | | + | | |
| Willow Flycatcher | | + | + | + |
| Least Flycatcher | | + | + | + |
| Eastern Phoebe | | + | + | + |
| Great Crstd. Flycatcher | | + | + | + |
| Eastern Kingbird | | + | + | + |
| Horned Lark | | | | + |
| Purple Martin | | + | + | + |
| Tree Swallow | | + | + | + |
| N. Rough-winged Swallow | | + | + | + |
| Bank Swallow | | + | + | + |
| Cliff Swallow | | | | + |
| Barn Swallow | | + | + | + |
| Blue Jay | + | + | + | + |
| American Crow | + | + | + | + |
| Bl.-capped Chickadee | + | + | + | + |
| Boreal Chickadee | | | | A |
| Red-breasted Nuthatch | + | + | + | + |
| White-brstd. Nuthatch | + | + | + | + |
| Brown Creeper | + | | + | + |
| House Wren | | + | + | + |
| Winter Wren | | | | + |
| Sedge Wren | | | | R |
| Marsh Wren | | + | R | + |
| Golden-crnd. Kinglet | | + | | + |
| Ruby-crnd. Kinglet | | + | | + |
| Blue-gray Gnatcatcher | | | R | |
| Eastern Bluebird | | | R | R |
| Veery | | + | + | + |
| Gray-cheeked Thrush | | | | + |