

Monomoy

*National Wildlife
Refuge*

Morris Island Trail



Monomoy National Wildlife Refuge is one of more than 520 refuges in the National Wildlife Refuge System which is administered by the U.S. Fish and Wildlife Service. The National Wildlife Refuge System is a network of lands and waters managed specifically for the protection of wildlife and wildlife habitat and represents the most comprehensive wildlife resource management program in the world. Units of the system stretch across the United States from northern Alaska to the Florida Keys, and include small islands in the Caribbean and South Pacific. The character of the refuges is as diverse as the nation itself.

The Service also manages National Fish Hatcheries, and provides Federal leadership in habitat protection, fish and wildlife research, technical assistance and the conservation and protection of migratory birds, certain marine mammals and threatened and endangered species.

Welcome

Monomoy National Wildlife Refuge was established in 1944, and administered by the U.S. Fish & Wildlife Service. The refuge consists of 2,750 acres that is only accessible by boat except for the 40-acre unit on Morris Island.

Come explore this 3/4-mile walk along Morris Island, which offers a mere glimpse of the unique habitats found here at Monomoy National Wildlife Refuge. As you walk the trail, notice how the species' communities change as you walk from one station to the next: through beach, sand dunes, forest, salt marsh, and tidal flats.

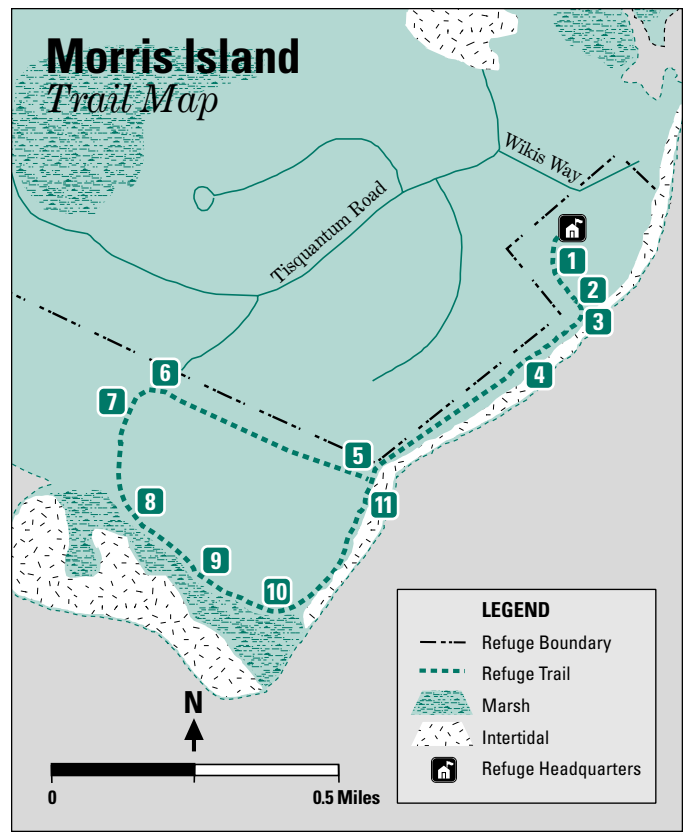
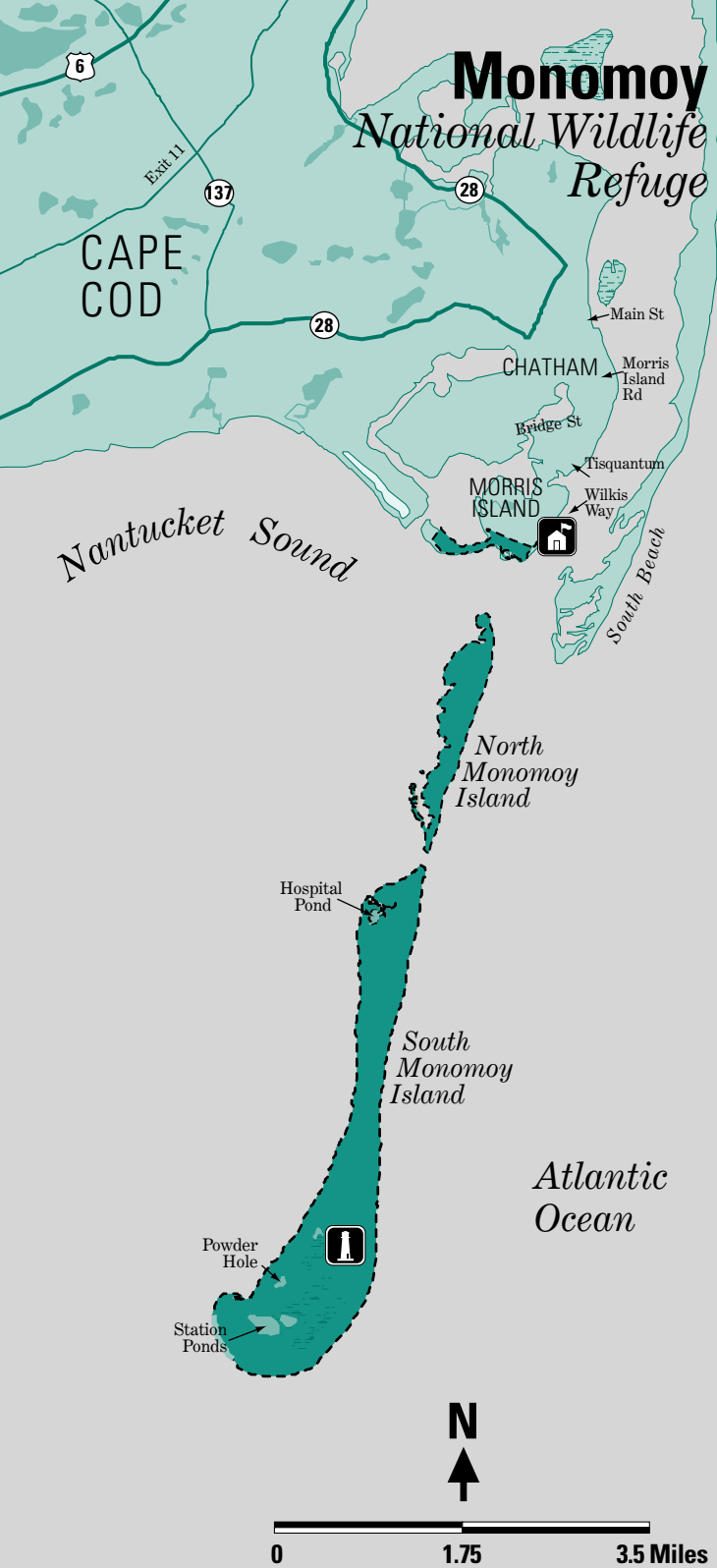
For Your Information

All plants and animals are protected on the Refuge. Please step lightly and stay on the trail to avoid disturbing their habitat. Leave nothing but footprints and take only memories.

Harbor Seals



Carole D'Angelo



Making Songbird Habitat

1

The tall grass and wildflowers to the left of the trail attracts many different types of wildlife including rabbits, squirrels, chipmunks, and birds. This area provides supplemental food and shelter for these animals.



The feeders enhance the area for songbirds. They reduce the energy birds have to spend searching for food. Goldfinches and chickadees are some of the most frequent users of our thistle feeder; while cardinals, blue jays, and finches all enjoy using the platform feeder.

Island Lookout Point

2

Before you is the Atlantic Ocean! You can see South Beach Island, managed and owned by the town of Chatham, straight ahead from this lookout point. North and South Monomoy Islands are visible in the distance to the right. Monomoy has evolved from a series of small, sand-spit barrier islands in the 1800s to an arm of land connected to the mainland in the 20th century. In 1958, a spring storm tore the sand spit from the mainland, creating a single island separated from Morris Island, Chatham. Twenty years later, the island split in two during a turbulent blizzard. Left in its wake was the present-day 2.5-mile stretch of North Monomoy and the six mile arm of South Monomoy.

Learning New Vegetation

3

As you begin your descent down to the beach, take a minute to look around. Can you spot the arrowwood behind you? Arrowwood is distinguished by its straight, twiggy shoots that come out of the ground in bundles. Native Americans used these shoots to make hunting bows.

Do you know what the leaves of a sassafras tree look like? These trees actually have three different leaf shapes, one which is football shaped, one that looks like a mitten, and the third which has three rounded lobes.

You won't find these plants on the beach, they prefer the moist rich soils found inland.

The Actions of the Ocean Waves

4

There are typically two high and two low tides along the shore each day. These fluctuating tides are caused by the gravitational attraction between the earth, sun, and moon. All surfaces on the earth are pulled toward the sun and moon, but only water can move. Therefore, as the moon revolves around the earth each day, the ocean water is continuously "pushed" towards land causing a



Stephanie Koch

Monomoy National Wildlife Refuge

bulge, or high tide. Roughly six hours later, the water has been "pulled" away from the land so much that it causes what's known as low tide. This push and pull action causes the sand to be moved from one place to the next with each tide cycle.

Sand Dunes Offer Protection

5

As you make the transition from open beach to sand dunes, notice the presence of rooted vegetation, primarily beach grass and poison ivy. Both plants have an extensive root system which enables them to act like a net, holding the sand and soil back from being washed out to sea during high tide.

These grasses also offer nesting areas for birds such as willet, laughing, herring and great black-backed gulls. These birds prefer the tall grasses because they provide excellent cover such as great hiding places for their chicks!

Trees and Shrubs Adapt

6

Further from the harsh conditions of the open beach, woody plants become established. The trees and shrubs on Monomoy will never get very tall because gusty winds keep them dwarfed. A great example of this is the chestnut oak to your right. In normal conditions, this tree would reach 60-80 feet in height!



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Species Diversity

7

Rounding the corner, observe the variety of trees and shrubs, all of which actually thrive here in the sandy soils. Try to locate some of the common ones such as pitch pine, low bush blueberry, juniper, and red oak.

Early in the fall, you can locate all of these plants by their distinguishing features such as the three needle bundles of the pitch pine tree, the large blue berries on the blueberry bush, the tiny bluish berries on the juniper tree, and the small acorns and pointy tips on the leaves of the red oak.

Salt Marsh Ecosystems

8

A fresh supply of nutrients is washed into this salt marsh twice daily. Here you will find many different types of plants, crustaceans, fish, shorebirds and waterfowl. Shorebirds and waterfowl are attracted to the abundance of food these marshes provide. Fish, including the striped bass, feed in the saltmarsh as well as use it as a nursery to raise their young.

Salt Marsh Indicators

9

Another indicator of a salt marsh is the vegetation around the area—the sea lavender and sea rocket to your right and left. Lavender and sea rocket bloom here on Morris Island

from August through October, covering the ground with beautiful shades of purple. *Remember that all plants and animals are protected on the Refuge, and there is no collecting allowed.*

Shorebird Habitat

10

This area mixed with saltmarsh and cord grasses makes great habitat for many different shorebirds. During the summer months, watch willets and other shorebirds as they gather food from the shoreline and quickly rush back and forth to their nests in these grasses.

The Flats

11

The Morris Island flats in front of you and the Common Flats of North and South Monomoy Islands provide resting and feeding habitat for thousands of migratory birds. The shallow water, sand and mudflats are abundant with food that many birds consume in an effort to store enough energy for their long migration. Can you spot a gull digging for a clam? Or an American Oystercatcher cracking open an oyster shell? How about a tern diving for a small sandlance in the water?

American Oystercatcher



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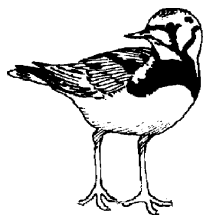
Every spring and summer, a 200 million year old ritual takes place right here on Monomoy National Wildlife Refuge. Adult horseshoe crabs begin a long trek from the deep ocean bottom to deposit their eggs along the coastline during low tides.

Upon hatching, the larvae spend about a week swimming until they settle to the ocean bottom where they begin to molt a hard shell. Do you see any small horseshoe crab shells along the beach? While these may look like dead horseshoe crabs, they're actually the molts. The horseshoe crab is still alive but swimming around in a larger shell! Over a period of 9 to 12 years, a horseshoe crab will molt at least 16 to 17 times.

Did you know that horseshoe crabs aren't actually crabs? They are arachnids, closely related to the spider!

We hope that you have enjoyed walking the Morris Island Interpretive Trail. If you have no further need for this pamphlet, please return it in the kiosk dispenser or the Visitor Center so it can be reused. Thank you!

Monomoy National Wildlife Refuge is one of eight Refuges managed in the Eastern Massachusetts NWR Complex. To learn more about the Refuges in the Complex, stop by the visitor center or call the Complex headquarters in Sudbury at 978/443 4661.



**For Further
Information**

Wildlife Watching Tips

Dawn and dusk are the best times to see wildlife.

In warmer climates, little is moving on hot summer afternoons or on windy days.

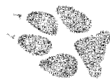
Observe from the sidelines. Leave "abandoned" young animals alone. A parent is probably close by waiting for you to leave. Don't offer snacks; your lunch could disrupt wild digestive systems.

Cars make good observation blinds. Drive slowly, stopping to scan places wildlife might hide. Use binoculars or a long lens for a closer look.

Try sitting quietly in one good location. Let wildlife get used to your presence. Many animals that have hidden will reappear once they think you are gone. Walk quietly in designated areas, being aware of sounds and smells. Often you will hear more than you will see.

Teach children quiet observation. Other wildlife watchers will appreciate your consideration.

Look for animal signs. Tracks, scat, feathers, and nests left behind often tell interesting stories.



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**For Refuge Information
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