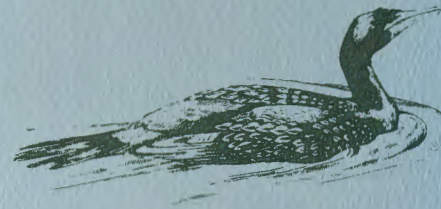


The Kazimiroff Nature Trail



City of New York
Parks & Recreation
Michael R. Bloomberg, Mayor
Adrian Benepe, Commissioner

**Pelham Bay Park
Bronx, New York**

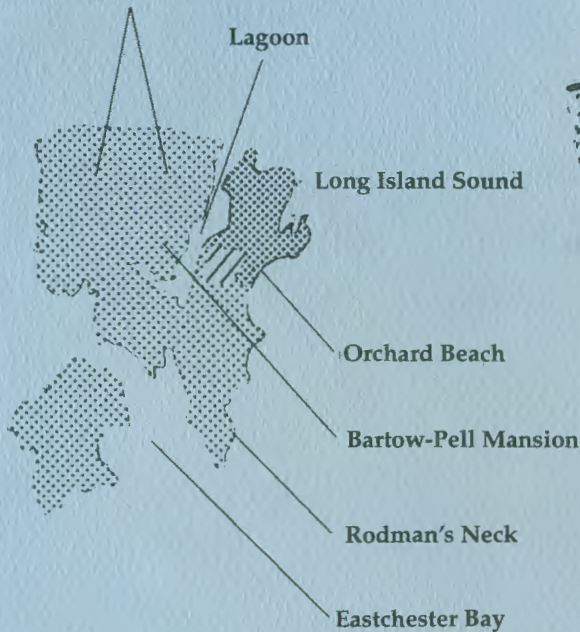
Cover: Double-crested cormorants are commonly seen in Long Island Sound from Hunter and Twin Island.

Kazimiroff Nature Trail Pelham Bay Park, Bronx

LEGEND

-  Forest/Wetland
-  Meadow
-  Beach
-  Marsh
-  Parking Lot
-  Paved Road
-  Red Trail
-  Blue Trail

Pelham/Split Rock Golf Courses



0 400 800 ft.



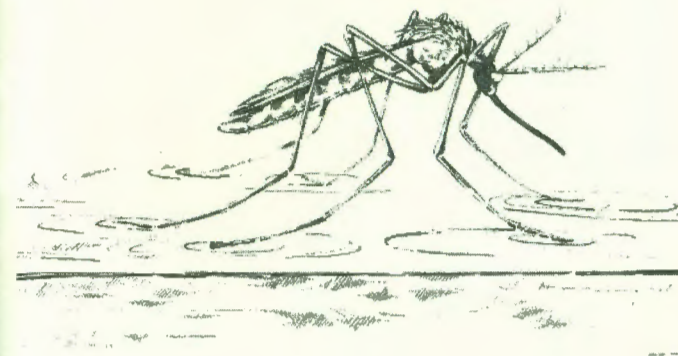
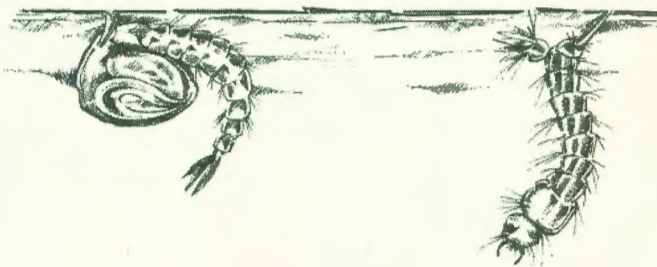
The Kazimiroff Nature Trail, named for the noted Bronx naturalist Dr. Theodore Kazimiroff, winds through 189 acres of Hunter Island, one of the most beautiful sections of Pelham Bay Park. The park itself is the largest and one of the most natural of any in the New York City parks system. Its 2,764 acres—some 660 of them under water—offer great diversity: 13 miles of shoreline, vast saltwater and some freshwater marshes, sunny meadows, deep forests, and a profusion of wildlife ranging from the white-footed mouse to the red-tailed hawk.

Once Indian hunting and fishing grounds and later the site of huge mansions, Pelham Bay became a park in 1888 when New York City bought and consolidated 28 private estates. Vestiges of the estates remain in the exotic plants, such as Japanese honeysuckle and day lily, that have spilled over the garden walls and run wild; and in the walls and buildings still standing in the park. (The Bartow-Pell Mansion, 1836-1842, is the only mansion left intact in the park.)

This area has many stories to tell of how it has been changed by the people who have lived, worked, and played here. Sometimes these tales also show how natural features have influenced the human activities that took place here.

If you look closely, you'll see these stories written in the rocks on the Kazimiroff Nature Trail, from John Hunter's garden walls to the rounded boulders of the Ice Age. The trail winds through meadow, shrubland, forest, and marsh, and over the exposed bedrock that forms Hunter Island. You can choose the Red Trail (about 30 minutes), or the Blue Trail (about 45 minutes). Just follow the numbered posts marked red, blue, or both where trails overlap. The numbers correspond to the numbered stops in this guide.

Mosquito life cycle: larva, pupa, adult



1. Mosquito control

The canal you see below is part of a 20th century effort to control the mosquito population in the park. (If you're walking this trail in the summer, no one has to tell you the population is still high.) Drainage ditches like this, lined with paving stones, crisscross the area's interior. By draining mosquitoes' breeding grounds, park managers hoped to reduce the number of these pests that drove away summer visitors and maddened livestock.

Mosquitoes have a life cycle marked by three transformations (egg-larva-pupa) before they emerge as the flying adult with which we are familiar. The first three stages take place in standing water—rain barrels, tree hollows, marsh edges, or mud puddles. Draining surface water is an effective means of reducing mosquito populations.

2. Hunter and Twin Island

Looking east from Hunter Island to Twin Island, you may wonder why either one of these peninsulas is called an island. Both used to be islands. But in 1934, when Parks Commissioner Robert Moses decided to build Orchard Beach, he had 2.5 million cubic yards of sand, soil, and rock dumped into the open water, separating Hunter Island from Rodman's Neck (see map). This monumental operation created not only the beach but the 45-acre parking lot. In 1947, Moses did a similar geographic alteration, connecting Twin Island to Hunter.

The large, round stones you are standing on are the surface of a road that ran from an old bridge here across Hunter Island to another bridge linking it to the mainland. These stones are true cobblestones; that is, they are naturally rounded and shaped by glacial action.

3. A stand of spruce

This dense stand of evergreen trees looks as if it grew here naturally. But these are Norway spruce, native to Europe, not North America. The Parks Department planted them in 1918 in an effort to reforest this area. In fact, most evergreen trees in Pelham Bay Park today have been planted; few grow here naturally.

These spruce, some 100 of them, are approximately 60 feet tall and about halfway through their lifespan. Over the next century, they will naturally die and, one by one, the smaller trees growing beneath their branches will replace them.

Like many evergreens, spruce are self-pruning. As their dense upper crowns grow, they shade out the lower branches, which eventually drop off. As the crown grows higher and the trunk loses its branches, sunlight angles under the canopy and hits the forest floor, allowing seedlings of other trees to grow.

4. A lesson in succession

The thin trees with corrugated bark are black locusts, extending almost as far as the eye can see. A locust stand like this tells us that the land has only recently become a forest, perhaps as recently as 35 years ago. We believe this because we know the role the black locust plays in natural succession.



Meadow
Switchgrass and sedges

Shrub/Vine
Bayberry and vines

Smooth sumac



Pioneer Forest
Black locust

Transitional Forest
Tulip tree

Mature Forest
White oak

Ideally, succession is the orderly, predictable process by which plant species and communities replace one another. It usually happens in this sequence: meadow to shrubland to pioneer trees to climax forest. When ground is cleared of vegetation (by fire or bulldozing), it is open to maximum sunlight. As sun-loving plants colonize the open land, the shade they cast prevents their own seedlings from growing. Thus begins a progression in which each successive species creates conditions that are unsuitable for its own offspring.

Shrubland replaces meadow until the shrubs are, in turn, shaded out by "pioneer" trees. Black locust is one of the first pioneer trees to succeed shrubs. The specific types and the relative abundance of these trees change as more shade-tolerant species replace less tolerant ones. The end result is a "climax" forest of species so tolerant of shade that their seedlings can grow in the shade of the parent plant. In this part of New York State, oak and hickory are the dominant trees in climax forests.

5. Shrub, prickle, and vine

Sumac, bramble, and bittersweet plants dominate this impenetrable thicket, a haven for many birds, such as cardinals, catbirds, black-capped chickadees, and many other animals. Some disturbance in the recent past—possibly bulldozing—cleared the ground of vegetation, allowing these species to grow here, and inadvertently provided the animals with an excellent wildlife habitat.

A good wildlife habitat must offer food, cover, and water. For many animals, brambles, a term used for the many blackberry and raspberry species, supply all three. Their tender young shoots and sweet, succulent berries are important sources of food and water for scores of birds and mammals. Their dense stems with sharp thorns provide a refuge for birds, such as mockingbirds, brown thrashers, rufous-sided towhees, as well as eastern cottontail rabbits and common garter snakes.

If you are taking the Blue Trail, walk on to stop #6. For the Red Trail, proceed to stop #13.



Catbird nest in bittersweet vines

6. The house on a hill

Behind you is the highest natural point in the park, the crest of the island, where John Hunter built his mansion (1804-1811). Hunter chose this high point because of its good drainage and commanding view.

Before you, the low-trailing, shiny-leaved plant growing in mats is periwinkle, a vestige of Hunter's estate gardens. In spring and summer, periwinkle sports pale blue flowers; the rest of the year its waxy evergreen leaves identify it. In summer, you'll see many flowers blooming here, including the day lily (orange), the plantain-leaved lily (lavender), and the grape hyacinth (blue-purple)—all remnants of Hunter's gardens that still grow throughout these woods.

7. White pines

Even from a distance, you can tell by the soft green foliage that these are pines. Their stately form, horizontally layered limbs, and—if you look closely—bundles of five flexible needles identify them further as white pines. (Some red pines are also present in this stand.) These evergreen trees are excellent winter cover for great horned owls.

The white pine, which has grown as high as 200 feet in North America, is probably the most important tree in American history. Because it is both strong and light and grows to a great height, the white pine is the perfect tree for ship masts. King George I of England certainly thought so: he proclaimed all white pines branded with his mark the property of the British Navy. American colonists were permitted to take only trees that were blown down—one origin of the term "windfall." This was one of the many oppressive royal policies that led the New England colonies to start the American Revolution.



Great-horned owls are nocturnal (they hunt at night and sleep by day) and are regularly harassed by crows, blue jays, and other birds that are active during the day. The dense evergreen foliage of pines and spruces provides owls with a cozy daytime resting place during the winter when other cover is not available.

8. "Weeds" are a matter of attitude

Originally the site of John Hunter's mansion, this area contains several plants that indicate that the soil has been disturbed by humans. The tall, fragrant, herbaceous plant dominating the foreground is mugwort. The light-barked small trees growing in a clump are ailanthus, or Tree of Heaven.

You may recognize both plants as "weeds" growing on vacant lots. Aside from the ecological definition of a weed as a plant adapted to habitats disturbed by humans, calling a plant a "weed" is a matter of attitude.

Lawn owners call the dandelion a weed, for example, but many other people see it as a salad green, a wildflower, or the basis of a mild wine. Ailanthus, though not considered a desirable forest tree, was widely used to revegetate devastated areas in Europe after bombing in World War II. Even the lowly mugwort has its place ("wort" is Old English for herb). It was traditionally used to enhance the flavor of beer and ale. One man's weed is another man's wort.

9. A winding road

The chocolate-brown stone blocks strewn on either side of the trail are what remain of the Hunter estate's front gate. The trail continues on the original road that connected Hunter Island to the mainland. From this gate, the road descended north, then turned west, and crossed the lagoon over a wooden bridge.

Locations of bridges and roads are simple illustrations of how the landscape influences choices. The portion of the old road that you are traveling on is not the shortest way off the island, but it is the easiest. This is so because it gently winds around steeper contours instead of going directly across them. The old bridge that was once at the end of this road connected Hunter Island to the mainland where they are closest.

10. Open forest

From this vantage point, you can see several tree trunks blackened by fire. Many signs, especially the forest structure, point to a long history of recurring fires here. The forest is full of large-trunked trees, widely spaced, with scarcely any young trees or large shrubs.

Early European visitors to the New World reported seeing many open woodlands like this one. The woods were open because Native Americans burned them regularly. These periodic fires promoted good deer habitat, regenerated berry bushes, and kept the views clear for sighting game and approaching enemies.

The next stop is about 200 yards away. The long stretch of trail ahead gives you a chance to enjoy a stroll through this unique, mature oak and hickory forest. As you walk, notice the variety of sights, sounds, and smells. Breezes may smell of shellfish or mushrooms, depending on whether they're blowing from the marshes or the forest.

Because the trees are widely spaced, sunlight reaches the forest floor and makes it possible for a variety of wildflowers to grow here. Look for goldenrod, asters, and joe-pye weed in summer. Listen for the loud cawing of crows—it could mean an owl or a hawk is nearby—or the sweet song of the peewee and the oriole.

11. White oaks, black locusts

Up the hill, to the right of the stone wall that runs along the path, is an immature forest of young black locusts with a few bitternut hickories and red oaks. Down the hill, below you, stand white oaks, black birches, and towering tulip trees—the trees of a mature forest.

The dramatic difference in the character of these two forests has been caused by past land use. The area to the right was part of Hunter's pastures, providing hay for his livestock and a view of Long Island Sound. The pasture was mowed regularly until about 1920. The

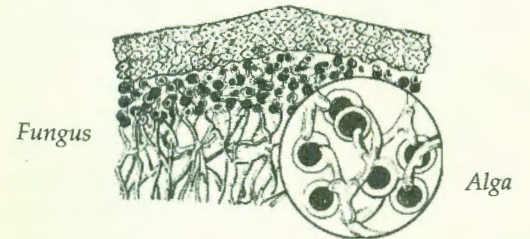
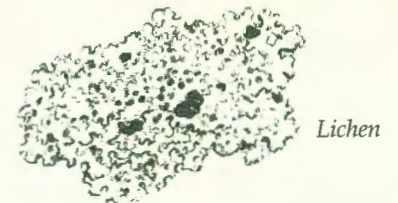
woods on the left were here when Hunter himself walked these grounds. Soil conditions and the slope of the land may have made the area unsuitable for any agricultural use, or the trees may have provided a cozy buffer against the harsh northeast winds.

12. Lichens on the rocks

Look closely at the boulders scattered here, especially at their grey-green blotches. The patches look like paint applied with a sponge, but they are living organisms called lichens (lī-kans). Lichens are actually two organisms—an alga and a fungus—living together. The alga can make its own food, but needs a moist environment; the fungus is moist, but cannot produce its own food. Together, the two sustain each other and are able to live in the most inhospitable places, like bare rocks fully exposed to the drying rays of the sun.

Because lichens are extremely sensitive to air pollution, you rarely find them in New York City parks. Their presence here probably indicates that Pelham Bay Park has cleaner air than parks closer to the center of the city.

If you are taking the Blue Trail, proceed to stop #16.





*Cooper's hawk swoops down on a white-footed mouse.
A recent fire has left the mouse with no cover.*

13. White poplar salute

They stand front and center as if at attention, wearing creamy green uniforms. Their leaves, green on top and white below, are borne on flattened petioles (leaf stalks), causing them to shimmer when stirred by the breeze. This common trait, shared by all poplars, is especially dramatic in the white poplar because of the woolly, white underside of its leaves.

Like sumac, sassafras, and black locust, white poplar is a pioneer species. And, like them, it reproduces prolifically by sprouting new trees from its roots. These trees are clones: Their genetic material is identical to that of the parent tree. Small communities formed vegetatively in this way are often termed "clonal patches."

14. Fire-scarred forest

As you scan the surrounding woods, you will notice that the lower trunks of some trees appear scorched. In an island forest, uncontrolled fire could cause a holocaust. Tree and ground-dwelling animals unable to swim or fly may perish, and burrowing animals may suffocate. Those that do survive become more vulnerable to attacks by predators because there are fewer ground cover plants under which to hide.

The fire that burned this area was probably caused by carelessness or malicious intent. Although it did not totally devastate the area, it might have if wind conditions had been different. Please be careful.

15. Stonewalled

Along the wooded paths in many forests in the Northeast, you will often come upon stone walls. They remind us of a time when farming was the way of life for most Americans. As settlers cleared and plowed their land, they heaped the stones they found into piles. Later, they used the stones to build foundations, wells, and—most often—fences. As more and more farms were abandoned, their plowed fields slowly turned into forest. Plow scars healed, and almost all signs of human presence disappeared, except for the stone walls.

If you are taking the Red Trail, walk on to stop #16.

16. Stone cold

The giant, rounded boulders perched off-shore were carried here by a glacier that once covered most of northern North America. As it pushed south, the glacier, twice as tall as the Empire State Building, broke off huge chunks of rock, rounding and polishing them as it ground them against one another. When the ice melted about 15,000 years ago, these glacial erratics ("erratic" means wanderer) were left where you see them now.

Rocks brought here by the glacier have played an important part in the lives of people who settled here.

Native Americans used glacial erratics as gathering places for religious ceremonies. European settlers built walls and foundations with smaller boulders and often paved roads and lined wells with the smaller cobbles.

17. Rock bottom

The rock you are standing on is the southern tip of a tremendous sheet of bedrock that runs all the way up the coast of New England. Where this folded and undulating bedrock peaks through the soil, it forms the many rocky knolls found throughout the park. Where it rises above the water, it forms the rocky islands, including Twin Island, that you can see from here.

Extending eastward, the bedrock continues under Long Island Sound and emerges again to form the rocky coastline of eastern Connecticut. Even though the Sound is calm and sheltered, large ships avoid this area and marinas and harbor facilities are conspicuously absent. The bedrock is responsible. More dangerous than the islands of rock visible from here are those that are not visible. Hidden just below the surface, they have ripped open the hulls of many unwary ships.

18. The great salt marsh

If you are here between spring and fall and the breeze is still, you can smell the earthy essence of the salt marsh. The marsh is a cauldron of productivity, where the decay of dead and dying plants fuels the growth of new ones. These two processes occurring together produce a pungent scent.

The incredible fertility of salt marshes depends on the growth of cordgrass, the tall (up to six feet) grass growing closest to the water's edge. You may not be able to see the cordgrass growing here on the right because it is at least partially submerged by high tide twice daily and is totally submerged by extremely high tides.

As cordgrass decays, it becomes a primary food for



A raccoon feeding on a fiddler crab at the marsh's edge.

many tiny organisms, which in turn become food for larger organisms, and so on. Because it is a basic source of food, providing energy to the myriad forms of life in coastal waters, cordgrass plays a key role in maintaining the health and vigor of coastal resources.

Rising step-like behind the sea of cordgrass is another grass-dominated community: the salt meadow. The plants of the salt meadow are salt tolerant, but not as tolerant as cordgrass.

Before you leave the salt marsh, take the time to breathe in its salty scent, listen for the small animals who move among the grasses looking for food and cover, and watch the graceful water birds, including the snowy egret and the belted kingfisher, who find this the perfect spot to feed.

Theodore Kazimiroff (1914-1980)

When he was 10 years old, Theodore Kazimiroff met Joe Two Trees, an Algonquian Indian who lived in Pelham Bay Park. The two became friends, and the man told his story to the boy. From the encounter, Kazimiroff dedicated himself to the historic preservation and environmental conservation of The Bronx.

While earning a living as a dentist, Kazimiroff went on to become a noted archaeologist, naturalist, lecturer, writer, and eventually, the official historian of The Bronx.

Kazimiroff led the effort to establish the Thomas Pell Wildlife Sanctuary and the Hunter Island Marine Zoology and Geology Sanctuary in Pelham Bay Park. His efforts helped to save these irreplaceable wetlands from being turned into landfill. He was a founding member of the Bronx County Historical Society and a consultant to the Bronx Zoo, the Museum of the American Indian, and the American Museum of Natural History.

Transportation

For more information on public walks in Pelham Bay Park, call the Urban Park Rangers at (718) 430-1832.

For information on New York City parks call 311.

Subway: The northern terminus of the IRT No. 6/Lexington Avenue line to Pelham Bay Park stop; Bx5 and Bx12 buses to Orchard Beach (summer only), or Bx29 to City Island Traffic Circle and walk toward Orchard Beach.

Bus: Bx 5, Bx12, QBx1 and Westchester bus #45 to subway station; Bx5 and Bx12 buses to Orchard Beach (summer only) or Bx29 to City Island Traffic Circle and walk toward Orchard Beach.

Car: New England Thruway/I-95 to Orchard Beach exit or Hutchinson River Parkway to the City Island/Orchard Beach exit. Follow signs to Orchard Beach. Use Orchard Beach parking lot. (Between Memorial Day and Labor Day, there is a parking fee.)

NOTE: When visiting the Kazimiroff Nature Trail, wear comfortable walking shoes. Also, mosquitoes and ticks are prevalent during warmer weather; wear long sleeves and long pants and/or bring insect repellent.

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Illustrations, Casey French Alexander
Map, Gloria Mills
Text, Michael Feller
Production by Therese Braddick
Revisions, Marianne O'Hea Anderson
and Toby Allan Schust



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Michael R. Bloomberg, Mayor
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Eileen Boyle, Administrator
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Michael H. Dockett, Chief, Urban Park Service
Bill Tai, Director, Natural Resources Group
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