

The Country in the City

New York's Natural Parklands



Inwood Hill Park

The last native forests in Manhattan stand in Inwood Hill Park, at the northern tip of the island. In fact, of the park's 197 acres, more than 100 are lush woodlands and forests. One-hundred-year-old native trees include red oaks and some of the largest tulip trees in the city, which measure 15 feet around and tower 90 feet above the forest floor.

Walking through the woods, or the meadows, you'll come

upon the wildflowers for which the park is famous. Jack-in-the-pulpit, butterfly-weed, drifts of day lilies, and long stretches of jewelweed appear unexpectedly. In spring and fall, you'll find the woods alive with warblers migrating along the Atlantic flyway. In September, on days when the wind is right, broadwing hawks fill the sky over the Hudson.

If you walk on the high ridge running along the park's western edge, you'll have majestic views of the Hudson—west to the Palisades, south to the George Washington

Bridge, and north as far as the Tappan Zee. Lining the paths in this part of the park are blackberry, raspberry, and black currant bushes.

The northern tip of the park overlooks the point where the Hudson and Harlem Rivers meet: Spuyten Duyvil, or "in spite of the devil," a Dutch description of

the point's treacherous currents. At the water's edge lies a saltmarsh, a refuge for a rich variety of waterfowl: mute swans, belted kingfishers, and all kinds of ducks, including mallards, canvasbacks, buffleheads, redheads, and black ducks.

Here, on a late afternoon in autumn, you might see a great blue heron, standing motionless as it hunts for fish. Or, in early spring, you might find a snowy egret ruffling its elegant plumage in the warm April wind.

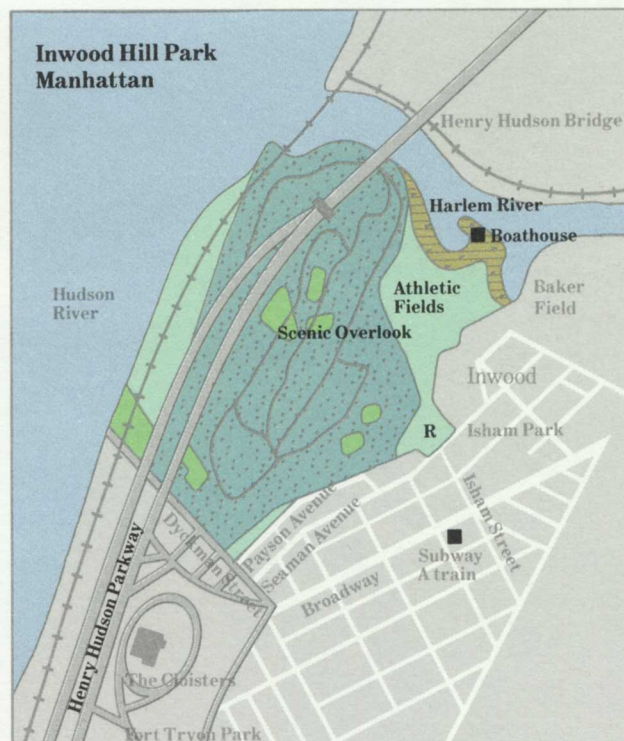
To most people, New York City is soaring skyscrapers, roaring traffic, the crush and noise of millions of people living and working in a relatively small space.

Amid the concrete, crowds and cars there is little room for nature.

But inside the city limits are nearly 26,000 acres of parkland, almost 7,000 of them natural, undeveloped lands. This guide to the city's wetlands, woodlands, water, and meadows reveals a side of the city that most New Yorkers and visitors don't know, from the nesting grounds of the little blue heron on Prall's Island, in Arthur Kill, just west of Staten Island, to the great salt marsh in Pelham Bay Park in the northeast corner of the Bronx—not to mention such unusual plants and animals as the pink lady's slipper and the peregrine falcon.

The Country in the City focuses on some of the most interesting natural areas in the city, one in each borough: Inwood Hill Park in Manhattan, Alley Pond Park in Queens, the Staten Island Greenbelt, Marine Park in Brooklyn, and Pelham Bay Park in the Bronx.

Take map and guide in hand and set out to discover natural New York.



0 1/2 mile

Inwood Hill Park Transportation

For more information, call 212-408-0100.

Bus: M-100 to Dyckman Street or 207th Street.

Subway: IND A to 207th Street or Dyckman; IRT #1 to 207th or 215th Street.

Car: Henry Hudson Parkway to Dyckman Street exit; east on Dyckman to Broadway; north on Broadway to 207th; west to Seaman Avenue.

Alley Pond Park Transportation

For more information, call 718-520-5900.

To Woodlands (Alley Pond Woodland Nature Center)

Subway and bus: IND to Kew Gardens; Q-44 to Winchester

Legend

	Woodlands/Forests		Phragmites <i>Phragmites can be found in all four ecosystems</i>
	Meadows		Buildings
	Saltwater Wetlands		Picnic Areas
	Freshwater Wetlands		Parking
	Open Water		Restrooms
	Managed Lawn/ Active Recreation		

Alley Pond Park

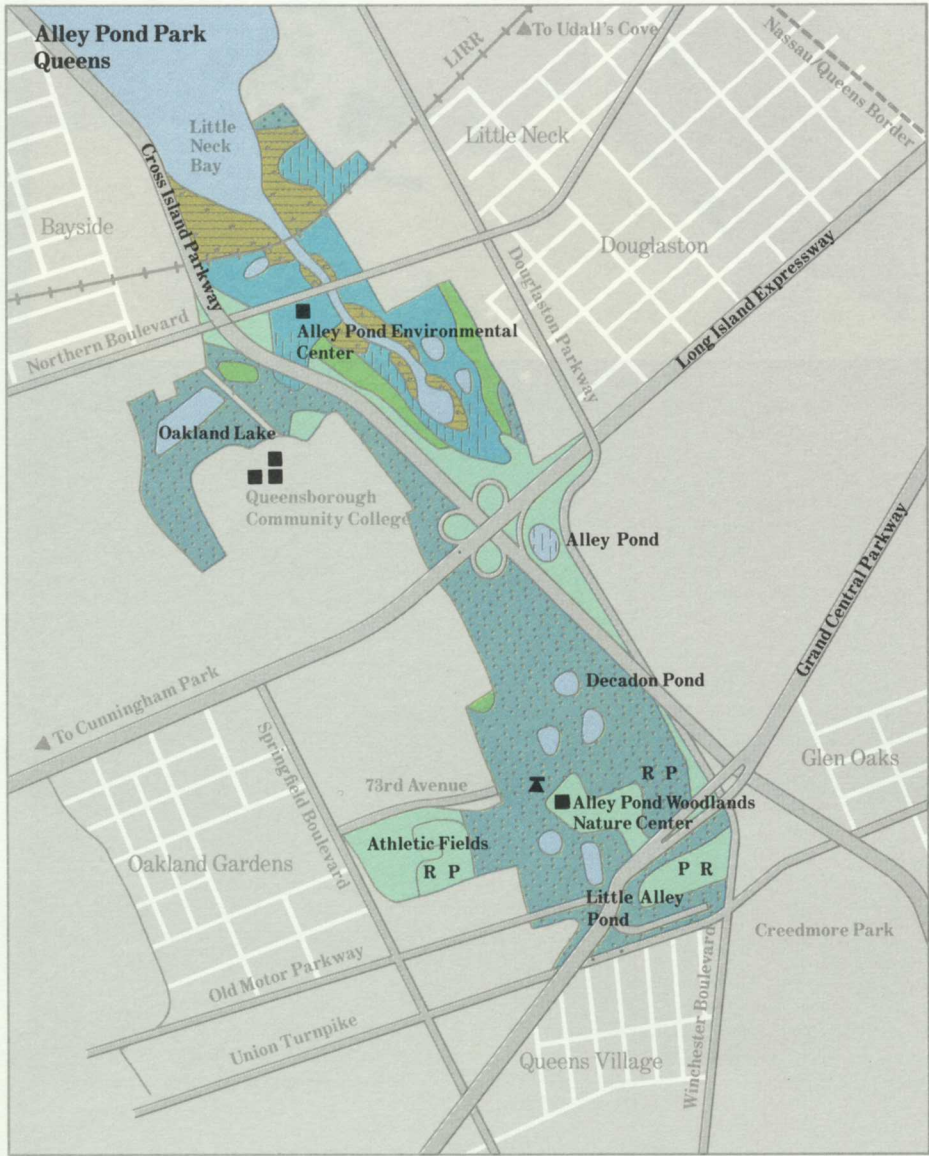
Stretching from Little Neck Bay on the north to Union Turnpike on the south, Alley Pond Park offers nature lovers some of the most interesting topography in the city. The park lies on the Harbor Hill terminal moraine, a ridge of sand and rock that the Wisconsin glacier left here when it retreated some 15,000 years ago.

The park's 635 acres were shaped by the glacier, which dropped the huge boulders that now perch on the hill-

sides of the park's southern end. It also left buried chunks of ice that melted and formed the kettle ponds sprinkled throughout "the Alley," the 150-acre strip of wetlands in the north end of park.

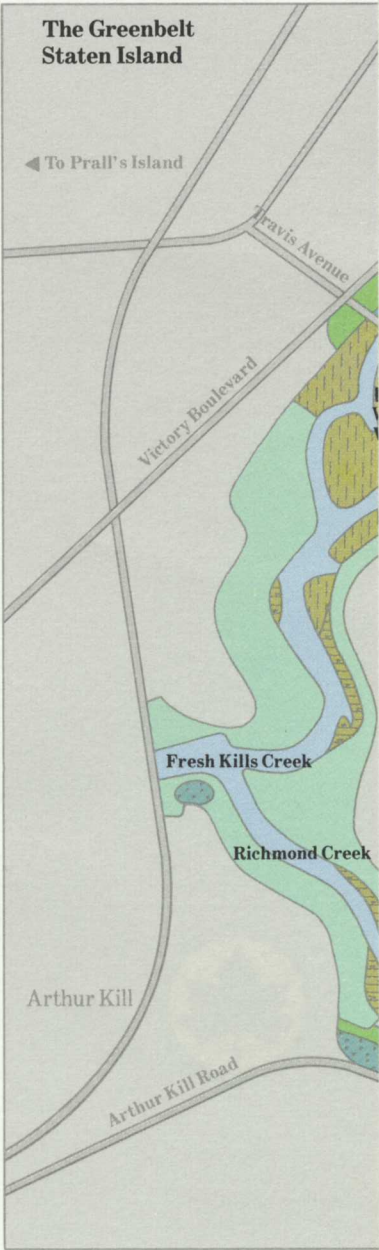
The Alley is estuarine—that is, a place where a river current meets the tide. Fresh water drains into the Alley from the hills and bubbles up from natural springs. Flowing northward, the fresh water merges with the salt water of Little Neck Bay. The mix of fresh and salt water means the Alley has several diverse ecosystems, including freshwater and saltwater wetlands, tidal flats, meadows, and forests.

South of the Alley wetlands, the park widens into an area of kettle ponds and knobby hills. The upland forests of the southern park cover more than 250 acres and are representative of the original forest types. In these forests, a natural "Mason-Dixon line" exists. Two plant zones representing trees native to the Northeast and trees native to the South meet here. From the South are sweetgum and tulip trees; and from the North, maples, birches, and beeches.



Boulevard; walk north along Motor Pkwy., follow signs to nature center.
Car: Grand Central Parkway to Alley Park/Winchester Blvd. exit. Follow signs to Park.
To Wetlands
(Alley Pond Environmental

Center, 718-229-4000)
Subway and bus: IRT Flushing line to Main Street; then #12 bus to Northern Blvd.
Car: Long Island Expressway to Douglaston Parkway; north to Northern Blvd.; left on Northern and three blocks to park.



The Greenbelt

The most rural of the city's five boroughs, Staten Island offers nature lovers a rich diversity—particularly of birdlife—in the 2,500-acre Greenbelt. Here, they will find not only “city birds,” commonly found in all the boroughs but “farm country” birds, such as indigo buntings, white-eyed vireo, woodcock, and northern orioles, all usually found only in rural areas.

Winter birding is particularly rewarding in the Greenbelt because of its extensive conifer plantings, which offer shelter to such birds of prey as owls—great

horned, long-eared, screech, and barn; the red-shouldered hawk, and the kestrel, the smallest falcon native to this area.

Located in central Staten Island, the Greenbelt has some 35 miles of walking trails running along the crest of the Serpentine Ridge and winding through one of the last undisturbed forests in the city. Along its woodland paths are mature stands of oak, hickory, beech, maple, sweetgum, and tulip trees, as well as rare species of ferns—such

as fragile and royal—and drifts of such unusual wildflowers like bloodroot and whorled pagonia.

The Greenbelt also boasts glacial ponds and a 16-acre lake, one of the finest natural watersheds in New York City, offering refuge to a variety of small mammals. The Greenbelt is also home to the 15-acre Great Swamp, near Farm Colony. Here you will find swamp rose and wild ginger and, in Buck's Hollow and at Latourette Park, native persimmon and blue gentian—species rare in urban forests.

Designated in 1984 to protect the island's natural lands,

the Greenbelt actually encompasses seven city parks; baseball, football, and soccer fields, located at its edge; the Seaview/Farm Colony Historic District; the Richmondtown Restoration; the Jacques Marchais Tibetan Museum; and the High Rock Conservation Center, a designated National Environmental Education Landmark.



Marine Park

Marine Park, whose 798 acres are mostly saltwater wetland, is tucked into the westernmost inlet of Jamaica Bay. The bay was formed over the last 5,000 years, when ocean currents deposited sand in a series of long strips off the south shore of Long Island. The strips formed barriers against the pounding surf and allowed saltwater wetlands to grow on their protected bay side. Rockaway is the barrier beach that protects Jamaica Bay's wetland. (Other Long Island barrier beaches are Atlantic Beach and Fire Island.)

Grasses, sedges, and reeds, including *Phragmites* and spartinas, dominate the vegetation. Although *Phragmites* was once thought to be an unwanted weed, naturalists have found that it has some value: it purifies the air and soil it occupies; provides dense cover for animals; and drops from its feathery flowers seeds that sustain wildlife when all other food sources are depleted. Other park plants that do similar

duty include blackberry, bull-thistle, burdock, pokeweed, and evening primrose.

Those who feed on and take refuge among the wetland plants include the fish and shellfish that breed there and many varieties of migratory birds, especially waterfowl. Birds sighted in Marine Park include myrtle warblers, ring-necked pheasants, purple martins, terns, cormorants, marsh hawks, peregrine falcons, brant, egrets, kestrels, osprey, and gulls. The park is also home to cottontail rabbits, horseshoe crabs, and oyster toad fish, to name just a few of the animals that live

on the bay or around Gerritsen Creek.

This freshwater stream once extended about twice as far inland as it now does. Around 1910, the creek north of Avenue U was turned into an underground storm drain. But because it still supplies the saltmarsh south of Avenue U with fresh water, Gerritsen Creek allows the area to support a much wider variety of organisms than would live in ordinary salt water.

Marine Park Transportation

For more information, call 718-965-8917.

Bus: B-46, B-2, or B-41 to Kings Plaza, transfer for westbound B-3 to Burnett Street and Avenue U; walk back toward E. 33rd Street.

Subway: M or D train to Avenue U station; transfer to eastbound B-3 bus to Burnett Street and Avenue U.

Car: Belt/Shore Parkway to Kings Plaza exit, proceed north on Flatbush Avenue to Avenue U; make a left turn and continue west along Avenue U for ten blocks; pass E. 33rd Street and look for Marine Park Recreation area on right.

The Greenbelt Transportation

For more information, call 718-667-2165.

To High Rock Environmental Center

Bus: S108 (Richmondtown) or S113 (Arthur Kill Road) from ferry terminal to Richmond Road and Rockland Avenue; walk one block along Rockland Avenue; turn right onto Nevada Avenue; climb hill to pedestrian path leading to Visitors Center.

Subway: IRT train from ferry terminal to New Dorp; walk up Altamont Street to High Rock Park (steep climb).

Car: From Verrazano Narrows Bridge, take Staten Island Expressway west to Richmond Road exit; follow Richmond Road three-quarters of a mile; keep right at intersection with Amboy Road; turn right onto Rockland Avenue, right again onto Nevada Avenue; main parking lot is on left.



Pelham Bay Park Transportation

For more information, call 212-430-1890.

Subway: IRT Lexington Avenue #6 train to Pelham Bay stop; #12 bus to Pelham Bay Park; #5 bus to Orchard Beach (during summer months only).

Car: New England Thruway to Orchard Beach exit or Hutchinson River Parkway to

City Island/Orchard Beach exit; follow signs to Orchard Beach and use beach parking lot. (There is a parking fee May through September.)

Pelham Bay Park

A hawk flashes its bright red tail feathers as it wheels over Long Island Sound; an earthy scent rises from the great salt marsh; a muskrat hides in the tall grass.

When most New Yorkers think of Pelham Bay Park, they think of Orchard Beach. But this park—the largest in the city at 2,764 acres—has much more to offer lovers of nature. Pelham has one of the most diverse groups of ecosystems of any New York City park, including 13 miles of rocky shoreline, 195 acres of saltwater wetland, 161 acres of mud flats, 520 acres of forest, and 83 acres of meadow.

Pelham has both grassy meadows and wet meadows as well as three acres of freshwater wetlands. Pelham provides textbook examples of the zones of a salt marsh: high marsh, flooded only by the highest tides—once or twice a month—or by severe storms; intertidal marsh, flooded twice daily at high tides; and mud flats, barren expanses of mud and silt flushed regularly by the tides.

When you visit Pelham, be sure to stop by the Nature

Center on Twin Island and take a walk on the Kazimiroff Nature Trail on Hunter Island, which has two patches of evergreen trees, the only significant stands of conifers in Pelham's 520 acres of forest. Hunter is also home to a mature native forest of oak, black birch, and tulip trees.

In fact, if you look closely at the woodlands of Hunter, you can see the story of how plant species replace one another. Sun-loving plants colonize open meadows, but the shade they cast prevents their own seedlings from growing. Slightly more shade-tolerant

shrubs begin to grow, and shrubland replaces meadow until the shrubs are shaded out by pioneer trees, such as black locust. Finally, the pioneer trees are succeeded by a climax forest, that is, species of trees whose seedlings can grow in the shade of the parent. In this part of New York State, oak and hickory dominate climax forests.



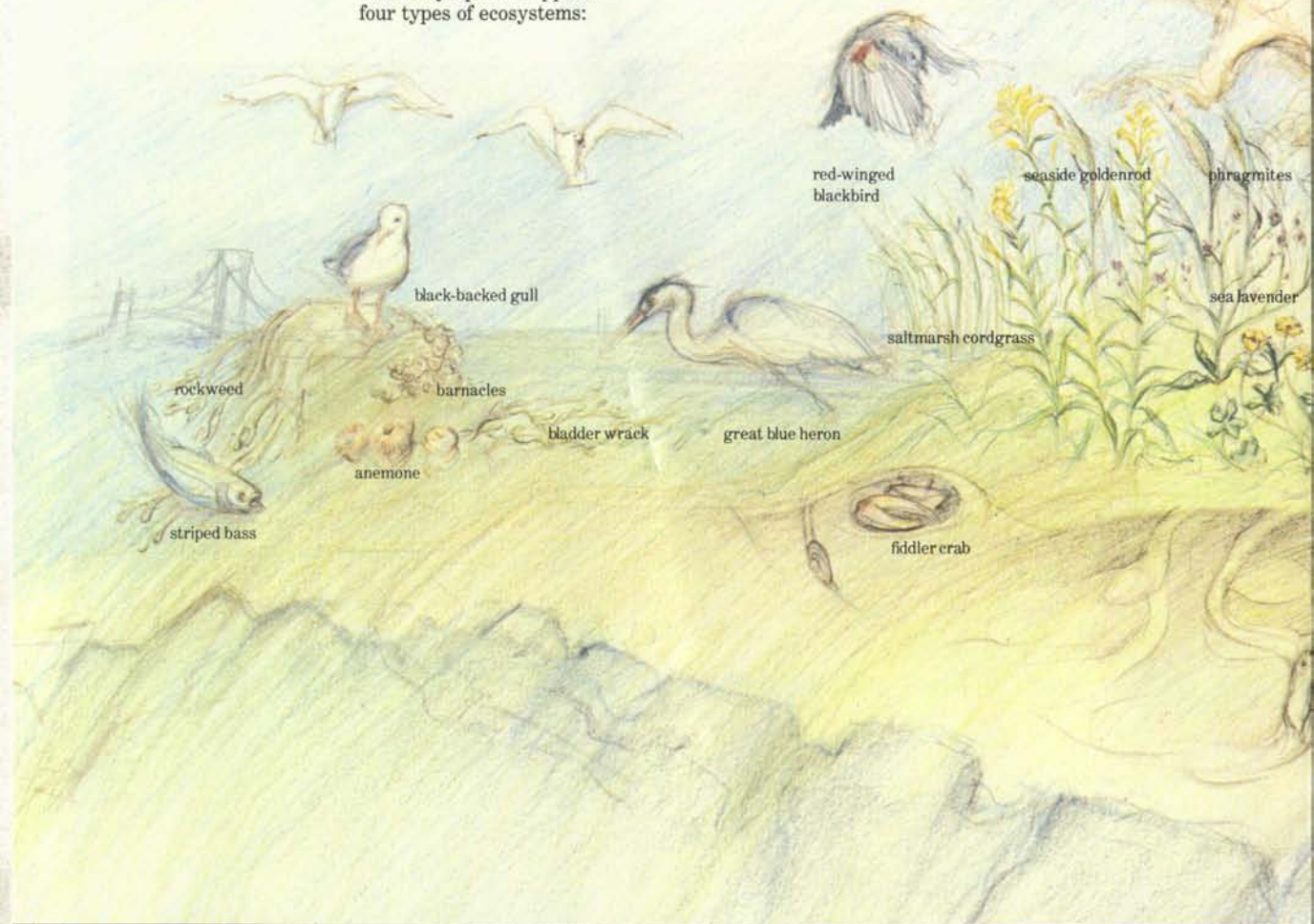
Urban Ecosystems

An ecosystem is a group of plants and animals (organisms) that interact with one another and with their physical environment—such as a marsh, a meadow, or a forest. These groups include not only large organisms but microscopic ones as well. Simple, single-cell organisms found in the soil, for example, are as much a part of a forest's ecosystem as the rock, the oak tree, or the chickadee.

Ecosystems change constantly, but because we observe them for such a short time—namely, our lifetime—we cannot see a change. We see a forest as permanent and unchanging, but if we could compress a hundred years into a few minutes, we would see not only the number but the composition (the different types) of plants and animals in the forest change drastically over the decades.

The natural areas of New York City's parks support four types of ecosystems:

freshwater wetlands, saltwater wetlands, meadows, and forests or woodlands. To keep these ecosystems healthy, park managers must keep them in balance, respond to natural changes and natural disasters, and protect them from fire, pollution, vandalism, overuse, and human carelessness.



Saltwater Wetlands

New York City stands at a great meeting of rivers and sea. In estuaries, where fresh water and salt water meet and mix, marsh grasses and floating algae colonize the shoreline, along with glasswort and reeds.

The city has so many islands within its inland waters—in addition to Manhattan, Staten Island, and Long Island—that its shoreline totals more than 500 miles. The shoreline, or intertidal zone, is rich in plant and

animal life. Its mudflats, rocky coast, and pebbled or sandy beaches are covered, cleaned, and exposed by the rise and fall of the ocean's tides. The only plants that grow here are those that can tolerate a range of salt water concentrations.

Growing at the water's edge is saltmarsh cordgrass, which is regularly flushed by the incoming tide. Rising step-like behind the sea of cordgrass is the salt meadow, another grass-dominated community. Plants living in the salt meadow—blackgrass, for example—can tolerate salt, but not as much salt as cordgrass can. (Blackgrass,

by the way, is not a grass at all but a rush, related to the lilies.) Above the dark green blackgrass of the salt meadow, other plants, like *Phragmites* and marsh elder, grow where they will be touched only by the highest tides.

Because of their rich variety of plants, coastal environments support many wildlife species. Birds flock to the saltwater wetlands in spring and fall to feed and rest on their way to and from traditional breeding grounds.

Meadows

Meadows are sunny, open spaces filled with grasses and wildflowers. Unless meadows are maintained by natural or human forces, shrubs and trees encroach on their openness and turn them into woodland. (This change in species composition is termed "succession.") Ironically, in New York City, these rare expanses of open grassland have been preserved by periodic fires. Because fires discourage the spreading growth of shrubs and trees, they preserve the meadow, enhancing the diversity of



both the landscape and its wildlife.

Butterflies float over the meadow's grasses, and a sweet scent rises from the ground. Birds of prey—barred owls, great-horned owls, screech owls, and red-tailed hawks—hunt the mice and voles that tunnel through the meadows. They circle the field, then return to the woods at the meadow's edge, where songbirds perch in the young trees.

On a summer day, the 14-acre meadow in Pelham Bay Park is a sea of grass swaying in the offshore breeze. This broad meadow and the prairie-like meadow of Van Cortlandt Park are two of the last expanses of grassland in the city, although smaller clearings dot the woodlands of city parks.

On top of Inwood Hill, a lush meadow commands a view of the Hudson and beyond. This small clearing could be short-lived, however. If left unmanaged, it will become an impassible tangle of woody shrubs or a wall of young tree trunks.

Freshwater Wetlands

These wetlands teem with plant life. Duckweed and water lilies float on the water's surface; coontail and algae live just below it; pickerel weed emerges at the water's edge; and reeds, rushes, and young red maples signal the subtle transformation from wetland to wet meadow to woodland.

There are three types of freshwater wetlands: swamps, marshes, and bogs. Water flows steadily but very slowly through swamps and marshes. In New York City,

both swamps and marshes have waterlogged soil that is replenished each year by rain or melted snow. Both support herbaceous plants, but only swamps have trees. Only in swamps, such as those in Van Cortlandt and Alley Pond Parks, will you see tangled tree trunks, living and dead, standing in or drooping over reflecting pools.

Bogs, however, are different. Because they often have no water outlet or inlet, their water is stagnant. True bogs were formed by the last continental glacier. As it retreated, it buried large chunks of ice in earth and rock. When the ice melted, the depressions filled with



water, forming kettle ponds.

It is crucial to protect the few remaining freshwater wetlands not only because they are home to rare and beautiful plants and animals. They are also natural flood-control devices, soaking up excess water like a sponge during periods of heavy runoff; they help control erosion by slowing the flow of rushing water and capturing sediment; they purify water by absorbing and filtering waste products and pollutants; and they provide expanses of natural open space, a rarity in large cities like New York that reach up to fill the open sky.

Woodlands and Forests

What distinguishes a woodland from a forest is the density of its canopy, that is, the top layer of branches on its trees. The canopy of a woodland is open; the canopy of a forest, closed. Woodland trees are so young and sparse that their tops do not touch.

In a forest, trees may grow at different levels below the treetops. The growth of smaller tree species and shrubs depends to some extent on whether the forest is made up primarily of deciduous trees (which drop their leaves in the fall) or coniferous trees, also called ever-

greens (which do not drop their leaves). In deciduous forests, smaller trees and shrubs usually grow beneath the taller trees because enough sunlight can penetrate the treetops.




In coniferous forests, however, because the trees have such dense foliage, the tallest ones may grow so close together that their canopy forms a continuous layer, blocking out sunlight and allowing no smaller trees or shrubs to grow beneath them. (The hemlock grove at the New York Botanical Garden is an example of such a forest.)

In the most common native forest in the city, red and black oaks and several species

of hickory dominate, alongside such other common native trees as birch and maple. They cover the drier slopes of the Bronx, Manhattan, Staten Island, and Queens.

New York City forests and woodlands are far from common, however. Because the city has been inhabited for so long, its forests and woodlands display a wide spectrum of non-native species. Near lawns and old estates, introduced species have dropped their seeds, giving rise to pure stands of such species as sycamore maple, tree-of-heaven, or white poplar, or to mixed stands of exotic and native species.

New York City

-  City Parkland
-  City parkland with more than ten acres of natural areas
-  Federal and State Parkland



The Natural Resources Group

Is industrial pollution seeping into the nesting grounds of the great blue heron? Is a collapsed culvert preventing the tides from flushing a salt marsh often enough to keep its plants alive? Can the city open some natural lands to the public and still preserve them?

To answer these and other tough questions, the city's Department of Parks and Recreation created the Natural Resources Group in

April 1984. Since then, NRG has been studying the city's natural lands and their dynamic plant and animal communities to develop a citywide approach to managing these invaluable natural resources.

NRG's mission is five-fold: (1) to identify and assess all natural lands within the city; (2) to protect the city's natural areas and their inhabitants; (3) to define clear resource management policies for the future; (4) to enhance the educational opportunities that these lands offer New Yorkers; and (5) to make the public

aware of the importance of natural lands and the impact on them of seemingly unrelated policy decisions and land development.

NRG is currently drawing up management plans for all natural lands within the city. These plans are the first step toward preserving our natural heritage for all time.



City of New York
Parks & Recreation
Natural Resources Group

Edward I. Koch, *Mayor*
Henry J. Stern, *Commissioner*
Marc A. Matsil, *Director, NRG*

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