

# **Natural Area Mapping and Inventory of North Brother Island 1989 Survey**



Prepared by the Natural Resources Group  
Michael R. Bloomberg, Mayor  
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# **North Brother Island Natural Area Mapping & Inventory**

**Surveyed 1989**

**19 acres**

## ***Introduction***

City of New York Parks & Recreation (DPR) manages one of the most extensive and varied park systems of any city in the world. These 29,000 acres of city park property occupy about 15 percent of New York City's total area. In addition to flagship parks such as Central Park and Prospect Park, the city's parklands include over 11,000 acres of natural areas.

Until the 1980's, the Parks Department was primarily concerned with developed landscapes and recreation facilities rather than natural areas. In the absence of a comprehensive management policy, these areas succumbed to invasive species, pollution and erosion.

In 1984, Parks established the Natural Resources Group (NRG) with a mandate to acquire, restore and manage natural areas in New York City. The wetlands, forests, meadows, and shorelines under NRG's jurisdiction provide valuable habitat for hundreds of species, from rare wildflowers to endangered birds of prey. In addition to the goals mentioned above, NRG serves as a clearinghouse for technical research to aid in the protection and restoration of the city's natural resources. This inventory of North Brother Island was conducted in 1989 as part of NRG's commitment to improving the natural areas of New York City parks.

North Brother Island is located in the East River and is part of the Bronx. From the 1880's through the 1960's, North Brother Island housed a quarantine facility, student housing, and an addiction treatment center. When the last of these closed in 1963, the island was left uninhabited and unmaintained. Once a campus of manicured lawns, the island is now grown thick with invasive trees and vines. Structures of various ages sit empty and decaying on the island.

While the island's first hospital building was under construction in 1880, New York City's flourishing millinery trade drove the devastation of America's egret populations. Today, these birds are recovering and expanding their habitats northward. New York City's small islands offer the isolation required for nesting by eight species of wading birds, including herons, egrets and ibis. In 1989, birdwatchers discovered active heronries on North Brother Island. The island was declared part of the Harbor Herons complex, and is protected by DPR as a Forever Wild preserve.

To facilitate the protection, management and restoration of North Brother Island NRG completed an inventory of the area using entitiation, a process of identifying and describing ecologically distinct plant communities. Using aerial photographs and field reconnaissance, Parks staff delineated distinct ecological entities, known as entitiation units, based on cover type, understory structure, species composition, and topography. Evidence of historical use, current use, environmental disturbance, and additional notes were also recorded for each unit. Entitiation of North Brother Island resulted in a map and database that can be used to locate valuable and threatened areas. They also serve as a baseline for measuring change over time.

## ***Entitiation***

Entitiation is a type of plant community inventory well suited to the patchy environments often found in urban areas. Originally designed for European landscapes, the system was revised by NRG in 1985 for use in urban parkland. NRG has used entitiation widely and successfully to facilitate acquisition and restoration decisions. Put simply, entitiation is a process of breaking up a park into manageable parts called "entities" or "entitiation units." Entitiation units are defined using a weighted list of criteria. The first level of distinction is

based on cover type (e.g. closed forest, vineland, scrub), followed by canopy species composition, understory type (e.g. herbs, vines, shrubs), and understory species composition. Additional factors, such as topography and soil condition (e.g. wet, moist, dry) are also taken into account.

To prepare for fieldwork, mapping technicians examine aerial photographs and delineate areas of similar cover. The mapping staff use the aerial information to create a strategy for covering land area. In the field, boundaries are identified as described above. For each unit, staff record the data listed above, as well as current uses, environmental disturbances, historical indicators, community stability, and comments.



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**North Brother Island Natural Areas Entitment  
1989**



Entitment Unit Boundaries (1989)

This map is limited by the accuracy of its source data and is intended for illustrative use only.

01-31-2008

North Brother Island Entitation Unit Descriptions, Surveyed April 1989

**Unit:** 1  
**Acreage:** 0.18  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Intertidal	Rockweed	<5'				
Hydrophytes	Sea lettuce	<5'				
Depression						
Surface water						

**Comments:**

Marine rocky intertidal community with natural outcroppings; possible New York Natural Heritage Program site.

**Unit:** 2  
**Acreage:** 0.72  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Intertidal	Rockweed	<5'				
Hydrophytes	Sea lettuce	<5'				
Slope						
Surface water						

**Comments:**

Riprap along the shoreline of the island. Rocks are covered with the above species. Formation is a combination of natural and man placed rocks.

North Brother Island Entitation Unit Descriptions, Surveyed April 1989

**Unit:** 3  
**Acreage:** 1.08  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Herbaceous	Mugwort	<5'	Yes	Fence		Trash
Deciduous	Witchgrass	<5'		Boat launch		Dumping
Hemicryptophytes				Building		
Level						
Dry/Moist						

**Comments:**

Meadow of predominantly mugwort and grasses. Area north of boat launch is mostly mugwort, south of launch changes to predominantly switchgrass. Other species: Japanese honeysuckle, white sweet clover, scattered Ailanthus saplings, goldenrod, black cherry, crab apples, rose, field garlic, daisy fleabane, common cinquefoil, moth mullein, winged sumac, butter-and-eggs, privet, catbrier. Horseshoe crab and calico crab shell found. Boat launch covered with barnacles and red algae present.

**Unit:** 4  
**Acreage:** 1.08  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Scrub	Winged sumac	5-30'&<5'		Lighthouse		
Deciduous	Mugwort	<5'	Yes	Road		
Chamaephytes				Fence		
Level						
Dry						

**Comments:**

Nonconnecting sections of the same unit. Winged sumac thicket with undergrowth of mugwort. One section has a patch of CSG and a patch of Japanese honeysuckle. Other species: Poison ivy, moth mullein, Queen Anne's lace, field garlic, rose, goldenrod, sweet white clover, bittersweet, black cherry, Rubus, little bluestem, crab apple, Ailanthus, buckthorn, 1gray birch, kudzu, pokeweed, etc.

North Brother Island Entitation Unit Descriptions, Surveyed April 1989

**Unit:** 5  
**Acreage:** 0.36  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Desert				Piers	Dock	
Level						
Dry						

**Comments:**

Two old docks: "ferry dock" and "coal dock" on western shore. Wooden dock on eastern shore. No vegetation, evidence of wildlife use: rock dove, bones

**Unit:** 6  
**Acreage:** 0.43  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Woodland Deciduous Phanerophytes Level Dry/Moist	Black cherry	5-30'&,5'		Fence Building		

**Comments:**

Predominantly black cherry, with scattered undergrowth of field garlic, goldenrod, 2 pin oaks (one large, one small). Cherries have few strick nests. Two building included in unit.

North Brother Island Entitation Unit Descriptions, Surveyed April 1989

**Unit:** 7  
**Acreage:** 0.43  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Vineland	Bittersweet	5-30'&<5'	Yes			
Lianas						
Level						
Dry/Moist						

**Comments:**

Bittersweet vineland growing on Norway maple, black cherry, and crab apple near abandoned church. Vines growing into church. Some Japanese honeysuckle, mugwort, and poison ivy.

**Unit:** 8  
**Acreage:** 0.43  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Vineland	Honeysuckle, Japanese	<5'	Yes	Fence		
	Mugwort	5-30'&<5'	Yes	Building		
Lianas	Grass spp.	<5'				
Level						
Dry/Moist						

**Comments:**

Vineland of predominately Japanese honeysuckle, mugwort, and orchard grass. Other vegetation: common milkweed, mugwort.



North Brother Island Entitation Unit Descriptions, Surveyed April 1989

**Unit:** 9  
**Acreage:** 4.31  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Herbaceous Deciduous Hemicryptophytes Level Dry/Moist	Mugwort	5-30'&5'	Yes	Dock Road		

**Comments:**

Two separate sections: 1) small mugwort patch west of TB pavillion. 2) field of mugwort with scattered patches of sumac and black cherry, patches become denser northward. Other species: crab apple, bittersweet, daisy fleabane, London planetree, Ailanthus, Austrian pine, American elm, dogbane, pokeweed. Lots of trash along shoreline. Severe erosion along northeastern shoreline.

**Unit:** 10  
**Acreage:** 8.61  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Closed Forest Deciduous Phanerophytes Level Dry/Moist	Norway maple Black cherry American elm	all 5'-30'&>5' >30'&5-30'	Yes	Building Exotic Road		

**Comments:**

Forested area of above spp, which covers most of island. Ground mostly bare, but lots of poison ivy, some field garlic and regenerating Norway maple, cherry, and buckthorn. Viney patches of bittersweet in spots. Forest opens up closer to buildings. Wet spot near administration building with star-of-Bethlehem, pokeweed, and Joe-Pye weed. E. cottonwood. Other spp: Ailanthus (5'), red maple, Austrian pine, rose, silver maple, mock orange, English ivy, privet sp, Japanese honeysuckle, American basswood, Rubus, and grape fern.

North Brother Island Entitation Unit Descriptions, Surveyed April 1989

**Unit:** 11  
**Acreage:** 0.36  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Vineland	Japanese Honeysuckle	<5'	Yes	Tennis Crt		
Lianas	English Ivy	<5'	Yes	Fence		
Level						
Dry/Moist						

**Comments:**

Japanese honeysuckle growing over English ivy on what appears to be an old tennis court. The area is fenced off. There is a clump of rose and some Norway maple growing on the fringes. Some Ailanthus <5'.

**Unit:** 12  
**Acreage:** 1.44  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Vineland	Kudzu	5'-30'&<5'	Yes	Building		
Lianas	Bittersweet	5'-30'&<5'	Yes	Road		
Level						
Dry/Moist						

**Comments:**

Vineland of kudzu growing over bittersweet in cluster of building adjacent to main pier. Vines growing on, in and out of buildings in spots. Ailanthus regeneration; patches of mugwort ; road leading to pier. Lots of woody debris from pier. Other species: Japanese honeysuckle, common evening primrose, goldenrod, smooth sumac, pokeweed, common milkweed, Joe-Pye weed, henbit, heath aster, ect.

North Brother Island Entitation Unit Descriptions, Surveyed April 1989

**Unit:** 13  
**Acreage:** 0.18  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Woodland	Cottonwood, Eastern	5'-30'		Building		
Deciduous	Norway maple	5'-30'&<5'	Yes	Cinders		
Hemicryptophytes	Ailanthus	5'-30'&<5'	Yes			
Level						
Dry						

**Comments:**

Small woodland of Eastern cottonwood with Norway maple and Ailanthus mixed in. Some smooth sumac and kudzu on edges. Understory open with mugwort and goldenrod abundant. Other plants are crab apple, Aster, etc.

**Unit:** 14  
**Acreage:** 0.36  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbance</u>
Woodland	Wing sumac	5'-30'&<5'		Paved road		
Deciduous	Black cherry	5'-30'&<5'				
Phanerophytes						
Level						
Dry/Moist						

**Comments:**

Stand of winged sumac and black cherry surround by field of mugwort.

## **APPENDIX: Glossary**

Many of these definitions are adapted from Marge Garguillo's unpublished *Plants of New York City Natural Areas: An ecological manual* (2005).

**Chamaephyte:** Mature branch or shoot system remaining perennially less than or equal to 100in above ground. Buds are produced on aerial branches close to the soil. (e.g. shrubs)

**Closed forest:** An area formed by trees at least 15 feet tall with interlocking crowns and at least 80% canopy closure.

**Competition:** The ability of one plant to overwhelm another plant by shading it out or otherwise overwhelming it.

**Deciduous:** Majority of trees shed their foliage in the autumn months.

**Depression:** A hollow, or low point, as compared to the surrounding topography. May or may not contain water.

**Dominant:** The most abundant plants in a particular plant community. A **codominant** plant is about equally as abundant as the dominant species.

**Exotic:** A species that does not naturally inhabit a specific area. An exotic plant may or may not be invasive where it is introduced.

**Exotic planting:** A gardened area where non-native species (e.g. privet, periwinkle) are tended.

**Full-crown tree:** Initially open-grown and free of competition: currently very large with a dominating crown.

**Geophyte:** Plants with buds or shoots surviving below the ground (rhizomes, bulbs, stem tubers, root tubers.)

**Graminoid:** Grasses and grass-like plants.

**Hedgerow:** Evidence of trees or shrubs planted in line i.e., maple or privet along road or path.

**Hemicryptophyte:** Shoots die back to ground level.

**Herb:** Plants without woody tissues that die back to the ground in the winter. This classification is usually applied to broad-leaved plants rather than grasses, but includes grasses for the purpose of entitation.

**Herbaceous community:** An area where grasses, grasslike plants, and herbaceous plants are predominant. Woody plants may be sparingly present, but cover less than 30% of area.

**Intertidal Communities:** Substrate is exposed and flooded by tides, includes the associated splash zone.

**Invasive plant:** A plant species that grows and reproduces without constraint, crowding or shading out other plants. The term is usually applied to plants that are not native to the given region. Invasiveness in a plant that is native to the region is rare and probably caused by unusual circumstances.

**Knoll:** A small isolated hillock.

**Landfill:** Topography altered by previous filling or dumping: i.e., while building a road or altering a wetland area. Look for rubble on the soil surface or sudden changes in grade.

**Lianas:** Vascular plants needing support, rooting in the ground permanently (vines).

**Native plant:** Plants that were growing in this region before Europeans came to North America. Native plants are adapted to the climate and soils of their region. They have relationships with birds, mammals, insects, and fungi and are integrated into the ecology of the region. New York City's native plants come from seed that spread northward after the last glaciers melted thousands of years ago.

**Ornamental:** Plants used as horticultural specimens in gardens or developed parks, not intended to reproduce or be part of a natural plant community. Very often they are non-native plants.

**Phanerophyte:** Plants that grow taller than 100 in. or whose shoots do not die back periodically to that height (e.g., trees).

**Scrub:** A shrubland or thicket, mainly composed of woody plants 1.5 to 15 feet tall.

**Slope:** Ground that forms a natural or artificial incline.

**Soil compaction:** Increasing soil density and decreasing porosity due to application of mechanical forces to the soil: i.e. due to vehicle, horse, or foot traffic.

**Species:** A group of organisms that can interbreed to produce fertile young.

**Understory:** Habitat below the tree canopy of a forest. The understory is a plant community of tree saplings, shrubs, herbs, graminoids, and mosses that can live in shade or part shade.

**Undulating:** The area has a wavy surface. Its neither a slope, a level area, or a depression, but rather a combination of all three.

**Vineland:** An area formed by at least 30% vines. Vines may be supported by vegetation, artificial means or ground surface. Often occurs on the forest or shrub border.

**Woodland:** An area formed by trees at least 15 feet tall, with most of their crowns not touching each other, but at least 30% canopy closure.