

# Natural Area Mapping and Inventory of Four Sparrow Marsh 1989 Survey



Prepared by the Natural Resources Group  
Michael R. Bloomberg, Mayor  
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# **Four Sparrow Marsh Natural Area Mapping & Inventory**

**Surveyed 1989**

**82 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 Four Sparrow Marsh was conducted in 1989 as part of NRG's commitment to improving the natural areas of New York City parks.

The Parks Department acquired Four Sparrow Marsh in 1994. The name refers to four native sparrow species that inhabit the marsh: sharp-tailed, seaside, swamp, and song. Due to its high-quality habitat and relative isolation, a rich variety of bird species can be sighted at the park, including rare birds like bobolink, common snipe and little blue heron. While nesting species find Four Sparrow Marsh an ideal home, the park is also an important resting and feeding stop for birds migrating along the Atlantic flyway.

Four Sparrow's salt marsh acts as a natural filter for Jamaica Bay. Salt marsh ecosystems remove pollutants and sediment from water as it flows through the marshes and into the bay. Specialized organisms such as salt marsh cordgrass, fiddler crabs and ribbed mussels are uniquely adapted to perform these functions. Despite their important role in the region's ecology, humans have filled over 80 percent of the city's salt marshes in the past two centuries. Disturbed marshes like Four Sparrow are susceptible to problems such as invasion by the common reed, which is less beneficial than the native cordgrass. Efforts to improve the condition of New York City's wetlands have reached Four Sparrow Marsh. In the spring of 2004, NRG restored tidal flow to previously filled areas and planted cordgrass. A portion of the nearby woodland was restored to buffer the marsh.

To facilitate the protection, management and restoration of Four Sparrow Marsh, 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 Four Sparrow Marsh 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 entitation widely and successfully to facilitate acquisition and restoration decisions. Put simply, entitation is a process of breaking up a park into manageable parts called “entities” or “entitation units.” Entitation 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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**Four Sparrow Marsh Natural Areas Entitment**

-  Entitment Unit Boundaries (1989)
-  New York City Parkland (Not Surveyed)

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

01-31-2006

2006.1.21.3

**Unit:** 20  
**Acreage:** 7.81  
**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				Fair Grounds Berm Landfill	Vehicle access	Dumping Compaction
Level Dry/Moist						

**Comments:**

Cleared field parallel to Flatbush. Sparse herbaceous vegetation, taller along edges: mugwort, peppergrass, Phragmites, curled dock, beach pea. Trees along street edge: London plane, black locust, black cherry. Mugwort along edge of berm and extending beyond to Phragmites. Wildlife sighted: killdeer, red-winged blackbirds.

**Unit:** 21  
**Acreage:** 3.59  
**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 Phragmites Grasses	<5' <5' <5'	Yes	Landfill	Foot traffic	Dumping
Level Moist						

**Comments:**

Even distribution of mugwort, Phragmites, and grasses. Also present: white sweet clover, curled dock, goldenrod. Wildlife sighted: pheasant.

**Unit:** 22  
**Acreage:** 14.29  
**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	Phragmites	<5' & 5-30'				

Slope  
 Dry/Moist

**Comments:**

Phragmites starts at Flatbush willow and extends back through a depression. A mugwort field is on one side, a shrub area on the other. Extends around edge of marsh, separating shrub area along parkway from marsh.

**Unit:** 23  
**Acreage:** 2.16  
**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	Bayberry Grasses	<5' & 5-30' <5'			Foot traffic Vehicle access	Car Exhaust Compaction

Level  
 Dry/Moist

**Comments:**

Wildlife sighted: cottontail rabbit, red-winged blackbird, mourning dove.

**Unit:** 24  
**Acreage:** 10.14  
**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	Bayberry	<5' & 5-30'			Foot traffic	Car Exhaust
	Black cherry	<5' & 5-30'			Vehicle access	
	Winged sumac	<5' & 5-30'				
Level	Smooth sumac	<5' & 5-30'				
Dry/Moist	Poison ivy	<5'				

**Comments:**

From Flatbush, starts as bayberry; mixes with black cherry and sumac; black cherry stand, some white pine, multiflora rose and blackberry; Phragmites, bayberry and black cherry; foxgrape, Virginia creeper, poison ivy, beech plum and sumac. Tree stands scattered throughout. Path to beach-Lombardy poplar and white poplar. Also: groundsel-tree, Russian olive, marsh elder, goldenrod, spreading dogbane, Japanese knotweed, black willow, switch grass, wild indigo, milkweed, etc. Wildlife sighted: catbird, rufous-sided towhee, mourning dove, red-winged blackbird.

**Unit:** 25  
**Acreage:** 29.84  
**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	S. patens	<5'		Pier Remnant		Motorboats
S. alterniflora	<5'	Boat Remnant		Dumping		
	Phragmites	<5' & 5-30'				Auto
Undulating	Marsh elder	<5'				
Wet						

**Comments:**

Vast salt marsh cut by creek, channels and two distinct tree stands. Salt meadow cordgrass dominant on inner portion of marsh; along basin--thin strip of salt marsh cordgrass. Enteromorpha, slender glasswort, rockweed, sea lettuce, sea blite, sea lavender, and spike grass. Ribbed mussels, barn swallows, soft-shelled clams, horseshoe crab, black duck, black crowned night heron, fiddler crabs, glossy ibis, snowy and great egrets, green heron, mallards, goldfish and numerous small fish.

**Unit:** 26  
**Acreage:** 4.43  
**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	Black cherry	<5' & 5-30'				
	Bayberry	<5' & 5-30'				
	White poplar	<5' & 5-30'				
Slope	Phragmites	<5'				
Dry/Moist						

**Comments:**

Two distinct tree stands surrounded by marsh elder. Understory: hedge bindweed, mugwort, poison ivy, bittersweet nightshade, sumac, black cherry, goldenrod. Wildlife sighted: Black-crowned night herons among trees several times.

**Unit:** 27  
**Acreage:** 1.24  
**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	Black locust	<5' & 5-30'		Landfill	Foot traffic	Dumping
Slope						
Dry/Moist						

**Comments:**

Understory: mugwort. Before wooden "pier" large Siberian elm, black cherry, Ailanthus, white poplar, Japanese knotweed.

## **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.