Natural Area Mapping and Inventory of East River Lagoons 1990 Survey

Prepared by the Natural Resources Group
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East River Lagoons Natural Area Mapping & Inventory

Surveyed July 1990
23 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 East River Lagoons was conducted in 1990 as part of NRG's commitment to improving the natural areas of New York City parks.

The East River Lagoons are located at the southeastern tip of Soundview Park. The area functioned as a landfill until the 1960's. As a result, much of the area's original tidal marsh no longer exists. However, the wetlands play an important role in the ecosystem, filtering sediment and pollutants out of water as it flows into the East River. Salt marsh ecosystems like the Lagoons are unique in their ability to perform these functions, thanks to specialized organisms such as salt marsh cordgrass, fiddler crabs and ribbed mussels. 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 the East River Lagoons are susceptible to problems such as invasion by Phragmites, the common reed, which outcompetes the native cordgrass.

To facilitate the protection, management and restoration of the East River Lagoons, NRG completed an inventory of the area using entitation, a process of identifying and describing ecologically distinct plant communities. Using aerial photographs and field reconnaissance, Parks staff delineated distinct ecological entities, known as entitation 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. Entitation of the East River Lagoons 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.

Entitation

Entitation 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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East River Lagoons Natural Areas Entitation

Entitation Unit Boundaries (1990)

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

Unit: 1
Acreage: 1.80
Mgmt. Concern: No

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Intertidal	Bladder rockweed	<5'		Lagoon		
Thallophytes						
Slope						
Surface water						

Comments:
Dike edges of the three lagoons. Rocks covered with bladder rockweed and green algae in the tidal zone. Ribbed mussels and hand-sized oysters interspersed mostly in the outer two lagoons. Sparse patches of colonizing saltmarsh cordgrass and glasswort are found mostly on the landward edges. Other species: Suaeda sp.

Unit: 2
Acreage: 0.23
Mgmt. Concern: No

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Scrub	Marsh elder	<5'		Lagoon		Trash
	Switch grass	<5'				
Chamaephytes						
Slope						
Wet						

Comments:
High marsh and partial uplands areas of marsh elder and switch grass mixed with seaside goldenrod, spikegrass, Phragmites and other warm season grass. Unit is bordered by riprap on both sides. Lots of trash (including crack containers and hypodermics). Other species: orchard grass, spearscale, mugwort, curly dock, common ragweed, sweet white clover, poor-man's-pepper, Aster sp., black grass, and more.

Unit: 3
Acreage: 1.47
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Herbaceous	Mugwort	<5'	Yes	Lagoon	Foot traffic	Trash
	Orchard grass	<5'	Yes			Compaction
Hemicryptophytes						Dumping
Knoll						
Dry/Moist						

Comments:
Large strips and open lots of mostly mugwort covering the entire upland area surrounding the lagoons. Many unconnected sections. Rocky edges have small colonizing patches of Phragmites, marsh elder, seaside goldenrod and spearscale. MC: unit is compacted with areas of dumping and trash. Most of unit borders high marsh. Other spp.: Ailanthus, black cherry, Norway maple, smooth sumac, Deptford pink, bladder campion, bindweed, English plantain, black grass, downy chess, moth mullein, rose, CSG, day lily, red clover and more.

Unit: 4
Acreage: 8.14
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Intertidal				Lagoon	Shelters	Dumping
						Encroach
						Trash
Level						
Surface water						

Comments:
Mudflats in all three lagoons. Wading bird activity. Fiddler crabs and horseshoe crabs present. Common mud snails cover the flats. All three lagoons drain completely during low tide. Outer two lagoons have a drainage channel open to the bay. MC: dumping of autos, car parts, and other debris. Some encroachment by landowners/squatters.

Unit: 5
Acreage: 0.30
Mgmt. Concern: No

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Desert				Lagoon		Flotsam Dumping Trash
Slope Surface water						

Comments:
Riprap edge of salt marsh in northern lagoon with encroachment by land owners/squatters and dumping. House along Bronx River Rd. flushing water directly into the lagoon.

Unit: 6
Acreage: 7.79
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Herbaceous	Mugwort	<5' & 5-30'	Yes	Landfill	Foot traffic	Auto Dumping Compaction
Hemicryptophytes Undulating Dry/Moist						

Comments:
Large meadow of mugwort linking the lagoons with Sound View Park. Interspersed with colonizing patches of smooth sumac and Eastern cottonwood. Ideal for wildlife management. MC: extensive dumping of autos and other debris. Includes a small, nonconnecting section. Other species: dogbane, sweet white clover, goldenrod, mulberry, Queen Anne's lace, purple top grass, white vervain, royal Paulownia, orchard grass, daisy fleabane, Japanese knotweed, black locust, and black cherry.

Unit: 7
Acreage: 0.84
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Intertidal	Saltwater cordgrass	<5'		Lagoon		Flotsam Trash
Hemicryptophytes						Dumping
Slope						
Surface water						

Comments:
Several nonconnecting sections of low marsh salt water cordgrass. Appears in all three lagoons with many smaller colonizing patches too small to be mapped. The two outermost lagoons appear to be more productive with live ribbed mussels and fiddler crabs. Bladder rockweed and algae on rocky edges. Wading bird activity. Other species glasswort, red algae, blue crabs, and lady crabs. MC: some encroachment by landowners/squatters and dumping.

Unit: 8
Acreage: 0.37
Mgmt. Concern: No

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Herbaceous	Phragmites	<5' & 5-30'		Lagoon		
	Marsh elder	<5'				
Geophytes						
Undulating						
Wet						

Comments:
Narrow strip of high marsh with distinct bands of Phragmites and marsh elder. Several nonconnecting sections of high marsh colonizing all three lagoons. Many other areas of similar composition in all three lagoons too small to be mapped. Removal of dumping/ trash may encourage future growth. Other species: seaside goldenrod, orchard grass, spearscale, sweet white clover, mugwort, Queen Anne's lace, dog bane, goldenrod.

Unit: 9
Acreage: 0.60
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Herbaceous	Mugwort	<5' & 5-30'	Yes	Landfill		Dumping
Deciduous				Fire		Trash
Hemicryptophytes						Compaction
Undulating						
Dry/Moist						

Comments:
Previously landfilled area of mostly mugwort. Two nonconnecting sections of the same unit. Patches of small black locust, black cherry, Ailanthus, pin oak, and Eastern cottonwood. MC: Extensive dumping (old) and trash especially along berm bordering high marsh. Other sp.: Phragmites, orchard grass, poor-man's pepper, daisy fleabane, Asiatic dayflower, lamb quarters, rose, poison ivy, Japanese knotweed, goldenrod, purple top grass, sycamore maple, curly dock, seaside goldenrod, white vervain, downy chess grass, and more.

Unit: 10
Acreage: 0.30
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Woodland	Eastern cottonwood	all		Landfill		Dumping
Deciduous	Black locust	all	Yes			Trash
Hemicryptophytes	Mugwort	<5'	Yes			Compaction
Level						
Dry/Moist						

Comments:
Eastern cottonwood forest with mugwort understory bordering Bronx River Rd. and the high marsh. Possible squatter to the north. MC: Extensive dumping along the borders. There may be encroachment by landowners/squatters. Other species: black locust, Ailanthus, mulberry, sycamore maple, smooth sumac, common and great ragweed, lamb's quarters, and more.

Unit: 11
Acreage: 0.26
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Woodland	Black cherry	all		Landfill	Dumping	Dumping
Deciduous	Sycamore maple	all	Yes			Auto
Hemicryptophytes	Mugwort	<5' & 5-30'	Yes			Trash
Level						
Dry/Moist						

Comments:
Disturbed woodland with extensive dumping throughout. Possible encroachment from homeowner to the south. Unit borders the lagoon and Bronx River Rd. MC: adjacent house flushes water into the lagoon. Mugwort has overgrown most of the dumping/trash. Other species: Ailanthus, Virginia creeper, bindweed, rose, curly dock, great ragweed, and more.

Unit: 12
Acreage: 0.10
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Herbaceous	Japanese knotweed	<5'	Yes	Landfill	Vehicle	Auto
	Great ragweed	<5'				Dumping
Geophytes						
Level						
Dry/Moist						

Comments:
Previously landfilled area of Japanese knotweed and great ragweed at the end of Gildersleeve Ave. Mugwort is scattered throughout. Large patches of poor-man's-pepper, curly dock, goldenrod, red clover, and young black cherry. MC: vehicle access. Unit is currently used as an auto dump with several plated and unplated vehicles present. Other species: Lactuca sp., lamb's quarters, common plantain, and more.

Unit: 13
Acreage: 0.24
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Herbaceous Deciduous Hemicryptophytes Slope Moist	Mugwort	<5'	Yes	Landfill	Dumping	Dumping Trash

Comments:
Slopes bordering eastern-most lagoons with extensive dumping of cars, trucks, and construction debris. MC: this is encroaching upon wetland borders. Removal of some debris may encourage shellfish and salt marsh vegetation. Other species: Japanese honeysuckle, bindweed, great ragweed, forsythia, pineapple weed, lamb's quarters, black cherry (<15'), common plantain, Ailanthus, and Virginia creeper.

Unit: 14
Acreage: 0.20
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Desert				Salt marsh	Landfilling Vehicle	Wetland Dumping
Level Dry/Moist						

Comments:
Small area, recently landfilled with construction debris, etc. Currently a designated wetland (1974 NYSDEC tidal wetlands map). Area now level with surrounding denuded area. MC: vehicle access to wetland edge.

Unit: 15
Acreage: 1.32
Mgmt. Concern: Yes

Site	Species	Height	Exotic	Historical	Uses	Disturbance
Desert				Landfill	Dumping Vehicle	Dumping Auto
Hemicryptophytes Level Dry/Moist						Compaction

Comments:
Recently landfilled unit adjacent to the lagoon (salt marsh edge). Other margins of the unit have patches of mugwort, CSG, great ragweed, Japanese knotweed and other roadside species. MC: vehicle access; several abandoned vehicles and trailers along eastern boundary; recent backfilling of designated salt marsh; recent dumping of rubble, construction debris and municipal garbage.

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.