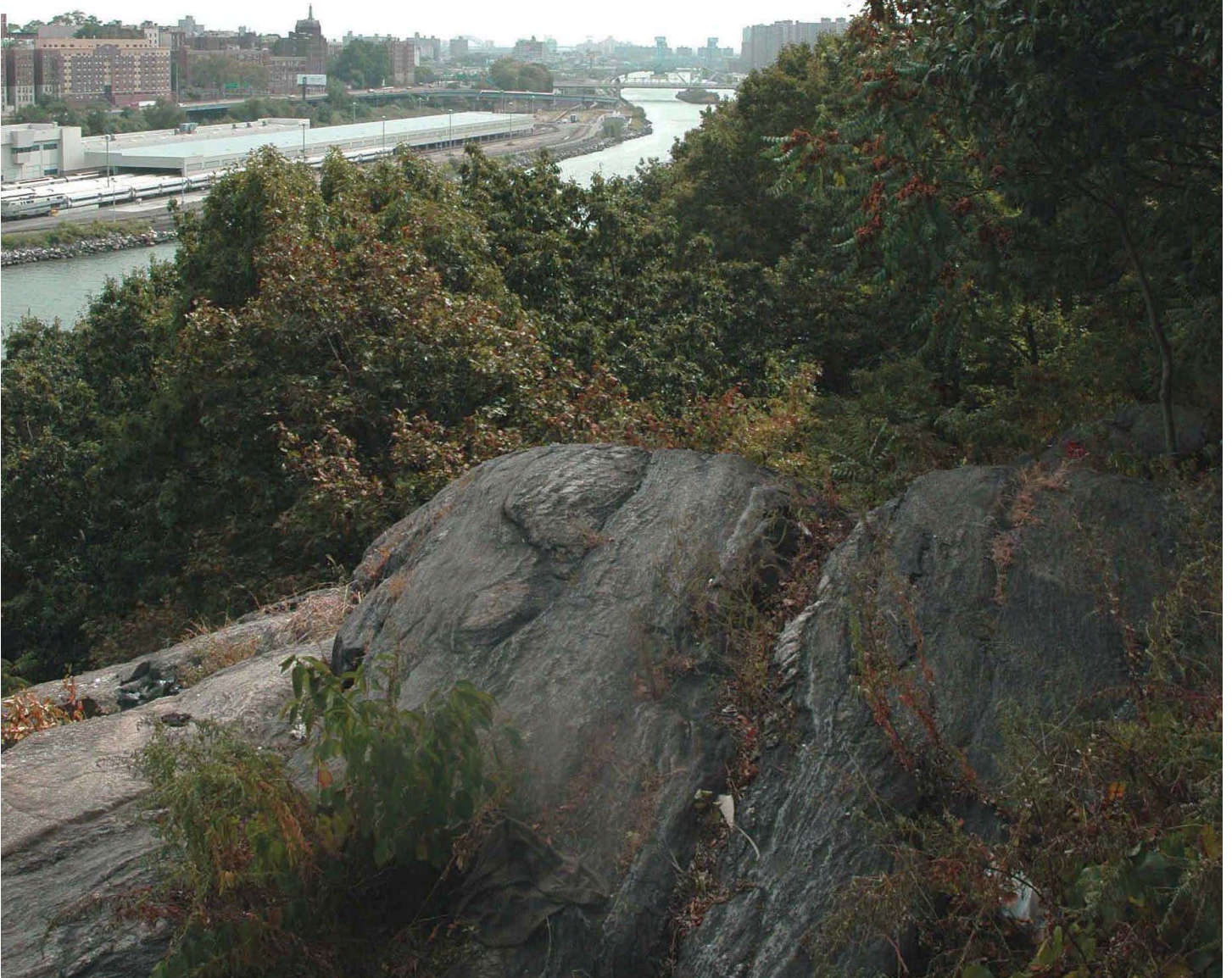


# Natural Area Mapping and Inventory of Highbridge Park Final Report



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



Hudson River Estuary

# Natural Area Mapping and Inventory of Highbridge Park: Final Report for Environmental Protection Funds from the Hudson River Estuary Grant Program

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## EXECUTIVE SUMMARY

This report marks the conclusion of the Highbridge Park Natural Areas Mapping and Inventory, a project undertaken by the City of New York Department of Parks & Recreation, Natural Resources Group (NRG). NRG is working in collaboration with other members of the Highbridge Coalition to restore, revitalize, and reclaim this under-utilized park. This inventory is an important step in reaching those goals. The primary product of the Highbridge Park Natural Areas Inventory is a map of vegetation units linked to a searchable GIS database. The information will allow Highbridge Coalition members to plan invasive species management, track future restoration efforts, and inform capital projects in and around the park. Appendix III contains samples of maps that can be derived from this database.

### Management Recommendations

The forested, craggy topography of Highbridge Park plays an essential role in filtering runoff, cycling nutrients, and furnishing habitat. Because the site is less altered than most sites in Manhattan, the slopes still perform many of these functions. However, the increasing presence of invasive plants has accelerated soil erosion and reduced biodiversity. To be effective, the recommendations below should be included in a comprehensive management plan for Highbridge Park. The measures would enhance the park's beauty, protect native plants and animals, and improve ecosystem function. Recommendations are listed below, in no particular order.

*Protect high quality natural areas.* Several acres of forest containing a full canopy of mixed age and an understory of mostly native plants were identified in Highbridge Park. In these areas, few invasive species are present, dumping has been minimal, and the forest structure remains largely undisturbed. These areas should be given protection under the Parks Department's Forever Wild program, to protect them from degradation.

*Protect surviving elms.* Since 1930, the fungus *Ophiostoma ulmi* has caused the deaths of many elm trees throughout North America. Highbridge Park contains a large number of Siberian elms, which are resistant but not immune to the disease. The park is also home to some American elms, which are highly susceptible. Once it infects an area, the disease spreads easily and is difficult to treat. Highbridge Park's elms should be examined for signs of contamination and sanitized as necessary. This is the best form of prevention against Dutch elm disease.

*Conduct a thorough hydrological survey.* The large number of drainages and the discovery of dusky salamander suggest that Highbridge Park contains one of the last intact functional groundwater systems in Manhattan. A thorough hydrologic study of the park would determine the structure of the groundwater system. Such a study would differentiate groundwater streams from stormwater-based streams and leaky sewer lines, which could then be targeted for management.

*Engage local law enforcement.* While illegal activity in Highbridge Park may be transient over the course of a season, its character remains constant. Areas of concern are clustered near easily accessible parts of the park, which also allows for easy access by enforcement officials.

*Develop interpretive materials.* Presently, there are interpretive signs installed near the High Bridge and tower. The Urban Park Rangers, New York Restoration Project, and the Sierra Club have made efforts to showcase the park. Further efforts should be made to reach out to New York City residents, particularly those living in nearby communities. Because many local residents are native Spanish speakers, materials should be bilingual. These efforts will increase stewardship and legitimate use of Highbridge Park.

*Prevent the spread of Norway maple.* The dense shade cast in a forest dominated by Norway maple prohibits many native species from growing beneath the canopy. Without the understory root system to absorb water and hold soil in place, the steep slopes of Highbridge Park are quickly eroding into the Harlem River. This erosion results in non-point source pollution into the Harlem River and the Hudson River Estuary. Understory plants also play an important role in cycling nutrients, ensuring that the forest remains healthy and fertile. Removing Norway maples will allow a stable understory to regenerate.

*Remove invasive vines.* In addition to Norway maples and their attendant problems, Highbridge Park's forests are threatened by invasive vines such as porcelain-berry (*Ampelopsis brevipedunculata*) and oriental bittersweet (*Celastrus orbiculatus*). As these vines grow, they engulf their host trees from trunk to twig. Their heavy foliage prevents sunlight from reaching the tree's leaves, and the coiling vines stifle tree growth. In heavy winds, the extra weight makes the weakened trees likely to fall. Areas of heavy vine growth in Highbridge Park should be cleared and treated to prevent them from spreading further.

*Address littering and dumping.* While a tremendous amount of effort has gone into securing the borders of the property and removing garbage in recent years, illegal trash disposal is still widespread in Highbridge Park. Most areas that are accessible by trails are strewn with trash, ranging from discarded wrappers to bags full of household goods. Cars are frequently abandoned in the park as well. Public education and enforcement must be coordinated to combat this problem.

## **Conclusion**

Today, Highbridge Park is used by neighborhood residents for sports, dog-walking and psychological relief from urban stress. Unfortunately, the park is also used for illegal activity such as dumping, drug activity, habitations, and prostitution. Interest in Highbridge Park from community groups, city agencies and elected officials has been steadily increasing, culminating in the formation of the Highbridge Coalition in 2001. Taking advantage of the momentum that these groups have generated is critical to preventing degradation of natural areas, improving safety in the park, and enhancing its value in the community.



# **SECTION I: HIGHBRIDGE PARK**

## **Introduction**

This report marks the conclusion of the Highbridge Park Natural Areas Mapping and Inventory, a project undertaken by the City of New York Department of Parks & Recreation, Natural Resources Group (NRG). NRG is working in collaboration with other members of the Highbridge Coalition to restore, revitalize, and reclaim this under-utilized park. This inventory is an important step in reaching those goals. The primary product of the Highbridge Park Natural Areas Inventory is a map of vegetation units linked to a searchable GIS database. The information will allow Highbridge Coalition members to plan invasive species management, track future restoration efforts, and inform capital projects in and around the park.

The first half of this report briefly summarizes the park's history, describes the inventory process and its major findings, and offers management recommendations for natural areas. The second half of this report consists of maps and in-depth descriptions of these vegetation units delineated during the inventory. Section III includes a glossary, a complete plant species list, maps derived from the database, a list of contributors, and a copy of the Entitation Manual. Appendix III contains samples of maps that can be derived from this database.

## **Area History**

As a part of the Old Croton Aqueduct, the High Bridge is a National Historic Landmark. The bridge itself—1,450 feet long and 110 feet high—is listed on the National Register of Historic Places and is a New York City Landmark along with the adjacent water tower. The bridge housed the Croton Aqueduct, which brought fresh water to New

York City and advanced the city's rapid expansion. Historical photographs show a holding reservoir where the swimming pool sits today. A coal-powered plant next to the pool pumped water from the reservoir into the water tower.

High Bridge was built between 1832 and 1848, making it the oldest existing bridge in New York City, and has only had one major visible change since its construction. This change occurred in 1923, as part of efforts to construct the United States Ship Canal, connecting the Hudson and Harlem Rivers. Five of the High Bridge's original stone piers were replaced with a central steel span to facilitate passage of large ships.

The area that is today's Highbridge Park was assembled piecemeal between 1867 and the 1960s. The northernmost part of the park contains remains of Fort Washington, a Revolutionary War fortification. At the turn of the nineteenth century Highbridge Park was a tourist destination served by trolley cars. The brick-paved promenade topping High Bridge was a favorite spot for artists, pedestrians, and tourists, as well as an important inter-borough crossing for neighborhood residents. The High Bridge remains a major viewing attraction of Highbridge Park, but it has been closed to the public since the 1970s.

The Harlem River Speedway ran along the west bank of the Harlem River, below Highbridge Park's cliffs, where the Harlem River Drive exists today. The track was used for regular transportation in addition to racing, and it was flanked with a pedestrian lane where spectators watched races or visitors strolled. Many historical postcards featuring the Speedway include views of the High Bridge. At the turn of the 20<sup>th</sup> century, Highbridge Park even housed an amusement park. From 1889 to 1911, the New York Polo Grounds occupied the section of Highbridge Park known as Coogan's Hollow,

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located between 155<sup>th</sup> and 159<sup>th</sup> Streets. Near Coogan's Bluff, in the southern part of Highbridge Park, the decayed remains of a footbridge leading to the Polo Grounds ticket booth can still be seen.

Despite these tourist attractions, northern Manhattan was rural compared to other parts of the island through the early 1900s. The steep slopes of Highbridge Park prohibited widespread farming, and since most of the land was never cleared, native plants have survived there to this day. However, exotic species such as hawthorn (*Crataegus* spp.), Siberian elm (*Ulmus pumila*), and Norway maple (*Acer platanoides*) were planted as ornamentals in landscaped areas of the park. These trees have spread from the park margins into the Highbridge forest. In some areas of Highbridge Park encroachment by introduced species, particularly Norway maple, has been quite harmful to the native vegetation.

### **Entitation**

Entitation is 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 (see Appendix V for a sample data sheet). In Highbridge Park, workers identified 210 discrete vegetation units. Some of these units include multiple, non-contiguous sections. Of approximately 134 park acres entitled, 74 were classified as forest or woodland, 4 as scrub, 31 as herbaceous community, 8 as vineland, and 18 as scarcely vegetated.

During field reconnaissance, workers recorded the presence of several plant species that are not found elsewhere in Manhattan and others that are rare within New York City. Some plant species that were not previously known to exist in Highbridge Park are skunk cabbage (*Symplocarpus foetidus*), common blue violet (*Viola sororia*), and riparian grape (*Vitis riparia*). The entitation findings allowed NRG biologists to target areas likely to host rare amphibian and avian species and led to the documentation of two dusky salamander (*Desmognathus fuscus*) populations. Before its rediscovery in Highbridge Park, this species was believed to have been extirpated from Manhattan. Because the dusky salamander is sensitive to pollution and chemical fluctuations, Highbridge's healthy populations indicate relatively pristine regions in Highbridge Park.

### **Management Recommendations**

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**City of New York  
Parks & Recreation  
Natural Resources Group**

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Craig Mandel, GIS/Data Manager

**Legend**

**Highbridge Entitation**

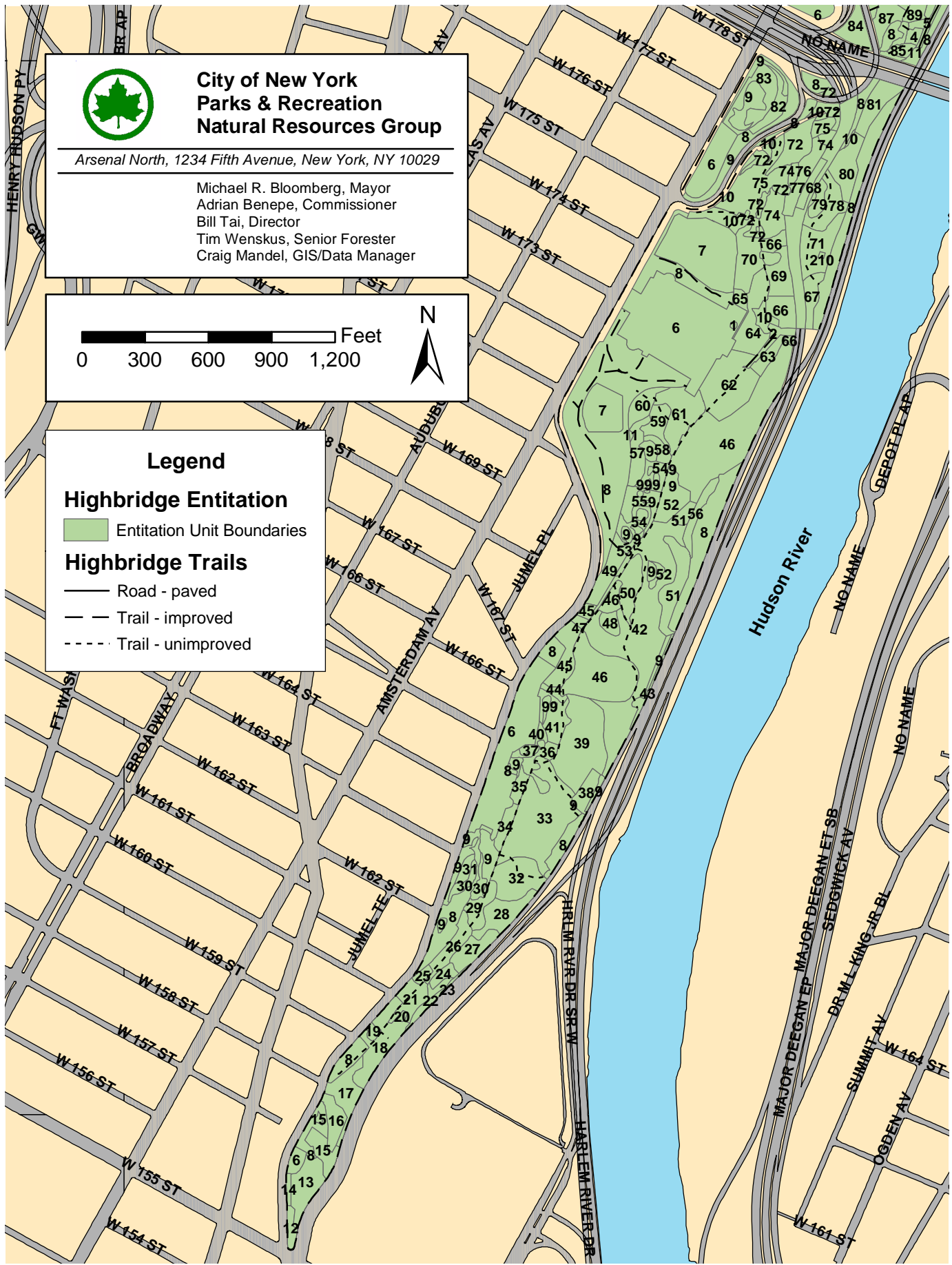
Entitation Unit Boundaries

**Highbridge Trails**

Road - paved  
Trail - improved  
Trail - unimproved

**Hudson River**

**Streets:** W 193 ST, W 192 ST, W 191 ST, W 190 ST, W 189 ST, W 188 ST, W 187 ST, W 186 ST, W 185 ST, W 184 ST, W 183 ST, W 182 ST, W 181 ST, W 180 ST, W 179 ST, W 178 ST, W 177 ST, W 176 ST, W 175 ST, W 174 ST, W 173 ST, W 172 ST, W 171 ST, W 170 ST, W 169 ST, W 168 ST, W 167 ST, W 166 ST, W 165 ST, W 164 ST, W 163 ST, W 162 ST, W 161 ST, W 160 ST, W 159 ST, W 158 ST, W 157 ST, W 156 ST, W 155 ST, W 154 ST, W 153 ST, W 152 ST, W 151 ST, W 150 ST, W 149 ST, W 148 ST, W 147 ST, W 146 ST, W 145 ST, W 144 ST, W 143 ST, W 142 ST, W 141 ST, W 140 ST, W 139 ST, W 138 ST, W 137 ST, W 136 ST, W 135 ST, W 134 ST, W 133 ST, W 132 ST, W 131 ST, W 130 ST, W 129 ST, W 128 ST, W 127 ST, W 126 ST, W 125 ST, W 124 ST, W 123 ST, W 122 ST, W 121 ST, W 120 ST, W 119 ST, W 118 ST, W 117 ST, W 116 ST, W 115 ST, W 114 ST, W 113 ST, W 112 ST, W 111 ST, W 110 ST, W 109 ST, W 108 ST, W 107 ST, W 106 ST, W 105 ST, W 104 ST, W 103 ST, W 102 ST, W 101 ST, W 100 ST, W 99 ST, W 98 ST, W 97 ST, W 96 ST, W 95 ST, W 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## Unit Descriptions

Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 1  
**Acreage:** 0.022  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scarcely Vegetated					Old water	
Level						
Dry						

### Comments:

Highbridge tower. The water tower has looked over old High Bridge and the Harlem River valley since 1872. In 1958 the tower was rehabilitated and outfitted with a five-octave carillon in memory of Benjamin Altman.

**Unit:** 2  
**Acreage:** 0.215  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scarcely Vegetated	Oak, pin	5'-30'			Walking bridge	Vandalism
	Mugwort	<5'	Yes		Croton	
	Porcelainberry	<5'	Yes		Gatehouse	
Level	Ivy, poison	<5'				
Dry	Oriental bittersweet	<5'	Yes			
	Rose, multiflora	<5' & 5-30'				

### Comments:

Manhattan landing of the Highbridge. Cement paved pathway with old lamp posts and the gatehouse for the bridge. Bridge access is blocked by a wrought iron gate with spikes. Herbs are encroaching from neighboring units and growing in pavement cracks. There is graffiti covering the gatehouse. Species list: plantain, clover, Grass spp., Polygonum sp., regenerating sycamore maple, Virginia creeper, common blue violet, lamb's quarters.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 3  
**Acreage:** 0.094  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scarcely Vegetated	Mugwort	<5'		Stairs	Foot traffic
	Pigweed	<5'			
	Grass sp.	<5'			
Level	Clover sp.	<5'			
Dry					

### Comments:

Well maintained concrete stone steps leading from the main trail up to street level. There is a circular observation area at the top of the steps.

**Unit:** 4  
**Acreage:** 0.118  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Honeysuckle, Amur	<5'	Yes	Foundation	Foot traffic
Deciduous	Hackberry	<5' & 5-30'		Lamppost	Vandalism
Phanerophytes	Mulberry, white	<5' & 5-30'	Yes	Other	Trash
Undulating	White snakeroot	<5' & 5-30'	Yes		
Dry	Ivy, poison	<5'			
	Ash, green	<5'			

### Comments:

This unit consists of a historical staircase framework that is missing the steps. The frame is periodically cleared and restoration work is planned. Classified as scrub, the most dominant species of this unit are Amur honeysuckle, hackberry, white mulberry, sycamore maple, poison ivy, and green ash. Norway maple and hackberry are both regenerating and dominate the understory. Other species present include multiflora rose, oriental bittersweet, porcelainberry, Japanese honeysuckle, Potentilla spp., white snakeroot, Asiatic dayflower, mugwort, pokeweed, Grass spp., wild lettuce, clover, devil's beggar tick, Spanish needles, common milkweed, daisy fleabane, common nightshade, horseweed, sweet clover and 3-seeded mercury. MCs: Vandalism and trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 5  
**Acreage:** 1.124  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scarcely Vegetated	Mugwort	<5'		Vehicle access	Auto
	Virginia creeper	<5'		Parking lot	
	Porcelainberry	<5'		Construction	
Level	Plantain, common	<5'			
Dry	Milkweed, common	<5'			
	Grass spp.	<5'			

### Comments:

These roads and parking lots are primarily used by DEP for access to their facilities. Occasionally they are used by contractors for staging or parking. The road passes under the Washington Bridge. Yarrow, goldenrod, Japanese hops, dock sp., black locust, and smartweed occur along the road's edge.

**Unit:** 6  
**Acreage:** 12.121  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scarcely Vegetated	Sycamore	>30' & 5-30'		Sports	
	Maple, Norway	>30' & 5-30'	Yes		
	Locust, black	>30' & 5-30'			
Level	Plantain, common	<5'			
Dry	Grass sp.	<5'			
	Mugwort	<5'	Yes		

### Comments:

This unit includes all paved recreational areas throughout the park, including sitting areas, handball courts, basketball courts and playgrounds.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 7  
**Acreage:** 3.844  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous Deciduous Hemicryptophytes Level Dry/Moist	Cool season grass	<5'	Yes		Sports	

### Comments:

This unit consists of all the baseball fields throughout the park - boundaries include both infields and outfields.

**Unit:** 8  
**Acreage:** 19.715  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous Deciduous Hemicryptophytes Level Dry/Moist	Cool season grass Various tree species	<5' all	Yes Some		Picnic Campfire/ party Foot traffic	Trash Mowing

### Comments:

Managed lawns throughout Highbridge Park. A: Oak, Norway maple and London planetrees in canopy. Trash and foot traffic are excessive in the area. B: Contains a sign marked "Dog Run" although the dog run appears to have been removed. Bisected by a well-used footpath leading to popular party areas in the woods. Appears to be infrequently mowed, with scattered rock outcrops. C: Contains three Japanese flowering cherry trees and landscaped grasses enclosed in a chainlink fence. Poison ivy is growing into the area from the retaining wall on the western edge. D: Very large section of managed lawn southwest of the recreation center at 173rd Street. Contains many walking paths and seating areas. There are London planetrees planted along the Edgecombe Avenue/Amsterdam Avenue side of the lawn. The interior contains black locust, honey locust and black oak. E: Section of lawn northwest of the recreation center at 173rd Street. Contains 8 large planted pin oaks and two small areas planted with herb species adjacent to the stairs leading up to the recreation center. Contains benches and other sporadic trees. Very well maintained. F: Thin strip of managed lawn behind the baseball field adjacent to the recreation center. The area is bounded by a retaining wall



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 9  
**Acreage:** 2.326  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scarcely Vegetated Deciduous Hemicryptophytes Slope Dry	Rock outcrop		Other	Campfire/ party Foot traffic	Trash Vandalism Feces

### Comments:

Rock outcrops at various locations in the park. The following species are present at some of the areas of this unit and are immediately adjacent to the rock or in the cracks of the rock: Regenerating black cherry, Norway maple, hackberry and ash, poison ivy, moss, and lichen. MCs: Campfire/party areas, trash, and dumping.

**Unit:** 10  
**Acreage:** 1.302  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous Deciduous Geophytes Undulating Dry/Moist	Knotweed, Japanese	<5' & 5-30'	Yes	Foot traffic	Trash

### Comments:

These areas are dominated entirely by Japanese knotweed and spread throughout the park. The following species are present in at least some of the areas: black locust and hackberry saplings, multiflora rose, wineberry, Rubus spp., poison ivy, porcelainberry, Virginia creeper, Japanese honeysuckle, oriental bittersweet, lambs quarter, mugwort, garlic mustard, pokeweed, Aster spp. and white avens. MCs: Japanese knotweed spreading in some areas and mostly shading out other species.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 11  
**Acreage:** 0.486  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous Deciduous Hemicryptophytes Level Moist	Mugwort	<5' & 5-30'	Yes			Trash

### Comments:

Three separate units scattered throughout the park. All are herbaceous and dominated by mugwort. Two occur on slopes while the most northern is relatively flat. The following species occur in some of these units: honey locust and black locust saplings, Grape sp., Japanese honeysuckle, hedge bindweed, Phragmites, Spanish needles, Aster spp., Queen Anne's lace, goose grass, and pokeweed. Trash is a MC in at least two of the units.

**Unit:** 12  
**Acreage:** 0.172  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Phanerophytes Slope Dry/Moist	Planetree, London Maple, sycamore Mulberry, white Ginkgo	>30' all <5' & 5-30' >30'	Yes Yes Yes Yes	Exotic planting	Foot traffic	Trash

### Comments:

Closed forest dominated by full crown London plane trees with sycamore maple, large Ginko, and white mulberry all common and black locust and hackberry present. Given the canopy trees and the presence of ornamentals within the unit (especially at the southern tip) it is likely that this was previously a managed area. The understory is dominated by regenerating hackberry, black locust, sycamore maple, hawthorn and white mulberry. Other species present in this unit: Holly spp., Juniper spp., multiflora rose, Amelanchier spp., oriental bittersweet, porcelainberry, poison ivy, jumpseed, Aster spp., giant ragweed, and curly dock. MCs: Trash and invasives. As of 7/05 this area was mowed or weed-whacked and appeared to be somewhat managed. The existing understory was very low and fairly sparse.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 13  
**Acreage:** 0.705  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, Siberian	all	Yes	Full-crown tree	Foot traffic	Trash
Deciduous	Maple, sycamore	all	Yes		Habitation	
Phanerophytes	Cherry, black	5'-30'				
Slope	Oak, red	all				
Dry/Moist	Hawthorn, Washington	<5' & 5-30'				
	Mulberry, white	<5' & 5-30'	Yes			

### Comments:

Closed forest dominated by Siberian elm and sycamore maple with black cherry, red oak, Washington hawthorn and white mulberry common, and pin oak and hackberry present. The understory is dominated by regenerating sycamore maple, red oak, Siberian elm, pin oak, bitternut hickory, green ash and white mulberry. The understory also includes poison ivy, oriental bittersweet, giant ragweed, jumpseed, heart-leafed aster, burdock, curly dock, Spanish needles, and beggar's tick. MCs: Erosion from foot traffic, trash, habitations, and invasives. As of 7/05 this area looks managed (weed whacked or mowed) on the lower half of the slope near the Harlem River Pkwy.

**Unit:** 14  
**Acreage:** 0.073  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Planetree, London	>30'	Yes	Fence	Foot traffic	Mowing
Deciduous				Full-crown tree		
Hemicryptophytes				Other		
Level						
Dry						

### Comments:

A fenced off area surrounded by a sidewalk and small cemented walkway. London plane trees, planted in an evenly spaced row, dominate the canopy of this "closed forest" and a mix of herbs dominated the understory. These herbs include Grass spp., 3-seeded mercury, Mexican tea, heart leafed aster, plantain, smartweed, burdock, garlic mustard, and Trifolium spp. Though the lawn appeared to have been left fallow in Summer of 2004, as of 7/05 it was managed.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 15  
**Acreage:** 0.41  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Ailanthus	<5' & 5-30'	Yes		Foot traffic	Trash
Deciduous	Sumac sp.	<5' & 5-30'			Habitation	
Phanerophytes	Ivy, poison	<5'				
Undulating	Cherry, black	<5' & 5-30'				
Dry						

### Comments:

This unit of scrub consists of trees, vines, and herbs growing around the edges, in the cracks, and in some cases on top of rock outcrops scattered through the unit. This unit consists of two sections. The smaller is surrounded by lawn and the larger extends down a steep slope to the Harlem river drive. The most common species in this unit are mid-sized and regenerating Ailanthus, staghorn sumac, and black cherry. Other species in this unit include hackberry, green ash, Paulownia, black oak, privet sp., multiflora rose, a great deal of poison ivy, Virginia creeper, mugwort, ragweed, Grass spp., goose grass, and daisy fleabane. MCs: Trash, habitations, drug use and other illegal activities.

**Unit:** 16  
**Acreage:** 0.407  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Cherry, black	all			Habitation	Trash
Deciduous	Elm, Siberian	<5' & 5-30'	Yes		Foot traffic	
Phanerophytes	Ash, green	<5' & 5-30'				
Slope	Mulberry, white	<5' & 5-30'	Yes			
Dry/Moist						

### Comments:

A woodland dominated by black cherry, with Siberian elm, green ash, and white mulberry also common and black locust, hackberry, red oak, hawthorn, and crabapple present. The understory is dominated by regenerating tree species; in particular, Siberian elm, but also green ash, bitternut hickory, and black cherry. The understory also includes multiflora rose, poison ivy, porcelainberry, mugwort, Grass spp., giant ragweed, smartweed, and heart-leaved aster. This unit is located on a very steep slope. MCs: Trash, habitations and invasives.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 17  
**Acreage:** 0.602  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, black	all	Yes	Full-crown tree	Picnic	Trash
Deciduous	Elm, Siberian	all	Yes	Stairs	Other	
Hemicryptophytes	Cherry, black	5'-30'				
Knoll						
Moist						

### Comments:

This unit, known as Coogan's bluff, includes a rock face and a damaged staircase of historical significance with a plaque indicating its relationship to the Polo grounds and the NY Giants baseball team. The unit is a woodland dominated by black locust and Siberian elm with black cherry also common and the herb-dominated understory is mowed occasionally. Herbs present in this unit include jumpseed, Asiatic dayflower, Mexican mint, Spanish needles, white snakeroot, mugwort, Aster spp., burdock, curly dock, great ragweed and Grass spp. The following tree species are regenerating: Siberian elm, white mulberry, bitternut hickory, green ash, black locust, Ailanthus, sycamore maple, hackberry and catalpa. Other species present in this unit include poison ivy (dense on rock faces), English ivy, Virginia creeper, bittersweet nightshade and oriental bittersweet. This area is used to eat lunch from a nearby parked vendor. As a result rats, squirrels, birds and cats are all numerous in this unit. MC: Trash.

**Unit:** 18  
**Acreage:** 0.933  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Cherry, black	all			Foot traffic	
Deciduous	Oak, pin	all				
Lianas	Catalpa	all	Yes			
Slope	Hickory, bitternut	all				
Dry/Moist	Ash, green	<5' & 5-30'				

### Comments:

Mixed forest with patches of different species. Tree species in order of dominance are black cherry, pin oak, catalpa, bitternut hickory, Sassafras, green ash, black locust, Ailanthus, hackberry, red oak, and white mulberry. Species regenerating in this unit include black cherry, bitternut hickory, pin oak, sassafras, catalpa, sycamore maple, and hackberry. The understory is dominated by vines - poison ivy, Virginia creeper, porcelainberry, oriental bittersweet, greenbriar - but also include crabapple, multiflora rose, Phragmites, Spanish needles, smartweed, white wood aster, burdock, and giant ragweed. This unit includes a vertical rock face. MCs: trash, dumping, drug use, and invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 19  
**Acreage:** 0.086  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, honey	all	Yes		Foot traffic	
Deciduous	Hackberry	<5' & 5-30'	Yes			
Hemicryptophytes	Mulberry, white	5'-30'	Yes			
Undulating	Pyrus spp.	5'-30'				
Dry/Moist	Mugwort	<5'	Yes			
	Grass spp.	<5'				

### Comments:

Woodland is dominated by honey locust with some small-medium sized hackberry, white mulberry, and Pyrus spp. In the subcanopy. The understory is dominated by mugwort and grass spp., but also includes bittersweet nightshade, Aster spp., Asiatic dayflower, giant ragweed, lamb's quarter, Mexican tea and blackberry. The following species are regenerating: honey locust, bitternut hickory, hackberry, and black cherry.

**Unit:** 20  
**Acreage:** 0.038  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Greenbrier	<5'		Exotic planting	Habitation	Dumping
Deciduous	Porcelainberry	<5'	Yes			Trash
Lianas						
Slope						
Dry/Moist						

### Comments:

Vineland dominated by greenbrier and porcelainberry with some oriental bittersweet as well as staghorn sumac, ash, and Ailanthus on the edges of the unit. MCs: Dumping, trash, habitations and porcelainberry.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 21  
**Acreage:** 0.442  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland Deciduous Phanerophytes Slope Dry/Moist	Hackberry Cherry, black	all all		Foot traffic	Trash

### Comments:

A fenced in woodland of mostly hackberry and black cherry. The understory is dominated by densely regenerating hackberry, black cherry, red oak, green ash, white mulberry, bitternut hickory, and Norway maple, but also includes multiflora rose, Japanese honeysuckle, wild strawberry, Grass spp., mugwort, burdock, and smartweed. The western border of the unit is a retaining wall. MCs: Trash and invasives. Virginia creeper climbs the surrounding chain link fence and continues over to the sidewalk.

**Unit:** 22  
**Acreage:** 0.178  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub Deciduous Phanerophytes Slope Moist	Cherry, black Sumac sp. Ailanthus Catalpa Hackberry	<5' & 5-30' 5'-30' 5'-30' 5'-30' <5' & 5-30'	  Yes Yes		

### Comments:

This scrub unit is dominated by a mix of black cherry, staghorn sumac, Ailanthus, catalpa, and hackberry. The unit includes a large stretch along the sidewalk of the Harlem river drive that is an almost vertical rock outcrop with herbaceous plants below and regenerating hackberry, Ailanthus and black cherry mixed with vines and herbs on top. Mugwort and Virginia creeper are very common on top of the outcrop, while below the rock outcrop there is a mix of Siberian elm individuals, Virginia creeper, Asiatic dayflower, Spanish needles, devil's beggar tick, goose grass, and bull thistle. MCs: Invasive tree species.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 23  
**Acreage:** 0.105  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Hickory, bitternut	all			Retaining wall	Habitation
Deciduous	Cherry, black	5'-30'				Trash
Chamaephytes	Maple, sycamore	5'-30'	Yes			
Slope	Hackberry	<5'				
Dry/Moist						

### Comments:

Closed forest dominated by large bitternut hickory and mid-sized black cherry with sycamore maple and hackberry also common. The understory is dominated by multiflora rose, but also includes lots of poison ivy and oriental bittersweet, as well as Virginia creeper, Goldenrod sp., Aster spp., and jumpseed. The neighboring unit is elevated above and separated from this unit by a retaining wall. MCs: Habitation, multiflora rose and trash.

**Unit:** 24  
**Acreage:** 0.164  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Virginia creeper	<5'			Other	
Deciduous	Ivy, poison	<5'			Retaining wall	
Lianas	Oriental bittersweet	<5'	Yes			
Level	Greenbrier	<5'	Yes			
Dry	Asiatic dayflower	<5'	Yes			

### Comments:

A vineland dominated by Virginia creeper with poison ivy, oriental bittersweet, greenbrier, and Asiatic dayflower also very common. Regenerating black cherry and black locust are also present. There is a 15' tall boulder wall/foundation present in this unit. MCs: Oriental bittersweet invading an otherwise native vineland.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 25  
**Acreage:** 0.107  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Elm, Siberian	all	Yes	Retaining wall		
Deciduous	Oak, red	>30' & 5-30'				
Phanerophytes	Hackberry	<5' & 5-30'				
Slope	Cherry, black	<5' & 5-30'				
Dry/Moist	Elm, American	<5' & 5-30'				
	Locust, black	<5' & 5-30'	Yes			

### Comments:

Woodland dominated by Siberian elm, with red oak, hackberry, black cherry, American elm and black locust all common. The understory is dominated by regenerating American elm, hackberry, ash, black cherry, and black locust. The understory also includes Virginia creeper, greenbrier, hedge bindweed, smartweed, Asiatic dayflower, burdock, Grass spp., and Spanish needles. There is a large rock outcrop and rock wall in this unit. MCs: Siberian elm appears to be spreading. The retaining wall demarcates the upslope edge of the unit. This unit is very steep with all trees growing near the border of the rock outcrop.

**Unit:** 26  
**Acreage:** 0.458  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	all	Yes	Retaining wall	Campfire/ party	Dumping
Deciduous	Cherry, black	<5' & 5-30'			Foot traffic	Trash
Phanerophytes					Habitation	
Undulating						
Dry/Moist						

### Comments:

Closed forest dominated by black locust with some black cherry in the south and east of the unit and a few Ailanthus, 2 red oaks and a pin oak. The understory is dominated by regenerating black locust, bitternut hickory, Ailanthus, American elm, and red oak, but also includes other species like Rubus sp., multiflora rose, Amur honeysuckle, greenbrier, lots of poison ivy, mugwort, garlic mustard, pokeweed, and smartweed. This unit contains a rock retaining wall and rock fill (boulder size) east of the wall. There is a second retaining wall east of the path and another section of rock fill to the east of that wall. Between the two walls is a path and a section of very compacted soil with no understory growth. This unit sees a great deal of foot traffic and illegal activity. MCs: Dumping, trash and invasives.

City of New York, Parks and Recreation, Natural Resources Group



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 27  
**Acreage:** 0.456  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Cherry, black	<5' & 5-30'			Retaining wall	Trash
Deciduous	Ailanthus	<5' & 5-30'	Yes			
Chamaephytes	Hackberry	<5' & 5-30'				
Slope	Locust, black	<5' & 5-30'	Yes			
Dry						

### Comments:

Woodland dominated by a mix of black cherry, Ailanthus, hackberry, and black locust with a few honey locust, staghorn sumac, Norway maple, bitternut hickory, scholar tree and hawthorn spp. are also present. The understory is dominated by multiflora rose, but also includes a separate patches of Grape sp. and regenerating black locust in the south of unit. Other species present in the understory including Rubus sp., greenbrier, Aster sp., smartweed, smooth Solomon's seal. MCs: Trash, Ailanthus and multiflora rose.

**Unit:** 28  
**Acreage:** 0.637  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	all			Retaining wall	Trash
Deciduous	Cherry, black	<5' & 5-30'				
Phanerophytes	Maple, Norway	<5' & 5-30'	Yes			
Slope						
Dry/Moist						

### Comments:

A closed forest dominated by red oak in the canopy and black cherry in the subcanopy. Norway maple and red oaks are also present in the subcanopy. Other tree species present include black locust, hackberry, white mulberry, Siberian elm and staghorn sumac. In certain areas Norway maple forms dense patches and there is no understory. Overall, the understory contains a great deal of poison ivy, but is dominated by regenerating black locust, red oak, Norway maple, black cherry, Paulownia, bitternut hickory, and green ash. The understory also includes bladdernut, mock orange, multiflora rose, oriental bittersweet, white snakeroot, smooth and false Solomon's seal, jumpseed and Aster spp. This unit contains 3 retaining walls. MCs: Trash, Norway maple and invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 29  
**Acreage:** 0.378  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Sassafras	all			Retaining wall	Trash
Deciduous	Cherry, black	all			Campfire/ party	
Chamaephytes	Rose, multiflora	<5'	Yes		Foot traffic	
Undulating	Maple, Norway	<5' & 5-30'	Yes			
Dry/Moist	Oak, red	<5' & 5-30'				
	Ash, green	<5' & 5-30'				

### Comments:

Closed forest dominated by sassafras and black cherry of all size classes, with mid-sized and small Norway maple, red oak, and green ash also common. Other tree species present in this unit include white mulberry, Siberian elm, catalpa, hackberry, pin oak, and Ailanthus. The understory is dominated by multiflora rose, but also includes regenerating red oak, green ash, white mulberry, Sassafras, Norway maple, pin oak, Ailanthus and black cherry. Other species present include poison ivy, oriental bittersweet, porcelainberry, Virginia creeper, ragweed, giant ragweed, smooth Solomon's seal, pokeweed, smartweed, mugwort, Grass spp., and Aster spp. Poison ivy is prevalent throughout the unit and especially on the rock wall. Sassafras is beginning to fill in areas near the trail and the lower portion of the slope. There are rock outcrops in this unit. MCs: Trash, multiflora rose and other invasives.

**Unit:** 30  
**Acreage:** 0.321  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Cherry, black	<5' & 5-30'			Campfire/ party	Trash
Deciduous	Locust, black	<5' & 5-30'	Yes		Foot traffic	
Phanerophytes	Hackberry	<5' & 5-30'				
Undulating	Oak, pin	all				
Dry	Mulberry, white	<5' & 5-30'	Yes			

### Comments:

This woodland is dominated by a mix of black cherry, black locust, hackberry, pin oak, and white mulberry with patches of staghorn sumac and Ailanthus, and individuals of green ash, honey locust, red oak, and catalpa. The understory is dominated by regenerating Ailanthus, hackberry, black cherry, pin oak, black locust, and honey locust. Also present are multiflora rose, greenbrier, Japanese honeysuckle, Virginia creeper, poison ivy, oriental bittersweet, lilac, giant ragweed, burdock, daisy mugwort, fleabane, and Grass spp. This unit is split by a managed lawn and borders rock outcrops. Vines are taking over some of the trees and are forming impenetrable areas. MCs: Party area and trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 31  
**Acreage:** 0.143  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Grass spp.	<5'			Foot traffic	
Deciduous	Cherry, black	<5' & 5-30'				
Hemicryptophytes	Daisy fleabane	<5'				
Undulating	Sumac, staghorn	<5'				
Dry	Ailanthus	<5'	Yes			
	Oak, pin	<5'				

### Comments:

This herbaceous unit, dominated by Grass spp. and daisy fleabane, includes scattered mid-sized and regenerating trees, mostly black cherry but also staghorn sumac, Ailanthus, and pin oak. Black locust is also regenerating. The understory includes multiflora rose, poison ivy, porcelainberry, hedge bindweed, plantain sp., Aster spp., Asiatic dayflower, Goldenrod sp., and common ragweed. The soil in this unit is thin and in a few places the bedrock is exposed. The unit is often walked through. Thin soil may keep this unit from being succeeded by woody spp. (I.e. It may be a meadow forever).

**Unit:** 32  
**Acreage:** 0.879  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	all			Foot traffic	
Deciduous	Oak, black	>30'				
Hemicryptophytes	Cherry, black	<5' & 5-30'				
Slope						
Dry/Moist						

### Comments:

Closed forest dominated by red and black oak species with black cherry dominating the subcanopy. Catalpa is also present and the following trees are regenerating: Sassafras, red oak, black cherry, Norway maple, green ash, and bitternut hickory. Herbs, however, dominate the understory, including many Aster and Goldenrod spp. as well as white snakeroot, smooth Solomon's seal, wild strawberry, pokeweed, mugwort, jumpseed, Grass spp., and Asiatic dayflower. Other species present in this unit include mock orange, multiflora rose, oriental bittersweet, poison ivy and Virginia creeper. The dirt trail runs through this unit and boulders and rock outcrops are scattered through the upper slope. The grade of the slope in this unit is much less steep than

the units to the south. There are enough canopy gaps to allow sunlight through in patches. Bordering rock outcrops form a tall cliff on the western edge of the unit. Most of the oaks in this unit are sickly with brown cankers. There is a large dumping

area just east of the trail in the center of the unit. MCs: Invasive management (Norway maple, vines).

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## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 33  
**Acreage:** 2.405  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Phanerophytes Slope Moist	Maple, Norway Oak, red Oak, black	all >30' & 5-30' >30' & 5-30'	Yes	Road Retaining wall	Campfire/ party Foot traffic	Dumping Trash Auto

### Comments:

The most dominant species in this unit is Norway maple by density, however there a couple very large red and black oaks and one large green ash that stick out above the shorter but more even Norway maple canopy. The subcanopy also contains a few sparsely distributed oak, black cherry and American elm. Other trees include staghorn sumac, catalpa, red maple, pin oak, pignut hickory and hawthorn. The understory is mostly barren, but is dominated by saplings of black cherry, Norway maple, hackberry, bitternut hickory, American elm, Sassafras, pin oak, sweetgum, white mulberry and scholar tree. Other species present in this unit include multiflora rose, Amur honeysuckle, eunymus fortunei, poison ivy, Smilax rotundifolia, Japanese honeysuckle, oriental

bittersweet, pokeweed and jewelweed. In addition there are two drainage streams that run through the unit and that host dense communities of Japanese honeysuckle, Goldenrod spp., Aster spp., white snakeroot, mugwort, jumpseed, and smooth Solomon's seal.

This unit contains retaining walls and evidence of a road. At the top of the slope near the path this unit is in much worse shape (garbage and compacted soil) than further downslope. Near the border with unit 40 there are patches of lily.

**Unit:** 34  
**Acreage:** 0.242  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland Deciduous Phanerophytes Undulating Dry/Moist	Hackberry Mulberry, white	all <5' & 5-30'	Yes		Foot traffic	Trash

### Comments:

Woodland dominated by hackberry and white mulberry with a large American elm, a large dying ash and some pin and black oak. The understory is dominated by saplings, in particular, white mulberry, but also hackberry, Sassafras, black locust, sweetgum, sumac, and bitternut hickory. The understory also include Rubus sp., porcelainberry, giant ragweed, white snakeroot, and pokeweed. There is an unmapped rock outcrop in the understory of the south end of the unit with herbaceous plants and lots of trash around it. MCs: Lots of trash. The understory is thick with mugwort in certain spots and poison ivy is climbing out of this unit and onto the neighboring playground.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 35  
**Acreage:** 0.186  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Mugwort	<5'				Trash
Deciduous	Hackberry	<5' & >30'	Yes			
Geophytes	Mulberry, white	<5' & 5-30'	Yes			
Slope						
Dry/Moist						

### Comments:

Herbs, mostly mugwort, dominated this unit; however, there are two mid-sized (20') and many small-mid sized (5'-10') hackberry, many small-mid sized white mulberry, and a few black cherry and Norway maple all present and regenerating. The herbs include Asiatic dayflower, pokeweed, evening primrose, giant ragweed, heart-leaved aster, white snakeroot, and bittersweet nightshade. The understory also include a few rock outcrops and some trash.

**Unit:** 36  
**Acreage:** 0.345  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	<5' & 5-30'	Yes	Fence		Trash
Deciduous	Grape spp.	<5' & 5-30'				
Lianas	Sumac, staghorn	<5' & 5-30'				
Undulating	Oriental bittersweet	<5' & 5-30'	Yes			
Dry/Moist						

### Comments:

Vineland dominated by porcelainberry, Grape sp., oriental bittersweet and Smilax rotundifolia on both sides of trail and stretching up the bottom of a rock outcrop. Staghorn sumac are also common and seedlings of the following species: Norway maple, black cherry, red oak, black oak, bitternut hickory, American elm, Ailanthus, staghorn sumac and white mulberry. In addition Amur honeysuckle, multiflora rose, poison ivy, Virginia creeper, mugwort, Asiatic dayflower, burdock, pokeweed and jewelweed are all present. In the southeast section of the unit vines are encroaching into the adjacent closed forest. The edge of the unit adjacent to Adventure Playground has a rock wall topped by a wrought iron fence. MCs: Lots of trash and invasive removal.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 37  
**Acreage:** 0.1  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Mulberry, white	<5' & 5-30'	Yes		Foot traffic	Dumping
Deciduous	Maple, Norway	<5' & 5-30'	Yes			Trash
Phanerophytes	Elm, American	<5' & 5-30'				
Undulating	Oak, black	5'-30'				
Dry/Moist						

### Comments:

This small section, classified as closed forest, is dominated by white mulberry and Norway maple with some American elm and black oak and a few black cherry and hackberry. The understory is dominated by saplings, mostly white mulberry and Norway maple, but also hackberry and black cherry. Other species in the understory include Rubus sp. poison ivy, Virginia creeper, pokeweed, mugwort and garlic mustard. MCs: Trash and dumping from neighboring recreation area as well as Norway maple and other. This unit is separated from unit 6 by a chain link fence that supports Virginia creeper.

**Unit:** 38  
**Acreage:** 0.304  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Sassafras	<5' & 5-30'			Foot traffic	Trash
Deciduous	Oak, black	>30'				
Phanerophytes	Oak, red	<5' & >30'				
Undulating	Oak, pin	>30'				
Dry/Moist	Cherry, black	<5' & 5-30'				

### Comments:

Woodland dominated by mid-sized Sassafras with some large oaks (red, black, and pin) and a few mid-sized black cherry, Ailanthus, and staghorn sumac. The understory is dominated by regenerating red oak, green ash, Norway maple, black cherry and Sassafras with the Sassafras particularly common alongside herbaceous communities in canopy gaps. These communities include jumpseed, pokeweed, day lily, white snakeroot, Aster spp. and Goldenrod spp. The very dense understory also include crabapple, hawthorn, Rubus sp., and Japanese honeysuckle. This unit is located below a steep rock outcrop and is used for foot traffic and contains trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 39  
**Acreage:** 1.841  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland Deciduous Hemicryptophytes Slope Dry	Oak, black Oak, red Oak, white Grass spp.	<5' & 5-30' <5' & 5-30' <5' & 5-30' <5'		Exotic planting	Campfire/ party	Trash

### Comments:

An interesting unit consisting of a woodland dominated by black, red & white oak with a few large canopy gaps caused by large unmapped rock outcrops that are found throughout the unit. Other trees present: black cherry, pignut hickory, Sassafras, and pin oak. Where rock outcrops are absent Grass spp. dominate the understory. In the south of the unit there is a grove of regenerating staghorn & winged sumac in a canopy gap. Other species present in this unit include dogwood sp., Rubus sp., greenbrier, daisy fleabane, common ragweed, pokeweed, Goldenrod spp., and Aster spp. (including New York Aster). MCs: Trash and encroaching oriental bittersweet.

**Unit:** 40  
**Acreage:** 0.083  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Phanerophytes Undulating Dry	Cherry, black Mulberry, white	5'-30' <5' & 5-30'		Hedgerow Yes Stairs	Foot traffic	Trash

### Comments:

A closed forest dominated by black cherry and white mulberry with individuals of scholar tree, crabapple and ornamental plums arranged in a former hedge row. There is also a large patch of staghorn sumac. The understory is dominated by regenerating black locust, staghorn sumac, green ash, white mulberry, hackberry, and Norway maple; however, it also includes Amur honeysuckle, Smilax rotundifolia, poison ivy, Virginia creeper, Aster spp., mugwort, pokeweed, white snakeroot, and Grass spp. MCs: Trash and soil compaction caused by foot traffic. Historical: Within this unit there are overgrown steps resembling a walkway to a building and there may have been a comfort station here. The trees are arranged in a hedgerow and may be artifacts of landscaping.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 41  
**Acreage:** 0.498  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Sumac, staghorn	<5' & 5-30'			Foot traffic	Trash
Deciduous	Sumac, smooth	<5' & 5-30'				
Chamaephytes	Sumac, winged	<5'				
Undulating	Mugwort	<5'	Yes			
Dry	Daisy fleabane	<5'				
	Cherry, black	<5' & 5-30'				

### Comments:

Mixed landscape classified as scrub. Large scattered patches of staghorn, smooth, and winged sumac dominate the "canopy" with two medium sized black cherries and a white mulberry also present. The understory is dominated by mugwort, but also includes a great deal of daisy fleabane and some regenerating white mulberry and black cherry. Rubus sp., greenbrier, Queen Anne's lace, Goldenrod sp., curly dock, Grass spp., and Aster spp. are all mixed in to this unit and common. MCs: Foot traffic and trash.

**Unit:** 42  
**Acreage:** 3.931  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	>30' & 5-30'			Gravel pit	
Deciduous	Oak, black	>30' & 5-30'				
Hemicryptophytes						
Undulating						
Dry/Moist						

### Comments:

This unit contains large rock faces & is similar to the other large closed forest units nearby, but with much less oriental bittersweet in the understory. However, vines are beginning to climb up trees. The closed forest is dominated by red and black oaks with a number of bitternut and mockernut hickory, a few green ash, sweetgum, tulip, and three large chestnut oak. Other tree species present: Sassafras, black cherry, pin oak, Norway maple, pignut hickory, red maple, Ailanthus, and catalpa. The understory is dominated by herbs including Aster spp., Goldenrod spp. and both smooth and false Solomon's seal. The shrubs spicebush, maple-leaved viburnum, blackhaw, eastern hornbeam, and Amur honeysuckle are also present. An old gravel pit exists in the south of this unit. There are several dead trees in the unit. MCs: Trash and invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 43  
**Acreage:** 0.166  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Mugwort	<5'	Yes			
Deciduous	Porcelainberry	<5'	Yes			
Geophytes						
Level						
Moist						

### Comments:

This unit consists mostly of a strip running between the edge of the forest and Harlem River drive, but also includes the area under a canopy gap in the neighboring closed forest. The unit is dominated by herbs, especially mugwort and also includes lots of porcelainberry. There are no full grown trees, but there is some regenerating staghorn sumac, white mulberry, Ailanthus, and black cherry. Other species present include Amur honeysuckle, Japanese knotweed, oriental bittersweet, Virginia creeper, poison ivy, morning glory, hedge bindweed, Asiatic dayflower, dogbane, milkweed, curly dock, lamb's quarter, tall smartweed, ragweed, goose grass and Grass spp. MCs: Invasives.

**Unit:** 44  
**Acreage:** 0.108  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Mulberry, white	5'-30'	Yes	Exotic planting		Trash
Deciduous	Oak, pin	>30' & 5-30'				
Lianas	Scholar tree	5'-30'	Yes			
Undulating	Greenbrier	<5'				
Dry/Moist	Rubus sp.	<5'				

### Comments:

A small unit of closed forest dominated by a mix of white mulberry, pin oak, & scholar tree, with staghorn sumac, black cherry, Norway maple, red oak, & crabapple also present. The understory includes many exotic shrubs that were probably planted, however vines are slightly more dominant. Vines include Smilax rotundifolia, oriental bittersweet, porcelainberry & poison ivy. The shrubs include multiflora rose and 3 unidentified shrub species. The understory also includes regenerating bitternut hickory, pin oak, white mulberry, as well as the following herbs: jumpseed, garlic mustard, white snakeroot, Goldenrod sp., pokeweed, & heart-leaved aster. The understory is dense in the center of the unit & more barren with trash on the west side. MC: Invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 45  
**Acreage:** 0.654  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland Deciduous Geophytes Undulating Dry/Moist	Cherry, black Mulberry, white Birch, black	all <5' & 5-30' >30' & 5-30'	Yes			Trash

### Comments:

This woodland is dominated by black cherry with some white mulberry and black birch. It is located in between the trail and a paved recreational area & is divided into 2 sections by a herb unit. The tree species red oak, devil's walking stick, plane tree and a large Siberian elm are all present. The understory is dominated by herbs, mostly mugwort and garlic mustard, but also including giant ragweed, Aster spp., white snakeroot, smartweed, burdock, and pokeweed. Other spp. present include blackhaw, Amur honeysuckle, hawthorn, Rubus sp., greenbrier, oriental bittersweet, and dense patches of multiflora rose and poison ivy. MCs: Invasives in the understory and trash.

**Unit:** 46  
**Acreage:** 5.133  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Lianas Slope Dry/Moist	Oak, black Oak, red Oriental bittersweet Ivy, poison	all all all all		Brick drainpipe		Erosion Trash

### Comments:

Three sections of oak-hickory forest, mostly red and black oak, that are distinguished from nearby forests by the vine-dominated understory and larger size of trees. The canopy includes patches of Sassafras, tulip poplar, hickory (pignut, mockernut and bitternut), chestnut oak, sweetgum, white oak, green ash, hackberry, staghorn sumac, and black cherry. Oriental bittersweet is the only understory plant in large portions of all three sections, however in some areas it is less dense and the following species are present: multiflora rose, spicebush, wineberry, Rubus sp., porcelainberry, poison ivy, Virginia creeper, enchanter's nightshade, true and false Solomon's seal, jewelweed, pokeweed, jumpseed, and Aster spp. There are seasonal streams in the two largest sections. This unit contains very large trees. The unit has a more mixed vine layer than 62. MCs: Erosion and trash.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 47  
**Acreage:** 0.071  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous Deciduous Geophytes Slope Dry/Moist	Mugwort	<5'	Yes	Fence Retaining wall		Trash

### Comments:

This unit is dominated by mugwort growing over a rocky slope. A few other species are present including regenerating bitternut hickory and staghorn sumac, Rubus spp., poison ivy, common nightshade, Asiatic dayflower, common ragweed, pokeweed, small Aster, white wood aster, evening primrose, burdock, and Grass spp. However, these species make up 15% or less of the understory vegetation. A retaining wall and fence border this unit on the west. MCs: Trash.

**Unit:** 48  
**Acreage:** 0.195  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Phanerophytes Undulating Dry/Moist	Oak, red Devil's walk stick Cherry, black	all <5' & 5-30' <5' & 5-30'	Yes			Trash

### Comments:

This closed forest is dominated by red oak and is similar to surrounding units in terms of the tallest canopy trees. The subcanopy, however, consists mostly of devil's walking stick and to a lesser extent black cherry. The understory is dominated by saplings of devil's walking stick, black cherry, Sassafras, green ash, staghorn sumac, bitternut hickory, red oak, and mockernut hickory. In addition this unit contains Rubus sp., poison ivy, Grape sp., oriental bittersweet, porcelainberry, and Virginia creeper. The herbs jumpseed, pokeweed, blue stemmed goldenrod, and Aster spp. are also present, but thin out in the center of the unit where devil's walking stick is thickest. MCs: Devil's walking stick, invasive vines and trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 49  
**Acreage:** 0.52  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, Siberian	all	Yes	Fence	Foot traffic	Dumping
Deciduous	Rose, multiflora	<5' & 5-30'	Yes	Full-crown tree		Trash
Chamaephytes						
Undulating						
Dry/Moist						

### Comments:

Closed forest of Siberian elm with an understory dominated by multiflora rose. The understory also include hawthorn, poison ivy, porcelainberry, oriental bittersweet, Virginia creeper, Aster spp., white snakeroot, pokeweed, goldenrod and burdock.

Hackberry, Siberian elm, white mulberry, American elm and black cherry are all regenerating. MCs: Dumping, trash and some invasives.

**Unit:** 50  
**Acreage:** 0.613  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Sassafras	all				Trash
Deciduous	Tulip tree	>30'				
Lianas	Oriental bittersweet	<5' & 5-30'	Yes			
Undulating	Cherry, black	all				
Dry/Moist	Ivy, poison	<5' & 5-30'				

### Comments:

Closed forest with many Sassafras, a couple very large tulip trees, some black cherry and a large Tupelo tree. This unit includes a large fallen tulip tree, which seems to have been pulled down by vines - creating an opening in the canopy that is being filled by vines & 20' tall trees. The understory of this unit contains many saplings of Sassafras, bitternut hickory, & ash, however it is dominated by oriental bittersweet & poison ivy, and to a lesser extent porcelainberry, Grape spp.,

Smilax sp., & Virginia creeper. Other species present: spicebush, multiflora rose, Rubus spp., blackhaw, maple-leaved viburnum, false & smooth Solomon's seal, Aster spp., joe-pye weed, white snakeroot, Goldenrod sp., pokeweed, & jumpseed. MCs: Trash &

invasives. This is a good quality unit with some invasive vines enchoaching that should be maintained.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 51  
**Acreage:** 0.885  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	>30' & 5-30'				Erosion
Deciduous	Maple, Norway	<5' & 5-30'	Yes			Trash
Phanerophytes	Oak, black	>30' & 5-30'				
Slope	Sassafras	<5' & 5-30'				
Dry/Moist	Cherry, black	<5' & 5-30'				

### Comments:

This unit is distinguished from nearby closed forest units by the greater abundance of Norway maples, which form a dense canopy underneath the higher, but more sparse canopy of red and black oaks. Mid-sized black cherry and Sassafras are also common. The dense vegetation in the canopy lets through very little light and the understory is sparse as a result. Regenerating sycamore maple, Norway maple, black cherry, green ash, pignut hickory, Sassafras and bitternut hickory are dominant, however the understory also contains small patches of poison ivy, oriental bittersweet, Virginia creeper, Aster spp., jumpseed, false and smooth Solomon's seal, particularly among scattered boulders and small rock outcrops in this unit. MCs: Norway maple, erosion and trash.

**Unit:** 52  
**Acreage:** 0.615  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Oak, black	all				
Deciduous	Oak, red	all				
Lianas	Porcelainberry	<5'	Yes			
Slope	Cherry, black	<5' & 5-30'				
Dry	Sumac, staghorn	<5'				
	Ash, green	<5'				

### Comments:

This woodland unit is growing on a very steep slope with unmapped rock cliffs. Black and red oaks dominate the canopy with black cherry, staghorn sumac and green ash common as well, and pin oak, black locust, and gray birch also present. The understory includes regenerating bitternut hickory, ash, Ailanthus, staghorn sumac, Norway maple, black cherry, sweetgum, and oaks (pin, red and black), however the understory is dominated by vines - mostly porcelainberry, but also oriental bittersweet, and poison ivy. Other species include Rubus spp., multiflora rose, Virginia creeper, Asiatic dayflower, ragweed sp., daisy fleabane, Aster spp., mugwort, Grass spp., butter and eggs, Spanish needles, Goldenrod spp., pokeweed, and false climbing buckwheat.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 53  
**Acreage:** 0.057  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Mulberry, white	5'-30'	Yes	Retaining wall	Foot traffic	Soil compaction
Deciduous	Hickory, pignut	5'-30'			Campfire/ party	Trash
Hemicryptophytes	Cherry, black	5'-30'				
Level						
Dry						

### Comments:

This closed forest consists of five midsize trees on top of a retaining wall next to an rock outcrop/open area. The dominant canopy species are white mulberry, pignut hickory, and black cherry. The understory is very sparse containing only the occasional mugwort or common burr and not regenerating trees. MCs: trash from the party area in the unit and soil compaction from foot traffic.

**Unit:** 54  
**Acreage:** 0.533  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Mugwort	<5'	Yes			Trash
Deciduous	Cherry, black	<5' & 5-30'				
Hemicryptophytes	Sumac, staghorn	<5'				
Slope	Ailanthus	<5'	Yes			
Dry	Locust, black	<5' & 5-30'	Yes			
	Ash, green	<5'				

### Comments:

This unit is best described as scrub. There are scattered rock outcrops and small to medium sized trees - black cherry, staghorn sumac, Ailanthus, black locust, green ash and also Norway maple, hackberry, black oak and pin oak. Mugwort is the most common species overall and along with the other herbs - Asiatic dayflower, Canadian goldenrod, Aster spp., daisy fleabane, common ragweed, pokeweed, and Grass spp. - dominates the understory. Virginia creeper, Rubus sp., and regenerating black cherry, black locust, staghorn sumac, green ash, and Ailanthus are all present. As of 7/05, a small section of the dirt footpath has been weed-whacked. The unit is recognizable by the presence of many rock outcrops with vegetation growing out of them. The understory of this unit is more walkable than unit 58 to the north.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 55  
**Acreage:** 0.431  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, black	<5' & 5-30'	Yes		Foot traffic	Trash
Deciduous	Mugwort	<5'	Yes			Feces
Phanerophytes	Sumac, staghorn	<5' & 5-30'				
Undulating	Ailanthus	<5' & 5-30'	Yes			
Dry/Moist	Mulberry, white	<5' & 5-30'	Yes			
	Locust, honey	<5' & 5-30'	Yes			

### Comments:

A woodland dominated by black locust with staghorn sumac, Ailanthus, white mulberry and honey locust all common and green ash and pin oak also present. The understory is dominated by regenerating black locust, hackberry, white mulberry, honey locust, black cherry, green ash, and Sassafras. Also present in the understory are common hawthorn, multiflora rose, porcelainberry, poison ivy, bittersweet nightshade, pokeweed, bed straw, common milkweed, evening primrose, daisy fleabane, and common ragweed. The understory also includes rock outcrops. The understory is dominated by brambles and vines in the east (downslope) and mugwort in the west and south. MCs: Trash, human waste and invasives.

**Unit:** 56  
**Acreage:** 0.329  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	<5' & 5-30'	Yes		Habitation	Trash
Deciduous	Cucumber vine	<5' & 5-30'				
Lianas	Jewelweed	<5'				
Level						
Moist						

### Comments:

This unit borders a managed lawn, which is itself located next to the Harlem River Drive. In early summer this unit was mostly jewelweed with some porcelainberry and a little cucumber. By the end of the summer, vines had overtaken the jewelweed. Pokeweed is also present and being overtaken. Some Grape sp. is present as well. There is a habitation in the south end of the unit. Other MCs: Trash around the habitation and porcelainberry.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 57  
**Acreage:** 0.446  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Mulberry, white	<5' & 5-30'	Yes		Campfire/ party	Dumping
Deciduous	Cherry, black	<5' & 5-30'			Foot traffic	Trash
Chamaephytes	Locust, black	<5' & 5-30'	Yes			Feces
Undulating	Rose, multiflora	<5' & 5-30'	Yes			
Dry/Moist	Sassafras	<5' & 5-30'				
	Ailanthus	<5' & 5-30'	Yes			

### Comments:

Closed forest with a mix of white mulberry, black cherry, black locust, Sassafras, Ailanthus, hackberry and Siberian elm. The understory is dominated by shrubs - mostly multiflora rose with some Amur honeysuckle and a few black raspberry. Also present are hawthorn, crabapple, porcelainberry, oriental bittersweet, mugwort, pokeweed, common nightshade, plantain spp., bed straw, poison ivy, burdock, milkweed sp., giant ragweed, butter and eggs, and 3-seeded mercury. Hackberry, bitternut hickory, green ash, white mulberry, red oak, Norway maple, black cherry, Sassafras, black locust, and staghorn sumac are all regenerating. The unit contains many paths and rain gullies. There is a great deal of broken glass. The unit is a real mess with dumping, trash, partying, and feces all MCs in addition to invasives. This unit is a shortcut to rock outcrop party spots. The presence of mugwort throughout the unit differentiates it from unit 60.

**Unit:** 58  
**Acreage:** 0.177  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Cherry, black	<5' & 5-30'			Campfire/ party	Trash
Deciduous	Oak, black	all				Dumping
Phanerophytes	Sweetgum	5'-30'				
Slope	Sassafras	<5' & 5-30'				
Moist	Ivy, poison	<5' & 5-30'				
	Porcelainberry	<5' & 5-30'	Yes			

### Comments:

A woodland dominated by black cherry, black oak, sweetgum and Sassafras with scattered rock outcrops and an understory dominated by regenerating green ash, black cherry, and Sassafras, but also including a great deal of poison ivy and porcelainberry. Other species in this unit include Ailanthus, Rubus sp., Virginia creeper, mugwort, pokeweed, and Grass spp. The rock outcrops at the top of this slope are party areas and trash, dumping, and the porcelainberry are MCs. This unit has a very steep, boulder strewn slope.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 59  
**Acreage:** 0.357  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	all	Yes		Foot traffic	Trash
Deciduous	Rose, multiflora	<5' & 5-30'	Yes		Habitation	Dumping
Lianas	Oriental bittersweet	<5' & 5-30'	Yes			
Slope						
Dry/Moist						

### Comments:

Vineland of mostly porcelainberry and some oriental bittersweet. Multiflora rose is also very abundant and is climbing on trees. There is a patch of staghorn sumac, as well as hawthorn, catalpa, cottonwood, white mulberry, bitternut hickory, black cherry and regenerating staghorn sumac, white mulberry, bitternut hickory, and black locust. The herbs mugwort and jumpseed are also present. Illegal activity was observed on the large rock outcrop near the trail. The unit has more shrubs than unit 61 and no trees. The understory is impenetrable. MCs: Trash, dumping, habitations, and the invasives that dominate this unit.

**Unit:** 60  
**Acreage:** 0.361  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	all	Yes			Trash
Deciduous	Mulberry, white	<5' & 5-30'	Yes			
Phanerophytes	Cherry, black	<5' & 5-30'				
Slope	Maple, Norway	<5' & 5-30'	Yes			
Dry/Moist	Rose, multiflora	<5' & 5-30'	Yes			

### Comments:

A black locust forest with a mixed subcanopy of white mulberry, black cherry and Norway maple. The understory is dominated by regenerating Norway maple, white mulberry, black cherry, pin oak, bitternut hickory, hackberry, and American elm, but also includes a great deal of multiflora rose. Other species present in this unit include wineberry, black raspberry, porcelainberry, poison ivy, jumpseed, pokeweed, mugwort, and Grass spp. The unit has a patch of mugwort at the border with the ballfield, but none within the unit. This unit appears to be a big party spot and contains huge quantities of broken glass. MC: Trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 61  
**Acreage:** 0.914  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, black	>30' & 5-30'		Full-crown tree	Habitation	Trash
Deciduous	Oriental bittersweet	<5' & 5-30'	Yes			Dumping
Lianas	Porcelainberry	<5' & 5-30'	Yes			
Undulating	Hickory, bitternut	<5' & >30'				
Dry/Moist	Cherry, black	all				
	Ash, green	<5' & >30'				

### Comments:

Closed forest with dense vineland of oriental bittersweet and porcelainberry underneath a canopy of mostly black oak with some bitternut hickory, black cherry and green ash. Other tree spp. Present are hackberry, pin oak, sycamore, catalpa, and lots of Sassafras. In addition to previously mentioned vines the understory also contains poison ivy, Virginia creeper, wineberry, multiflora rose, blackberry sp., black raspberry, Japanese honeysuckle, pokeweed, jumpseed, white snakeroot, and mugwort. Bitternut hickory, Norway maple, black cherry, ash, Sassafras, sweetgum, and Ailanthus are all regenerating. This area is a HIGH priority for management - although vines dominated the understory they have not climbed the trees yet. In contrast to neighboring units, much of this unit appears undisturbed by partying, littering and traffic. The unit contains a small bowl near the north-south trail, created by rock outcrops and bordered on the east side by a wall of trees that block views from the trail. Trees are large and widely spaced. The unit is located where the north-south path widens and becomes grassy. MCs: Habitations and trash.

**Unit:** 62  
**Acreage:** 1.417  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	all	Yes			
Deciduous	Oriental bittersweet	all	Yes			
Lianas						
Slope						
Dry/Moist						

### Comments:

This unit is mostly porcelainberry and bittersweet with scattered trees throughout and a patch of mugwort by the trail. This patch is overgrowing the trail and is the tallest found in the park (>6 feet). Vines such as wineberry and oriental bittersweet are climbing the mugwort. Within the vineland there are two huge Tulip trees, one dead and covered in Grape sp., the other alive and being strangled by oriental bittersweet and porcelainberry. There are a few individuals of other tree species present within the sea of vines including black cherry, sycamore maple, staghorn sumac and a couple nearly dead ash. White mulberry, bitternut hickory, black cherry, sycamore maple, sassafras, black locust and Ailanthus saplings are also present. As you near the border with unit 46 the vines thin and have not yet consumed trees. MCs: Porcelainberry and oriental bittersweet have already covered most of this unit and are encroaching into adjacent units which are relatively intact closed forest of high conservation value.

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## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 63  
**Acreage:** 0.247  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Maple, sycamore	all	Yes			
Deciduous	Oriental bittersweet	all	Yes			
Lianas	Ivy, poison	all				
Slope	Porcelainberry	all	Yes			
Dry/Moist						

### Comments:

Woodland of sycamore maple with dense oriental bittersweet, porcelainberry, and poison ivy covering the floor and climbing most trees. Sycamore maple is by far the most common tree sp., however the following species are also present: hackberry, bitternut hickory (large), white mulberry, American elm, black cherry, red oak. Vines dominate understory and threaten trees in this unit and bordering units. Multiflora rose, wineberry, and black raspberry all form dense patches as well. Virginia creeper and regenerating bitternut hickory, sycamore maple, hackberry, and Ailanthus are all present. There are many dead trees covered in vines in this unit. There is a wrought iron fence along the plaza edge of this unit, which is bordered with dead trees. Mugwort and poison ivy are spreading from this unit onto the landing plaza. Thick vine growth obscures the view of the river from this unit.

**Unit:** 64  
**Acreage:** 0.825  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Hackberry	all			Foundation	
Deciduous	Cherry, black	all			Lamppost	
Lianas	Ash, green	>30' & 5-30'			Staircase	
Slope						
Dry/Moist						

### Comments:

A very mixed unit that is best classified as woodland. The most dominant species are hackberry, black cherry, and green ash. Bitternut hickory, white mulberry, black oak, pin oak, Norway maple, and sycamore maple are all found in parts of the unit. There are also patches of dead and alive Ailanthus. The understory includes regenerating bitternut hickory, Ailanthus, hackberry, and black cherry, but is dominated by oriental bittersweet and porcelainberry, which forms at least one area of vineland. There are rock outcrops in this unit as well as patches of herbs and shrubs that include wineberry, mugwort, pokeweed, sweet clover, multiflora rose, Rubus sp., & sparse Virginia creeper. MCs: Invasive vines.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 65  
**Acreage:** 0.148  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland Deciduous Phanerophytes Undulating Dry/Moist	Redbud Sumac sp. Cherry, black	5'-30' <5' & 5-30' 5'-30'		Planting site Foot traffic	

### Comments:

Former planting site of the Friends of Highbridge. Woodland of mainly redbuds, Sumac spp., shadbush, dogwood and one large black cherry. Canopy very low (8'). The following species were all planted in this area by the Friends of Highbridge: goldenrod spp., ironweed, Sedge spp., Aster spp., milkweed sp., white snakeroot, lamb's quarters, Rose spp., dogwood, fragrant sumac, staghorn sumac, and redbud. Porcelainberry, oriental bittersweet, and hedge bindweed are encroaching in many places within the and Japanese knotweed and Rubus sp. are resprouting on the slope below the pool lookout. In general, the area needs invasive removal. Woodchip mulch is present throughout most of the area.

**Unit:** 66  
**Acreage:** 0.644  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Geophytes Slope Dry/Moist	Maple, sycamore Locust, honey Elm, American Ailanthus Ash, green Mulberry, white	all >30' >30' >30' & 5-30' >30' 5-30' & >30'	Yes Yes Yes Yes	Other Habitation	

### Comments:

A closed forest dominated by sycamore maple with honey locust, American elm, Ailanthus, green ash, & white mulberry also common. There is also a large red oak, an eastern cottonwood, a few crabapple, & several staghorn sumacs, including one over 20' The understory is dominated by Japanese knotweed, but also includes regenerating hackberry, black cherry, green ash, sycamore maple, white mulberry & hawthorn. Oriental bittersweet, porcelainberry, poison ivy & Japanese honeysuckle are all present as are multiflora rose, Amur honeysuckle, mugwort & goldenrod. There is a rock streambed in this unit, as well as a current habitation. The Highbridge promenade is located between the two southernmost parts of this unit. MCs: Sycamore maple, Japanese knotweed and other invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 67  
**Acreage:** 0.342  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, black	all	Yes	Other		Erosion
Deciduous	Maple, Norway	>30' & 5-30'	Yes			Trash
Lianas	Planetree, London	>30'	Yes			Other
Undulating	Hackberry	5'-30'				
Moist						

### Comments:

This unit is a woodland dominated by black locust, Norway maple, London plane, and hackberry. Gaps in the canopy are due to a paved access road and a dead ash. Other trees present include American elm and white mulberry. In the understory black locust, slippery elm, Ailanthus, Norway maple, and sycamore maple are regenerating. During late summer, cucumber vine becomes more prominent. Japanese knotweed is also very common. Other species present in this unit's understory are wineberry, hedge bindweed, white snakeroot, wood sorrel, Asiatic dayflower, burdock, lamb's quarters, chickory, Grass spp., Sedge spp., great ragweed, evening primrose and Aster spp. MCs: Trash and erosion.

**Unit:** 68  
**Acreage:** 1.645  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scarcely Vegetated	Hackberry	5'-30'		Bridges		Road
Deciduous	Elm, slippery	5'-30'				
Hemicryptophytes	Japanese hops	<5'				
Level	Pokeweed	<5'				
Dry	Goldenrod	<5'				
	Mugwort	<5'				

### Comments:

The part of this unit under the Harlem River Drive ramp associated with the Hamilton Bridge consists of compacted soil that is severely eroded in some places. There are patches of vegetation, rubble, trash, gravel, and construction debris. Species present include: Asiatic dayflower, Grass sp., bush honeysuckle, lamb's quarter, dogbane, and Virginia creeper. The other section of the unit is beneath the Washington Bridge. This area is composed of compacted soil and concrete, with less rubble but equal amounts of trash. Species present include: white mulberry, smartweed, Asiatic dayflower, poison ivy, dandelion, and garlic mustard.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 69  
**Acreage:** 0.482  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Hackberry	<5' & 5-30'			Retaining wall	Habitation
Deciduous	Cherry, black	<5' & 5-30'				Trash
Phanerophytes	Oak, red	>30' & 5-30'				
Slope	Maple, sycamore	<5' & 5-30'	Yes			
Dry/Moist	Elm, American	<5' & 5-30'				

### Comments:

This unit exists on an extremely steep (est. 70 degrees) with a retaining wall at the bottom. It is a closed forest with a mix of hackberry, black cherry, red oak, sycamore maple and American elm. Other tree species present include honey locust, white mulberry and staghorn sumac. The understory is dominated by regenerating honey locust, hackberry, American elm, and white mulberry, but also includes *Rubus* spp., multiflora rose, Japanese knotweed, poison ivy, porcelainberry, oriental bittersweet, and Japanese honeysuckle. There are standing dead *Ailanthus* on the slope. The unit is distinguished from unit 66 in that sycamore maple are more sporadic. MCs: Trash, habitations, and invasives.

**Unit:** 70  
**Acreage:** 0.682  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, black	all	Yes		Campfire/ party	Trash
Deciduous	Mulberry, white	<5' & 5-30'	Yes		Foot traffic	
Chamaephytes	Maple, sycamore	all	Yes			
Slope	Oak, white	>30'				
Dry/Moist	Knotweed, Japanese	<5' & 5-30'	Yes			
	Hackberry	<5' & 5-30'				

### Comments:

Mixed woodland dominated by black locust with 2 large white oaks, sycamore maples of all sizes & medium sized white mulberry & hackberry. White mulberries are more common in the northern end of this unit, where there is also a patch of *Ailanthus*. Japanese knotweed dominates the understory, forming dense stands in canopy gaps, but allowing saplings of sycamore maple, black locust, white mulberry & hackberry in more shaded areas. Other species present in shaded areas include mugwort, burdock, Grass spp., Aster spp. & nightshades. The trail that runs through this unit was made on National Trails Day in 2003 and 2004. There are woodchips on the upper slope & other evidence of Japanese knotweed removal. There is a chainlink fence separating this unit from the ballfield. MCs: Japanese knotweed, sycamore maple and trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 71  
**Acreage:** 0.808  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Maple, sycamore	all	Yes	Road	Foot traffic	Erosion
Deciduous	Mulberry, white	all	Yes	Exotic planting		
Hemicryptophytes	Maple, Norway	all	Yes	Other		
Slope	Cherry, black	>30' & 5-30'				
Dry/Moist	Ash, green	>30'				

### Comments:

A woodland dominated by sycamore maple, white mulberry, Norway maple, black cherry, and green ash. Many of the gaps in this unit's canopy have been created by dead ash trees. The understory is a mix of herbs, bushes, and vines; however, the herbs, including mugwort, jumpseed and pokeweed, are most common. The vines oriental bittersweet, porcelainberry, and poison ivy are common and in the late summer cucumber vines blanket large areas of the unit. Multiflora rose, wineberry, Amur honeysuckle, and Japanese knotweed are all present in patches. This unit includes an old access road that water drains through and has been severely eroded. This erosion and invasives, probably the result of exotic plantings, are MC's.

**Unit:** 72  
**Acreage:** 1.138  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	<5' & 5-30'	Yes			Trash
Deciduous						
Phanerophytes						
Undulating						
Dry/Moist						

### Comments:

Several discrete patches of closed canopy black locust under which we often found evidence of illegal activity and often observed groups congregating; however, now that the surrounding fields (unit 75) have been cleared this activity may cease. In smaller patches, black locusts are under 20' tall, however in the largest most northern patches trees reach 30'. Staghorn sumac, black cherry, honey locust, white mulberry and poison ivy are also present in some sections. The understory is sparse overall and is dominated by regenerating black locust with some mugwort. Patches furthest away from the roads are very littered. MC: Trash.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 73  
**Acreage:** 0.116  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Oriental bittersweet	<5' & 5-30'	Yes			Trash
Deciduous	Porcelainberry	<5'	Yes			
Lianas	Ivy, poison	<5' & 5-30'	Yes			
Slope	Mugwort	<5'	Yes			
Dry/Moist	Rose, multiflora	<5'	Yes			
	Hackberry	<5' & 5-30'				

### Comments:

Open area with a mix of vines, herbs, saplings and shrubs, but clearly dominated by vines, in particular oriental bittersweet, porcelainberry, and poison ivy. Other common species include mugwort, multiflora rose, and hackberry. There is one very large hackberry and many large dead ashes. Sycamore maple, white mulberry, hackberry, Ailanthus, black cherry, and American elm are all regenerating. Other species in the understory include wineberry, Amur honeysuckle, Japanese knotweed, bittersweet nightshade jumpseed, Aster spp., pokeweed, white snakeroot and evening primrose. MCs: Invasives (vines and shrubs) and trash.

**Unit:** 74  
**Acreage:** 0.652  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Oriental bittersweet	<5' & 5-30'	Yes		Foot traffic	Erosion
Deciduous	Locust, black	<5' & 5-30'	Yes		Habitation	Dumping
Lianas	Cherry, black	<5' & 5-30'				Trash
Slope						
Dry/Moist						

### Comments:

Oriental bittersweet vineland with the larger trees in this unit already engulfed or in the process of being overtaken. The trees are mostly black locust and black cherry, and to a lesser extent white mulberry. There are a few regenerating pin oak, black cherry and hackberry, as well as some staghorn sumac and crabapple. Other species present include Japanese knotweed, Amur honeysuckle, poison ivy, Japanese honeysuckle, cucumber vine, bittersweet nightshade, and white snakeroot. There is no herb layer underneath the overtaken trees. This unit is on a steep slope and contains exposed rock as well as some paths made by inhabitants of this unit. These paths contain feces and extremely foul-smelling trash. Vines from this unit are encroaching on unit 76. MCs: Habitations, erosion, dumping, trash, drug use, and invasives (mainly oriental bittersweet).

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 75  
**Acreage:** 1.365  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Mugwort	<5' & 5-30'	Yes		Foot traffic	Dumping
Deciduous	Knotweed, Japanese	<5'	Yes		Campfire/ party	Trash
Geophytes	Dogbane	<5'			Other: drugs	
Undulating						
Dry/Moist						

### Comments:

This unit was bull dozed in october 2004. Prior to bull dozing, the unit was dominated by mugwort, with large patches of dogbane and Japanese knotweed, and to a lesser extent dodder and lamb's quarter. Also present in this unit were hedge bindweed common milkweed, burdock, horse nettele, Queen Anne's lace, grass spp., goldenrod spp., Aster spp., ragweed and other herbs. There was also a patch of staghorn sumac. Everything except for the sumacs was bulldozed, however site visits in 2005 suggested that many of the herbaceous plants were growing back, in particular mugwort, however the herbs were not nearly as high or dense. Also, while this unit had been full of habitations and party spots with lots of trash, feces, and drug use these activities have no moved further south along the trail from this unit and also down the hill into units 74 and 72.

**Unit:** 76  
**Acreage:** 0.534  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, sycamore	all	Yes		Foot traffic	Trash
Deciduous	Locust, black	all	Yes			
Chamaephytes	Rose, multiflora	<5' & 5-30'	Yes			
Slope						
Dry/Moist						

### Comments:

Closed forest with black locust in canopy and sycamore maples forming a dense subcanopy. In addition there are 2 large cottonwoods and a few white mulberry and American elm. The understory is dominated by shrubs, mostly multiflora rose, but also honeysuckle and a little wineberry. The following trees are regenerating: sycamore maple, black cherry, and bitternut hickory. Japanese honeysuckle and medium to large woody oriental bittersweet vines are also common in this unit. Garlic mustard and white snakeroot are sparsely distributed. There is an abundance of rock rubble leading up to the Harlem River Drive Ramp. Some dead logs are present throughout the unit. Dumping is a concern; there is an abundance of rebar and rusted metal. MCs: Trash, sycamore maple, multiflora rose.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 77  
**Acreage:** 0.218  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Phragmites	<5'	Yes		Campfire/ party	Erosion
Deciduous	Mugwort	<5'	Yes			Soil compaction
Geophytes	Maple, sycamore	<5' & 5-30'	Yes			Trash
Level	Lambs quarter	<5'	Yes			
Wet	Jewelweed	<5'				
	Annual wormwood	<5'	Yes			

### Comments:

This unit is located under an elevated highway ramp & has a manhole and water running through it explaining why this area, unlike other areas under the highway, contains a diverse fairly dense stand of vegetation. The unit has some standing water on the path, which is 75% covered with vegetation. The soil is compacted and eroded and there are signs of gatherings, including trash. The vegetation in this unit is patchy. Phragmites and mugwort are the most common species; however, there is one medium-sized sycamore maple and regenerating Ailanthus, sycamore maple and cottonwood. Lamb's quarter's, jewelweed, and annual wormwood are also very common and the following species are present: black willow, matrimony vine, porcelainberry, bittersweet nightshade, pokeweed, smartweed, devil's beggar tick, and Grass spp.

**Unit:** 78  
**Acreage:** 0.588  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Mugwort	<5'	Yes		Foot traffic	Soil compaction
Deciduous						Trash
Hemicryptophytes						
Undulating						
Moist						

### Comments:

This unit is located to the east of the area under the road from the Harlem River Drive to the Hamilton Bridge and west of a retaining wall that elevates it above a managed lawn and the Harlem River Drive and includes an overgrown eroded road. It is a herbaceous unit dominated by mugwort and other herbs including clover, Grass spp., Sedge spp., Goldenrod sp., plantains, devil's beggar tick, and dogbane. Crabapple and regenerating sycamore maple, staghorn sumac, Ailanthus and white mulberry are also present. Other species in this unit include wineberry, oriental bittersweet, hedge bindweed, bittersweet nightshade and cucumber vine. This unit contains a manhole in the south, which smells very bad (sewage?). MCs: soil compaction, trash and invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 79  
**Acreage:** 0.207  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Mulberry, white	all	Yes		Foot traffic	Trash
Deciduous	Rose, multiflora	<5' & 5-30'	Yes			
Chamaephytes	Sumac, staghorn	<5' & 5-30'				
Undulating						
Moist						

### Comments:

This unit contains running water from an overflowing sewer structure and a woodland dominated by white mulberry with multiflora rose and staghorn sumac also common and wineberry and Rubus sp. also forming dense patches. Mugwort, Phragmites and regenerating white mulberry and staghorn sumac are also present. MCs: Foot traffic, trash and invasive shrubs.

**Unit:** 80  
**Acreage:** 0.641  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, sycamore	all	Yes			Dumping
Deciduous	Elm, American	all				
Lianas	Mulberry, white	5'-30'	Yes			
Slope	Maple, Norway	<5' & 5-30'	Yes			
Dry/Moist	Locust, honey	all	Yes			
	Oak, black	>30'				

### Comments:

Closed forest dominated by sycamore maple, with American elm, white mulberry, Norway maple, honey locust and black oak also important in the canopy. Green ash, black cherry and Washington hawthorn are also present. There are also large patches of oriental bittersweet in the canopy, particularly in association with white mulberry. The understory is dominated by vines such as oriental bittersweet, Japanese honeysuckle, and Virginia creeper. Regenerating sycamore maple, Norway maple, American elm, green ash, and honey locust are all present in the understory, as are multiflora rose, Amur honeysuckle, mugwort, and garlic mustard. MCs: Dumping and invasive vines.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 81  
**Acreage:** 0.544  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	all	Yes	Retaining wall	Foot traffic	Trash
Deciduous	Locust, honey	all	Yes		Habitation	Vandalism
Phanerophytes	Elm, American	<5' & 5-30'				
Slope						
Dry/Moist						

### Comments:

Closed forest dominated by black locust, with a great deal of honey locust and American elm. Other tree species present include Norway maple, Ginko, white mulberry, and crabapple. The understory is dominated by saplings of black cherry, green ash, black locust, pin oak, and hackberry. Japanese honeysuckle and multiflora are both very common in the understory. Aster spp., garlic mustard, mugwort, white snakeroot, Goldenrod sp., and wild strawberry are also present. This area is bordered by retaining wall on both the east and west and contains trash, a habitation, and invasives.

**Unit:** 82  
**Acreage:** 0.334  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, black	all	Yes	Iron fence	Habitation	Trash
Deciduous	Cherry, black	all			Drug activity	
Phanerophytes	Mulberry, white	<5' & 5-30'	Yes			
Slope	Mugwort	<5'	Yes			
Dry						

### Comments:

Although classified as woodland this unit is really a mosaic of closed forest, woodland, vineland, and scrub. Closed forest portions are located at the northern end of the unit. The herbaceous layer thickens from south to north. Black locust and black cherry dominate the canopy and the understory is dominated by large patches of regenerating staghorn sumac, black locust and white mulberry, as well as scattered black cherry saplings. Mid-sized white mulberry and mugwort are also very common. Other species in this unit include Ailanthus, stilt grass, Aster sp., lamb's quarters, smartweed, common nightshade and plantain spp. At the northern end of the unit there appears to be drug activity, prostitution and a habitation. A wrought iron fence borders the chain-link fence along the basketball courts neighboring Quisqueya Playground. MCs: Trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 83  
**Acreage:** 0.855  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Elm, Siberian	<5' & 5-30'	Yes	Exotic planting	Foot traffic	Trash
Deciduous	Maple, silver	>30'			Drug activity	
Phanerophytes	Mulberry, white	<5' & 5-30'	Yes			
Undulating	Locust, honey	<5' & >30'	Yes			
Dry/Moist	Hackberry	<5' & >30'				
	Ailanthus	5-30' & >30'	Yes			

### Comments:

The sections in this unit are managed lawns that have been left fallow. The southern section surrounds a large rock formation and is enclosed by a chained link fence, along with a large outcrop (unit 9) and athletic courts (unit 6). Elevation climbs northward, so the unit is elevated from the road at the north end. Various sections are dominated by Siberian elm and silver maple, which were probably planted, however honey locust, white mulberry, hackberry, and Ailanthus are very common too and were probably not planted. Other exotics were planted in this unit, however they are not readily accessible. The understory is dominated by regenerating white mulberry, Ailanthus and Siberian elm. The understory also includes Spanish needles, foxtails sp., smartweed, Sedge spp., and Grass spp. Foot traffic and trash are both problems in this unit. As of 7/05 the herbaceous layer in the north section of the unit has been mowed.

**Unit:** 84  
**Acreage:** 0.552  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	<5' & >30'	Yes	Exotic planting		Trash
Deciduous	Locust, honey	<5' & >30'	Yes			
Phanerophytes	Oak, red	5'-30'				
Undulating	Cherry, black	<5' & 5-30'				
Dry/Moist						

### Comments:

Closed forest dominated by black locust and honey locust with red oak and black cherry also common. Chinese scholar tree and staghorn sumac are also present. The largest Chinese scholar trees were probably planted and this area may have been landscaped one time. The understory is dominated by regenerating locusts, hackberry, Ailanthus, staghorn sumac, and Chinese scholar tree. Other species present include multiflora rose, poison ivy, hedge bindweed, Japanese honeysuckle, Queen Anne's lace, horsetweed, mullein, Goldenrod sp., evening primrose, red clover, white snakeroot, Aster spp., Grass spp., and mugwort. Trash is a MC for this unit. The unit is completely surrounded by major roads.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 85  
**Acreage:** 0.155  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, honey	all	Yes	Fence	Foot traffic	Trash
Deciduous	Mulberry, white	>30' & 5-30'	Yes			
Hemicryptophytes	Ginkgo	5'-30'	Yes			
Undulating	Honeysuckle, Amur	5'-30'	Yes			
Dry/Moist	Maple, Norway	5'-30'	Yes			
	Cherry, black	5-30'				

### Comments:

Woodland dominated by honey locust and white mulberry with ginkgo, Norway maple, and black cherry also present. The understory includes regenerating hackberry and honey locust as well as a couple planted Amur honeysuckle and privet shrubs; however, it is dominated by herbs such as garlic mustard, Spanish needles, ragweed, and Grass spp. Multiflora rose, poison ivy, young Japanese honeysuckle and oriental bittersweet are also present in this unit. This woodland borders a managed lawn and herbaceous slope, and includes a fence. Tree roots are starting to break up the foot path. Oriental bittersweet and poison ivy are extensive and are growing over the path. Foot traffic (cutting through vegetation) and trash are both MC's for this unit.

**Unit:** 86  
**Acreage:** 0.102  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Knotweed, Japanese	5'-30'	Yes			Trash
Deciduous	Cherry, black	5'-30'				
Geophytes	Ash, green	>30'				
Slope						
Dry/Moist						

### Comments:

Expanding Japanese knotweed dominates this area with scattered black cherry and a large green ash. Although Japanese knotweed dominates the understory, saplings of white mulberry and hackberry are also present, as well as pokeweed, enchanter's nightshade and wild strawberry. MCs: Japanese knotweed and trash.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 87  
**Acreage:** 1.332  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	all	Yes			
Deciduous	Mulberry, white	all	Yes			
Hemicryptophytes	Maple, Norway	all	Yes			
Slope	Cherry, black	>30'				
Dry/Moist						

### Comments:

This unit is distinguished from the units to the north and south by the black locust in the canopy. It is a mixed closed forest of white mulberry, black cherry, and Norway maple, with only Norway maple regenerating. A grove of Ailanthus and some crabapple are also present. The understory varies among vines (mostly poison ivy, but also oriental bittersweet and porcelainberry), shrubs (Rubus sp. and multiflora rose), and herbs (mostly Aster spp., but also mugwort). The unit has an especially dense understory and is very shady. Several trees are marked with red spraypaint. MCs: Invasives.

**Unit:** 88  
**Acreage:** 0.071  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, Norway	all	Yes			
Deciduous						
Chamaephytes						
Slope						
Dry						

### Comments:

Closed forest dominated by many young Norway maple with Amur honeysuckle dominating the understory. There are also a few hackberry, Norway maple, red maple, sycamore maple, and white mulberry saplings. Japanese honeysuckle is present in the Wood chips and dead logs are also present. Poison ivy is present on the border with unit 4 and is climbing down to the road. MCs: Norway maple and other invasives as well as vines creeping down from the retaining wall and onto path.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 89  
**Acreage:** 0.577  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Cherry, black	all			Exotic planting	Foot traffic
Deciduous	Locust, honey	<5' & 5-30'	Yes			Trash
Phanerophytes	Hackberry	<5' & 5-30'				
Slope	Honeysuckle, Amur	<5' & 5-30'	Yes			
Dry/Moist						

### Comments:

This unit is a scrub of mostly mid-sized black cherry, honey locust, hackberry and Amur honeysuckle with some black locust, green ash, staghorn sumac, and white mulberry also present. The understory is dominated by regenerating hackberry, honey locust, black cherry, white mulberry, green ash, and staghorn sumac, but also includes lots of multiflora rose and Amur honeysuckle. Porcelainberry, poison ivy, mugwort, garlic mustard, and Aster spp. are common. There are patches of exposed rock throughout this unit and a herbaceous community on the edge of the unit that includes grasses, curly dock, Asiatic dayflower, Queen Anne's lace, Potentilla sp., Japanese honeysuckle, and Virginia creeper. The understory and shrub layers are very dense. The northern portion of this unit has a 15 ft rock face that leads up to underneath the overpass. A DEP access road cuts through the unit, with a cliff bordering the west side of the road. MCs: Trash and Amur honeysuckle.

**Unit:** 90  
**Acreage:** 0.284  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Cherry, black	>30' & 5-30'			Exotic planting	Foot traffic
Deciduous	Ash, green	all				
Hemicryptophytes	Hackberry	>30'				
Undulating	Oak, red	>30'				
Dry/Moist	Chinese scholar tree	>30'	Yes			
	Crabapple	5-30'				

### Comments:

Closed forest dominated by black cherry, green ash, hackberry, red oak, Chinese scholar tree, and crabapples with a few box elder. The understory includes regenerating white mulberry, green ash, and hackberry, but is dominated by herbs, such as jumpseed, white snakeroot, pokeweed, heart-leaved aster, Bidens bipinnata, mugwort, Grass sp., and garlic mustard. Vines present include field bindweed, poison ivy, Japanese honeysuckle, oriental bittersweet, and porcelainberry. Other species present in this unit include Indian strawberry, multiflora rose, Amur honeysuckle, winged euonymus and a cluster of mock oranges. MC's include exotic plantings (euonymus, mock orange, and scholar trees) and foot traffic.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 91  
**Acreage:** 0.216  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Sassafras	all				
Deciduous	Locust, black	>30'	Yes			
Phanerophytes	Elm, Siberian	>30'	Yes			
Undulating	Ash, green	<5' & 5-30'				
Dry/Moist	Cherry, black	<5' & 5-30'				
	Crabapple	5-30'				

### Comments:

Closed forest dominated by Sassafras with some black locust, Siberian elm, green ash, black cherry and crabapple. The understory is dominated by regenerating Sassafras, green ash, black cherry, black locust, hackberry, Chinese scholar tree, and Siberian elm. The understory also includes Amur honeysuckle, winged eunymus, hawthorns, poison ivy, jumpseed, garlic mustard, white snakeroot, pokeweed, Virginia creeper, Asiatic dayflower, and white wood aster. The unit is notable for the lack of litter and illegal activity. Some trees are marked with spraypaint. MC: Overall this unit is very healthy, but invasives could become a problem.

**Unit:** 92  
**Acreage:** 0.241  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Elm, slippery	all		Exotic planting	Foot traffic	Trash
Deciduous	Maple, Norway	all	Yes			
Chamaephytes	Cherry, black	>30' & 5-30'				
Undulating	Oak, red	<5' & 5-30'				
Dry/Moist	Hackberry	<5' & 5-30'				
	Honey locust	5-30'	Yes			

### Comments:

Woodland dominated by slippery elm and Norway maple with some black cherry, red oak, hackberry, and honey locust. The understory includes regenerating white mulberry, red oak, Sassafras, Norway maple, slippery elm, hackberry, black locust, and however, the understory is dominated by multiflora rose, and Amur honeysuckle, which may have been planted. Other species in the understory include Japanese honeysuckle, oriental bittersweet, porcelainberry, poison ivy, Washington hawthorn (planted?), white snakeroot, Aster spp., Asiatic dayflower, pokeweed, jumpseed, and bittersweet nightshade. This is a particularly shady unit, but with a dense herbaceous layer. MCs: Trash, Norway maple, invasive vines and bushes.

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## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 93  
**Acreage:** 0.068  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Cherry, black	5'-30'			Exotic planting	Foot traffic
Deciduous	Hackberry	<5' & 5-30'				
Hemicryptophytes	Locust, black	<5' & 5-30'	Yes			
Slope						
Dry/Moist						

### Comments:

These two areas are the result of NYRP planting, however they include more exotic species than many of their other plantings. The unit is best classified as herbaceous, despite the presence of small and mid-sized black cherry, hackberry and black locust, as well as regenerating white mulberry. The herbaceous layer includes Queen Anne's lace, black-eyed Susan, Virginia creeper, foxtails sp., mugwort, and evening primrose. As of 7/05, Japanese knotweed is present in the unit.

**Unit:** 94  
**Acreage:** 0.548  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, American	all				Trash
Deciduous	Ash, green	<5' & >30'				Other
Hemicryptophytes	Tulip tree	>30'				
Slope	Oak, black	>30'				
Dry/Moist	Locust, honey	>30' & 5-30'	Yes			
	Cherry, black	<5' & 5-30'				

### Comments:

This unit is located directly north of the Washington bridge and east of the McNally Plaza and is of suprisingly good quality given its proximity to the bridge and the poor quality of neighboring units. The unit sits below street level, with the sidewalk and chain-link fence surrounding the northwest end at canopy level. On the south the unit is bordered by a retaining wall. This unit consists of a closed forest on a slope that is dominated by American elm, ash, tulip, and black oak with honey locust and black cherry also common and large sweetgum, white oak, hackberry, and white mulberry also present. A number of ash in the canopy have died and will eventually fall. The understory is dominated by herbs, such as white snakeroot, 3-seeded mercury, heart-leaved aster, giant ragweed, woodland sunflower, white wood aster, jumpseed, Asiatic dayflower, Spanish needles, smartweed, and pokeweed. Understory also includes multiflora rose, Amur honeysuckle, black raspberry, Virginia creeper, poison ivy, porcelainberry, Japanese hops, mugwort, and regenerating Norway maple, hackberry, black locust, American elm, white mulberry, and black cherry. The unit has a path with stairs leading through it. At the south end it passes under the overpass. MCs: Trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 95  
**Acreage:** 0.259  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Mugwort	<5'	Yes	Stairs		
Deciduous	Daisy fleabane	<5'	Yes	Retaining wall		
Lianas	Hops, Japanese	<5'	Yes	Road		
Undulating	Snakeroot, white	<5'				
Moist						

### Comments:

Earlier in the summer, mugwort and daisy fleabane dominated this unit, however Japanese hops had grown over everything by the end of the summer. White snakeroot is also common. There are a few large Norway maples and medium sized black cherries around the stairs in the more eastern of the sections. Virginia creeper is growing on retaining wall that borders this unit and the access road. Other species present in this unit include giant ragweed, Bidens frondosa, evening primrose, Grass spp., ragweed, Boston ivy, and regenerating American elm, white mulberry, and black willow. MCs: Invasives.

**Unit:** 96  
**Acreage:** 0.158  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Smartweed	<5' & 5-30'	Yes	NYRP plantings		Trash
Deciduous	Sumac sp.	<5'				
Hemicryptophytes						
Undulating						
Moist						

### Comments:

A former NYRP planting site. This unit is dominated by herbs, in particular smartweed, Grass spp., mugwort, Aster spp., Hyssop sp., Goldenrod spp., white snakeroot, and wild columbine, but also includes a great deal of regenerating staghorn sumac and some sweetgum, white mulberry, and several American elm saplings. Hedge bindweed and Amaranth sp. are also present. MCs: Trash is present and invasives are taking over planting site.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 97  
**Acreage:** 0.055  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Porcelainberry	<5'	Yes			
Deciduous	Mugwort	<5'	Yes			
Lianas	Rubus spp.	<5'				
Slope	Snakeroot, white	<5'				
Dry/Moist	Elm, American	<5'				
	Grass spp.	<5'				

### Comments:

This unit is partially shaded by large trees from neighboring units but is mostly located in a canopy gap. The unit is dominated by herbs, but also contains a great deal of porcelainberry and Rubus spp., including black raspberry, at the top of the slope. Mugwort, white snakeroot, Grass spp. And American elm saplings are also common. Other species in this unit include oriental bittersweet, Japanese honeysuckle, Grape spp., poison ivy, pokeweed, Goldenrod spp., white wood aster, bittersweet nightshade jumpseed. American elm, black cherry, Norway maple, hackberry, Ailanthus and white mulberry are all regenerating. This unit contains many insects including praying mantis. MCs: Invasives, in particular porcelainberry, which could take over this unit.

**Unit:** 98  
**Acreage:** 0.183  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Cherry, black	all			Fence	
Deciduous	Maple, Norway	all	Yes			
Lianas	Oak, red	>30'				
Undulating	Elm, American	<5' & 5-30'				
Dry/Moist						

### Comments:

The canopy of this unit varies in height and is dominated by black cherry, Norway maple, and red oak. The subcanopy includes American elm, black cherry, Norway maple, and a single Tulip tree. The understory is a mixture of vines, saplings, and shrubs. The most common vines are Japanese honeysuckle and poison ivy, however porcelainberry and oriental bittersweet are also present in substantial quantities. White mulberry, hackberry, black cherry, American elm, Norway maple, and ash are all regenerating in this unit. Other species present in this unit include multiflora rose, Rubus sp., Asiatic dayflower, and Aster spp. MCs: Norway maple, multiflora rose, and invasive vines.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 99  
**Acreage:** 0.817  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Mugwort	<5'	Yes			
Deciduous	Hedge bindweed	<5'	Yes			
Geophytes	Fern spp.	<5'				
Level	Hops, Japanese	<5'	Yes			
Moist	Knotweed, Japanese	<5'	Yes			

### Comments:

A herbaceous strip bordering the Harlem River Drive. It is dominated by mugwort, but also includes regenerating Ailanthus and black locust, Japanese knotweed, Virginia creeper, Japanese hops, poison ivy, hedge bindweed, fern spp., giant smartweed, sedge spp., Grass spp., common milkweed, ironweed, Plantago spp., and evening primrose. The understory contains a great deal of regenerating black locust. Phragmites is present near the retaining wall at the western edge of the unit. There are medium and large trees along the retaining wall as well. The unit is enclosed by a chain-link fence.

**Unit:** 100  
**Acreage:** 0.166  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Mugwort	<5'	Yes	Manholes		Erosion
Deciduous	Hops, Japanese	<5' & 5-30'	Yes	Fire hydrant		Trash
Lianas						
Level						
Moist						

### Comments:

This unit is located at the bottom of a cliff and is adjacent to a DEP parking lot and is often used for overflowing parking. It is dominated by mugwort. However there is also a large patch of smartweed. During the late summer Japanese hops covered most of this unit. Within this unit there is a mid-sized cottonwood, and also Siberian elm, American elm, Ailanthus and planted chokecherry and black willow. Also present in this unit are hedge bindweed, pokeweed, Aster spp. and Phragmites. The edge of the paved area shows disturbance by construction vehicles - tire tracks, muddy ruts, and trash. There are scattered manholes in the unit that are mostly overgrown with vegetation. However, as of 7/05, there was a path cut through the mugwort leading to one of the manholes. There is a fire hydrant on the edge of the paved area, and a fence bordering the southern edge.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 101  
**Acreage:** 0.518  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Honeysuckle, Japanes	<5' & 5-30'	Yes		Foot traffic	
Deciduous	Porcelainberry	<5' & 5-30'	Yes			
Lianas	Sumac sp.	<5' & 5-30'				
Slope	Ailanthus	5'-30'	Yes			
Dry/Moist						

### Comments:

This mixed woodland is growing on a very steep slope with multiple unmapped rock outcrops. The most common tree spp. are staghorn sumac and Ailanthus with a few sweetgum and regenerating white mulberry, hackberry, staghorn sumac, Ailanthus, ash, and American elm. The understory is dominated by vines - porcelainberry in the north, Japanese honeysuckle in the south, and oriental bittersweet along the top slope of the unit. Grape sp. and Virginia creeper are also present. Other species include the Hop's tree, dense areas of Rubus sp., Asiatic dayflower and mugwort. MCs: Invasive vines.

**Unit:** 102  
**Acreage:** 0.164  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, Norway	all	Yes		Foot traffic	Trash
Deciduous	Cherry, black	all				
Geophytes	Oak, red	<5' & >30'				
Slope	Elm, Siberian	>30'	Yes			
Dry/Moist	Rose, multiflora	<5'	Yes			
	Porcelainberry	<5'	Yes			

### Comments:

Closed forest dominated by Norway maple with some black cherry and red oak and a few Siberian elms. The understory is sparse and where present consists of multiflora rose or poison ivy with some Japanese honeysuckle and porcelainberry. Porcelainberry is prevalent on the top of the slope, bordering the footpath. Other Species include American elm, ash, Norway maple, and red oak. MCs: Trash, Norway maple, and other invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 103  
**Acreage:** 0.379  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Goldenrod spp.	<5' & 5-30'		Plantings		
Deciduous	Porcelainberry	<5' & 5-30'	Yes			
Hemicryptophytes	Mugwort	<5'	Yes			
Undulating						
Dry/Moist						

### Comments:

A herbaceous unit alongside a paved trail that includes planted areas. This unit is dominated by Goldenrod spp., but also includes sizable patches of porcelainberry and cucumber vines as well as a great deal of mugwort. Japanese hops is also common. Pin oak, white mulberry, black cherry and Ailanthus are regenerating. MC: porcelainberry and mugwort appear to be taking over this unit.

**Unit:** 104  
**Acreage:** 0.093  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Mulberry, white	<5' & 5-30'	Yes			Trash
Deciduous	Maple, Norway	<5' & 5-30'	Yes			
Phanerophytes	Cherry, black	<5' & 5-30'				
Slope	Ailanthus	<5' & 5-30'	Yes			
Dry/Moist	Oriental bittersweet	<5' & 5-30'	Yes			
	Porcelainberry	<5' & 5-30'	Yes			

### Comments:

Woodland dominated by white mulberry and Norway maple, with black cherry, Ailanthus, oriental bittersweet, and porcelainberry also present. The understory is dominated by regenerating white mulberry, Norway maple, and hackberry. It also contains a great deal of mugwort, as well as some Amur honeysuckle, multiflora rose, cucumber vine, poison ivy, garlic mustard, Goldenrod sp., white snakeroot, and pokeweed. This unit is densely vegetated compared to surrounding units. MCs: Trash, invasive trees and vines.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 105  
**Acreage:** 0.101  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Hemicryptophytes Slope Dry/Moist	Elm, Siberian	all	Yes			Trash Dumping

### Comments:

Closed forest of Siberian elm. The understory includes a great deal of regenerating white mulberry as well as some regenerating hackberry, Norway maple, and black cherry; however, herbs dominate the understory. These herbs include garlic mustard, Aster spp., bittersweet nightshade, mugwort, giant ragweed, and a dense patch of white snakeroot near the retaining wall on the western edge of this unit. The unit also includes multiflora rose, Amur honeysuckle, poison ivy, and oriental bittersweet, as well as exposed rock. Unit is identifiable by presence of many elms. MCs: Trash and dumping.

**Unit:** 106  
**Acreage:** 0.158  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland Deciduous Geophytes Undulating Dry/Moist	Ailanthus Elm, Siberian Locust, black Mulberry, white Elm, American	all all <5' & 5-30' <5' & 5-30' <5' & 5-30'	Yes Yes Yes Yes	Retaining wall		

### Comments:

A rock retaining wall of runs along most of this unit, elevating it above the DEP access road. It is a woodland with large groves of Ailanthus and Siberian elm, as well as black locust, white mulberry and American elm. The two main wooded areas are divided by a patch of Japanese hops and mugwort. Overall the understory is dominated by Japanese knotweed and mugwort. Other species in this unit include staghorn sumac, red maple, poison ivy, Japanese honeysuckle, porcelainberry, hedge bindweed, Solidago sp., Aster spp., smartweed, jewelweed and regenerating staghorn sumac, Ailanthus, black locust, and American elm. Vegetation is growing over the retaining wall and onto access road, including trees and vines.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 107  
**Acreage:** 0.325  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Cherry, black	all				Trash
Deciduous	Maple, Norway	all	Yes			
Hemicryptophytes	Raspberry, black	<5'				
Slope	Sassafras	all				
Dry/Moist	Mulberry, white	all	Yes			

### Comments:

Shells in this unit indicate that it may have been a shell midden site. The unit itself is a closed forest dominated by black cherry & Norway maple with some Sassafras & white mulberry & one large Kentucky coffee tree. The understory includes lots of black raspberry & porcelainberry, however herbs are most dominant. These herbs include wood sorrel, pokeweed, white snakeroot, enchanter's nightshade, Goldenrod sp., Grass sp., mugwort, jumpweed, Bidens sp., & garlic mustard. Other spp.: Rubus sp., Strawberry sp., Amur honeysuckle, multiflora rose, Devil's walking stick, Grape sp., poison ivy, Virginia creeper, oriental bittersweet, Japanese honeysuckle & regenerating Norway maple, ash, hackberry, red & pin oak, Sassafras, & mulberry. The upslope edge of this unit is bounded by a retaining wall and Laurel Hill Terrace. The unit is easily distinguished from unit 103 by the presence of a canopy.

**Unit:** 108  
**Acreage:** 0.111  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Phragmites	<5' & 5-30'	Yes			
Deciduous						
Geophytes						
Level						
Moist						

### Comments:

Large stand of Phragmites with porcelainberry and hedge bindweed starting to penetrate into stand from edges. Few mugwort under Phragmites along edge. Grape vine also sparsely weaving through stand. The water for the phragmites is probably seeping from a marshy area to the north which is fed by a stream and from which water flows out and onto the DEP access road (see stream map).

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 109  
**Acreage:** 0.865  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	<5' & 5-30'	Yes			Trash
Deciduous	Cucumber vine	<5' & 5-30'				
Lianas	Mugwort	<5'	Yes			
Slope						
Dry/Moist						

### Comments:

Vineland dominated by porcelainberry and cucumber, with mugwort common underneath vines. The following species are regenerating: white mulberry, Norway maple, honey locust, and black locust. Other species in this unit include black raspberry, lamb's quarters, great ragweed, common ragweed, pigweed, pokeweed, jumpseed, Asiatic dayflower, Grass spp., and Sedge spp. Few trees remain due to vines. MC: Trash, porcelainberry and mugwort.

**Unit:** 110  
**Acreage:** 0.208  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Mulberry, white	all	Yes	NYRC planting		Trash
Deciduous	Maple, Norway	all	Yes			
Geophytes	Maple, red	>30'				
Slope	Elm, American	<5' & 5-30'				
Dry/Moist						

### Comments:

Woodland dominated by white mulberry, Norway maple, red maple, and American elm with a mixed mostly healthy understory of crabapple, elderberry, multiflora rose, maple-leaved viburnum, blackhaw, field bindweed, jumpseed, white snakeroot, pokeweed, cardinal flower, jewelweed, bull thistle, Aster spp., pigweed, Sedge spp., Grass spp., and enchanter's nightshade. Porcelainberry, oriental bittersweet, and cucumber vine are also present and choking some trees. This area borders an area planted with native species (unit 112). There is a fallen mulberry very near the path in the south part of the unit. MCs: Invasive vines and some trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 111  
**Acreage:** 0.193  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Crabapple	5'-30'		Exotic planting	
Deciduous	Ilex glabra	<5'			
Chamaephytes	Spirea spp.	<5'			
Slope					
Dry/Moist					

### Comments:

Densely planted ornamental area dominated by crabapple, inkberry and Spirea spp. and classified as scrub. Other planted species include Japanese Spirea, oak-laved hydrangea, cottoneater, climbing hydrangea, lilac, cranberry viburnum, wild columbine, and wrinkled rose. Planted species are competing with non-planted species including regenerating white mulberry and black locust, as well as black raspberry, cucumber vine, porcelainberry, bindweed, pokeweed, evening primrose, bull thistle, butter and eggs, dogbane, and foxtail grass.

**Unit:** 112  
**Acreage:** 0.338  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Mulberry, white	<5' & 5-30'	Yes	NYRP planting	
Deciduous	Sweetgum	5'-30'			
Phanerophytes	Arrowwood	<5' & 5-30'			
Slope	Oak, black	<5'			
Dry/Moist	Asters	<5'			
	Milkweed	<5'			

### Comments:

This unfenced NYRP planting site is a herbaceous area dominated by mid-sized and regenerating white mulberry, black oak, sweetgum, Sassafras and arrowwood, but also including a great deal of Aster spp. (including New England aster) and milkweed. species present in this unit include two small Kentucky coffee trees, cucumber vines, Japanese hops, porcelainberry, jewelweed, Goldenrod sp., moth mullein, evening primrose, cardinal flower and daisy fleabane. This unit contains many areas of dense herbaceous planting.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 113  
**Acreage:** 0.317  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Elm, American	<5' & 5-30'			NYRC planting	
Deciduous	Locust, black	<5' & 5-30'	Yes			
Phanerophytes	Cottonwood, Eastern	<5' & 5-30'				
Level	Ailanthus	<5' & 5-30'	Yes			
Moist	Willow, black	5'-30'				

### Comments:

This woodland consists of a strip of trees that border the east side of the DEP access road. American elm and black locust dominate, however cottonwood, Ailanthus, and black willow are also common and white mulberry and Siberian elm are present. The understory is dominated by regenerating American elm, black locust, Ailanthus and Siberian elm. Other species present in the understory include multiflora rose, Japanese knotweed, Virginia creeper, mugwort, dogbane, mullein, and wild lettuce. Black willows and Siberian elms were planted. MCs: Invasives

**Unit:** 114  
**Acreage:** 0.319  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, American	all			Retaining wall	
Deciduous	Cottonwood, Eastern	>30'				
Phanerophytes	Locust, black	all	Yes			
Undulating	Boxelder	<5' & 5-30'				
Moist						

### Comments:

A closed forest of American elm, black locust, and box elder, with a patch of cottonwood. The understory is dominated by saplings of American elm, black locust, Norway maple and sycamore maple. Japanese knotweed is also common in the understory and there is a large patch of stinging nettles in the southeast section of the unit. Bittersweet nightshade, Virginia creeper, Japanese honeysuckle, and multiflora rose are all present in this unit. There is a tall retaining wall (15'-20') on the eastern border. MCs: Invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 115  
**Acreage:** 0.048  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Cottonwood, Eastern	>30'		NYRP planting	
Deciduous	Smartweed	<5' & 5-30'			
Hemicryptophytes	Jewelweed	<5'			
Level	Knotweed, Japanese	<5'	Yes		
Wet					

### Comments:

NYRP planting site. This wetland is dominated by smartweed and jewelweed, but also contains a large cottonwood and some Japanese knotweed. Rose sp., buttonbush, spicebush, and other spp. have been planted. The following species were not planted, but are now common: oriental bittersweet, stinging nettle, pokeweed, Phragmites, and Grape sp. There are 3 small sweetgums on the unit edge and regenerating white mulberry and American elm within the unit. MC: Without management this area may revert to Phragmites and oriental bittersweet.

**Unit:** 116  
**Acreage:** 1.308  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Oriental bittersweet	all	Yes		Dumping
Deciduous					Trash
Lianas					
Slope					
Dry/Moist					

### Comments:

Oriental bittersweet dominated vineland has enveloped near-dead Norway maple, white mulberry, Ailanthus, cottonwood, and American elm individuals. Throughout most of unit oriental bittersweet exists as a monoculture but in some places it is mixed with porcelainberry, Grape spp., multiflora rose, Virginia creeper, poison ivy, garlic mustard, mugwort, Japanese honeysuckle, pokeweed, and cucumber vine. The northern section of this unit consists of herbs with scattered clumps of vine covering stumps. There is a retaining wall in part of the unit. A seasonal stream runs through the south part of this unit and leads into a swampy area (see streams map). MCs: Almost entirely invasives (mostly oriental bittersweet).



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 117  
**Acreage:** 0.467  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Hemicryptophytes Slope Dry/Moist	Locust, black	>30' & 5-30'	Yes			

### Comments:

Closed forest of black locust with an understory of herbs - Aster spp., lambs quarters, Dock sp., pokeweed, mugwort, Rubus sp., porcelainberry, and grass. Only a few black locusts are regenerating. The unit is bisected by a footpath. Vines are encroaching at the eastern edge of the forest. MC: Multiflora rose is common and could overtake the understory.

**Unit:** 118  
**Acreage:** 0.931  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Lianas Slope Dry/Moist	Mulberry, white Cherry, black Maple, Norway	>30' & 5-30' all all	Yes  Yes			Trash

### Comments:

A closed forest of mulberry, black cherry and Norway maple in equivalent amounts. The dominant vegetation in the understory varies in different areas between poison ivy, Rubus sp., multiflora rose and Aster spp. There is also a grove of Ailanthus and a few crabapple, as well as mugwort, oriental bittersweet, and porcelainberry along the edge of the park. Most of the regeneration is Norway maple. Vines are approaching tree tops in some areas. MC: Trash and invasives dominate this unit.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 119  
**Acreage:** 0.547  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, Norway	all	Yes	Exotic planting	Habitation	Trash
Deciduous	Mulberry, white	>30' & 5-30'	Yes	Foundations		
Chamaephytes	Cherry, black	>30' & 5-30'				
Slope	Ailanthus	5'-30'	Yes			
Dry/Moist	Oriental bittersweet	>30' & 5-30'	Yes			
	Rose, multiflora	<5'	Yes			

### Comments:

This unit contains the foundations of historical buildings, as well as more recently used furniture and drug vials. This closed forest is dominated by Norway maples of all sizes, but includes many large white mulberries and clusters of Ailanthus and black cherry on the eastern edge. The understory is shaded by the dense canopy and consequently includes no regenerating trees and no herbs besides garlic mustard. The understory is instead dominated by sparsely distributed shrubs - mostly multiflora rose, but also a couple of Amur honeysuckle & one euonymus bush. Patches of Japanese honeysuckle, poison ivy, & summer grape are also present. There are also many enormous oriental bittersweet encroaching from the neighboring unit & climbing mulberries. MCs: Many.

**Unit:** 120  
**Acreage:** 0.528  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Wild cucumber	<5' & 5-30'		Retaining wall		Dumping
Deciduous	Mugwort	<5' & 5-30'	Yes			Trash
Hemicryptophytes	Giant ragweed	<5' & 5-30'				
Undulating	Daisy fleabane	<5'				
Dry/Moist						

### Comments:

This unit is a very thin and long area located west of the trail and elevated above the trail by a rock retaining wall. It is a herbaceous community with vines and shrubs also common. The herbs include mugwort, garlic mustard, white snakeroot, Avens sp., jumpseed, Aster spp., Campion sp., beggar ticks, giant ragweed, foxtail grass, pigweed, Asiatic dayflower, daisy fleabane, pokeweed, lamb's quarters, smartweed, evening primrose, common ragweed, white vervain, and Queen Anne's lace. Vines include cucumber, porcelainberry, and oriental bittersweet. Black raspberry, wineberry, multiflora rose, and regenerating Ailanthus are also common. In the southern subunit, vines are trailing over the retaining wall and herbs are growing in holes and cracks.

Herbs are establishing themselves on it. In the northern subunit, the path is bordered on the west by a short chain-link fence. There is a lot of graffiti on the path in this section.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 121  
**Acreage:** 0.309  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Hackberry	<5' & 5-30'			Retaining wall	Vandalism
Deciduous	Ailanthus	<5' & 5-30'	Yes			Dumping
Phanerophytes	Cherry, black	<5' & 5-30'				
Slope	Sumac sp.	<5' & 5-30'				
Dry/Moist	Mugwort	<5'	Yes			
	Ivy, poison	<5'				

### Comments:

Scrub dominated by a mix of hackberry, Ailanthus, black cherry, and staghorn sumac, as well as mugwort and poison ivy. The understory of this unit is dominated by saplings of hackberry, black cherry, black locust, staghorn sumac, white mulberry, green ash, Ailanthus, and Norway maple. Other species in this unit include Goldenrod sp., St. John's wort, Grass spp., Asiatic dayflower, curly dock, mullein, evening primrose, and Amur honeysuckle. This unit includes a retaining wall as well as many very steep (almost vertical) rock faces. MCs: Dumping, vandalism and invasives.

**Unit:** 122  
**Acreage:** 0.365  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Cherry, black	<5' & 5-30'				Trash
Deciduous	Locust, black	<5'	Yes			
Phanerophytes	Sumac, staghorn	<5' & 5-30'				
Slope	Hackberry	<5' & 5-30'				
Dry/Moist	Paulownia	<5' & 5-30'	Yes			
	Maple, Norway	<5' & 5-30'	Yes			

### Comments:

A woodland dominated by medium sized and regenerating black locust, black cherry, staghorn sumac, hackberry, Paulownia, Norway maple, red oak, and black oak. Other tree species present, but not regenerating include hawthorn, ash, and Ailanthus. This unit contains rock outcrops and patches of mugwort, porcelainberry, and poison ivy. Multiflora rose, Virginia creeper, pokeweed, garlic mustard, grasses, and Aster spp. are also present in this unit. MC: Invasives and trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 123  
**Acreage:** 0.055  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Maple, Norway	<5' & >30'	Yes			
Deciduous	Elm, American	<5' & >30'				
Phanerophytes						
Undulating						
Dry/Moist						

### Comments:

Woodland dominated by Norway maple and American elm located on top of a rocky outcrop by the edge of the Harlem River Drive. Taller ashes in this unit have all died. The understory is dominated by regenerating American elm, and Norway maple with white mulberry and staghorn sumac also regenerating. The understory also includes black raspberry, Grape sp., porcelainberry, Asiatic dayflower, mugwort, white snakeroot, and Aster sp. There is a fair amount of bare rock in this unit. MCs: Norway maple. As of 7/05 there was a rock slide onto the path under this unit along the Harlem River Drive.

**Unit:** 124  
**Acreage:** 0.092  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Sweetgum	>30'				
Deciduous	Oak, red	all				
Lianas	Oak, chestnut	>30'				
Slope	Maple, Norway	all	Yes			
Dry/Moist	Oriental bittersweet	<5'	Yes			
	Ivy, poison	<5'				

### Comments:

A woodland dominated by sweetgum, red oak, chestnut oak and Norway maple. The understory includes regenerating Norway maple, hackberry, red oak, black cherry, black locust and green ash, but is also dominated by oriental bittersweet, poison ivy and Virginia creeper. Black raspberry and Asiatic dayflower are also common and mugwort, smooth Solomon's seal, white wood aster, pokeweed and Sedge spp. are present. There are many scattered rock outcrops in this unit. MCs: Oriental bittersweet is choking adult trees and Norway maples are pervasive.

City of New York, Parks and Recreation, Natural Resources Group

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 125  
**Acreage:** 0.155  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Hackberry	<5' & 5-30'				Trash
Deciduous	Mugwort	<5'	Yes			Dumping
Phanerophytes	Porcelainberry	<5'	Yes			
Slope	Locust, black	<5'	Yes			
Dry/Moist	Oak, red	<5' & 5-30'				

### Comments:

Woodland dominated by hackberry with some red oak also in the canopy and regenerating black locust, hackberry, red oak, staghorn sumac and Ailanthus dominating the understory. This unit contains a great deal of mugwort and porcelainberry as well as old car parts and trash. Other species in this unit include Virginia creeper, bittersweet nightshade, strawberry, white wood aster, Goldenrod sp., and heart-leaf Aster. MCs: Trash, dumping, mugwort and porcelainberry.

**Unit:** 126  
**Acreage:** 0.968  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	>30'				Dumping
Deciduous	Maple, Norway	all	Yes			
Phanerophytes	Elm, American	>30'				
Slope	Sweetgum	>30'				
Moist	Maple, sycamore	all	Yes			

### Comments:

Closed forest of mostly large red oaks, but also including American elms and sweetgums, and many smaller Norway maples and sycamore maples. The understory is almost non-existent, except for regenerating Norway maple, white mulberry, red oak, black and hackberry. There is also a patch of mostly herbs near the stream that runs through this unit. This patch includes wineberry, porcelainberry and the herbs garlic mustard, bull thistle, common ragweed, goldenrod, sedges, lambs quarters, wild lettuce, common nightshade, white snakeroot, Asiatic dayflower, and smartweed. The stream is visible from the path on the eastern side of this unit. The unit contains dumping of tires (including in the stream), many rocky outcrops and large boulders. The Norway maples are very common at the bottom of the slope, near the Harlem River Drive pathway. MCs: Norway and sycamore maples, as well as non-tree invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 127  
**Acreage:** 0.73  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	<5' & 5-30'	Yes			
Deciduous	Grape, river	<5' & 5-30'				
Lianas	Oriental bittersweet	<5' & 5-30'	Yes			
Slope						
Moist						

### Comments:

Mixed vineland with lots of porcelainberry encroaching on red oak, Norway maple, and American elm on edge of unit and also considerable amounts of oriental bittersweet and the city rare river grape. There is a stream in northern part of unit. Other species present in this unit include multiflora rose, Virginia creeper, poison ivy, Blackberry spp., smooth sumac, sycamore maple, and Paulownia individuals in middle of unit being consumed by vines. MCs: Invasive vines (oriental bittersweet and porcelainberry), but also the city rare river grape.

**Unit:** 128  
**Acreage:** 0.949  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Mulberry, white	all	Yes		Foot traffic	Trash
Deciduous	Maple, Norway	all	Yes			Dumping
Hemicryptophytes	Cherry, black	all				
Slope	Oak, red	<5' & >30'				
Dry/Moist	Elm, American	<5' & 5-30'				

### Comments:

Closed forest dominated by white mulberry, Norway maple, black cherry, red oak, and American elm, but also including a huge patch of porcelainberry. Oriental bittersweet and Japanese honeysuckle cover large patches of the understory and Amur honeysuckle multiflora rose and poison ivy are common, however the understory is dominated by herbs such as mugwort, garlic mustard, Aster spp., rough avens, Indian strawberry, goldenrod, and white snakeroot. Regenerating red oak, white mulberry, American elm, green ash, Norway maple and Ailanthus are present. The northern end of this unit consists exclusively of white mulberry and black cherry. These trees are small but form a tight canopy. MCs: Invasives (tree, shrubs, vines and herbs), trash and dumping.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 129  
**Acreage:** 0.051  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Hemicryptophytes Level Dry/Moist	Planetree, London Elm, American	>30' 5'-30'	Yes	Full-crown tree		Trash

### Comments:

A closed forest dominated by a large London plane tree and a number of mid-sized American elm. The understory is dominated by herbs like burdock, blue violet, Asiatic dayflower, mugwort, pokeweed, Mexican tea, and Avens sp., but also includes porcelainberry and regenerating elm and hackberry. MC: Trash.

**Unit:** 130  
**Acreage:** 0.087  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Hemicryptophytes Level Dry/Moist	Elm spp. Mulberry, white Maple, sycamore Dogwood spp.	>30' 5'-30' <5' & 5-30' 5'-30'		Full-crown tree Yes Yes		Trash

### Comments:

A thin (~ 8 feet wide) section of closed forest located next to a paved area and dominated by large elms and mid-sized white mulberries and sycamore maples. Dogwood spp. and Ailanthus are also common. The understory is dominated by herbs, such as snakeroot, white wood aster, heart-leaved aster, Mexican tea, pokeweed, mugwort, and Goldenrod sp. The understory also includes Taxus bushes and other ornamental bushes as well as poison ivy, bittersweet nightshade, field bindweed, porcelainberry and regenerating elms, white mulberry and sycamore maple. MC: Trash.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 131  
**Acreage:** 0.349  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	all				Fire
Deciduous	Cherry, black	<5' & 5-30'				
Lianas	Ailanthus	<5' & 5-30'	Yes			
Slope	Pignut	<5' & 5-30'				
Dry/Moist	Greenbrier	<5' & 5-30'				
	Oriental bittersweet	5-30'	Yes			

### Comments:

Red oak dominated closed forest with some black cherry, pignut hickory and Ailanthus. Hackberry, staghorn sumac, and blackhaw are also present. The vines greenbrier and oriental bittersweet dominate the understory. Greenbrier is very dense in the east edge of unit and becomes thinner. The following tree species are regenerating: black cherry, green ash, black locust, Ailanthus, red oak, and staghorn sumac. The following species are also present in the understory: American red raspberry, oriental bittersweet, Grape spp., Virginia creeper, poison ivy, mugwort, white wood aster, Goldenrod sp., pokeweed, smooth Solomon's seal. This unit is located on an extremely steep slope. This unit is becoming dense vineland in the northeast. The ground is covered with loose rock and leaf litter. MCs: Ailanthus, oriental bittersweet and mugwort.

**Unit:** 132  
**Acreage:** 0.415  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Oak, red	all				
Deciduous	Hickory, pignut	>30' & 5-30'				
Hemicryptophytes	Cherry, black	<5' & 5-30'				
Slope	Maple, Norway	<5' & 5-30'	Yes			
Dry/Moist	Mugwort	<5'	Yes			
	Locust, black	all	Yes			

### Comments:

Woodland dominated by red oak and pignut hickory with black cherry and Norway maple common in the subcanopy and black locust and Paulownia also present. The understory is dominated by mugwort, but also contains regenerating Ailanthus, red oak, hackberry, black cherry and black locust, as well as blackhaw, greenbrier, Virginia creeper, poison ivy, oriental bittersweet, porcelainberry, city rare river grape, Japanese honeysuckle, strawberry, bittersweet nightshade, woodland sunflower, and grass. This unit is located on an extremely steep slope. The ground is very uneven and unstable due to rocks and tree trunks covered with leaf litter. The soil layer is not visible. Several oaks in this unit look sickly (leaves are wilted and brown). MCs: Invasives, especially Norway maple and mugwort, but also the city rare river grape.

City of New York, Parks and Recreation, Natural Resources Group



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 133  
**Acreage:** 4.115  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	all			Fence	Erosion
Deciduous	Maple, Norway	all	Yes			Exotic treatment
Phanerophytes	Cherry, black	<5' & 5-30'				
Slope	Locust, black	all	Yes			
Dry/Moist	Oak, black	>30'				
	Hickory, pignut	all				

### Comments:

Closed forest dominated by red oak with Norway maple and black cherry common in the subcanopy. Black locust, black oak, and pignut hickory are all common in the canopy. Chestnut oak, mockernut hickory, pin oak, green ash, devil's walking stick, Ailanthus, and sycamore maple are also present. Understory is dominated by sapling of ash, hickories, Norway and sycamore maple, black locust, red oak, sweetgum, white oak, red maple, black walnut, hackberry, Sassafras and black cherry. There is evidence of exotic removal in this unit. Other species in this unit include crabapple, arrowwood, elderberry, blackhaw, maple-leaf viburnum, spicebush, Rubus spp., Japanese knotweed, Japanese honeysuckle, greenbrier, oriental bittersweet, porcelainberry, city rare river

grape, Virginia creeper, poison ivy, white snakeroot, pokeweed, heart-leaved aster, true Solomon's seal, jumpseed, jewelweed, white-wood Aster, Asiatic dayflower, Avens sp., strawberry, & mugwort. MCs: This is a good area and invasives should be managed, particularly along the edges where invasive concentrations are greatest.

**Unit:** 134  
**Acreage:** 0.665  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	<5' & >30'			Exotic planting	
Deciduous	Oriental bittersweet	<5' & 5-30'	Yes			
Lianas	Grape, river	<5' & 5-30'	Yes			
Slope	Porcelainberry	<5' & 5-30'	Yes			
Dry/Moist	Elm, American	<5' & 5-30'				
	Ivy, poison	<5' & 5-30'				

### Comments:

Closed forest dominated by red oak with the vines, oriental bittersweet, river grape, porcelainberry, and poison ivy dominating the understory. American elm is common in subcanopy and regenerating in the understory. Black locust and sycamore maple are also regenerating. The following are present in the understory: elderberry, Rubus sp., Virginia creeper, jumpseed, and Aster spp. River grape and porcelainberry are overgrowing exotic plantings at bottom of slope. There are also ferns at the bottom of the slope. The path at the western end of the unit is in poor condition due to flow from a drainage hole in unit 154. The water is eroding the asphalt. This unit contains many rock outcrops. Trees are mostly large and widely spaced. A large patch of white snakeroot is also present in the understory. MCs: Invasives and city rare river grape.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 135  
**Acreage:** 0.426  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, American	all			Full-crown tree	Dumping
Deciduous	Cherry, black	all			Lamppost	Trash
Hemicryptophytes	Locust, black	<5' & >30'	Yes			
Slope	Sweetgum	<5' & >30'				
Dry/Moist	Oak, red	<5' & 5-30'				

### Comments:

Closed forest dominated by American elm, sweetgum, and red oak with a patch of black locust in the middle of the unit. The understory includes regenerating American elm, black cherry, hackberry, black locust, bitternut hickory, Ailanthus, sweetgum, white mulberry, Norway, and sycamore maple; however, it is dominated by herbs such as heart-leafed aster, garlic mustard, wild strawberry, pokeweed, jumpseed, Asiatic dayflower, mugwort, Campion spp., and daisy fleabane. Also present are Dogwood spp., multiflora rose, black raspberry, porcelainberry, poison ivy, and oriental bittersweet. There are wood chips in parts of the unit as well as dumping and trash. This unit is adjacent to Wallenberg Playground, and is a hangout/drug use spot for people from that area. There is spray paint on trees and rocks in the unit.

**Unit:** 136  
**Acreage:** 0.439  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Oak, white	all			Full-crown tree	Foot traffic
Deciduous	Locust, black	all	Yes			
Phanerophytes	Oak, black	>30' & 5-30'				
Slope	Cherry, black	all				
Dry/Moist	Oak, red	all				

### Comments:

A woodland dominated by white oak, black oak, black locust, black cherry, and red oak. Ailanthus is also present in the canopy. This unit occurs on a slope with very shallow soil and includes a large rock outcrop. The understory is dominated by regenerating red oak, black cherry, black locust, and American elm. Regenerating American elm forms a dense grove in one area. Other species in this unit include multiflora rose, dewberry, arrowwood, hawthorn, Asiatic dayflower, white snakeroot, garlic mustard, smartweed, pokeweed, mugwort and wild strawberry. There are full crown trees in this unit and it is used for foot traffic. There is dumping in the unit, including a large orange construction barrier. Poison ivy is thick on trees and thigh deep on the floor.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 137  
**Acreage:** 0.306  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Ornamental cherries	5'-30'	Yes		Exotic planting	
Deciduous	Rose spp.	<5'	Yes			
Chamaephytes	Viburnums	5'-30'				
Level	Sweet pepperbush	5'-30'				
Dry	Holly, American	5'-30'				

### Comments:

This area has been planted and fenced off by NYRP. It is dominated by shrubs, including Rose sp., Viburnum spp., sweet pepperbush, and American holly, but also includes many ornamental cherries. Other planted species include tickseed, lariat, red oak, and goldenrod. The following non-planted species are also present in the unit: mugwort, garlic mustard, curly dock, Virginia copperleaf, pokeweed, yellow nut sedge, Setaria sp., smartweed, porcelainberry, common blue violet, Canada thistle, common and dandelions. Many birds are foraging in this unit.

**Unit:** 138  
**Acreage:** 0.231  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Sweetgum	all			NYRP planting	
Deciduous	Arrowwood	<5'				
Chamaephytes	Locust, black	5'-30'	Yes			
Slope	Elm, American	<5' & 5-30'				
Moist	Oak, red	<5' & 5-30'				

### Comments:

Another NYRP planting site with a mix of ornamental and native species. The canopy is dominated by sweetgums of all sizes, a few medium sized black locust, and a couple small and mid sized American elm and red oak. The understory is dominated by shrubs, especially arrowwood, and to a lesser extent spicebush. Also present in the unit are hackberry, witch hazel, Sassafras, pin oak, flowering dogwood, spicebush, poison ivy, porcelainberry, ironweed, Persimmon sp., wild ginger, jack-in-the-pulpit, New England aster, Goldenrod sp., white snakeroot, evening primrose, butterfly weed, smartweed, pokeweed, bittersweet nightshade, and lady fern. As of July, 2005 the unit appears to be maintained along its boundary with the managed lawn. There is a dead tree and a burned tree in the unit.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 139  
**Acreage:** 0.224  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland Deciduous Phanerophytes Slope Dry/Moist	Oak, red Cherry, black Ailanthus	all all all		Yes	Foot traffic Campfire/ party	Trash

### Comments:

Woodland dominated by red oak, black cherry, and Ailanthus. The understory is dominated by saplings of mostly black locust, but also sycamore maple, American elm, green ash, black locust and hackberry. This unit also includes a large patch of Japanese honeysuckle, poison ivy, and Rubus sp. as well as some oriental bittersweet and several areas of multiflora rose. This unit includes a rock outcrop, a medium sized pignut hickory, and also the following species Asiatic dayflower, mugwort, smartweed, common ragweed, white wood and heart-leaved aster spp., pokeweed, and smooth Solomon's seal. Groundcover is dense under canopy openings but sparse under large trees. MCs: Foot traffic, a party spot, trash and invasives.

**Unit:** 140  
**Acreage:** 0.115  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland Deciduous Phanerophytes Slope Dry	Planetree, London Locust, black Maple, sycamore Paulownia Maple, Norway	>30' & 5-30' >30' & 5-30' all >30' & 5-30' 5'-30'	Yes Yes Yes Yes Yes	Full-crown tree	Foot traffic	Trash Feces

### Comments:

A woodland dominated by London plane and black locust with sycamore maple, Paulownia, and white mulberry also common. Understory is sparse, but dominated by sycamore maple American elm, and Siberian elm. Also present in the understory are poison porcelainberry, oriental bittersweet, garlic mustard, wild strawberry, white snakeroot, Aster spp. pokeweed, mugwort, common nightshade, white vervain and jumpseed. Rocks, boulders, fallen trees and trash are common in this very steep unit. The unit is marked by a tall sawed-off stump at the edge of the lawn. MCs: Lots of invasives, trash and feces.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 141  
**Acreage:** 1.438  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	all	Yes	Exotic planting	Foot traffic	Erosion
Deciduous	Planetree, London	>30'	Yes	Rock terrace		Trash
Phanerophytes	Maple, sycamore	all	Yes	Full-crown tree		Dumping
Slope	Cherry, black	<5' & 5-30'				
Dry/Moist						

### Comments:

Closed forest dominated by black locust, but also including large plane trees and some sycamore maple and black cherry. The understory is dominated by regenerating saplings of sycamore maple, black locust, black cherry, sweetgum, red oak, black walnut, hackberry, Paulownia, American elm and bitternut hickory. Understory also includes large patches of multiflora rose and oriental bittersweet, including a huge specimen of the latter climbing a plane tree. The understory of this unit is more vine-dominated to the north. The slope is very rocky including sections of loose boulders without soil cover. There are fewer mature trees near the slope bottom. This unit, like others around it, has a series of short retaining walls stepping up from the footpath at its

bottom (eastern) end. Other species present include elderberry, mock orange, porcelainberry, Japanese honeysuckle, Virginia creeper, cucumber vine, strawberry, jumpseed, pokeweed, white snakeroot, smooth Solomon's seal, and Fern spp. MCs: Invasives, erosion, trash, and dumping.

**Unit:** 142  
**Acreage:** 0.029  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, Siberian	>30' & 5-30'	Yes			Trash
Deciduous	Maple, sycamore	<5' & 5-30'	Yes			Feces
Phanerophytes	Mulberry, white	<5' & 5-30'	Yes			
Slope						
Dry/Moist						

### Comments:

Closed forest dominated by large Siberian elm, and smaller sycamore maple and white mulberry. The subcanopy also includes black cherry, Ailanthus, and American elm. The understory is dominated by saplings of all tree species previously mentioned and also sycamore maple. This unit is mostly along the edge of a managed lawn on a slope and includes patches of vines, including river grape, fox grape, oriental bittersweet, and poison ivy. Other species present in this unit include mugwort, pokeweed and other herbs. Foul trash and human waste litter edge of unit. This unit contains both invasives and the city rare river grape. The unit is recognizable by the large elms that jut out into the managed lawn.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 143  
**Acreage:** 0.091  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Grape, wild	all			Old bricks	Erosion
Deciduous	Ivy, poison	all			Concrete slabs	Trash
Lianas	Rubus	<5'				Dumping
Slope	Locust, black	>30' & 5-30'	Yes			
Dry/Moist	Cherry, black	>30' & 5-30'				

### Comments:

A vineland in canopy gaps that is dominated by a Grape spp. with poison ivy and oriental bittersweet also very common. In between canopy gaps cucumber vines, Virginia creeper, and oriental bittersweet occur among fallen trees. The vines trail off trees close to the ground and making walking through this unit difficult. Mugwort and Virginia jumpseed occur near the lawn, but otherwise the herbaceous layer is sparse to barren. Large and mid-sized black locust and black cherry are present in this unit and Royal Paulownia and honey locust are regenerating. MCs: Trash, erosion and dumping, including old concrete and bricks.

**Unit:** 144  
**Acreage:** 0.257  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	all	Yes	Old bricks		Trash
Deciduous	Mulberry, white	all	Yes	Concrete slabs		Erosion
Hemicryptophytes	Ailanthus	all	Yes			
Slope	Elm, American	>30' & 5-30'				
Dry/Moist	Oak, red	<5' & 5-30'				

### Comments:

The city rare Jack-in-the-pulpit is found in the unit. The unit consists of a closed forest dominated by black locust and white mulberry with American elm and Ailanthus very common and red oak also present. The understory is dominated by herbs - Aster spp., Goldenrod sp., jumpseed, common nightshade, pokeweed, white snakeroot, Indian strawberry and common nightshade. The following species are regenerating in the understory: American elm, green ash, sycamore maple, black locust, Ailanthus and white mulberry. Other species present in the understory include elderberry, Rubus sp., multiflora rose, poison ivy, Japanese honeysuckle, and Virginia creeper. MCs: City rare jack-in-the-pulpit, erosion, trash and old concrete slabs & brick dumped in this unit.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 145  
**Acreage:** 0.313  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, black	>30'	Yes			
Deciduous	Mulberry, white	>30' & 5-30'	Yes			
Geophytes	Maple, Norway	>30'	Yes			
Slope						
Dry/Moist						

### Comments:

Woodland of black locust, Norway maple and white mulberry with Japanese knotweed forming a homogenous understory. Black locust in this unit are considerably large. The unit is dense with dead limbs. MCs: All invasive species.

**Unit:** 146  
**Acreage:** 0.219  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	>30' & 5-30'	Yes			Trash
Deciduous	Cherry, black	>30' & 5-30'				Erosion
Lianas	Mulberry, white	5'-30'	Yes			
Slope	Walnut, black	<5' & 5-30'				
Dry/Moist	Ailanthus	>30' & 5-30'	Yes			
	Maple, sycamore	<5' & 5-30'	Yes			

### Comments:

Closed forest dominated by black locust and black cherry with white mulberry, black walnut, Ailanthus and sycamore maple common. The understory is dominated by Japanese honeysuckle, but garlic mustard and Rubus sp. are also abundant. Goldenrod sp., Aster spp., and pokeweed are also present sparsely and there is some saplings of bitternut hickory, red oak, black walnut, hackberry and Norway maple. There is a very well-established poison ivy growing on a black locust on the edge of the managed lawn. The unit is distinguishable by the abundance of vines in the understory. Four trees along the managed lawn are being suffocated by poison ivy and one by Virginia creeper.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 147  
**Acreage:** 0.126  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, American	>30' & 5-30'			Retaining wall	
Deciduous	Cherry, black	all				
Lianas	Locust, black	5'-30'	Yes			
Undulating	Mulberry, white	5'-30'	Yes			
Dry/Moist	Ivy, poison	<5'				

### Comments:

Closed forest dominated by American elm, but also including black cherry, black locust, white mulberry, and green ash. Understory is dominated by vines, mostly poison ivy, but also greenbrier. Other species in the understory include regenerating American elm, bitternut hickory, and black cherry, as well as elderberry, spicebush, jumpseed, and pokeweed. There are retaining walls in this unit. The unit contains multiple standing and fallen dead trees.

**Unit:** 148  
**Acreage:** 0.557  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Sycamore, common	>30'			Full-crown tree	Erosion
Deciduous	Planetree, London	>30'	Yes		Retaining wall	Dumping
Lianas	Maple, Norway	all	Yes			
Slope	Elm, American	>30' & 5-30'				
Wet	Locust, black	>30'	Yes			
	Ivy, poison	5'-30'				

### Comments:

Closed forest dominated by large sycamores and plane trees in canopy and Norway maples and American elms in subcanopy. Black locust, red maple, bitternut hickory, crabapple, and green ash are also common. Poison ivy is very dense throughout unit and dominates the understory. Also present in the understory are regenerating Norway maple, sycamore maple, red oak, and American elm, as well as bladdernut, Japanese knotweed, Rubus sp., Virginia creeper, false Solomon's seal, jewelweed, pokeweed, jumpseed garlic mustard, white snakeroot, and enchanter's nightshade. There is water running down the slope and standing water with a mulberry arching over the pool. This unit is notably less rocky than unit 141. Judging from full crown trees, retaining walls and leveled-off grade below the slope it seems that this unit was once landscaped. There is a lot of clothing dumped in one area, perhaps indicating an abandoned habitation. MCs: Erosion and dumping.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 149  
**Acreage:** 0.155  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	>30' & 5-30'	Yes	Concrete slabs		Trash
Deciduous	Oak, red	>30' & 5-30'		Guard rail		Erosion
Phanerophytes	Elm, American	all				Dumping
Slope	Maple, sycamore	<5' & 5-30'	Yes			
Dry/Moist	Maple, Norway	<5' & 5-30'	Yes			
	Mulberry, white	5-30'	Yes			

### Comments:

Closed forest dominated by black locust and red oak with American elm very common and sycamore maple, Norway maple and white mulberry present. This unit separates 2 big patches of Japanese knotweed. The understory is dominated by saplings, mostly elm and sycamore maple, but also including bitternut hickory, black cherry, black walnut and hackberry. The understory also includes dense areas of multiflora rose, Japanese honeysuckle, and garlic mustard, as well as poison ivy, Virginia creeper, Aster spp., and smooth Solomon's seal. There is a large elm surrounded by a patch of garlic mustard, with a dead tree fallen into its crown, located in the eastern central portion of the unit. MCs: Invasives, trash, erosion, and dumping--including old guard rails and concrete chunks.

**Unit:** 150  
**Acreage:** 0.076  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	all	Yes			Trash
Deciduous	Oak, red	all				Dumping
Phanerophytes	Maple, sycamore	>30' & 5-30'	Yes			Erosion
Slope	Cherry, black	5'-30'				
Dry/Moist	Mulberry, white	5'-30'	Yes			

### Comments:

Closed forest dominated by black locust and red oak with sycamore maple, black cherry, and white mulberry also present. There is an English oak on the upper slope near the managed lawn. The understory is dominated by regenerating hackberry, bitternut hickory, red oak, and black walnut. Other species in the understory include poison ivy, oriental bittersweet, Japanese honeysuckle, Asiatic dayflower, curly dock, Aster spp., smartweed, jumpseed and garlic mustard. This unit contains several dumped bikes and strollers. MCs: Trash, dumping, and erosion on the slope, city rare sugar maple and invasive Norway maple.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 151  
**Acreage:** 0.065  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Chamaephytes Undulating Dry/Moist	Maple, Norway Cherry, black Tulip tree	all 5'-30' >30'	Yes	Hedgerow		Erosion

### Comments:

In this closed forest the largest trees are Tulips, however, Norway maple is far more abundant and medium sized black cherries are also very common. The understory is dominated by herbs, such as jumpseed, mugwort, enchanter's nightshade, jewelweed, pokeweed, Asiatic dayflower, goldenrod, Virginia copperleaf, lamb's quarters, and wild strawberry. The following are also present in the understory: dogwood sp., shadbush, basswood, Virginia creeper, poison ivy, porcelainberry, and saplings of cottonwood, sycamore maple, Siberian elm, black locust and white mulberry. This unit forms a small lens carved out of the larger unit 152. It is recognizable by a stump cut to grass level near the lawn. Some oaks in this unit are unhealthy. MCs:

Erosion, Norway maple.

**Unit:** 152  
**Acreage:** 0.586  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Hemicryptophytes Slope Dry/Moist	Oak, red Maple, Norway Locust, black Oak, pin Cherry, black Oak, white	all all >30' & 5-30' >30' & 5-30' 5'-30' <5'		Yes Yes		Trash

### Comments:

The red oaks that dominate this closed forest are looking sickly with browned leaves. Norway maples are also very common in this unit, however they are not as tall as the largest red oaks. Black locust, pin & white oak are also common in this unit. There is a vineland buffer on the trail edge composed of Smilax rotundifolia & lots of young oriental bittersweet & porcelainberry mixed in with mugwort & pokeweed. The understory is dominated by herbs, including false & smooth Solomon's seal, jumpseed, white snakeroot, enchanter's nightshade & Asiatic dayflower. Other species in the understory include poison ivy, Virginia creeper & regenerating white & red oak, Norway maple, green ash, Paulownia & white mulberry. There are two discharge pipes in the unit. One is a 1ft diameter pipe with a stream flowing through a manmade rock channel. Another, smaller, cement outflow structure was inactive as of 7/05.

City of New York, Parks and Recreation, Natural Resources Group

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 153  
**Acreage:** 0.089  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Sassafras	<5' & 5-30'			Hedgerow	Erosion
Deciduous	Maple, Norway	<5' & 5-30'	Yes		Exotic planting	
Lianas	Locust, black	<5' & 5-30'	Yes			
Slope	Paulownia	<5' & 5-30'	Yes			
Dry/Moist	Ailanthus	<5' & 5-30'	Yes			
	Porcelainberry	<5'	Yes			

### Comments:

This woodland has no large trees in it. Sassafras, Norway maple, black locust, staghorn sumac, bitternut hickory, Paulownia, and Ailanthus are all common and Sassafras, Norway maple, black locust, staghorn sumac, Ailanthus, white mulberry, and American elm are all regenerating. The understory is dominated by vines, such as porcelainberry, Virginia creeper, and porcelainberry, the last of which is threatening a mid-sized American elm. Other species common in the unit include witch hazel, Amelanchier spp., wild strawberry, jewelweed, mugwort, Canadian thistle, jumpseed, Aster spp., Goldenrod sp., Asiatic dayflower, pigweed, & Virginia copperleaf. This unit can be located by a dead tree with Virginia creeper covering it located at the north end of the unit.

**Unit:** 154  
**Acreage:** 0.157  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Sweetgum	<5' & >30'				Erosion
Deciduous	Maple, sycamore	>30'	Yes			
Phanerophytes	Tulip tree	<5' & >30'				
Slope	Maple, sugar	all				
Wet	Maple, Norway	all	Yes			
	Cherry, black	5'-30'				

### Comments:

Closed moist forest dominated by large sweetgums, sycamores, and Tulip trees, but also including a patch of sugar maples, and Norway maple, black cherry, and bitternut hickory in subcanopy. The understory is dominated by hackberry, black locust, and black cherry saplings, but also includes Rubus sp., jetbead, Japanese honeysuckle, porcelainberry, dense poison ivy, Virginia creeper, pokeweed, jumpseed, false and smooth Solomon's seal, Asiatic dayflower, garlic mustard, common nightshade, Aster spp., white snakeroot, and enchanter's nightshade. This unit contains a small discharge pipe that empties onto the western path. Though flow was low in July, the path bears evidence of erosion due to high flow from the pipe. The unit contains plastic shopping bags hanging from trees near the path. There is vegetation growing in the fork of the path at the north end of this unit. There is also an inactive pipe sticking out of the ground at the fork.

City of New York, Parks and Recreation, Natural Resources Group

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 155  
**Acreage:** 0.057  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, red	>30'			Full-crown tree	
Deciduous	Maple, sugar	<5' & 5-30'			Retaining wall	
Lianas	Maple, Norway	<5' & 5-30'	Yes			
Undulating	Sumac, staghorn	5'-30'				
Moist	Sweetgum	<5' & 5-30'				
	Oak, red	<5' & 5-30'				

### Comments:

Closed forest dominated by red, sugar, and Norway maple. Red maple is uncommon in this park. Staghorn sumac, sweetgum and red oak are also common and bitternut hickory, black cherry, and crabapple are present. The understory includes regenerating sweetgum, red oak, bitternut hickory, Norway maple, sugar maple, and black cherry. The understory, however, is dominated by poison ivy, Virginia creeper, and porcelainberry. Other species in the understory include Rubus sp., enchanter's nightshade, Goldenrod spp., pokeweed, and jumpseed. There are retaining walls and full crown trees in this unit. There is evidence of chainsawing in this unit.

**Unit:** 156  
**Acreage:** 0.485  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	<5' & >30'	Yes		Retaining wall	Standing water
Deciduous	Maple, silver	>30'				
Lianas	Maple, Norway	>30' & 5-30'	Yes			
Slope	Oak, red	>30'				
Wet	Cherry, black	>30' & 5-30'				
	Sweetgum	5-30'				

### Comments:

This closed forest is dominated by red oak in the canopy & Norway maple in the subcanopy & contains pools of standing water & retaining walls. Sycamore maple is very common in the understory. Black locust, pin oak, black cherry, white oak, black oak, and white mulberry are also common. The understory is dominated by vines, like oriental bittersweet, poison ivy, greenbrier, and Virginia creeper, but also includes regenerating bitternut hickory, American elm, the city rare sugar maple, green ash, red oak, and Sassafras. Other sp.: crabapple, Rubus sp., elderberry, multiflora rose, oriental bittersweet, Virginia creeper, poison ivy, enchanter's nightshade, jumpseed, garlic mustard, smooth Solomon's seal, jewelweed, Asiatic dayflower, trillium, and jack-in-the-pulpits. MCs: Invasives and two city rare species.

City of New York, Parks and Recreation, Natural Resources Group

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 157  
**Acreage:** 0.588  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	>30'	Yes			Trash
Deciduous	Maple, Norway	>30' & 5-30'	Yes			Erosion
Hemicryptophytes	Maple, sycamore	5'-30'	Yes			
Slope						
Dry/Moist						

### Comments:

Closed forest of black locust, Norway maple, and sycamore maple with some regenerating hackberry. The understory is dominated by herbs, which densely cover slope among exposed rocks. These herbs are white snakeroot, jewelweed, enchanter's nightshade, smooth Solomon's seal, pokeweed, Asiatic dayflower, goldenrod, garlic mustard. The following species are also present in the understory: Rubus spp., Virginia creeper, oriental bittersweet, Japanese honeysuckle, poison ivy, and porcelainberry. This unit contains sections that are barren but also areas where growth is lush from canopy to floor, including dense shrubs, vines and regenerating trees. Trash covered paths at north end near managed lawn lead downslope to a very large twisted fallen tree.

**Unit:** 158  
**Acreage:** 0.269  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Sassafras	all				Erosion
Deciduous	Cherry, black	>30' & 5-30'				
Hemicryptophytes	Planetree, London	>30'	Yes			
Slope	Paulownia	>30'	Yes			
Dry/Moist	Maple, Norway	<5' & 5-30'	Yes			
	Oak, red	5-30'				

### Comments:

While the largest trees are Royal Paulownia and London plane this woodland is dominated by Sassafras and black cherry. Mid-sized Norway maple and red oak are also common, and a few black locust, staghorn sumac, cottonwood, bitternut hickory and elm are present. Norway maple, sassafras, bitternut hickory, Paulownia, hackberry, and red oak are all regenerating; however the understory is dominated by herbs, in particular pokeweed, but also mullein, clear weed, white snakeroot, Asiatic dayflower, sedges, and smartweed. The understory and tree growth are quite sparse. There is a large double-trunk tree adjacent to the path that has been consumed by vines and may fall over the path. Poison ivy, greenbrier, and encroaching porcelainberry are all present. A couple of concrete drainage pipe headwalls are exposed on the slope. MCs: Erosion, encroaching vines and Norway maple.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 159  
**Acreage:** 1.126  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, Norway	all	Yes			Dumping
Deciduous	Cherry, black	all				Trash
Hemicryptophytes	Elm, American	all				
Slope	Oak, red	all				
Dry/Moist	Mulberry, white	all	Yes			
	Paulownia	5-30' & >30'	Yes			

### Comments:

A closed forest dominated by a mix of Norway maple, black cherry, American elm, oaks (red, black and chestnut), white mulberry, Royal Paulownia, black walnut, bitternut hickory, ash, and sweetgum. One large Royal Paulownia near the managed lawn appears to have been pruned. There are large patches of oriental bittersweet and porcelainberry in the canopy and these two vine species, along with greenbrier, poison ivy, Virginia creeper, and Japanese honeysuckle dominate the understory. Other species include Rubus spp., multiflora rose, and saplings of ash, black cherry, black locust, oak, ash, bitternut hickory, Norway maple, sycamore maple, and American elm. There is a drainage ditch that empties near the trail on the eastern side of the unit. MCs: Dumping, trash, invasive trees, shrubs, and vines.

**Unit:** 160  
**Acreage:** 1.148  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, red	all		Exotic planting		Erosion
Deciduous	Hickory, bitternut	>30' & 5-30'				
Geophytes	Maple, Norway	all	Yes			
Undulating	Cherry, black	>30'				
Dry/Moist	Sassafras	<5' & 5-30'				

### Comments:

Closed forest dominated by red oak and bitternut hickory with some Norway maple, black cherry, and Sassafras common, and black oak, chestnut oak, plane tree, Ailanthus and royal Paulownia present. The understory contains regenerating Royal Paulownia, black locust and Ailanthus, and Sassafras, but is dominated by herbs including Aster spp., Asiatic dayflower, bittersweet nightshade, pokeweed (dense along trail), jumpseed, jewelweed, and garlic mustard. Grape vines, porcelainberry, greenbrier, and oriental bittersweet are also present in the understory. In addition forest pansy and ornamental redbuds have been planted on the edge of the unit. Poison ivy is dense on the western edge of the unit and is growing onto the path. The unit is unique because Royal Paulownia is quite common. The herb layer is well-mixed and evenly interspersed with regenerating species. The unit is located directly across from hydrants in 8x. MCs: Invasive tree species, invasive vines and erosion.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 161  
**Acreage:** 0.036  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Sassafras	>30' & 5-30'			Habitation	
Deciduous	Greenbrier	5'-30'				
Lianas	Ivy, poison	5'-30'				
Slope	Hickory, bitternut	>5' & 5-30'				
Dry/Moist	Porcelainberry	<5'	Yes			
	Grape, wild	<5'				

### Comments:

A small grove of Sassafras with greenbrier and poison ivy climbing trees and covering the ground. Other species present include: porcelainberry, multiflora rose, pokeweed, Royal Pawlonia. There is a great deal of rotting, crumbling wood and tires.

**Unit:** 162  
**Acreage:** 0.179  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Oak, red	all				
Deciduous	Sassafras	all				
Phanerophytes	Sweetgum	all				
Undulating	Grape, river	all				
Moist	Maple, Norway	all	Yes			
	Hickory, bitternut	all				

### Comments:

This unit contains both the city rare jack in the pulpit and the city rare river grape. It is a woodland of red oak, Sassafras, sweetgum, Norway maple, and bitternut hickory. The understory is dominated by saplings of all these canopy trees, however it also includes a great deal of vines. In particular poison ivy, Japanese honeysuckle, oriental bittersweet. River grape is particularly common and in some areas it is covering trees in the canopy. Other species present include arrowwood, jumpseed, smooth Solomon's seal, goldenrod, jack-in-the pulpit, and some unknown ornamentals along the trail's edge. The unit has a large cement drainage channel with many dead trees around it. MCs: Invasive vines, Norway maple, and two city rare species.

There is a drainage ditch located in this unit with an abundance of dead trees surrounding it.

City of New York, Parks and Recreation, Natural Resources Group

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 163  
**Acreage:** 0.287  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Oriental bittersweet	<5' & 5-30'	Yes			Dumping
Deciduous	Ivy, poison	<5' & 5-30'				
Lianas	Honeysuckle, Japanes	<5'	Yes			
Slope	Rose, multiflora	<5'	Yes			
Moist	Hackberry	<5' & 5-30'				
	Maple, Norway	<5' & 5-30'	Yes			

### Comments:

Although this unit is a heterogeneous mix of bushes, vines, and small-mid sized trees it is dominated by vines and appears to be moving towards a vineland. Oriental bittersweet, poison ivy, and Japanese honeysuckle are the most dominant species, however river grape, Virginia creeper, cucumber, and greenbrier are also present. The most common non-vine species are multiflora rose, hackberry and Norway maple. Other species present include black raspberry, mugwort, enchanter's nightshade, garlic mustard, and pokeweed. This unit contains a fallen dead trees and there is a rock face. MCs: Invasive vines and dumping in the southwest of the unit.

**Unit:** 164  
**Acreage:** 0.163  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Maple, silver	>30'			Drainage pipe	
Deciduous	Oak, red	>30'			Manhole	
Lianas	Pokeweed	<5'				
Undulating	Jewelweed	<5'				
Moist	Maple, Norway	all	Yes			
	Cherry, black	<5' & 5-30'				

### Comments:

A woodland with large individuals of silver maple and red oak, and some mid-sized and small black cherry and Norway maple. The understory includes regenerating bitternut hickory, Norway maple, and American elm, but is dominated by a robust herbaceous layer of mostly pokeweed and jewelweed, but also including jumpseed, enchanter's nightshade, white snakeroot, Asiatic dayflower, clover, Virginia copperleaf, clearweed, devil's beggar tick, and giant ragweed. Other species include Japanese knotweed, poison ivy, cucumber, and bindweed. A drainage pipe and manholes are present in this area. MCs: Invasive species.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 165  
**Acreage:** 0.081  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Asiatic dayflower	<5'	Yes			Erosion
Deciduous	Virginia creeper	<5'				Trash
Lianas	Ivy, poison	<5'				
Slope	Locust, black	<5' & 5-30'	Yes			
Dry/Moist						

### Comments:

Unit dominated by herbs and vines, especially Asiatic dayflower, Virginia creeper, and poison ivy. Some small and medium sized black locust are also present. There are many large boulders, presumably placed there as erosion control or land fill, as well as thick logs from dead trees. The following trees are regenerating: black locust, Paulownia, black birch, sycamore maple, bitternut hickory and Norway maple. The understory also includes winged eunymus, smilax rotundifolia, bittersweet nightshade, oriental bittersweet, enchanter's nightshade, Aster spp., smooth Solomon's seal, liverwort, pokeweed, goldenrod, and Fern spp. MCs: Erosion, trash, invasive saplings, and Asiatic dayflower.

**Unit:** 166  
**Acreage:** 0.15  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Locust, black	<5' & 5-30'	Yes			Trash
Deciduous	Mulberry, white	all	Yes			
Phanerophytes	Hackberry	all				
Slope	Maple, sycamore	<5' & 5-30'	Yes			
Dry/Moist	Paulownia	<5' & >30'	Yes			
	Ailanthus	<5' & >30'	Yes			

### Comments:

This unit of scrub occurs on a very steep slope with regenerating trees dominating the understory. The following trees are all present as both medium and large individuals and regenerating saplings: black locust, white mulberry, hackberry, sycamore maple, Paulownia, Ailanthus, and black birch. American elm is regenerating but not present in the subcanopy. There are dead trees on the forest floor. Other species present in this unit include: multiflora rose, wineberry, porcelainberry, Japanese honeysuckle, oriental bittersweet, mugwort, and garlic mustard. MCs: Trash and multiple invasive species.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 167  
**Acreage:** 0.949  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Locust, black	all	Yes		Foot traffic	Erosion
Deciduous	Elm spp.	all				Trash
Hemicryptophytes	Maple, Norway/Syc	<5' & 5-30'	Yes			Auto
Slope	Oak, red	all				
Dry/Moist	Cherry, black	all				
	Ailanthus	all	Yes			

### Comments:

Black locust dominated woodland with some American elm, Norway maple, sycamore maple, red oak, black cherry and Ailanthus in the canopy and subcanopy. All of the species in the canopy, except black locust, also existed as regenerating saplings. In addition to these saplings there were also bitternut hickory saplings, however the understory was dominated by herbs such as garlic mustard, mugwort, Avens spp., burdock, Aster spp., and enchanter's nightshade. Poison ivy is climbing up many of the trees. MCs: Erosion, trash, invasive maples and herbs. There are an abundance of dead, fallen trees in the northern portion of this unit as well as an immense amount of garbage including an abandoned car at the edge of the lawn.

**Unit:** 168  
**Acreage:** 0.048  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	>30'	Yes			Trash
Deciduous	Maple, sycamore	all	Yes			
Phanerophytes	Hackberry	<5' & 5-30'				
Slope	Maple, Norway	all	Yes			
Dry/Moist	Elm, American	<5' & 5-30'				
	Ailanthus	<5' & 5-30'	Yes			

### Comments:

Closed forest dominated by black locust with sycamore maple, Norway maple, hackberry, American elm, Ailanthus, and ash all common. The understory is dominated by regenerating sycamore maple, hackberry, American elm, Norway maple, and black cherry. species present include dogwood spp., Japanese honeysuckle, poison ivy, garlic mustard, Avens spp., smooth Solomon's seal, pokeweed, white wood aster, and white snakeroot. There is a large wasps' nest in the northern end of this unit and many shells are in the soil throughout the unit, indicating that it may have been a shell midden. MCs: Trash and invasives.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 169  
**Acreage:** 0.075  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Cherry, black	<5' & 5-30'				
Deciduous	Hackberry	<5' & 5-30'				
Hemicryptophytes	Birch, black	>30'				
Slope	Porcelainberry	<5'	Yes			
Moist	Oriental bittersweet	<5'	Yes			

### Comments:

A woodland on a very rocky slope that is dominated by black cherry and hackberry, with black birch also common. The northwest part of this unit is a vineland with porcelainberry and oriental bittersweet overtaking Boston ivy. Japanese honeysuckle and Virginia creeper are also present in this unit, however herbs dominate the understory. These herbs include white snakeroot, Asiatic dayflower, heart-leaved aster, smooth Solomon's seal, garlic mustard and lamb's quarters. Multiflora rose and regenerating hackberry, black cherry, black birch and American elm are also present. Water runs under parts of this unit. MCs: Invasives vines and multiflora rose.

**Unit:** 170  
**Acreage:** 0.045  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Scrub	Maple, sycamore	<5' & 5-30'	Yes		Foot traffic	
Deciduous	Pokeweed	<5'	Yes			
Phanerophytes	Elm, American	<5' & 5-30'				
Slope	Cherry, black	<5' & 5-30'				
Dry/Moist	Paulownia	5'-30'	Yes			
	Porcelainberry	<5' & 5-30'	Yes			

### Comments:

Scrub dominated by sycamore maple and pokeweed with American elm, black cherry, Paulownia, and porcelainberry also very common. Pokeweed is very abundant in canopy gaps. Porcelainberry is taking down elms at the top of the slope. Regenerating maple, American elm, and black cherry dominate the understory, however porcelainberry is a major MC and vines could take over this unit. Other species in the understory include Japanese honeysuckle, mugwort, bittersweet nightshade and white snakeroot. The groundcover in this unit includes a blanket of poison ivy and garlic mustard as well as several large boulders and fallen trees. The trail in this unit has been marked with paint on the trees.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 171  
**Acreage:** 0.443  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, Norway	all				
Deciduous	Hickory, bitternut	>30'	Yes			Erosion
Geophytes	Oak, red	>30'				Trash
Slope	Tulip tree	>30'				
Dry/Moist	Sweetgum	>30'				
	Birch, black	all				

### Comments:

The largest trees of this closed forest are bitternut hickory, tulip, red oak, and sweetgum, however Norway maple is the most dominant species due to its sheer numbers in all size classes. Sycamore maple and black birch are also common. The understory is sparse in some areas, particularly in a rocky section west of the trail that has no soil and running water at times. The understory includes regenerating black locust, white mulberry, and sycamore maple, but is dominated by garlic mustard. Other understory species include poison ivy, cucumber vine, enchanter's nightshade, jewelweed, clearweed, pokeweed, smooth Solomon's seal, jumpseed, and white snakeroot. MCs: Erosion, trash, invasive maples and garlic mustard. The tree growth is more dense in this unit than in 160 and the herbaceous layer is more patchy and less mixed.

**Unit:** 172  
**Acreage:** 0.378  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Hickory, bitternut	all				
Deciduous	Maple, Norway	all	Yes			Trash
Hemicryptophytes	Maple, sycamore	<5' & 5-30'	Yes			
Slope	Hackberry	all				
Dry/Moist	Cherry, black	5'- 30'				

### Comments:

This unit contains a city rare American Hophornbeam that is being overtaken by Norway maples. This woodland is on a slope with a large drop off 3/4 of the way down the hill side. Bitternut hickory and Norway maple dominate the canopy with sycamore maple, hackberry, and black cherry also common and chestnut oak and green ash present. Most of the saplings in the understory are hackberry, however red oak, bitternut hickory, black locust, sycamore and Norway maple are also regenerating. The understory is dominated by herbs like white snakeroot, smooth Solomon's seal, garlic mustard, goldenrod, Asiatic dayflower, Aster spp., bittersweet nightshade, and pokeweed. Other sp.: multiflora rose, Smilax, spicebush, Virginia creeper, & poison ivy. MCs: Trash & Norway maple.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 173  
**Acreage:** 0.518  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, American	>30' & 5-30'				Erosion
Deciduous	Maple, Norway	all	Yes			Trash
Phanerophytes	Maple, sycamore	all	Yes			
Slope	Cherry, black	>30' & 5-30'				
Dry/Moist	Birch, black	>30'				
	Hackberry	5'-30'				

### Comments:

A closed forest dominated by American elm, Norway maple, and sycamore maple, but also including black cherry, black birch, and hackberry. A few dead hickory and Paulownia are present and only bitternut hickory, Norway maple, and sycamore maple are regenerating. The understory, dominated by these saplings, is sparse with some poison ivy, white snakeroot, smooth Solomon's seal, and Aster spp. Rocks and boulders are scattered in this unit. MCs: Erosion, trash, and invasive maples. There is a large stump located at the top of this unit as well as several abandoned tires.

**Unit:** 174  
**Acreage:** 0.159  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Paulownia	>30'	Yes			Erosion
Deciduous	Oak, red	>30'				
Phanerophytes	Maple, sycamore	<5' & 5-30'	Yes			
Slope						
Dry/Moist						

### Comments:

Closed forest with large Paulownia in the canopy surrounded by a mixture of some large red oak and medium sized sycamore maple and a few black cherry and Ailanthus. The understory contains a herbaceous layer - in contrast to the surrounding unit which contains none; however the understory is dominated by regenerating sycamore maple, black locust, and black cherry. Other species in this unit include black birch, spicebush, Rubus sp., poison ivy, Aster spp., jumpseed, and Goldenrod sp. This unit contain a very steep slope and the understory is more sparse as you move downslope. MC: erosion. There is a large, intentionally cut, stump (although top of stump has fallen into unit 173) located in this unit.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 175  
**Acreage:** 0.914  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Hickory, bitternut	all			Foot traffic	Erosion
Deciduous	Oak, red	<5' & >30'				Dumping
Phanerophytes	Maple, Norway	all	Yes			
Slope	Spicebush	5'-30'				
Dry/Moist	Sassafras	<5' & 5-30'				
	Maple, sycamore	5'-30'	Yes			

### Comments:

A closed forest with a few gaps created by downed trees. The canopy is dominated by bitternut hickory and red oak with Norway maple, sassafras and sycamore maple also present. The diverse understory includes regenerating Norway maple, black locust, red oak, bitternut hickory and sassafras, as well as spicebush, multiflora rose, poison ivy, smooth Solomon's seal, enchanter's nightshade, pokeweed, Aster spp., white snakeroot and Virginia knotweed. The border adjacent to the managed lawn is a large cliff. At the northeastern edge beside the paved path is a restoration site with tree and shrub plantings. MCs: Erosion and invasive maples.

**Unit:** 176  
**Acreage:** 0.45  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Maple, sycamore	all	Yes			Erosion
Deciduous	Oak, red	>30'				Dumping
Phanerophytes	Sourgum	<5' & >30'				
Slope	Elm, American	>30' & 5-30'				
Moist	Cherry, black	>30'				

### Comments:

This woodland is dominated by sycamore maple, however the largest trees are red oak, sourgum, American elm, and black cherry. Saplings, mostly sycamore maple, but also some sourgum, dominate the understory. Spicebush is common in this unit, but threatened by porcelainberry. Other species in this unit include multiflora rose, porcelainberry, poison ivy, Indian strawberry, garlic mustard, pokeweed, bittersweet nightshade, jumpseed, and white wood aster. The northern position of the unit is very rocky and steep with thick vegetation in the understory. MCs: Erosion, dumping and invasive species.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 177  
**Acreage:** 0.233  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Elm, American	>30' & 5-30'			Foot traffic	
Deciduous	Mulberry spp.	>30' & 5-30'	Yes			
Hemicryptophytes	Hackberry	5'-30'				
Undulating	Cherry, black	5'-30'				
Moist	Hickory spp.	<5' & 5-30'				
	Maple, Norway	<5' & 5-30'	Yes			

### Comments:

Dense woodland dominated by American elm with some white mulberry, hackberry, black cherry, bitternut hickory, and Norway maple. The understory includes saplings of hackberry, bitternut hickory, red oak, and Norway maple, but is dominated by herbs including garlic mustard, Goldenrod sp., and Indian strawberry. This unit also includes wineberry, Rubus sp., Virginia knotweed, porcelainberry, and Virginia creeper. This unit is surrounded by vineland (unit 180) and managed lawn (unit 8). MCs: Invasive trees and garlic mustard.

**Unit:** 178  
**Acreage:** 0.299  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, Norway	>30' & 5-30'	Yes		Foot traffic	Erosion
Deciduous	Sourgum	all				Trash
Phanerophytes	Maple, sycamore	5'-30'	Yes			
Slope						
Moist						

### Comments:

Area dominated by Norway maples, but includes very big sourgum trees which are sending up suckers all around them. There is also some sycamore Maple. The understory is mostly barren, with regenerating bitternut hickory, spicebush, and poison ivy. MCs: Erosion, trash, and invasive maples. The western edge of this unit contains exposed rock on the slope.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 179  
**Acreage:** 0.106  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Mulberry, white	5'-30'	Yes		Foot traffic	
Deciduous	Locust, black	>30'	Yes			
Chamaephytes	Cherry, black	5'-30'				
Undulating						
Dry/Moist						

### Comments:

At times a stream flows through this closed forest from an overflowing manhole in the managed lawn to the southwest and into the vineland to the northeast. The canopy of this unit is dominated by white mulberry with black locust and black cherry common. The understory is dominated by bushes such as spicebush, multiflora rose, and Amur honeysuckle, but also includes regenerating white mulberry, bitternut hickory, slippery elm, and hackberry, as well as Japanese knotweed, Virginia knotweed, white avens, garlic mustard, and some poison ivy. MCs: Invasive species and erosion as a result of the intermittent stream.

**Unit:** 180  
**Acreage:** 0.11  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	<5' & 5-30'	Yes			
Deciduous	Knotweed, Japanese	<5'	Yes			
Lianas						
Level						
Dry/Moist						

### Comments:

Vineland of porcelainberry and Japanese knotweed, with some mugwort in southern end, and some Virginia knotweed, horseweed, milkweed, and bindweed. The vines are climbing up trees in adjacent units. MCs: Area dominated by invasives.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 181  
**Acreage:** 0.559  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	>30'	Yes		Habitation	Erosion
Deciduous	Cherry, black	5'-30'				Trash
Phanerophytes	Maple, sycamore	5'-30'	Yes			
Slope	Ash, green	<5' & 5-30'				
Dry/Moist	Oak, red	<5' & 5-30'				

### Comments:

Closed forest with black locust dominating canopy. Mid-sized trees include red oak, sycamore maple, green ash, slippery elm on slope and crabapple and black cherry along the upper edge of the slope. Understory dominated by regenerating black locust, black cherry, and red oak. Patches of Japanese knotweed, wineberry, oriental bittersweet, and garlic mustard. Herbaceous layer includes white snakeroot, enchanter's nightshade, poison ivy, Aster spp., bittersweet nightshade, lady's thumb, true Solomon's seal, giant ragweed, pokeweed, jumpseed, avens, lamb's quarters, Asiatic dayflower, poor man's pepper, mugwort and Mexican mint. There is a habitation on the building adjacent to the unit. There are two well-worn paths cutting through this end of the

unit. Both are covered with a great deal of trash and broken glass. MCs: Erosion, trash, Japanese knotweed encroaching from neighboring unit. There is a large amount of dumping on the edge and just outside of this unit, as well as a homeless habitation.

The footpath in this unit was invisible due to large amounts of trash and glass.

**Unit:** 182  
**Acreage:** 0.378  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Cherry, black	>30'			Foot traffic	Trash
Deciduous	Locust, black	>30'				
Geophytes	Knotweed, Japanese	<5' & 5-30'	Yes			
Undulating	Sassafras	>30'				
Dry/Moist						

### Comments:

Woodland dominated by black cherry, black locust, and to a lesser extent Sassafras. The understory is dominated by Japanese knotweed. Some other species exist, but mostly on the edges. These species include regenerating bitternut hickory, black locust, Sassafras, Norway maple, white mulberry, crabapple, and hackberry, as well as Virginia knotweed, wineberry, poison ivy, oriental bittersweet, Virginia creeper, mugwort, garlic mustard, Aster spp., smartweed, enchanter's nightshade, and pokeweed. MCs: Trash and Japanese knotweed.

There are numerous footpaths leading into this unit.

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## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 183  
**Acreage:** 0.296  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	<5' & 5-30'	Yes			
Deciduous	Hackberry	<5' & 5-30'				
Lianas	Cherry, black	<5' & 5-30'				
Level	Locust, black	5'-30'	Yes			
Dry/Moist	Mulberry, white	5'-30'	Yes			

### Comments:

This vineland, bordering a maintained lawn and stretching back into the forest, is dominated by porcelainberry strangling various mid-sized and small trees. Regenerating trees include Sycamore maple, bitternut hickory, and ash. Other species include blackhaw, multiflora rose, wineberry, oriental bittersweet, poison ivy, river grape, mugwort, and garlic mustard. MCs: Invasives (mainly porcelainberry and white mulberry), but also city rare river grape.

**Unit:** 184  
**Acreage:** 0.2  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Elm, American	>30'	No			
Deciduous	Cherry, black	>30' & 5-30'				
Phanerophytes	Hackberry	<5' & 5-30'				
Level	Maple, red	>30' & 5-30'				
Dry	Ailanthus	>30' & 5-30'	Yes			

### Comments:

The canopy of this closed forest is dominated by American elm, black cherry, and to a lesser extent hackberry, red maple, and Ailanthus. The understory is dominated by regenerating saplings, mostly Norway and sycamore maple with a patch of hackberry, but including a few bitternut hickory, ash, black cherry, red maple, and red oak. Arrowwood, Siebold Viburnum, enchanter's nightshade, blackhaw, Pyrus spp., and Virginia creeper are also found throughout the understory of the unit. Oriental bittersweet and porcelainberry are also present, but exist mostly on the outside (managed lawn) edge of the unit. In addition there are patches of dense garlic mustard and poison ivy within this unit. MCs: Invasives - vines, saplings, and garlic mustard.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 185  
**Acreage:** 0.268  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	>30' & 5-30'			Manhole	Habitation
Deciduous	Cherry, black	>30' & 5-30'				Trash
Chamaephytes	Maple, Norway	>30' & 5-30'	Yes			
Undulating						
Dry/Moist						

### Comments:

Closed forest of black locust, black cherry, and Norway maple with regenerating sycamore maple, slippery elm, bitternut hickory, and hackberry. The understory is dominated by multiflora rose and spice bush, but also includes Japanese knotweed, Virginia knotweed, oriental bittersweet, porcelainberry, poison ivy, Virginia creeper, garlic mustard, mugwort, heart-leafed aster, white wood aster, true Solomon's seal and a few white vervain. MCs: Trash, multiflora rose, Norway maple, and Japanese knotweed. This unit contains a bricked over manhole and man made drainage ditch, which when dry become a footpath, as well as a relic habitation structure. Garlic mustard is abundant in the this unit and in some places resembles a carpet.

**Unit:** 186  
**Acreage:** 0.178  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, sycamore	all	Yes	Exotic planting	Foot traffic	Soil compaction
Deciduous	Paulownia	>30'	Yes			Dumping
Phanerophytes	Ailanthus	>30'				
Undulating	Cherry, black	>30'				
Dry/Moist	Hickory, bitternut	all				
	Maple, red	>30'				

### Comments:

Closed forest dominated by sycamore maple, however largest trees are black locust, Paulownia, Ailanthus, bitternut hickory, black cherry, and red maple. The understory contains little to no herbaceous layer and is dominated by regenerating sycamore maple and bitternut hickory. The vines poison ivy, porcelainberry, oriental bittersweet, Virginia creeper, and Japanese honeysuckle are also present. MCs: Invasives, soil compaction, foot traffic and dumping are issues in this unit.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 187  
**Acreage:** 0.083  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland Deciduous Lianas Level Dry/Moist	Porcelainberry Grape, river	<5' & 5-30' <5' & 5-30'	Yes			

### Comments:

Porcelainberry covering entire unit with river grape also present. Underneath the vines there is some multiflora rose and Japanese knotweed. MCs: Mostly invasive species, but also the city rare river grape.

**Unit:** 188  
**Acreage:** 0.619  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Phanerophytes Slope Dry/Moist	Maple, Norway Cherry, black Maple, sycamore Sourgum Sassafras	all all <5' & 5-30' >30' & 5-30' <5' & 5-30'	Yes  Yes			Stream

### Comments:

A closed forest of mostly Norway maple and black cherry with a few sycamore maple, sourgum, and sassafras. The understory is dominated by Norway maple, red oak, bitternut hickory, American elm and Sassafras saplings, but also includes lots of poison ivy and some wineberry and multiflora rose. The following species are also present in this unit: blackhaw, Virginia creeper, greenbrier, garlic mustard, heart-leaved Aster, true Solomon's seal, and Virginia knotweed. MCs: Trash, Norway maple, and invasive shrubs. This unit is extremely wet due to a stream running through it (see Streams map). The herbaceous layer covers the ground in contrast to unit 193, although vines are encroaching and beginning to suffocate herbaceous layer and climb up trees.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 189  
**Acreage:** 0.467  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland Deciduous Lianas Undulating Moist	Porcelainberry Grape, river	all all	Yes			Trash

### Comments:

Porcelainberry and the city rare river grape blanket this unit, making the center impenetrable and covering the trees that border this unit. This unit is wet, at least seasonally, and also contains oriental bittersweet and poison ivy. MCs: Invasives and city rare river grape.

**Unit:** 190  
**Acreage:** 1.617  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest Deciduous Geophytes Undulating Moist	Cherry, black Maple, sycamore Knotweed, Japanese Paulownia	<5' & >30' >30' & 5-30' <5' >30'		Full-crown tree Exotic planting Old Fort George		Trash Dumping Erosion

### Comments:

This unit includes part of historic Fort George. The ruins consist of a long rock wall that cuts across the unit at the top of a small hill. The unit is a closed forest whose canopy is dominated by black cherry and sycamore maple, but also includes birch and three large Royal Paulownia near the Fort George wall, as well as scattered sassafras, ash, Norway maple, red maple and regenerating black locust and sassafras. The understory includes encroaching Japanese knotweed and oriental bittersweet from neighboring units, as well as wineberry, Virginia knotweed, poison ivy, Virginia creeper, mugwort, garlic mustard, lady's thumb, pigweed, white avens, enchanter's nightshade, Asiatic dayflower, Aster spp., and white snakeroot. There are several rock faces in the unit and a shallow wash near the Fort George wall. There is a 25 ft. rock face and an abundance of old growth trees near the relic fort. There is a rain wash on the slope of this unit heading towards the street level.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 191  
**Acreage:** 0.212  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Tulip trees	>30'			Manhole	Foot traffic
Deciduous	Oaks (red and white)	>30'				Dumping
Lianas	Hickory	all				Trash
Undulating	Maple, Norway	all	Yes			Auto
Moist	Maple, red	>30'				
	Maple, sycamore	all	Yes			

### Comments:

A closed forest dominated by a mix of very large tulip trees, some oaks (red and white), bitternut hickory, and red maple, as well as some sycamore maple, Norway maple, white mulberry, and black locust. In the understory encroaching oriental bittersweet and porcelainberry dominate along with multiflora rose and Japanese knotweed. The understory also includes regenerating bitternut hickory, Norway maple, Sassafras, and black cherry, as well as Aster spp. and garlic mustard. There are a lot fallen trees and branches in the understory. The unit contains remnants of an abandoned car. The long portion of this unit, adjacent to unit 10, is marked by a small steep rise with a brick-covered manhole near it. MCs: Trash and invasive vines and shrubs in the understory.

**Unit:** 192  
**Acreage:** 0.405  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, Norway	all	Yes		Foot traffic	Erosion
Deciduous	Maple, sycamore	all	Yes			
Phanerophytes	Sassafras	all				
Slope	Cherry, black	>30' & 5-30'				
Dry/Moist						

### Comments:

A Norway and sycamore maple forest, with some Sassafras and black cherry also present in the canopy. The understory is dominated by Norway maple saplings, but also includes Sassafras, sycamore maple, and American elm saplings as well as Aster ivy, and Virginia knotweed. There are rock outcrops throughout the unit and two streams flowing through this unit. The understory in this unit is sparser than in the neighboring unit 205 and the terrain is much rockier. MCs: Erosion and invasive maples.

The understory in this unit is morer sparse than unit 206 and the terrain is much rockier.

City of New York, Parks and Recreation, Natural Resources Group

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 193  
**Acreage:** 0.354  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Hickory, bitternut	all			Foot traffic	Fire
Deciduous	Greenbrier	5'-30'				Trash
Phanerophytes	Cherry, black	>30' & 5-30'				
Slope	Ivy, poison					
Dry/Moist	Maple, Norway	5'-30'	Yes			
	Maple, sycamore	5'-30'	Yes			

### Comments:

Woodland dominated by bitternut hickory and black cherry in the canopy, Norway and sycamore maple in the subcanopy and the vines greenbrier and poison ivy in both the subcanopy and the understory. Most of the large trees in this unit are currently free from encroaching vines. Trees are located in patches and around the edge of the unit and it is basically vineland in between. Other species include oriental bittersweet, Japanese honeysuckle, Virginia creeper, multiflora rose, Viburnum spp., Rubus sp., garlic mustard, and regenerating bitternut hickory, black cherry, red oak, and devil's walking stick. It appears that none of these are growing under the vine layer in this unit. There is a small footpath running through the unit. MCs: Invasive maples and trash.

**Unit:** 194  
**Acreage:** 0.382  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Maple, Norway	all	Yes		Foot traffic	
Deciduous	Maple, sycamore	all	Yes		Garden	
Phanerophytes	Cherry, black	>30' & 5-30'			Habitation	
Undulating	Oak, red	>30'				
Dry/Moist	Ash, green	<5' & 5-30'				
	Ivy, poison	all				

### Comments:

This closed forest consists of trees above and below a small rock cliff (10ft) next to the path that borders the park edge. The unit runs parallel to Dyckman Street, north from the intersection with 10th Avenue. Most of the trees are above the edge with Norway maple, sycamore maple, black cherry, and red oak, and to a lesser extent green ash all present and regenerating. Sycamores are more common in the southeast portion of this unit while black cherries dominate in the northwest section of the unit. On the street level river birch has been planted and there are small areas of illegally planted gardens. At least two ephemeral springs pass through this unit. Groundcover includes poison ivy, Virginia knotweed and a goldenrod species, but is sparse as the understory is dominated by saplings. There is an abandoned homeless habitation in this unit. MCs: Invasive maples.

City of New York, Parks and Recreation, Natural Resources Group

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 195  
**Acreage:** 0.373  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Hickory, bitternut	all			Foot traffic	Trash
Deciduous	Cherry, black	<5' & 5-30'				Dumping
Lianas	Elm, American	>30'				
Slope	Maple, Norway	<5' & 5-30'	Yes			
Dry/Moist	Rose, multiflora	<5'	Yes			
	Ivy, poison	<5'				

### Comments:

Closed forest dominated by bitternut hickory with a few large American elm. The subcanopy is full of black cherry and Norway maple, with a few birch and crabapple. The understory is dominated by vines such as Virginia creeper, poison ivy, greenbrier, and Japanese honeysuckle, but also including shrubs like wineberry and multiflora rose. In addition bitternut hickory, Norway maple, red oak, and ash are all regenerating. MCs: Trash, Norway maple, and other invasives.

**Unit:** 196  
**Acreage:** 0.144  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Sassafras	all				Trash
Deciduous	Hickory, bitternut	<5' & 5-30'				
Chamaephytes	Elm, slippery	<5'				
Undulating	Cherry, black	>30'				
Dry/Moist	Birch, black	>30' & 5-30'				

### Comments:

The city rare Indian pipe is present in this unit. The unit is a closed forest dominated by Sassafras with a few bitternut hickory, large black cherries, and black birch and a healthy understory dominated by shrubs like spicebush, multiflora rose, and Rubus sp. The understory also includes regenerating Sassafras, bitternut hickory, red oak, slippery elm, and sycamore maple, as well as elderberry, poison ivy, oriental bittersweet, Virginia creeper, wild strawberry, Virginia knotweed, garlic mustard, and rough-stemmed goldenrod. MCs: Trash, multiflora rose, and the city rare Indian pipe.



## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 197  
**Acreage:** 0.139  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Grape, river	all	Yes		Habitation	Trash
Deciduous	Knotweed, Japanese	<5'	Yes			
Lianas	Ivy, poison					
Slope	Oriental bittersweet	all	Yes			
Moist						

### Comments:

A vineland of mostly river grape (a city rare species) with some oriental bittersweet, poison ivy and Japanese knotweed. The vines are climbing the trees that surround the edge of this unit. These surrounding trees include ash, Sassafras, bitternut hickory, and sycamore maple. A habitation is present on the northern eastern edge of this unit with trash scattered around it. Other MCs: Invasive vines, Japanese knotweed, and the city rare river grape are present.

**Unit:** 198  
**Acreage:** 0.256  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Devil's walk stk	5'-30'	Yes		Foot traffic	Trash
Deciduous	Rose, multiflora	<5'	Yes		Habitation	Dumping
Phanerophytes	Virginia creeper	<5'				Erosion
Undulating	Cherry, black	>30'				
Dry/Moist	Birch, black	>30'				

### Comments:

This closed forest contains a city rare dogwood sp. (cornus racemosa) and a non-native orchid (Epicactis helleborine). The unit is dominated by devil's walking stick with a few larger black cherries and black birch also present. The understory is dominated by regenerating Sassafras, crabapple, red oak, bitternut hickory, American elm, and Populus spp. The diverse understory also includes multiflora rose, Japanese knotweed, spicebush, Virginia creeper, Grape sp., greenbrier, oriental bittersweet, porcelainberry, and enchanter's nightshade. There is the partly buried shell of an abandoned car in this unit, which is becoming overgrown with trees and plants. There are an abundance of dead branches and trees. MCs: Many invasives are, or could become, a problem in this unit, however, other natives, including the city rare gray dogwood, make this an area worth managing carefully.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 199  
**Acreage:** 0.221  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Oak, white	>30'				
Deciduous	Ash, green	>30'				
Phanerophytes	Hickory, bitternut	>30' & 5-30'				
Undulating	Crabapple	<5' & 5-30'				
Dry/Moist	Ironwood	5'-30'				
	Devil's walk stk	<5' & 5'-30'	Yes			

### Comments:

A closed forest with white oak, green ash and bitternut hickory in the canopy. The understory is dominated by trees including small-medium sized crabapples, devil's walking stick, Norway maple and patches of ironwood and Sassafras, as well as regenerating devil's walking stick, gray birch, and red oak. The understory also includes grey dogwood, maple-leaved viburnum, Japanese barberry, spindle tree, Virginia creeper, poison ivy, oriental bittersweet, Aster spp., false Solomon's seal, pokeweed, and mosses. Oriental bittersweet is choking the ironwoods. Virginia creeper is abundant and is beginning to climb trees.

**Unit:** 200  
**Acreage:** 0.143  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Alder, black	>30' & 5-30'			Foot traffic	Fire
Deciduous	Hickory, bitternut	all				Dumping
Phanerophytes	Greenbrier	<5' & 5-30'				Trash
Slope	Maple, Norway	<5' & 5-30'	Yes			
Dry/Moist	Oak, pin	<5' & 5-30'				
	Locust, black	<5' & 5-30'	Yes			

### Comments:

This area has been exposed to fire and consists of a woodland dominated by black cherry and bitternut hickory in the canopy and pin oak, black locust, Norway maple, and devil's walking stick present in the subcanopy. All tree species mentioned, except for black cherry, are regenerating and saplings, in general, dominate the understory. In addition there is also a patch of Ailanthus in the canopy near a rocky area in this unit. Openings are present in the canopy and are the result of dead trees now covered in greenbrier and poison ivy. The understory contains lots of greenbrier, as well as crabapple, wineberry, Japanese honeysuckle, Virginia knotweed, Virginia creeper, oriental bittersweet, mugwort, and garlic mustard. There is a homeless habitation in this unit. MCs: Trash and dumping.

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## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 201  
**Acreage:** 0.1  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Birch, black	all				Erosion
Deciduous	Cherry, black	>30' & 5-30'				
Chamaephytes	Birch, grey	<5' & 5-30'				
Slope	Maple, sycamore	<5' & 5-30'	Yes			
Dry/Moist						

### Comments:

This unit straddles the ridge above the black willows (unit xxx) and contains many early succssional species. It is a closed forest of mostly birch (grey and black) and black cherry, but also includes sycamore maple and saplings of sycamore and Norway maple, red oak, black cherry, and bitternut hickory. The understory is dominated by shrubs including wineberry, Euonymus bush, arrowwood, and maple-leaved viburnum, as well as oriental bittersweet and heart-leaved aster. MCs: Invasive maples, shrubs and vines.

**Unit:** 202  
**Acreage:** 0.03  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	<5'	Yes			
Deciduous	Virginia creeper	<5'				
Lianas	Ivy, poison	<5'				
Slope						
Moist						

### Comments:

Porcelainberry, Virginia creeper, and poison ivy are climbing all over this steep rocky slope and into nearby trees. Porcelainberry appears to be outcompeting Virginia creeper. MCs: Porcelainberry.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 203  
**Acreage:** 0.531  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Willow, black	>30'			Foot traffic	Trash
Deciduous	Hickory, bitternut	<5' & 5-30'				Dumping
Phanerophytes	Mulberry, white	<5' & 5-30'	Yes			Feces
Level	Cherry, black	all				
Wet	Sassafras	<5' & 5-30'				
	Ivy, poison	all				

### Comments:

This unit is located at the base of a rocky cliff in a depression that regularly fills with water. It is a closed forest dominated by two large black willows, bitternut hickory, white mulberry, black cherry, and sassafras. Other trees include red maple, elm, pin oak, Norway and sycamore maple. Saplings of bitternut hickory, sassafras, Norway maple, white mulberry, and black cherry dominate the understory, although there are thick patches of Japanese knotweed and blackhaw. Other species include Viburnum sp., wineberry, Rubus sp., porcelainberry, oriental bittersweet, Virginia creeper, poison ivy, enchanter's nightshade, pokeweed, garlic mustard, and Avens spp. MCs: Some invasives present. Feces on footpaths, and trash littered throughout.

**Unit:** 204  
**Acreage:** 0.091  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Greenbrier	5'-30'				Fire
Deciduous	Devil's walk stk	<5' & 5-30'	Yes			Trash
Lianas	Locust, black	<5'				
Slope	Blrch, grey	<5'				
Dry/Moist	Sassafras	<5' & 5-30'				
	Pokeweed	<5'				

### Comments:

This unit is co-dominated by herbs and vines. Greenbrier is the single most dominant species, however many herb species are present, including pokeweed, garlic mustard, grasses, Aster spp., white snakeroot, and true Solomon's seal. Also present are Rubus sp., Virginia creeper, poison ivy, and porcelainberry. There is evidence of fire in this unit (charred branches). The unit is distinguished by five standing dead trees. MC: Devil's walking stick.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 205  
**Acreage:** 0.352  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Woodland	Oak, white	all		Foot traffic	
Deciduous	Oak, red	all			
Hemicryptophytes	Cherry, black	<5' & >30'			
Slope	Oak, pin	>30'			
Dry/Moist	Maple, red	>30' & 5-30'			
	Sassafras	<5' & 5'-30'			

### Comments:

This is an oak (mostly red and white, some pin and one black) dominated woodland with some black cherry, sassafras, and a few green ash, bitternut hickory, and black locust and one (40') large red maple. The understory is dominated by herbs such as true Solomon's seal, white snakeroot, Aster spp., grasses, and Fern spp. The understory also includes maple-leaved viburnum and young Norway and sycamore maple, as well as encroaching oriental bittersweet and greenbrier. Poison ivy dominates in the eastern portion of this unit, which is accessible by a path overgrown with poison ivy (not mapped). This unit is distinguished from the neighboring unit 207 by the abundance of herbaceous species. There is a mattress in this unit, which might indicate a homeless habitation. MCs: Invasive maples, otherwise a healthy unit.

**Unit:** 206  
**Acreage:** 0.996  
**Mgmt. Concern:** No

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u> <u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	>30'		Foot traffic	Dumping
Deciduous	Maple, Norway	<5' & 5-30'	Yes		Trash
Phanerophytes	Cherry, black	5'-30'			
Undulating	Hickory	<5' & 5-30'			
Moist	Oak	<5' & 5-30'			
	Elm spp.	<5' & 5-30'			

### Comments:

This closed forest is dominated by large black locust with Norway maples in various stages of growth also present throughout the unit. The forest also includes midsize hickory, oak, elm, and regenerating Norway maple and bitternut hickory. Besides these saplings and a little bit of Virginia knotweed, Aster spp. and wineberry the understory of this unit is barren. There is extensive dumping on the Fort George Hill Road edge of this unit. The eastern edge of this unit is lawn which appears to be managed.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 207  
**Acreage:** 0.116  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Cherry, black	>30' & 5-30'			Campfire/ party	Trash
Deciduous	Crabapple	>30'			Foot traffic	
Phanerophytes	Maple, Norway	>30' & 5-30'	Yes			
Slope	Sassafras	>30' & 5-30'				
Dry/Moist	Spicebush	5'-30'				
	Blackhaw	5'- 30'				

### Comments:

Closed forest of black cherry, crabapple, Norway maple, sassafras, and to a lesser extent Ailanthus and grey birch. This unit is seriously threatened by encroaching porcelainberry and oriental bittersweet from the unit to the north. In addition to small trees and vines, the understory of this unit includes large spicebush and blackhaw, as well as multiflora rose. An herbaceous layer is largely absent and rocks are exposed in many areas. MC: Trash and encroaching invasive vines. There is a footpath running through this unit that is covered with trash. This unit sits on top of a rock bluff to the east and is bordered by another rock bluff to the west.

**Unit:** 208  
**Acreage:** 0.282  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Vineland	Porcelainberry	>30'	Yes		Foot traffic	Trash
Deciduous	Mugwort	<5'	Yes			
Phanerophytes	Wineberry	5'-30'	Yes			
Level	Virginia creeper	5'-30'				
Moist						

### Comments:

This vineland is located within a canopy gap and consists of porcelainberry overgrowing mugwort, wineberry and regenerating red oak, bitternut hickory, slippery elm, and Norway maple. Goldenrod, ironwood and dogwood sp. (city rare) are located within the unit. The unit is distinguished by a vineland archway on the footpath that runs through this unit. This path is covered in trash and there is a dead tree that has fallen across it. MCs: Trash, invasives, dogwood conservation.

## Highbridge Entitation Unit Descriptions, Surveyed August 2005

**Unit:** 209  
**Acreage:** 0.232  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Closed Forest	Locust, black	>30'				Trash
Deciduous	Maple, Norway	all	Yes			
Hemicryptophytes	Planetree, London	>30'	Yes			
Slope	Cherry, black	>30'				
Moist						

### Comments:

This closed forest is dominated by large black locust and plane trees, but includes both large and young Norway maple throughout, as well as large black cherry. There is a large chestnut oak in the south of the unit and some young bitternut hickory, white mulberry, and hackberry within the unit. The understory is dominated by herbs such as white snakeroot, mugwort, garlic mustard and Virginia knotweed, but also including wineberry, oriental bittersweet, and porcelainberry. It is more dense than unit xxx to the south. The western edge of the unit has a chainlink fence that has collapsed at its southern end and is covered in vines. This edge appears to have been mowed recently. There are several footpaths leading from Fort George Hill Road into this unit. The unit has many rock outcrops, as well as several large fallen branches in trees and on the ground.

**Unit:** 210  
**Acreage:** 0.049  
**Mgmt. Concern:** Yes

<u>Site</u>	<u>Species</u>	<u>Height</u>	<u>Exotic</u>	<u>Historical</u>	<u>Uses</u>	<u>Disturbances</u>
Herbaceous	Horsebalm	<5'		Exotic planting	Garden	
Deciduous	Chives	<5'	Yes			
Geophytes	Pepper	<5'	Yes			
Level	Malva verticillata	<5'	Yes			
Moist	Sonchus sp.	<5'	Yes			

### Comments:

Small cultivated areas inside and along the edge of the park. These gardens are not authorized by Parks. These areas are located near Fort George Hill Road, just north of the Highbridge walking bridge, and along Dyckman street. (This last area was too small to map.) Species present in this unit include horsebalm, chives, pepper, Sonchus sp. and cluster mallow. MCs: Illegal planting (mostly exotics).

## SECTION III: APPENDICES

### APPENDIX I: Glossary

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

**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.

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

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

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

**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.

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

**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.

**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.

**Non-point source pollution:** Pollution which cannot be traced back to a single origin. Rather, the source of such pollution is an area or conglomeration of sources, such as stormwater runoff.



**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.

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

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

**Spring ephemeral:** Forest herbs that grow, bloom and set fruit before the leaf canopy closes. They are not shade tolerant and must squeeze their life cycle into the time between the freezing weather of winter and the deep shade of summer.

**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.

**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.

## APPENDIX II: Species List

### Trees

Ailanthus/tree of Heaven	<i>Ailanthus altissima</i>
American elm	<i>Ulmus americana</i>
American hophornbeam	<i>Ostrya virginiana</i>
Basswood spp.	<i>Tilia</i> spp.
bitternut hickory	<i>Carya cordiformis</i>
black birch	<i>Betula lenta</i>
black cherry	<i>Prunus serotina</i>
black locust	<i>Robinia pseudoacacia</i>
black oak	<i>Quercus velutina</i>
black tupelo	<i>Nyssa aquatica</i>
black walnut	<i>Juglans nigra</i>
black willow	<i>Salix nigra</i>
boxelder	<i>Acer negundo</i>
Catalpa spp.	<i>Catalpa</i> spp.
chestnut oak	<i>Quercus prinus</i>
crabapple	<i>Pyrus prunifolia</i>
Eastern cottonwood	<i>Populus deltoides</i>
Eastern hornbeam	<i>Carpinus</i> sp.
fragrant sumac	<i>Rhus aromatica</i>
Ginkgo	<i>Ginkgo biloba</i>
green ash	<i>Fraxinus pensylvanica</i>
hackberry	<i>Celtis australis</i>
Holly spp.	<i>Ilex</i> spp.
honey locust	<i>Gleditsia triacanthos</i>
juniper spp.	<i>Juniperus</i> spp.
Kentucky coffeetree	<i>Gymnocladus dioica</i>
London planetree	<i>Platanus x hybrida</i>
mockernut hickory	<i>Carya tomentosa</i>
Norway maple	<i>Acer platanoides</i>
ornamental plum	<i>Prunus</i> spp.
pignut hickory	<i>Carya glabra</i>
pin oak	<i>Quercus palustris</i>
Populus spp.	<i>Populus</i> spp.
red maple	<i>Acer rubrum</i>
red oak	<i>Quercus rubra</i>
redbud	<i>Cercis canadensis</i>
river birch	<i>Betula nigra</i>
royal Paulownia	<i>Paulownia tomentosa</i>
Sassafras	<i>Sassafras albidum</i>
scholar tree	<i>Sophora japonica</i>
Siberian elm	<i>Ulmus pumila</i>
siebold viburnum	<i>Viburnum sieboldi</i>
silver maple	<i>Acer saccharinum</i>

slippery elm  
 small-leaved linden  
 sourgum  
 sugar maple  
 sweetgum  
 sycamore maple  
 Washington hawthorn  
 white mulberry  
 white oak  
 yellow poplar/tulip tree

*Ulmus rubra*  
*Tilia cordata*  
*Nyssa sylvatica*  
*Acer saccharum*  
*Liquidambar styraciflua*  
*Acer pseudoplatanus*  
*Crataegus phaenopyrum*  
*Morus alba*  
*Quercus alba*  
*Liriodendron tulipifera*

## Shrubs

Amelanchier spp.  
 American red raspberry  
 Amur honeysuckle  
 arrowwood  
 beaked willow  
 black raspberry  
 blackberry  
 blackhaw  
 bladdernut  
 choke-cherry  
 devil's walking stick  
 Dewberry spp.  
 Dogwood spp.  
 elderberry  
 grey/red-panicked dogwood  
 Hawthorn spp.  
 hoptree/wafer-ash  
 Japanese barberry  
 jetbead  
 maple-leaved Viburnum  
 matrimony-vine  
 mock-orange  
 multiflora rose  
 Privet spp.  
 Rose spp.  
 Rubus spp.  
 shadbush  
 shining/winged sumac  
 spicebush  
 spindle tree  
 staghorn sumac  
 wineberry  
 winged euonymus  
 witch hazel

*Amelanchier* spp.  
*Rubus idaeus*  
*Lonicera maackii*  
*Viburnum dentatum*  
*Salix bebbiana*  
*Rubus occidentalis*  
*Rubus allegheniensis*  
*Viburnum prunifolium*  
*Staphylea trifolia*  
*Prunus virginiana*  
*Aralia spinosa*  
*Rubus* spp.  
*Cornus* spp.  
*Sambucus canadensis*  
*Cornus racemosa*  
*Crataegus* spp.  
*Ptelea trifoliata*  
*Berberis thunbergii*  
*Rhodophytos scandens*  
*Viburnum acerifolium*  
*Lycium barbarum*  
*Philadelphus coronarius*  
*Rosa multiflora*  
*Ligustrum* spp.  
 Rosaceae  
*Rubus* spp.  
*Amelanchier canadensis*  
*Rhus copallinum*  
*Lindera benzoin*  
*Eunonymus europaeus*  
*Rhus typhina*  
*Rubus phoenicolsius*  
*Euonymus alatus*  
*Hamamelis virginiana*

## Herbs

amaranth	<i>Amaranthus blitum</i>
annual wormwood	<i>Artemisia annua</i>
Asiatic dayflower	<i>Commelina communis</i>
Aster spp.	<i>Aster</i> spp.
Avens spp.	<i>Geum</i> spp.
bedstraw	<i>Galium aparine</i>
Beggar ticks spp.	<i>Bidens</i> spp.
black-eyed Susan	<i>Rudbeckia hirta</i> var. <i>pulcherrima</i>
blue-stemmed goldenrod	<i>Solidago caesia</i>
bull thistle	<i>Cirsium vulgare</i>
burdock	<i>Rumex</i> sp.
butter-and-eggs/yellow toadflax	<i>Linaria vulgaris</i>
butterfly weed	<i>Asclepias tuberosa</i>
campion	<i>Silene</i> spp.
Canada goldenrod	<i>Solidago canadensis</i>
Canada thistle	<i>Cirsium arvense</i>
cardinal flower	<i>Lobelia cardinalis</i>
chicory	<i>Cichorium intybus</i>
cinquefoil	<i>Potentilla</i> spp.
clearweed	<i>Pilea pumila</i>
common beggar ticks	<i>Bidens frondosa</i>
common blue violet	<i>Viola papilionacea</i>
common mallow	<i>Malva neglecta</i>
common milkweed	<i>Asclepias syriaca</i>
common ragweed	<i>Ambrosia artemisiifolia</i>
common reed	<i>Phragmites australis</i>
curly dock	<i>Rumex crispus</i>
daisy fleabane	<i>Erigeron annuus</i>
dandelion	<i>Taraxacum officinale</i>
dogbane	<i>Apocynum</i> spp.
enchanter's nightshade	<i>Circaea lutetiana</i>
New England aster	<i>Symphotrichum novae-angliae</i>
evening primrose	<i>Oenothera biennis</i>
false Solomon's seal	<i>Smilacina racemose</i>
foxtail	<i>Setaria</i> spp.
garlic mustard	<i>Alliaria petiolata</i>
Goldenrod spp.	<i>Solidago</i> spp.
Grass spp.	Poaceae
great ragweed	<i>Ambrosia trifida</i>
heart-leaved aster	<i>Aster cordifolius</i>
helleborine	<i>Epicactis helleborine</i>
horse-nettle	<i>Solanum carolinense</i>
horseweed	<i>Conyza canadensis</i>
hyssop	<i>Agastache</i> sp.

Indian pipe	<i>Monotropa uniflora</i>
ironweed	<i>Vernonia</i> sp.
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>
jewelweed	<i>Impatiens capensis</i>
lady's thumb	<i>Polygonum persicaria</i>
lamb's quarters	<i>Chenopodium album</i>
little bluestem	<i>Schizachyrium scoparium</i>
Mexican mint	<i>Plectranthus amboinicus</i>
Mexican tea	<i>Chenopodium ambrosioides</i>
Milkweed spp.	<i>Asclepiadaceae</i>
mugwort	<i>Artemisia vulgaris</i>
Mullein spp.	<i>Verbascum</i> spp.
New York aster	<i>Aster novi-belgii</i>
pigweed	<i>Amaranthus retroflexus</i>
Plantain spp.	<i>Plantago</i> spp.
pokeweed	<i>Phytolacca americana</i>
poor-man's pepper	<i>Lepidium virginicum</i>
purple trillium/stinking Benjamin	<i>Trillium erectum</i>
Queen Anne's lace	<i>Daucus carota</i>
red clover	<i>Trifolium pratense</i>
Sedge spp.	<i>Cyperaceae</i>
smartweed	<i>Polygonum cespitosum</i>
smooth Solomon's seal	<i>Polygonatum biflorum</i>
Spanish needles	<i>Bidens bipinnata</i>
spotted St. Johnswort	<i>Hypericum punctatum</i>
stinging nettle	<i>Urtica dioica</i> var. <i>dioica</i>
sweet clover	<i>Melilotus</i> spp.
three-seeded mercury	<i>Acalypha rhomboidea</i>
Virginia copperleaf	
Virginia jumpseed	<i>Polygonum virginianum</i>
white avens	<i>Geum canadense</i>
white snakeroot	<i>Eupatorium rugosum</i>
white vervain	<i>Verbena urticifolia</i>
whitewood aster	<i>Aster divaricatus</i>
wild columbine	<i>Aquilegia canadense</i>
wild lettuce	<i>Lactuca canadensis</i>
wild strawberry	<i>Fragaria virginiana</i>
wood sorrel	<i>Oxalis</i> spp.
woodland sunflower	<i>Helianthus divaricatus</i>
yellow nutsedge	<i>Cyperus esculentus</i>

## Vines

bittersweet nightshade	<i>Solanum dulcamara</i>
Boston ivy	<i>Parthenocissus tricuspidata</i>
climbing false buckwheat	<i>Polygonum scandens</i>
common greenbrier	<i>Smilax rotundifolia</i>

common nightshade  
dodder  
Grape spp.  
hedge-bindweed  
Japanese honeysuckle  
Japanese hops  
morning-glory  
oriental bittersweet  
poison ivy  
porcelain-berry  
riverbank grape  
summer grape  
Virginia creeper  
wild cucumber  
wintercreeper

*Cuscuta* spp.  
*Vitis* spp.  
*Calystegia sepium*  
*Lonicera japonica*  
*Humulus japonicus*  
*Ipomoea* spp.  
*Celastrus orbiculatus*  
*Toxicodendron radicans*  
*Ampelopsis brevipedunculata*  
*Vitis riparia*  
*Vitis aestivalis*  
*Parthenocissus quinquefolia*  
*Echinocystis lobata*  
*Eunonymus fortunei*

### **Non-Flowering Plants**

Fern spp.  
lady fern  
Liverwort  
Moss spp.

*Pteridophyta*  
*Athyrium felix-femina*  
Hepaticae  
Musci

**City of New York  
Parks & Recreation  
Natural Resources Group**

Arsenal North, 1234 Fifth Avenue, New York, NY 10029

Michael R. Bloomberg, Mayor  
Adrian Benepe, Commissioner  
Bill Tai, Director  
Tim Wenskus, Senior Forester  
Craig Mandel, GIS/Data Manager

0 300 600 900 1,200 Feet

**Legend**

**Cover Type**

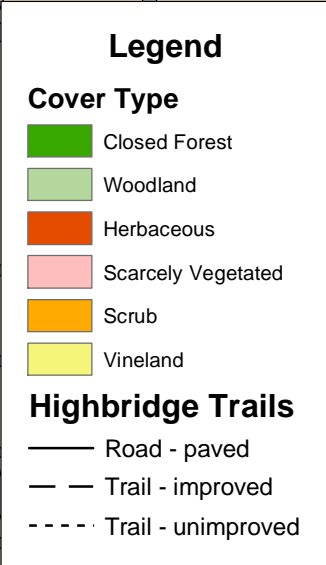
- Closed Forest
- Woodland
- Herbaceous
- Scarcely Vegetated
- Scrub
- Vineland

**Highbridge Trails**

- Road - paved
- Trail - improved
- Trail - unimproved

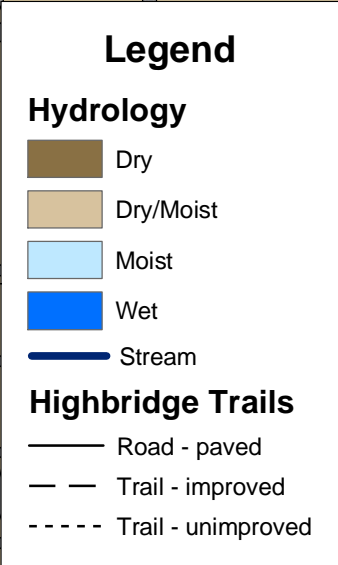
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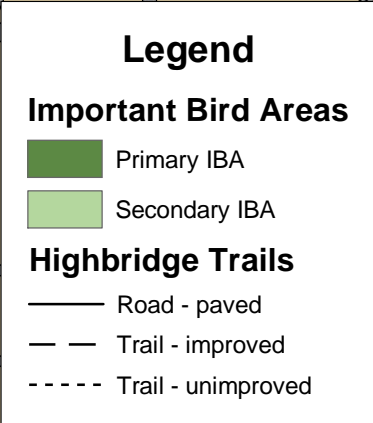


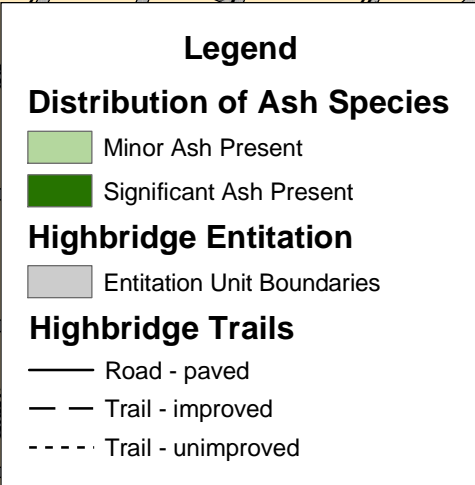


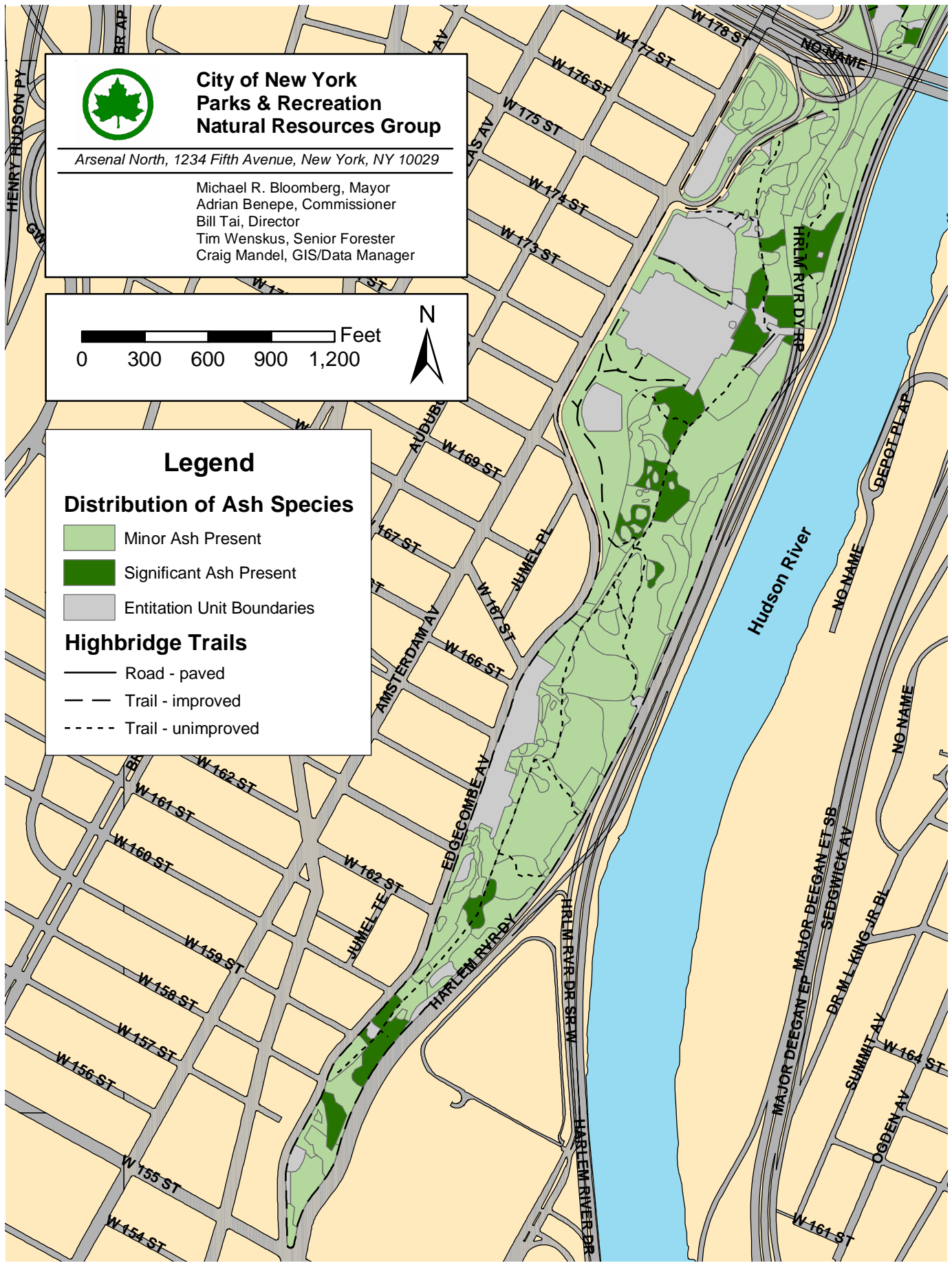




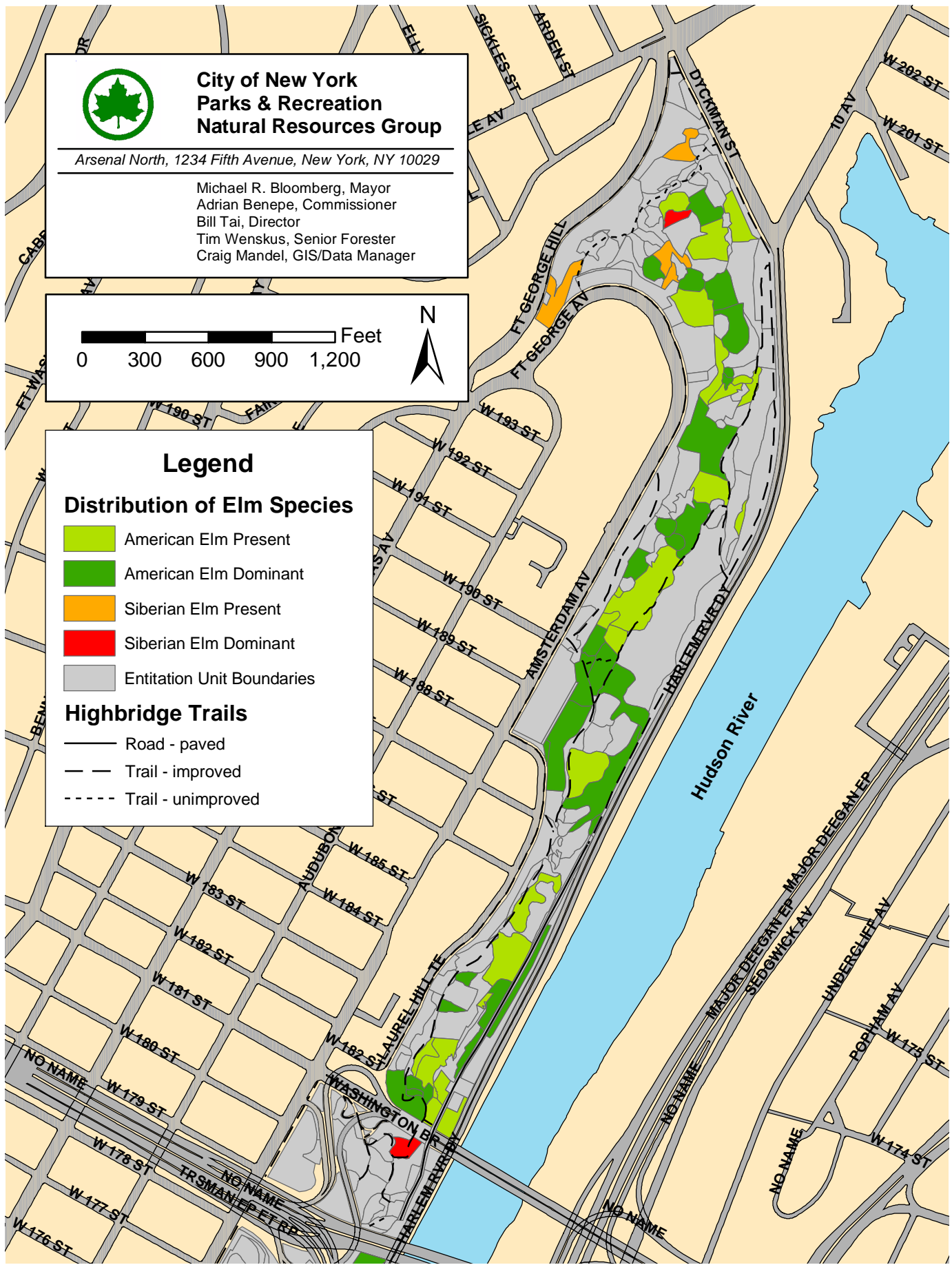


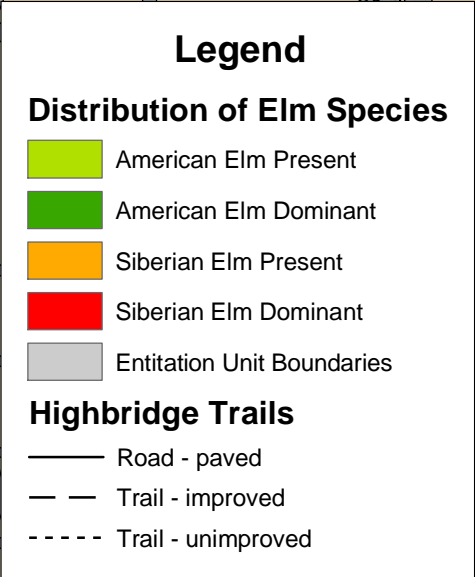






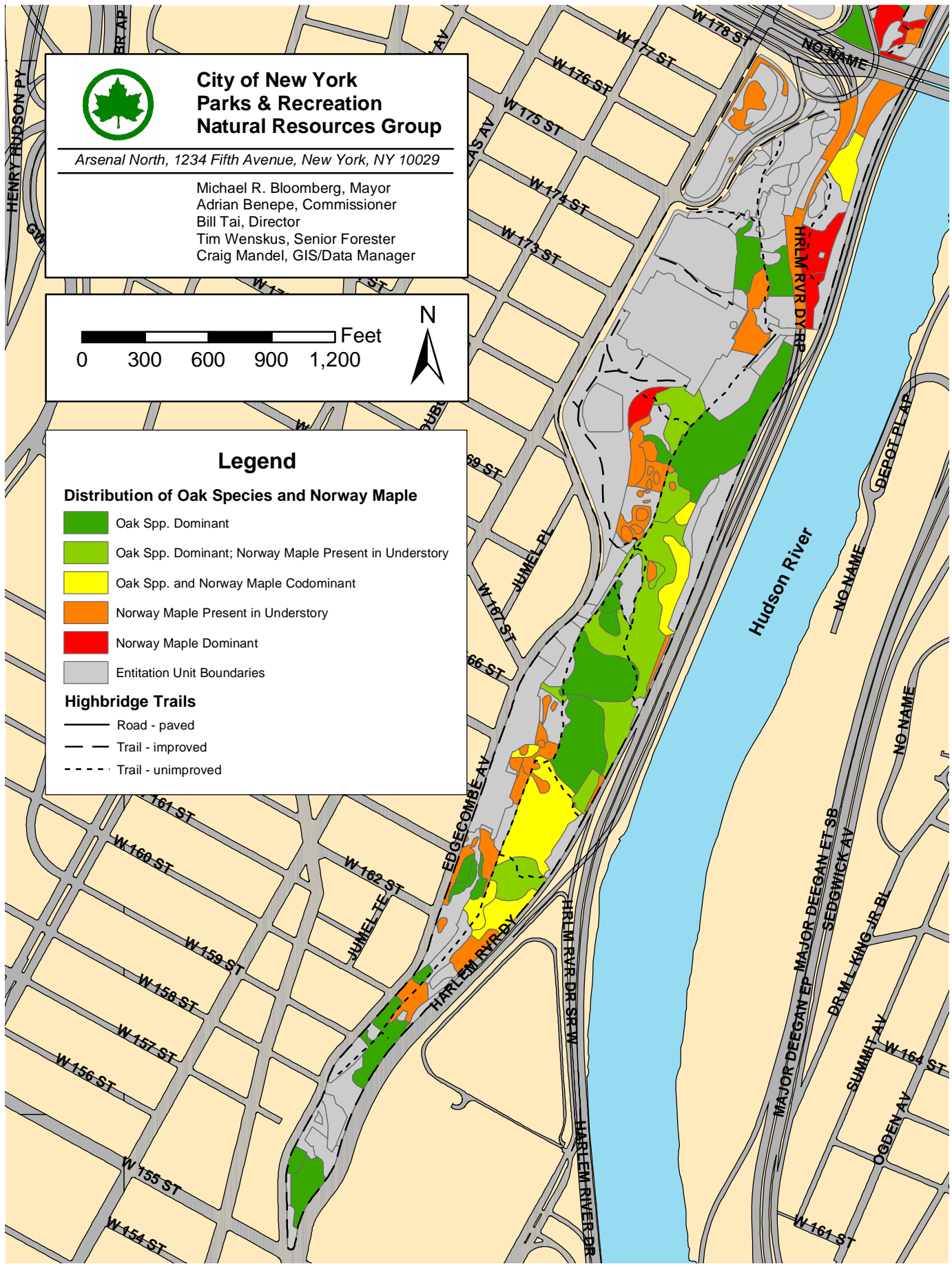


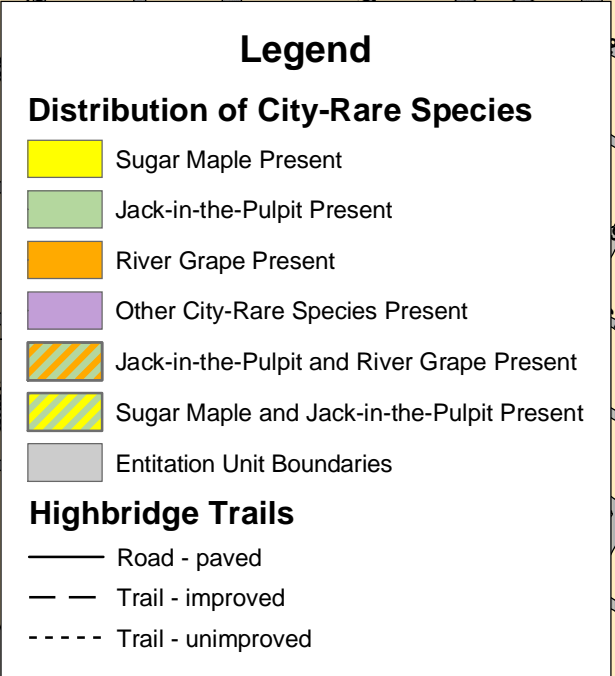




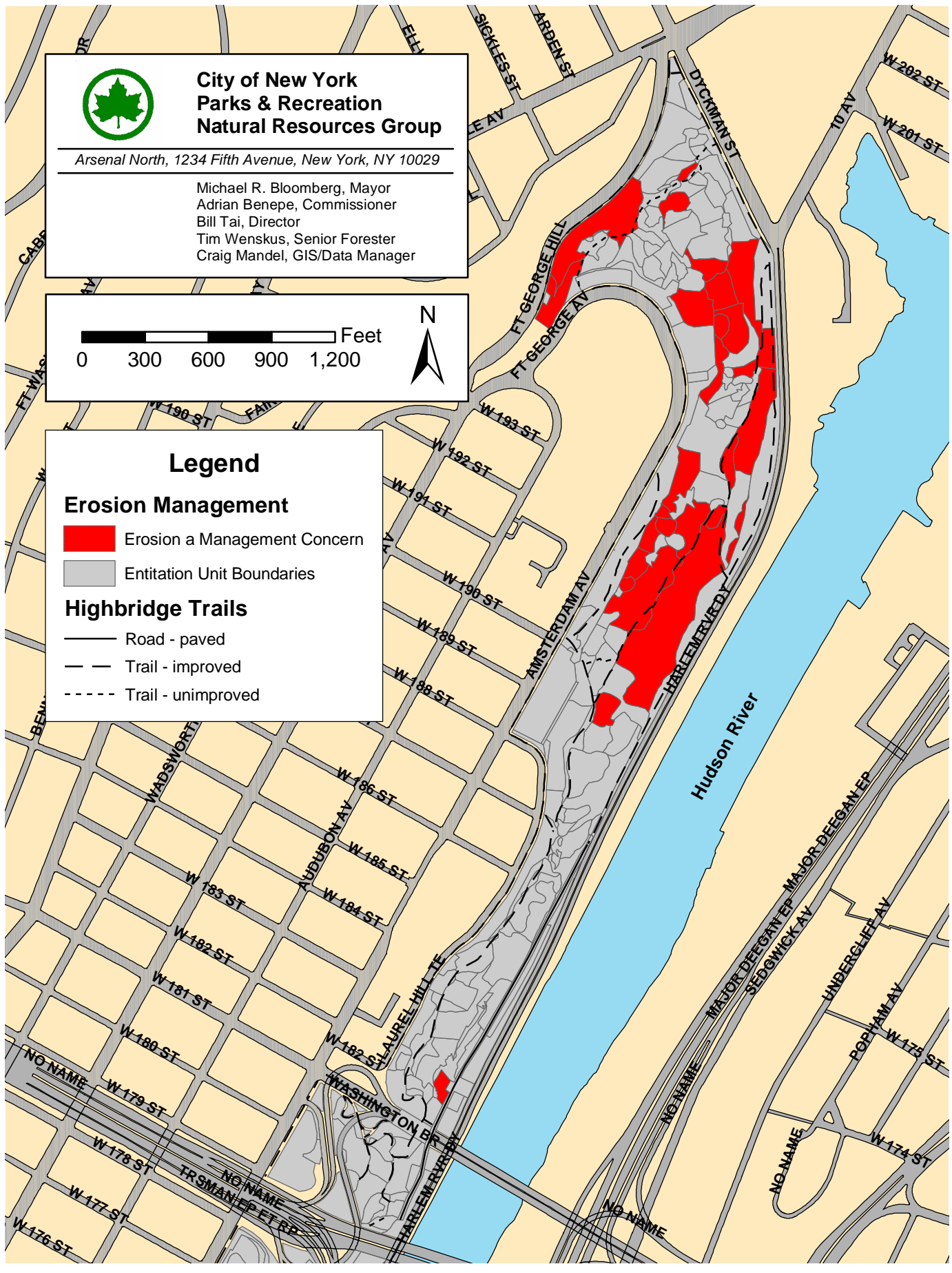


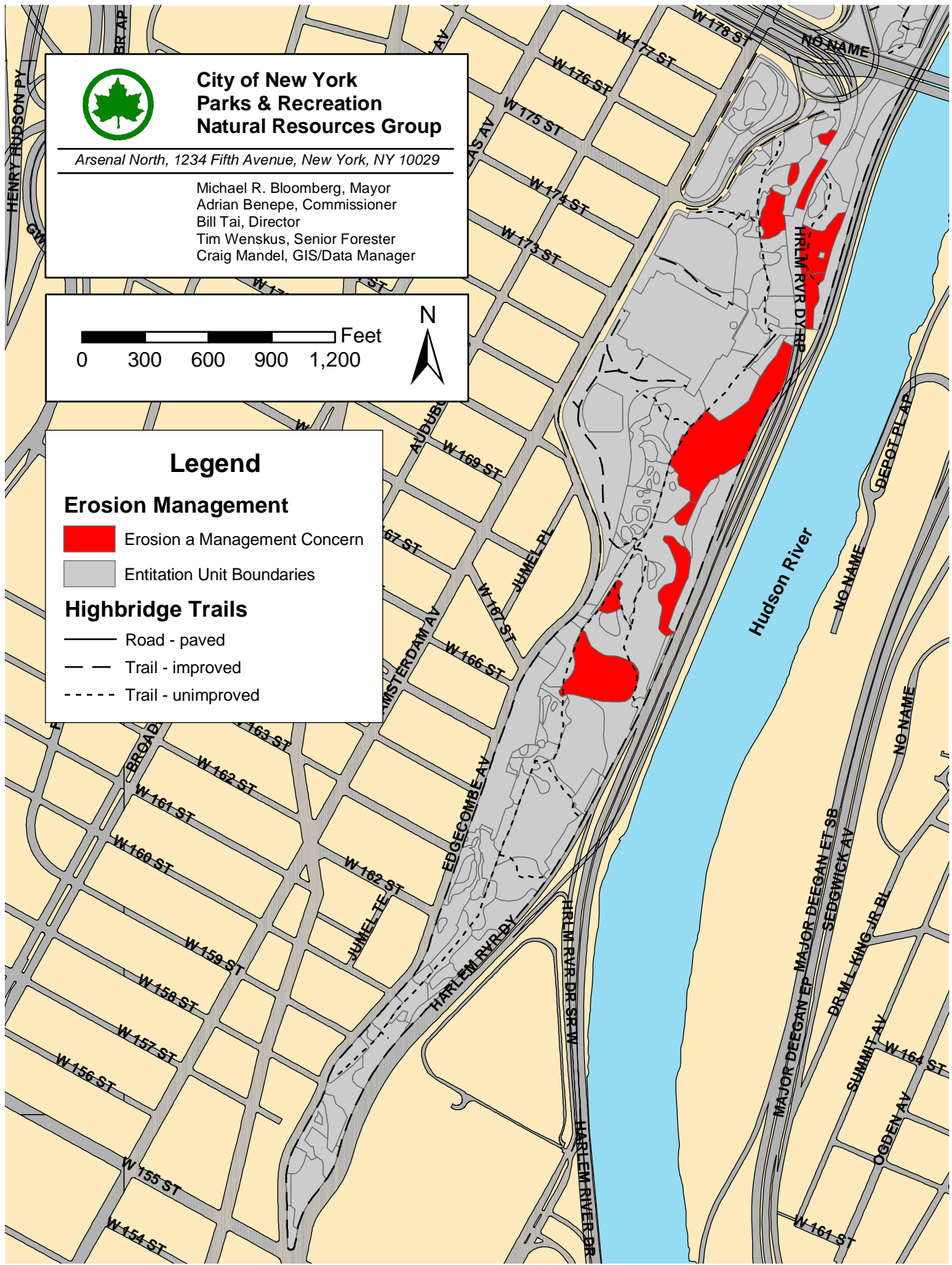


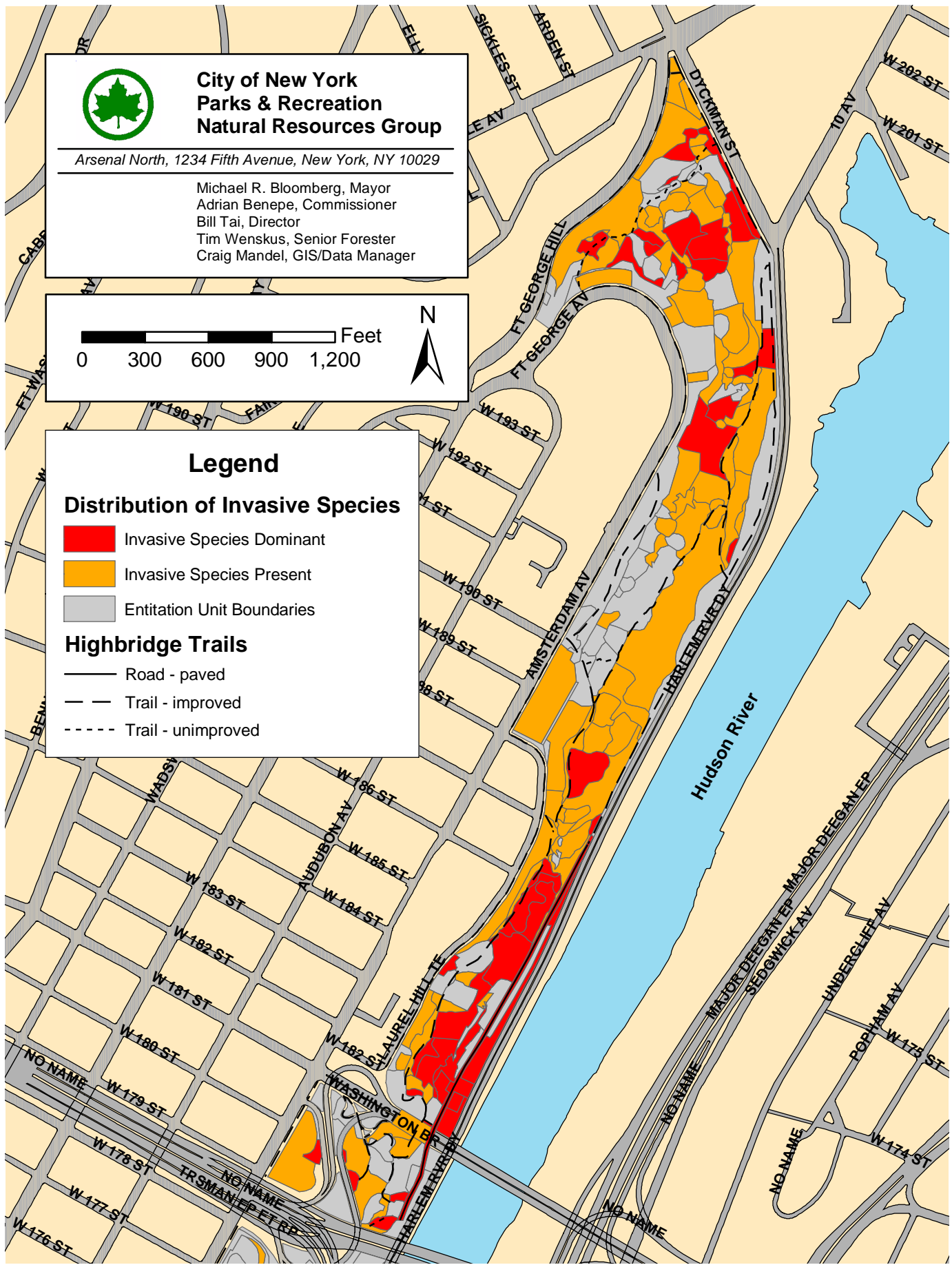




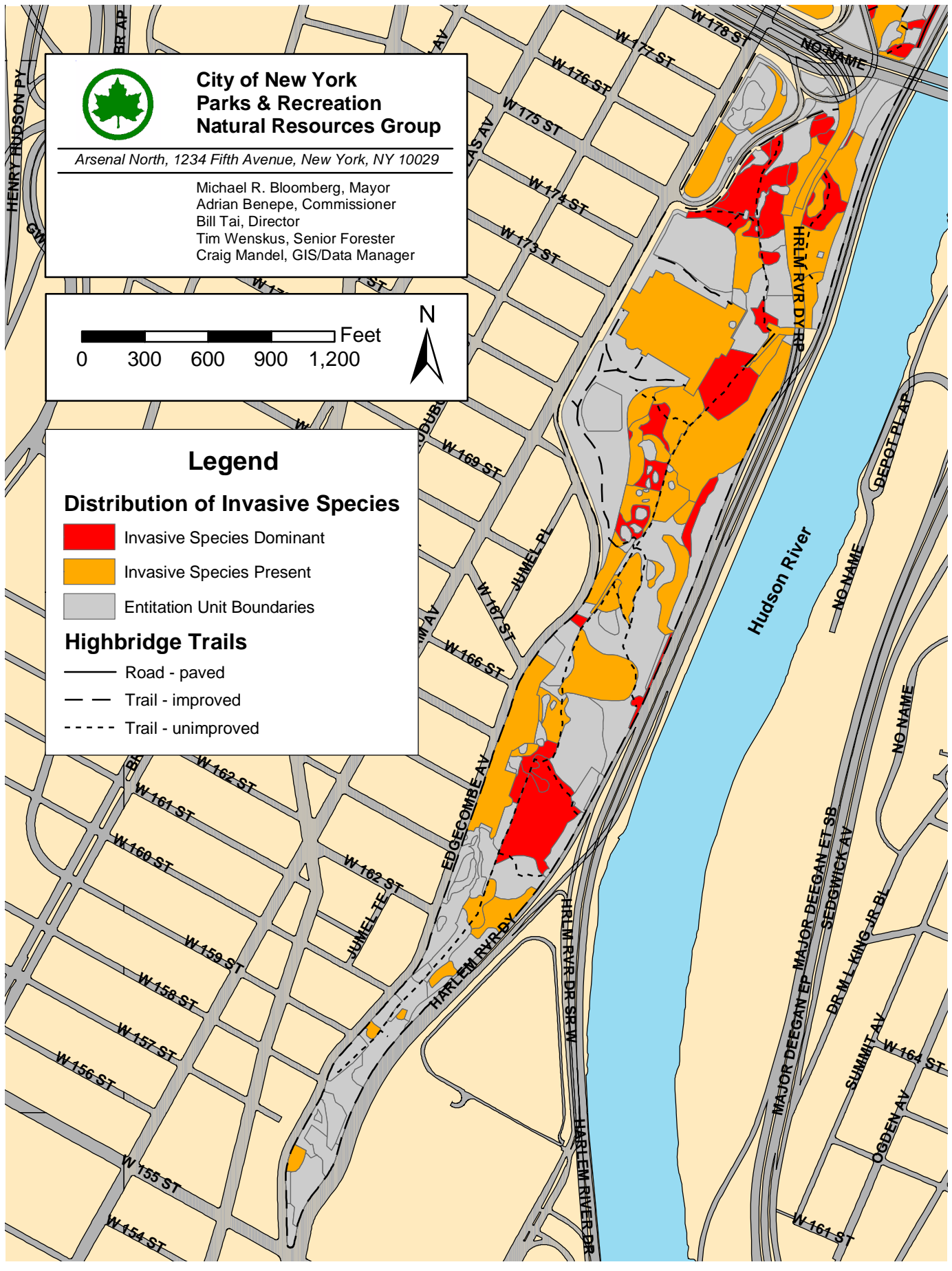


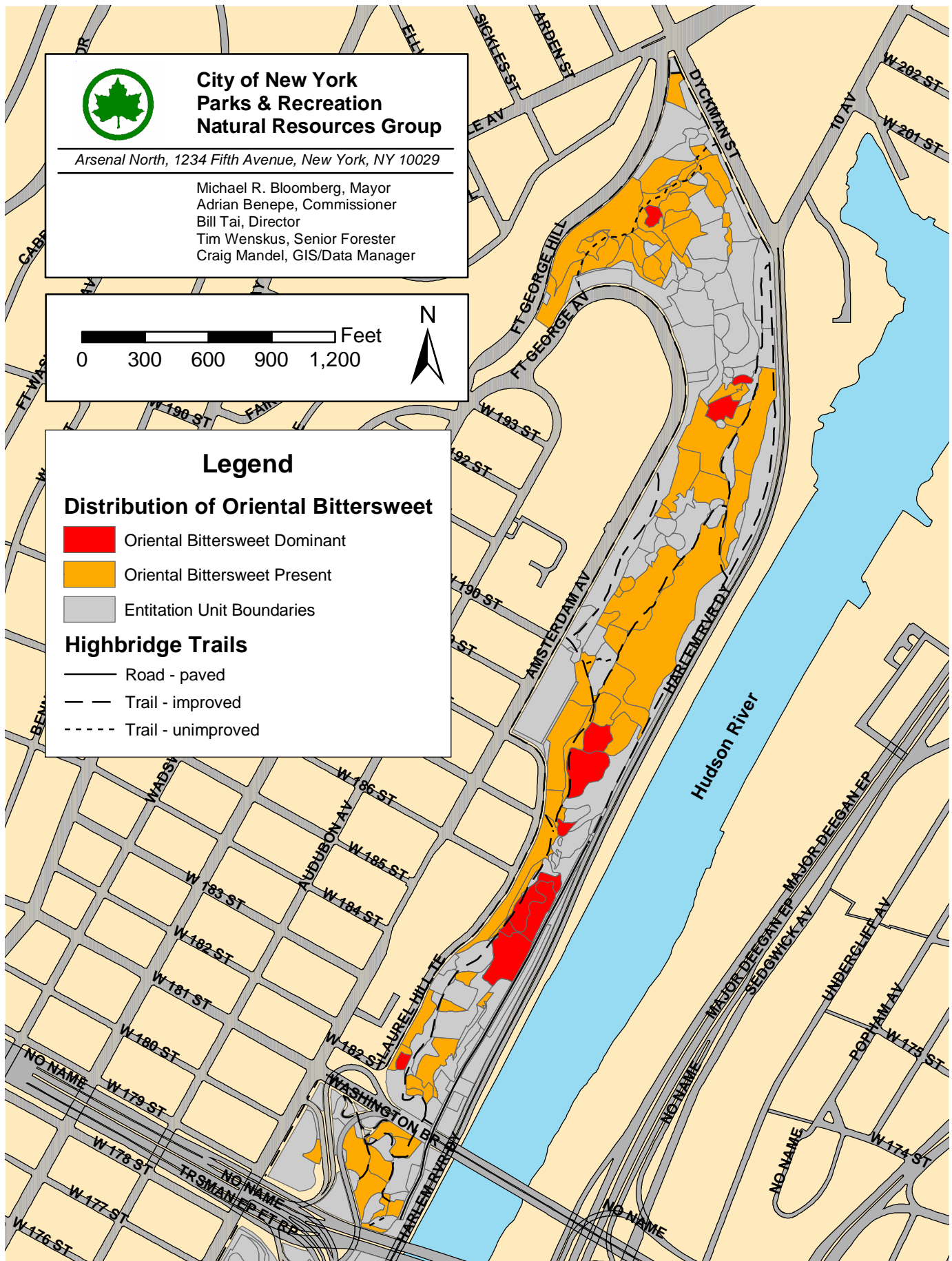




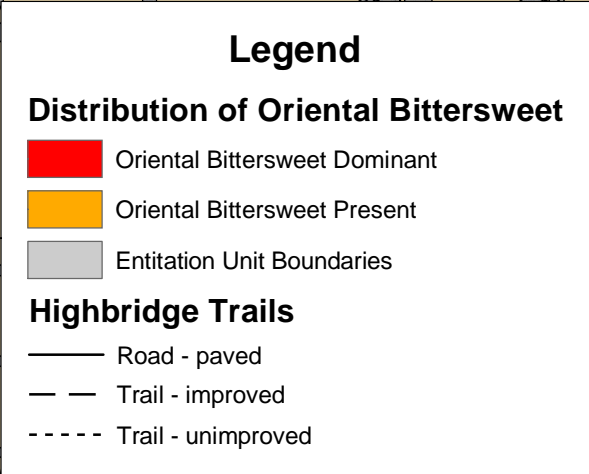


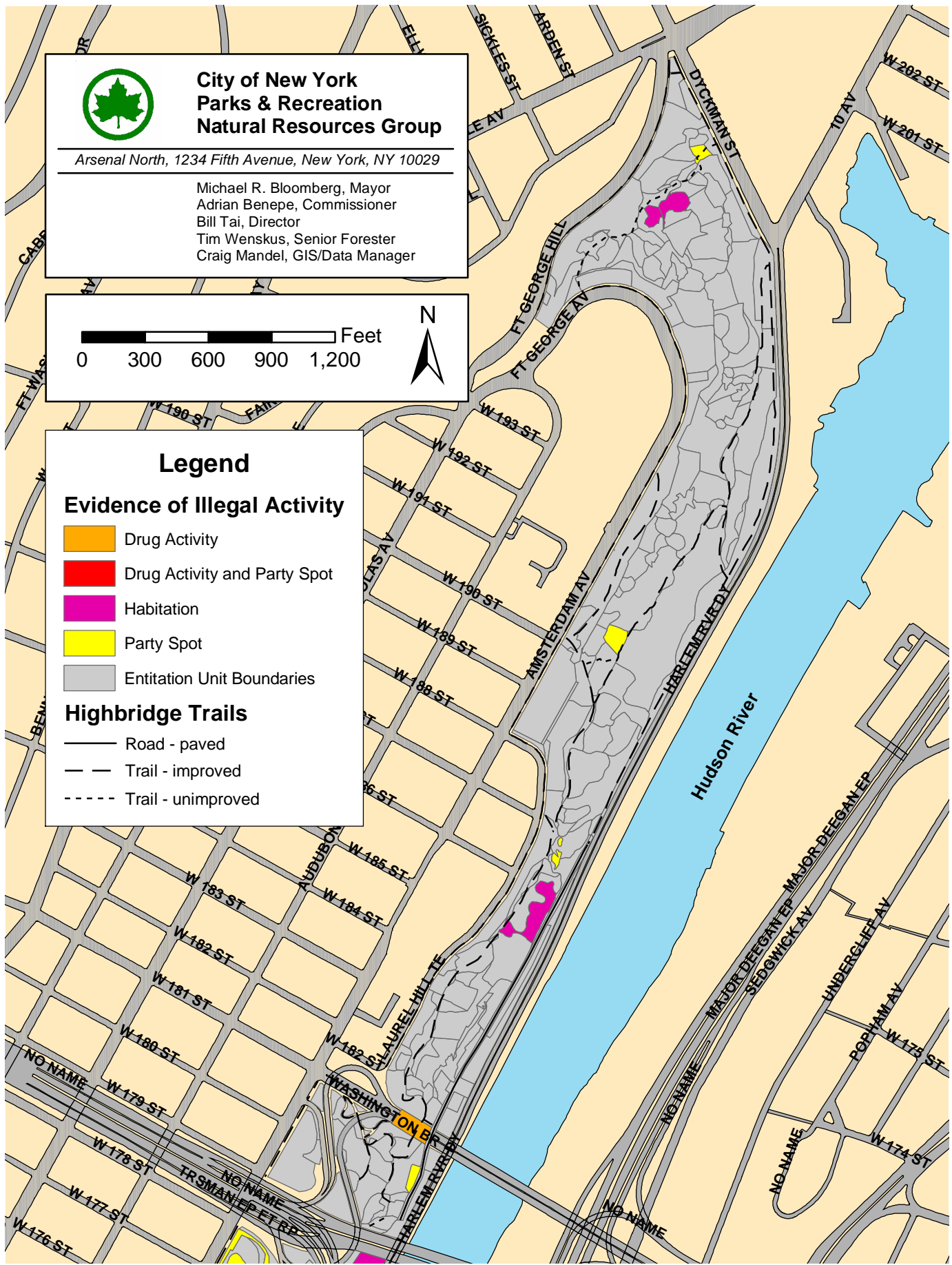


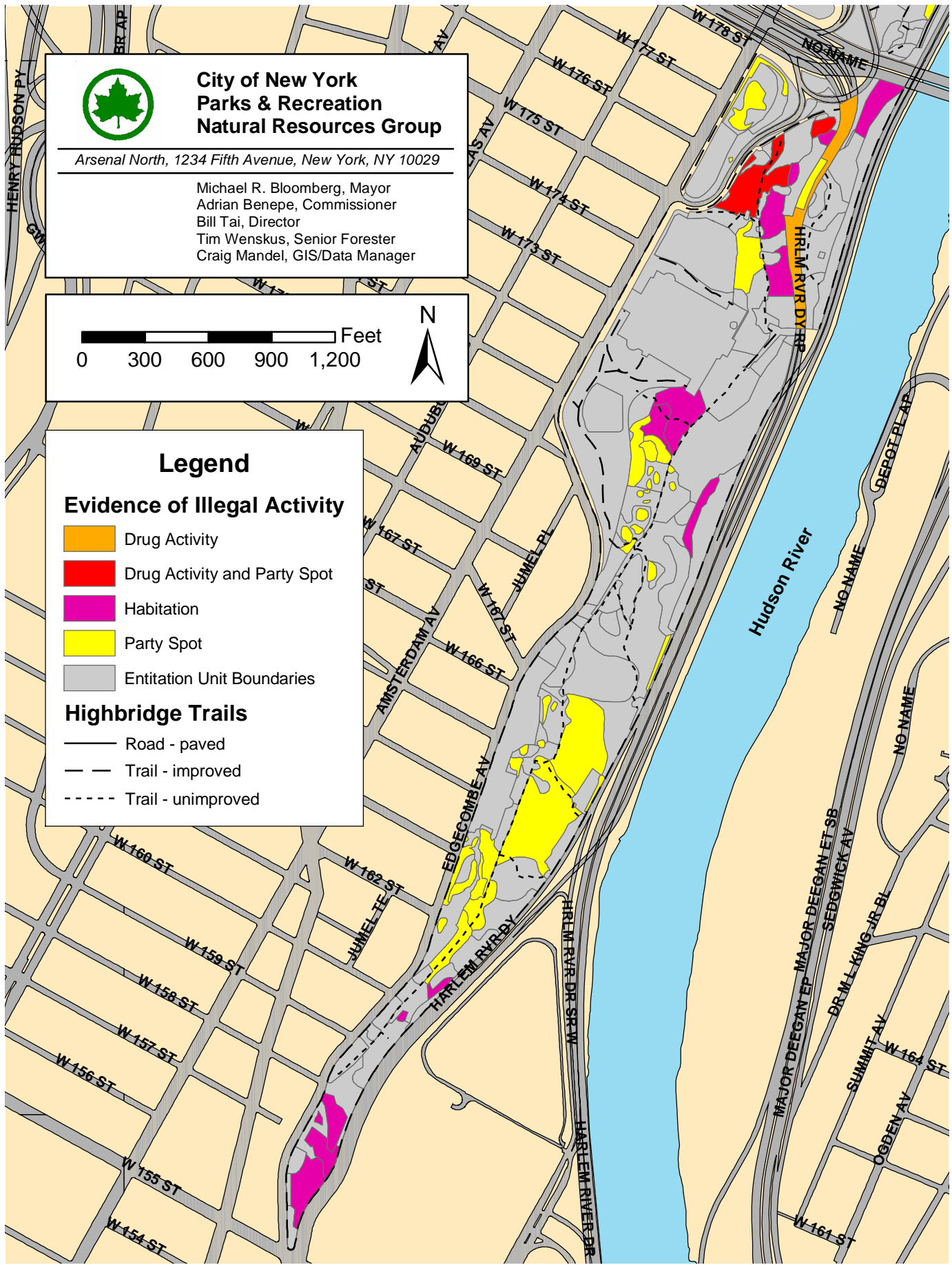












## APPENDIX IV: Contributors

The City of New York Parks & Recreation, Natural Resources Group would like to acknowledge the following people and organizations for their help in conducting the Natural Areas Mapping and Inventory for Highbridge Park.

This project was funded in part by a grant from the New York State Environmental Protection Fund through contract # C302360, NYS Department of Environmental Conservation, Hudson River Estuary program.



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**APPENDIX V: Entitation Manual**

# **Manual of Plant Formation Entitation**

**Natural Resources Group**

**New York City**

**Department of Parks & Recreation**

**1986**

**Revised 1988  
Digitized 2004**



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## Foreword

This manual was produced by the Parks Department's Natural Resources Group (NRG), which assesses the natural features of city parks and recommends policies and procedures to preserve the complex array of urban ecosystems in New York City. This manual is a guide to surveying and mapping the types of vegetation found in city parks. The process is called entitation and the procedures described here were specifically designed for New York City's greatly disturbed landscape and the tremendous diversity of natural resources. This is not to suggest that these procedures cannot be applied to parks in other urban areas.

### **Acknowledgements**

We are especially thankful to Dr. Garry Rogers, UCLA, for introducing "The Tentative Physiognomic-Ecological Classification of Plant Formations of the Earth" system (revised from Ellenburg and Muller- Dombois, 1967) which he successfully utilized in a vegetation survey of Floyd BennettField in Gateway National Recreation Area. Brooklyn, NY. Dr. Rogers trained all staff of the Natural Resources Group in proper procedure. We also want to thank the following academics for their comments and review: Dr. William Nierring. Connecticut College, New London, CT; Dr. Rowan Rowntree and his assistant, Charles Nilon, US Forest Service, Syracuse, NY; Dr. Leonard Zuebler, Columbia University, NY, NY; and Dr. Andrew Greller, Queens College, NY. We look forward to continued exchange with them.

Finally, we hope that this manual will prove helpful for the future users, and we welcome suggestions for its improvement or expansion.

This is solely a digitization- no edits, changes, or updates have been made.

## 1.0 ENTITATION

### 1.1 Definition

Entitation is a process of identifying and describing discrete vegetation units (entities). Essentially, it is a general inventory of an area's plant communities conducted by means of serial photograph interpretation and field reconnaissance. The survey results in the identification of ecologically distinct plant communities based on species and structure (Some examples: old growth oak/hickory forest, a lense thicket of Rubus, a pioneering stand of sassafras.). The delineation of vegetation units is often a first step in community ecology work even when a gradient analysis is the research goal.

### 1.2 Objective

Before making any management decisions, it is important to know what there is to work with. Entitation supplies a park manager with a database that is readily discernable. Each entitation unit, or a group of units, is homogenous and small enough that it/they can be dealt with as individual management areas.

The objectives of entitation are to:

1. Delineate discrete vegetation units.
2. Obtain a description and geographic distribution of those units.
3. Acquire detailed representations of the spatial characteristics of the vegetation pattern.
4. Provide a temporal baseline survey used for monitoring changes (e.g., vegetation) over time.
5. Facilitate selecting sites for sampling plots.
6. Assemble information indicative of parkland utilization potential.
7. Generate a resource analysis useful for the support of educational programs (e.g., establishment of a nature center or an interpretive trail).
8. Collect information for each unit that is useful in preparation of a park-wide management plan.

In the summer and fall of 1985, NRG conducted a citywide inventory of natural areas based on covertime. This aerial survey delineated many extensive natural areas throughout the city. These areas were distributed among 25 city parks. Within each park, natural areas will be further classified and studied. The Natural Resources Group field-tested the methods described here during a summer 1985 pilot project in Pelham Bay Park in the Bronx. This park was chosen because it is the largest New York City park and possesses a wide range of conditions stemming from past disturbance, land use change, and least disturbed areas. The park also has a great diversity of plant community types representative of other natural areas in the city park system.

## 2.0 METHODOLOGY

### 2.1 Introduction

Entitation is a type of reconnaissance. Subjective, or visual, data are collected and then analyzed, both cartographically (maps with overlays) and by computer. The entitation map indicates location and size of each unit. The computer records include the unit classifications and descriptions. Vertical aerial photograph enlargements (1"= 200' or 1"= 100 scale) are used to delineate units in the field. Using aerial photographs with superimposed grids is a guide to preliminary identification of unique vegetation units, teams of two to three technicians trained in natural resource analysis visit each units, on the ground to verify tentative identifications. The vegetation units defined are based on dominant and subdominant species and are described according to their life form (trees, shrubs, herbaceous, etc.). The resulting units are visually distinct and are discernable without quantitative measures.

A data form has been prepared to streamline the ground truth and classification processes (see Section 2.3.2). The form was designed to facilitate the transfer to field data onto a computer-based data system.

Following collection of data in the field, a summary document is prepared. The summary document (entitation report) interprets technical information collection by technicians and presents a synopsis in a form readily usable by resource managers, park administrators, and the public.

The map is a graphic representation of each unit and thus aids in determining the relative importance of vegetation units. The map can also be used for planning management strategies as well as for presentation purposes.

### 2.2 Materials

Certain materials are needed to carry out entitation (Appendix A). It is advantageous to study all historical records and documents, and to consult knowledgeable people in order to understand past land use patterns that have influenced what is evident in parks today. Maps and aerial photographs are also useful in this respect. Some available photo imagery is listed in Appendix C.

It is imperative to have current aerial photographs to work with in the field. The aerial photographs are enlarged and printed on separate sheets, making up an atlas (Figs. 1 & 2). For the most part, the scale of 1"= 200' with a superimposed grid at 100' intervals is adequate for the task.

From the photo atlas sections, often times formations and borders can be delineated: certain characteristics may be detectable (i.e. single large trees or rock walls) which are useful in orientation during ground checks.





Figure 1: Pelham Bay Park Aerial Photo Index



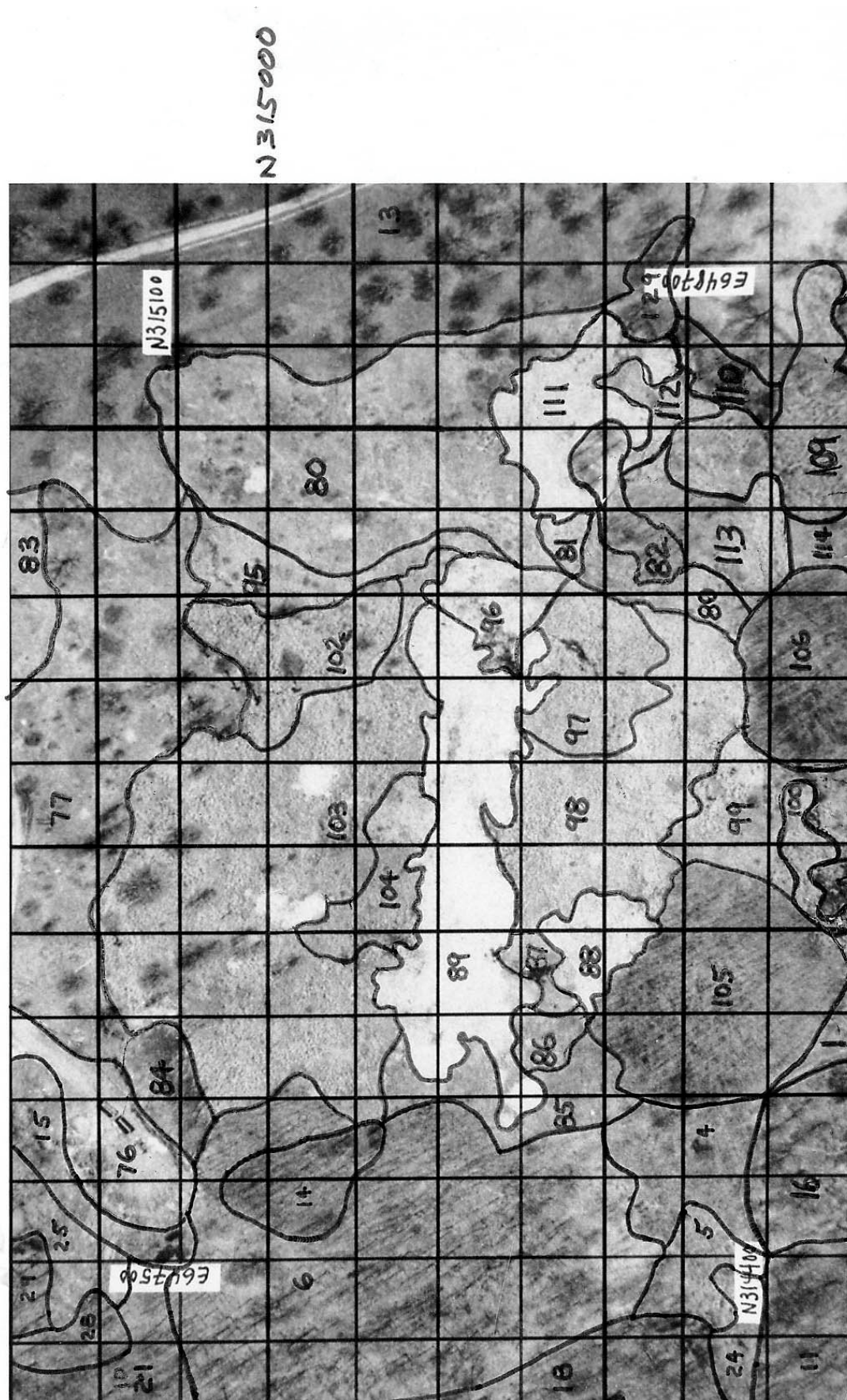


Figure 2: Section 15, Pelham Bay Park Aerial Photo Atlas

## 2.3 Data collection

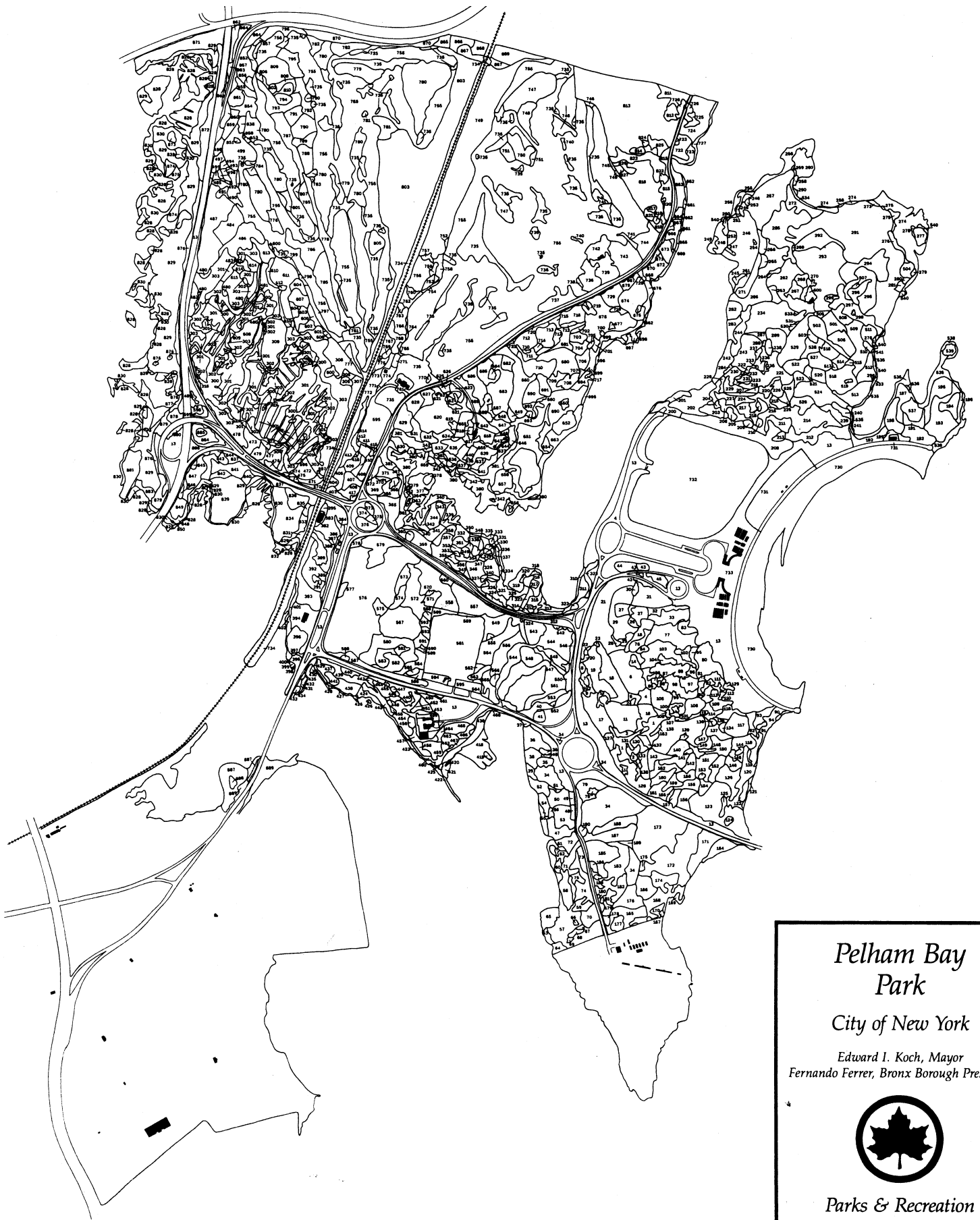
### 2.3.1 Delineating Entities

Advance knowledge of the classification system and plant identification is essential before unit delineation can be attempted. Entitation is a step-by-step procedure and usually follows as such:

1. Choose an area of the park to work in. For example, the first entitation work at Pelham Bay Park was done on Rodman's Neck (Map 1).
2. Choose appropriate photo atlas section from index. On Rodman's Neck, section 15 (Figs. 1 & 2) seemed to be fairly straight forward for beginners because it is a meadow and tones/patterns on the photograph are easily interpreted.
3. Examine tones and patterns on photo atlas section and tentatively identify unique and homogeneous plant formations.
4. Locate identified area on ground.
5. Check to see if tentative identification is correct or needs to be refined. Technicians will find that the photo is often deceiving due to shadows and distortion. Skill in interpreting ground objects from photo tones and patterns is gained with experience. Ground checks often reveal that additional delineations are required in order to properly describe the complexity of vegetation. This detail is not always recognized on the photo. The field check enabled us to identify the almost circular, gray tone/pattern as clonal stands of white poplar; the white tone as sesame grass; and the mottled, light and dark tone/pattern as a bayberry scrubland with switchgrass interspersed (Fig. 2).

A ground check is made in the following way:

1. Traverse the unit to check species composition, structure, relative abundance, density and site characteristics.
2. Use an obvious point from which to orient, **e.g.** a road, a highly visible tree, a building , etc..
3. Use a compass and pacing (a pace equals two steps) to determine unit orientation and size with respect to the aforementioned point. The ground check makes it possible to sketch boundaries (with a blue, ballpoint pen) on the photo atlas section (Note: Figure 2 section 15 from Pelham Bay Park—sesame grass has been called unit 89: bayberry scrubland is unit 103: and white poplar clones are units 105 and 106). Ink may be erased with a moistened pencil eraser if a revision is required.



Map 1: Pelham Bay Park

## Pelham Bay Park

City of New York

Edward I. Koch, Mayor  
Fernando Ferrer, Bronx Borough President



Parks & Recreation

Henry J. Stern, Commissioner  
George W. Sahr,  
Acting Bronx Borough Commissioner  
Natural Resources Group

### 2.3.2 How to Complete Data Form and What Codes Mean

After a unit has been delineated, standardized information is collected by means of a data form (Fig. 3, Entitation Data Sheet). Variables were chosen and field tested and results were used in designing a computer program that would allow quick access to any of these variables, either individually or grouped. Modifications were made to better use the limited computer space and certain variables were de-emphasized or combined into one (originally, any detection of birds or mammals was noted; later these were changed to numerical values). Variables were matched with code names and numbers and arranged in a way to facilitate use in the field and data entry into the computer. Formation, dominant woody plants, and vegetation less than 15 feet tall are need to help classify units: historical indicators, current uses, environmental disturbances, and current maintenance are useful in determining management plan objectives (Fig. 4, Completed Entitation Data Sheet).

#### DESCRIPTION OF CODES ON FIELD DATA FORM:

**UNIT:** Each unit is assigned a number, which identifies it on the photo atlas, maps, unit descriptions and entitation summary reports. A number may be repeated for similar, but non-continuous plant formations located within the same management zone. When multiple units are delineated, it is indicated with a lower case letter (e.g.. 12a, 12b, 12c).

**EAST/NORTH:** Coordinates of the unit are noted: these are obtained from the photo atlas and are based on the New York State Department of Transportation's New York Plane Coordinate Grid.

**ACRES:** Calculated (using dot grid or compensating polar planimeter) and added to data at a later time.

**PHOTO:** Note the photo/page number of the atlas where this unit has been drawn.

**FORMATION:** (based on "Tentative Physiognomic – Ecological Classification of Plant Formations of the Earth" (revised from Ellenberg and Mueller-Dombois, 1967). (Appendix F)

**CLOSED FORSET:** Formed by trees at least 15ft tall with their crowns interlocking. At least 80% canopy closure.

**WOODLAND:** Formed by trees at least 15ft tall, with most of their crowns not touching each other, but at least 30% canopy closure (and no more than 79% - see closed forest).



**Figure 3:**

ENTITATION DATA SHEET

UNIT # \_\_\_\_\_ EAST # \_\_\_\_\_ NORTH # \_\_\_\_\_ ACRES \_\_\_\_\_ PHOTO \_\_\_\_\_

CLASSIFICATION: \_\_\_\_\_ INITIALS \_\_\_\_\_ DATE \_\_\_\_/\_\_\_\_/\_\_\_\_

FORMATION

1. CLOSED FOREST
2. WOODLAND
3. SCRUB
4. HERBACEOUS COMMUNITIES
5. DESERT
6. AQUATIC PLANT (fresh)
7. INTERTIDAL COMMUNITIES
8. VINELAND

DOMINANT WOODY PLANTS

1. EVERGREEN
2. MIXED
3. DECIDUOUS

VEGETATION <15'

1. PHANEROPHYTES
2. CHAMAEPHYTES
3. HEMICRYPTOPHYTES
4. GEOPHYTES
5. THALLOPHYTES
6. LIANAS
7. THALLOPHYTES
8. HYDROPHYTES

PLANT SPECIES ( IN ORDER OF DOMINANCE)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

REGENERATING SPECIES (USE SPP. CODE):

TOPOGRAPHY

1. KNOLL
2. UNDULATING
3. SLOPE
4. LEVEL
5. DEPRESSION

SOIL CONDITION

1. DRY
2. DRY / MOIST
3. MOIST
4. WET
5. SURFACE WATER

WILDLIFE INDEX

\_\_\_\_\_ ( 0 – 5+)

STABILITY INDEX

\_\_\_\_\_ SPECIES COMPOSITION  
CHANGING? ( Y OR N )

\_\_\_\_\_ COMMUNITY STRUCTURE  
CHANGING ? ( Y OR N)

30'      5-30'      <5'      EXOTICS

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

\_\_\_\_\_

HISTORICAL INDICATORS

(In order of importance)

- \_\_\_ 1. LANDFILL
- \_\_\_ 2. ROAD
- \_\_\_ 3. FENCE
- \_\_\_ 4. HEDGEROW
- \_\_\_ 5. FOUNDATION
- \_\_\_ 6. FULL-CROWN TREE
- \_\_\_ 7. EXOTIC PLANTING
- \_\_\_ 8. OTHER:

CURRENT USE

- \_\_\_ 1. PICNIC
- \_\_\_ 2. HORSES
- \_\_\_ 3. VEHICLE ACCESS
- \_\_\_ 4. CAMPFIRE
- \_\_\_ 5. SPORTS
- \_\_\_ 6. FOOT TRAFFIC
- \_\_\_ 7. OTHER:

ENVIRONMENTAL DISTURBANCE

- \_\_\_ 1. FIRE
- \_\_\_ 2. EROSION
- \_\_\_ 3. SOIL COMPACTION
- \_\_\_ 4. DUMPING
- \_\_\_ 5. AUTO
- \_\_\_ 6. TRASH
- \_\_\_ 7. VANDALISM
- \_\_\_ 8. OTHER

MOWING

1. W / IN LAST YEAR
2. W / IN 1-5 YEARS
3. NOT MOWED

MANAGEMENT CONCERN

\_\_\_ Y OR N

COMMENTS AND OBSERVATIONS:

Figure 4: Completed Sheet

ENTITATION DATA SHEET

UNIT # 105 EAST # 4780 NORTH # 314500 ACRES 1.47 PHOTO 15

CLASSIFICATION: LB3a(1) INITIALS sm DATE 4/24/88

FORMATION

- ☒ 1. CLOSED FOREST
2. WOODLAND
3. SCRUB
4. HERBACEOUS COMMUNITIES
5. DESERT
6. AQUATIC PLANT (fresh)
7. INTERTIDAL COMMUNITIES
8. VINELAND

TOPOGRAPHY

1. KNOLL
2. UNDULATING
3. SLOPE
- ☒ 4. LEVEL
5. DEPRESSION

DOMINANT WOODY PLANTS

1. EVERGREEN
2. MIXED
- ☒ 3. DECIDUOUS

SOIL CONDITION

1. DRY
2. DRY / MOIST
- ☒ 3. MOIST
4. WET
5. SURFACE WATER

VEGETATION <15'

- ☒ 1. PHANEROPHYTES
2. CHAMAEPHYTES
3. HEMICRYPTOPHYTES
4. GEOPHYTES
5. THALLOPHYTES
6. LIANAS
7. THALLOPHYTES
8. HYDROPHYTES

WILDLIFE INDEX

0 (0-5+)

STABILITY INDEX

N SPECIES COMPOSITION  
CHANGING? (Y OR N)

N COMMUNITY STRUCTURE  
CHANGING? (Y OR N)

PLANT SPECIES (IN ORDER OF DOMINANCE)

1. White Poplar
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

30'	5-30'	<5'	EXOTICS
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

REGENERATING SPECIES (USE SPP. CODE):

\_\_\_\_\_

HISTORICAL INDICATORS

(In order of importance)

- \_\_\_\_\_ 1. LANDFILL
- \_\_\_\_\_ 2. ROAD
- \_\_\_\_\_ 3. FENCE
- \_\_\_\_\_ 4. HEDGEROW
- \_\_\_\_\_ 5. FOUNDATION
- \_\_\_\_\_ 6. FULL-CROWN TREE
- \_\_\_\_\_ 7. EXOTIC PLANTING
- \_\_\_\_\_ 8. OTHER:

ENVIRONMENTAL DISTURBANCE

- \_\_\_\_\_ 1. FIRE
- \_\_\_\_\_ 2. EROSION
- \_\_\_\_\_ 3. SOIL COMPACTION
- \_\_\_\_\_ 4. DUMPING
- \_\_\_\_\_ 5. AUTO
- \_\_\_\_\_ 6. TRASH
- \_\_\_\_\_ 7. VANDALISM
- \_\_\_\_\_ 8. OTHER

CURRENT USE

- \_\_\_\_\_ 1. PICNIC
- \_\_\_\_\_ 2. HORSES
- \_\_\_\_\_ 3. VEHICLE ACCESS
- ☒ 4. CAMPFIRE
- \_\_\_\_\_ 5. SPORTS
- \_\_\_\_\_ 6. FOOT TRAFFIC
- \_\_\_\_\_ 7. OTHER:

MOWING

- \_\_\_\_\_ 1. W / IN LAST YEAR
- \_\_\_\_\_ 2. W / IN 1-5 YEARS
- ☒ 3. NOT MOWED

MANAGEMENT CONCERN

Y Y OR N

COMMENTS AND OBSERVATIONS:

MID-aged, clonal white Poplar stand at meadow edge. Mortality is beginning to occur, but understory is open due to shading. Groundcover consists of Viburnum, elderberry, goldenrod, chives, wild strawberry, woodland ragweed, honeysuckle + cool season grasses.

SCRUB: Shrubland or thicket, mainly composed of woody plants 1.5 to 15 ft tall. [Note: Though the lifeform of brambles, marsh elder, and rose may be referred to as chamaephytes (remaining perennially 100 in above ground) in describing the understory in forests and woodlands, their ecology has been classified as scrub when dominating a unit].

HERBACEOUS COMMUNITIES: Grasses, graminoid and other herbaceous plants are predominant in the cover, but woody plants may be sparingly present (though covering not more than 30%).

DESERTS and other scarcely vegetated areas: Lacustrine habitats that are situated in topographic depression of a dammed river channel, lacking trees, shrubs, emergents, mosses or lichens with greater than 30% aerial coverage. Composed of rooted and or floating plants that endure or need water covering the soil constantly or at most times of the year.

INTERTIDAL COMMUNITIES: Substrate is exposed and flooded by tides, includes the associated splash zone.

VINELAND: Characterized by at least 30% lianas (e.g. Lonicera japonica, Vitis spp., Toxicodendron radicans). Often on the forest or shrub border. Supported by artificial means or ground surface.

#### **DOMINANT WOODY PLANTS:**

EVERGREEN: The canopy is never without foliage.

MIXED: Evergreen and deciduous trees admixed, with evergreens covering at least 20% and up to 80% of the surface.

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

**VEGETATION < 15 ft.:** (based on “Raunkiaer Life Forms with Revised Subdivisions” [Example are listed in Appendix B]. This lifeform system is based on the position of the overwintering bud with respect to ground surface).

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

CHAMAEPHYTES: 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).

HEMICRYPTOPHYTES: Shoots die back to ground level of ground.

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

THEROPHYTES: One year life cycle (annuals). Shoots and root system die after seed production.

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

THALLOPHYTES: Non-vascular plants (e.g. mosses and lichens).

HYDROPHYTES: Free moving water plants.

### **TOPOGRAPHY:**

KNOLL: A small, isolated hillock.

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

SLOPE: Ground that forms a natural or artificial incline.

LEVEL: The ground is smooth and straight; it has no point significantly higher than another.

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

**SOIL CONDITIONS** (Dependent on the time of year; i.e. summer soil conditions are usually well-drained except after a heavy rain).

DRY: Water is not retained by the soil (e.g. sandy soils or shallow soils on ridges) or is repelled by the surface material (e.g. asphalt or rock).

DRY/MOIST: The soil retains some water, but not enough to be considered moist. A middle point between a dry area and a moist area.

MOIST: Water is retained by the soil.

WET: Soil is saturated.

SURFACE WATER: Water on surface of soil.

**WILDLIFE INDEX**: Note number of birds, mammals, reptiles; includes sightings, songs or other murmurings, scats, nests, scraping, etc.

**STABILITY INDEX:** The stability of a site is determined by its species composition and the community structure (closed forest, woodland, etc.). It gives a park manager an idea of the future site conditions. (We have arbitrarily chosen a ten year period as an indicator of stability.)

**SPECIES COMPOSITION CHANGING?:** Does the entitator think the species composition will be different in ten years? For example, an oak/hickory forest with black cherry regeneration may become a black cherry forest.

**COMMUNITY STRUCTURE CHANGING?:** Is the site succeeding from an herbaceous community to scrub community, etc.?

**PLANT SPECIES:** Listing of dominant species according to relative abundance above ground, noting whether it is a native or exotic species, and noting height (above 30 feet, between 5 and 30 feet, or less than 5 feet).

**REGENERATING SPECIES:** Listing of regenerating tree species: use species code (Table 1 ), usually initials of the scientific name (e.g. for red oak, write QR).

**HISTORICAL INDICATORS** ( Indicators of past use detectable at time of survey):

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.

ROAD: Concrete, asphalt, stone or dirt roadbed used previously and perhaps presently: also, any evidence of a roadbed: clearing or excavation for previous road construction, line of trees/hedgerow.

FENCE: Wooden, chain-link or barbed wire fence, stone wall or other artificial barrier (not currently functional).

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

FOUNDATION: Stone, brick, or concrete (evidence of building).

FULL-CROWN TREE: Initially open-grow and free of competition: currently very large with a dominating crown.

EXOTIC PLANTING: Generally not native to the area (e.g. Norway maple, privet, periwinkle).

OTHER: Building, excavation, ditching, etc.

**CURRENT USE:** (indicators of utilization):

PICNIC: Food consumed (may be designated, scenic or “ landscape” area).

HORSES: Bridle path, hoof prints, or any indication of use by horses.

VEHICLE ACCESS: Unit accessible by vehicles, on roads or occasionally along paths.

CAMPFIRE: Evidence of campfire or cookout in unspecified areas.

SPORT: Fishing, archery, exercise, jogging/running, golf, etc.

FOOT TRAFFIC: Evidence of pedestrian ( e.g. path, trampling, opening in understory).

OTHER: Loitering, para-military exercise, site, vagabond homestead, golf carts, (gathering may be used as a euphemism for teenage parties). etc.

#### **ENVIRONMENTAL DISTURBANCE:**

FIRE: Evidence of wildlife, either natural or induced by people. Look for burn scars on tree trunks or charcoal deposits on soil surface.

EROSION: Soil detached and moved by wind, ice, water, or gravity.

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

DUMPING: Discarded materials requiring more than one hand for removal: e.g. automobile parts, large pieces of concrete, piles of brush.

AUTO: Automobiles present: in operating condition, or dumped.

TRASH: Discarded material easily removed.

VANDALISM: Painted walls, rocks, plants; felled trees; hacked branches or bark.

OTHER: Dirtbikes, water pollution, or defecation, for example.

**MOWING**: Note when last mowed.

**MANAGEMENT CONCERN**: Note Y or N: pertains to vegetation or use of area. Does this area require immediate attention? (e.g. Is a specimen tree being overtopped by vines? Action is noted in comments section)

**COMMENTS AND OBSERVATIONS:** Synopsis of important features which characterize the unit, an elucidation of above point, including a list of associated vegetation.

**PHYSIOGNOMIC-ECOLOGICAL CLASSIFICATION:** Note classification derived from the revised Ellenburg and Mueller-Dombois key-(Appendix F, revised Classification System).

**INITIALS:** Recorder's initials written; in cases where information is unclear or missing, recorder can be questioned.

**DATE:** Note date of observation.

### 3.0 CLASSIFICATION

“The Tentative Physiognomic –Ecological Classification of Plant Formations of the Earth” (revised from Ellenburg and Mueller-Dombois. 1967) has been chosen as the basis for vegetation classification (Appendix F). Although this classification was designed for mapping world vegetation covering large areas, it is found to be very flexible and has been successfully applied to much smaller scaled mapping. Specifically, the advantages of this classification system are:

1. It enables an observer to make objective choices in classification of plant formations.
2. It encompasses most of the great diversity of plant formations occurring in city parks – results of natural factors and urban disturbance /influences/ alterations.
3. It is readily adjusted to include special urban plant formations (e.g., vinelands, or urban deserts).
4. Because of the ranking of classification criteria, evaluation may be general or very specific as successive levels are grouped or separated.
5. Classification is used by UNESCO and widely recognized in the fields of plant ecology and biogeography.

### 4.0 ANALYSIS

Analysis is facilitated by the preparation of first-order products from entitation. These are in both graphic and written form. First-order products include maps, computer printouts, and abridged keys classifying plant formations in the area under consideration.



#### 4.1 Maps

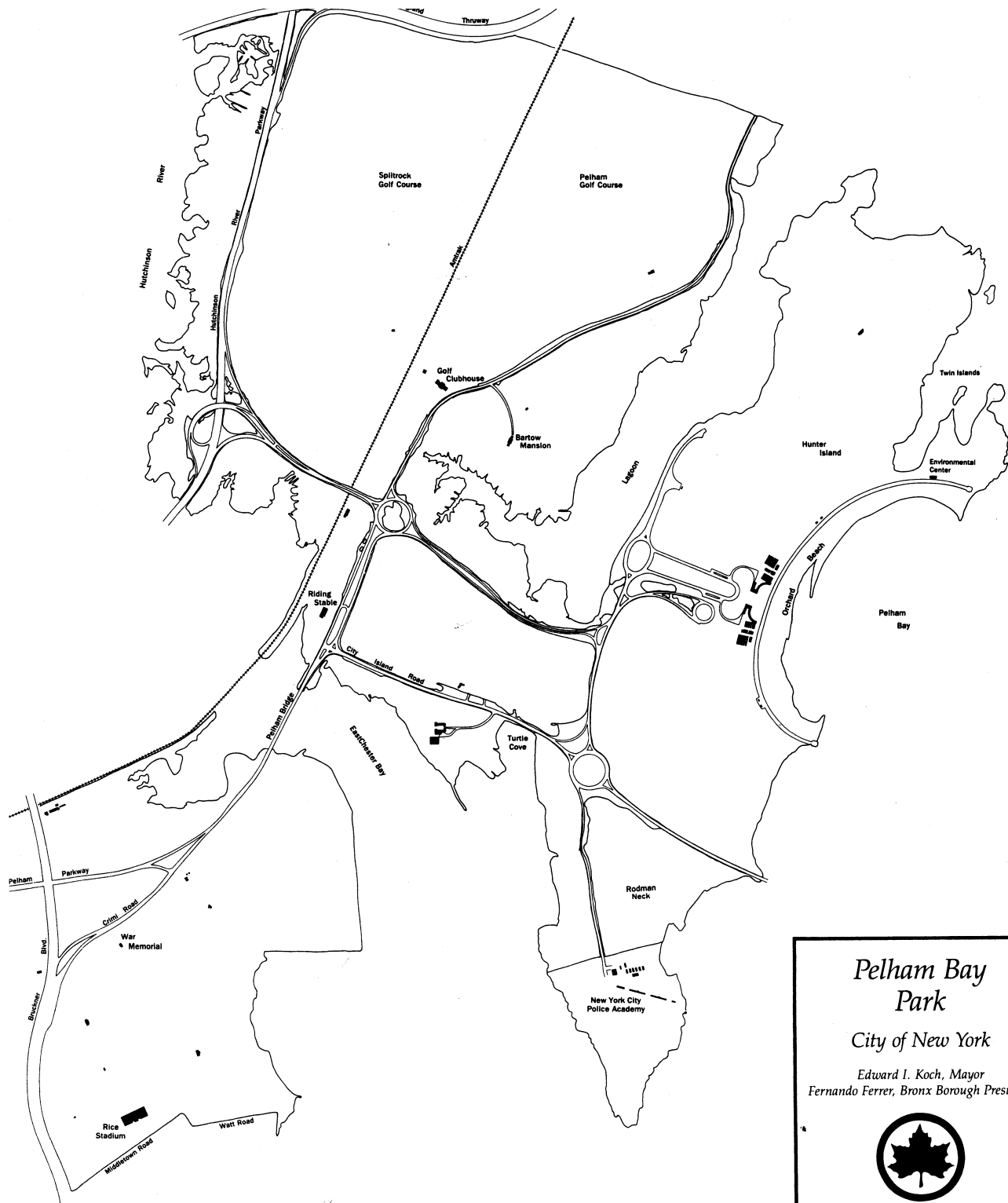
Maps are a powerful tool used to record and convey a variety of pertinent and descriptive characteristics of plant formations delineated during natural resources entitation. Maps with entity boundaries are readily generated by transferring this information from photo atlas sections onto mylar, acetate, or tracing paper. In the simplest form, a base map is produced (Map 2). The addition of unit identification numbers to the base map creates a unit locator map (Map 3). These maps are well suited for illustrating area, extent, and distribution of any of the parameters (e.g. all units that are closed forest, woodland, scrubland etc. See covertime map, Map 4). Computer graphics systems are commended for efficient mapping.

#### 4.2 Computer Printouts

Using a software package designed to file/index allows for easy manipulation of the data collected from the entitation process. The Pelham Bay Park computer documentation on IBM PC-AT was used with a "KEEP-IT" software program. Information can be filed on a unit by unit basis and be called up later in a variety of ways. Some example are: complete unit description, unit with evidence of fire, units with more than three wildlife sightings, a listing of species (in order of dominance) within each cover type, a listing of unit classification, etc. (Tables 2 thru 6).

Any or all of the desired information can be printed on hard copy when needed. This is useful for the following reasons:

1. It provides accessible documentation.
2. It facilitates future comparisons of units, larger areas (e.g. Hunter Island), or cover-types in order to discover successional trends and /or drastic changes (possibly due to outside disturbances).
3. It facilitates general analysis of information which would lead to correlations (e.g., less than three wildlife sighting in white poplar stand: areas that are prone to fire, etc.).



Base Map

**Pelham Bay Park**

City of New York

Edward I. Koch, Mayor  
Fernando Ferrer, Bronx Borough President

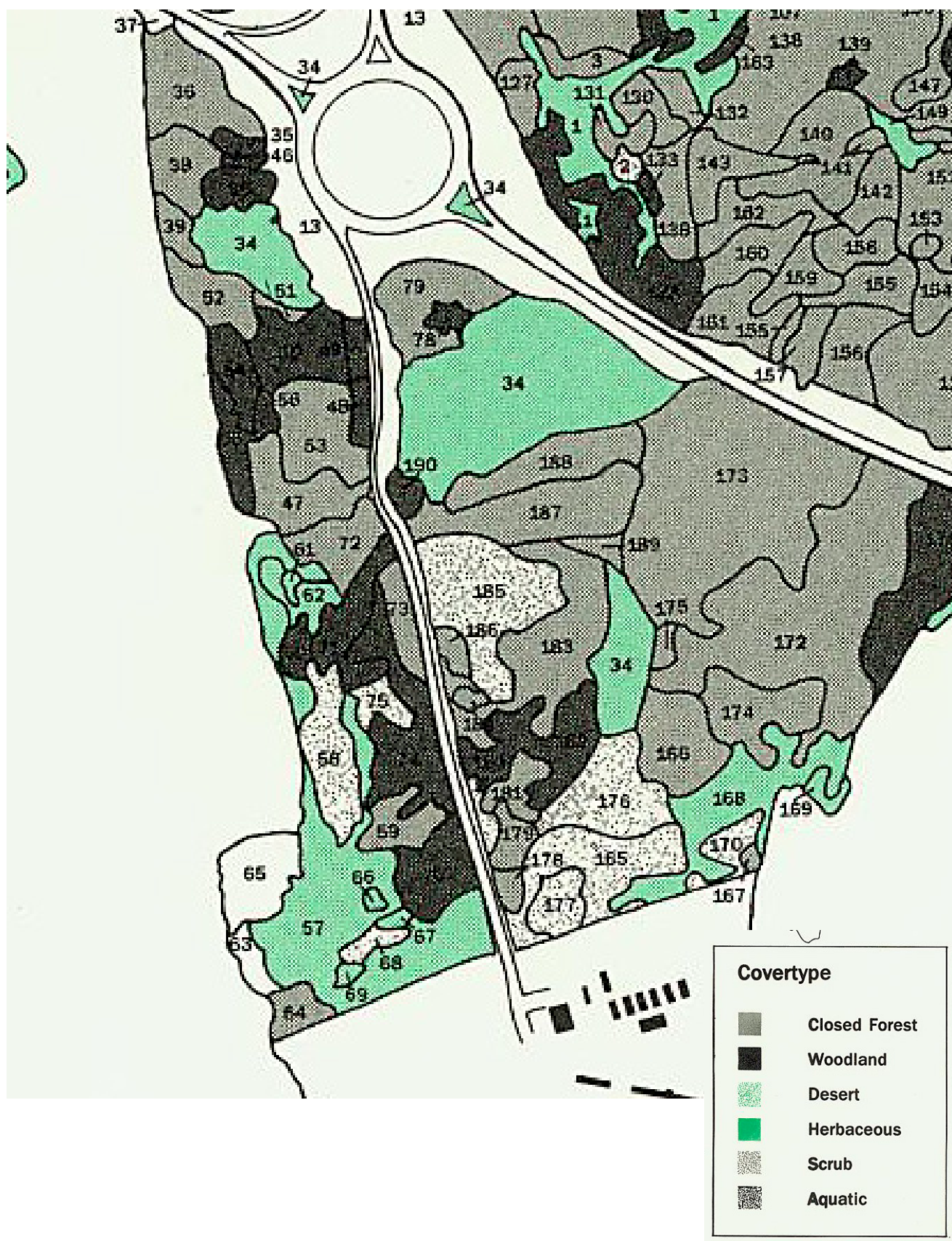
Parks & Recreation

Henry J. Stern, Commissioner  
George W. Sahr, Acting Bronx Borough Commissioner

Natural Resources Group

Map 2: Pelham Bay Park Base Map





Map 4: Covertypes Map

Table 1: Regenerating Species Code

AA	Ailanthus		QS	post oak
AH	horsechestnut		QV	black oak
AL	Norway maple		RH	buckthorn
AP	sycamore maple	RP		black locust
AR	red maple		SA	Sassafras
AS	sugar maple		SJ	Japanese sophora
ASM	silver maple		SN	black willow
BL	black birch		SX	<u>Salix</u> spp.
BP	gray birch		TL	linden
CC	bitternut hickory		TO	Atlantic white cedar
CEO	hackberry		TX	<u>Taxus</u> spp.
CG	pignut hickory		UA	American elm
CN	flowering dogwood		UU	<u>Ulmus</u> spp.
CO	shagbark hickory			
CR	hawthorn			
CT	mockernut hickory			
CY	<u>Carya</u> spp.			
DV	persimmion			
FA	white ash			
FF	<u>Fraxinus</u> spp.			
FG	American beech			
FP	green ash			
GD	Kentucky coffee tree			
HV	witch hazel			
JN	black walnut			
JV	northern red cedar			
LS	sweetgum			
LT	tulip tree			
MA	mulberry			
NS	black tupelo			
PA	white poplar			
PAV	sweet cherry			
PB	Norway spruce			
PBS	balsam poplar			
PD	eastern cottonwood			
PG	white spruce			
PGR	bigtooth aspen			
PHL	corktree			
PN	Austrian pine			
PP	<u>Pinus</u> spp.			
PO	American sycamore			
PR	red pine			
PS	black cherry			
PST	white pine			
PT	quaking aspen			
PTH	Japanese black pine			
QA	white pine			
QB	swamp white oak			
QP	pin oak			
QQ	<u>Quercus</u> spp.			
QR	red oak			

Table 2: Complete Unit Descriptions

Unit: 447  
 Classif: IIB3a (1)  
 Acreage: 0.09

SITE	SPECIES	HEIGHT	HISTOR.	USES	DISTURB.
Woodland	Bitternut hickory	<5m		Foot Traffic	
Deciduous	Sassafras	<5m			
Phanerophytes	Black cherry	<5m			
Level	Rubus	<5m			
Moist	Goldenrod	<5m			
	Aster	<5m			

COMMENT:

Small clearing in midst of wooded area within sight of asphalt path, possibly an old roadbed which is now a footpath. A few young trees in area. Other species: elderberry, wild grape, bush honeysuckle, dogwood, Virginia creeper, and garlic mustard.

Unit: 448  
 Classif: IB3a (1)  
 Acreage: 0.23

SITE	SPECIES	HEIGHT	HISTOR.	USES	DISTURB.
Closed forest	Ailanthus	>5m <5m	Road		
Deciduous	Mulberry	>5m <5m			
Phanerophytes	White ash	>5m <5m			
Slope	Viburnum	<5m			
Well drained	Spicebush	<5m			
	Black cherry	>5m <5m			

COMMENT:

Unit primarily Ailanthus with shrubs and a few a saplings on the lower slope. Other vegetation include: garlic mustard, false Solomon's seal, honeysuckle, jewelweed, roughavens, and elderberry.

Unit: 449  
 Classif: IIIB4a  
 Acreage: 0.15

SITE	SPECIES	HEIGHT	HISTOR.	USES	DISTURB.
Scrub	Rubus	<5m			
Deciduous	Elderberry	<5m			
Phanerophytes	Dogwood	<5m			
Level	Ailanthus	<5m			
Moist	Jewelweed	<5m			
	Aster	<5m			

COMMENT:

Clearing in middle of surrounding oak woodland, possibly an old roadbed present. Other vegetation includes phragmites and goldenrod.

Unit: 450  
 Classif: IIB3a (1)  
 Acreage: 0.15

SITE	SPECIES	HEIGHT	HISTOR.	USES	DISTURB.
Woodland	White ash	>5m <5m		Auto Access	
Deciduous	Pin oak	>5m			
Phanerophytes	American elm	>5m			
Slope	Mulberry	>5m <5m			
Well drained	Hawthron	<5m			
	Black locust	<5m			

COMMENT:

Unit between road and path. Some lianas, such as wild grape and bittersweet, present along borders. Other species: viburnum, dogwood, Rubus, Ailanthus.

Table 3: Units With Evidence of Fire

UNITS # CLASSIF.	FORMATION	VEG.<5M	SPP. #1-6	HEIGHT
07 B2a(1)	Closed forest	Phanerophytes	Sweet cherry White poplar Mulberry Black walnut Sumac Elderberry	>5 <5m >5 <5m >5m >5m <5m <5m
116 IB2a	Closed forest	Phanerophytes	Black locust Viburnum Elderberry White ash Chives	>5m <5m <5m <5m <5m
179 IB2a(1)	Closed forest	Phanerophytes	Sassafras Sweetgum Sweet cherry Elderberry	>5m >5m >5 <5m <5m
6 IIB2(4)	Woodland	Geophytes	Black locust Goldenrod Rubus Chives Pernnial herbs Black cherry	>5m <5m <5m <5m <5m >5m
26 IB2a(4)	Woodland	Geophytes	Bitternut hickory Rubus Goldenrod Jewelweed Black cherry	>5m <5m <5m <5m <5m
110 IIB2a(4)	Woodland	Geophytes	Black locust Pin oak Sweet cherry J. Knotweed Chives Viburnum	>5m >5m >5m <5m <5m <5m
114 IIB2a(4)	Woodland	Geophytes	Sweet cherry Goldenrod Chives	>5m <5m <5m



Table 4: Units With 3 + Wildlife Sitings

UNIT # CLASSIF WILDLIFE	FORMATION	VEG < 5M	SPP. # 1-6	HEIGHT
59 IB2a(3) 2	Closed forest	Hemicryptophytes	Black oak Bitternut hickory Sweetgum Pin oak White ash Cool season grass	>5m >5m >5m >5m <5m <5m
64 IB2b(3) 3	Closed forest	Hemicryptophytes	Bitternut hickory Black cherry Pin oak Elderberry Goldenrod Cool season grass	>5 <5 >5m <5m <5m <5m <5m
46 IIB2a(1) 2	Woodland	Phanerophytes	Sycamore maple Mulberry Vines Japanese knotweed	>5 <5 >5m <5m <5m
71 IIB2a(1) 2	Woodland	Phanerophytes	Sweetgum Black cherry Pin oak Vines	>5 <5 >5 <5 >5m <5m
74 IIB2a(1) 2	Woodland	Phanerophytes	Sweetgum Bayberry White ash Pin oak Bitternut hickory Eastern cottonwood	>5 <5 <5m <5m >5 <5 >5 <5 <5m
118 IIB2a(1) 3	Woodland	Phanerophytes	Black locust Black cherry Eastern cottonwood Viburnum Rose Rubus	>5 <5 >5 <5 >5m <5m <5m <5m
126 IIB2a(1) 2	Woodland	Phanerophytes	Sweetgum White ash Willow White poplar Sweet cherry Rubus	>5m >5m >5m <5m >5m <5m

Table 5: Dominant Species—Closed Forest

SPECIES#1	FREQUENCY	PERCENT
Ailanthus	3	3.49
European alder	2	2.33
Norway maple	5	5.81
Bitternut hickory	2	2.33
Black cherry	8	9.30
Black locust	15	17.44
Black oak	1	1.16
Black walnut	1	1.16
Eastern cottonwood	1	1.16
Hickory	1	1.16
Linden	1	1.16
Oak sp.	1	1.16
Pin oak	6	6.90
Quaking aspen	1	1.16
Red oak	6	6.90
Sassafras	3	3.49
Sugar maple	1	1.16
Sweet cherry	5	5.81
Sweetgum	3	3.49
Sycamore maple	2	2.33
White ash	2	2.33
White pine	2	2.33
White poplar	13	15.12
Willow	1	1.16
TOTAL	86	100.00

Table 5 (cont.): Dominant Species—Woodland

SPECIES	FREQUENCY	PERCENT
Ailanthus	1	2.94
European alder	1	2.94
Norway maple	3	8.82
Bitternut hickory	1	2.94
Black cherry	7	20.59
Black locust	4	11.76
Gray birch	1	2.94
Pin oak	3	8.82
Quaking aspen	1	2.94
Sweet cherry	3	8.82
Sweetgum	4	11.76
Sycamore maple	1	2.94
Vines	1	2.94
White poplar	2	5.88
Willow	1	2.94
TOTAL	34	100.00

Dominant Species—Scrub

SPECIES	FREQUENCY	PERCENT
Rubus	2	12.50
Viburnum	1	6.25
Bayberry	6	37.50
Goldenrod	2	6.25
Graystem dogwood	1	6.25
Sumac	4	25.00
TOTAL	16	100.00

Table 5 (cont.): Dominant species- -Terrestrial Herbaceous

SPECIES #1	FREQUENCY	PERCENT
Japanese knotweed	3	5.66
Phragmites	10	18.87
cool season grass	6	11.32
day lily	1	1.89
fern	2	3.77
goldenrod	9	16.98
jewelweed	1	1.89
mugwort	1	1.89
sesame grass	5	9.43
spikegrass	2	3.77
switchgrass	12	22.64
wild strawberry	1	1.89
TOTAL	53	100.00

SPECIES #1	FREQUENCY	PERCENT
mugwort	1	100.00
TOTAL	1	100.00

Table 6: Units By Classification

CLASSIF.	UNIT #	FORMATION	DOG WOOD	VEG. <5m
	8	Closed forest	Everg. W/decid	Hemicryptophytes
	43	Closed forest	Everg. W/decid	Hemicryptophytes
	10	Closed forest	Decid. W/everg	Phanerophytes
	42	Closed forest	Decid. W/everg	Phanerophytes
	45	Closed forest	Decid. W/everg	Phanerophytes
	127	Closed forest	Decid. W/everg	Phanerophytes
	132	Closed forest	Decid. W/everg	Geophytes
	3	Closed forest	Deciduous	Phanerophytes
	7	Closed forest	Deciduous	Phanerophytes
	9	Closed forest	Deciduous	Phanerophytes
	11	Closed forest	Deciduous	Phanerophytes
	14	Closed forest	Deciduous	Phanerophytes
	17	Closed forest	Deciduous	Phanerophytes
	18	Closed forest	Deciduous	Phanerophytes
	19	Closed forest	Deciduous	Phanerophytes
	21	Closed forest	Decid. W/everg	Phanerophytes
	25	Closed forest	Deciduous	Phanerophytes
	27	Closed forest	Deciduous	Phanerophytes
	28	Closed forest	Deciduous	Phanerophytes
	29	Closed forest	Deciduous	Phanerophytes
	30	Closed forest	Deciduous	Phanerophytes
	31	Closed forest	Deciduous	Phanerophytes
	32	Closed forest	Decid. W/everg	Phanerophytes
	36	Closed forest	Deciduous	Phanerophytes
	37	Closed forest	Deciduous	Phanerophytes
	38	Closed forest	Deciduous	Phanerophytes
	39	Closed forest	Deciduous	Phanerophytes
	40	Closed forest	Deciduous	Phanerophytes
	41	Closed forest	Deciduous	Phanerophytes
	44	Closed forest	Deciduous	Phanerophytes
	51	Closed forest	Deciduous	Phanerophytes
	52	Closed forest	Deciduous	Phanerophytes
	53	Closed forest	Deciduous	Phanerophytes
	72	Closed forest	Deciduous	Phanerophytes
	73	Closed forest	Deciduous	Phanerophytes
	79	Closed forest	Deciduous	Phanerophytes
	105	Closed forest	Deciduous	Phanerophytes
	106	Closed forest	Deciduous	Phanerophytes
	107	Closed forest	Deciduous	Phanerophytes

Table 6 (cont.): Units By Classification

CLASSIF.	UNIT	FORMATION	DOM WOOD	VEG. <5M
	116	Closed forest	Deciduous	Phanerophytes
	117	Closed forest	Deciduous	Phanerophytes
	123	Closed forest	Deciduous	Phanerophytes
	129	Closed forest	Deciduous	Phanerophytes
	130	Closed forest	Deciduous	Phanerophytes
	138	Closed forest	Deciduous	Pnanerophytes
	140	Closed forest	Deciduous	Phanerophytes
	141	Closed forest	Deciduous	Phanerophytes

Appendix A: Checklist of Materials Required for Field Work:

- Photo Atlas and Index
- Data Forms
- Clipboards and Notepads
- Ballpoint Pens (i.e. blue Papermate)
- Compass
- Vegetation Classification Key
- Field Guides (See Appendix D for a recommended bibliography)



Appendix B:

Life Forms of Common Plant Species  
(Based on Manual of Vascular Plants, Gleason and Cronquist)

<u>SPECIES</u>	<u>LIFE FORM</u>	<u>REPRODUCTION</u>
All trees	Phanerophyte	Perennial
Groundsel tree	Chamaephyte	Perennial
Bayberry	Chamaephyte	Perennial
Viburnum	Chamaephyte	Perennial
Sumac	Chamaephyte	Perennial
Bush honeysuckle	Chamaephyte	Perennial
Marsh elder	Chamaephyte	Perennial
Rubus	Chamaephyte	Perennial
Catbrier	Liana	Perennial
Japanese honeysuckle	Liana	Perennial
Poison ivy	Liana	Perennial
Virginia creeper	Liana	Perennial
Wild grape	Liana	Perennial
Black swallowwort	Liana	Perennial
Jewelweed	Therophyte	Annual
Glasswort	Therophyte	Annual
Gerardia	Therophyte	Annual
Salt meadow fleabane	Therophyte	Annual
Garlic mustard	Geophyte	Perennial
Japanese knotweed	Geophyte	Perennial
Chives	Geophyte	Perennial
Day lily	Geophyte	Perennial
Phargmites	Geophyte	Perennial
Black grass	Geophyte	Perennial
Switchgrass	Geophyte	Perennial
Mugwort	Hemicryptophyte	Perennial
Spartina	Hemicryptophyte	Perennial
Sea lavender	Hemicryptophyte	Perennial
Sesame grass	Hemicryptophyte	Perennial
Goldenrod	Hemicryptophyte	Perennial
White snakeroot	Hemicryptophyte	Perennial
Aster	Hemicryptophyte	Perennial
Curly dock	Hemicryptophyte	Perennial
Plantain	Hemicryptophyte	Perennial
English plantain	Hemicryptophyte	Perennial
Little bluestem	Hemicryptophyte	Perennial
Dandelion	Hemicryptophyte	Perennial
Cool season grasses	Hemicryptophyte	Perennial
Virginia knotweed	Geophyte	Perennial

## Appendix C: Photo Imagery

### 1. Current Vertical Photography

	<u>Type</u>	<u>Scale</u>	<u>Year</u>
Lockwood, Kessler and Barlett, Inc. 1 Aerial Way Syosset, NY 11791 (516) 938-0600 (Attn: Bill Brunn)	Black & White Black & White	1:19,000 1" = 5000'	(1984 1978) (1974)
Dept. of Environmental Conservation SUNY Building 40 Stony Brook, NY 11794	Black & White Color/Infrared	1" = 200' 1" = 1000'	(1974) (1974)
Sanborn Map Company 629 Fifth Avenue Pelham, NY 10803	Black & White Black & White	1" = 1167' 1" = 1000'	(1982) (1975)
Keystone Aerial Survey, Inc. North Philadelphia Airport Philadelphia, PA 19114 (215) 938- 3119	Black & White Black & White	1" = 800' 1" = 2000'	(1980) (1980)
U.S. Dept. of Commerce Nat'l Oceanic & Atomospheric Admin. National Oceanic Service Charting & Geodetic Services Rockville, MD 20852	Color (NYC Shoreline)	1" = 2500'	
EROS Data Center Sioux Falls, SD 57198 (605) 594- 6151	Color/Infrared Black & White	1" = 4834' 1" = 6667'	(1984) (1984)
Aerial Cartographics of America 100 W. Main Street Babylon, NY 11702 (516) 587- 5060	Color/Infrared		

2. Aerial Photo Atlas with superimposed 100' coordinate grid system (1' = 200'). Atlas sections are 8 ½" x 11". Grid system same as New York Plane Coordinate Grid, East and Long Island Zones, NYS department of Transportation. Arrange contract with private photographer. Atlas section should overlap 100'. Label grid at 1000' intervals; grid lines should be very thin and orientated correctly.

### Appendix C (cont.): Photo Imagery

#### 3. Air Photo interpretation (without field or entitation):

CLEARs – Cornell Laboratory for Environmental Applications of Remote Sensing:

Cornell University  
Hollister Hall  
Ithaca, NY 14853  
(607) 256- 6520

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### Appendix D: Recommended Field Guides

Brockman, C. Frank. Trees of North America. Racine. Wisconsin:  
Western Publishing Company , Inc., 1979

Brown, Lauren. Grasses: An Identification Guide. Boston ,  
Massachusetts: Houghton Mifflin Co., 1979.

Niering, William A. and R. Scott Warren. Salt Marsh Plants of  
Connecticut. New London. Connecticut: Connecticut Arbortum  
Association.

Peterson, Roger Tory and Margaret McKenny. A field Guide to  
Wildflowers of Northeastern and North Central North America.  
Boston. Massachusetts: Houghton Millin Co., 1968.

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### Appendix E: Literature Cited

1. Gleason, Henry A. and Arthur Cronquist. 1963. Manual of Vascular  
Plants of Northeastern United States and Adjacent Canada. Willard  
Grants Press. Massachusetts. 810pp.
2. Mueller- Dombois, D. and H. Ellenburg. 1974. Aims and Methods of  
Vegetation Ecology. John Wiley and Sons, New York. 574pp.
3. UNESCO. 1973. International Classification and Mapping of  
Vegetation. Ecology and Conservation Series, No.6, 93pp.

## Appendix F: Classification System

- I. **CLOSED FOREST.** formed by trees at least 5m tall with their crowns interlocking.
- II. **WOODLANDS.** (Open stands of trees.) Formed by trees at least 5m tall, with most of their crowns not touching each other, but covering at least 30% of the surface; grass cover sometimes present.
- III. **SCRUB.** Shrub lands or thickets. Mainly composed of woody chamaephytes and phanerophytes (e.g., *Rubus* spp., *Rosa* spp., *Myrica* spp., etc.), 0.5-5.0m, all.
- IV. **HERBACEOUS COMMUNITIES.** Grasses, graminoid and other herbaceous plants are predominant in the cover, but woody plants may be sparingly present (i.e. covering not more than 30%).
- V. **DESERT and other scarcely vegetated areas.** Plants are scattered or may be absent.
- VI. **FRESHWATER AQUATIC PLANT FORMATIONS.** Lacustrine habitats that are situated in a topographic depression or a dammed river channel, lacking trees, shrubs, emergents, mosses or lichens with greater than 30% areal coverage. Composed of rooted and/or floating plants that endure or need water covering the soil constantly or at most times of the year.
- VII. **INTERTIDAL COMMUNITIES.** Substrate is exposed and flooded by tides. Includes the associated splash zones.
- VIII. **VINELAND.** Characterized by >30% lianas (e.g., *Lonicera japonica*, *Vitis* sp., *Toxicodendron radicans*). Often on forest or shrub border. Supported by artificial means or ground surface.

I. **CLOSED FORESTS.** Formed by trees at least 5m tall with their crowns interlocking.

- A. Temperate evergreen forests. The canopy is never without foliage: however, individual trees may shed their leaves (e.g. Pinus spp., Abies spp., Tsuga spp., Picea spp., etc.)
  - 1. Evergreen conifer forest with rounded crowns (e.g. Pinus spp.).
    - a) understory (<5m) dominated by phanerophytes
    - b) understory (<5m) dominated by chamaephytes
    - c) understory (<5m) dominated by hemicryptophytes
    - d) understory (<5m) dominated by geophytes
    - e) understory (<5m) dominated by therophytes
    - f) understory (<5m) dominated by lianas
  - 2. Conical crowns (e.g. Picea spp. and Abies spp.)(subdivisions as above\*).
- B. Mainly deciduous forests. Majority of trees shed their foliage simultaneously in connection with the unfavorable season (Quercus spp., Carya spp., Prunus spp., etc.).
  - 1. Cold deciduous forests with evergreen trees (or shrubs) admixed. Unfavorable season mainly characterized by winter frost. Deciduous trees dominant. but evergreen species present as part of the main canopy or as understory.
    - a. Cold deciduous forest with evergreen broad leaved trees (e.g., Ilex spp.).
      - 1) understory (<5m) dominated by phanerophytes
      - 2) understory (<5m) dominated by chamaephytes
      - 3) understory (<5m) dominated by hemicryptophytes
      - 4) understory (<5m) dominated by geophytes
      - 5) understory (<5m) dominated by therophytes
      - 6) understory (<5m) dominated by lianas
    - b. Cold deciduous forest with evergreen needle leaved trees (subdivisions as above\*).
  - 2. Cold deciduous forest without evergreen trees. Deciduous trees absolutely dominant. Evergreen chamaephytes and some small, evergreen trees may be present.
    - a. Temperate lowland and submontane cold deciduous forest. trees up to 50m tall (subdivisions same as above\*).
    - b. Cold deciduous riverine forest. (Flooded by channels, therefore more moist and richer in nutrients than a.). Trees and shrubs with high growth rates and vigorous herbaceous undergrowth (e.g., Salix nigra, Populus deltoides, Fraxinus pennsylvanica, etc.).
      - 1) Temporarily flooded. Between high water and average water.
        - a) understory (<5m) dominated by phanerophytes
        - b) understory (<5m) dominated by chamaephytes
        - c) understory (<5m) dominated by hemicryptophytes
        - d) understory (<5m) dominated by geophytes
        - e) understory (<5m) dominated by therophytes
        - f) understory (<5m) dominated by lianas
      - 2) Seasonally flooded. Between average water and low water. (subdivision as above\*).

- C. Cold deciduous palustrine swamp or peat forest. (Flooded until late spring or early summer, Surface soil organic.). Relatively poor in tree species. Ground cover mostly continuous.

1) Mainly broad leaved.

- A) understory (<5m) dominated by chamaephytes
- B) understory (<5m) dominated by phanerophytes
- C) understory (<5m) dominated by hemicryptophytes
- D) understory (<5m) dominated by geophytes
- E) understory (<5m) dominated by therophytes
- F) understory (<5m) dominated by lianas

2) Mainly deciduous coniferous e.g., Taxodium distichum ( subdivisions as above\*).

3) Mixed broad leaved and deciduous coniferous, e.g., Larix laricina (subdivision as above\*).

II. **WOODLANDS.** (Open stands of trees.) Formed by trees at least 15 feet tall. With most of their crowns not touching each other, but covering at least 30% of the surface. Grass cover sometimes present.

A. Mainly evergreen woodlands. Evergreen as defined in IA.

1. Evergreen broad leaved woodlands (e.g., Ilex spp.).

- A) understory (<5m) dominated by phanerophytes
- B) understory (<5m) dominated by chamaephytes
- C) understory (<5m) dominated by hemicryptophytes
- D) understory (<5m) dominated by geophytes
- E) understory (<5m) dominated by therophytes
- F) understory (<5m) dominated by lianas

2. Evergreen needle leaved woodlands. Mainly needle or scale leaved. Crowns of many trees extending to the base of the stem or at least very branchy.

a. Evergreen coniferous woodland with rounded crowns (e.g., Pinus spp.).

- 1) understory (<5m) dominated by phanerophytes
- 2) understory (<5m) dominated by chamaephytes
- 3) understory (<5m) dominated by hemicryptophytes
- 4) understory (<5m) dominated by geophytes
- 5) understory (<5m) dominated by therophytes
- 6) understory (<5m) dominated by lianas

b. Evergreen coniferous woodland with conical crown prevailing mostly subalpine (e.g., Picea spp. and Abies spp.) (subdivisions as above\*).

B. Mainly deciduous woodland. (see IB).

1. Cold deciduous woodlands with evergreen trees (see IB2).

- a) understory (<5m) dominated by phanerophytes
- b) understory (<5m) dominated by chamaephytes
- c) understory (<5m) dominated by hemicryptophytes
- d) understory (<5m) dominated by geophytes

- e) understory (<5m) dominated by therophytes
- f) understory (<5m) dominated by lianas

2. Cold deciduous woodlands without evergreen trees (see IB2).

- a. Broad leaved deciduous woodland (e.g., Quercus spp., Carya spp., Prunus Spp., etc.).
  - 1) understory (<5m) dominated by phanerophytes
  - 2) understory (<5m) dominated by chamaephytes
  - 3) understory (<5m) dominated by hemicryptophytes
  - 4) understory (<5m) dominated by geophytes
  - 5) understory (<5m) dominated by therophytes
  - 6) understory (<5m) dominated by lianas
- b. Needle leaved deciduous woodland (e.g., Larix spp., Taxodium spp., etc.) (subdivisions as in 2a\*).
- c. Mixed deciduous woodland broad leaved and needle leaved (subdivisions as in 2a\*).
- d. Cold deciduous riverine woodland see IB2b (subdivisions as in 2a\*).
- e. Cold deciduous palustrine swamp or peat woodland see IB2c (subdivisions as in 2a\*).

III. **SCRUB.** Shrublands or thickets. Mainly composed of woody chamaephytes and phanerophytes (e.g., Rubus spp., Rosa spp., Myrica spp., etc) 0.5-5.0m tall.

A. Thickets. Poor in herbaceous undergrowth. Individual shrubs interlocked.

- 1. Mainly deciduous. (Deciduous in the sense of IB)
- 2. Mainly evergreen thicket. (Evergreen in the sense of 1A.)
  - a. Evergreen broad leaved thicket.
  - b. Evergreen needle leaved thicket.

B. Shrubland. Rich in herbaceous undergrowth. Most of the individual shrubs not touching each other.

- 1. Mainly deciduous. (Deciduous in the sense IB).
  - a. Temperate upland deciduous shrubland.
  - b. Deciduous riverine shrubland. Fast growing shrubs, occurring as pioneer on banks of channels or islands that are often vigorously flooded, therefore mostly with very sparse undergrowth.
  - c. Deciduous peat shrubland with Sphagnum and or other peat mosses.
  - d. Palustrine deciduous shrubland. At least periodically flooded with water, or having ground water saturated soils (e.g. Cephalanthus occidentalis).
  - e. Lacustrine deciduous shrubland. Fast growing shrubs, occurring as pioneers on edges of permanent open water.
- 2. Mainly evergreen shrubland (e.g., Taxus spp.).

IV. **HERBACEOUS COMMUNITIES**. Grasses, graminoid and other herbaceous plants are predominant in the cover, but woody plants may be sparingly present (i.e., covering not more than 30%).

A. Terrestrial herbaceous communities

1. Steppers and related grasslands. (e.g., North American “prairies” etc.: temperate, with late summer drought and winter frost season.). More resistant to woody invasion than meadows. Therefore, trees or shrubs absent as a rule, except on wetter sites, e.g., along rivers, in ravines and in the forest border ecotone. Warm season grasses dominate.
  - a. Tall grass steppes. Grasses taller than 1m dominate, e.g., *Phragmites*.
    - 1) Tall grass steppe with trees.
    - 2) Tall grass steppe with shrubs.
    - 3) Tall grass steppe with trees and shrubs.
    - 4) Tall grass steppe with without woody plants.
  - b. Mid grass steppes. Medium sized grasses locally frequent , e.g. *Panicum virgatum* (subdivisions as in 1 above).
  - c. Short grass steppes. Mostly composed of mat forming. More or less low grasses, e.g. *Andropogon scoparius* (subdivision as in 1 above).
  - d. Forb rich steppers. Broad leaved forbs. Mostly hemicryptophytes. Are frequent (subdivisions as in 1 above).
2. Meadows, pastures, or related grasslands. Hemicryptophytes dominating as a rule. More forbs than steppes. Cool season grasses dominate.
  - a. Tree meadow. Grassland with isolated trees.
  - b. Scrub meadow. Shrub groups in grassland.
  - c. Grassy meadow with trees and shrubs.
  - d. Grassy meadow without trees or shrubs.
  - e. Sedge rush meadow. More or less graminoid herbs dominate. indicating periodically water logged soil.
  - f. Lawn (where lawn is defined as maintained turf grasses) with trees.
  - g. Lawn with trees and shrubs.
  - h. Lawn with shrubs.
  - i. Lawn without trees or shrubs.
3. Forb vegetation and similar communities. More or less broad leaved herbs dominating. Woody life forms only exceptionally present.
  - a. Mainly perennial forb communities dominated by nongraminoid hemicryptophytes and geophytes. Annuals sometimes present, but of little importance.
    - 1) Forest border herb formation. Occuring as a narrow transitional band, consisting of hemicryptophytes, geophytes, and therophytes. Growing more vigorously than the adjacent pasture meadow.
    - 2) Tall forb formation. Dense stands of broad leaved herbs. Mostly dicotyledonous herbs taller than 50cm.
    - 3) Fern thicket.
    - 4) Perennial forb formation on organic deposits at the flood lines. Consisting of broad leaved herbs, growing abundantly on more or less decomposed organic deposits, which are often renewed by floods.



- 5) Perennial ruderal (i.e. growing on debris, ruins, and other places strongly influenced by man) and clearing herb formation. More or less broad leaved herbs.
  - 6) Mainly perennial weed formation on cultivated land. Mostly hemicryptophytic Or geophytic weeds, growing more or less abundantly in the shade of cultivated Perennial plant stands (e.g., nurseries and gardens).
- b. Mainly ephemeral (i.e. shortlived) forb communities. Therophytes more frequent than perennial herbs.
- 1) Ephemeral halophytic (i.e. plants that grow in salty soil) formation.
  - 2) Ephemeral ruderal and clearing forb formation. Like 3a5 above, but dominated by annuals.
  - 3) Mainly ephemeral weed formation on cultivated land.
- B. Fresh aquatic or semi aquatic herbaceous communities. Includes lacustrine, riverine, and palustrine wetlands.
1. Emergent Wetlands. Open formations on constantly or mostly waterlogged ground, without or with very few woody plants.
    - a. Riverine. Emergent marsh associated with channel edges.
    - b. Lacustrine. Associated with permanent open water.
    - c. Palustrine. Associated with semi permanent water, or groundwater saturated soils.
  2. Sedge peat marshes and similar marshes. Dominated by sedges, seasonally flooded.
    - a. Tall sedge marsh. (frequently flooded and commonly for long periods: as a rule natural.) Foliage taller than 30-40 cm. Sedges dominating throughout; very few other life forms.
    - b. Low sedge marsh. (Flooded little or only for short periods.). Dominated by small sedges (Carex spp., Juncus spp., Scirpus spp., many other herbaceous life forms.
  3. Flushes. Herbaceous vegetation growing on habitats where seepage water crops up at the surface. (Constantly wet, but rarely flooded).
    - a. Forb flush. Mostly dominated by small forbs.
    - b. Moss flush. Dominated by mosses.
- V. DESERTS and other scarcely vegetated areas. Plants are scattered or may be absent. Chasmophytic vegetation: Permanent plants rooting in fissures of rocks or wall.
- A. Cryptogamic mat on rocks:
1. Foliose (i.e. leaflike) lichens and mosses dominant.
  2. Crustose (i.e. crusty) lichens dominant.
  3. Blue green algae dominant; dark strips on rocks caused by Cyanophyceae that grow actively when the water is trickling down.
- B. Scarcely vegetated scree. (More or less unstable, steep slopes of stones beneath weathering rocks). Mostly permanent herbs or half woody plants adapted to survive the movement of stones at the scree surface, sometimes even stopping them.
- C. Scarcely vegetated sand accumulations.

1. Scarcely vegetated sand dunes.
  - a. Tall - grass dune. Built up and partially covered by geophytic grasses (e.g., Panicum virgatum or grass like plants which are able to adapt their root and shoot system to new accumulations of sand that bury them in stormy periods.
  - b. Short grass dune (mostly continental). Low hemicryptophytic or geophytic grasses and sedges (e.g., Limonium carolinianum, Solidago sempevirens, etc.).
  - c. Forb dune.
2. Bare sand dunes. Only exceptional with some isolated plants.
  - a. Shifting dunes in forest environment.
  - b. Shifting dunes in beach environment.
3. Artificial beach. Outside of tidal range.
- D. Scarcely vegetated artificial surface (i.e., roads, parking lot, airstrips, buildings, courtyards, recreational facilities, etc.). Vegetation in cracks and small patches covering <30% of the area.
- E. Scarcely vegetated compacted surfaces (i.e., dump, heavy equipment yard, etc.). vegetation restricted by soil compaction and periodic surface disturbance.

- VI. **FRESHWATER AQUATIC PLANT FORMATIONS.** Lacustrine habitats that include those situated in a topographic depression or dammed river channel lacking trees, shrubs, emergents, mosses, or lichens with greater than 30% areal coverage. Composed of rooted and/or floating plants that endure or need water covering the soil constantly or at most times of the year.
- A. Rooted floating leaf communities. Includes submergents e.g. Nuphar spp., Nymphaea spp., Brasenia schreberi.
  - B. Free floating (nonrooted) fresh water communities.
    1. Broad leaved, free floating communities (temperate). Disappearing in the cold season.
    2. Lemna type free floating communities.
    3. Free floating macroscopic algae communities e.g. Spirogyra spp., Lyngbya contorta, Agmenellum quadruplicatum.
  - C. Rooted Submergent. (e.g. Elodea spp., Potamogeton spp., Ceratophyllum spp., etc.).
- VII. **INTERTIDAL COMMUNITIES.** Substrate is exposed and flooded by tides, includes the associated splash zones.
- A. Marine. Salinities exceed 30 parts per thousand with little or no dilution except at the mouths of estuaries.
    1. Herbaceous. Includes emergent wetlands (intertidal salt marches).
      - a. Flooded daily (e.g., Spartina alterniflora).
      - b. Not flooded daily (e.g., high marsh, Spartina patens).
        - 1) Rich in succulents (e.g., Salicornia spp.).
        - 2) Poor in succulents.

2. Algal. Algae are the dominant plant species.
  - a. Rock substrate.
    - 1) Blue green algae dominant.
    - 2) Green algae dominant (e.g. Fucus spp., etc.).
  - b. Unconsolidated substrate, including mud flats.
- B. Esturine. Usually semi enclosed by land but have open. Partially obstructed, or sporadic access to open ocean, and in freshwater runoff from the land.
1. Same subclasses as in A. above.

VIII. **VINELAND**. Characterized by >30% lianas (e.g., Lonicera japonica, Viti spp., Toxicodendron radicans). Often on forest or shrub border. Supported by artificial means or ground surface.

- A. Lianas with trees.
- B. Lianas with shrubs.
- C. Lianas with trees and shrubs.
- D. Lianas with forbs.