Natural Area Mapping and Inventory of University Woods 2007 Survey

Prepared by the Natural Resources Group
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University Woods Natural Area Mapping & Inventory

3.52 acres

Introduction

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

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

In 1984, Parks established the Natural Resources Group (NRG) with a mandate to acquire, restore and manage natural areas in New York City. The wetlands, forests, meadows, and shorelines under NRG's jurisdiction provide valuable habitat for hundreds of species, from rare wildflowers to endangered birds of prey. In addition to the goals mentioned above, NRG serves as a clearinghouse for technical research to aid in the protection and restoration of the city's natural resources. This inventory of University Woods was conducted in 2007 as part of NRG's commitment to improving the natural areas of New York City parks.

University Woods and the surrounding neighborhood are named for the prominent campus formerly occupied by New York University. The park is located on a steep slope that overlook the Harlem River. In 1892 the undergraduate college was moved from Greenwich Village to Fordham Heights, later renamed University Heights. The entire site was sold to the City in 1973 and is now the campus for Bronx Community College, part of the City University of New York.

The property from Sedgwick to Cedar Avenues north of W. 180th Street was acquired by condemnation in 1899 and named University Park by the Board of Aldermen. The original design included a comfort station, tool shed, and pipe rail fencing. Long diagonal paths traversed the steep ridge, and a stairway led up the Northern boundary to the university. In 1935 Parks landscape architect Gilmore D. Clarke added several benches and pathways and an overlook to the gorge of the Harlem River. An additional half-acre was acquired in 1950, expanding the park to its present size.

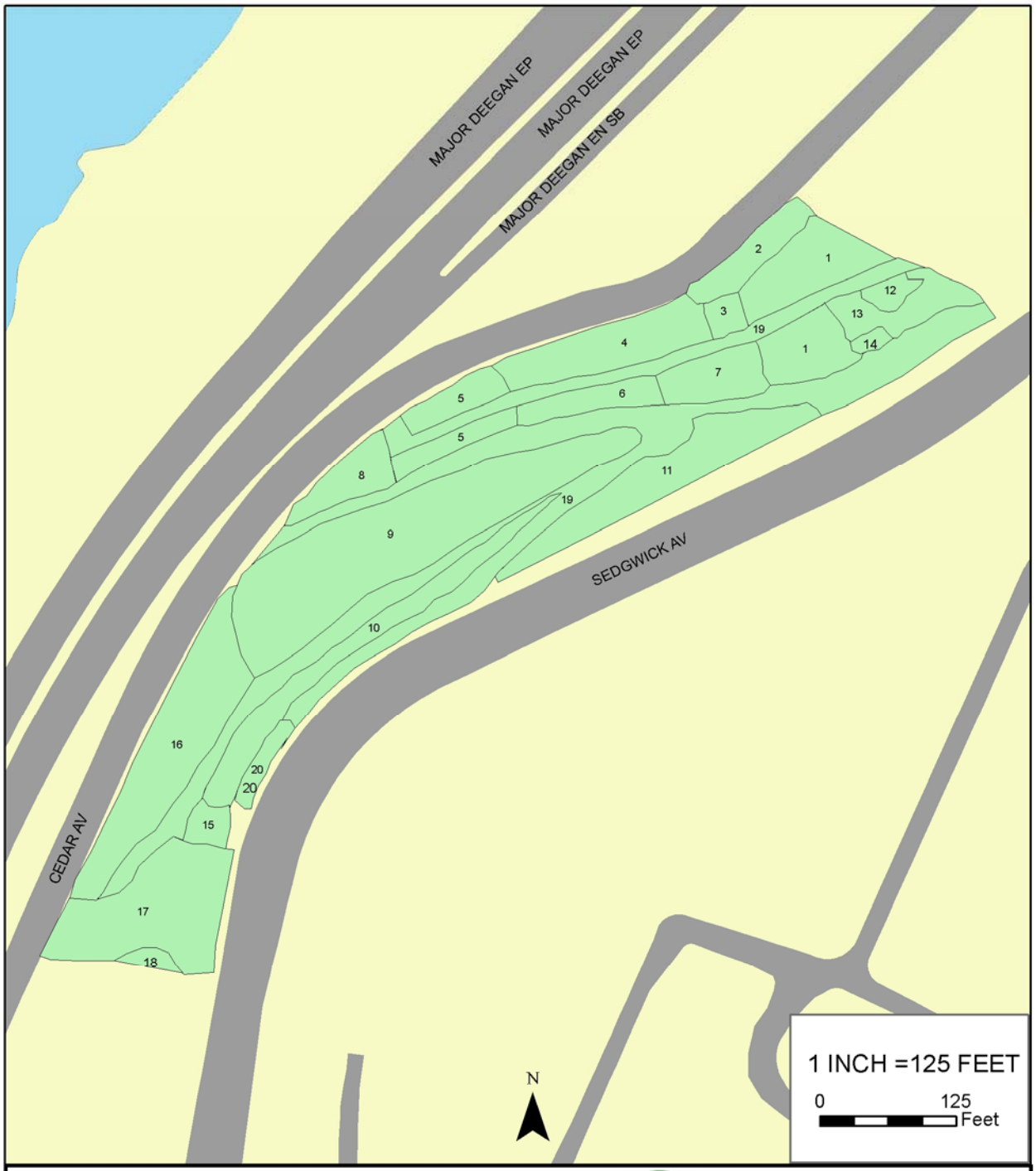
To facilitate the protection, management and restoration of University Woods, NRG completed an inventory of the area using entitation, a process of identifying and describing ecologically distinct plant communities. Using aerial photographs and field reconnaissance, Parks staff delineated distinct ecological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

Entitation

Entitation is a type of plant community inventory well suited to the patchy environments often found in urban areas. Originally designed for European landscapes, the system was revised by NRG in 1985 for use in urban parkland. NRG has used entitation widely and successfully to facilitate acquisition and restoration decisions. Put simply, entitation is a process of breaking up a park into manageable parts called "entities" or

“entitation units.” Entitation units are defined using a weighted list of criteria. The first level of distinction is based on cover type (e.g. closed forest, vineland, scrub), followed by canopy species composition, understory type (e.g. herbs, vines, shrubs), and understory species composition. Additional factors, such as topography and soil condition (e.g. wet, moist, dry) are also taken into account.

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



ENTITATION UNITS - AUGUST 2007
UNIVERSITY WOODS PARK
BRONX COUNTY, CITY OF NEW YORK

11/21/2007

City of New York
Parks & Recreation
Natural Resources Group

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Unit: 1
Acreage: 0.24
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Cherry, black	<5' & 5-30'	no		Foot traffic	Erosion
Deciduous	Ash, spp.	<5' & 5-30'	no			Trash
Phanerophytes	Hickory, bitternut	<5'	no			
Slope						
Dry/Moist						

Comments:

This is predominantly a black cherry forest with many planted saplings in the understory. A few species are in the herbaceous layer, but it is mostly soil, twigs, and roots. A few large oaks, which were planted in the late 1800's, are at the bottom of the slope. A pathway and a staircase cut through the unit. Planted sapling species include: ash, bitternut hickory, tulip poplar, hackberry, black oak, and chestnut oak. Other species present include: white mulberry, slippery elm, box elder, sycamore maple saplings, multiflora rose, Virginia creeper, Oriental bittersweet, porcelainberry, poison ivy, white snakeroot, wood aster, mugwort, pokeweed, spiny sow thistle, garlic mustard, jewelweed and jetbead. There is more undergrowth along the north side of the staircase. Smartweed, jetbead, and jewelweed are only found in this section of unit. A considerable amount of broken glass is present.

Unit: 2
Acreage: 0.08
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Herbaceous	Aster, white wood	<5'	no			
Deciduous	Jewelweed	<5'	no			
Hemicryptophytes	Nightshade, common	<5'	yes			
Slope						
Dry/Moist						

Comments:

This is a strip of an herbaceous community, which is located at the bottom of a slope that is bordered by a stone fence, along Cedar Avenue. Other species present include: slippery elm saplings, forsythia, porcelainberry on fence, Virginia creeper, wood sorrel, smartweed, black eyed Susan, horseweed, wood aster, white snakeroot, spiny sow thistle, and Virginia knotweed.

Unit: 3
Acreage: 0.03
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Woodland	Beech, American	<5' & 5-30'	no			Erosion
Deciduous	Sassafras	<5' & 5-30'	no			
Phanerophytes	Hickory, bitternut	<5'	no			
Slope						
Dry/Moist						

Comments:
This unit is planted with bitternut hickory saplings. It contains one large American beech, which was most likely panted in the late 1800's. The ground cover is very sparse. Other species present include: forsythia, enchanter's nightshade, wood aster, and poison ivy.

Unit: 4
Acreage: 0.18
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Oak, red	>30'	no			Trash
Deciduous	Oak, black	>30'	no			
Phanerophytes	Ash, green	<5' & 5-30'	no			
Slope	Norway maple	<5' & 5-30'	yes			
Dry/Moist	Cherry, black	<5' & 5-30'	no			

Comments:
This unit is a closed forest with sassafras on the east side of the unit; historically planted oaks are in the canopy, and ash, Norway maple, and black cherry in the subcanopy. The herbaceous layer is sparse with lots of leaf litter. Other species present include: box elder saplings, slippery elm, linden, Oriental bittersweet, Virginia creeper, and white wood aster.

Unit: 5
Acreage: 0.11
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Cherry, black	all	no			Trash
Deciduous	Mulberry, white	<5' & 5-30'	yes			
Phanerophytes						
Slope						
Dry/Moist						

Comments:

This is a black cherry/ white mulberry forest with saplings and sparse ground vegetation. Lots of leaf litter is present. Other species present include: honey locust, Norway maple, hawthorn saplings, bitternut hickory, pin oak, slippery elm, crab apple, green ash saplings, red oak saplings, hackberry saplings, multiflora rose, poison ivy, Virginia Creeper, and white wood aster.

Unit: 6
Acreage: 0.07
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Ash, green	<5' & 5-30'	no			Erosion
Deciduous	Cherry, black	<5' & 5-30'	no			
Phanerophytes						
Slope						
Dry/Moist						

Comments:

This is a strip of saplings, mostly ash and black cherry. This unit has very little ground vegetation. The canopy of other units shades over this unit. Other species present include: box elder, hawthorn, Virginia creeper, poison ivy, wood aster, and pokeweed.

Unit: 7
Acreage: 0.09
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Mulberry, white	<5' & 5-30'	yes			Trash
Deciduous	Ash, green	<5'	no			
Phanerophytes	Cherry, black	5'-30'	no			
Slope	Oak, red	<5'	no			
Dry/Moist	Hickory, bitternut	<5'	no			
	Aster, white wood	<5	no			

Comments:

This is a strip of white mulberry with a few scattered black cherry and many saplings. Ground cover is sparse with lots of leaf litter. Red oak, bitternut hickory, hackberry, American elm, and chestnut oak saplings were planted. Other species present include: sassafras sapling, multiflora rose, Virginia creeper, and porcelainberry.

Unit: 8
Acreage: 0.08
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Cherry, black	<5' & 5-30'	no			
Deciduous	Elm, slippery	<5' & 5-30'	no			
Hemicryptophytes	Snakeroot, white	<5'	no			
Slope	Aster, white wood	<5'	no			
Dry/Moist	Dayflower, Asiatic	<5'	yes			

Comments:

This unit is a mix of 5'-30' trees with a few saplings and a lot of herbaceous growth. It is located next to a staircase that leads to Cedar Avenue. Other species present include: pin oak, white mulberry, black locust, green ash, honey locust saplings, Virginia creeper, poison ivy, foxtail, common nightshade, smartweed, wood sorrel, and mugwort.

Unit: 9
Acreage: 0.59
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Cherry, black	<5' & 5-30'	no			Trash
Deciduous	Oak, red	<5' & 5-30'	no			
Phanerophytes	Oak, black	5'-30'	no			
Slope	Ivy, poison	<5'	no			
Dry/Moist	Ash, green	<5'	no			

Comments:

This unit is a black cherry/ oak forest. The oaks are historically planted. A cherry, which has grown at angle over the path next to the unit, marks one side of unit. Other species present include: white mulberry, black birch, crab apple, black locust, hackberry, historically planted American beech, red pine, Ailanthus planted American elm saplings, planted chestnut oak sapling, planted bitternut hickory saplings, bittersweet nightshade, Virginia knotweed, false Solomon's seal, smartweed, common nightshade, pokeweed, violet, wood aster, lamb's quarter, Asiatic dayflower, jewelweed, wood sorrel, and white avens. A dead chicken was found in the unit.

Unit: 10
Acreage: 0.18
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Cherry, black	<5' & 5-30'	no			Trash
Deciduous	Elm, American	<5' & 5-30'	no			
Hemicryptophytes	Mulberry, white	<5' & 5-30'	yes			
Slope	Aster, white wood	<5'	no			
Dry/Moist	Ivy, poison	<5'	no			

Comments:

This unit is predominantly black cherry, American elm, and white mulberry. Other species present include: linden, historically planted white oak, slippery elm, hawthorn, chestnut oak sapling, multiflora rose, Amur honeysuckle, Rubus, forsythia, Virginia creeper, porcelainberry, wood aster, Asiatic dayflower, wood sorrel, garlic mustard, pokeweed, common nightshade, and Virginia knotweed. A dead chicken was found in the unit.

Unit: 11
Acreage: 0.23
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Cherry, black	all	no			
Deciduous	Oak, red	<5' & >30'	no			
Hemicryptophytes	Mulberry, white	<5' & 5-30'	yes			
Slope	Aster, white wood	<5'	no			
Dry/Moist	Snakeroot, white	<5'	no			
	Ash, green	<5	no			

Comments:
This unit is on the Sedgewick Avenue side of the park. It is dominated by black cherry and historically planted oaks. Very dense herbaceous layer. Other species present include: white oak, black locust, multiflora rose, porcelainberry, Oriental bittersweet, bittersweet nightshade, common nightshade, smartweed, garlic mustard, spiny sow thistle, grass species, and ragweed.

Unit: 12
Acreage: 0.03
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Herbaceous	Jewelweed	<5'	no			
Deciduous	Tulip tree	<5'	no			
Therophytes	Elm, American	<5'	no			
Slope						
Dry/Moist						

Comments:
This unit is dominated by jewelweed, with planted tulip poplar and planted American elm. It is located on the east side of the park.

Unit: 13
Acreage: 0.09
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Oak, white	>30'	no			
Deciduous	Ash, green	<5' & >30'	no			
Phanerophytes	Cherry, black	<5' & 5-30'	no			
Slope						
Dry/Moist						

Comments:
This unit is an "L" shape unit with a mix of tree species and saplings. A fence borders two sides of unit. Other species present include: white mulberry, linden, red pine, planted tulip poplar saplings, black walnut, slippery elm, planted bitternut hickory saplings, planted chestnut oak saplings, planted hackberry sapling, Oriental bittersweet, poison ivy, common nightshade, pokeweed, snakeroot, and false Solomon's seal. The white oak is historically planted.

Unit: 14
Acreage: 0.01
Mgmt. Concern: Yes

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Herbaceous	Knotweed, Japanese	<5'	yes			
Deciduous						
Geophytes						
Slope						
Dry/Moist						

Comments:
This unit is a patch of Japanese knotweed that looks like it has been sprayed with herbicides. MC: Japanese knotweed is an invasive species.

Unit: 15
Acreage: 0.03
Mgmt. Concern: Yes

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Vineland	Porcelain berry	<5' & 5-30'	yes			
Deciduous	Multiflora rose	<5' & 5-30'	yes			
Lianas	Elm, slippery	<5'	no			
Slope	Mercury, three-seeded	<5'	no			
Dry/Moist						

Comments:

This is a vineland that is spreading (MC). The vineland is thick at the top of the unit. It is covering roses and starting to climb the trees. At the bottom of the slope and on the sides of the unit are many saplings with vines encroaching. Other species present include: Norway maple, black locust, white mulberry, Virginia knotweed, smartweed, Asiatic dayflower, pokeweed, spiny sow thistle, mugwort, lamb's quarters, common nightshade, and white snakeroot.

Unit: 16
Acreage: 0.32
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Locust, black	<5' & 5-30'	yes			
Deciduous	Cherry, black	<5'	no			
Lianas	Elm, slippery	<5'	no			
Slope	Norway maple	<5' & 5-30'	yes			
Dry/Moist	Oak, red	<5' & 5-30'	no			
	Ivy, poison	<5	no			

Comments:

This unit is largely composed of black locust with an equal mix of black cherry, slippery elm, and Norway maple. Other tree species include: ash, white mulberry, tulip tree saplings, and chestnut oak saplings. The ground vegetation is quite dense. It includes: porcelainberry, Virginia creeper, ragweed, lamb's quarters, Virginia knotweed, wood aster, Asiatic dayflower, pokeweed, dock, wineberry, garlic mustard, common nightshade, smartweed, and violet.

Unit: 17
Acreage: 0.29
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Closed Forest	Norway maple	<5' & 5-30'	yes			Trash
Deciduous	Locust, black	<5' & 5-30'	yes			
Hemicryptophytes	Elm, slippery	<5' & 5-30'	no			
Slope						
Dry/Moist						

Comments:

This unit slopes from Sedgewick Avenue to Cedar Avenue. Ground vegetation density varies throughout the unit. Other species present include: honey locust, sycamore maple, white oak, hackberry, box elder, tulip poplar, American elm, ash sp., black cherry, red oak, bitternut hickory saplings, white mulberry, Amur honeysuckle, wineberry, Oriental bittersweet, poison ivy, cucumber, Virginia creeper, Asiatic dayflower, garlic mustard, Virginia knotweed, and white snakeroot (a lot at the top of the slope).

Unit: 18
Acreage: 0.02
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Vineland	Porcelain berry	<5'	yes			
Deciduous	wild cucumber	<5'	no			
Lianas						
Slope						
Dry/Moist						

Comments:

This is a vineland located along the south fence of the park. The vines are climbing over saplings. Other species present include: honey locust, sycamore maple saplings, Amur honeysuckle, Oriental bittersweet, and cucumber vine.

Unit: 19
Acreage: 0.82
Mgmt. Concern: No

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
scarcely vegetated					Foot traffic	Soil compaction
Deciduous						Trash
Level						
Dry						

Comments:

These are the paved and dirt paths throughout the park. The dirt paths are quite rocky. Other species present include: porcelain berry, wood aster, common plantain, cool season grass, path rush, goose grass, common nightshade, lamb's quarters, pigweed, wood sorrel, garlic mustard, violet, and smartweed. Portions of the path are overgrown. There is a considerable amount of broken glass.

Unit: 20
Acreage: 0.03
Mgmt. Concern: Yes

Site:	Species	Height	Exotic	Historical	Uses	Disturbances
Vineland	Porcelain berry	<5'	yes			
Deciduous	Ivy, poison	<5'	no			
Lianas	bittersweet, oriental	<5'	yes			
Slope						
Dry/Moist						

Comments:

This is a vineland that travels along a brick wall at the Sedgewick Avenue side of the park. It is partially bordered by a grass path, but reaches the fence at points. Other species present include: Ailanthus, white mulberry, red oak, Virginia creeper, Asiatic dayflower, and mugwort.

APPENDIX: Glossary

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

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

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

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

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

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

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

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

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

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

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

Graminoid: Grasses and grass-like plants.

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

Hemicryptophyte: Shoots die back to ground level.

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

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

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

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

Knoll: A small isolated hillock.

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

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

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

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

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

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

Slope: Ground that forms a natural or artificial incline.

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

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

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

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

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

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