

# Native Species Planting Guide for New York City

3<sup>rd</sup> Edition



NYC Parks

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# Letter from the Commissioner

May 2019

Dear Parkies and Plant Lovers:

In 2018 the New York City Park's system grew to 30,000 acres of parkland. This is a testament to the growing call for green space from the over 8.5 million residents of New York City and the important role that parks play. Our metropolis relies on these parklands to provide sanctuary for its residents, clean the air and water, keep temperatures cool, mitigate flooding and storm surges, and be the anchor for its rich biodiversity.

The health of our parklands, particularly our nearly 10,000 acres of natural areas, depends on the biodiversity of these ecosystems. In recognition of the critical role that native plants play in keeping our ecosystems diverse and providing healthy habitat, the City Council passed Local Law 11 in 2013. This law is aimed at decreasing the presence of exotic monocultures in favor of native plants throughout the landscapes of New York City, big and small.

In compliance with Local Law 11, which requires the use of native species when planting in a natural area and the creation of a native plant guide updated every 5 years, I present the 3<sup>rd</sup> Edition of the Native Species Planting Guide. With over 1,300 native plant species local to the area, there are plenty of species to choose from when designing for natural green spaces. Many of the species listed in this guide are available from the Greenbelt Native Plant Center, which has been growing native plants for use in ecological restoration projects for over two decades. This guide lists all of the native plants of New York City—if you are planting in a natural area as defined by this guide, you must use the plants catalogued here. If you are planting outside these areas, please do your best to incorporate natives into your sustainable designs. No matter where you are planting, you should never use invasive species, a list of which is also provided in this guide.

This guide is in keeping with NYC Nature Goals 2050, which was highlighted in OneNYC. Nature Goals 2050 was the result of a coalition of more than 75 organizations from different sectors, which came together over five years to develop shared goals and targets for urban nature in New York City. A key element of Nature Goals is support for biodiversity and habitat, with one of the identified targets being to sustain populations of all known native species that existed in the city in 2015. By using the species listed here in all plantings, big and small, we can together reach the goals set forth in Local Law 11, Nature Goals 2050, and OneNYC and increase the native biodiversity of our lush metropolis.

Happy planting!

Sincerely,



Mitchell J. Silver, FAICP, Hon. ASLA  
Commissioner

# The Value of Native Plants

New York City has over 30,000 acres of parkland, over a third of which is considered natural. The natural areas of New York City serve as anchors of biodiversity for the region. Corridors of habitat within the built environment facilitate movement of pollinators, small mammals, and birds between these larger natural areas and the broader region. Native plants in landscaped parks of all sizes, in addition to those in natural areas, are the primary resources needed to sustain our city's resident and migratory wildlife. Both natural areas and designed landscapes consist of a variety of planted and natural habitats ranging from small rain gardens to large coastal grasslands.

According to the first annual [State of New York City's Plants](#) published by the New York Botanical Garden in 2018, there are 1,359 plant species native to the five boroughs. Many native plant species persist in protected natural areas, which also help provide clean air and water as well as recreational, mental health, and well-being benefits for the nearly nine million people inhabiting New York City. However, as the natural world continues to be encroached upon and the climate continues to shift, this flora is increasingly at risk of being lost or diminished. One way to combat this risk is to wisely choose native plant species for planting plans, to ensure the lasting legacy of our native flora persists.

Using native plants is a way to support the ecosystems of New York City. [Local Law 11 of 2013](#) was enacted to increase biodiversity within these ecosystems using native plants (§ 18-141 NYC Admin. Code). Every planting choice we make is a valuable opportunity to make a lasting, positive effect on the landscape. Because plants are a critical building block of ecosystems, designing with species not native to our area risks reducing the value of habitat and forage resources for various species that depend on these plants for their existence. The native plant species in this guide have evolved with our local wildlife to provide the right source of food and shelter at the right time of year.

Introducing native plant species in a highly designed space can also transform the way the public looks at these species. Designers and conservationists have the opportunity to springboard native species onto the public stage when they showcase native species in parks, greenstreets, and other community spaces. Currently, there are a few native species that are commonly used in design and restoration representing only a fraction of our city's flora. This guide highlights the potential for expanding this narrow palette if designers, gardeners, and landscape architects are willing to work with new species that are not common in the current market.

[The Greenbelt Native Plant Center \(GNPC\)](#), the municipal native plant nursery operated by NYC Parks, embraces a conservation approach and has extensive knowledge of all the species listed in this guide. GNPC staff can assist in species selection for projects and are confident that there is a native plant that can be successful in any scenario. Through their field and greenhouse experience, staff at GNPC have an intimate knowledge of soil, light, and water requirements necessary for plant survival, as well as what propagation methods are successful for over half of New York City's native flora. Their expertise is invaluable when choosing the right plant for the right place.

This guide aims to be an inspiration to harness the power of native species in the urban landscape for a broad range of ecosystem services, including stormwater management and coastal resiliency. For further information on the value of native plant species, please see the original introduction to this guide [published in 2014](#).



# How to Use This Guide

This guide is a resource written to provide support for increasing biodiversity in our urban ecosystems. The information in this guide should not be the sole resource for planting decisions, rather it should be used in conjunction with a complex analysis and inventory of soils, hydrological conditions, light resources, and the existing native plant communities on or near a site. It is meant to support the creative, innovative, careful, and conscious choices made by New York City's landscape architects, horticulturists, ecologists, foresters, and other professionals. The New York City Native Species Planting Guide is updated every five years to reflect new information on species' use as well as nomenclature. The sections of this guide have been highlighted and described below.

## **Ecosystems of New York City**

The New York Natural Heritage Program (NYNHP) has classified the ecosystems for [New York State](#) as well as [New York City](#). This section, adapted from the plant communities in the NYNHP classification system, highlights the characteristic species that are common throughout the NYC ecosystems. These lists can be referenced when designing the landscape to mirror natural habitat composition.

## **Planting Near Natural Areas**

Planting native plants near or adjacent to undeveloped spaces, including NY State Parks, DEC Bluebelts, Unique Areas, and NYC Parks' Forever Wild or other natural areas can help buffer critical habitat from invasive plants that may otherwise colonize disturbed edges. This section includes plant lists of appropriate species that complement the naturally occurring native species found in a particular natural area type.

Forever Wild is NYC Parks land conservation and protection program focused on natural areas. Only native plant species can be planted in these areas, and preference should be given to native species plant selection when planting adjacent or in proximity to these sites. Maps have been provided for each borough to show areas within New York City designated as Forever Wild.

## **Invasive Species in New York and Native Alternatives**

Invasive species are prevalent throughout New York City and some of these plant species are now regulated and/or prohibited for use or sale within the state of New York. These lists, as well as native alternatives can be found in this section. In addition, we have created a list of "problematic species" that are not regulated by the State but are either regulated in neighboring states or have been flagged as expanding into natural areas.

### **Stormwater Tolerant Species**

Green infrastructure practices, such as right-of-way (ROW) rain gardens, stormwater greenstreets and Parkland retrofits, are being installed throughout the city to capture stormwater at its source and before it contributes to pollution within the city's waterbodies. New York City provides bountiful opportunities for innovative green infrastructure designs; highlighted in this guide are native species that are well suited to an array of such projects.

### **Species Least Preferred by Deer**

Staten Island and the Bronx are home to an increasing number of deer. Planting in areas where deer populations are large presents a number of challenges. Native plant species that are least preferred by deer are provided in this section; however we must stress that no plant species is deer resistant.

### **Planting in the Built Landscape**

Highly altered landscapes can be some of the most difficult areas to create sustainable designs. A successful way to limit the number of invasive species that may exist in these areas is to cover the ground with appropriate native species. This section provides suggestions of natural habitats to mirror and species that can thrive in closed canopies, tree beds, invaded wetlands and more.

### **Native Plant Descriptions**

This section contains descriptions of over 400 common native plant species. Research and field experience helped to provide detailed information on ecosystem requirements and design values for each species.

# Ecosystems of New York City

The mid-Atlantic region boasts a rich and diverse indigenous flora. The ecosystems of New York City are comprised of various native plant communities. Plant communities can be described as areas where associated species thrive in conditions in which they are evolutionarily adapted. The right plant for the right place occurs naturally in response to environmental conditions such as light exposure, soil characteristics, and salinity levels. New York City is a highly altered landscape, yet many native plants have maintained their community structure in natural areas and even evolved to reclaim some of the built landscape. The relative health of habitats within New York City varies greatly and ecosystem function is highly dependent on the response of plants to the environmental conditions. Through adaptation, many tough native plant species have co-existed alongside the ever-increasing human population and the effects of pollution, compaction, urban rubble, and fragmentation, and are therefore more suited to the varied conditions of our ecosystems.

The ecosystems listed within this manual contain common plant communities that can still be found throughout the five boroughs. To fully understand the possible values and limitations for landscape design, we encourage designers to examine the ecosystem context in which a given species naturally occurs. Its natural habitat can provide many clues about the conditions under which a species thrives. Furthermore, while climate change is leading to increased episodes of high rainfall, seasonal droughts are becoming more extreme. Even when a species is ecologically appropriate to a site and will most likely require less maintenance in the future, new plantings require the appropriate attention to weeding and watering, especially during the one-to-two year establishment period.

The lists in this section provide suggestions, but are not infallible guidelines, nor are they exhaustive. Consult the GNPC and the recommended resources within the References section for additional information on appropriate plants for various designed and restored landscapes. The native flora of New York City may not be what Henry Hudson encountered in 1609, but in choosing the right species for our restoration efforts and landscape designs, we can complement the native species that still naturally exist.



## A. Coastal Communities

Coastal regions are characterized by dynamic landforms and processes because they are the juncture between the land and ocean. Features such as dunes and wetlands are dynamic systems impacted by storms, sediment supply, and sea-level change<sup>1</sup>. Urban coastal regions often do not have the same literal or metaphorical space to change as they have in the past because of permanent alterations to the landscape to accommodate and protect high-density human populations. The effects of hurricanes and more frequent storms, combined with higher sea levels, are putting New York City's low-lying coastlines at risk. Restoration of our coastal plant communities and an effort to design with nature determines the long-term success and protection of coastal property and economic investment.

### **MARITIME BEACH/DUNE**

Maritime beach/dune communities are dominated by salt-tolerant grasses and herbs. The sand is relatively unstable at the ocean-fronting beach and a limited number of plant species can survive in these harsh conditions.

Examples Include: Plumb Beach (BK), Far Rockaway (QU), and Conference House (SI).

#### Recommended Plants:

##### Graminoids

<i>Ammophila breviligulata</i>	American beachgrass
<i>Carex silicea</i>	Beach sedge
<i>Cenchrus longispinus</i>	Common sandbur
<i>Cyperus grayi</i>	Gray's flatsedge
<i>Eragrostis spectabilis</i>	Purple lovegrass
<i>Panicum virgatum</i>	Switchgrass
<i>Spartina x caespitosa</i>	Mixed cordgrass

##### Forbs

<i>Atriplex mucronata</i>	Sea-beach orach
<i>Cakile edentula</i>	American searocket
<i>Euphorbia polygonifolia</i>	Seaside sandmat
<i>Lathyrus japonicus</i>	Beach pea
<i>Lechea maritima</i>	Beach pinweed
<i>Polygonella articulata</i>	Jointweed
<i>Solidago sempervirens</i>	Seaside goldenrod
<i>Xanthium strumarium</i>	Rough cocklebur

##### Vines

<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Strophostyles helvola</i>	Trailing wild bean

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<sup>1</sup> Titus, J. G., et al. (2009). Coastal sensitivity to sea-level rise: A focus on the Mid-Atlantic region. Washington, DC: U.S. Climate Change Science Program.

## Shrubs

*Hudsonia tomentosa*  
*Morella pensylvanica*  
*Prunus maritima*  
*Rosa carolina*

False heather  
Northern bayberry  
Beach plum  
Carolina rose

## **MARITIME GRASSLAND**

Stabilized back dunes transition into maritime grasslands and shrublands. These low-lying areas near the coast are subject to off-shore winds and occasional salt spray.

Examples Include: Marine Park (BK), Arverne (QU), Ocean Breeze (SI).

## Recommended Plants:

### Graminoids

*Ammophila breviligulata*  
*Andropogon virginicus*  
*Aristida dichotoma*  
*Aristida tuberculosa*  
*Eragrostis spectabilis*  
*Juncus greenei*  
*Panicum virgatum*  
*Schizachyrium littorale*  
*Schizachyrium scoparium*  
*Sorghastrum nutans*  
*Spartina x caespitosa*

American beachgrass  
Broom sedge bluestem  
Churchmouse threeawn  
Seaside threeawn  
Purple lovegrass  
Greene's rush  
Switchgrass  
Coastal little bluestem  
Little bluestem  
Indiangrass  
Mixed cordgrass

### Forbs

*Asclepias syriaca*  
*Asclepias tuberosa*  
*Desmodium paniculatum*  
*Eupatorium altissimum*  
*Eupatorium hyssopifolium*  
*Euthamia caroliniana*  
*Euthamia graminifolia*  
*Ionactis linariifolia*  
*Krigia virginica*  
*Lespedeza capitata*  
*Nuttallanthus canadensis*  
*Oenothera biennis*  
*Oenothera fruticosa*  
*Opuntia humifusa*  
*Potentilla canadensis*  
*Pseudognaphalium obtusifolium*

Common milkweed  
Butterflyweed  
Panicked ticktrefoil  
Tall boneset  
Hyssop-leaved throughwort  
Slender goldenrod  
Common flat-topped goldenrod  
Flaxleaf whitetop aster  
Virginia dwarfdandelion  
Roundhead lespedeza  
Canada toadflax  
Common evening primrose  
Narrowleaf evening primrose  
Eastern prickly pear  
Dwarf cinquefoil  
Rabbit-tobacco

<i>Rudbeckia hirta</i>	Black-eyed Susan
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago nemoralis</i>	Gray goldenrod
<i>Solidago sempervirens</i>	Seaside goldenrod
<i>Symphotrichum ericoides</i>	White heath aster
<i>Symphotrichum novae-angliae</i>	New England aster
<i>Trichostema dichotomum</i>	Forked blue curls

#### Shrubs

<i>Morella pensylvanica</i>	Northern bayberry
<i>Rhus copallinum</i>	Winged sumac
<i>Rubus flagellaris</i>	Northern dewberry

### **MARITIME SHRUBLAND**

Off shore winds and salt spray naturally stunt trees and support the shrubland community that inhabit the dry, rolling outwash plains and moraine of the Atlantic coastal plain. The plant community lines naturally overlap in this maritime setting and can be of extraordinary floristic diversity.

Examples Include: Plumb Beach (BK), Dubois Point (QU), Ocean Breeze (SI).

#### Recommended Plants:

##### Graminoids

<i>Ammophila breviligulata</i>	American beachgrass
<i>Andropogon virginicus</i>	Broom sedge bluestem
<i>Aristida dichotoma</i>	Churchmouse threeawn
<i>Aristida tuberculosa</i>	Seaside threeawn
<i>Carex pensylvanica</i>	Pennsylvania sedge
<i>Cyperus diandrus</i>	Umbrella flatsedge
<i>Eragrostis spectabilis</i>	Purple lovegrass
<i>Juncus tenuis</i>	Path rush
<i>Panicum virgatum</i>	Switchgrass
<i>Schizachyrium scoparium</i>	Little bluestem
<i>Schoenoplectus pungens</i>	Common threesquare
<i>Schoenoplectus tabernaemontani</i>	Softstem bulrush
<i>Sorghastrum nutans</i>	Indiangrass
<i>Tridens flavus</i>	Purpletop

##### Forbs

<i>Agalinis purpurea</i>	Purple false foxglove
<i>Asclepias syriaca</i>	Common milkweed
<i>Asclepias tuberosa</i>	Butterflyweed
<i>Cirsium discolor</i>	Field thistle
<i>Desmodium paniculatum</i>	Panicled ticktrefoil



*Eupatorium serotinum*  
*Euthamia graminifolia*  
*Ionactis linariifolius*  
*Lespedeza capitata*  
*Maianthemum stellatum*  
*Nuttallanthus canadensis*  
*Oenothera biennis*  
*Oenothera fruticosa*  
*Opuntia humifusa*  
*Potentilla canadensis*  
*Rudbeckia hirta*  
*Solidago rugosa*  
*Solidago sempervirens*  
*Suaeda linearis*  
*Suaeda maritima*  
*Symphotrichum ericoides*  
*Symphotrichum novi-belgii*

#### Vines

*Menispermum canadense*  
*Parthenocissus quinquefolia*  
*Strophostyles helvola*

#### Shrubs

*Aronia arbutifolia*  
*Aronia melanocarpa*  
*Clethra alnifolia*  
*Gaylussacia baccata*  
*Hudsonia tomentosa*  
*Morella pensylvanica*  
*Prunus maritima*  
*Rhus copallinum*  
*Rhus glabra*  
*Rhus typhina*  
*Rosa carolina*  
*Rubus flagellaris*  
*Rubus pensilvanicus*  
*Sambucus nigra ssp. canadensis*  
*Vaccinium corymbosum*  
*Viburnum dentatum*

#### Trees

*Acer rubrum*  
*Amelanchier canadensis*  
*Ilex opaca*

Late throughwort  
Common flat-topped goldenrod  
Flaxleaf whitetop aster  
Roundhead lespedeza  
Star-flowered Solomon's seal  
Blue toadflax  
Common evening primrose  
Narrowleaf evening primrose  
Eastern prickly pear  
Dwarf cinquefoil  
Black-eyed Susan  
Wrinkleleaf goldenrod  
Seaside goldenrod  
Annual sea blite  
Sea blite  
White heath aster  
New York aster

Moon seed  
Virginia creeper  
Trailing wild bean

Red chokeberry  
Black chokeberry  
Sweet pepperbush  
Black huckleberry  
False heather  
Northern bayberry  
Beach plum  
Winged sumac  
Smooth sumac  
Staghorn sumac  
Carolina rose  
Northern dewberry  
Pennsylvania blackberry  
Common elderberry  
Highbush blueberry  
Arrowwood

Red maple  
Canadian serviceberry  
American holly

<i>Juniperus virginiana</i>	Eastern red cedar
<i>Pinus rigida</i>	Pitch pine
<i>Prunus serotina</i>	Black cherry
<i>Salix nigra</i>	Black willow
<i>Salix eriocephala</i>	Missouri river willow
<i>Sassafras albidum</i>	Sassafras

## **SUCCESSIONAL MARITIME OAK FOREST**

A maritime forest naturally succeeds a maritime shrubland if it is left undisturbed. A minimal amount of herbaceous material at ground-level is able to survive. The dense shrub layer, with a closing canopy, shades out many of the herbaceous species.

Examples Include: Pelham Bay Park-Hunter Island (BX), Paerdegat Preserve (BK), Idlewild Park (QU), Saw Mill Creek (SI).

### Recommended Plants:

#### Ferns

<i>Pteridium aquilinum</i>	Brackenfern
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#### Graminoids

<i>Andropogon gerardii</i>	Big bluestem
<i>Aristida dichotoma</i>	Churchmouse threeawn
<i>Aristida tuberculosa</i>	Seaside threeawn
<i>Agrostis perennans</i>	Autumn bentgrass
<i>Carex pensylvanica</i>	Pennsylvania sedge
<i>Eragrostis spectabilis</i>	Purple lovegrass
<i>Panicum virgatum</i>	Switchgrass
<i>Schizachyrium scoparium</i>	Little bluestem

#### Forbs

<i>Agalinis purpurea</i>	Purple false foxglove
<i>Baptisia tinctoria</i>	Yellow wild indigo
<i>Chrysopsis mariana</i>	Maryland goldenaster
<i>Cirsium discolor</i>	Field thistle
<i>Eupatorium album</i>	White boneset
<i>Lespedeza capitata</i>	Roundhead lespedeza
<i>Nuttallanthus canadensis</i>	Blue toadflax
<i>Plantago aristata</i>	Largebracted plantain
<i>Solidago odora</i>	Sweet goldenrod
<i>Tephrosia virginiana</i>	Goat's rue
<i>Trichostema dichotomum</i>	Forked blue curls

#### Vines

<i>Parthenocissus quinquefolia</i>	Virginia creeper
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### Shrubs

*Arctostaphylos uva-ursi*  
*Comptonia peregrina*  
*Hudsonia ericoides*  
*Gaylussacia baccata*  
*Gaylussacia frondosa*  
*Ilex glabra*  
*Lyonia mariana*  
*Rhus copallinum*  
*Rubus hispidus*  
*Vaccinium angustifolium*  
*Vaccinium pallidum*

Bearberry  
Sweetfern  
Pine barren goldenheather  
Black huckleberry  
Blue huckleberry  
Inkberry  
Piedmont staggerbush  
Winged sumac  
Swamp dewberry  
Lowbush blueberry  
Blue Ridge blueberry

### Trees

*Acer negundo*  
*Acer rubrum*  
*Betula populifolia*  
*Juniperus virginiana*  
*Populus deltoides*  
*Populus tremuloides*  
*Prunus serotina*  
*Quercus ilicifolia*  
*Quercus marilandica*  
*Quercus prinoides*  
*Quercus stellata*  
*Sassafras albidum*

Boxelder  
Red maple  
Gray birch  
Eastern red cedar  
Cottonwood  
Quaking aspen  
Black cherry  
Scrub oak  
Blackjack oak  
Dwarf chinquapin oak  
Post oak  
Sassafras

### **MARITIME OAK FOREST**

This oak-dominated forest is typically found near a marine community, such as a salt marsh or at the edge of a back dune. These plant communities are heavily influenced by the coastal processes including salt spray, high winds, flooding and sand deposition. The canopy may be stunted due to these processes and the understory is usually thick with a dense shrub layer and vines.

Examples Include: Pelham Bay Park-Hunter Island (BX), Paerdegat Preserve (BK), Conference House (SI), Clay Pit Ponds (SI).

### Recommended Plants:

#### Ferns

*Pteridium aquilinum*  
*Thelypteris palustris*

Brackenfern  
Marsh fern



### Graminoids

*Avenella flexuosa*  
*Carex annectens*  
*Carex emmonsii*  
*Carex pennsylvanica*  
*Danthonia compressa*  
*Danthonia spicata*

Wavy hairgrass  
Yellow-fruit sedge  
Emmons Sedge  
Pennsylvania sedge  
Flattened oatgrass  
Poverty oatgrass

### Forbs

*Baptisia tinctoria*  
*Helianthemum canadense*  
*Hieracium venosum*  
*Hypericum hypericoides*  
*Lechea mucronata*  
*Lespedeza capitata*  
*Lespedeza hirta*  
*Tephrosia virginiana*  
*Trichostema dichotomum*

Yellow wild indigo  
Longbranch frostweed  
Rattlesnakeweed  
St. Andrew's cross  
Hairy pinweed  
Roundhead lespedeza  
Hairy bush clover  
Goat's rue  
Forked blue curls

### Vines

*Parthenocissus quinquefolia*  
*Vitis vulpina*

Virginia creeper  
Frost grape

### Shrubs

*Arctostaphylos uva-ursi*  
*Comptonia peregrina*  
*Epigaea repens*  
*Gaultheria procumbens*  
*Gaylussacia baccata*  
*Gaylussacia frondosa*  
*Kalmia angustifolia*  
*Kalmia latifolia*  
*Ilex glabra*  
*Vaccinium angustifolium*  
*Vaccinium corymbosum*  
*Vaccinium macrocarpon*  
*Vaccinium pallidum*

Bearberry  
Sweetfern  
Trailing arbutus  
Eastern teaberry  
Black huckleberry  
Blue huckleberry  
Sheep laurel  
Mountain laurel  
Inkberry  
Lowbush blueberry  
Highbush blueberry  
American cranberry  
Blue Ridge blueberry

### Trees

*Acer rubrum*  
*Amelanchier canadensis*  
*Ilex opaca*  
*Nyssa sylvatica*  
*Pinus rigida*  
*Quercus alba*

Red maple  
Canadian serviceberry  
American holly  
Black tupelo  
Pitch pine  
White oak

*Quercus montana*  
*Quercus stellata*  
*Quercus velutina*

Chestnut oak  
Post oak  
Black oak

## B. Wetland Communities

### **TIDAL WETLANDS**

Tidal wetland habitats occur in low-lying areas along the coast where plants can tolerate daily inundation by the tides. Only about 4,000 acres of salt marsh still exist around New York City. By 1950, over 20,000 acres were destroyed after wetlands were filled with trash and construction debris<sup>2</sup>.

### **LOW SALT MARSH**

The low salt marsh is a tidal marsh zone characterized by daily flooding. The term “low” refers to the elevation of the land which occurs between the mean sea level and mean high tide. Very few plants in our region can tolerate this depth, duration, and frequency of flooding by salt water; the dominant species in this ecosystem is *Spartina alterniflora*, smooth cordgrass.

Examples Include: Pelham Bay Park (BX), Marine Park (BK), Four Sparrow Marsh, (BK), Inwood Hill Park (MN), Alley Pond Park (QU), Sawmill Creek (SI).

#### Recommended Plants:

##### Graminoids

*Spartina alterniflora*

Smooth cordgrass

*Spartina cynosuroides*

Big cordgrass

### **HIGH SALT MARSH**

The transition from the low marsh to the high marsh occurs approximately at the mean high water mark. The high marsh, which extends to approximately the the mean high high water line, is flooded monthly during spring tides and in frequent coastal storm events. The high salt marsh community includes plants that tolerate brackish waters.

Examples Include: Pelham Bay Park (BX), Marine Park (BK), Four Sparrow Marsh, (BK), Inwood Hill Park (MN), Alley Pond Park (QU), Sawmill Creek (SI).

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<sup>2</sup> Luttenberg, D., Lev. D., and Feller, M. (1993). Native species planting guide for New York City and vicinity. New York, NY: City of New York, Department of Parks and Recreation.

## Recommended Plants:

### Graminoids

*Anthoxanthum nitens* spp. *nitens*  
*Bolboschoenus robustus*  
*Distichlis spicata*  
*Juncus gerardii*  
*Panicum virgatum*  
*Schoenoplectus pungens*  
*Spartina cynosuroides*  
*Spartina patens*

Sweetgrass  
Seacoast bulrush  
Saltgrass  
Saltmeadow rush  
Switchgrass  
Common threesquare  
Big cordgrass  
Saltmeadow cordgrass

### Forbs

*Hibiscus moscheutos*  
*Limonium carolinianum*  
*Persicaria pensylvanica*  
*Pluchea odorata*  
*Salicornia depressa*  
*Solidago sempervirens*  
*Suaeda linearis*  
*Suaeda maritima*  
*Symphyotrichum novi-belgii*  
*Symphyotrichum tenuifolium*  
*Teucrium canadense*

Crimson-eyed rosemallow  
Sea lavender  
Pennsylvania smartweed  
Saltmarsh fleabane  
Virginia glasswort  
Seaside goldenrod  
Annual sea-blite  
Herbaceous sea-blite  
New York aster  
Perennial saltmarsh aster  
American germander

### Shrubs

*Baccharis halimifolia*  
*Iva frutescens*

Eastern baccharis  
Marsh elder

## **FRESHWATER WETLANDS**

A non-tidal, freshwater wetland occurs in low-lying areas along streams and other bodies of fresh water that are subject to flooding. This may include isolated depressions that collect surface water, as well as areas with high groundwater tables. Wetland forests are plant communities which occur in poorly drained depressions on inorganic soils; their water levels fluctuate seasonally and usually drop in mid to late summer. Only about 2,000 acres of freshwater wetlands remain within the five boroughs from the hundreds of thousands of acres that date back to the Industrial Revolution<sup>3</sup>.

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<sup>3</sup> Luttenberg, D., Lev. D., and Feller, M. (1993). *Native species planting guide for New York City and vicinity*. New York, NY: City of New York, Department of Parks and Recreation.

## SHALLOW EMERGENT MARSH

A shallow emergent marsh occurs on mineral soils that are more well-drained than a deep emergent marsh and have water depths from 6" to 3'. Shallow emergent marshes can be considered wet meadows, gradually sloping shores of ponds, lakes, and streams, or temporarily flooded drainage swales.

Examples Include: Seton Falls (BX), Prospect Park (BK), Flushing Meadows – Willow Lake (QU), Blue Heron (SI), High Rock (SI).

### Recommended Plants:

#### Ferns

<i>Onoclea sensibilis</i>	Sensitive fern
<i>Osmundastrum cinnamomea</i>	Cinnamon fern
<i>Osmunda regalis</i>	Royal fern
<i>Thelypteris palustris</i>	Marsh fern

#### Graminoids

<i>Andropogon virginicus</i>	Broom sedge bluestem
<i>Carex annectens</i>	Yellow-fruit sedge
<i>Carex comosa</i>	Bristly sedge
<i>Carex crinita</i>	Common fringed sedge
<i>Carex lupulina</i>	Hop sedge
<i>Carex lurida</i>	Shallow sedge
<i>Carex stipata</i>	Awlfruit sedge
<i>Carex stricta</i>	Tussock sedge
<i>Carex vulpinoidea</i>	Fox sedge
<i>Juncus canadensis</i>	Canadian rush
<i>Juncus effusus</i>	Common rush
<i>Leersia oryzoides</i>	Rice cutgrass
<i>Rhynchospora capitellata</i>	Brownish beaksedge
<i>Schoenoplectus pungens</i>	Common threesquare
<i>Schoenoplectus tabernaemontani</i>	Softstem bulrush
<i>Scirpus atrovirens</i>	Green bulrush
<i>Scirpus cyperinus</i>	Woolgrass
<i>Sparganium eurycarpum</i>	Broadfruit bur-reed
<i>Tripsacum dactyloides</i>	Eastern gamagrass

#### Forbs

<i>Alisma subcordatum</i>	American water plantain
<i>Anthoxanthum nitens</i> spp. <i>nitens</i>	Sweetgrass
<i>Asclepias incarnata</i>	Swamp milkweed
<i>Chelone glabra</i>	White turtlehead
<i>Desmodium canadense</i>	Showy tick trefoil
<i>Doellingeria umbellata</i>	Parasol whitetop
<i>Eupatorium perfoliatum</i>	Common boneset

<i>Eutrochium maculatum</i>	Spotted Joe Pye weed
<i>Helenium autumnale</i>	Common sneezeweed
<i>Helianthus giganteus</i>	Giant sunflower
<i>Hibiscus moscheutos</i>	Crimson-eyed rose mallow
<i>Iris versicolor</i>	Harlequin blueflag
<i>Lobelia cardinalis</i>	Cardinalflower
<i>Lobelia siphilitica</i>	Great blue lobelia
<i>Ludwigia alternifolia</i>	Seedbox
<i>Lycopus virginicus</i>	Virginia water horehound
<i>Peltandra virginica</i>	Green arrow arum
<i>Penthorum sedoides</i>	Ditch stonecrop
<i>Persicaria arifolia</i>	Halberd-leaved tearthumb
<i>Persicaria pensylvanica</i>	Pennsylvania smartweed
<i>Persicaria sagittata</i>	Arrowleaf tearthumb
<i>Pontederia cordata</i>	Pickerelweed
<i>Sagittaria latifolia</i>	Broadleaf arrowhead
<i>Sisyrinchium angustifolium</i>	Narrow-leaved blue-eyed grass
<i>Symphyotrichum novae-angliae</i>	New England aster
<i>Symphyotrichum novi-belgii</i>	New York aster
<i>Teucrium canadense</i>	American germander
<i>Tradescantia virginiana</i>	Spiderwort
<i>Verbena hastata</i>	Swamp verbena
<i>Vernonia noveboracensis</i>	New York ironweed
<i>Viola cucullata</i>	Marsh blue violet
<b><u>Shrubs</u></b>	
<i>Baccharis halimifolia</i>	Eastern baccharis
<i>Cephalanthus occidentalis</i>	Buttonbush
<i>Rosa palustris</i>	Swamp rose
<i>Salix discolor</i>	Pussy willow
<b><u>Trees</u></b>	
<i>Salix nigra</i>	Black willow

### **DEEP EMERGENT MARSH**

A deep emergent marsh occurs on mineral soils or fine-grained organic soils (muck or well-decomposed peat) with water depths that varies from 6" to 6'. Most examples of this ecosystem in New York City are manmade impoundments or have been restored from naturally occurring, degraded habitats.

Examples Include: Van Cortlandt Lake (BX), Canarsie Beach Park (BK), Central Park – Turtle Pond (MN), Baisley Pond (QU), Long Pond (SI).

## Recommended Plants:

### Graminoids

*Andropogon glomeratus*  
*Carex comosa*  
*Schoenoplectus tabernaemontani*  
*Spartina pectinata*

Bushy bluestem  
Bristly sedge  
Softstem bulrush  
Prairie cordgrass

### Forbs

*Hibiscus moscheutos*  
*Impatiens capensis*  
*Lobelia cardinalis*  
*Peltandra virginica*  
*Pontederia cordata*  
*Rumex verticillatus*  
*Sagittaria latifolia*  
*Typha angustifolia*  
*Typha latifolia*

Crimsoneyed rosemallow  
Jewelweed  
Cardinalflower  
Green arrow arum  
Pickerelweed  
Swamp dock  
Broadleaf arrowhead  
Narrowleaf cattail  
Broadleaf cattail

### Shrubs

*Alnus serrulata*  
*Cephalanthus occidentalis*  
*Cornus amomum*  
*Salix discolor*  
*Viburnum dentatum*

Smooth alder  
Buttonbush  
Silky dogwood  
Pussy willow  
Arrowwood

### Trees

*Salix nigra*

Black willow

## **SCRUB SHRUB**

A Scrub Shrub is an inland, freshwater wetland that is dominated by woody plant species less than 20 feet tall. These swamps occur along the shores of ponds, lakes, or rivers and in wet depressions and valleys. The substrate is usually a mineral soil or muck. Seasonal fluctuations in the water levels support a diverse flora and fauna.

Examples Include: Seton Falls (BX), Alley Pond (QU), High Rock (SI), Siedenburg Park (SI).

## Recommended Plants:

### Ferns

*Dryopteris cristata*  
*Onoclea sensibilis*  
*Osmundastrum cinnamomea*  
*Osmunda regalis*  
*Thelypteris palustris*

Crested woodfern  
Sensitive fern  
Cinnamon fern  
Royal fern  
Marsh fern



*Woodwardia areolata*  
*Woodwardia virginica*

Netted chainfern  
Virginia chainfern

Graminoids

*Carex annectens*  
*Carex atlantica*  
*Carex comosa*  
*Carex crinita*  
*Carex lupulina*  
*Carex lurida*  
*Carex stipata*  
*Carex stricta*  
*Carex vulpinoidea*  
*Dulichium arundinaceum*  
*Juncus canadensis*  
*Juncus effusus*  
*Leersia oryzoides*  
*Rhynchospora capitellata*  
*Scirpus atrovirens*

Yellow-fruit sedge  
Prickly bog sedge  
Bristly sedge  
Common fringed sedge  
Hop sedge  
Shallow sedge  
Awlfruit sedge  
Tussock sedge  
Fox sedge  
Three-way sedge  
Canadian rush  
Common rush  
Rice cutgrass  
Brownish beaksedge  
Green bulrush

Forbs

*Asclepias incarnata*  
*Bidens frondosa*  
*Doellingeria umbellata*  
*Chelone glabra*  
*Decodon verticillatus*  
*Desmodium canadense*  
*Eupatorium perfoliatum*  
*Hibiscus moscheutos*  
*Impatiens capensis*  
*Lobelia cardinalis*  
*Lobelia siphilitica*  
*Ludwigia alternifolia*  
*Lysimachia ciliata*  
*Peltandra virginica*  
*Persicaria arifolia*  
*Persicaria hydropiperoides*  
*Persicaria sagittata*  
*Sisyrinchium angustifolium*  
*Symphotrichum novae-angliae*  
*Thalictrum pubescens*  
*Vernonia noveboracensis*  
*Viola cucullata*

Swamp milkweed  
Devil's beggartick  
Parasol whitetop  
White turtlehead  
Swamp loostrife  
Showy tick trefoil  
Common boneset  
Chrimson-eyed rosemallow  
Jewelweed  
Cardinalflower  
Great blue lobelia  
Seedbox  
Fringed loosestrife  
Green arrow arum  
Halberd-leaved tearthumb  
Swamp smartweed  
Arrowleaf tearthumb  
Narrow-leaved blue-eyed grass  
New England aster  
Tall meadow-rue  
New York ironweed  
Marsh blue violet

### Vines

*Clematis virginiana*

Virginia virgin's bower

*Mikania scandens*

Climbing hempvine

### Shrubs

*Aronia arbutifolia*

Red chokeberry

*Aronia prunifolia*

Purple chokeberry

*Cephalanthus occidentalis*

Buttonbush

*Clethra alnifolia*

Sweet pepperbush

*Cornus amomum*

Silky dogwood

*Cornus racemosa*

Gray dogwood

*Eubotrys racemosa*

Swamp doghobble

*Ilex glabra*

Inkberry

*Ilex verticillata*

Winterberry

*Lindera benzoin*

Spicebush

*Lyonia ligustrina*

Maleberry

*Rhododendron viscosum*

Swamp azalea

*Rosa palustris*

Swamp rose

*Salix discolor*

Pussy willow

*Sambucus nigra* ssp. *canadensis*

Common elderberry

*Spiraea alba* var. *latifolia*

Meadowsweet

*Spiraea tomentosa*

Steeplebush

*Vaccinium corymbosum*

Highbush blueberry

*Viburnum dentatum*

Arrowwood

### Trees

*Acer rubrum*

Red maple

## **FLOODPLAIN FOREST**

This hardwood forest community occurs on mineral soils in low-lying areas near stream or river floodplains. Usually, these areas are regularly flooded in the spring. Small stream floodplain forests in catchments dominated by small watersheds are less disturbance prone than river floodplain forests where major floods through these areas can scour the landscape or deposit significant sediment.

Examples Include: Bronx River Corridor (BX), Willowbrook (SI).

### Recommended Plants:

#### Ferns

*Athyrium angustum*

Lady fern

*Onoclea sensibilis*

Sensitive fern

*Osmundastrum cinnamomea*

Cinnamon fern

*Osmunda claytoniana*

Interrupted fern

### Graminoids

<i>Carex crinita</i>	Common fringed sedge
<i>Carex intumescens</i>	Bladder sedge
<i>Carex lupulina</i>	Hop sedge
<i>Carex radiata</i>	Eastern star sedge
<i>Carex rosea</i>	Common upland star sedge
<i>Carex vulpinoidea</i>	Fox sedge
<i>Cinna arundinacea</i>	Stout woodreed
<i>Danthonia compressa</i>	Flattened oatgrass
<i>Glyceria striata</i>	Fowl mannagrass
<i>Juncus tenuis</i>	Path rush
<i>Juncus canadensis</i>	Canadian rush
<i>Rhynchospora capitellata</i>	Brownish beaksedge
<i>Scirpus atrovirens</i>	Green bulrush

### Forbs

<i>Ageratina altissima</i>	Common white snakeroot
<i>Allium canadense</i>	Wild garlic
<i>Arisaema triphyllum</i>	Jack-in-the-Pulpit
<i>Bidens frondosa</i>	Devil's beggartick
<i>Boehmeria cylindrica</i>	False nettle
<i>Chelone glabra</i>	White turtlehead
<i>Claytonia virginica</i>	Spring beauty
<i>Collinsonia canadensis</i>	Northern horsebalm
<i>Erythronium americanum</i>	Trout lily
<i>Eupatorium perfoliatum</i>	Common boneset
<i>Eutrochium maculatum</i>	Spotted Joe Pye weed
<i>Geranium maculatum</i>	Wild geranium
<i>Geum canadense</i>	White avens
<i>Helianthus decapetalus</i>	Thin-leaved sunflower
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Impatiens capensis</i>	Jewelweed
<i>Iris versicolor</i>	Harlequin blueflag
<i>Lobelia cardinalis</i>	Cardinalflower
<i>Lycopus americanus</i>	American water horehound
<i>Lysimachia ciliata</i>	Fringed loosestrife
<i>Osmorhiza longistylis</i>	Longstyle sweetroot
<i>Persicaria hydropiperoides</i>	Swamp smartweed
<i>Persicaria virginiana</i>	Jumpseed
<i>Thalictrum pubescens</i>	Tall meadow-rue
<i>Symplocarpus foetidus</i>	Skunk cabbage

### Vines

*Clematis virginiana*

*Smilax herbacea*

*Vitis labrusca*

*Vitis riparia*

Virginia virgin's bower

Carrion flower

Fox grape

River grape

### Shrubs

*Aronia arbutifolia*

*Cephalanthus occidentalis*

*Clethra alnifolia*

*Cornus amomum*

*Cornus racemosa*

*Eubotrys racemosa*

*Ilex verticillata*

*Lindera benzoin*

*Rhododendron viscosum*

*Rosa palustris*

*Rubus occidentalis*

*Sambucus nigra* ssp. *canadensis*

*Spiraea alba* var. *latifolia*

*Spiraea tomentosa*

*Vaccinium corymbosum*

*Viburnum dentatum*

Red chokeberry

Buttonbush

Sweet pepperbush

Silky dogwood

Gray dogwood

Swamp doghobble

Winterberry

Spicebush

Swamp azalea

Swamp rose

Black raspberry

Common elderberry

Meadowsweet

Steeplebush

Highbush blueberry

Arrowwood

### Trees

*Acer negundo*

*Acer rubrum*

*Carya cordiformis*

*Carya ovata*

*Carya tomentosa*

*Celtis occidentalis*

*Liquidambar styraciflua*

*Nyssa sylvatica*

*Platanus occidentalis*

*Populus deltoides*

*Quercus bicolor*

*Quercus palustris*

*Salix nigra*

*Ulmus americana*

Boxelder

Red maple

Bitternut hickory

Shagbark hickory

Mockernut hickory

Common hackberry

Sweetgum

Black tupelo

American sycamore

Eastern cottonwood

Swamp white oak

Pin oak

Black willow

American elm

## **BOTTOMLAND FOREST**

In addition to the NYNHP Floodplain Forest ecosystem, the US Forest Service classifies a deciduous forest that occurs between the floodplain forest and a true upland as a Bottomland Forest<sup>4</sup>. These forested wetlands are seasonally flooded and often characterized by varying elevations and land forms. The changing soil elevations and hydrological conditions support diverse vegetation.

Examples Include: Bucks Hollow (SI), Long Pond (SI), Reed's Basket (SI).

### Recommended Plants:

#### Ferns

<i>Athyrium angustum</i>	Lady fern
<i>Dennstaedtia punctilobula</i>	Hayscented fern
<i>Dryopteris carthusiana</i>	Spinulose woodfern
<i>Osmundastrum cinnamomea</i>	Cinnamon fern
<i>Osmunda claytoniana</i>	Interrupted fern
<i>Woodwardia virginica</i>	Virginia chainfern

#### Graminoids

<i>Carex blanda</i>	Eastern woodland sedge
<i>Carex lupulina</i>	Hop sedge
<i>Carex radiata</i>	Eastern star sedge
<i>Carex rosea</i>	Common upland star sedge
<i>Carex scoparia</i>	Pointed broom sedge
<i>Carex stipata</i>	Awlfruit sedge
<i>Carex swanii</i>	Swan's sedge
<i>Cinna arundinacea</i>	Stout woodreed
<i>Danthonia spicata</i>	Poverty oatgrass
<i>Glyceria obtusa</i>	Atlantic mannagrass
<i>Juncus tenuis</i>	Path rush
<i>Rhynchospora capitellata</i>	Brownish beaksedge

#### Forbs

<i>Ageratina altissima</i>	Common white snakeroot
<i>Allium canadense</i>	Wild garlic
<i>Bidens frondosa</i>	Devil's beggartick
<i>Cryptotaenia canadensis</i>	Canadian honewort
<i>Decodon verticillatus</i>	Swamp loosestrife
<i>Eutrochium maculatum</i>	Spotted Joe Pye weed
<i>Eupatorium perfoliatum</i>	Common boneset
<i>Eurybia divaricata</i>	White wood aster
<i>Geranium maculatum</i>	Wild geranium

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<sup>4</sup> USDA Forest Service, Northern Research Station. Bottomland Hardwood Management Guide, 2008.  
[https://www.nrs.fs.fed.us/fmg/nfmg/bl\\_hardwood/def.html](https://www.nrs.fs.fed.us/fmg/nfmg/bl_hardwood/def.html)

*Mitchella repens*  
*Penthorum sedoides*  
*Persicaria arifolia*  
*Persicaria hydropiperoides*  
*Persicaria sagittata*  
*Ranunculus arborvitus*  
*Sanicula canadensis*  
*Solidago caesia*  
*Maianthemum racemosum*  
*Symphyotrichum cordifolium*  
*Symplocarpus foetidus*  
*Triadenum virginicum*  
*Thalictrum pubescens*  
*Viola cucullata*  
*Viola sororia*

#### Vines

*Parthenocissus quinquefolia*  
*Vitis labrusca*  
*Vitis riparia*

#### Shrubs

*Chimaphila maculata*  
*Clethra alnifolia*  
*Cornus amomum*  
*Corylus americana*  
*Lindera benzoin*  
*Pyrola rotundifolia*  
*Rubus occidentalis*  
*Rubus pensilvanicus*  
*Rubus hispidus*  
*Vaccinium corymbosum*  
*Viburnum dentatum*

#### Trees

*Acer rubrum*  
*Betula alleghaniensis*  
*Betula lenta*  
*Carya ovata*  
*Carya tomentosa*  
*Fagus grandifolia*  
*Juglans nigra*  
*Liquidambar styraciflua*  
*Liriodendron tulipifera*  
*Populus tremuloides*

Partridgeberry  
Ditch stonecrop  
Halberd-leaved tearthumb  
Swamp smartweed  
Arrowleaf tearthumb  
Small-flowered buttercup  
Canada sanicle  
Wreath goldenrod  
False Solomon's seal  
Blue wood aster  
Skunk cabbage  
Virginia marsh St. Johnswort  
Tall meadow-rue  
Marsh blue violet  
Common blue violet

Virginia creeper  
Fox grape  
River grape

Striped prince's pine  
Sweet pepperbush  
Silky dogwood  
American hazelnut  
Spicebush  
American wintergreen  
Black raspberry  
Pennsylvania blackberry  
Swamp dewberry  
Highbush blueberry  
Arrowwood

Red maple  
Yellow birch  
Black birch  
Shagbark hickory  
Mockernut hickory  
American beech  
Black walnut  
Sweetgum  
Tulip poplar  
Quaking aspen

<i>Prunus serotina</i>	Black cherry
<i>Quercus alba</i>	White oak
<i>Quercus bicolor</i>	Swamp white oak
<i>Quercus coccinea</i>	Scarlet oak
<i>Quercus rubra</i>	Northern red oak
<i>Ulmus americana</i>	American elm

### **RED-MAPLE HARDWOOD SWAMP**

This ecosystem has red maple (*Acer rubrum*) as the dominant canopy tree or as a co-dominant species with other mixed hardwoods. A common community throughout NYC historically, it occurs in poorly drained depressions, usually on inorganic soils<sup>5</sup>. The landscapes can vary in elevation and duration of standing water thought the year.

Examples Include: Bronx Park (BX), Alley Pond (QU), Clay Pit Ponds (SI), Bloomingdale (SI) Bloodroot Valley (SI).

#### Recommended Plants:

##### Ferns

<i>Athyrium angustum</i>	Lady fern
<i>Dryopteris carthusiana</i>	Spinulose woodfern
<i>Dryopteris cristata</i>	Crested woodfern
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Osmundastrum cinnamomea</i>	Cinnamon fern
<i>Osmunda regalis</i>	Royal fern
<i>Woodwardia areolata</i>	Netted chainfern

##### Graminoids

<i>Carex crinita</i>	Common fringed sedge
<i>Carex debilis</i>	White-edge sedge
<i>Carex folliculata</i>	Northern long sedge
<i>Carex intumescens</i>	Bladder sedge
<i>Carex radiata</i>	Eastern star sedge
<i>Carex vulpinoidea</i>	Fox sedge
<i>Cinna arundinacea</i>	Stout woodreed
<i>Elymus riparius</i>	Eastern riverbank wild rye
<i>Elymus virginicus</i>	Virginia wild rye
<i>Glyceria canadensis</i>	Rattlesnake manna grass
<i>Glyceria obtusa</i>	Atlantic mannagrass
<i>Glyceria striata</i>	Fowl mannagrass
<i>Juncus effusus</i>	Common rush

<sup>5</sup> Edinger, G.J., et al. (2002). *Ecological communities of New York State. Second Edition. A revised and expanded version of Carol Reschke's ecological communities of New York State.* Albany, NY: New York Natural Heritage Program, New York State Department of Environmental Conservation.

*Leersia virginica*  
*Scirpus atrovirens*

Whitegrass  
Green bulrush

#### Forbs

*Arisaema triphyllum*  
*Boehmeria cylindrica*  
*Claytonia virginica*  
*Chelone glabra*  
*Erythronium americanum*  
*Eutrochium dubium*  
*Eupatorium perfoliatum*  
*Geum canadense*  
*Impatiens capensis*  
*Lilium superbum*  
*Lobelia cardinalis*  
*Lysimachia ciliata*  
*Mimulus ringens*  
*Saururus cernuus*  
*Symplocarpus foetidus*  
*Thalictrum pubescens*  
*Uvularia sessilifolia*

Jack-in-the-Pulpit  
False nettle  
Spring beauty  
White turtlehead  
Trout lily  
Coastal plain Joe Pye weed  
Common boneset  
White avens  
Jewelweed  
Turk's cap lily  
Cardinalflower  
Fringed loosestrife  
Allegheny monkeyflower  
Lizard's tail  
Skunk cabbage  
Tall meadow-rue  
Sessileleaf bellwort

#### Vines

*Clematis virginiana*  
*Vitis labrusca*  
*Vitis riparia*

Virginiana virgin's bower  
Fox grape  
River grape

#### Shrubs

*Aronia arbutifolia*  
*Aronia melanocarpa*  
*Aronia prunifolia*  
*Cephalanthus occidentalis*  
*Clethra alnifolia*  
*Eubotrys racemosa*  
*Ilex verticillata*  
*Lindera benzoin*  
*Lyonia ligustrina*  
*Rhododendron viscosum*  
*Vaccinium corymbosum*  
*Viburnum dentatum*

Red chokeberry  
Black chokeberry  
Purple chokeberry  
Buttonbush  
Sweet pepperbush  
Swamp doghobble  
Winterberry  
Spicebush  
Maleberry  
Swamp azalea  
Highbush blueberry  
Arrowwood

#### Trees

*Acer rubrum*  
*Amelanchier canadensis*  
*Liquidambar styraciflua*

Red maple  
Canadian serviceberry  
Sweetgum



<i>Nyssa sylvatica</i>	Black tupelo
<i>Platanus occidentalis</i>	American sycamore
<i>Quercus bicolor</i>	Swamp white oak
<i>Quercus palustris</i>	Pin oak
<i>Ulmus americana</i>	American elm

### C. Successional Communities

Succession is a natural process that occurs on the landscape after a major disturbance such as farming, logging, fire, or flood. Herbaceous plants typically dominate these ecosystems, along with pioneer shrub and tree species. Many non-native species thrive in these communities, but native plants have adapted to compete and therefore are key players in maintaining balance in the constant battle of invasive plant management. Early successional habitats are important transitional plant communities that precede forested landscapes in natural succession. This never-ending process is shaped by the environment of the site and the species available in the natural seed bank or by seed dispersal.

#### **SUCCESSIONAL OLD FIELDS AND URBAN LOTS**

Successional old field/urban lots are home to some of the toughest native plants of New York City. These plants can thrive in areas with low nutrient levels, low permeability, a minimal amount of organic matter, high pH, and high salinity levels resulting from urban fill and runoff. Many may see these plants as “weeds” growing out of concrete cracks, but these pioneer species can survive in the most severe landscapes, providing important ecosystem services.

Examples Include: Van Cortlandt-Vault Hill (BX), Marine Park (BK), Central Park-North Woods (MN), Idlewild (QU), Mount Loretto (SI).

#### Recommended Plants:

##### Graminoids

<i>Agrostis hyemalis</i>	Winter bentgrass
<i>Agrostis scabra</i>	Rough bentgrass
<i>Andropogon virginicus</i>	Broom sedge bluestem
<i>Carex blanda</i>	Eastern woodland sedge
<i>Eragrostis spectabilis</i>	Purple lovegrass
<i>Juncus tenuis</i>	Path rush
<i>Digitaria cognata</i>	Fall witchgrass
<i>Tridens flavus</i>	Purpletop
<i>Panicum virgatum</i>	Switchgrass
<i>Schizachyrium scoparium</i>	Little bluestem

### Forbs

*Apocynum cannabinum*  
*Asclepias syriaca*  
*Bidens frondosa*  
*Cirsium discolor*  
*Desmodium paniculatum*  
*Eupatorium serotinum*  
*Euthamia graminifolia*  
*Krigia virginica*  
*Oenothera biennis*  
*Potentilla canadensis*  
*Potentilla simplex*  
*Solidago canadensis*  
*Solidago juncea*  
*Solidago nemoralis*  
*Solidago rugosa*  
*Solidago sempervirens*  
*Symphyotrichum ericoides*  
*Symphyotrichum laeve*  
*Symphyotrichum pilosum*  
*Verbena urticifolia*

Indianhemp  
Common milkweed  
Devil's beggartick  
Field thistle  
Panicked ticktrefoil  
Late throughwort  
Common flat-topped goldenrod  
Virginia dwarfdandelion  
Common evening primrose  
Dwarf cinquefoil  
Common cinquefoil  
Canada goldenrod  
Early goldenrod  
Gray goldenrod  
Wrinkleleaf goldenrod  
Seaside goldenrod  
White heath aster  
Smooth blue aster  
Hairy white oldfield aster  
White vervain

### Vines

*Parthenocissus quinquefolia*  
*Strophostyles helvola*

Virginia creeper  
Tailing wild bean

### Shrubs

*Baccharis halimifolia*  
*Rhus copallinum*  
*Rhus glabra*  
*Rhus typhina*  
*Rubus flagellaris*  
*Rubus pensilvanicus*

Eastern baccharis  
Winged sumac  
Smooth sumac  
Staghorn sumac  
Northern dewberry  
Pennsylvania blackberry

### Trees

*Acer negundo*  
*Betula populifolia*  
*Celtis occidentalis*  
*Juglans nigra*  
*Juniperus virginiana*  
*Populus deltoides*  
*Populus grandidentata*  
*Prunus serotina*  
*Quercus palustris*

Boxelder  
Gray birch  
Common hackberry  
Black walnut  
Eastern red cedar  
Cottonwood  
Bigtooth aspen  
Black cherry  
Pin oak

## SUCCESSIONAL SHRUBLAND

This ecosystem is a shrubland that occurs on sites that have been cleared or otherwise disturbed, and has at least a 50% shrub cover. Pioneer tree species, such as the gray birch (*Betula populifolia*) and the red maple (*Acer rubrum*) are usually mixed in with this young habitat. Forbs, graminoids, and ferns provide a great ground cover for a diverse fauna.

Examples Include: Marine Park (BK), Mariner's Marsh (SI).

### Recommended Plants:

#### Ferns

*Dennstaedtia punctilobula*  
*Thelypteris noveboracensis*

Hayscented fern  
New York fern

#### Graminoids

*Andropogon gerardii*  
*Andropogon virginicus*  
*Aristida oligantha*  
*Carex scoparia*  
*Dichanthelium clandestinum*  
*Juncus tenuis*  
*Panicum virgatum*  
*Rhynchospora capitellata*  
*Schizachyrium scoparium*  
*Scirpus atrovirens*  
*Scirpus cyperinus*  
*Sorghastrum nutans*

Big bluestem  
Broom sedge bluestem  
Prairie threeawn  
Pointed broom sedge  
Deertongue  
Path rush  
Switchgrass  
Brownish beaksedge  
Little bluestem  
Green bulrush  
Woolgrass  
Indiangrass

#### Forbs

*Asclepias syriaca*  
*Asclepias tuberosa*  
*Cirsium discolor*  
*Desmodium paniculatum*  
*Eupatorium perfoliatum*  
*Eupatorium serotinum*  
*Eutrochium maculatum*  
*Eutrochium purpureum*  
*Krigia virginica*  
*Lespedeza capitata*  
*Monarda fistulosa*  
*Monarda punctata*  
*Plantago aristata*  
*Potentilla simplex*  
*Pseudognaphalium obtusifolium*

Common milkweed  
Butterflyweed  
Field thistle  
Panicked ticktrefoil  
Common boneset  
Late throughwort  
Spotted Joe Pye weed  
Purple Joe Pye weed  
Virginia dwarfdandelion  
Roundhead lespedeza  
Wild bergamot  
Spotted beebalm  
Largebracted plantain  
Common cinquefoil  
Rabbit-tobacco

*Rudbeckia hirta*  
*Solidago odora*  
*Solidago nemoralis*  
*Solidago rugosa*  
*Solidago sempervirens*

Black-eyed Susan  
Sweet goldenrod  
Gray goldenrod  
Wrinkleleaf goldenrod  
Seaside goldenrod

#### Vines

*Menispermum canadense*  
*Parthenocissus quinquefolia*  
*Strophostyles helvola*  
*Vitis vulpina*

Moon seed  
Virginia creeper  
Trailing wild bean  
Frost grape

#### Shrubs

*Aronia melanocarpa*  
*Cornus racemosa*  
*Gaylussacia baccata*  
*Rhus copallinum*  
*Rhus glabra*  
*Rhus typhina*  
*Rosa carolina*  
*Rosa virginiana*  
*Rubus flagellaris*  
*Rubus idaeus*  
*Rubus pensilvanicus*  
*Sambucus nigra ssp. canadensis*  
*Spiraea tomentosa*  
*Vaccinium angustifolium*  
*Vaccinium pallidum*  
*Viburnum dentatum*

Black chokeberry  
Gray dogwood  
Black huckleberry  
Winged sumac  
Smooth sumac  
Staghorn sumac  
Carolina rose  
Virginia rose  
Northern dewberry  
Red raspberry  
Pennsylvania blackberry  
Common elderberry  
Steeplebush  
Lowbush blueberry  
Blue Ridge blueberry  
Arrowwood

#### Trees

*Acer rubrum*  
*Acer saccharinum*  
*Amelanchier canadensis*  
*Betula populifolia*  
*Juniperus virginiana*  
*Populus deltoides*  
*Populus grandidentata*  
*Populus tremuloides*  
*Prunus serotina*

Red maple  
Silver maple  
Canadian serviceberry  
Gray birch  
Eastern red cedar  
Cottonwood  
Bigtooth aspen  
Quaking aspen  
Black cherry

## OAK OPENING

Oak Openings were originally characterized as openings that occurred as gaps within extensive oak-hickory forests. This grass-savanna community flourishes on these very well-drained sites. They can also be described as knobs or hilltops with shallow soil over rock outcrops or sandy to gravelly soils. Fragmentation throughout New York City's remaining forests restricts areas where this plant community still naturally occurs. Woody species continue to creep in from the surrounding tree and shrub lines, unless maintained to keep a meadow-like open character. Generally trees should not be part of the planting plan, however if necessary they should be planted much more sparsely than in other forested projects.

Examples Include: Pelham Bay-Orchard Beach Meadow (BX), Central Park-North Woods (MN), Clove Lakes (SI).

### Recommended Plants:

#### Ferns

*Dennstaedtia punctilobula*  
*Thelypteris noveboracensis*

Hayscented fern  
New York fern

#### Graminoids

*Agrostis perennans*  
*Andropogon gerardii*  
*Aristida oligantha*  
*Aristida purpurascens*  
*Carex pensylvanica*  
*Dichanthelium clandestinum*  
*Elymus hystrix*  
*Eragrostis spectabilis*  
*Panicum virgatum*  
*Schizachyrium scoparium*  
*Sorghastrum nutans*  
*Tridens flavus*

Autumn bentgrass  
Big bluestem  
Prairie threeawn  
Arrowfeather threeawn  
Pennsylvania sedge  
Deertongue  
Eastern bottlebrush grass  
Purple lovegrass  
Switchgrass  
Little bluestem  
Indiangrass  
Purpletop

#### Forbs

*Allium canadense*  
*Asclepias syriaca*  
*Asclepias tuberosa*  
*Cirsium discolor*  
*Desmodium canadense*  
*Doellingeria umbellata*  
*Eupatorium hyssopifolium*  
*Eupatorium serotinum*  
*Euthamia graminifolia*  
*Eutrochium purpureum*  
*Geranium maculatum*

Wild garlic  
Common milkweed  
Butterflyweed  
Field thistle  
Showy tick trefoil  
Parasol whitetop  
Hyssop-leaved throughwort  
Late throughwort  
Common flat-topped goldenrod  
Purple Joe Pye weed  
Wild geranium

*Helianthus decapetalus*  
*Helianthus divaricatus*  
*Iris versicolor*  
*Lespedeza capitata*  
*Monarda fistulosa*  
*Oenothera fruticosa*  
*Potentilla simplex*  
*Pycnanthemum tenuifolium*  
*Rudbeckia hirta*  
*Silene stellata*  
*Solidago juncea*  
*Solidago nemoralis*  
*Solidago odora*  
*Solidago rugosa*  
*Solidago speciosa*  
*Trichostema dichotomum*

#### Shrubs

*Cornus racemosa*  
*Gaylussacia baccata*  
*Morella pensylvanica*  
*Rhododendron periclymenoides*  
*Rhus copallinum*  
*Rhus glabra*  
*Rhus typhina*  
*Rosa virginiana*  
*Rubus flagellaris*  
*Rubus idaeus*  
*Rubus pensilvanicus*  
*Spiraea alba var. latifolia*  
*Vaccinium angustifolium*  
*Vaccinium pallidum*  
*Viburnum dentatum*

#### Trees

*Prunus serotina*  
*Populus grandidentata*  
*Populus tremuloides*  
*Quercus alba*  
*Quercus palustris*  
*Quercus velutina*

Thin-leaved sunflower  
Woodland sunflower  
Harlequin blueflag  
Roundhead lespedeza  
Wild bergamot  
Narrowleaf evening primrose  
Common cinquefoil  
Narrowleaf mountain mint  
Black-eyed Susan  
Starry campion  
Early goldenrod  
Gray goldenrod  
Sweet goldenrod  
Wrinkleleaf goldenrod  
Showy goldenrod  
Forked blue curls

Gray dogwood  
Black huckleberry  
Northern bayberry  
Pinxterbloom azalea  
Winged sumac  
Smooth sumac  
Staghorn sumac  
Virginia rose  
Northern dewberry  
Red raspberry  
Pennsylvania blackberry  
Meadowsweet  
Lowbush blueberry  
Blue Ridge blueberry  
Arrowwood

Black cherry  
Bigtooth aspen  
Quaking aspen  
White oak  
Pin oak  
Black oak

## **SUCCESSIONAL MIXED HARDWOODS**

A successional mixed hardwood forest is dominated by pioneer tree species such as poplars, birches, maples, and cherries. These sun-loving species grow fast and quickly colonize a disturbed area. As the canopy closes, more shade-tolerant species move into the understory and tree seedlings of the climax forest, such as oak or hickory, may appear.

Examples Include: Seton Falls (BX), Prospect Park (BK), Central Park (MN), Kissena Park (QU), Heyerdahl Hill (SI).

### Recommended Plants:

#### Ferns

*Dennstaedtia punctilobula*

Hayscented fern

*Onoclea sensibilis*

Sensitive fern

*Osmundastrum cinnamomea*

Cinnamon fern

#### Graminoids

*Carex blanda*

Eastern woodland sedge

*Carex rosea*

Common upland star sedge

*Cinna arundinacea*

Stout woodreed

*Dichanthelium clandestinum*

Deertongue

*Luzula multiflora*

Common woodrush

*Panicum virgatum*

Switchgrass

*Schizachyrium scoparium*

Little bluestem

*Sorghastrum nutans*

Indiangrass

#### Forbs

*Ageratina altissima*

Common white snakeroot

*Cirsium discolor*

Field thistle

*Cryptotaenia canadensis*

Canada honewort

*Desmodium paniculatum*

Panicled ticktrefoil

*Eutrochium purpureum*

Purple Joe Pye weed

*Helianthus decapetalus*

Thin-leaved sunflower

*Impatiens capensis*

Jewelweed

*Maianthemum racemosum*

False Solomon's seal

*Penthorum sedoides*

Ditch stonecrop

#### Vines

*Lonicera sempervirens*

Trumpet honeysuckle

*Vitis aestivalis*

Summer grape

*Vitis vulpina*

Frost grape

#### Shrubs

*Clethra alnifolia*

Sweet pepperbush

*Cornus amomum*

Silky dogwood

*Cornus racemosa*

Gray dogwood

*Gaylussacia baccata*  
*Gaylussacia frondosa*  
*Hamamelis virginiana*  
*Lindera benzoin*  
*Rhododendron periclymenoides*  
*Rhus glabra*  
*Rhus typhina*  
*Rubus allegheniensis*  
*Rubus idaeus*  
*Rubus occidentalis*  
*Rubus pensilvanicus*  
*Sambucus nigra ssp. canadensis*  
*Vaccinium angustifolium*  
*Vaccinium pallidum*  
*Viburnum acerifolium*  
*Viburnum dentatum*

Black huckleberry  
Blue huckleberry  
Witchhazel  
Spicebush  
Pinxterbloom azalea  
Smooth sumac  
Staghorn sumac  
Common blackberry  
Red raspberry  
Black raspberry  
Pennsylvania blackberry  
Common elderberry  
Lowbush blueberry  
Blue Ridge blueberry  
Mapleleaf viburnum  
Arrowwood

#### Trees

*Acer rubrum*  
*Acer saccharinum*  
*Amelanchier arborea*  
*Amelanchier canadensis*  
*Betula lenta*  
*Betula populifolia*  
*Celtis occidentalis*  
*Fagus grandifolia*  
*Ilex opaca*  
*Juniperus virginiana*  
*Liquidambar styraciflua*  
*Liriodendron tulipifera*  
*Populus deltoides*  
*Populus grandidentata*  
*Populus tremuloides*  
*Prunus serotina*  
*Sassafras albidum*

Red maple  
Silver maple  
Common serviceberry  
Canadian serviceberry  
Black birch  
Gray birch  
Common hackberry  
American beech  
American holly  
Eastern red cedar  
Sweetgum  
Tulip poplar  
Cottonwood  
Bigtooth aspen  
Quaking aspen  
Black cherry  
Sassafras

### **SERPENTINE BARRENS**

The plant communities of the serpentine barrens are a state and globally rare habitat because of the geographically restricted serpentine bedrock they are found on. Serpentine bedrock is light green bedrock that is thought to have been forced from the earth's core 450 million years ago during plate shifting activity. The green color is due to the high concentration of magnesium



in the rock<sup>6</sup>. Staten Island is the only borough where you can find remnants of this unique habitat. The open grass-savanna communities thrive in the nutrient-poor soils but most sites have been obliterated by forest succession in the absence of wildfire and later, by conversion to urban uses<sup>7</sup>.

Examples Include: Seaview Meadow (SI).

Recommended Plants:

Graminoids

<i>Aristida purpurascens</i>	Arrowfeather threeawn
<i>Danthonia spicata</i>	Poverty oatgrass
<i>Dichanthelium latifolium</i>	Broad-leaved rosette grass
<i>Eragrostis spectabilis</i>	Purple lovegrass
<i>Juncus tenuis</i>	Path rush
<i>Panicum virgatum</i>	Switchgrass
<i>Schizachyrium scoparium</i>	Little bluestem
<i>Sorghastrum nutans</i>	Indiangrass

Forbs

<i>Eupatorium serotinum</i>	Late throughwort
<i>Lespedeza capitata</i>	Roundhead lespedeza
<i>Potentilla simplex</i>	Common cinquefoil
<i>Pycnanthemum tenuifolium</i>	Narrowleaf mountain mint
<i>Solidago nemoralis</i>	Gray goldenrod
<i>Symphotrichum ericoides</i>	White heath aster
<i>Symphotrichum laeve</i>	Smooth blue aster
<i>Symphotrichum pilosum</i>	Hairy white oldfield aster

Vines

<i>Parthenocissus quinquefolia</i>	Virginia creeper
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Shrubs

<i>Rhus aromatica</i>	Fragrant sumac
<i>Rhus copallinum</i>	Winged sumac
<i>Rubus flagellaris</i>	Northern dewberry

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<sup>6</sup> Edinger, G.J., et al. (2002). *Ecological communities of New York State. Second Edition. A revised and expanded version of Carol Reschke's ecological communities of New York State.* Albany, NY: New York Natural Heritage Program, New York State Department of Environmental Conservation.

<sup>7</sup> Kiviat, E., & Johnson E. A. (2013). *Biodiversity assessment handbook for New York City.* New York, NY: American Museum of Natural History.

### Trees

*Betula populifolia*  
*Quercus velutina*  
*Populus tremuloides*  
*Prunus serotina*  
*Sassafras albidum*

Gray birch  
Black oak  
Quaking aspen  
Black cherry  
Sassafras

### **SUCCESSIONAL MARITIME OAK FOREST**

A maritime forest naturally succeeds a maritime shrubland if it is left undisturbed. A minimal amount of herbaceous material at ground-level is able to survive. The dense shrub layer and a closing canopy shades out many of the herbaceous species. Please refer to the Coastal Communities section for the detailed plant lists for this ecosystem.

## **D. Upland Forest Communities**

Upland forest communities are plant communities characterized by a tree canopy cover of at least 60%. The majority of the forests in the New York City area occur on moist, well-drained soils.

### **MIXED OAK-HICKORY FOREST**

This hardwood forest occurs on well-drained sites with loam or sandy loam soils. These communities can be found on ridgetops, upper slopes, or on slopes in the coastal lowlands. The tree canopy typically contains hickory species mixed with two or more species of oaks.

Examples Include: Pelham Bay-Hunter Island (BX), Prospect Park (BK), Inwood Hill (MN), Forest Park (QU), High Rock (SI).

### Recommended Plants:

#### Ferns

*Adiantum aleuticum*  
*Asplenium platyneuron*  
*Dennstaedtia punctilobula*  
*Polypodium virginianum*  
*Polystichum acrostichoides*

Maidenhair fern  
Ebony Spleenwort  
Hayscented fern  
Rock polypody  
Christmas fern

#### Graminoids

*Andropogon gerardii*  
*Avenella flexuosa*  
*Carex appalachica*  
*Carex blanda*  
*Carex communis*  
*Carex pensylvanica*

Big bluestem  
Wavy hairgrass  
Appalachian sedge  
Eastern woodland sedge  
Fibrousroot sedge  
Pennsylvania sedge

*Carex swanii*  
*Carex virescens*  
*Danthonia compressa*  
*Danthonia spicata*  
*Dichanthelium latifolium*  
*Elymus hystrix*  
*Schizachyrium scoparium*

Swan's sedge  
Ribbed sedge  
Flattened oatgrass  
Poverty oatgrass  
Broadleaf rosette grass  
Eastern bottlebrush grass  
Little bluestem

#### Forbs

*Anemone virginiana*  
*Aquilegia canadensis*  
*Borodinia canadensis*  
*Corydalis sempervirens*  
*Eurybia divaricata*  
*Fragaria virginiana*  
*Helianthus divaricatus*  
*Ionactis linariifolius*  
*Lespedeza hirta*  
*Lysimachia quadrifolia*  
*Monarda fistulosa*  
*Osmorhiza claytonii*  
*Pycnanthemum incanum*  
*Silene stellata*  
*Solidago bicolor*  
*Solidago caesia*  
*Symphyotrichum cordifolium*  
*Thalictrum dioicum*  
*Verbena urticifolia*

Tall thimbleweed  
Wild columbine  
Sicklepod  
Rock harlequin  
White wood aster  
Wild strawberry  
Woodland sunflower  
Flaxleaf whitetop aster  
Hairy bush clover  
Whorled yellow loosestrife  
Wild bergamot  
Clayton's sweetroot  
Hoary mountain mint  
Starry campion  
White goldenrod  
Wreath goldenrod  
Blue wood aster  
Early meadow-rue  
White vervain

#### Shrubs

*Comptonia peregrina*  
*Gaylussacia baccata*  
*Gaylussacia frondosa*  
*Hamamelis virginiana*  
*Kalmia latifolia*  
*Rhododendron periclymenoides*  
*Rhus glabra*  
*Rhus typhina*  
*Rosa virginiana*  
*Rubus allegheniensis*  
*Rubus flagellaris*  
*Rubus idaeus*  
*Rubus odoratus*  
*Vaccinium angustifolium*  
*Vaccinium corymbosum*

Sweetfern  
Black huckleberry  
Blue huckleberry  
Witchhazel  
Mountain laurel  
Pinxterbloom azalea  
Smooth sumac  
Staghorn sumac  
Virginia rose  
Common blackberry  
Northern dewberry  
Red raspberry  
Purpleflowering raspberry  
Lowbush blueberry  
Highbush blueberry

*Vaccinium pallidum*  
*Vaccinium stamineum*  
*Viburnum acerifolium*  
*Viburnum prunifolium*

Blue Ridge blueberry  
Deerberry  
Mapleleaf viburnum  
Black haw

#### Trees

*Acer rubrum*  
*Acer saccharum*  
*Amelanchier arborea*  
*Betula lenta*  
*Betula populifolia*  
*Carya glabra*  
*Carya cordiformis*  
*Carya ovata*  
*Carya tomentosa*  
*Cornus florida*  
*Liriodendron tulipifera*  
*Ostrya virginiana*  
*Pinus strobus*  
*Prunus serotina*  
*Prunus virginiana*  
*Quercus alba*  
*Quercus coccinea*  
*Quercus ilicifolia*  
*Quercus marilandica*  
*Quercus montana*  
*Quercus rubra*  
*Quercus velutina*  
*Tilia americana*

Red maple  
Sugar maple  
Common serviceberry  
Black birch  
Gray birch  
Pignut hickory  
Bitternut hickory  
Shagbark hickory  
Mockernut hickory  
Flowering dogwood  
Tulip poplar  
Hop hornbeam  
Eastern white pine  
Black cherry  
Chokecherry  
White oak  
Scarlet oak  
Bear oak  
Blackjack oak  
Chestnut oak  
Northern red oak  
Black oak  
American linden

### **RICH MESOPHYTIC FOREST**

The Rich Mesophytic Forest is home to some of New York City's most stunning plant communities. The rich, seasonally-moist, well-drained soils are favorable to spring ephemerals and the culturally significant sugar maple (*Acer saccharum*). The acidic qualities of the soils are maintained by the variety of oak species typical to these communities.

Examples Include: Van Cortlandt (BX), Inwood Hill (MN), Cunningham (QU), Bloodroot Valley (SI).

#### Recommended Plants:

##### Ferns

*Athyrium angustum*  
*Deparia acrostichoides*  
*Dryopteris marginalis*

Lady fern  
Silvery glade fern  
Marginal woodfern

*Onoclea sensibilis*  
*Osmunda claytoniana*  
*Polystichum acrostichoides*  
*Thelypteris noveboracensis*

Sensitive fern  
Interrupted fern  
Christmas fern  
New York fern

#### Graminoids

*Carex swanii*  
*Carex radiata*  
*Carex rosea*  
*Juncus tenuis*  
*Leersia virginica*  
*Luzula multiflora*

Swan's sedge  
Eastern star sedge  
Common upland star sedge  
Path rush  
Whitegrass  
Common woodrush

#### Forbs

*Actaea pachypoda*  
*Actaea racemosa*  
*Ageratina altissima*  
*Allium tricoccum*  
*Anemone quinquefolia*  
*Aralia nudicaulis*  
*Aralia racemosa*  
*Asarum canadense*  
*Caulophyllum thalictroides*  
*Dicentra cucullaria*  
*Eutrochium purpureum*  
*Geranium maculatum*  
*Helianthus decapetalus*  
*Impatiens capensis*  
*Maianthemum canadense*  
*Mitchella repens*  
*Persicaria virginiana*  
*Phryma leptostachya*  
*Podophyllum peltatum*  
*Polygonatum biflorum*  
*Polygonatum pubescens*  
*Rubus odoratus*  
*Sanguinaria canadensis*  
*Maianthemum racemosum*  
*Thalictrum dioicum*  
*Thalictrum pubescens*  
*Viola pubescens*  
*Viola sororia*

Doll's eyes  
Black cohosh  
Common white snakeroot  
Wild leek  
Wood anemone  
Wild sarsaparilla  
American spikenard  
Wild ginger  
Blue cohosh  
Dutchman's breeches  
Purple Joe Pye weed  
Wild geranium  
Thin-leaved sunflower  
Jewelweed  
Canada mayflower  
Partridgeberry  
Jumpseed  
American lopseed  
Mayapple  
Smooth Solomon's seal  
Hairy Solomon's seal  
Purpleflowering raspberry  
Bloodroot  
False Solomon's seal  
Early meadow-rue  
Tall meadow-rue  
Yellow forest violet  
Common blue violet

### Vines

*Lonicera sempervirens*  
*Vitis aestivalis*

Trumpet honeysuckle  
Summer grape

### Shrubs

*Corylus americana*  
*Lindera benzoin*  
*Hamamelis virginiana*  
*Rhododendron periclymenoides*  
*Staphylea trifolia*  
*Vaccinium corymbosum*  
*Viburnum acerifolium*  
*Viburnum dentatum*  
*Viburnum prunifolium*

American hazelnut  
Spicebush  
Witchhazel  
Pinxterbloom azalea  
American bladdernut  
Highbush blueberry  
Mapleleaf viburnum  
Arrowwood  
Black haw

### Trees

*Acer rubrum*  
*Acer saccharum*  
*Amelanchier canadensis*  
*Betula lenta*  
*Carpinus caroliniana*  
*Carya ovata*  
*Cornus florida*  
*Juglans nigra*  
*Liquidambar styraciflua*  
*Liriodendron tulipifera*  
*Nyssa sylvatica*  
*Platanus occidentalis*  
*Prunus serotina*  
*Quercus alba*  
*Quercus coccinea*  
*Quercus palustris*  
*Quercus rubra*  
*Quercus velutina*  
*Sassafras albidum*  
*Tilia americana*

Red maple  
Sugar maple  
Canadian serviceberry  
Black birch  
American hornbeam  
Shagbark hickory  
Flowering dogwood  
Black walnut  
Sweetgum  
Tulip poplar  
Black tupelo  
American sycamore  
Black cherry  
White oak  
Scarlet oak  
Pin oak  
Northern red oak  
Black oak  
Sassafras  
American linden

## OAK-TULIP TREE FOREST

This mesophytic forest is a mixture of hardwoods and softwoods. The dominant species of oak and tulip poplar are usually joined by black birch, beech, or red maple. Moist, well-drained soils support a diverse understory of shrubs and herbaceous flora. Tulip poplars, with their very straight trunks, can reach over 100 feet tall. Their magnificent form helps to bring a natural giant to the famed New York City skyline.

Examples Include: Pelham Bay-Hunter Island (BX), Prospect Park (BK), Inwood Hill (MN), Forest Park (QU), Bloomingdale (SI).

### Recommended Plants:

#### Ferns

*Athyrium angustum*

Lady fern

*Deparia acrostichoides*

Silvery glade fern

*Thelypteris noveboracensis*

New York fern

#### Graminoids

*Carex blanda*

Eastern woodland sedge

*Carex rosea*

Common upland star sedge

*Carex swanii*

Swan's sedge

*Danthonia spicata*

Poverty oatgrass

*Dichanthelium clandestinum*

Deertongue

*Juncus tenuis*

Path rush

#### Forbs

*Actaea racemosa*

Black cohosh

*Anemone quinquefolia*

Wood anemone

*Anemone virginiana*

Tall thimbleweed

*Aralia racemosa*

American spikenard

*Arisaema triphyllum*

Jack-in-the-Pulpit

*Eurybia divaricata*

White wood aster

*Geranium maculatum*

Wild geranium

*Helianthus decapetalus*

Thin-leaved sunflower

*Maianthemum canadense*

Canada mayflower

*Mitchella repens*

Partridgeberry

*Phryma leptostachya*

American lopseed

*Polygonatum biflorum*

Smooth Solomon's seal

*Polygonatum pubescens*

Hairy Solomon's seal

*Maianthemum racemosum*

False Solomon's seal

*Symplocarpus foetidus*

Skunk cabbage

*Thalictrum dioicum*

Early meadow-rue

*Uvularia sessilifolia*

Sessileleaf bellwort

*Viola sororia*

Common blue violet

### Vines

*Parthenocissus quinquefolia*  
*Vitis aestivalis*

Virginia creeper  
Summer grape

### Shrubs

*Hamamelis virginiana*  
*Pyrola rotundifolia*  
*Rubus occidentalis*  
*Rubus pensilvanicus*  
*Vaccinium angustifolium*  
*Vaccinium pallidum*  
*Viburnum acerifolium*  
*Viburnum prunifolium*

Witchhazel  
American wintergreen  
Black raspberry  
Pennsylvania blackberry  
Lowbush blueberry  
Blue Ridge blueberry  
Mapleleaf viburnum  
Black haw

### Trees

*Acer rubrum*  
*Betula lenta*  
*Cornus florida*  
*Fagus grandifolia*  
*Liriodendron tulipifera*  
*Prunus serotina*  
*Quercus alba*  
*Quercus coccinea*  
*Quercus rubra*  
*Quercus velutina*  
*Sassafras albidum*

Red maple  
Black birch  
Flowering dogwood  
American beech  
Tulip poplar  
Black cherry  
White oak  
Scarlet oak  
Northern red oak  
Black oak  
Sassafras

## **CHESTNUT OAK FOREST**

This hardwood forest is situated on well-drained sites on the coastal plain. Tree canopy species diversity is limited to two or three oak species and red maples. Historically, the American chestnut thrived in these habitats until the chestnut blight decimated the populations. American chestnut sprouts can still be found in the understory today. The understory consists of ericaceous shrubs such as black huckleberry (*Gaylussacia baccata*) and blueberry (*Vaccinium pallidum*).

Examples Include: Van Cortlandt Park (BX), Forest Park (QU), Deere Park (SI).

### Recommended Plants:

#### Ferns

*Asplenium platyneuron*  
*Osmunda claytoniana*  
*Thelypteris noveboracensis*

Ebony Spleenwort  
Interrupted fern  
New York fern



Graminoids

*Carex pensylvanica*  
*Carex swanii*

Pennsylvania sedge  
Swan's sedge

Forbs

*Eurybia divaricata*  
*Prenanthes trifoliata*

White wood aster  
Gall-of-the-Earth

Shrubs

*Gaylussacia baccata*  
*Hamamelis virginiana*  
*Kalmia latifolia*  
*Morella pensylvanica*  
*Rhododendron periclymenoides*  
*Vaccinium corymbosum*  
*Vaccinium pallidum*  
*Vaccinium stamineum*  
*Viburnum acerifolium*

Black huckleberry  
Witchhazel  
Mountain laurel  
Northern bayberry  
Pinxterbloom azalea  
Highbush blueberry  
Blue Ridge blueberry  
Deerberry  
Mapleleaf viburnum

Trees

*Liriodendron tulipifera*  
*Prunus serotina*  
*Quercus alba*  
*Quercus montana*  
*Quercus rubra*  
*Quercus velutina*  
*Sassafras albidum*

Tulip poplar  
Black cherry  
White oak  
Chestnut oak  
Northern red oak  
Black oak  
Sassafras

# Planting Near Natural Areas

The natural areas of NYC act as refuges for diverse wildlife. They represent the most valuable ecosystems in the ever-changing urban landscape, and though considerable effort is made annually to conserve these areas, they are continually threatened by the invasion of non-native species, development, and climate change. The edges of forests and other natural areas face the greatest risk. Non-native plant species easily colonize edges in part because light resources are widely available. Once established along the edges, non-native plants can spread into habitat interiors, reducing species diversity, and changing the way the whole ecosystem functions.

Many of NYC’s Natural Areas abut private property. This is particularly true in Staten Island and the Bronx, which contain some of the largest overall acreage of parkland in the five boroughs. Making wise native planting choices for landscape design on these private properties helps prevent edges of natural areas from becoming degraded habitats or corridors for invasive plants. Additionally, these properties can provide ecological connectivity with neighboring sites and between larger, publicly protected natural areas. This guide can and should be used to help determine the best species for landscaping projects adjacent to our natural resources.

Many of the private properties adjacent to natural areas, particularly on Staten Island, fall into one of the typologies listed below. The following lists can be used as a starting place for planning a project on these private properties. They offer a broad palette of species that are appropriate for clearly defined habitats and site typologies. As previously mentioned, the Greenbelt Native Plant Center grows many of these species and their staff has a wealth of knowledge regarding the right native plants for these areas. Note that as sea levels rise, particularly in flat, low-lying coastal habitats, areas influenced by tide or salt spray might change.

## COASTAL HABITATS

### Recommended Plants:

#### Ferns

*Onoclea sensibilis*

Sensitive fern

#### Graminoids

*Ammophila breviligulata*

American beachgrass

*Andropogon virginicus*

Broom sedge bluestem

*Avenella flexuosa*

Wavy hairgrass

*Carex pensylvanica*

Pennsylvania sedge

*Eragrostis spectabilis*

Purple lovegrass

*Panicum virgatum*

Switchgrass

*Schizachyrium scoparium*

Little bluestem

*Schoenoplectus pungens*

Common threesquare

### Forbs

*Asclepias syriaca*  
*Eupatorium hyssopifolium*  
*Eupatorium serotinum*  
*Euthamia graminifolia*  
*Hibiscus moscheutos*  
*Oenothera biennis*  
*Opuntia humifusa*  
*Solidago sempervirens*  
*Trichostema dichotomum*

Common milkweed  
Hyssop-leaved throughwort  
Late throughwort  
Common flat-topped goldenrod  
Crimson-eyed rosemallow  
Common evening primrose  
Eastern prickly pear  
Seaside goldenrod  
Forked blue curls

### Shrubs

*Arctostaphylos uva-ursi*  
*Baccharis halimifolia*  
*Iva frutescens*  
*Juniperus virginiana*  
*Morella pensylvanica*  
*Prunus maritima*  
*Rhus copallinum*  
*Rhus glabra*  
*Rosa carolina*

Bearberry  
Eastern baccharis  
Marsh elder  
Eastern red cedar  
Northern bayberry  
Beach plum  
Winged sumac  
Smooth sumac  
Carolina rose

### Trees

*Acer rubrum*  
*Quercus ilicifolia*  
*Quercus marilandica*  
*Quercus prinoides*  
*Quercus stellata*  
*Sassafras albidum*

Red maple  
Scrub oak  
Blackjack oak  
Dwarf chinquapin oak  
Post oak  
Sassafras

## **BLUEBELT HABITATS**

### Recommended Plants:

#### Ferns

*Osmundastrum cinnamomea*  
*Osmunda claytoniana*  
*Osmunda regalis*

Cinnamon fern  
Interrupted fern  
Royal fern

#### Graminoids

*Andropogon glomeratus*  
*Calamagrostis canadensis*  
*Carex comosa*  
*Carex intumescens*  
*Carex lupulina*  
*Carex lurida*  
*Cinna arundinacea*

Bushy bluestem  
Canada bluejoint grass  
Bristly sedge  
Bladder sedge  
Hop sedge  
Shallow sedge  
Stout woodreed

*Glyceria canadensis*  
*Juncus effusus*  
*Scirpus atrovirens*  
*Scirpus cyperinus*

Rattlesnake manna grass  
Common rush  
Green bulrush  
Woolgrass

#### Forbs

*Arisaema triphyllum*  
*Asarum canadense*  
*Chelone glabra*  
*Desmodium canadense*  
*Eupatorium perfoliatum*  
*Eutrochium purpureum*  
*Eutrochium maculatum*  
*Helenium autumnale*  
*Iris versicolor*  
*Lobelia cardinalis*  
*Mimulus ringens*  
*Packera aurea*  
*Podophyllum peltatum*  
*Pycnanthemum virginianum*  
*Solidago rugosa*  
*Symphotrichum novae-angliae*  
*Vernonia noveboracensis*

Jack-in-the-Pulpit  
Wild ginger  
White turtlehead  
Showy tick trefoil  
Common boneset  
Purple Joe Pye weed  
Spotted Joe Pye weed  
Common sneezeweed  
Harlequin blueflag  
Cardinalflower  
Allegheny monkeyflower  
Golden ragwort  
Mayapple  
Virginia mountain mint  
Wrinkleleaf goldenrod  
New England aster  
New York ironweed

#### Vines

*Clematis virginiana*

Virginia virgin's bower

#### Shrubs

*Alnus serrulata*  
*Aronia arbutifolia*  
*Cephalanthus occidentalis*  
*Clethra alnifolia*  
*Cornus amomum*  
*Eubotrys racemosa*  
*Ilex verticillata*  
*Lindera benzoin*  
*Rhododendron viscosum*  
*Rosa palustris*  
*Rubus hispidus*  
*Sambucus nigra ssp. canadensis*  
*Spiraea alba var. latifolia*  
*Vaccinium corymbosum*  
*Viburnum dentatum*

Smooth alder  
Red chokeberry  
Buttonbush  
Sweet pepperbush  
Silky dogwood  
Swamp doghobble  
Winterberry  
Spicebush  
Swamp azalea  
Swamp rose  
Swamp dewberry  
Common elderberry  
Meadowsweet  
Highbush blueberry  
Arrowwood

#### Trees

*Acer rubrum*  
*Liquidambar styraciflua*  
*Nyssa sylvatica*  
*Platanus occidentalis*

Red maple  
Sweetgum  
Black tupelo  
American sycamore

*Quercus bicolor*  
*Quercus palustris*

Swamp white oak  
Pin oak

## **BRACKISH HABITATS**

### Recommended Plants:

#### Ferns

*Onoclea sensibilis*  
*Thelypteris palustris*

Sensitive fern  
Marsh fern

#### Graminoids

*Andropogon virginicus*  
*Bolboschoenus robustus*  
*Calamagrostis canadensis*  
*Carex crinita*  
*Carex stricta*  
*Carex vulpinoidea*  
*Elymus virginicus*  
*Schoenoplectus pungens*  
*Scirpus cyperinus*

Broom sedge bluestem  
Seacoast bulrush  
Canada bluejoint grass  
Common fringed sedge  
Tussock sedge  
Fox sedge  
Virginia wild rye  
Common threesquare  
Woolgrass

#### Forbs

*Asclepias incarnata*  
*Eutrochium maculatum*  
*Hibiscus moscheutos*  
*Iris versicolor*  
*Lycopus virginicus*  
*Sisyrinchium angustifolium*  
*Symphotrichum novi-belgii*  
*Teucrium canadense*  
*Tradescantia virginiana*  
*Typha latifolia*  
*Verbena hastata*

Swamp milkweed  
Spotted Joe Pye weed  
Crimson-eyed rosemallow  
Harlequin blueflag  
Virginia water horehound  
Narrow-leaved blue-eyed grass  
New York aster  
American germander  
Spiderwort  
Broadleaf cattail  
Swamp verbena

#### Vines

*Parthenocissus quinquefolia*

Virginia creeper

#### Shrubs

*Aronia arbutifolia*  
*Baccharis halimifolia*  
*Cephalanthus occidentalis*  
*Iva frutescens*  
*Vaccinium corymbosum*

Red chokeberry  
Eastern baccharis  
Buttonbush  
Marsh elder  
Highbush blueberry

#### Trees

*Amelanchier canadensis*  
*Nyssa sylvatica*

Canadian serviceberry  
Black tupelo

*Quercus palustris*  
*Quercus stellata*

Pin oak  
Post oak

## **WOODLAND EDGES**

### Recommended Plants:

#### Ferns

*Adiantum pedatum*  
*Athyrium angustum*  
*Dryopteris marginalis*  
*Polystichum acrostichoides*  
*Thelypteris noveboracensis*

Northern maidenhair fern  
Lady fern  
Marginal woodfern  
Christmas fern  
New York fern

#### Graminoids

*Agrostis perennans*  
*Carex appalachica*  
*Carex blanda*  
*Carex intumescens*  
*Carex radiata*  
*Carex rosea*  
*Carex scoparia*  
*Carex swanii*  
*Cinna arundinacea*  
*Danthonia compressa*  
*Dichanthelium clandestinum*  
*Elymus hystrix*  
*Elymus riparius*  
*Elymus virginicus*  
*Juncus tenuis*  
*Panicum virgatum*  
*Tridens flavus*

Autumn bentgrass  
Appalachian sedge  
Eastern woodland sedge  
Bladder sedge  
Eastern star sedge  
Common upland star sedge  
Pointed broom sedge  
Swan's sedge  
Stout woodreed  
Flattened oatgrass  
Deertongue  
Eastern bottlebrush grass  
Eastern riverbank wild rye  
Virginia wild rye  
Path rush  
Switchgrass  
Purpletop

#### Forbs

*Actaea pachypoda*  
*Ageratina altissima*  
*Allium tricoccum*  
*Anemone quinquefolia*  
*Aquilegia canadensis*  
*Asarum canadense*  
*Baptisia tinctoria*  
*Caulophyllum thalictroides*  
*Geranium maculatum*  
*Helianthus decapetalus*  
*Heuchera americana*  
*Mitchella repens*

Doll's eyes  
Common white snakeroot  
Wild leek  
Wood anemone  
Wild columbine  
Wild ginger  
Yellow wild indigo  
Blue cohosh  
Wild geranium  
Thin-leaved sunflower  
American alumroot  
Partridgeberry

*Packera obovata*  
*Pycnanthemum incanum*  
*Rudbeckia hirta*  
*Solidago caesia*  
*Thalictrum pubescens*

Round-leaved ragwort  
Hoary mountain mint  
Black-eyed Susan  
Wreath goldenrod  
Tall meadow-rue

#### Vines

*Lonicera sempervirens*  
*Parthenocissus quinquefolia*

Trumpet honeysuckle  
Virginia creeper

#### Shrubs

*Aronia arbutifolia*  
*Aronia melanocarpa*  
*Corylus americana*  
*Hamamelis virginiana*  
*Ilex glabra*  
*Ilex verticillata*  
*Kalmia latifolia*  
*Lindera benzoin*  
*Rhododendron periclymenoides*  
*Rubus allegheniensis*  
*Rubus occidentalis*  
*Rubus pensilvanicus*  
*Spiraea alba* var. *latifolia*  
*Spiraea tomentosa*  
*Vaccinium angustifolium*  
*Vaccinium corymbosum*  
*Vaccinium pallidum*  
*Viburnum acerifolium*  
*Viburnum dentatum*

Red chokeberry  
Black chokeberry  
American hazelnut  
Witchhazel  
Inkberry  
Winterberry  
Mountain laurel  
Spicebush  
Pinxterbloom azalea  
Common blackberry  
Black raspberry  
Pennsylvania blackberry  
Meadowsweet  
Steeplebush  
Lowbush blueberry  
Highbush blueberry  
Blue Ridge blueberry  
Mapleleaf viburnum  
Arrowwood

#### Trees

*Acer saccharum*  
*Amelanchier arborea*  
*Betula lenta*  
*Carpinus caroliniana*  
*Cornus florida*  
*Fagus grandifolia*  
*Prunus serotina*  
*Sassafras albidum*  
*Quercus alba*  
*Quercus coccinea*  
*Quercus montana*  
*Quercus rubra*  
*Quercus velutina*

Sugar maple  
Common serviceberry  
Black birch  
American hornbeam  
Flowering dogwood  
American beech  
Black cherry  
Sassafras  
White oak  
Scarlet oak  
Chestnut oak  
Northern red oak  
Black oak

## OPEN EDGES

### Recommended Plants:

#### Ferns

*Athyrium angustum*

*Dennstaedtia punctilobula*

*Polystichum acrostichoides*

Lady fern

Hayscented fern

Christmas fern

#### Graminoids

*Andropogon gerardii*

*Andropogon virginicus*

*Avenella flexuosa*

*Carex pensylvanica*

*Carex scoparia*

*Carex vulpinoidea*

*Danthonia spicata*

*Elymus canadensis*

*Eragrostis spectabilis*

*Panicum virgatum*

*Schizachyrium scoparium*

*Sorghastrum nutans*

*Tridens flavus*

Big bluestem

Broom sedge bluestem

Wavy hairgrass

Pennsylvania sedge

Pointed broom sedge

Fox sedge

Poverty oatgrass

Canada wild rye

Purple lovegrass

Switchgrass

Little bluestem

Indiangrass

Purpletop

#### Forbs

\**Asclepias* spp.

*Baptisia tinctoria*

\**Eupatorium* spp.

*Euthamia graminifolia*

*Fragaria virginiana*

*Helianthus divaricatus*

*Monarda fistulosa*

*Oenothera biennis*

*Opuntia humifusa*

*Packera obovata*

*Penstemon digitalis*

\**Pycnanthemum* spp.

*Rudbeckia hirta*

\**Solidago* spp.

*Tradescantia virginiana*

Milkweeds

Yellow wild indigo

Joe Pye weeds

Common flat-topped goldenrod

Wild strawberry

Woodland sunflower

Wild bergamot

Common evening primrose

Eastern prickly pear

Round-leaved ragwort

White Beardtongue

Mountain mint's

Black-eyed Susan

Goldenrods

Spiderwort

\* if a number of species are appropriate from a particular genus, "spp." was used. Any species from that particular genus that is listed in this guide would be acceptable



### Vines

*Parthenocissus quinquefolia*

Virginia creeper

### Shrubs

*Arctostaphylos uva-ursi*

Bearberry

*Aronia melanocarpa*

Black chokeberry

*Baccharis halimifolia*

Eastern baccharis

*Crataegus crus-galli*

Cockspur hawthorn

*Ilex glabra*

Inkberry

*Juniperus virginiana*

Eastern red cedar

*Morella pensylvanica*

Northern bayberry

*Rhus aromatica*

Fragrant sumac

*Rhus copallinum*

Winged sumac

*Rosa carolina*

Carolina rose

*Rosa virginiana*

Virginia rose

*Rubus flagellaris*

Northern dewberry

*Spiraea alba* var. *latifolia*

Meadowsweet

*Spiraea tomentosa*

Steeplebush

*Vaccinium angustifolium*

Lowbush blueberry

*Vaccinium pallidum*

Blue Ridge blueberry

*Viburnum prunifolium*

Black haw

### Trees

*Acer saccharinum*

Silver maple

*Amelanchier arborea*

Common serviceberry

*Betula populifolia*

Gray birch

*Cornus florida*

Flowering dogwood

*Ilex opaca*

American holly

*Prunus serotina*

Black cherry

*Quercus montana*

Chestnut oak

*Quercus palustris*

Pin oak

*Quercus rubra*

Northern red oak

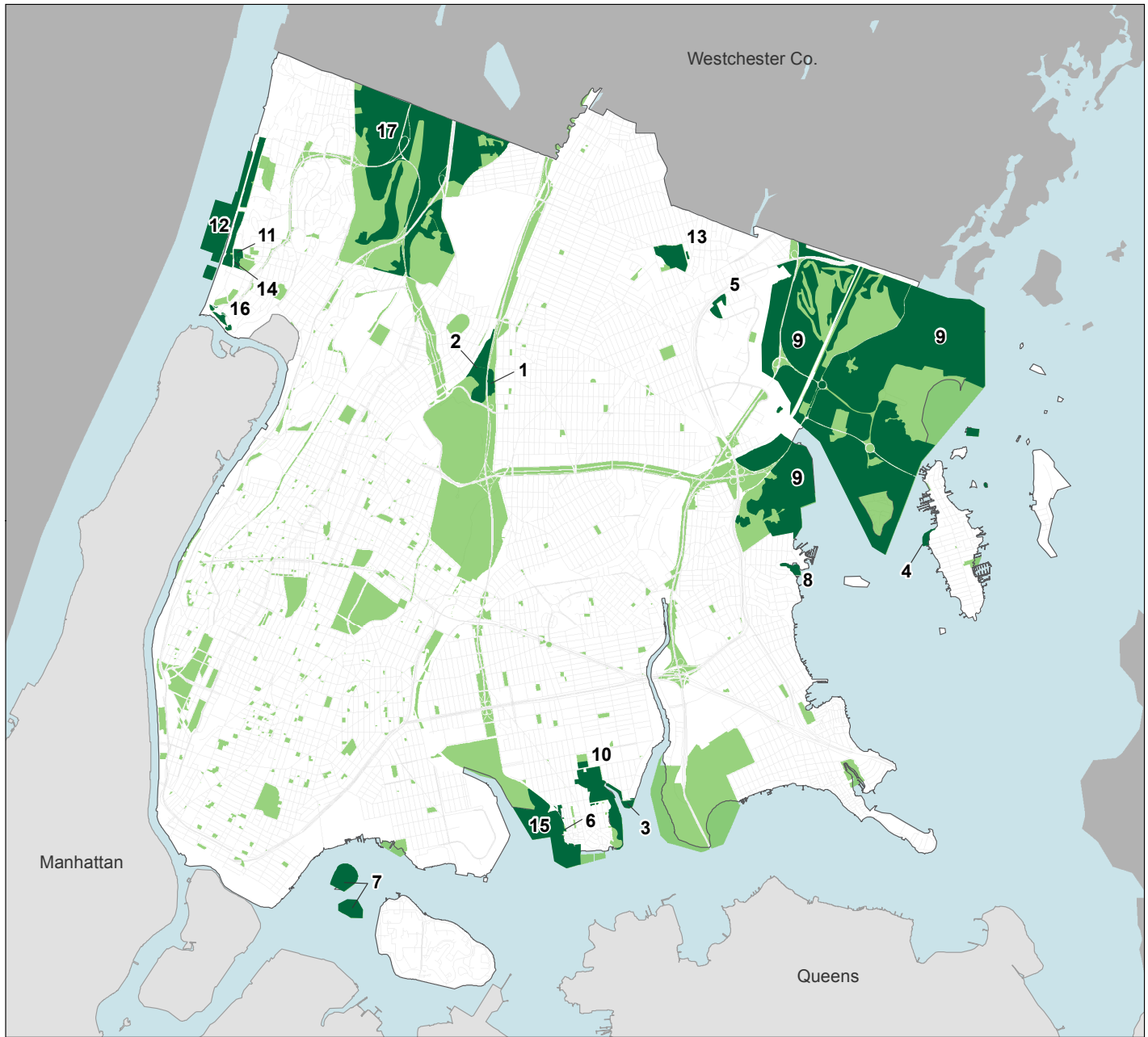
*Quercus velutina*

Black oak

## **FOREVER WILD**

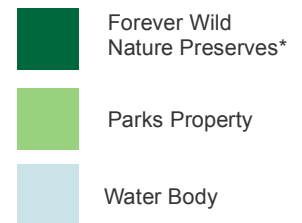
Established in 2001, the Forever Wild program identified the most ecologically valuable areas within the NYC Parks system for protection, conservation, and restoration. As the entity responsible for managing over half the natural areas in the City, it is NYC Parks' policy to protect natural areas under our jurisdiction and manage them over time so that they continue to provide benefits for future generations. One of these best management practices is the mandated use of native plants in city-owned natural areas by Local Law 11 (2013) (§ 18-141 NYC Admin. Code). In general, the Forever Wild management guidelines work in concert with legal regulations and policies to emphasize natural resource protection in a comprehensive and integrated way. Forever Wild maps were updated in 2018 to include the latest information about New York City's natural areas, correct boundaries, and to reflect significant technological advances in geospatial data management.

From a bird's eye view, New York City is a mosaic of green spaces, and even intermittent assemblages of native plant species can facilitate the movement of native pollinators and seed dispersers throughout our diverse landscape. Genetic variation and connectivity are critical to the population health of native plant communities. The Forever Wild Program was established to help maintain reservoirs of genetic diversity and connectivity for our native flora. Natural areas in New York City are an irreplaceable element of our cultural heritage. The increased use of native plants in appropriate settings creates a landscape vital to both contemporary and future New Yorkers.



## Forever Wild Nature Preserves Bronx

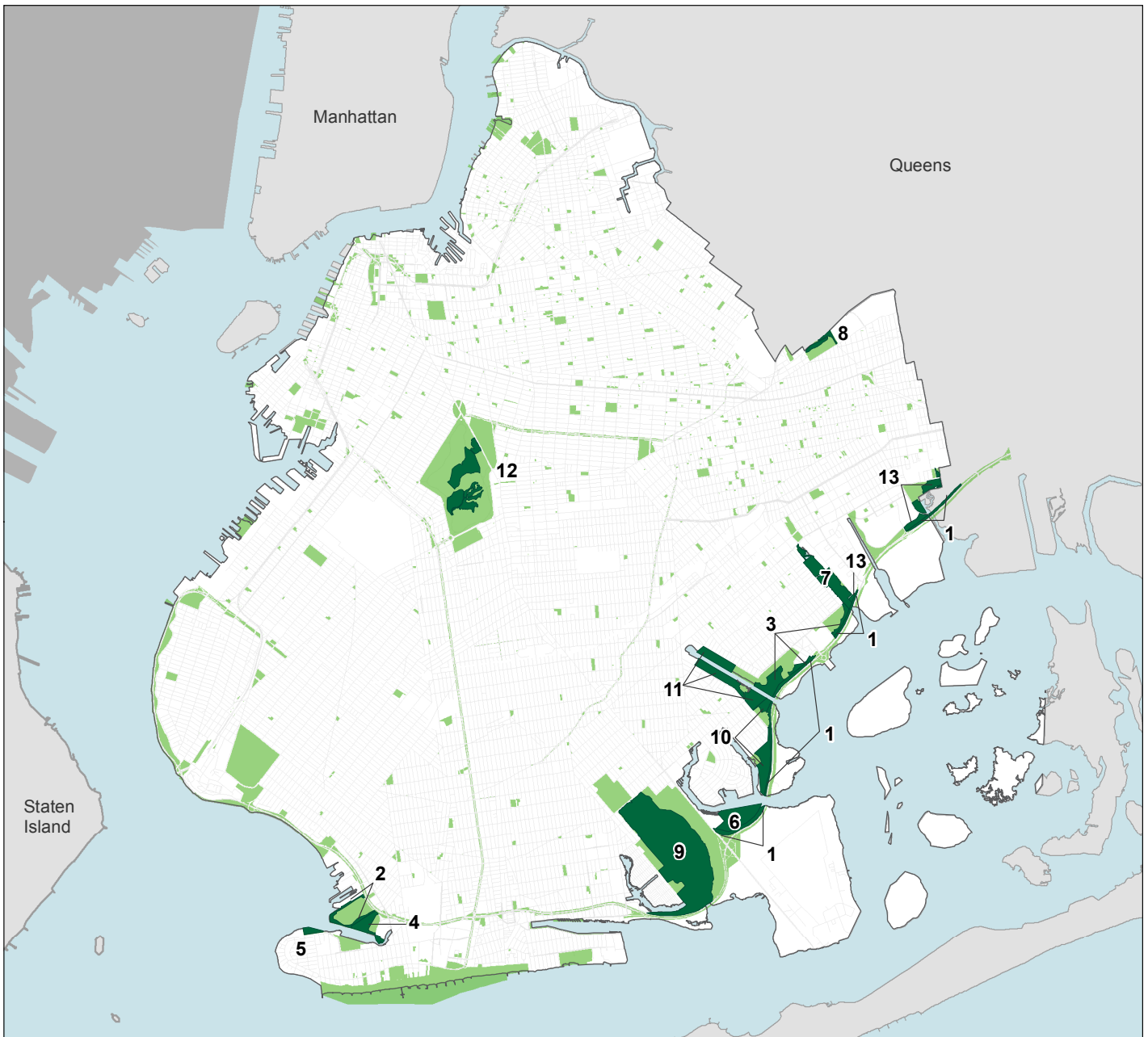
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|--|-------------------------------|--------------------------------------|
| 1 Bronx Park                             | 7 North/South Brother Islands | 13 Seton Falls' Park                 |
| 2 Bronx River Parkway                    | 8 Palmer Inlet                | 14 Seton Park                        |
| 3 Castle Hill Park                       | 9 Pelham Bay Park             | 15 Soundview Park                    |
| 4 City Island Wetlands                   | 10 Pugsley Creek Park         | 16 Spuyten Duyvil<br>Shorefront Park |
| 5 Givans Creek Woods                     | 11 Raoul Wallenberg Forest    | 17 Van Cortlandt Park                |
| 6 Harding Park<br>Beautification Project | 12 Riverdale Park             |                                      |



City of New York Parks & Recreation  
 Bill de Blasio, Mayor  
 Mitchell J. Silver, FAICP, Commissioner

\*The boundaries for Forever Wild Preserves shown were delineated as of 10/09/2018.





## Forever Wild Nature Preserves Brooklyn

- |                                  |                                  |                         |
|----------------------------------|----------------------------------|-------------------------|
| 1 Belt Parkway/<br>Shore Parkway | 5 Coney Island<br>Creek Park     | 9 Marine Park           |
| 2 Calvert Vaux Park              | 6 Four Sparrow Marsh             | 10 McGuire Fields       |
| 3 Canarsie Park                  | 7 Fresh Creek<br>Nature Preserve | 11 Paerdegat Basin Park |
| 4 Coney Island<br>Boat Basin     | 8 Highland Park                  | 12 Prospect Park        |
|                                  |                                  | 13 Spring Creek Park    |

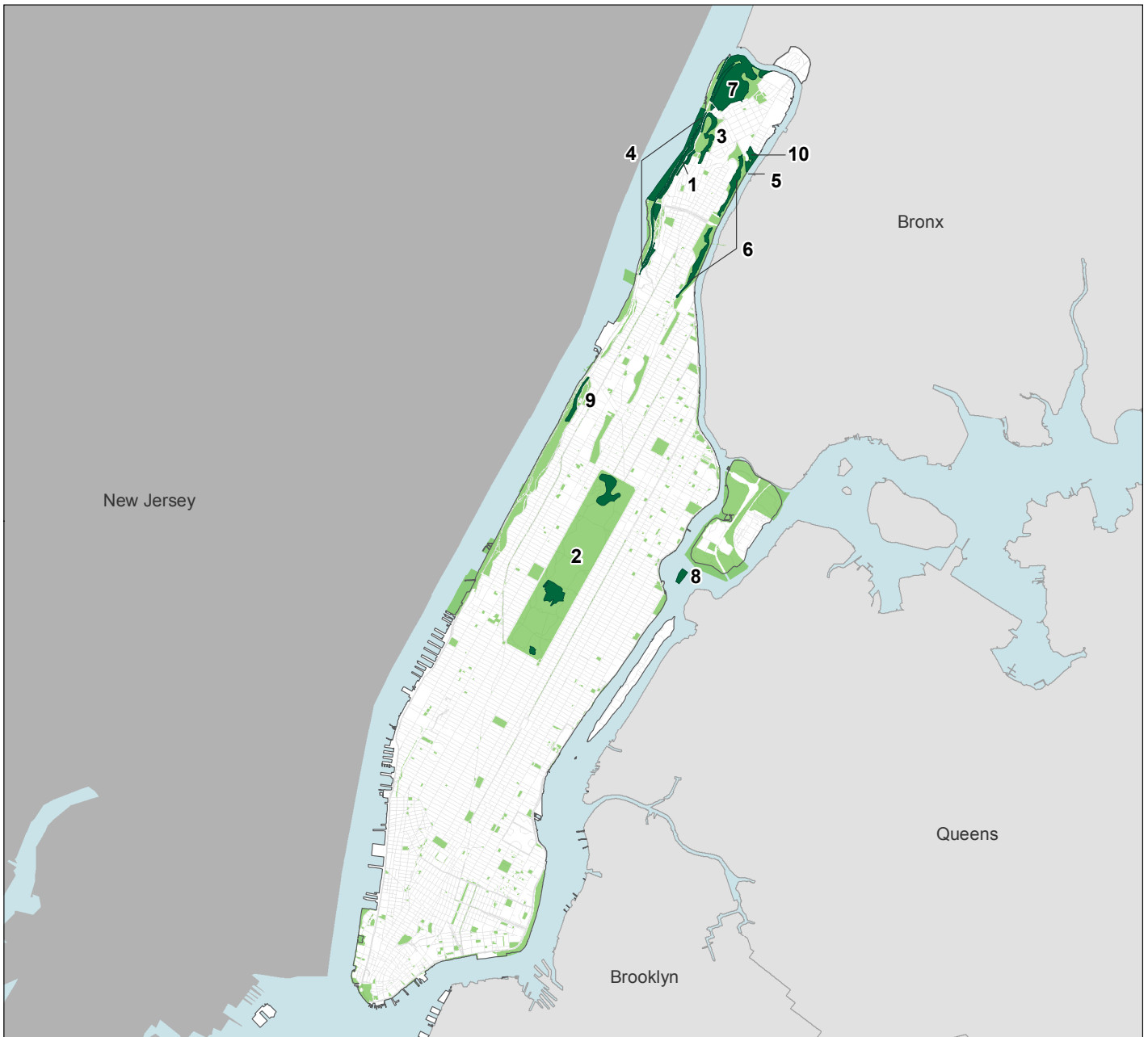
- Forever Wild Nature Preserves\*
- Parks Property
- Water Body



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## Forever Wild Nature Preserves Manhattan

- |                        |                     |                  |
|------------------------|---------------------|------------------|
| 1 Bennett Rest         | 5 Harlem River Park | 8 Mill Rock Park |
| 2 Central Park         | 6 Highbridge Park   | 9 Riverside Park |
| 3 Fort Tyron Park      | 7 Inwood Hill Park  | 10 Sherman Creek |
| 4 Fort Washington Park |                     |                  |

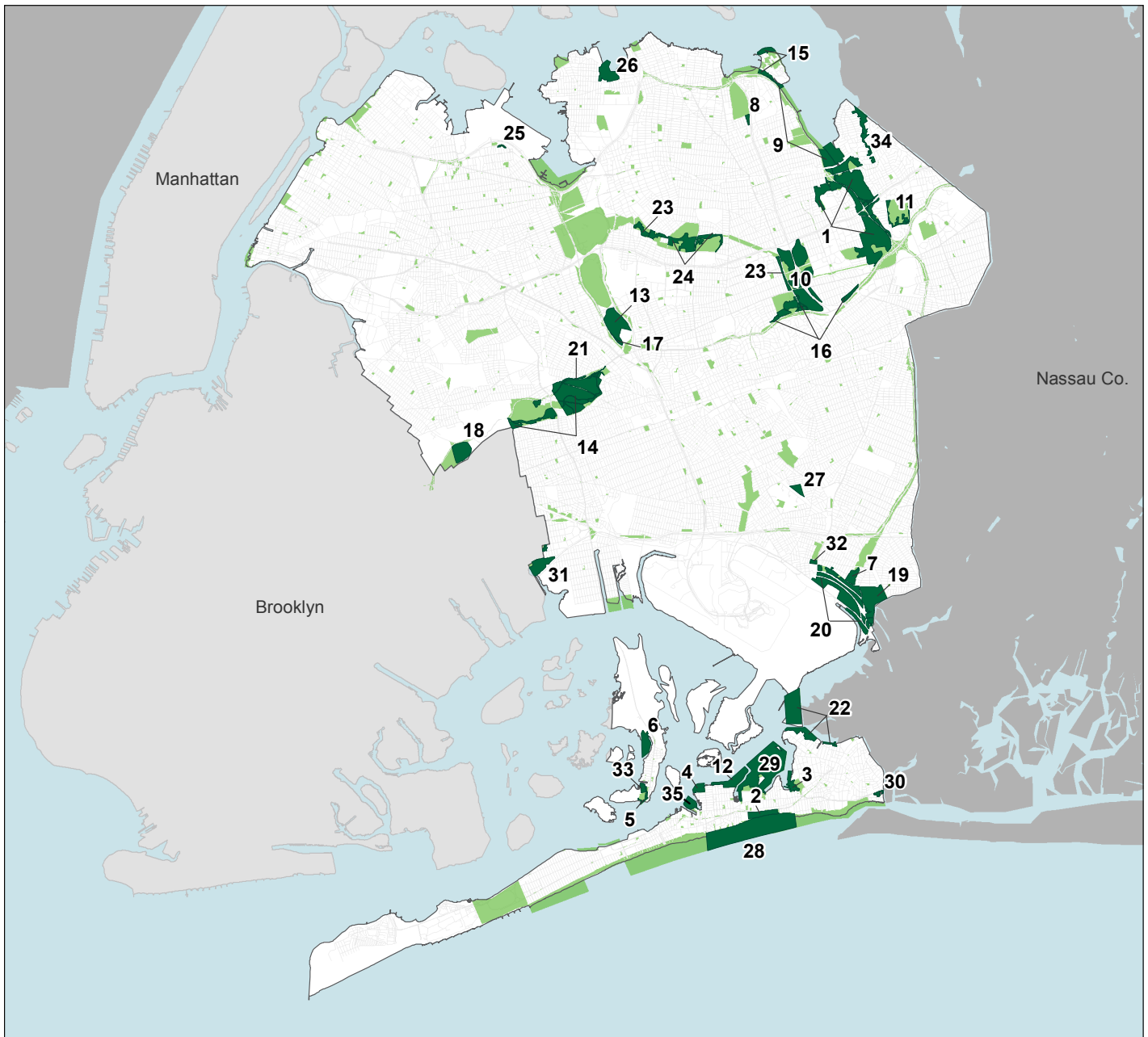
-  Forever Wild Nature Preserves\*
-  Parks Property
-  Water Body



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## Forever Wild Nature Preserves Queens

- |                                   |                                    |                                 |
|-----------------------------------|------------------------------------|---------------------------------|
| 1 Alley Pond Park                 | 13 Flushing Meadows Corona Park    | 25 Overlook Park                |
| 2 Arvene East                     | 14 Forest Park                     | 26 Powell's Cove Park           |
| 3 Bayswater Park                  | 15 Fort Totten Park                | 27 Railroad Park                |
| 4 Brant Point Wildlife Sanctuary  | 16 Grand Central Parkway           | 28 Rockaway Beach and Boardwalk |
| 5 Broad Channel American Park     | 17 Grand Central Parkway Extension | 29 Rockaway Community Park      |
| 6 Broad Channel Wetlands          | 18 Highland Park                   | 30 Seagirt Ave Wetlands         |
| 7 Brookville Park                 | 19 Hook Creek Park                 | 31 Spring Creek Park Addition   |
| 8 Clearview Park                  | 20 Idlewild Park                   | 32 Springfield Park             |
| 9 Cross Island Parkway            | 21 Jackie Robinson Parkway         | 33 Sunset Cove Park             |
| 10 Cunningham Park                | 22 Jamaica Bay Park                | 34 Udall's Park Preserve        |
| 11 Douglaston Park Golf Course    | 23 Kissena Corridor Park           | 35 Vernam Barbadoes Peninsula   |
| 12 Dubos Point Wildlife Sanctuary | 24 Kissena Park                    |                                 |

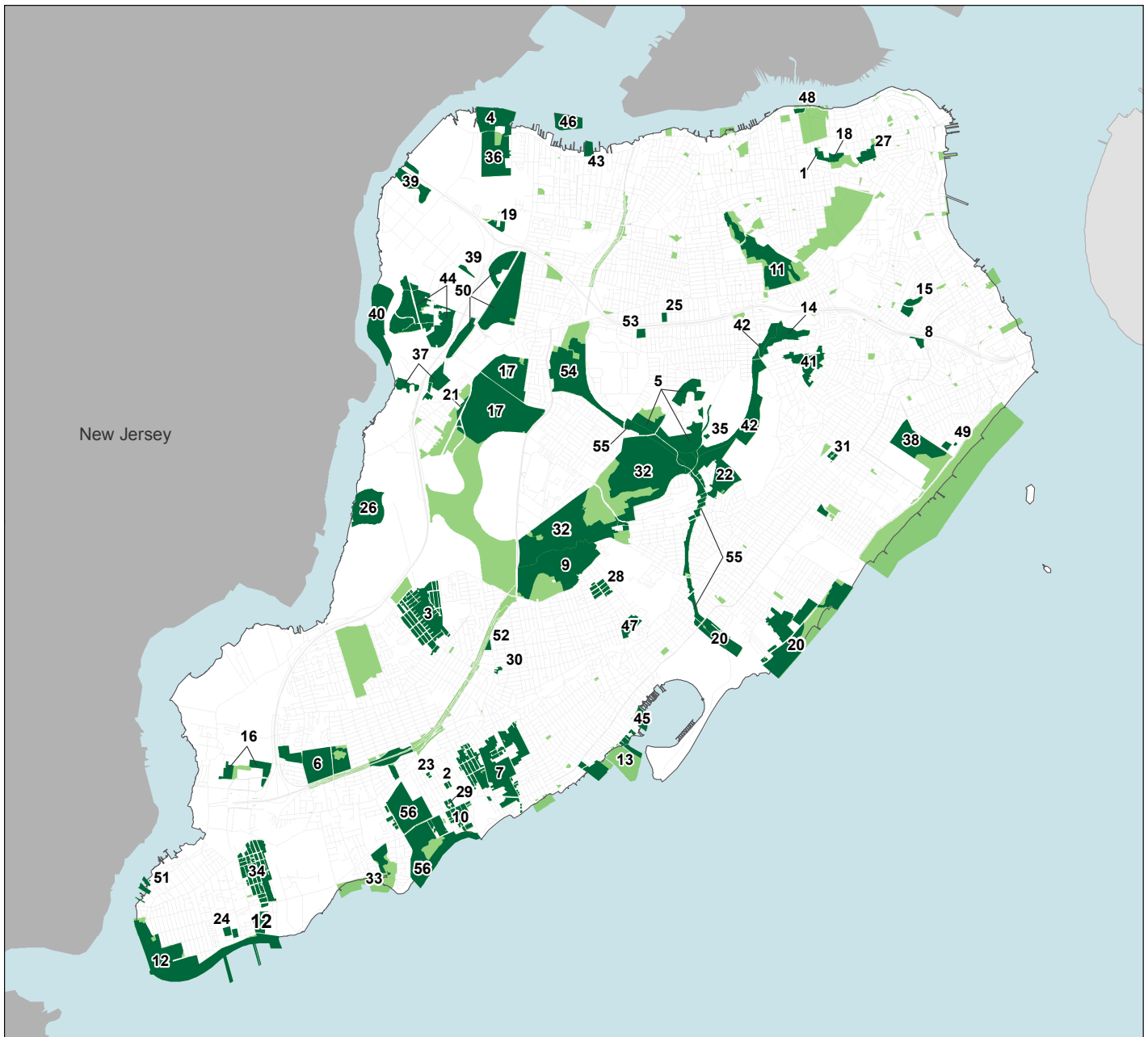
- Forever Wild Nature Preserves\*
- Parks Property
- Water Body

City of New York Parks & Recreation  
 Bill de Blasio, Mayor  
 Mitchell J. Silver, FNCP, Commissioner

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
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## Forever Wild Nature Preserves Staten Island

- |                            |                                  |                                    |
|----------------------------|----------------------------------|------------------------------------|
| 1 Allison Pond Park        | 20 Great Kills Park              | 39 Old Place Creek Park            |
| 2 Arbutus Woods Park       | 21 Greenbelt Native Plant Center | 40 Prall's Island                  |
| 3 Arden Woods              | 22 High Rock Park                | 41 Reed's Basket Willow Swamp Park |
| 4 Arlington Marsh Park     | 23 Huguenot Ponds Park           | 42 Richmond Parkway                |
| 5 Blood Root Valley        | 24 Hybrid Oak Woods Park         | 43 Richmond Terrace Wetlands       |
| 6 Bloomingdale Park        | 25 Ingram Woods                  | 44 Saw Mill Creek Marsh            |
| 7 Blue Heron Park          | 26 Isle of Meadows               | 45 Seaside Wildlife Nature Park    |
| 8 Brady's Pond Park        | 27 Jones Woods                   | 46 Shooter's Island                |
| 9 Brookfield Park          | 28 King Fisher Park              | 47 Siedenburg Park                 |
| 10 Bunker Ponds Park       | 29 Kingdom Pond Park             | 48 Snug Harbor Cultural Center     |
| 11 Clove Lakes Park        | 30 Laredo Avenue Parcel          | 49 South Beach Wetlands            |
| 12 Conference House Park   | 31 Last Chance Pond Park         | 50 Staten Island Industrial Park   |
| 13 Crescent Beach Park     | 32 LaTourette Park & Golf Course | 51 Tottenville Shore Park          |
| 14 Deere Park              | 33 Lemon Creek Park              | 52 Wegener Park                    |
| 15 Eibs Pond Park          | 34 Long Pond Park                | 53 Westwood Park                   |
| 16 Fairview Park           | 35 Manor Park                    | 54 Willowbrook Park                |
| 17 Freshkills Park         | 36 Mariner's Marsh Park          | 55 Willowbrook Parkway             |
| 18 Goodhue Park            | 37 Meredith Woods                | 56 Wolfe's Pond Park               |
| 19 Graniteville Swamp Park | 38 Ocean Breeze Park             |                                    |

-  Forever Wild Nature Preserves\*
-  Parks Property
-  Water Body



# Invasive Plants in New York

## Invasive Species

An invasive species is defined as an organism that is not native to the ecosystem under consideration and whose introduction causes or is likely to cause harm to the environment, economy, or human health<sup>8</sup>. Invasive plants harm the environment by displacing native flora, which in turn, impacts wildlife and other species dependent on the native flora. They impact ecological stability and biodiversity by disrupting such processes as hydrology, nutrient cycling, natural succession, wildfire regime, and soil erosion.

Invasive plants are not unique to NYC, but these species have damaged thousands of acres of NYC Parks' natural lands. The Natural Areas Conservancy's recently published Forest Management Framework estimates it costs between \$6,000 and \$42,000 per acre to restore forests impacted by invasive species. By adhering to the regulations of New York State by prohibiting the planting of invasive plants, the City's economic burden of managing these species will be reduced and the ecological resilience will increase through promoting native biodiversity and functional ecosystems. NYC Parks' Division of Forestry, Horticulture and Natural Resources, along with our dedicated volunteers, makes significant strides in reversing these invasions and restoring our natural areas every year.

## New York State Regulation

In 2012, the Governor of New York State signed into law the Invasive Species Prevention Act, which prohibits or regulates the transport and sale of certain invasive species<sup>9</sup>, including plants. This act requires the New York State Department of Agriculture and Markets and the New York State Department of Environmental Conservation to develop regulations concerning the sale, purchase, possession, introduction, importation, and transport of these species.

The New York State law was passed in consultation with a broad range of stakeholders including ecologists and representatives from the nursery and landscape industry. Under the regulatory framework, a given species is examined through both a scientific and socioeconomic assessment. Criteria including ecological impact and distribution, biological traits, dispersal ability, and difficulty of control are among those characteristics assessed. Cultivars of these species are assessed separately.

Species exceeding certain thresholds as determined by the ranking protocols are placed in one of two categories. Those species not listed in one of the categories below are considered unregulated.

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<sup>8</sup> ECL §9-1703 (10).

<sup>9</sup> Under the law, invasive species is defined as (a) nonnative to the ecosystem under the consideration; and (b) whose introduction causes or is likely to cause economic harm or harm human health, Environmental Conservation Law §9-1709 as amended.



Prohibited – Unlawful to possess with the intent to sell, import, purchase, transport, introduce, or propagate except under a permit for disposal, control, research, or education.

Regulated – Possession, sale, purchase, propagation, and transport are legal, but these species may not be introduced into a free-living state on public land or in natural areas.

This Act also directs the agencies to develop both a permit process and specific lists of species, which are subject to varying degrees of regulation. Towards this end, protocols have been developed to determine if a species' tendency toward invasion warrants regulation.

The list below does not include all invasive or potentially invasive plant species, but it does include those that are currently regulated by the state. These lists are excerpted from the final adopted [New York State regulations](#). Cultivars of these species are regulated in the same manner as the parent species until a separate cultivar assessment is performed. Several of the species below have had updates to their taxonomic name, the full list of alternative scientific names can be found on the webpage linked above.

## What Does This Mean for New York City?

This law is primarily intended to exclude listed plants from commerce, so they are no longer available for purchase or planting. Ultimately, it bars certain plants from use in public landscapes. Residents and agencies are no longer able to specify Prohibited plants in capital project designs, plant them in ornamental beds on private or public property, grow them in greenhouses, or offer them for sale. There is a permit process for disposal, control, and research activities involving some of these species.

# NYS Invasive Plant List

## Floating & Submerged Aquatic

<b>Scientific Name</b>	<b>Common Name</b>	<b>NYS Designation</b>
<i>Cabomba caroliniana</i>	Carolina fanwort	Prohibited
<i>Didymosphenia geminata</i>	Rock spot (diatom)	Prohibited
<i>Egeria densa</i>	Brazilian waterweed	Prohibited
<i>Hydrilla verticillata</i>	Water thyme	Prohibited
<i>Hydrocharis morsus-ranae</i>	Common frogbit	Prohibited
<i>Myriophyllum aquaticum</i>	Parrot-feather	Prohibited
<i>Myriophyllum heterophyllum</i>	Broadleaf water-milfoil	Prohibited
<i>Myriophyllum heterophyllum</i> <i>X M. laxum</i>	Broadleaf water-milfoil hybrid	Prohibited
<i>Myriophyllum x pinnatum</i>	Broadleaf water milfoil hybrid	Prohibited
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	Prohibited
<i>Nymphoides peltata</i>	Yellow floating heart	Prohibited
<i>Nymphoides obtusa</i>	Starry stonewort	Prohibited
<i>Potamogeton crispus</i>	Curly pondweed	Prohibited
<i>Trapa natans</i>	Water chestnut	Prohibited

## Emergent Wetland & Littoral

<b>Scientific Name</b>	<b>Common Name</b>	<b>NYS Designation</b>
<i>Glyceria maxima</i>	Reed mannagrass	Prohibited
<i>Iris pseudacorus</i>	Yellow iris	Prohibited
<i>Ludwigia hexapetala</i> ( <i>L. grandiflora</i> )	Uruguayan primrose-willow	Prohibited
<i>Ludwigia peploides</i>	Floating primrose willow	Prohibited
<i>Lythrum salicaria</i>	Purple loosestrife	Prohibited
<i>Murdannia keisak</i>	Marsh dewflower	Prohibited
<i>Phragmites australis</i>	Common reedgrass	Prohibited
<i>Rhamnus frangula</i>	Glossy buckthorn	Prohibited

## Terrestrial – Herbaceous

<b>Scientific Name</b>	<b>Common Name</b>	<b>NYS Designation</b>
<i>Achyranthes japonica</i>	Japanese chaff flower	Prohibited
<i>Alliaria petiolata</i>	Garlic mustard	Prohibited
<i>Anthriscus sylvestris</i>	Wild chervil	Prohibited
<i>Artemisia vulgaris</i>	Mugwort	Prohibited
<i>Arthraxon hispidus</i>	Small carpetgrass	Prohibited
<i>Brachypodium sylvaticum</i>	Slender false brome	Prohibited
<i>Cardamine impatiens</i>	Narrowleaf bittercress	Prohibited
<i>Centaurea stoebe</i>	Spotted knapweed	Prohibited
<i>Cirsium arvense</i>	Canada thistle	Prohibited

<i>Cynanchum louiseae</i>	Black swallow-wort	Prohibited
<i>Cynanchum rossicum</i>	Pale swallow-wort	Prohibited
<i>Dioscorea polystachya</i>	Chinese yam	Prohibited
<i>Dipsacus laciniatus</i>	Cut-leaved teasel	Prohibited
<i>Euphorbia cyparissias</i>	Cypress spurge	Prohibited
<i>Euphorbia esula</i>	Leafy spurge	Prohibited
<i>Ficaria verna (Ranunculus ficaria)</i>	Lesser celandine	Prohibited
<i>Heracleum mantegazzianum</i>	Giant hogweed	Prohibited
<i>Humulus japonicus</i>	Japanese hop	Prohibited
<i>Imperata cylindrica</i>	Cogon grass	Prohibited
<i>Lepidium latifolium</i>	Broad-leaf peppergrass	Prohibited
<i>Lespedeza cuneata</i>	Chinese lespedeza	Prohibited
<i>Lysimachia vulgaris</i>	Garden loosestrife	Prohibited
<i>Microstegium vimineum</i>	Japanese stiltgrass	Prohibited
<i>Miscanthus sinensis</i>	Chinese silvergrass	Regulated
<i>Oplismenus hirtellus</i>	Wavyleaf basketgrass	Prohibited
<i>Pastinaca sativa</i>	Wild Parsnip	Prohibited
<i>Reynoutria japonica</i>	Japanese knotweed	Prohibited
<i>Reynoutria sachalinensis</i>	Giant knotweed	Prohibited
<i>Reynoutria x bohemica</i>	Bohemian knotweed	Prohibited
<i>Silphium perfoliatum</i>	Cup plant	Prohibited

### **Terrestrial - Vines**

<b>Scientific Name</b>	<b>Common Name</b>	<b>NYS Designation</b>
<i>Ampelopsis brevipedunculata</i>	Porcelain berry	Prohibited
<i>Celastrus orbiculatus</i>	Oriental bittersweet	Prohibited
<i>Clematis terniflora</i>	Japanese virgin's bower	Regulated
<i>Cynanchum louiseae</i>	Black swallow-wort	Prohibited
<i>Cynanchum rossicum</i>	Pale swallow-wort	Prohibited
<i>Lonicera japonica</i>	Japanese honeysuckle	Prohibited
<i>Persicaria perfoliata</i>	Mile-a-minute weed	Prohibited
<i>Pueraria montana</i>	Kudzu	Prohibited

### **Terrestrial – Shrubs & Trees**

<b>Scientific Name</b>	<b>Common Name</b>	<b>NYS Designation</b>
<i>Acer platanoides</i>	Norway maple	Regulated
<i>Acer pseudoplatanus</i>	Sycamore maple	Prohibited
<i>Aralia elata</i>	Japanese angelica tree	Prohibited
<i>Berberis thunbergii</i>	Japanese barberry	Prohibited
<i>Euonymus fortunei</i>	Winter creeper	Regulated
<i>Elaeagnus umbellata</i>	Autumn olive	Prohibited
<i>Euonymus alatus</i>	Winged euonymus	Regulated
<i>Frangula alnus</i>	Glossy buckthorn	Prohibited
<i>Ligustrum obtusifolium</i>	Border privet	Prohibited
<i>Lonicera maackii</i>	Amur honeysuckle	Prohibited

<i>Lonicera morrowii</i>	Morrow's honeysuckle	Prohibited
<i>Lonicera tatarica</i>	Tatarian honeysuckle	Prohibited
<i>Lonicera x bella</i>	Fly honeysuckle	Prohibited
<i>Phellodendron amurense</i>	Amur cork tree	Prohibited
<i>Phyllostachys aurea</i>	Golden bamboo	Prohibited
<i>Phyllostachys aureosulcata</i>	Yellow groove bamboo	Prohibited
<i>Rhamnus cathartica</i>	Common buckthorn	Prohibited
<i>Robinia pseudoacacia</i>	Black locust	Regulated
<i>Rosa multiflora</i>	Multiflora rose	Prohibited
<i>Rubus phoenicolasius</i>	Wineberry	Prohibited
<i>Salix atrocinerea</i>	Rusty willow	Prohibited
<i>Vitex rotundifolia</i>	Beach vitex	Prohibited

## Problematic Species

There are a number of additional species that have demonstrated tendencies to escape from cultivation and are naturalizing throughout parks and natural areas. The species on this list are recognized by professionals and institutions in the tri-state area, and/or nationwide, as potentially damaging to our natural systems. While use of these species is not likely to be regulated by State Law, caution must be exercised when planting these near a Forever Wild or other natural area.

### Graminoids

<i>Carex flacca</i>	Heath sedge
<i>Festuca arundinacea</i>	Tall fescue
<i>Pennisetum alopecuroides</i>	Chinese fountaingrass
<i>Pseudosasa japonica</i>	Arrow bamboo

### Forbs

<i>Arum italicum</i>	Italian arum
<i>Ajuga reptans</i>	Common bugle
<i>Corydalis incisa</i>	Incised fumewort
<i>Hemerocallis fulva</i>	Orange daylily
<i>Nipponanthemum nipponicum</i>	Montauk daisy
<i>Pachysandra terminalis</i>	Japanese pachysandra

### Vines

<i>Campsis radicans</i>	Trumpet vine
<i>Hedera helix</i>	English ivy
<i>Parthenocissus tricuspidata</i>	Boston ivy
<i>Vinca minor</i>	Periwinkle
<i>Wisteria floribunda</i>	Japanese wisteria
<i>Wisteria sinensis</i>	Chinese wisteria

### Shrubs

*Acer campestre*  
*Acer ginnala*  
*Buddleja davidii*  
*Callicarpa dichotoma*  
*Callicarpa japonica*  
*Lonicera fragrantissima*  
*Rosa rugosa*  
*Viburnum dilatatum*  
*Viburnum sieboldii*  
*Vitex agnus-castus*

Hedge maple  
Amur maple  
Butterfly bush  
Purple beautyberry  
Japanese beautyberry  
Winter honeysuckle  
Rugosa rose  
Linden arrowwood  
Siebold Viburnum  
Lilac chastetree

### Trees

*Acer palmatum*  
*Acer tartaricum*  
*Alnus glutinosa*  
*Koelreuteria paniculata*  
*Malus hupehensis*  
*Populus alba*  
*Prunus cerasifera*  
*Prunus padus*  
*Prunus x yedoensis*  
*Pyrus calleryana*  
*Quercus robur*  
*Styphnolobium japonica*  
*Ulmus parvifolia*  
*Ulmus pumila*  
*Zelkova serrata*

Japanese maple  
Tartarian maple  
European alder  
Golden raintree  
Tea crabapple  
European white poplar  
Cherry plum  
European bird cherry  
Yoshino cherry  
Callery pear  
English oak  
Scholar tree  
Chinese elm  
Siberian elm  
Japanese zelkova

# Native Alternatives to Common Invasive Plants

Horticultural value is one of the many reasons why non-native plant species have been imported. These plants usually have some desirable characteristic such as form, fall color, or attractive fruit. As indicated earlier in this guide, some of these species have become invasive. There are, however, native plants which can provide similar horticultural characteristics.

The species listed in this section are alternatives to invasive plant species that are either regulated and prohibited by New York State, or are considered problematic when planted near natural areas. They have been chosen because they can provide a similar form, growth habit, or other desirable horticultural characteristics. A number of alternatives have been provided for each invasive species to best accommodate a variety of growing conditions. This is not an exhaustive list, and a landscape architect or designer may suggest additional species.

## NYS REGULATED AND PROHIBITED SPECIES

SCIENTIFIC NAME	COMMON NAMES	VALUED CHARACTERISTICS
<u>GRAMINOIDS</u>		
<i>Miscanthus sinensis</i> , Chinese silvergrass - Regulated		
<i>Andropogon gerardii</i>	Big bluestem	Similar height and upright form
<i>Andropogon virginicus</i>	Broom sedge bluestem	Upright form, good for screening
<i>Panicum virgatum</i>	Switchgrass	Form and height, interesting flowers
<i>Sorghastrum nutans</i>	Indiangrass	Form and height interesting flowers
<i>Oplismenus hirtellus</i> , Wavyleaf basketgrass - Prohibited		
<i>Dichanthelium clandestinum</i>	Deertongue	Similar leaves, groundcover
<i>Dichanthelium latifolium</i>	Broadleaf rosette grass	Similar leaves, shade tolerant, groundcover
<i>Elymus hystrix</i>	Eastern bottlebrush grass	Shade tolerance
<i>Leersia virginica</i>	Whitegrass	Similar form, shade tolerant, groundcover
<i>Phyllostachys aurea</i> , Golden bamboo - Prohibited		
<i>Andropogon gerardii</i>	Big bluestem	Columnar form, winter color
<i>Salix nigra</i>	Black willow	Leaves, yellow flowers
<i>Schizachyrium scoparium</i>	Little bluestem	Upright form, winter color
<i>Sorghastrum nutans</i>	Indiangrass	Columnar form, winter color
<i>Phyllostachys aureosulcata</i> , Yellow groove bamboo - Prohibited		
<i>Andropogon gerardii</i>	Big bluestem	Columnar form, winter color
<i>Salix nigra</i>	Black willow	Leaves, yellow flowers
<i>Schizachyrium scoparium</i>	Little bluestem	Upright form, winter color
<i>Sorghastrum nutans</i>	Indiangrass	Columnar form, winter color

## FORBS

### *Iris pseudacorus*, Yellow iris - Prohibited

<i>Alisma subcordatum</i>	Water plantain	Gold flowers, varied soil moisture
<i>Caltha palustris</i>	Marsh marigold	Yellow flowers
<i>Chelone glabra</i>	White turtlehead	Lance-like leaves, attractive flowers
<i>Iris versicolor</i>	Harlequin blueflag	Form and moisture tolerance
<i>Lobelia cardinalis</i>	Cardinalflower	Lance-like leaves, attractive flowers

### *Ludwigia grandiflora* ssp. *hexapetala*, Uruguayan primrose willow or *Ludwigia peploides*, Floating primrose willow - Prohibited

<i>Decodon verticillatus</i>	Swamp loosestrife	Habitat and long bloom time
<i>Hibiscus moscheutos</i>	Crimson-eyed rosemallow	Habitat and long bloom time
<i>Ludwigia alternifolia</i>	Seedbox	Leaves and yellow flowers

### *Lythrum salicaria*, Purple loosestrife - Prohibited

<i>Asclepias incarnata</i>	Swamp milkweed	Purple flowers, moisture loving
<i>Eutrochium maculatum</i>	Spotted Joe Pye weed	Pink/purple flowers, moist conditions
<i>Eutrochium purpureum</i>	Purple Joe Pye weed	Purple flowers, moisture loving
<i>Lobelia cardinalis</i>	Cardinalflower	Lance-like leaves, attractive flowers
<i>Lobelia siphilitica</i>	Great blue lobelia	Blue flower of similar form
<i>Penstemon digitalis</i>	White Beardtongue	Flower form, tolerates high moisture

### *Nymphoides peltata*, Yellow floating heart - Prohibited

<i>Nuphar lutea</i>	Yellow pond lily	Yellow flower, similar leaf shape
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## VINES

### *Celastrus orbiculatus*, Oriental bittersweet - Prohibited

<i>Lonicera sempervirens</i>	Trumpet honeysuckle	Attractive flowers and fruit
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### *Clematis terniflora*, Japanese virgin's bower - Regulated

<i>Apios americana</i>	Groundnut	Leaflets, attractive flowers
<i>Clematis virginiana</i>	Virginia virgin's bower	Flowers and fruit
<i>Lonicera sempervirens</i>	Trumpet honeysuckle	Leaf shape, good climber
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Good groundcover, attractive fruit

### *Euonymus fortunei*, Winter creeper - Regulated

<i>Arctostaphylos uva-ursi</i>	Bearberry	Groundcover form, evergreen
<i>Gaultheria procumbens</i>	Eastern teaberry	Groundcover form, evergreen
<i>Rhus aromatica</i>	Fragrant sumac	Attractive fruit, tolerates poor soils

### *Lonicera japonica*, Japanese honeysuckle - Prohibited

<i>Lonicera sempervirens</i>	Trumpet honeysuckle	Form, very adaptable
<i>Vitis aestivalis</i>	Summer grape	Twining form, attractive fruit
<i>Vitis labrusca</i>	Fox grape	Twining form, attractive fruit
<i>Vitis riparia</i>	River grape	Twining form, attractive fruit

## SHRUBS

### *Berberis thunbergii*, Japanese barberry - Prohibited

<i>Cornus racemosa</i>	Gray dogwood	Tolerates partial shade, fall foliage
<i>Gaylussacia baccata</i>	Black huckleberry	Fall foliage color, edible fruit
<i>Ilex verticillata</i>	Winterberry	Fall foliage, shade tolerant
<i>Rosa virginiana</i>	Virginia rose	Large red fruit and neat habit
<i>Viburnum acerifolium</i>	Mapleleaf viburnum	Fall foliage color, shade tolerant

### For green cultivars of *B. thunbergii* - Prohibited

<i>Aronia arbutifolia</i>	Red chokeberry	Green leaves, red fall color
<i>Gaylussacia baccata</i>	Black huckleberry	Green leaves, red/purple fall color
<i>Ilex verticillata</i>	Winterberry	Green leaves, yellow fall color
<i>Rosa virginiana</i>	Virginia rose	Green leaves, yellow to red fall color
<i>Vaccinium angustifolium</i>	Lowbush blueberry	Green leaves, red fall color
<i>Viburnum acerifolium</i>	Mapleleaf viburnum	Green leaves, red/purple fall color

### For yellow or gold cultivars of *B. thunbergii* - Prohibited

<i>Clethra alnifolia</i>	Sweet pepperbush	Yellow fall color
<i>Lindera benzoin</i>	Spicebush	Yellow fall color
<i>Rhododendron periclymenoides</i>	Pinxterbloom azalea	Yellow fall color
<i>Rhus aromatica</i>	Fragrant sumac	Gold to red fall color
<i>Spiraea tomentosa</i>	Steeplebush	Gold fall color

### *Euonymus alatus*, Burning bush - Regulated

<i>Aronia arbutifolia</i>	Red chokeberry	More attractive fruit, shade tolerant
<i>Aronia melanocarpa</i>	Black chokeberry	More attractive fruit, shade tolerant
<i>Rhus aromatica</i>	Fragrant sumac	Red foliage in fall
<i>Rhus copallinum</i>	Winged sumac	Red foliage in fall
<i>Rhus glabra</i>	Smooth sumac	Red foliage in fall
<i>Rhus typhina</i>	Staghorn sumac	Red foliage in fall
<i>Rubus odoratus</i>	Purpleflowering raspberry	Large attractive flowers and fruits
<i>Staphylea trifolia</i>	American bladdernut	Attractive fruit, shade tolerant
<i>Vaccinium corymbosum</i>	Highbush blueberry	Similar size and fall foliage color

### *Elaeagnus umbellata*, Autumn olive - Prohibited

<i>Amelanchier canadensis</i>	Canadian serviceberry	Good for wildlife, varied soil moisture
<i>Baccharis halimifolia</i>	Eastern baccharis	Form and size
<i>Cornus racemosa</i>	Gray dogwood	Good for wildlife, varied soil moisture
<i>Morella pensylvanica</i>	Northern bayberry	Form and size
<i>Rhus typhina</i>	Staghorn sumac	Size, provides good habitat



*Lonicera maackii*, Amur honeysuckle; *Lonicera morrowii*, Morrow's honeysuckle; *Lonicera tatarica*, Tartarian honeysuckle; *Lonicera x bella*, Fly honeysuckle - Prohibited

<i>Cornus racemosa</i>	Gray dogwood	Can tolerate varying conditions
<i>Diervilla lonicera</i>	Northern bush honeysuckle	Smiliar habit, tolerates poor soils
<i>Hamamelis virginiana</i>	Witchhazel	Shade tolerant, good for wildlife
<i>Spiraea alba</i> var. <i>latifolia</i>	Meadowsweet	Good for screening, erosion control
<i>Staphylea trifolia</i>	American bladdernut	Attractive fruit, shade tolerant
<i>Vaccinium corymbosum</i>	Highbush blueberry	Edible fruit, adaptable to many sites
<i>Viburnum dentatum</i>	Arrowwood	Form, attractive fruit

## TREES

*Acer platanoides*, Norway maple - Regulated

<i>Acer rubrum</i>	Red maple	Form and habit
<i>Acer saccharum</i>	Sugar maple	Form, habit, and fall color
<i>Betula lenta</i>	Black birch	Fall color, tolerates shade
<i>Carpinus caroliniana</i>	American hornbeam	Fall color, tolerates shade
<i>Platanus occidentalis</i>	American sycamore	Form and size
<i>Quercus rubra</i>	Northern red oak	Size and form
<i>Tilia americana</i>	American linden	Fall color, tolerates shade

For red cultivars of *A. platanoides* including 'Crimson King' and 'Royal Red' - Regulated

<i>Cornus florida</i>	Flowering dogwood	Fall color
<i>Nyssa sylvatica</i>	Black tupelo	Form and fall color
<i>Prunus virginiana</i>	Chokecherry	Year round color

*Acer pseudoplatanus*, Sycamore maple - Prohibited

<i>Acer negundo</i>	Boxelder	Urban tolerance
<i>Acer saccharinum</i>	Silver maple	Form and urban tolerance

*Phellodendron amurense*, Amur cork tree - Prohibited

<i>Acer rubrum</i>	Red maple	Shade tolerance
<i>Acer saccharum</i>	Sugar maple	Form, tolerances, fall color
<i>Carya ovata</i>	Shagbark hickory	Form, tolerances, fall color
<i>Celtis occidentalis</i>	Common hackberry	Interesting bark, persistent fruit
<i>Prunus serotina</i>	Black cherry	Urban tolerance, attractive fruit
<i>Quercus alba</i>	White oak	Can provide similar canopy cover
<i>Quercus palustris</i>	Pin oak	Habit, drought and urban tolerance
<i>Quercus rubra</i>	Northern red oak	Can provide similar canopy cover

*Robinia pseudoacacia*, Black locust - Regulated

<i>Betula populifolia</i>	Gray birch	Fast growing, drought tolerant
<i>Carya cordiformis</i>	Bitternut hickory	Compound leaves, yellow fall color
<i>Carya glabra</i>	Pignut hickory	Compound leaves, yellow fall color
<i>Prunus serotina</i>	Black cherry	Attractive flowers, drought tolerant
<i>Sassafras albidum</i>	Sassafras	Colonial, fast growing, attractive fruit

**PROBLEMATIC SPECIES**

SCIENTIFIC NAME	COMMON NAMES	VALUED CHARACTERISTICS
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**FORBS***Arum italicum*, Italian arum - Problematic

<i>Arisaema triphyllum</i>	Jack-in-the-Pulpit	Form, habit, fruit color
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*Ajuga reptans*, Common bugle – Problematic

<i>Viola sororia</i>	Common blue violet	Form, habit, flower color
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<i>Lobelia siphilitica</i>	Great blue lobelia	Habit, flower color
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*Corydalis incisa*, Incised fumewort – Problematic

<i>Dicentra cucullaria</i>	Dutchman's breeches	Form, habit, dissected leaves
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<i>Claytonia virginica</i>	Spring beauty	Seasonality
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<i>Anemone quinquefolia</i>	Wood anemone	Habit, seasonality
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*Hemerocallis fulva*, Orange daylily– Problematic

<i>Lilium superbum</i>	Turk's cap lily	Form, flower color, leaves
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*Nipponanthemum nipponicum*, Montauk daisy– Problematic

<i>Helianthus divaricatus</i>	Woodland sunflower	Form and flower type
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<i>Rudbeckia hirta</i>	Black-eyed Susan	Form and flower type
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*Pachysandra terminalis*, Japanese pachysandra – Problematic

<i>Geum canadense</i>	White avens	Evergreen groundcover, flower color
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<i>Eurybia divaricata</i>	White wood aster	Early groundcover, flower color
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**GRAMINOIDS***Carex flacca*, Heath sedge - Problematic

<i>Carex blanda</i>	Eastern woodland sedge	Form, habit, semi-evergreen
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<i>Carex communis</i>	Fiborousroot sedge	Form and habit
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<i>Carex debilis</i>	White edge sedge	Form and habit
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<i>Carex emonsii</i>	Emmon's sedge	Form, habit, salt tolerance
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<i>Carex rosea</i>	Common upland star sedge	Form and habit
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<i>Carex scoparia</i>	Pointed broom sedge	Form and habit
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*Festuca arundinacea*, Tall fescue – Problematic

<i>Calamagrostis canadensis</i>	Canada bluejoint grass	Form and habit
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<i>Panicum virgatum</i>	Switchgrass	Form and habit
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<i>Sorghastrum nutans</i>	Indiangrass	Form and habit
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<i>Tridens flavus</i>	Purpletop grass	Form and habit
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*Pennisetum alopecuroides*, Chinese fountaingrass – Problematic

<i>Andropogon glomeratus</i>	Bushy bluestem	Similar inflorescence
<i>Calamagrostis canadensis</i>	Canada bluejoint grass	Form
<i>Scirpus cyperinus</i>	Woolgrass	Form and habit

*Pseudosasa japonica*, Arrow bamboo – Problematic

<i>Andropogon gerardii</i>	Big bluestem	Columnar form, leaf shape
<i>Andropogon virginicus</i>	Broom sedge bluestem	Low screening effect
<i>Schizachyrium scoparium</i>	Little bluestem	Low screening effect

VINES

*Campsis radicans*, Trumpet vine – Problematic

<i>Lonicera sempervirens</i>	Trumpet honeysuckle	Habit, flower color
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*Hedera helix*, English ivy – Problematic

<i>Parthenocissus quinquefolia</i>	Virginia creeper	Habit, fall color
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*Parthenocissus tricuspidata*, Boston ivy – Problematic

<i>Parthenocissus quinquefolia</i>	Virginia creeper	Habit, fall color
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*Vinca minor*, Periwinkle – Problematic

<i>Parthenocissus quinquefolia</i>	Virginia creeper	Habit, fall color
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*Wisteria floribunda*, Japanese wisteria – Problematic

<i>Apios americana</i>	Groundnut	Habit, flower
<i>Mikania scandens</i>	Climbing hempvine	Habit

*Wisteria sinensis*, Chinese wisteria – Problematic

<i>Apios americana</i>	Groundnut	Habit, flower
<i>Mikania scandens</i>	Climbing hempvine	Habit

SHRUBS

*Buddleja davidii*, Butterfly bush – Problematic

<i>Spiraea tomentosa</i>	Steeplebush	Similar inflorescence form
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*Callicarpa dichotoma*, Purple beautyberry and *Callicarpa japonica*, Japanese beautyberry – Problematic

<i>Aronia arbutifolia</i>	Red chokeberry	White flowers, red fall fruit
<i>Aronia melanocarpa</i>	Black chokeberry	White flowers, black fall fruit
<i>Aronia prunifolia</i>	Purple chokeberry	White flowers, purple fall fruit
<i>Ilex verticillata</i>	Winterberry	Flowers in axils, red fall fruit
<i>Vaccinium pallidum</i>	Lowbush blueberry	White flowers, blue fruit

*Lonicera fragrantissima*, Winter honeysuckle – Problematic

<i>Diervilla lonicera</i>	Northern bush honeysuckle	Habit, flower
<i>Staphylea trifolia</i>	Bladdernut	Spring flower, form
<i>Vaccinium corymbosum</i>	Highbush blueberry	Spring flower, form

*Rosa rugosa*, Rugosa rose – Problematic

<i>Rosa carolina</i>	Carolina rose	Similar habitat and flower
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*Viburnum dilatatum*, Linden arrowwood – Problematic

<i>Ilex verticillata</i>	Winterberry	Fruit color
<i>Rhus glabra</i>	Smooth sumac	Fruit color
<i>Sambucus nigra ssp. canadensis</i>	Common Elderberry	Cyme flower, fruit for birds

*Viburnum sieboldii*, Siebold Viburnum – Problematic

<i>Cornus alternifolia</i>	Alternateleaf dogwood	Similar form and habit
<i>Cornus racemosa</i>	Gray dogwood	Red fruiting stems
<i>Viburnum dentatum</i>	Arrowwood	Similar form and habit

*Vitex agnus-castus*, Lilac chastetree – Problematic

<i>Rhus typhina</i>	Staghorn sumac	Form and flower shape
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TREES

*Acer campestre*, Hedge maple – Problematic

<i>Acer rubrum</i>	Red maple	Fall foliage
<i>Amelancier canadensis</i>	Canadian serviceberry	Habit
<i>Amelancier arborea</i>	Common serviceberry	Habit
<i>Prunus serotina</i>	Black cherry	Size

*Acer ginnala*, Amur maple – Problematic

<i>Acer rubrum</i>	Red maple	Fall foliage
<i>Amelancier arborea</i>	Common serviceberry	Habit
<i>Amelancier canadensis</i>	Canadian serviceberry	Habit

*Acer palmatum*, Japanese maple and *Acer tartaricum*, Tartarian maple – Problematic

<i>Acer rubrum</i>	Red maple	Fall foliage
<i>Acer saccharinum</i>	Silver maple	Leaf shape, habit
<i>Acer saccharum</i>	Sugar maple	Fall foliage

*Alnus glutinosa*, European alder – Problematic

<i>Nyssa sylvatica</i>	Black tupelo	Habit, habitat
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*Koelreuteria paniculata*, Golden raintree – Problematic

<i>Rhus glabra</i>	Smooth sumac	Leaves, flowers
<i>Rhus typhina</i>	Staghorn sumac	Leaves, flowers

*Malus hupehensis*, Tea crabapple – Problematic

<i>Amelancier arborea</i>	Common serviceberry	Size, flowers, fall color
<i>Amelanchier canadensis</i>	Canadian serviceberry	Size, flowers, fall color

*Populus alba*, European white poplar – Problematic

<i>Populus deltoides</i>	Eastern cottonwood	Leaf shape, habit
<i>Populus grandidentata</i>	Bigtooth aspen	Leaf shape, habit
<i>Populus tremuloides</i>	Quaking aspen	Leaf shape, habit

*Prunus cerasifera*, Cherry plum – Problematic

<i>Amelancier canadensis</i>	Canadian serviceberry	Habit, flower color
<i>Amelancier arborea</i>	Common serviceberry	Habit, flower color
<i>Aronia arbutifolia</i>	Red chokeberry	Habit, flower color
<i>Aronia melanocarpa</i>	Black chokeberry	Habit, flower color

*Prunus padus*, European bird cherry – Problematic

<i>Prunus serotina</i>	Black cherry	Habit, flowers, fruits
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*Prunus x yedoensis*, Yoshino cherry – Problematic

<i>Amelancier canadensis</i>	Canadian serviceberry	Habit, flower
<i>Amelancier arborea</i>	Common serviceberry	Habit, flower
<i>Prunus serotina</i>	Black cherry	Habit, fruits

*Pyrus calleryana*, Callery pear – Problematic

<i>Prunus serotina</i>	Black cherry	Habit, flowers, fruits
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*Quercus robur*, English oak – Problematic

<i>Quercus alba</i>	White oak	Form, habit, leaf shape
<i>Quercus bicolor</i>	Swamp white oak	Form, habit, leaf shape

*Styphnolobium japonica*, Scholar tree – Problematic

<i>Carya cordiformis</i>	Bitternut hickory	Compound leaves, yellow fall color
<i>Carya glabra</i>	Pignut hickory	Compound leaves, yellow fall color
<i>Sassafras albidum</i>	Sassafras	Colonial, fast growing, attractive fruit

*Ulmus parvifolia*, Chinese elm – Problematic

<i>Platanus occidentalis</i>	American sycamore	Similar bark
<i>Ulmus americana</i>	American elm	Form, leaf shape

*Ulmus pumila*, Siberian elm – Problematic

<i>Ulmus americana</i>	American elm	Form, leaf shape
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*Zelkova serrata*, Japanese zelkova – Problematic

<i>Celtis occidentalis</i>	Hackberry	Leaf shape, fall color
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# Stormwater Tolerant Plants

New York City has embarked on a major program to use green infrastructure (GI) to reduce combined sewer overflows and the flow of pollutants in stormwater into the city’s waterbodies. Green infrastructure, including Green Roofs, Right-of-Way (ROW) Rain Gardens, Stormwater Greenstreets, Rain Gardens, and Retention Ponds, captures stormwater at its source, before it enters the city’s stormwater systems. The design and construction of planted GI projects vary greatly by their location and by the goals for stormwater capture. For example, ROW Rain Gardens need to be designed with plants that can survive periodic inundation, drought, and harsh roadside conditions. This guide has been developed to help users identify plant species that are best suited for each specific location in the urban landscape. Within the [Native Species Description](#) section, species have been designated according to the specific stormwater management systems they are best suited for. Many of the stormwater species that are in the following lists are known to perform well based on field testing and practical experience. Many of these species are also proven performers in a variety of different soil conditions. However, in the interest of promoting innovation and diversity, some species have been included in this list based on the premise that their naturally occurring habitats and conditions suggest that they would make them excellent candidates for GI (i.e., species that are found in habitats that are seasonally flooded). These “suggested” species are annotated with an asterisk (\*). In the lists below, the zones are defined by the following categories: a) inundation, b) slopes, and c) upland. The inundation zone is the plant zone at the bottom of the soil depression of a rain garden. After a rain storm, this zone is inundated with water. Inundation typically lasts for more than 24 hours. This zone is best planted with species that can tolerate both occasional inundation and dry periods. The slopes zone occurs along the slope of a rain garden, which is best planted with species that can survive in a variety of soil moisture conditions. The upland zone typically occurs above the slope and around the rain garden.

## RIGHT-OF-WAY RAIN GARDENS AND STORMWATER GREENSTREETS

SCIENTIFIC NAME	COMMON NAME	ZONE
<u>Trees</u>		
<i>Acer rubrum</i>	Red maple	Inundation, Slopes
<i>Acer saccharinum</i> *	Silver maple	Inundation
<i>Amelanchier arborea</i>	Common serviceberry	Inundation, Slopes
<i>Amelanchier canadensis</i>	Canadian serviceberry	Inundation
<i>Amelanchier laevis</i>	Allegheny serviceberry	Inundation
<i>Betula populifolia</i>	Gray birch	Slopes, Upland
<i>Carpinus caroliniana</i>	American hornbeam	Inundation
<i>Celtis occidentalis</i>	Common hackberry	Slopes, Upland
<i>Crataegus crus-galli</i>	Cockspur hawthorn	Upland
<i>Ilex opaca</i>	American holly	Slopes
<i>Juniperus virginiana</i>	Eastern red cedar	Upland
<i>Liquidambar styraciflua</i>	Sweetgum	Inundation, Slopes, Upland

<i>Nyssa sylvatica</i>	Black tupelo	Inundation
<i>Platanus occidentalis</i>	American sycamore	Inundation
<i>Quercus bicolor</i>	Swamp white oak	Slopes, Upland
<i>Quercus palustris</i>	Pin oak	Inundation, Slopes, Upland
<i>Quercus rubra</i>	Northern red oak	Upland
<i>Salix nigra</i>	Black willow	Inundation, Slopes
<i>Ulmus americana</i>	American elm	Slopes

### Shrubs

<i>Alnus serrulata*</i>	Smooth alder	Inundation
<i>Aronia arbutifolia</i>	Red chokeberry	Inundation, Slopes
<i>Aronia melanocarpa</i>	Black chokeberry	Inundation, Slopes
<i>Aronia prunifolia*</i>	Purple chokeberry	Inundation, Slopes
<i>Baccharis halimifolia</i>	Eastern baccharis	Inundation, Slopes
<i>Cephalanthus occidentalis</i>	Buttonbush	Inundation, Slopes
<i>Clethra alnifolia</i>	Sweet pepperbush	Inundation, Slopes
<i>Cornus amomum</i>	Silky dogwood	Inundation, Slopes
<i>Cornus racemosa</i>	Gray dogwood	Inundation, Slopes
<i>Cornus sericea</i>	Redosier dogwood	Inundation, Slopes
<i>Hamamelis virginiana</i>	Witchhazel	Slopes
<i>Ilex glabra</i>	Inkberry	Inundation, Slopes, Upland
<i>Ilex verticillata</i>	Winterberry	Inundation
<i>Iva frutescens*</i>	Marsh elder	Inundation
<i>Lindera benzoin</i>	Spicebush	Inundation, Slopes, Upland
<i>Lyonia mariana</i>	Piedmont staggerbush	Slopes
<i>Lyonia lingustrina*</i>	Maleberry	Slopes
<i>Morella pensylvanica</i>	Northern bayberry	Inundation, Slopes, Upland
<i>Prunus maritima*</i>	Beach plum	Upland
<i>Rhus aromatica</i>	Fragrant sumac	Slopes, Upland
<i>Rosa carolina</i>	Carolina rose	Upland
<i>Rosa palustris</i>	Swamp rose	Inundation
<i>Rosa virginiana</i>	Virginia rose	Inundation, Slopes
<i>Rubus hispidus*</i>	Swamp dewberry	Slopes, Upland
<i>Sambucus nigra ssp. canadensis</i>	Common elderberry	Inundation, Slopes, Upland
<i>Spiraea alba var. latifolia</i>	Meadowsweet	Inundation, Slopes
<i>Spiraea tomentosa</i>	Steeplebush	Slopes
<i>Vaccinium corymbosum*</i>	Highbush blueberry	Inundation, Slopes, Upland
<i>Viburnum dentatum</i>	Arrowwood	Slopes
<i>Viburnum lentago</i>	Nannyberry	Slopes
<i>Viburnum prunifolium</i>	Black haw	Inundation, Slopes, Upland

### Forbs

<i>Ageratina altissima*</i>	Common white snakeroot	Slopes, Upland
<i>Apocynum cannabinum</i>	Indian hemp	Upland
<i>Alisma subcordatum*</i>	Southern water plantain	Inundation, Slopes

<i>Asclepias incarnata</i>	Swamp milkweed	Inundation
<i>Asclepias tuberosa</i>	Butterflyweed	Slopes
<i>Boehmeria cylindrica</i> *	False nettle	Inundation, Slopes
<i>Cryptotaenia canadensis</i> *	Honewort	Upland
<i>Desmodium canadense</i> *	Showy tick trefoil	Slopes, Upland
<i>Eupatorium perfoliatum</i> *	Common Boneset	Inundation, Slopes
<i>Euthamia graminifolia</i> *	Common flat-topped goldenrod	Slopes, Upland
<i>Eutrochium dubium</i> *	Coastal plain Joe Pye weed	Inundation
<i>Eutrochium fistulosum</i> *	Hollow Joe Pye weed	Slopes
<i>Eutrochium purpureum</i> *	Purple Joe Pye weed	Slopes, Upland
<i>Helenium autumnale</i> *	Common sneezeweed	Inundation, Slopes
<i>Hibiscus moscheutos</i>	Crimson-eyed rosemallow	Inundation
<i>Iris versicolor</i>	Harlequin blueflag	Inundation
<i>Ludwigia alternifolia</i> *	Alternate-leaved seed-box	Inundation, Slopes
<i>Lycopus americanus</i> *	American bugleweed	Inundation, Slopes
<i>Oenothera biennis</i>	Common evening primrose	Upland
<i>Osmorhiza longistylis</i> *	Long-styled sweet cicely	Upland
<i>Penstemon digitalis</i>	White Beardtongue	Inundation, Slopes
<i>Persicaria virginiana</i> *	Jumpseed	Slopes, Upland
<i>Phryma leptostachya</i> *	Lopseed	Upland
<i>Pycnanthemum virginianum</i> *	Virginia mountain mint	Slopes, Upland
<i>Rudbeckia hirta</i>	Black-eyed Susan	Upland
<i>Saururus cernuus</i> *	Lizard's tail	Inundation, Slopes
<i>Sisyrinchium angustifolium</i>	Narrow-leaved blue-eyed grass	Inundation, Slopes, Upland
<i>Solidago canadensis</i>	Canadian goldenrod	Slopes
<i>Solidago juncea</i> *	Early goldenrod	Upland
<i>Solidago rugosa</i>	Wrinkleleaf goldenrod	Slopes
<i>Symphyotrichum ericoides</i> *	Heath aster	Slopes, Upland
<i>Symphyotrichum novae-angliae</i>	New England aster	Slopes
<i>Symphyotrichum novi-belgii</i>	New York aster	Inundation
<i>Symphyotrichum pilosum</i> *	Frostweed aster	Upland
<i>Teucrium canadense</i> *	American germander	Slopes, Upland
<i>Verbena hastata</i>	Swamp verbena	Slopes
<i>Vernonia noveboracensis</i>	New York ironweed	Inundation

#### Graminoids

<i>Andropogon gerardii</i>	Big bluestem	Slopes, Upland
<i>Andropogon glomeratus</i>	Bushy bluestem	Inundation
<i>Andropogon virginicus</i>	Broom sedge bluestem	Slopes, Upland
<i>Calamagrostis canadensis</i> *	Canada bluejoint grass	Inundation
<i>Carex annectens</i> *	Yellow-fruited sedge	Slopes, Upland
<i>Carex bromoides</i> *	Brome-like sedge	Inundation
<i>Carex comosa</i> *	Bristly sedge	Inundation, Slopes
<i>Carex crinita</i> *	Common fringed sedge	Inundation
<i>Carex folliculata</i> *	Long sedge	Inundation, Slopes



<i>Carex intumescens</i> *	Bladder sedge	Slopes
<i>Carex lupulina</i> *	Hope sedge	Inundation
<i>Carex lurida</i> *	Sallow sedge	Inundation, Slopes
<i>Carex pennsylvanica</i>	Pennsylvania sedge	Upland
<i>Carex rosea</i> *	Common upland star sedge	Slopes, Upland
<i>Carex scoparia</i> *	Pointed broom sedge	Inundation, Slopes, Upland
<i>Carex silicea</i> *	Beach sedge	Upland
<i>Carex stipata</i> *	Awl-fruited sedge	Inundation, Slopes
<i>Carex stricta</i> *	Tussock sedge	Inundation
<i>Carex vulpinoidea</i> *	Fox sedge	Inundation, Slopes
<i>Cinna arundinacea</i> *	Stout woodreed	Inundation, Slopes
<i>Dichanthelium clandestinum</i> *	Deer-tongue rosette grass	Slopes
<i>Elymus virginicus</i> *	Virginia wild rye	Inundation, Slopes
<i>Glyceria canadensis</i> *	Rattlesnake manna grass	Slopes
<i>Glyceria obtusa</i> *	Coastal manna grass	Inundation
<i>Juncus canadensis</i> *	Canada rush	Inundation, Slopes
<i>Juncus effusus</i>	Common rush	Inundation
<i>Juncus gerardii</i> *	Black grass	Inundation
<i>Juncus tenuis</i> *	Path rush	Slopes, Upland
<i>Panicum virgatum</i>	Switchgrass	Inundation
<i>Schizachyrium scoparium</i>	Little bluestem	Upland
<i>Sorghastrum nutans</i>	Indiangrass	Upland

#### Ferns

<i>Polystichum acrostichoides</i> *	Christmas fern	Slopes
<i>Thelypteris noveboracensis</i> *	New York fern	Slopes
<i>Thelypteris palustris</i> *	Marsh fern	Inundation

In addition to the species list above, the following ecosystems can be referenced for selecting other species that may be suited for green infrastructure projects.

- *Floodplain Forest, Bottomland Forest, Red-Maple Hardwood Swamp, and Wetland Communities* can provide a range of suitable species for green infrastructure projects, though attention to the salt and drought tolerance of individual species should be considered. These species are best used in the lowest areas of rain gardens that receive the most runoff and would be periodically inundated. Many of these companion plants offer quality resources for pollinator habitat throughout every season.
- *Maritime communities* are often a good starting point for urban green infrastructure sites, due to their tolerance of salts, high sand content in soils and tolerance of periodic inundation. Take note that green infrastructure sites can also be dry during non-rainy seasons, so plants selected should also have a range of drought tolerance.

- *Shrub Swamp and Successional Shrubland* offer a range of species that tolerate seasonal fluctuations in soil moisture, making them ideally suited to rain gardens and other stormwater capture installations. Successional Shrubland species often exhibit greater urban tolerance, and so are especially suited to road runoff projects.
- Grasses and herbaceous species from *Mixed Oak-Hickory Forest* and *Maritime Grasslands* communities work well on green roofs, due to their tolerance of winds, shallow soils and drought.

# Species Least Preferred by Deer

The native ecosystems and horticultural plantings in the boroughs of the Bronx and Staten Island are experiencing extreme pressure by white-tailed deer (*Odocoileus virginianus*). White-tailed deer have no natural predators in New York City and hunting is prohibited. Each year the population of deer increases and therefore so does the population's demand for food. There are no plant species that are truly deer resistant; white-tailed deer are herbivores and if they are hungry, they eat any plant material – even tree bark. Deer have developed preferences for the native species they have co-evolved with, but there are a plethora of species that are considered to be less desirable, or that they may ignore in their grazing patterns. For these species, browsing by deer may only occur as fresh new growth appears on plants and are then ignored for the rest of the season. Planting with a high diversity of species minimizes the impact that any deer browse has in overall garden design. Aesthetically pleasing native species, which minimize horticultural inputs and maximize the benefits to pollinators and the greater ecosystem, can be used in highly designed landscapes or to offer a more natural look to a landscape. Many ferns and grasses are rarely damaged by deer and strong scented perennials are often avoided. Additional measures, such as deer fencing, may be essential to ensure complete protection of the landscape.

## FERNS

Ferns are a group of plants that are generally not preferred by deer. Fiddleheads, the new spring growth of ferns, may experience some browse. The most likely plant specimens to be affected are those along high traffic deer paths. This unfortunate collateral damage can be mitigated by planting strategically if traffic patterns are observed.

<i>Adiantum pedatum</i>	Northern maidenhair fern
<i>Athyrium angustum</i>	Lady fern
<i>Dennstaedtia punctilobula</i>	Hayscented fern
<i>Dryopteris marginalis</i>	Marginal woodfern
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Osmundastrum cinnamomea</i>	Cinnamon fern
<i>Osmunda claytoniana</i>	Interrupted fern
<i>Osmunda regalis</i>	Royal fern
<i>Polystichum acrostichoides</i>	Christmas fern
<i>Thelypteris noveboracensis</i>	New York fern
<i>Thelypteris palustris</i>	Marsh fern

## GRAMINOIDS

Grasses make up less than 10% of a deer's annual diet. Mature grass specimens are less palatable to deer because of the coarse structure of the cellulose in the blades, which is harder to digest. Grasses are also lower in nutrients when compared to forbs or woody plants. Fresh new growth on clumping grasses may experience some browse and cool season species like wild rye (*Elymus* spp.) are foraged. Many species within the sedge family (*Cyperaceae*) are ignored by deer; listed below are a few popular choices.

<i>Agrostis perennans</i>	Autumn bentgrass
<i>Andropogon gerardii</i>	Big bluestem
<i>Andropogon virginicus</i>	Broom sedge bluestem
<i>Calamagrostis canadensis</i>	Canada bluejoint grass
<i>Carex crinita</i>	Common fringed sedge
<i>Carex pensylvanica</i>	Pennsylvania sedge
<i>Carex stricta</i>	Tussock sedge
<i>Carex vulpinoidea</i>	Fox sedge
<i>Elymus canadensis</i>	Canada wild rye
<i>Elymus virginicus</i>	Virginia wild rye
<i>Eragrostis spectabilis</i>	Purple lovegrass
<i>Juncus effusus</i>	Common rush
<i>Panicum virgatum</i>	Switchgrass
<i>Schizachyrium scoparium</i>	Little bluestem
<i>Scirpus cyperinus</i>	Woolgrass
<i>Sorghastrum nutans</i>	Indiangrass
<i>Tridens flavus</i>	Purpletop

## FORBS

Forbs are among the most highly desired group of plants for deer. Forbs are highly nutritious, easily digestible, and available throughout each growing season. Forb species most likely to be avoided are those that are strongly scented, like a species from the mint family (*Lamiaceae*), or those with a coarse texture.

<i>Actaea racemosa</i>	Black cohosh
<i>Actaea pachypoda</i>	Doll's eyes
<i>Ageratina altissima</i>	Common white snakeroot
<i>Allium tricoccum</i>	Wild leek
<i>Aquilegia canadensis</i>	Wild columbine
<i>Arisaema triphyllum</i>	Jack-in-the-Pulpit
<i>Asarum canadense</i>	Wild ginger
<i>Asclepias incarnata</i>	Swamp milkweed
<i>Asclepias syriaca</i>	Common milkweed
<i>Asclepias tuberosa</i>	Butterflyweed
<i>Baptisia tinctoria</i>	Yellow wild indigo
<i>Caltha palustris</i>	Marsh marigold
<i>Caulophyllum thalictroides</i>	Blue cohosh

*Chelone glabra*  
*Cirsium discolor*  
*Dicentra cucullaria*  
*Eutrochium dubium*  
*Eutrochium fistulosum*  
*Eutrochium maculatum*  
*Eupatorium perfoliatum*  
*Eutrochium purpureum*  
*Eurybia divaricata*  
*Geranium maculatum*  
*Geum canadense*  
*Helenium autumnale*  
*Helianthus decapetalus*  
*Helianthus divaricatus*  
*Hibiscus moscheutos*  
*Iris versicolor*  
*Lobelia cardinalis*  
*Lobelia siphilitica*  
*Mimulus ringens*  
*Monarda fistulosa*  
*Monarda punctata*  
*Oenothera biennis*  
*Oenothera fruticosa*  
*Opuntia humifusa*  
*Packera aurea*  
*Penstemon digitalis*  
*Podophyllum peltatum*  
*Potentilla canadensis*  
*Potentilla fruticosa*  
*Potentilla simplex*  
*Pycnanthemum incanum*  
*Pycnanthemum tenuifolium*  
*Pycnanthemum virginianum*  
*Rudbeckia hirta*  
*Sanguinaria canadensis*  
*Sisyrinchium angustifolium*  
*Solidago caesia*  
*Solidago canadensis*  
*Solidago rugosa*  
*Solidago sempervirens*  
*Symphyotrichum ericoides*  
*Symphyotrichum laeve*  
*Symphyotrichum novae-angliae*  
*Symphyotrichum novi-belgii*  
*Symplocarpus foetidus*

White turtlehead  
Field thistle  
Dutchman's breeches  
Coastal plain Joe Pye weed  
Trumpetweed  
Spotted Joe Pye weed  
Common boneset  
Purple Joe Pye weed  
White wood aster  
Wild geranium  
White avens  
Common sneezeweed  
Thin-leaved sunflower  
Woodland sunflower  
Crimson-eyed rosemallow  
Harlequin blueflag  
Cardinalflower  
Great blue lobelia  
Allegheny monkeyflower  
Wild bergamot  
Spotted beebalm  
Common evening primrose  
Narrowleaf evening primrose  
Eastern prickly pear  
Golden ragwort  
White Beardtongue  
Mayapple  
Dwarf cinquefoil  
Shrubby cinquefoil  
Common cinquefoil  
Hoary mountain mint  
Narrowleaf mountain mint  
Virginia mountain mint  
Black-eyed Susan  
Bloodroot  
Narrow-leaved blue-eyed grass  
Wreath goldenrod  
Canada goldenrod  
Wrinkleleaf goldenrod  
Seaside goldenrod  
White heath aster  
Smooth blue aster  
New England aster  
New York aster  
Skunk cabbage

<i>Teucrium canadense</i>	American germander
<i>Thalictrum dioicum</i>	Early meadow-rue
<i>Thalictrum pubescens</i>	Tall meadow-rue
<i>Tradescantia virginiana</i>	Spiderwort
<i>Verbena hastata</i>	Swamp verbena
<i>Verbena urticifolia</i>	White vervain
<i>Vernonia noveboracensis</i>	New York ironweed

## WOODY SPECIES

Woody species are a favorite among deer for their fruits and seeds as well as the tender leaves and twigs of new growth. Shrubs and trees are targeted every season as a potential food source. Some species are avoided because of their toxicity level or coarse texture. Forest regeneration is increasingly threatened by the presence of deer and their preference for tree nuts, fruits, and tender saplings.

### Vines

<i>Clematis virginiana</i>	Virginia virgin's bower
<i>Lonicera sempervirens</i>	Trumpet honeysuckle
<i>Parthenocissus quinquefolia</i>	Virginia creeper

### Shrubs

<i>Amelanchier canadensis</i>	Canadian serviceberry
<i>Aronia arbutifolia</i>	Red chokeberry
<i>Aronia melanocarpa</i>	Black chokeberry
<i>Cephalanthus occidentalis</i>	Buttonbush
<i>Clethra alnifolia</i>	Sweet pepperbush
<i>Cornus amomum</i>	Silky dogwood
<i>Cornus racemosa</i>	Gray dogwood
<i>Cornus sericea</i>	Redosier dogwood
<i>Corylus americana</i>	American hazelnut
<i>Crataegus crus-galli</i>	Cockspur hawthorn
<i>Eubotrys racemosa</i>	Swamp doghobble
<i>Hamamelis virginiana</i>	Witchhazel
<i>Ilex glabra</i>	Inkberry
<i>Ilex verticillata</i>	Winterberry
<i>Juniperus virginiana</i>	Eastern red cedar
<i>Kalmia angustifolia</i>	Sheep laurel
<i>Kalmia latifolia</i>	Mountain laurel
<i>Lindera benzoin</i>	Spicebush
<i>Morella pensylvanica</i>	Northern bayberry
<i>Oenothera fruticose</i>	Narrowleaf evening primrose
<i>Prunus maritima</i>	Beach plum
<i>Rhododendron periclymenoides</i>	Pinxterbloom azalea
<i>Rhododendron viscosum</i>	Swamp azalea
<i>Rhus aromatica</i>	Fragrant sumac

<i>Rubus allegheniensis</i>	Common blackberry
<i>Rubus occidentalis</i>	Black raspberry
<i>Rubus odoratus</i>	Purpleflowering raspberry
<i>Rubus pensilvanicus</i>	Pennsylvania blackberry
<i>Sambucus nigra</i> ssp. <i>canadensis</i>	Common elderberry
<i>Spiraea alba</i> var. <i>latifolia</i>	Meadowsweet
<i>Spiraea tomentosa</i>	Steeplebush
<i>Vaccinium corymbosum</i>	Highbush blueberry
<i>Vaccinium pallidum</i>	Blue Ridge blueberry
<i>Viburnum acerifolium</i>	Mapleleaf viburnum
<i>Viburnum dentatum</i>	Arrowwood
<i>Viburnum prunifolium</i>	Black haw

### Trees

<i>Acer negundo</i>	Boxelder
<i>Acer rubrum</i>	Red maple
<i>Acer saccharinum</i>	Silver maple
<i>Acer saccharum</i>	Sugar maple
<i>Amelanchier arborea</i>	Common serviceberry
<i>Betula alleghaniensis</i>	Yellow birch
<i>Betula lenta</i>	Black birch
<i>Betula populifolia</i>	Gray birch
<i>Cornus florida</i>	Flowering dogwood
<i>Fagus grandifolia</i>	American beech
<i>Ilex opaca</i>	American holly
<i>Liquidambar styraciflua</i>	Sweetgum
<i>Nyssa sylvatica</i>	Black tupelo
<i>Pinus rigida</i>	Pitch pine
<i>Pinus strobus</i>	White pine
<i>Platanus occidentalis</i>	American sycamore
<i>Prunus serotina</i>	Black cherry
<i>Sassafras albidum</i>	Sassafras
<i>Ulmus americana</i>	Marsh fern

### **GROUNDCOVERS**

Bare soil is often colonized by non-native plant species. Planting native groundcovers can help discourage invasive species from taking hold in the landscape. Leaf texture and prickles on stems can deter deer from browsing the groundcover.

<i>Anemone quinquefolia</i>	Wood anemone
<i>Arctostaphylos uva-ursi</i>	Bearberry
<i>Asarum canadense</i>	Wild ginger
<i>Carex pensylvanica</i>	Pennsylvania sedge
<i>Fragaria virginiana</i>	Wild strawberry
<i>Mitchella repens</i>	Partridgeberry

*Potentilla canadensis*

*Potentilla simplex*

*Rubus flagellaris*

*Rubus hispidus*

*Vaccinium angustifolium*

Dwarf cinquefoil

Common cinquefoil

Northern dewberry

Swamp dewberry

Lowbush blueberry



# Planting in the Built Environment

Plant communities found in the built environment include unique assemblages of species that tolerate disturbance and stress. Soil composition, microclimate, and resource availability are highly dependent on the land use history of a project site and impact plant survivability. Just as the constructed parts of our city vary from developed highrises to abandoned lots, the plant species thriving in our city vary by niche, from streetscapes and plazas to open lots and privately owned parks or yards.

The palette of our natural plant communities can be used to help select the right plant species for the right urban place. Understanding the conditions that these plants naturally occur in reveals the compatibility of a particular species to a project's site conditions.

Often when planting in built environments, plant size selection and seed mixes can be critical to the success of the design. Consultation with experts can help ensure the proper quantities, spacing, and methods for installation are applied when using native plant species. For example, the diversity of a native seed mix and the proper ratio of grasses and forbs differs by habitat and site conditions.

## ALTERED LANDSCAPES

Highly altered landscapes, which are common to urban areas, can be some of the most challenging sites to select plants for. Some of the many issues that need to be considered when planting in urban sites are pollution, compaction, poor soils (i.e., nutrient deficient, contaminated, high pH), runoff, drought, and maintenance. These conditions may lead people to fall back on a palette of mostly non-native plants because of the belief that “nothing else will grow there.” In reality, many native pioneer species already successfully inhabit and thrive in abandoned lots and rail lines, cracks in the concrete, and roadsides.

- Many of the species found in *Successional Communities - Old Fields and Urban Lots*, are the ideal species to consider for challenging sites. Designers should consider these species for a variety of urban parks.
- Poor soils with low nutrients, or other soils with high content of magnesium or other metals, where remediation or restoration is not possible or desired, can prove challenging for landscaping. Plants from the *Serpentine Barrens* community may be appropriate, given their adaptations to thrive in low-nutrient soils close to bedrock. Their native soil conditions are only found on Staten Island; however, these plants can be considered for use in other disturbed soils.
- For new parks or sites with minimal canopy, *Successional Mixed Hardwoods* provide a range of species that are hardy, establish quickly, and tolerate a range of soils. Utilizing a successional planting approach to reach a desired climax habitat is necessary for the long term sustainability of a healthy ecosystem.

## CLOSED CANOPY PROJECTS

Many established parks have a dense tree canopy that can limit the amount of sun and nutrients that reach the forest floor. In projects that aim to expand understory species diversity, there are a range of opportunities to use native plants. Knowing the habitat your project is situated within can help guide you to species that are suitable for the existing conditions.

- In openings in the established canopy that are being expanded into planting beds, the species of the *Oak Opening* community would be appropriate and most beneficial to the fauna traveling in between the fragmented forest.
- In areas within the established canopy, the species of *Rich Mesophytic Forest*, *Oak-Tulip Tree Forest* and *Chestnut Oak Forest* are well suited to the topsoil specified in Parks' projects and provide a wide range of understory and herbaceous diversity.
- For areas with greater salt exposure, species from *Maritime Oak Forest* and *Successional Maritime Oak Forest* may be well suited, though this community is dominated by a shrub layer and offers few herbaceous selections.
- For greater drought tolerance, species listed in the *Mixed Oak-Hickory Forest* ecosystem have adapted well to shallow soils, low water, and exposure.
- Creating vegetative buffers near or around natural areas can help protect and enhance high quality habitat, while helping to facilitate pollinator connectivity. The *Natural Area* typologies section, which include coastal, bluebelt and brackish habitats, as well as woodland and open edges, recommends species appropriate for vegetative buffers.

## INVADED WETLANDS

Many of New York City's wetlands were once fill or dump sites that drastically changed the soil makeup, permeability, and the natural plant communities that existed there. Aggressive invasive species such as common reed (*Phragmites australis*) often invade these degraded marsh systems. Restoration in these invaded wetlands is a long-term process and requires a multi-pronged approach that includes using appropriate native plant species. These species should be gradually introduced during the treatment process to help colonize newly disturbed land, remediate the soil, and compete with the aggressive invasive species. In coastal areas in particular, sea level rise might increase tidal inundation and help suppress *Phragmites*. In these locations planting salt marsh species might aid in the invasive plant control.

### Recommended Plants for Freshwater Systems:

#### Graminoids

*Calamagrostis canadensis*

*Carex atlantica*

*Carex crinita*

*Carex stricta*

*Juncus canadensis*

*Juncus effusus*

Canada bluejoint grass

Prickly bog sedge

Common fringed sedge

Tussock sedge

Canadian rush

Common rush

*Panicum virgatum*  
*Scirpus cyperinus*  
*Schoenoplectus tabernaemontani*

Switchgrass  
Woolgrass  
Softstem bulrush

Forbs

*Decodon verticillatus*  
*Hibiscus moscheutos*  
*Solidago rugosa*

Swamp loosestrife  
Crimsoneyed rosemallow  
Wrinkleleaf goldenrod

Vines

*Parthenocissus quinquefolia*  
*Vitis labrusca*  
*Vitis riparia*

Virginia creeper  
Fox grape  
River grape

Shrubs

*Baccharis halimifolia*  
*Cephalanthus occidentalis*  
*Iva frutescens*  
*Rubus pensilvanicus*  
*Sambucus nigra* ssp. *canadensis*

Eastern baccharis  
Buttonbush  
Marsh elder  
Pennsylvania blackberry  
Common elderberry

Recommended Plants for Saltwater Systems:

Graminoids

*Bolboschoenus robustus*  
*Calamagrostis canadensis*  
*Distichlis spicata*  
*Juncus gerardii*  
*Panicum virgatum*  
*Schoenoplectus pungens*  
*Spartina alterniflora*  
*Spartina cynosuroides*  
*Spartina patens*

Seacoast bulrush  
Canada bluejoint grass  
Saltgrass  
Saltmeadow rush  
Switchgrass  
Common threesquare  
Smooth cordgrass  
Big cordgrass  
Saltmeadow cordgrass

Forbs

*Hibiscus moscheutos*  
*Pluchea odorata*  
*Solidago sempervirens*  
*Symphotrichum tenuifolium*  
*Teucrium canadense*

Crimsoneyed rosemallow  
Saltmarsh fleabane  
Seaside goldenrod  
Perennial saltmarsh aster  
American germander

Shrubs

*Baccharis halimifolia*  
*Iva frutescens*

Eastern baccharis  
Marsh elder

## STREET TREES AND TREE BEDS

Street trees are a part of the fabric of New York City. A tree-lined street improves the overall health of a neighborhood and helps to beautify a concrete landscape. The conditions that street trees grow in are harsh and although the design of tree beds are improving, there are critical characteristics that a species must have to survive. Trees on the roadside have to endure salt spray and drought conditions. The open surface area on the ground that is permeable to water is limited in a tree bed, but with the addition of planted herbs and grasses, soil and moisture are retained in the pit. Even trees that have a larger surface area of lawn, in a median or a greenstreet, still benefit from being drought tolerant considering the limited amount of natural soil area and infiltration in these sites.

### Recommended Plants:

#### Ferns

*Polystichum acrostichoides*

Christmas fern

#### Graminoids

*Avenella flexuosa*

Wavy hairgrass

*Carex blanda*

Eastern woodland sedge

*Carex communis*

Fibrousroot sedge

*Carex pensylvanica*

Pennsylvania sedge

*Carex rosea*

Rosy sedge

*Carex swanii*

Swan's sedge

*Danthonia compressa*

Flattened oatgrass

*Danthonia spicata*

Poverty oatgrass

*Elymus hystrix*

Eastern bottlebrush grass

*Eragrostis spectabilis*

Purple lovegrass

*Juncus tenuis*

Path rush

#### Forbs

*Anaphalis margaritacea*

Pearly everlasting

*Antennaria plataginifolia*

Woman's tobacco

*Aquilegia canadensis*

Wild columbine

*Eurybia divaricata*

White wood aster

*Fragaria virginiana*

Wild strawberry

*Geum canadense*

White avens

*Ionactis linariifolius*

Flaxleaf whitetop aster

*Oenothera biennis*

Common evening primrose

*Potentilla canadensis*

Dwarf cinquefoil

*Potentilla simplex*

Common cinquefoil

*Pycnanthemum tenuifolium*

Narrowlead mountain mint

*Solidago bicolor*

White goldenrod

*Solidago caesia*

Wreath goldenrod

*Solidago nemoralis*

Gray goldenrod

*Symphotrichum pilosum*  
*Viola sororia*

Hairy white oldfield aster  
Common blue violet

### Shrubs

*Aronia arbutifolia*  
*Gaylussacia baccata*  
*Ilex glabra*  
*Prunus maritima*  
*Rosa carolina*  
*Rosa virginiana*  
*Sambucus nigra* ssp. *canadensis*  
*Vaccinium angustifolium*

Red chokeberry  
Black huckleberry  
Inkberry  
Beach plum  
Carolina rose  
Virginia rose  
Common elderberry  
Lowbush blueberry

### Trees

*Amelanchier arborea*  
*Betula populifolia*  
*Carpinus caroliniana*  
*Celtis occidentalis*  
*Nyssa sylvatica*  
*Populus deltoides*  
*Prunus serotina*  
*Quercus alba*  
*Quercus bicolor*  
*Quercus coccinea*  
*Quercus palustris*  
*Quercus montana*  
*Quercus rubra*  
*Quercus stellata*  
*Quercus velutina*

Common serviceberry  
Gray birch  
American hornbeam  
Common hackberry  
Black tupelo  
Cottonwood  
Black cherry  
White oak  
Swamp white oak  
Scarlet oak  
Pin oak  
Chestnut oak  
Northern red oak  
Post oak  
Black oak

## **TREE LAWNS**

Tree lawns can be considered high maintenance due to the amount of fertilizer, water, and mowing required to keep them aesthetically pleasing. Incorporating perennial layers in a naturalistic design helps cut costs, diminish the mowing schedule, and improve the habitat value of the landscape.

### Recommended Plants:

#### Ferns

*Dennstaedtia punctilobula*  
*Polystichum acrostichoides*  
*Pteridium aquilinum*

Hayscented fern  
Christmas fern  
Brackenfern

### Graminoids

*Andropogon virginicus*  
*Avenella flexuosa*  
*Carex blanda*  
*Carex pensylvanica*  
*Elymus canadensis*  
*Elymus hystrix*  
*Eragrostis spectabilis*  
*Juncus tenuis*  
*Panicum virgatum*  
*Schizachyrium scoparium*  
*Sorghastrum nutans*  
*Spartina pectinata*  
*Tridens flavus*

Broom sedge bluestem  
Wavy hairgrass  
Eastern woodland sedge  
Pennsylvania sedge  
Canada wild rye  
Eastern bottlebrush grass  
Purple lovegrass  
Path rush  
Switchgrass  
Little bluestem  
Indiangrass  
Prairie cordgrass  
Purpletop

### Forbs

*Ageratina altissima*  
*Asclepias incarnata*  
*Asclepias tuberosa*  
*Baptisia tinctoria*  
*Chrysopsis mariana*  
*Euthamia caroliniana*  
*Euthamia graminifolia*  
*Eutrochium purpureum*  
*Helianthus divaricatus*  
*Ionactis linariifolius*  
*Lobelia siphilitica*  
*Monarda fistulosa*  
*Oenothera biennis*  
*Pityopsis falcata*  
*Potentilla canadensis*  
*Potentilla simplex*  
*Solidago canadensis*  
*Solidago nemoralis*  
*Solidago odora*  
*Solidago rugosa*  
*Solidago sempervirens*  
*Solidago speciosa*  
*Symphotrichum ericoides*

Common white snakeroot  
Swamp milkweed  
Butterflyweed  
Yellow wild indigo  
Maryland goldenaster  
Slender goldentop  
Common flat-topped goldenrod  
Purple Joe Pye weed  
Woodland sunflower  
Flaxleaf whitetop aster  
Great blue lobelia  
Wild bergamot  
Common evening primrose  
Sickleleaf silkgrass  
Dwarf cinquefoil  
Common cinquefoil  
Canada goldenrod  
Gray goldenrod  
Sweet goldenrod  
Wrinkleleaf goldenrod  
Seaside goldenrod  
Showy goldenrod  
White heath aster

### Vines

*Clematis virginiana*  
*Lonicera sempervirens*  
*Parthenocissus quinquefolia*

Virginia virgin's bower  
Trumpet honeysuckle  
Virginia creeper

## Shrubs

*Alnus serrulata*  
*Arctostaphylos uva-ursi*  
*Aronia arbutifolia*  
*Comptonia peregrina*  
*Cornus racemosa*  
*Corylus americana*  
*Gaultheria procumbens*  
*Gaylussacia baccata*  
*Ilex glabra*  
*Kalmia angustifolia*  
*Kalmia latifolia*  
*Lyonia mariana*  
*Morella pensylvanica*  
*Prunus maritima*  
*Quercus ilicifolia*  
*Quercus prinoides*  
*Rhus aromatica*  
*Rhus copallinum*  
*Rhus glabra*  
*Rhus typhina*  
*Rosa carolina*  
*Rosa virginiana*  
*Rubus allegheniensis*  
*Rubus occidentalis*  
*Sambucus nigra ssp. canadensis*  
*Spiraea alba var. latifolia*  
*Spiraea tomentosa*  
*Vaccinium angustifolium*  
*Vaccinium pallidum*  
*Viburnum dentatum*  
*Viburnum lentago*

Smooth alder  
Bearberry  
Red chokeberry  
Sweetfern  
Gray dogwood  
American hazelnut  
Eastern teaberry  
Black huckleberry  
Inkberry  
Sheep laurel  
Mountain laurel  
Piedmont staggerbush  
Northern bayberry  
Beach plum  
Bear oak  
Dwarf chinquapin oak  
Fragrant sumac  
Winged sumac  
Smooth sumac  
Staghorn sumac  
Carolina rose  
Virginia rose  
Common blackberry  
Black raspberry  
Common elderberry  
Meadowsweet  
Steeplebush  
Lowbush blueberry  
Blue Ridge blueberry  
Arrowwood  
Nannyberry

## Trees

*Acer rubrum*  
*Acer saccharum*  
*Amelanchier arborea*  
*Betula populifolia*  
*Carpinus caroliniana*  
*Carya glabra*  
*Carya ovata*  
*Carya tomentosa*  
*Celtis occidentalis*  
*Juniperus virginiana*  
*Liquidambar styraciflua*

Red maple  
Sugar maple  
Common serviceberry  
Gray birch  
American hornbeam  
Pignut hickory  
Shagbark hickory  
Mockernut hickory  
Common hackberry  
Eastern red cedar  
Sweetgum

*Liriodendron tulipifera*

*Nyssa sylvatica*

*Ostrya virginiana*

*Pinus rigida*

*Platanus occidentalis*

*Populus deltoides*

*Populus grandidentata*

*Populus tremuloides*

*Prunus serotina*

*Quercus alba*

*Quercus bicolor*

*Quercus coccinea*

*Quercus palustris*

*Quercus montana*

*Quercus rubra*

*Quercus velutina*

Tulip poplar

Black tupelo

Hop hornbeam

Pitch pine

American sycamore

Cottonwood

Bigtooth aspen

Quaking aspen

Black cherry

White oak

Swamp white oak

Scarlet oak

Pin oak

Chestnut oak

Northern red oak

Black oak



# Native Plant Descriptions

Successful plant communities are usually composed of a combination of various species in unique proportions. These proportions characterize the various ecological communities described in the guide. For instance, trees are largely absent from coastal dune communities, but form the dominant vegetation in a bottomland forest. Effective planting strategies can be based on supplementing existing vegetation to replicate the plant communities of naturally occurring ecosystems, depending on careful analysis of soils, light conditions, and hydrologic resources. It is important to consider the mature size of selected plants to best determine the appropriate spacing.

The following section contains descriptions of common native species representative of the existing metropolitan flora all of which are suitable for planting in the five boroughs. All of the species in the various lists above can be found in this section. We have compiled research on many important ecological characteristics for the species in this guide. However, information on every characteristic is not available for every species and we note this where applicable. If you are looking for more information about a specific species, please consult staff at the Greenbelt Native Plant Center, your local Landscape Architects, or one of the online resources in the resources section of this guide. In addition to species that are not native to this area, a number of species in the flora of New York City are considered [rare, threatened, or endangered](#). It is not recommended that these species are planted, as a particular protocol needs to be followed to properly reintroduce them to the landscape; these species have not been included in this guide.

Species names that have been denoted with a (†) are **not** available from the Greenbelt Native Plant Center. Unavailability is attributed to one of three factors: germplasm is not available in the seed bank, naturally occurring populations are not large enough for collection, or populations in the metropolitan region (defined as a 50-100-mile radius around the city) have not been located.

Some of the information presented is technical in nature, so to assist the reader the following tables are provided to clarify the data.

## Wetland Classification:

Indicator Code	Indicator Status	Designation	Comment
OBL	Obligate Wetland	Hydrophyte	Almost always occurs in wetlands
FACW	Facultative Wetland	Hydrophyte	Usually occurs in wetlands, but may occur in non-wetlands
FAC	Facultative	Hydrophyte	Occurs in wetlands and non-wetlands
FACU	Facultative Upland	Nonhydrophyte	Usually occurs in non-wetlands, but may occur in wetlands
UPL	Obligate Upland	Nonhydrophyte	Almost never occurs in wetlands
NC	Not classified		Species has no wetland classification

Salt Tolerance:

<b>Designation</b>	<b>Definition</b>
High tolerance	The plant naturally exists in habitats in close proximity to salt water and can tolerate being flooded with salt water either daily or occasionally.
Tolerant	Can be exposed to salt spray or occasional salt water inundation. Good candidates for street edges, where winter road salting occurs.
Moderately tolerant	Can be exposed to salt spray, but may be intolerant to salt water inundation or coastal flooding.
Low tolerance	Minimum exposure to salt spray and intolerant to salt water inundation.
Intolerant	Not tolerant to salt water inundation or salt spray.
Insufficient research to determine	Current research is not available or has not been found to determine its tolerance to salt. Consider the plants' natural habitat and its likely association with salt as a potential indicator.

Soil pH

<b>pH</b>	<b>Soil Category</b>
<3.0	Severely acidic
3.01 – 4.0	Strongly acidic
4.01 – 5.5	Moderately acidic
5.51 to 6.8	Slightly acidic (optimum for many plants)
6.81 – 7.2	Near neutral (optimum for many plants)
7.21 – 7.5	Slightly alkaline (optimum for many plants)
7.51 – 8.5	Moderately alkaline
>8.5	Strongly alkaline

Shade Tolerance:

<b>Designation</b>	<b>Definition</b>
Shade tolerant	Can handle fully shaded habitats, ranging from 2-25% sun exposure
Tolerant of partial shade	Can handle limited shade, 25-50% sun needed
Intolerant	Needs full sun, 50-100% sun exposure

Stormwater Tolerance:

<b>Designation</b>	<b>Definition</b>
Green Roof	Plantings on built roof structures, including both 'extensive green roofs' (plantings with shallow depth) and 'intensive green roofs' (greater soil depth that can sustain deep rooted herbaceous plants as well as trees and shrubs).
ROW Rain Garden (*)	Relatively small rectangular planted areas in the street landscape that capture stormwater from the street, usually in the sidewalk where street tree beds are also located.
Stormwater Greenstreet (*)	Similar to the ROW Rain Garden but larger and more varied in shape. These larger planting beds along the roadway or in the street median allow for more options of species that can withstand varied inundation levels and may be larger in habit.
Retention Pond	A pond that captures and holds stormwater, typically with a planted edge.
Rain Garden	Planted area in parklands or yards that capture stormwater and vary in shape and size.
Unsuitable	This species is not appropriate for stormwater systems.
Insufficient research to determine	Current research is not available or has not been found to determine its tolerance to salt. Consider the plants' natural habitat and if necessary, its likely association with salt as a potential indicator.

\* Within the Native Plant Descriptions section, species that have been field tested for these systems have not been distinguished from those that have been suggested based on their naturally occurring habitats and the conditions they tolerate. Please refer to the lists in the Stormwater Management section above for specific species that have been field tested for ROW Rain Gardens and Stormwater Greenstreets.

## Ferns

Ferns add texture to the ground layer. There are species adapted to sun or shade, wet or dry conditions, and various heights and degrees of vigor. Most ferns in New York State are protected under the heading “**exploitably vulnerable**”. These plants may not be rare, but are susceptible to overharvesting if not protected. Being informed on where your plants have come from can help in the protection of the natural populations of these important species.



Top: *Dennstaedtia punctilobula* (Hayscented fern), Bottom left: *Athyrium angustum* (Lady fern), Bottom right: *Osmunda claytoniana* (Interrupted fern)

**Adiantum pedatum**

**Wetland Indicator:** FACU

**Form/Color:** Slow grower to 3', erect stipe that forks in two, leaf blades lax and arching, spores in July-August.

**Habitat:** Rich, moist woods, stream banks.

**Hydrology:** Tolerant of mild drought.

**Horticultural Value:** Fine fronds, semi-erect shape.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Northern maidenhair fern**

**Soil:** pH 4.6-6.6

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Adapted to coarse and medium soils, low tolerance of soil compaction.

**Ecosystem Services:** Fronds occasionally eaten by rabbits, secondary species for increased diversity.

**Compatibility:** Slow seed spread rate, low seedling vigor, moderate vegetative spread rate.

**Other:**

**Asplenium platyneuron**

**Wetland Indicator:** FACU

**Form/Color:** Semievergreen perennial, grows to 1.5', spores June-October.

**Habitat:** Moist, open, rocky woods, rich, circumneutral soil.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Fronds have herringbone shape and are light and dark green.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Ebony spleenwort**

**Soil:** pH 4.5-7.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Will colonize masonry in urban sites, found in disturbed sites.

**Ecosystem Services:** Minor species for increased diversity.

**Compatibility:** Does not compete well with aggressive plants.

**Other:** Exploitably vulnerable in New York state.

**Athyrium angustum**

**Northern lady fern**

**Wetland Indicator:** NC

**Form/Color:** Perennial, fine-textured, upright-growing fern, moderate grower to 2-3', spores June-September.

**Habitat:** Moist woods, shady edges.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Fine-textured fronds, upright growing.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 3.9-7.0

**Stormwater Tolerance:** Retention ponds, Upland

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Ecosystem Services:** Leaves eaten by rabbits and deer, secondary species for increased diversity.

**Compatibility:** Moderate rate of vegetative spread.

**Other:**

**Dennstaedtia punctilobula**

**Hayscented fern**

**Wetland Indicator:** UPL

**Form/Color:** Perennial, groundcover, single, very fine fronds in large colonies, 1-3.5', spreads primarily by rhizomes, spores June-August.

**Habitat:** Open woods, gaps, edges.

**Hydrology:** Tolerant of drought when well established.

**Horticultural Value:** Single, very fine fronds, that will colonize.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-5.0

**Stormwater Tolerance:** Upland

**Urban Tolerance:** Somewhat tolerant of urban pollution, performs well in the right of way.

**Ecosystem Services:** Habitat for birds and bees.

**Compatibility:** May crowd out less aggressive plants. Can form colonies.

**Other:** Often colonizes old burn sites.

**Deparia acrostichoides†**

**Silver false spleenwort**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, fronds to 4' long, long-tapering fronds, forms in asymmetric clumps.

**Habitat:** Damp woods, slopes.

**Hydrology:** Needs consistently moist soil.

**Horticultural Value:** Silvery fronds.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.1-7.5

**Stormwater Tolerance:** Retention pond, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:** Exploitably vulnerable in New York state, parts of plant poisonous if ingested.

**Dryopteris carthusiana†**

**Spinulose woodfern**

**Wetland Indicator:** FACW

**Form/Color:** Evergreen, delicate, lacy-cut, lance-shaped fronds, grow in colonies, 1-2.5', spores May-August.

**Habitat:** Rich, moist to wet woods, circumneutral soil.

**Hydrology:** Needs consistently moist soil.

**Horticultural Value:** Delicate, lacy-cut, lance-shaped fronds.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.0-6.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Secondary or minor species for increased diversity.

**Compatibility:**

**Other:**

**Dryopteris cristata**

**Crested woodfern**

**Wetland Indicator:** OBL

**Soil:** pH 3.5-6.5

**Form/Color:** Evergreen, blue-green narrow lance-shaped fronds, 1.5-2.5', spores July-August.

**Stormwater Tolerance:** Retention ponds, Rain garden, Inundation, Slopes

**Urban Tolerance:** Adapted to medium and fine soils, high tolerance of soil compaction.

**Habitat:** Wet woods, swamp forests, bogs in acid soil.

**Ecosystem Services:** Secondary or minor species for increased diversity.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Blue-green narrow lance-shaped fronds.

**Compatibility:** Slow seed spread rate, moderate vegetative spread rate.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Shade tolerant

**Dryopteris marginalis**

**Marginal woodfern**

**Wetland Indicator:** FACU

**Soil:** pH up to 7.5

**Form/Color:** Evergreen, fine, clustered fronds, vase-like, 1.5-2', spores June-October.

**Stormwater Tolerance:** Retentions ponds, Rain garden, Slopes

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Habitat:** Woods, shaded, rocky slopes.

**Ecosystem Services:** Secondary species for increased diversity, provides habitat and shelter for birds and bees.

**Hydrology:** Tolerant of drought, prefers moist soil.

**Horticultural Value:** Fine, clustered fronds.

**Compatibility:**

**Salt Tolerance:** Low tolerance

**Other:** Exploitably vulnerable in New York state.

**Shade Tolerance:** Shade tolerant



## *Onoclea sensibilis*

## Sensitive fern

**Wetland Indicator:** FACW

**Soil:** pH 4.5-7.5

**Form/Color:** Perennial, sturdy, coarse, with broad triangular fronds, grows moderately to 1-2', spores mature in October.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Habitat:** Open swamp forests, freshwater tidal and nontidal marshes, undisturbed ditches.

**Urban Tolerance:** Somewhat tolerant of urban pollution, performs well in the right of way.

**Hydrology:** Tolerant of flooding. Intolerant of drought.

**Ecosystem Services:** Wildlife value low, but eaten by some insects.

**Horticultural Value:** Broad triangular fronds with persistent fertile frond throughout.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Moderately tolerant

**Other:** Eaten by some insects, toxic to horses, tolerant of disturbed sites with wet soil. Used for swamp forest restoration.

**Shade Tolerance:** Shade tolerant

## *Osmunda claytoniana*

## Interrupted fern

**Wetland Indicator:** FAC

**Soil:** pH 4.0-6.0

**Form/Color:** Perennial, large, coarse, pinnate fronds, 2-4', spores May-June.

**Stormwater Tolerance:** Retention Pond, Rain garden, Slopes, Upland

**Habitat:** Moist to somewhat dry open woods, rocky or sandy acid soils.

**Urban Tolerance:** Adapted to medium and fine soils, moderate tolerance of soil compaction.

**Hydrology:** Low tolerance to drought, prefers moist soil.

**Ecosystem Services:** Used infrequently by wildlife.

**Horticultural Value:** Large pinnate fronds. Fertile pinnae interrupting the fronds.

**Compatibility:** Slow seed spread rate, rapid vegetative spread rate.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Osmunda regalis**

**Royal fern**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, fine, bipinnate fronds, to 2-6', spores May-June.

**Habitat:** Stream banks, freshwater tidal marshes, swamp forests, vernal pond margins, shallow water to wet soil, prefers acid soil. Moist forest openings.

**Hydrology:** Tolerant of flooding and drought.

**Horticultural Value:** Fine fronds. Delicate soft green fertile fronds.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-7.0

**Stormwater Tolerance:** Retention Pond, Rain garden, Inundation

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, moderate tolerance of soil compaction.

**Ecosystem Services:**

**Compatibility:** Rapid vegetative spread.

**Other:** Slow grower. Used for restoration of swamp forest habitats, woodland pond edges, stream banks.

**Osmundastrum cinnamomea**

**Cinnamon fern**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, large, pinnate fronds growing in circular clusters, to 2.5-3', spores mature May-June.

**Habitat:** Swamp forests, shady stream banks, moist to wet forest soil.

**Hydrology:** Tolerant of flooding and drought.

**Horticultural Value:** Large, pinnate fronds in circular clusters. Cinnamon colored fronds.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-7.0

**Stormwater Tolerance:** Retention Pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Adapted to medium and fine soils, moderate tolerance of soil compaction.

**Ecosystem Services:** Eaten by rabbits, but overall wildlife value low.

**Compatibility:** Moderate seed spread rate.

**Other:** Slow grower. Used for restoration of swamp forest habitats, woodland pond edges.

**Polypodium virginianum**

**Rock cap fern**

**Wetland Indicator:** NC

**Form/Color:** Evergreen, grows to 1' or less, spores June-October.

**Habitat:** Moist to dry shade, in thin, circumneutral soils on glacial erratics in rocky woods, sometimes on banks, tree bases, old logs, limestone cliffs.

**Hydrology:** Tolerant of drought and moist, well-drained soil.

**Horticultural Value:** Persistent leathery fronds that will colonize on rocky areas.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH < 6.8

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Tolerant of soil compaction.

**Ecosystem Services:**

**Compatibility:**

**Other:** Exploitably vulnerable in New York state. Secondary species for increased diversity.

**Polystichum acrostichoides**

**Christmas fern**

**Wetland Indicator:** FACU

**Form/Color:** Evergreen groundcover, fronds clustered, tall, bushy, 1-3', spores May-October.

**Habitat:** Rich soil of wooded slopes with minimal deep leaf litter, rocky slopes.

**Hydrology:** Tolerant of drought, prefers well-drained soil.

**Horticultural Value:** Clustered persistent fronds that thrive on slopes.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** Slopes

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Ecosystem Services:**

**Compatibility:**

**Other:** Minor species for increased diversity.

**Pteridium aquilinum**

**Brackenfern**

**Wetland Indicator:** FACU

**Soil:** pH 4.5-7.0

**Form/Color** Perennial, coarse fern to approximately 4', produces new fronds all season, blade is broadly triangular and divided into 3 nearly equal parts with leathery or papery texture.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Dry, sterile soils, open, shrubby successional habitats or open woodlands in sterile, sandy soils.

**Urban Tolerance:** Adapted to coarse and medium soils, no tolerance of soil compaction.

**Hydrology:** Moderate tolerance to drought.

**Ecosystem Services:** Eaten by insect larvae, especially moths.

**Horticultural Value:** Large, triangular shaped leaves.

**Compatibility:** Can be aggressive, particularly in burned-over sites, allelopathic.

**Salt Tolerance:** Moderately tolerant

**Other:** Somewhat weedy, infected by fungi, leaf spot, root/stem rot, no edible parts, toxic to animals.

**Shade Tolerance:** Tolerant of partial shade

**Thelypteris noveboracensis**

**New York fern**

**Wetland Indicator:** FAC

**Soil:** pH 4.9-7.0

**Form/Color** Perennial, very fine, pinnate fronds, 1-2', spores June-October.

**Stormwater Tolerance:** Slopes

**Habitat:** Open, moist to wet woodlands.

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Hydrology:** Tolerant of drought.

**Ecosystem Services:** Wildlife value low.

**Horticultural Value:** Very fine, pinnate fronds.

**Compatibility:** Aggressively clonal with rapid colonization rate.

**Salt Tolerance:** Intolerant

**Other:** Used for erosion control.

**Shade Tolerance:** Tolerant of partial shade

***Thelypteris palustris***

**Marsh fern**

**Wetland Indicator:** FACW

**Soil:** pH 5.0-7.0

**Form/Color:** Perennial, slender fronds, moderate grower to 18", spore production June-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Habitat:** Freshwater tidal and nontidal marshes, wet meadows, rich muddy, subacid soil, stream banks

**Ecosystem Services:** Wildlife value low, good cover for smaller insects.

**Hydrology:** Does not prefer standing water, but grows well by water.

**Horticultural Value:** Lance-oblong fronds, slightly narrower at base, turns harvest gold in the fall.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Moderately tolerant

**Other:** Exploitably vulnerable in New York state.

**Shade Tolerance:** Tolerant of partial shade

***Woodwardia areolata***

**Netted chainfern**

**Wetland Indicator:** OBL

**Soil:** pH 5.6-6.5

**Form/Color:** Perennial, lobed fronds, slow grower to 2', spore production July-September.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Habitat:** Swamp forests, in acid soil, acid bogs, shrub swamps.

**Ecosystem Services:** Wildlife value low.

**Hydrology:** Requires consistently moist soil.

**Horticultural Value:** Leaves begin pink and mature to forest-green.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Intolerant

**Other:** Transplants well. Exploitably vulnerable in New York state.

**Shade Tolerance:** Shade tolerant

**Woodwardia virginica**

**Virginia chainfern**

**Wetland Indicator:** OBL

**Soil:** Not Available.

**Form/Color:** Perennial, grows to 2-3', leathery fronds with deeply cut leaflets on purple brown stalks.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Habitat:** Swamps, still water, stream, river banks, near lakes or ponds.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Moist or wet soil conditions.

**Ecosystem Services:**

**Horticultural Value:**

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

## Graminoids

Grasses, sedges, and rushes provide abundant food sources to animal, bird, and insect species. They offer year-round structure to a landscape design and are adapted to a wide variety of light, soil, and hydrologic conditions. According to the *State of New York City's Plants*, the grasses (Poaceae) and sedges (Cyperaceae) represent two of the three most species rich families in our flora with 200 or more species each.



Clockwise from top left: *Carex debilis* (White-edged sedge), *Schizachyrium scoparium* (Little bluestem), *Panicum amarum* var *amarum* and *Cenchrus tribuloides* (Dune panic grass and Dune sandspur), and *Carex comosa* (Bristly sedge)

**Agrostis hyemalis**

**Winter bentgrass**

**Wetland Indicator:** FAC

**Form/Color** Perennial, grows to 2.5', tufted with mature purple flowers in Mar-Jun.

**Habitat:** Dry or moist soil in woods and fieldns, bogs, meadows, roadsides.

**Hydrology:** Dry or moist soil conditions.

**Horticultural Value:** Mature purple flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.5

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:**

**Agrostis perennans**

**Autumn bentgrass**

**Wetland Indicator:** FACU

**Form/Color** Perennial, grows to 3' tall, tufted with autumn basal shoots, inflorescence flowers and fruits August-September.

**Habitat:** Disturbed woods, open areas, lawns, trail edges.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Pale green to bronze-tinged inflorescence. Fine-textured form.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.5-7.5

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** High tolerance of soil compaction

**Ecosystem Services:** Slightly palatable for browse animals, moderately palatable for graze animals.

**Compatibility:** Moderate grower, moderate rate of vegetative spread.

**Other:** Susceptible to infection by some endophytic fungi.



## **Agrostis scabra**

**Wetland Indicator:** FAC

**Form/Color** Perennial, grows to .5-3', yellow flower clutsres in Apr-May.

**Habitat:** Sandy soils, cliffs, ledges, forest edges, forests, meadows and fields, shores or rivers or lakes.

**Hydrology:** Dry to moist soil conditions.

**Horticultural Value:** Purple flower clusters.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

## **Rough bentgrass**

**Soil:** pH 6.0-8.0

**Stormwater Tolerance:** Green roof, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Occasionally eaten by ungluates and small mammals, upland gambirds, and waterfowl. Can also provide cover for hese species. Attractive to butterfly larvae.

**Compatibility:** Responds to burning with increased growth and spread.

**Other:** Fibrous root system effective in preventing soil erosion.

## **Ammophila breviligulata**

**Wetland Indicator:** UPL

**Form/Color** Rapid grower to 3', blooms and fruits in July-September. Thick wiry-green basal foliage with upright yellow flowering stalks.

**Habitat:** Beach foredunes, needs a moving substrate.

**Hydrology:** Moderately tolerant of drought.

**Horticultural Value:**

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

## **American beachgrass**

**Soil:** pH 5.5-7.9

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Adapted to coarse and medium textured soils, low tolerance of soil compaction.

**Ecosystem Services:** Moderately palatable by browse animals.

**Compatibility:** Rapid grower, moderate rate of vegetative spread.

**Other:** Used extensively in dune stabilization.

## *Andropogon gerardii*

## Big bluestem

**Wetland Indicator:** FACU

**Soil:** pH 6.5-7.5

**Form/Color** Perennial, 3-9' tall, tufted, stems waxy blue-green and purple in bloom, densely flowered purple in July-September.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, moderate tolerance of soil compaction.

**Habitat:** Open areas.

**Ecosystem Services:** Host to some butterflies.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Blue-green stem, with a turkey foot shaped inflorescence. Purple-white flowers.

**Compatibility:** Slow rate of vegetative spread. May become weedy.

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Intolerant

## *Andropogon glomeratus*

## Bushy bluestem

**Wetland Indicator:** FACW

**Soil:** pH 5.0-6.3

**Form/Color** Perennial, low growing white flowers, found from late summer to fall, grows to 6'. Has thick, massive, reddish brown terminal inflorescence composed of paired silky racemes and its flattened blue green foliage.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Low roadsides, moist pinelands, brackish and freshwater marsh borders, sloughs, and wet ditches.

**Ecosystem Services:** Can be used as forage by livestock, deer and rabbits, seeds eaten by birds, and attracts butterflies.

**Hydrology:** Moist and wet soil conditions.

**Horticultural Value:** White flowers and showy plumes turn a rust color during late fall and early winter which account for color year round.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Intolerant

## *Andropogon virginicus*

<b>Wetland Indicator:</b>	FACU
<b>Form/Color</b>	Perennial, 20-60" tall, in clumps, pale, waxy green in bloom, pale yellow-tan in winter, awned, blooms and fruits in August-October.
<b>Habitat:</b>	Sandy, gravelly soil, open areas, uplands to seasonally dry wetland edges.
<b>Hydrology:</b>	Tolerant of drought, intolerant of flooding.
<b>Horticultural Value:</b>	Green and straw yellow stalk with white fluffy seeds along the stalk.
<b>Salt Tolerance:</b>	Tolerant
<b>Shade Tolerance:</b>	Intolerant

## **Broom sedge bluestem**

<b>Soil:</b>	pH 4.9-7.0
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland
<b>Urban Tolerance:</b>	Adapted to medium and fine soils, no tolerance of soil compaction.
<b>Ecosystem Services:</b>	Wildlife value moderate, host to some butterflies.
<b>Compatibility:</b>	Allelopathic to competitors.
<b>Other:</b>	Early pioneer on poor soil, often infected by endophytic fungi.

## *Anthoxanthum nitens ssp. nitens*

<b>Wetland Indicator:</b>	FACW
<b>Form/Color</b>	Perennial, grows to 60 cm, purplish-brown or bronze flowers in Apr-Jul; small seedheads of broad, bronze-colored spikelets
<b>Habitat:</b>	Upper edges of salt marshes, moist meadows, swales; coarse and medium textured soils; poorly drained to dry soils.
<b>Hydrology:</b>	Moist to wet soil conditions.
<b>Horticultural Value:</b>	Rhizomatous grass with bronze-colored spiklets. Sweet-smelling perennial with slender green leaves.
<b>Salt Tolerance:</b>	Moderately tolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

## **Sweetgrass**

<b>Soil:</b>	pH 5.7-7.4
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes
<b>Urban Tolerance:</b>	Resistant of soil compaction; used in bioswales.
<b>Ecosystem Services:</b>	Attracts birds.
<b>Compatibility:</b>	Clonal from rhizomes.
<b>Other:</b>	Used as incense; moderate lifespan.

**Aristida dichotoma**

**Wetland Indicator:** FACU

**Form/Color:** Annual, 8-16" tall, tufted, pale green to reddish, spikelets, blooms and fruits in August-October.

**Habitat:** Dry, sterile soil, fill.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Gray-green to reddish stalks turning a straw-like color.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Intolerant

**Churchmouse threeawn**

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Aristida purpurascens**

**Wetland Indicator:** UPL

**Form/Color:** Perennial, 1-3' tall, tufted, spikelets, purplish, blooms and fruits in August-October.

**Habitat:** Dry, sparsely vegetated soils, prairies, glades.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Purplish plants.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Arrowfeather threeawn**

**Soil:** Acidic to alkaline soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Should tolerate concrete debris.

**Ecosystem Services:**

**Compatibility:**

**Other:** May be mechanically injurious to livestock.

**Aristida tuberculosa**

**Seaside threeawn**

**Wetland Indicator:** NC

**Form/Color:** Annual, 32" tall, spikelets, inflorescence open, blooms and fruits in August-October.

**Habitat:** Dry, sterile, soil in open areas, sandy fill, dunes.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Distinctive open inflorescence with long twisted awns.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Sensitive of soil compaction.

**Ecosystem Services:** Seeds eaten by few birds and small mammals, plants eaten by rabbits.

**Compatibility:**

**Other:**

**Avenella flexuosa**

**Wavy hairgrass**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, slow grower to 3', tufted, wiry, blooms and fruits in June-August.

**Habitat:** Dry, open woods, fields.

**Hydrology:** Moderate tolerance to drought.

**Horticultural Value:** Thin wiry basal leaves with long arching flowering stems. Graceful inflorescence turning a nice straw color.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.8-6.8

**Stormwater Tolerance:** Green roof, Retention pond, Rain garden, Upland

**Urban Tolerance:** Adapted to coarse and medium soils, no tolerance of soil compaction.

**Ecosystem Services:**

**Compatibility:** Moderate grower, no vegetative spread.

**Other:**

**Bolboschoenus robustus**

**Seacoast bulrush**

**Wetland Indicator:** OBL

**Form/Color:** Rhizomatous; blooms and produces fruit July-October; alternating green leaves; dry, papery flowers covered by brown, finely hairy scale on 1" long cylindrical spikes.

**Habitat:** High salt marsh; near brackish water; fine and medium textured soil.

**Hydrology:** Low drought tolerance; high moisture usage.

**Horticultural Value:** Large cluster of long spikelets sessile to a green blade.

**Salt Tolerance:** High tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 6.4-8.4

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation

**Urban Tolerance:** Tolerant of concrete debris.

**Ecosystem Services:** Roots eaten by muskrats; seeds eaten by songbirds and waterfowl.

**Compatibility:** Can form colonies.

**Other:** Long lifespan. One of the few native sedges to tolerate brackish conditions.

**Calamagrostis canadensis**

**Canada bluejoint grass**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, grows from 60-180 cm, pink-green seeds in Jun-Aug.

**Habitat:** Meadows, open woods, wet thickets or swamps, marshes, bogs, ditches, and margins of streams and lakes.

**Hydrology:** Moist to saturated soils, but not soils inundated by water.

**Horticultural Value:**

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-8.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater green street, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Provides forage for mammals as well as food and habitat for small mammals, waterfowl, and birds.

**Compatibility:** Clonal offsets develop from the rhizomes, occasionally forms colonies at favorable sites.

**Other:**

## Carex annectens

**Wetland Indicator:** FACW

**Form/Color:** Grows 1-3' in dense tussocks, flowers greenish-yellow in May-June.

**Habitat:** Open, dry to moist soils.

**Hydrology:** Tolerant of flooding, intolerant of drought.

**Horticultural Value:** Greenish-yellow blooms with the inflorescence held above the stems. Grass-like leaves in dense clumps.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

## Yellowfruit sedge

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

## Carex appalachica

**Wetland Indicator:** NC

**Form/Color:** To 32", slender, tufted, blooms and fruits in June-July.

**Habitat:** Moist, open forest understories.

**Hydrology:** Tolerant of drought and moist soil.

**Horticultural Value:** Fine textured clumps with graceful arching fruiting stems.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

## Appalachian sedge

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Easy to grow, tolerant of several soil types.

**Ecosystem Services:** Host to some butterflies.

**Compatibility:**

**Other:**

## Carex atlantica

<b>Wetland Indicator:</b>	FACW
<b>Form/Color</b>	To 32", tufted, blooms and fruits in June-August.
<b>Habitat:</b>	Open swamps.
<b>Hydrology:</b>	Intolerant of drought.
<b>Horticultural Value:</b>	Fine green flowering stems and foliage, grows in tussocks.
<b>Salt Tolerance:</b>	Low tolerance
<b>Shade Tolerance:</b>	Tolerant of partial shade

## **Prickly bog sedge**

<b>Soil:</b>	pH 4.5-6.0
<b>Stormwater Tolerance:</b>	Retention pond, Rain garden, Inundation
<b>Urban Tolerance:</b>	Adapted to medium and fine soils, high tolerance of soil compaction.
<b>Ecosystem Services:</b>	Host to some butterflies.
<b>Compatibility:</b>	Moderate grower, moderate rate of vegetative spread.
<b>Other:</b>	

## Carex blanda

<b>Wetland Indicator:</b>	FAC
<b>Form/Color</b>	Semievergreen, 8"-2' tall, tufted, waxy green, flowers whitish, blooms and fruits in May-June.
<b>Habitat:</b>	Moist to dry, often disturbed, woods, shady lawn edges.
<b>Hydrology:</b>	Low tolerance to drought.
<b>Horticultural Value:</b>	Whitish flowers, waxy-green foliage and seed heads.
<b>Salt Tolerance:</b>	Moderately tolerant
<b>Shade Tolerance:</b>	Shade tolerant

## **Eastern woodland sedge**

<b>Soil:</b>	pH 4.4-7.0
<b>Stormwater Tolerance:</b>	Retention pond, Rain garden, Slopes, Upland
<b>Urban Tolerance:</b>	Adapted to medium and fine soils, high tolerance of soil compaction.
<b>Ecosystem Services:</b>	Wildlife value low.
<b>Compatibility:</b>	Slow grower, no vegetative spread.
<b>Other:</b>	



## Carex communis

**Wetland Indicator:** NC

**Form/Color** Perennial, 8-20" tall, forms tussocks, purplish at base.

**Habitat:** Mixed deciduous woods, upland oak forests.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Ground cover, attractive tussocks.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

## Fibrousroot sedge

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to ants.

**Compatibility:**

**Other:** Good substitution for *Carex pensylvanica*.

## Carex comosa

**Wetland Indicator:** OBL

**Form/Color** Slow grower to 3', tufted, blooms and fruits in June-September.

**Habitat:** Marshes, wet meadows, pond edges.

**Hydrology:** Tolerant of flooding.

**Horticultural Value:** Long drooping thick yellow seed heads.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

## Bristly sedge

**Soil:** pH 4.6-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Adapted to medium and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Wildlife value high, host to some butterflies.

**Compatibility:** Slow grower, moderate rate of vegetative spread.

**Other:**

## Carex crinita

**Wetland Indicator:** OBL

**Form/Color:** To 4', tufted, blooms and fruits in May-August.

**Habitat:** Open swamp forests, marshes.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Staggered drooping seed heads turning from yellow to brown, grows in bunches.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

## Common fringed sedge

**Soil:** pH 4.0-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Adapted to medium and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Moderately palatable by some animals.

**Compatibility:** Moderate grower, no vegetative spread.

**Other:**

## Carex debilis

**Wetland Indicator:** FACW

**Form/Color:** Perennial, to 3', tufted, looks similar to grass, blooms and fruits in May-June.

**Habitat:** Swamp forest edges, moist woods.

**Hydrology:** Intolerant of drought.

**Horticultural Value:** Fine textured drooping seed heads, grows in bunches.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

## White edge sedge

**Soil:** pH 4.6-6.6

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Adapted to coarse and medium soils, high tolerance of soil compaction.

**Ecosystem Services:** Host to some butterflies.

**Compatibility:** Moderate grower, no vegetative spread.

**Other:**

**Carex emmonsii**

**Emmon's sedge**

**Wetland Indicator:** UPL

**Form/Color:** Perennial, to 18", densely tufted, forms small, circular mats, winter-green, green center stripe, dark purple margins on flowers, blooms and fruits in April-May.

**Habitat:** Dry, open woods.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Open inflorescence with long twisted awns, attractive tufted form.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Carex folliculata**

**Northern long sedge**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, clumped, 1-3' tall, tufted, blooms and fruits in June-August.

**Habitat:** Wet woods, wet meadow, moist upland sites.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Attractive tufts

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

## Carex intumescens

## Bladder sedge

**Wetland Indicator:** FACW

**Soil:** pH 4.8-6.9

**Form/Color:** To 32", tufted, blooms and fruits in May-August.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Habitat:** Open swamp forests, wet meadows, floodplain forests.

**Urban Tolerance:** Adapted to medium and fine soils, high tolerance of soil compaction.

**Hydrology:** Intolerant of drought.

**Ecosystem Services:** Host to some butterflies.

**Horticultural Value:** Large star-like seeds heads sessile to the flowering stem, grows in bunches.

**Compatibility:** Moderate grower, no vegetative spread.

**Salt Tolerance:** Low tolerance

**Other:**

**Shade Tolerance:** Shade tolerant

## Carex lupulina

## Hop sedge

**Wetland Indicator:** OBL

**Soil:** pH 6.2-7.0

**Form/Color:** Perennial, to 8-51", solitary stems or small clumps, blooms and fruits in June-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Habitat:** Wet meadows, pond edges.

**Urban Tolerance:** Adapted to medium and fine soils, moderate tolerance of soil compaction.

**Hydrology:** Low tolerance to drought.

**Ecosystem Services:** Seeds eaten by birds and small mammals, plant eaten by some mammals.

**Horticultural Value:** Large clustered seed head in an oval-like form are distinctive.

**Compatibility:** Moderate grower, no vegetative spread.

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Intolerant

## Carex lurida

## Shallow sedge

**Wetland Indicator:** OBL

**Soil:** pH 4.9-6.8

**Form/Color:** To 3', tufted, blooms and fruits in June-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Habitat:** Wet, open soil of marshes, wet meadows.

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, moderate tolerance of soil compaction.

**Ecosystem Services:** Host to some butterflies.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Green flowers and foliage, yellow fruit clustered in a long oval-like form.

**Compatibility:** Moderate grower, no vegetative spread.

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Intolerant

## Carex pensylvanica

## Pennsylvania sedge

**Wetland Indicator:** NC

**Soil:** pH 5.0

**Form/Color:** Semievergreen, 20" tall, tufts leafy and reddish, forms patchy ground cover, blooms in March-May.

**Stormwater Tolerance:** Green roof, ROW Rain garden, Stormwater greenstreet, Upland

**Habitat:** Upland oak, mixed deciduous woods, dry, sandy soil.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Seeds eaten by birds and small mammals, plant eaten by some mammals.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Attractive small tufts.

**Compatibility:** Clonal from rhizomes or stolons.

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Carex plantaginea**

**Plantainleaf sedge**

**Wetland Indicator:** NC

**Form/Color** Tufted form; 1'-2'; green leaves with purple sheaths; flowers early spring to early summer.

**Habitat:** Moist, shaded, hardwooded forests; mesic hardwood.

**Hydrology:** Drought tolerant; average to moist soil conditions.

**Horticultural Value:** Tufted, green leaves with purple sheaths. Wide leaves are distinctive.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.4-7.4

**Stormwater Tolerance:** Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Deer and rabbits eat culms.

**Compatibility:**

**Other:**

**Carex platyphylla**

**Broadleaf sedge**

**Wetland Indicator:** NC

**Form/Color** Grows to 16"; stems tufted; waxy pale green basal wide leaves; blooms and fruits May-June.

**Habitat:** Rich, mixed deciduous woods.

**Hydrology:** Moist to average; well drained.

**Horticultural Value:** Very wide tufted leaves are distinctive.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Host plant for butterflies

**Compatibility:**

**Other:** Minor species for increased diversity and aesthetics in restoration of woodland understories.

### Carex radiata

**Wetland Indicator:** FAC

**Form/Color:** Perennial, densely tufted, to 32" tall, very slender, blooms and fruits in June-July.

**Habitat:** Moist woods, open forest understories.

**Hydrology:** Low tolerance of drought.

**Horticultural Value:** Tufted, slender leaves.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

### Carex rosea

**Wetland Indicator:** FACU

**Form/Color:** Perennial, densely tufted, 32" tall, inflorescence of small clusters, blooms and fruits in June-July.

**Habitat:** Moist woods, usually near wetland edges.

**Hydrology:** Low tolerance of drought.

**Horticultural Value:** Tufted slender leaves.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

### **Eastern star sedge**

**Soil:** Circumneutral soils.

**Stormwater Tolerance:** Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Host to some butterflies.

**Compatibility:**

**Other:**

### **Common upland star sedge**

**Soil:** Circumneutral soils.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Host to some butterflies.

**Compatibility:**

**Other:**

## Carex scoparia

**Wetland Indicator:** FACW

**Form/Color:** To 3', tufted, blooms and fruits in May-August. Green foliage with nodding or arching inflorescence on flowering stems.

**Habitat:** Moist to temporary shallow water of marshes, open swamp forests, wet meadows.

**Hydrology:** Intolerant to drought.

**Horticultural Value:** Attractive foliage and flowering stems.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

## Pointed broom sedge

**Soil:** pH 4.6-6.9

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Inundation, Slopes, Upland

**Urban Tolerance:** Adapted to medium and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Wildlife value low, mildly palatable to larger animals.

**Compatibility:** Moderate grower, no vegetative spread.

**Other:**

## Carex stipata

**Wetland Indicator:** OBL

**Form/Color:** Slow grower to 3', tufted, blooms and fruits in May-August.

**Habitat:** Wet meadows, swamps.

**Hydrology:** Tolerant of drought and brief flooding.

**Horticultural Value:** Upright flowering fleshy stems with spike-like inflorescence at the apex, grows in clumps.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

## Awlfruit sedge

**Soil:** pH 4.9-7.9

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Should tolerate concrete debris.

**Ecosystem Services:** Moderately palatable to browse animals.

**Compatibility:** Slow grower, slow rate of vegetative spread.

**Other:**



## Carex stricta

<b>Wetland Indicator:</b>	OBL
<b>Form/Color</b>	Moderate grower to 3', densely tufted, forms permanent, low tussocks, blooms and fruits in May-August.
<b>Habitat:</b>	Shallow, calm, undisturbed swamps, freshwater tidal areas, margins of woodland ponds.
<b>Hydrology:</b>	Low tolerance to drought.
<b>Horticultural Value:</b>	Large tussock forming sedge with clustered brown seed heads at the ends of the flowering stems.
<b>Salt Tolerance:</b>	Moderately tolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

## Carex swanii

<b>Wetland Indicator:</b>	FACU
<b>Form/Color</b>	Perennial, tufted, to 3' tall, reddish at base, densely flowered, pale grayish-green.
<b>Habitat:</b>	Upland forest understory, disturbed woods.
<b>Hydrology:</b>	Moderately drought tolerant.
<b>Horticultural Value:</b>	Tufted form.
<b>Salt Tolerance:</b>	Insufficient research to determine
<b>Shade Tolerance:</b>	Shade tolerant

## Tussock sedge

<b>Soil:</b>	pH 3.5-7.0
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Inundation
<b>Urban Tolerance:</b>	Adaptable, moderate tolerance of soil compaction, performs well in the right of way.
<b>Ecosystem Services:</b>	Wildlife value high, host to some butterflies.
<b>Compatibility:</b>	Moderate grower, no vegetative spread.
<b>Other:</b>	

## Swan's sedge

<b>Soil:</b>	Not Available.
<b>Stormwater Tolerance:</b>	Retention pond, Rain garden, Slopes
<b>Urban Tolerance:</b>	Tolerates disturbed habitats.
<b>Ecosystem Services:</b>	Host to some butterflies.
<b>Compatibility:</b>	
<b>Other:</b>	

**Carex virescens**

**Ribbed sedge**

**Wetland Indicator:** NC

**Soil:** Not Available.

**Form/Color:** To 40", tufted, pale green plant, blooms and fruits in May-July.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Dry woods, thickets.

**Ecosystem Services:** Host to some butterflies.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:**

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Carex vulpinoidea**

**Fox sedge**

**Wetland Indicator:** OBL

**Soil:** pH 6.8-8.9

**Form/Color:** Slow grower to 3', tufted, blooms and fruits June-August.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Should tolerate concrete debris.

**Habitat:** Moist to wet meadows, marshes.

**Ecosystem Services:** Wildlife value high, host to some butterflies.

**Hydrology:** Tolerant of flooding.

**Horticultural Value:** Green flowers and foliage, yellow to brown seed heads on flowering stems shorter than the leaves.

**Compatibility:** Moderate grower, no vegetative spread.

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Cenchrus longispinus**

**Common sandbur**

**Wetland Indicator:** UPL

**Soil:** Acidic soils.

**Form/Color:** Annual, to 32", tufted, blooms and fruits in July-October, spiny inflorescence.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Open, sandy soil, fill, usually coastal.

**Ecosystem Services:**

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Tufted form.

**Compatibility:** Can become weedy.

**Salt Tolerance:** Moderately tolerant

**Other:** Common in dry waste sites. Spiny burs are extremely sharp and barbed and can be a nuisance.

**Shade Tolerance:** Intolerant

**Cinna arundinacea**

**Stout woodreed**

**Wetland Indicator:** FACW

**Soil:** pH 4.0-8.5

**Form/Color:** Tall woodland grass with nodding inflorescence. To 5', stems few together, blooms and fruits in August-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Should tolerate concrete debris, tolerant of disturbed conditions.

**Habitat:** Moist woods, swamp forests.

**Ecosystem Services:** Highly palatable to deer and grazing animals.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Turns a nice straw color and has a feathery texture.

**Compatibility:** Moderate grower, no vegetative spread.

**Salt Tolerance:** Moderately tolerant

**Other:** One of very few tall woodland grasses to bloom in the summer.

**Shade Tolerance:** Shade tolerant

## Cyperus diandrus

<b>Wetland Indicator:</b>	OBL
<b>Form/Color</b>	Annual, to 8", blooms and fruits in June-October.
<b>Habitat:</b>	Wet to moist soil, shores.
<b>Hydrology:</b>	Low tolerance to drought.
<b>Horticultural Value:</b>	Scales of this sedge become pigmented with a beautiful red-purple color as they mature.
<b>Salt Tolerance:</b>	Tolerant
<b>Shade Tolerance:</b>	Intolerant

## Cyperus grayi

<b>Wetland Indicator:</b>	NC
<b>Form/Color</b>	To 16", blooms and fruits in July-October.
<b>Habitat:</b>	Dry, sandy soil or fill, open areas, beaches.
<b>Hydrology:</b>	Moderately drought tolerant.
<b>Horticultural Value:</b>	
<b>Salt Tolerance:</b>	Tolerant
<b>Shade Tolerance:</b>	Intolerant

## **Umbrella flatsedge**

<b>Soil:</b>	Not Available.
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes
<b>Urban Tolerance:</b>	Insufficient information to determine tolerance.
<b>Ecosystem Services:</b>	Wildlife value high, host to some butterflies.
<b>Compatibility:</b>	May become weedy.
<b>Other:</b>	

## **Gray's flatsedge**

<b>Soil:</b>	Acidic soils.
<b>Stormwater Tolerance:</b>	Green roof, Stormwater greenstreet, Upland
<b>Urban Tolerance:</b>	Insufficient information to determine tolerance.
<b>Ecosystem Services:</b>	
<b>Compatibility:</b>	
<b>Other:</b>	Grows in dry sterile soil where many other plants can't.

**Danthonia compressa**

**Flattened oatgrass**

**Wetland Indicator:** FACU

**Form/Color** To 8", flowering stems to 32", leaves short, fine, densely tufted, blooms and fruits in June-August.

**Habitat:** Moist to dry open woods.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Low growing grass with long flowering stem.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.8-7.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, no tolerance of soil compaction.

**Ecosystem Services:** Wildlife value low.

**Compatibility:** Moderate grower, no vegetative spread.

**Other:** Often infected by an endophytic fungus.

**Danthonia spicata**

**Poverty oatgrass**

**Wetland Indicator:** NC

**Form/Color** Perennial, tufted, inflorescence to 2', leaves to 5", blooms and fruits in May-September. Low growing grass with long flowering stem.

**Habitat:** Dry, sterile soil of open woods and edges, tolerant of a wide range of habitats.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Inflorescence is spike-like and turns a straw-like color.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Fairly tolerant of disturbance.

**Ecosystem Services:** Insects feed on foliage.

**Compatibility:** Does not tolerate taller ground cover competition.

**Other:** Seeds can remain dormant for a number of decades.

**Deschampsia cespitosa**

**Tufted hairgrass**

**Wetland Indicator:** FACW

**Form/Color:** To 3.5', densely tufted, blooms and fruits in June-August, wiry, short, flowers purplish.

**Habitat:** Wet soil, shores, cool banks.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Tall erect stems with leaves in a basal tuft. Panicle inflorescence is loosely branched and somewhat nodding.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 3.5-7.5

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Host to some butterflies.

**Compatibility:** Moderate grower, no vegetative spread.

**Other:**

**Dichanthelium clandestinum**

**Deertongue**

**Wetland Indicator:** FACW

**Form/Color:** Slow grower to 2', grows in bunches, green foliage up to 1" wide, brown seeds, active in spring and summer.

**Habitat:** Moist, often sandy ground, floodplains and thickets on stream banks; borders, and clearings; marshy ground, ditches.

**Hydrology:** High tolerance to drought.

**Horticultural Value:** Green to yellow with small hairs along stem and inflorescence. Terminal flowering panicle in early summer.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 4.0-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Slopes

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, low tolerance of soil compaction.

**Ecosystem Services:** Highly palatable to browse animals.

**Compatibility:** Slow grower, no vegetative spread.

**Other:**

**Dichanthelium latifolium**

**Wetland Indicator:** FACU

**Form/Color:** Rapid grower to 3', grows in bunches, active in Summer, blooms in Spring.

**Habitat:** Forests and thickets.

**Hydrology:** Moderate tolerance to drought.

**Horticultural Value:** Broad-leaved grass growing in rosettes. Terminal flowering panicle with delicate flowers and seeds.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Broadleaf rosette grass**

**Soil:** pH 4.0-6.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Adapted to coarse and medium soils, no tolerance of soil compaction.

**Ecosystem Services:** Moderately palatable to browse animals.

**Compatibility:** Rapid grower, can spread by rhizomes.

**Other:**

**Digitaria cognata**

**Wetland Indicator:** NC

**Form/Color:** Perennial, grows to 1-2', seedhead has open purplish panicles, blooms in May-Oct.

**Habitat:** Dry, rocky or sandy soil.

**Hydrology:**

**Horticultural Value:**

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Fall witchgrass**

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Grazed by domestic livestock, deer, and antelope. Seeds eaten by upland game birds. Attracts butterflies and is an essential larval host for most branded skippers and most of the satyrs.

**Compatibility:**

**Other:**

**Distichlis spicata**

**Saltgrass**

**Wetland Indicator:** FACW

**Soil:** pH 4.0-10.5

**Form/Color:** Moderate grower to 16", plant usually reclining, gray-green, tan in autumn, blooms and fruits in August-October.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Adapted to medium and fine soils, high tolerance of soil compaction.

**Habitat:** High salt marsh.

**Ecosystem Services:** Wildlife value low.

**Hydrology:** Tolerant of saltwater to 50 ppt, tolerant of spring tide flooding.

**Horticultural Value:** Low- growing, high marsh grass. A companion plant to *Spartina patens*. Thick flowering heads turning a straw like color.

**Compatibility:** Often codominant with *Spartina patens*. Can form colonies.

**Salt Tolerance:** Tolerant

**Other:** One of very few grasses to tolerate salt marshes.

**Shade Tolerance:** Intolerant

**Dulichium arundinaceum**

**Three-way sedge**

**Wetland Indicator:** OBL

**Soil:** pH 4.7-7.5

**Form/Color:** To 3', blooms and fruits in July-October, leaves in three ranks.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, moderate tolerance of soil compaction.

**Habitat:** Open freshwater marshes, tidal areas, pond edges.

**Ecosystem Services:** Wildlife value moderate, host to some butterflies.

**Hydrology:** Permanently saturated soil or flooding to 1 ft. Not drought tolerant.

**Horticultural Value:** Architectural upright form, colonial habit. Green to yellow foliage with radiating leaves all along the stem.

**Compatibility:** Moderate grower, slow rate of vegetative spread.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade



**Elymus canadensis**

**Canada wild rye**

**Wetland Indicator:** FACU

**Soil:** pH 5.0-7.9

**Form/Color:** Perennial, tufted, 5' tall, waxy pale-gray-green, spikelets in pairs at each node, blooms and fruits in July-October.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Dry to moist rocky, sandy soil.

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, low tolerance of soil compaction.

**Ecosystem Services:** Moderately palatable to browse animals.

**Hydrology:** Moderate tolerance to drought.

**Horticultural Value:** Long arching or drooping inflorescence made up of bristly spikelets with curving awns. Can grow up to 4 ft high with long pointed leaves along the stem.

**Compatibility:** Rapid grower, no vegetative spread.

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Shade tolerant

**Elymus hystrix**

**Eastern bottlebrush grass**

**Wetland Indicator:** FACU

**Soil:** Not Available.

**Form/Color:** To 5', little branched with blades up to 12" long. Blooms and fruits in June-August.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Upland open woods, gaps.

**Urban Tolerance:** Tolerant of air pollution.

**Ecosystem Services:** Attractive to birds.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Showy inflorescence that resemble bottle brushes.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:** Often infected by endophytic fungi.

**Shade Tolerance:** Tolerant of partial shade

**Elymus riparius**

**Wetland Indicator:** FACW

**Form/Color:** To 3', tufted, blooms and fruits in July-September.

**Habitat:** Moist woods, stream banks.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Drooping inflorescence made up of bristly spikelets with shorter awns than *E. canadensis*.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Eastern riverbank wild rye**

**Soil:** pH 4.5-7.2

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, moderate tolerance of soil compaction.

**Ecosystem Services:**

**Compatibility:** Moderate growth rate, no vegetative spread.

**Other:**

**Elymus virginicus**

**Wetland Indicator:** FACW

**Form/Color:** To 4', culms unbranched and leaves up to 12" long. Blooms and fruits in June-August.

**Habitat:** Open, moist woods.

**Hydrology:** Moderate tolerance to drought.

**Horticultural Value:** Upright growing habit and inflorescence made up of thick bristly spikelets.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Virginia wild rye**

**Soil:** pH 5.0-7.4

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, moderate tolerance of soil compaction.

**Ecosystem Services:** Highly palatable to browse animals.

**Compatibility:** Moderate growth rate, no vegetative spread.

**Other:**

**Eragrostis spectabilis**

**Purple lovegrass**

**Wetland Indicator:** UPL

**Form/Color:** To 2', stems usually in low tufts, blooms and fruits in August-September, inflorescence purple.

**Habitat:** Tolerates dry, sandy soil or fill.

**Hydrology:** High tolerance to drought.

**Horticultural Value:** Low growing, showy purple inflorescence in fall. Green thin leaves can have a reddish tinge.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.0-7.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Adapted to coarse and medium soils, no tolerance of soil compaction.

**Ecosystem Services:** Moderately palatable to browse animals.

**Compatibility:** Moderate grower, moderate rate of vegetative spread.

**Other:**

**Glyceria canadensis**

**Rattlesnake manna grass**

**Wetland Indicator:** OBL

**Form/Color:** Moderate grower to 3', stems solitary or few together, blooms and fruits in June-August.

**Habitat:** Marshes, open, wet woods.

**Hydrology:** Tolerant of flooding to 50% of growing season.

**Horticultural Value:** Graceful drooping inflorescence with spikelets laterally compressed in an oval shape.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-8.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, moderate tolerance of soil compaction.

**Ecosystem Services:** Wildlife value moderate, eaten by muskrat and deer.

**Compatibility:** Intolerant of competition. Can form colonies.

**Other:**

## *Glyceria obtusa*

**Wetland Indicator:** OBL

**Form/Color:** To 3', blooms and fruits in July-September, inflorescence dense.

**Habitat:** Swamps, wet woods.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Distinctive upright form with dense ovoid inflorescence.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

## *Glyceria striata*

**Wetland Indicator:** OBL

**Form/Color:** Slow to moderate grower to 4', tufted, blooms and fruits in June-September.

**Habitat:** Swamp forests, shrub swamps.

**Hydrology:** Tolerant of flooding.

**Horticultural Value:** Early flowering grass with a wide open, delicate drooping inflorescence.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

## **Coastal mannagrass**

**Soil:** pH 4.0-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Adapted to medium and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Moderately palatable to browse animals.

**Compatibility:** Rapid grower, moderate rate of vegetative spread.

**Other:**

## **Fowl mannagrass**

**Soil:** pH 4.0-8.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Adapted to medium and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Wildlife value moderate.

**Compatibility:** Moderate grower, slow rate of vegetative spread.

**Other:**

## *Juncus canadensis*

## Canadian rush

**Wetland Indicator:** OBL

**Soil:** pH 4.5-5.9

**Form/Color:** To 3', tufted, leaves erect, terete and septate, blooms and fruits in July-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Habitat:** Swamps, marshes, wet shores.

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Host to some butterflies.

**Hydrology:** Intolerant of drought.

**Horticultural Value:** Spreading inflorescence with stout, rigid stems. Numerous small flowers with a reddish to chestnut brown tinge.

**Compatibility:** Rapid grower, no vegetative spread.

**Salt Tolerance:** Moderately tolerant

**Other:** Although called Canada rush, species barely enters southeastern Canada, being more widespread in the eastern United States.

**Shade Tolerance:** Intolerant

## *Juncus effusus*

## Common rush

**Wetland Indicator:** OBL

**Soil:** pH 5.5-7.0

**Form/Color:** Semievergreen, slow grower to 3', tufted, spreading, blooms and fruits in July-September.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Habitat:** Wet meadows, freshwater tidal and nontidal marshes, ditches, pond edges.

**Urban Tolerance:** Adapted to variety of soils, moderate tolerance of soil compaction, performs well in the

**Ecosystem Services:** Wildlife value high, host to some butterflies.

**Hydrology:** Tolerant of flooding.

**Horticultural Value:** Upright clump-forming rush with bright green hollow leaves. Compact inflorescence mid-way up the stem.

**Compatibility:** Moderate grower, no vegetative spread.

**Salt Tolerance:** Intolerant

**Other:** Tough, reliable plant, resistant to goose depredations once established.

**Shade Tolerance:** Tolerant of partial shade

**Juncus gerardii**

**Black grass**

**Wetland Indicator:** OBL

**Soil:** Not Available.

**Form/Color** To 16", tufted, blooms and fruits in June-September, inflorescence is dark.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** High salt marsh.

**Ecosystem Services:** Provides nesting habitat, attracts waterfowl.

**Hydrology:** Tolerates some flooding.

**Horticultural Value:** Tufted form.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Intolerant

**Juncus greenei**

**Greene's rush**

**Wetland Indicator:** FAC

**Soil:** Not Available.

**Form/Color** To 32", erect, stem dark green and terete; tufted; brownish compact inflorescence blooms and fruits in June-September.

**Stormwater Tolerance:** Retention pond, Rain garden, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Open pine barrens, lake shores, dunes, often associated with disturbance.

**Ecosystem Services:**

**Hydrology:** Moderate drought tolerance, prefers dry well drained soils.

**Horticultural Value:** Erect, densely tufted form.

**Compatibility:** Can spread by rhizomes.

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Intolerant

**Juncus tenuis**

**Path rush**

**Wetland Indicator:** FAC

**Form/Color:** Slow grower to 28", tufted, blooms and fruit in July-September.

**Habitat:** Disturbed sites, dry to moist woods.

**Hydrology:** Tolerant of drought, moderately tolerant of flooding.

**Horticultural Value:** Low-growing, colonial rush with green foliage and an inflorescence turning brown.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Tolerant of trampling, compacted soil, and fill.

**Ecosystem Services:** Wildlife value moderate.

**Compatibility:** Slow grower, no vegetative spread.

**Other:**

**Leersia oryzoides**

**Rice cutgrass**

**Wetland Indicator:** OBL

**Form/Color:** Moderate grower to 5', sprawling, rough leaves, saw toothed, blooms and fruits in June-October.

**Habitat:** Freshwater nontidal marshes, wet ditches, open swamp forests.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** Forming dense colonies, this upright grass is yellow-green in color. The panicle is open and drooping with seed heads covered in minute bristles.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.1-8.8

**Stormwater Tolerance:** Retention ponds, Rain garden, Inundation, Slopes

**Urban Tolerance:** Tolerant of concrete debris.

**Ecosystem Services:**

**Compatibility:** Aggressively forms colonies, may crowd out less aggressive plants.

**Other:**

**Leersia virginica**

**White grass**

**Wetland Indicator:** FACW

**Soil:** pH 4.5-8.5

**Form/Color:** To 5', sprawling, blooms and fruit in July-October.

**Stormwater Tolerance:** Retention ponds, Rain garden, Slopes

**Urban Tolerance:** Tolerant of concrete debris.

**Habitat:** Wet woods, along trails, disturbed sites.

**Ecosystem Services:** Host to some butterflies.

**Hydrology:** Intolerant of drought.

**Horticultural Value:** Grass with soft-textured foliage and a slender inflorescence with few spikelets.

**Compatibility:** Moderate grower, moderate rate of vegetative spread.

**Salt Tolerance:** Intolerant

**Other:** Can be differentiated from the similar looking invasive Japanese stiltgrass by short retrorse hairs at each node along the culm.

**Shade Tolerance:** Shade tolerant

**Luzula multiflora**

**Common woodrush**

**Wetland Indicator:** FACU

**Soil:** pH 4.8-5.4

**Form/Color:** To 16', tufted, leaves often purplish, blooms and fruits in April-June.

**Stormwater Tolerance:** Retention ponds, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Dry to moist mixed deciduous or oak woods, trail edges

**Ecosystem Services:**

**Hydrology:** Dry to moist soils

**Horticultural Value:** Tufted form.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Tolerant of partial shade



**Panicum virgatum**

**Switchgrass**

**Wetland Indicator:** FAC

**Form/Color:** Tall upright clump forming grass. Slow grower to 6', tufted, blooms and fruits in July-September.

**Habitat:** Back dunes, dry to wet meadows, successional shrub lands, grasslands, upper edges of salt marsh.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** Attractive clumps. Large open panicles turning from green to a straw-like color.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Tolerant of sterile, acid, sandy soil, low nutrient fill, performs well in the right of way.

**Ecosystem Services:** Wildlife value high.

**Compatibility:** Does not compete well with mugwort or other aggressive weeds in high-nutrient soils.

**Other:**

**Rhynchospora alba**

**White beaksedge**

**Wetland Indicator:** OBL

**Form/Color:** To 28", tufted, blooms and fruits in July-September.

**Habitat:** Sphagnum bogs, sandy or acid peaty soil.

**Hydrology:** Intolerant of drought, tolerant of flooding.

**Horticultural Value:**

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Host to some butterflies.

**Compatibility:**

**Other:**

**Rhynchospora capitellata**

**Wetland Indicator:** OBL

**Form/Color:** To 32", tufted, leaves flat and narrow; several flowers along stem bloom and fruit in July-October.

**Habitat:** Wet open ground, bogs, wet sand, needs acid soil.

**Hydrology:** Intolerant of drought, tolerant of flooding.

**Horticultural Value:**

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Brownish beaksedge**

**Soil:** Acidic soils.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Host to some butterflies.

**Compatibility:**

**Other:**

**Schizachyrium littorale**

**Wetland Indicator:** FACW

**Form/Color:** To 1-2', bunch grass, warm season grass grows in late spring throughout summer.

**Habitat:** Frontal back dunes, secondary dunes.

**Hydrology:** Tolerant of drought, minimally tolerant of flooding.

**Horticultural Value:** Blue-green leaves atop a spreading clump form. Turning a rust color with white fluffy seeds in the fall.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Coastal little bluestem**

**Soil:** Circumneutral soils.

**Stormwater Tolerance:** Green roof, ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Provides cover for ground birds and small mammals.

**Compatibility:**

**Other:**

## Schizachyrium scoparium

## Little bluestem

**Wetland Indicator:** FACU

**Soil:** pH 5.0-8.4

**Form/Color:** To 4', densely tufted, flowers bluish purple, becomes dark orange-gold over winter, blooms and fruits in September-October.

**Stormwater Tolerance:** Green roof, ROW Rain garden, Stormwater greenstreet, Upland

**Habitat:** Old fields, open areas, back dunes, dry, acid soils.

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, no tolerance of soil compaction.

**Ecosystem Services:** Highly palatable to graze animals, moderately palatable to browse animals.

**Hydrology:** High tolerance to drought.

**Horticultural Value:** Bluish purple foliage with an upright columnar form, turning a straw-like gold in winter with white fluffy seeds.

**Compatibility:** Moderate grower, no vegetative spread.

**Salt Tolerance:** Low tolerance

**Other:** Used for restoring grasslands and dry, open habitats, sandy soil.

**Shade Tolerance:** Intolerant

## Schoenoplectus pungens

## Common threesquare

**Wetland Indicator:** OBL

**Soil:** pH 3.7-7.5

**Form/Color:** Erect triangular stem; spikelet of sharp brown scales; blooms brown June-September; produces brown achene fruit.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Habitat:** Wet sandy, gravelly, peaty shores; pond, lake, river marshy streams; fresh to brackish water; inland marshes.

**Urban Tolerance:** Used in bioretention cells, raingardens, vegetated swales.

**Ecosystem Services:** Waterfowl and small mammals.

**Hydrology:** Found in wetlands. Low drought tolerance.

**Horticultural Value:** Rhizomatous bulrush with trigonous blue-green stems. Spikelets sessile to the stem and radiating, turning a dark brown.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Intolerant

**Schoenoplectus tabernaemontani**

**Softstem bulrush**

**Wetland Indicator:** OBL

**Form/Color:** Rhizomatous; to 9'; red flower blooms in late Spring.

**Habitat:** Salt marshes and flats, river or stream floodplains, edges of wetlands.

**Hydrology:** Intolerant of drought; high moisture usage.

**Horticultural Value:** Tall bulrush reaching up to 9 feet tall. Smooth rounded green-blue stems have a terminal spreading inflorescence that turns reddish- brown.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 5.4-7.4

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Seeds eaten by waterfowl.

**Compatibility:**

**Other:** Found throughout North America. Stems have relatively large air cavities, which make it compress easily when squeezed.

**Scirpus atrovirens**

**Green bulrush**

**Wetland Indicator:** OBL

**Form/Color:** Moderate grower to 4', tufted, blooms and fruits in July-August.

**Habitat:** Wet meadows, swamps, wet thickets.

**Hydrology:** Low drought tolerance; medium moisture usage.

**Horticultural Value:** Dark green stems can reach up to 4.5 ft high. The terminal inflorescence holds brown dense spiklets that radiate in all different directions.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-8.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Tolerant of disturbance.

**Ecosystem Services:** Host to some butterflies, seeds eaten by waterfowl, roots eaten by muskrats and geese, provides cover for nesting birds.

**Compatibility:**

**Other:** Also known as green bulrush or black bulrush.

## Scirpus cyperinus

## Woolgrass

<b>Wetland Indicator:</b>	OBL
<b>Form/Color</b>	Moderate grower to 5', tufted, blooms and fruits in August-October, flowers greenish, becoming wooly brown.
<b>Habitat:</b>	Freshwater tidal and nontidal marshes, wet fill, swamps.
<b>Hydrology:</b>	Tolerant of flooding, tolerates saturated soil 25% of growing season.
<b>Horticultural Value:</b>	Tall grass-like upright form reaching 4-5 ft high. The dense terminal inflorescence has a wooly-like appearance when in seed, turning a nice light brown.
<b>Salt Tolerance:</b>	Low tolerance
<b>Shade Tolerance:</b>	Intolerant

<b>Soil:</b>	pH 4.8-8.0
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation
<b>Urban Tolerance:</b>	Probably tolerant of concrete debris.
<b>Ecosystem Services:</b>	Wildlife value high, seeds eaten by waterfowl, muskrats, host to some butterflies.
<b>Compatibility:</b>	Can form colonies.
<b>Other:</b>	

## Sorghastrum nutans

## Indiangrass

<b>Wetland Indicator:</b>	FACU
<b>Form/Color</b>	Tall rhizomatous perennial from 3-7 ft tall. Bunch; yellow flower color in late spring; moderate grower.
<b>Habitat:</b>	Grasslands, meadows, fields, shores of rivers or lakes, wetland margins
<b>Hydrology:</b>	Medium tolerance of drought; medium moisture usage.
<b>Horticultural Value:</b>	Inflorescence changing from purple-yellow bloom to a bronze like narrow seed head.
<b>Salt Tolerance:</b>	Moderately tolerant
<b>Shade Tolerance:</b>	Intolerant

<b>Soil:</b>	pH 4.8-8.0
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Upland
<b>Urban Tolerance:</b>	Tolerant of urban conditions, performs well in the right of way.
<b>Ecosystem Services:</b>	Provides cover for pheasants, mourning doves, and songbirds.
<b>Compatibility:</b>	Can form colonies.
<b>Other:</b>	Long lifespan, often used in tall grass prairie restorations.

## *Sparganium eurycarpum*

## Giant bur-reed

**Wetland Indicator:** OBL

**Soil:** pH 5.0-8.5

**Form/Color:** Grows to 5'; flowering stem in a zig-zag pattern, green flower and green foliage; moderate grower.

**Stormwater Tolerance:** Retention pond, Swale, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Edges of open ponds in shallow water.

**Ecosystem Services:** Provides moderate amount of food for small mammals and minor amount of food for waterbirds.

**Hydrology:** Intolerant of drought; high moisture usage.

**Horticultural Value:** Erect sword-like green leaves on this semi-aquatic plant. The flowering stem holds globe-like green-white flowers that turn into a densely globular seed head.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Intolerant

**Other:** Moderate lifespan.

**Shade Tolerance:** Tolerant of partial shade

## *Spartina alterniflora*

## Smooth cordgrass

**Wetland Indicator:** OBL

**Soil:** pH 4.5-8.5

**Form/Color:** Tall low marsh grass that can grow from 2 to 4.5', stems disintegrate in winter, blooms and fruits in July-September.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Tolerant of alkaline fill, concrete debris.

**Habitat:** Low salt marsh.

**Ecosystem Services:** Wildlife value moderate, eaten by Canada geese, muskrats.

**Hydrology:** Tolerant of ocean water to 35 ppt salt, intolerant of drought.

**Horticultural Value:** It will spread extensively by rhizomes and produces a spike-like inflorescence turning golden yellow in the fall.

**Compatibility:** Can form colonies.

**Salt Tolerance:** High tolerance

**Other:** Roots used for stabilizing shore areas and decreasing destruction cause by storm tides and wave action; moderate lifespan.

**Shade Tolerance:** Intolerant

**Spartina cynosuroides**

**Big cordgrass**

**Wetland Indicator:** OBL

**Form/Color:** Moderate grower to 9', blooms and fruits in August-October, yellow flower blooms in spring.

**Habitat:** Brackish high tidal marsh, freshwater marshes.

**Hydrology:** Tolerant of brackish water to 10 ppt salt, Intolerant of drough.

**Horticultural Value:** The inflorescence is large, spreading and flowers in the late summer. The seed head has 20-40 long spikes.

**Salt Tolerance:** High tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 5.8-7.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Wildlife value low, eaten by Canada geese, muskrat, cover for waterfowl, wading birds, shorebirds.

**Compatibility:** Can form colonies.

**Other:** Long lifespan.

**Spartina patens**

**Saltmeadow cordgrass**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, grows from 1-4', highly modified clusters of tiny yellow flowers in Apr-May.

**Habitat:** Saline marshes and sandy meadows near the coast, forests, grassland.

**Hydrology:** Wet soil conditions.

**Horticultural Value:** Clusters of tiny yellow flowers.

**Salt Tolerance:** High tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 5.5-7.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds.

**Compatibility:**

**Other:** Often used for beach front stability.

## *Spartina pectinata*

<b>Wetland Indicator:</b>	FACW
<b>Form/Color</b>	To 7', blooms and fruits in July-September, has a distinctive comb-like inflorescence, rapid grower.
<b>Habitat:</b>	Brackish to freshwater shores, marshes.
<b>Hydrology:</b>	Low drought tolerance; high moisture usage; poor drainage.
<b>Horticultural Value:</b>	The colorful inflorescence is large and spreading in a distinctive comb-like form.
<b>Salt Tolerance:</b>	Low tolerance
<b>Shade Tolerance:</b>	Intolerant

## *Tridens flavus*

<b>Wetland Indicator:</b>	UPL
<b>Form/Color</b>	This tall erect grass can reach 3-6.5 ft tall. Tufted, blooms and fruits in August-October, inflorescence dark purple.
<b>Habitat:</b>	Roadsides, fields, dry, open woods.
<b>Hydrology:</b>	Tolerant of drought.
<b>Horticultural Value:</b>	Purple panicles bloom in a pyramidal form and droop when they are in seed.
<b>Salt Tolerance:</b>	Intolerant
<b>Shade Tolerance:</b>	Intolerant

## Prairie cordgrass

<b>Soil:</b>	pH 6.0-8.5
<b>Stormwater Tolerance:</b>	Retention pond, Rain garden, Inundation, Slopes
<b>Urban Tolerance:</b>	Should be tolerant of concrete debris.
<b>Ecosystem Services:</b>	Low nutrition value; provides cover for game, songbirds, and small mammals.
<b>Compatibility:</b>	
<b>Other:</b>	Long lifespan.

## Purpletop

<b>Soil:</b>	pH 4.5-6.5
<b>Stormwater Tolerance:</b>	Retention pond, Rain garden, Slopes, Upland
<b>Urban Tolerance:</b>	Tolerant of low-nutrient soils. Used for bioretention.
<b>Ecosystem Services:</b>	Host to some butterflies.
<b>Compatibility:</b>	Can form colonies.
<b>Other:</b>	Used for bioretention.



## Forbs

Herbaceous flowering annual, biennial, or perennial plants, known as forbs, can add visual interest to the ground layer of a designed landscape as well as habitat for wildlife. Careful consideration of flowering color and season can extend the period of interest and ensure adequate vegetative cover.



*Clockwise from top left: Eupatorium hyssopifolium (Hyssop-leaved thoroughwort), Cirsium discolor (Field thistle), Lobelia cardinalis (Cardinal flower), and Chrysopsis mariana in seed (Maryland golden aster).*

**Acorus americanus f**

**Sweetflag**

**Wetland Indicator:** OBL

**Soil:** pH 5.6-7.2

**Form/Color** Aromatic, alternating, grasslike leaves; yellow-brown flowers on 5-10 cm long spike; produces small, hard berries May-August.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Performs well in the right of way.

**Habitat:** Quiet pond and lake margins, marshes.

**Ecosystem Services:** Provides habitat and food for small mammals and songbirds.

**Hydrology:** Intolerant of drought; high moisture usage.

**Horticultural Value:** Yellow-brown flowers.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Intolerant

**Other:** Moderate lifespan.

**Shade Tolerance:** Intolerant

**Actaea pachypoda**

**Doll's eyes**

**Wetland Indicator:** UPL

**Soil:** Acidic soils.

**Form/Color** Perennial, grows to 1' to 3', flowers white in terminal racemes, May-June. flowers white in May-June, white berries.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Habitat:** Ravines, rich thick woods.

**Ecosystem Services:** Wildlife value low, attractive to beetles, berries eaten by some birds and mice.

**Hydrology:** Moist well-drained soil.

**Horticultural Value:** White flowers and clusters of white globular fruit. Known for its ornamental fruits which look like doll's eyes.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Exploitably vulnerable in New York state, plant is toxic.

**Shade Tolerance:** Shade tolerant

## *Actaea racemosa*

## Black cohosh

**Wetland Indicator:** NC

**Soil:** pH < 6.8

**Form/Color:** Perennial, large, compound basal leaves, grows to 5-6', flowers white racemes 1-3' high in June-July.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Rocky woods, ravines, creek margins, thickets, deciduous forests, moist meadowlands.

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Hydrology:** Tolerant of drought.

**Ecosystem Services:** Attractive to beneficial insects, songbirds, and host to Appalachian blue and spring azure butterflies.

**Horticultural Value:** Terminal cluster of small white flowers are held above divided leaves.

**Compatibility:** Grows well with other woodland plants.

**Salt Tolerance:** Moderately tolerant

**Other:** Slow to establish.

**Shade Tolerance:** Shade tolerant

## *Agalinis purpurea*

## Purple false foxglove

**Wetland Indicator:** FACW

**Soil:** Acidic soils.

**Form/Color:** Annual, grows to 4', simple to branched stems, dark seeds, round capsule fruit.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Habitat:** Moist to wet open soils.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Moist soil.

**Ecosystem Services:** Attractive to several bee species, butterflies, and beetles.

**Horticultural Value:** Large pink bell shaped flowers grow close to the axils of this annual. The spreading form is dotted with small linear leaves all along the stems.

**Compatibility:** Thrives with occasional disturbance to eliminate some competing vegetation.

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Agastache scrophulariifolia**

**Purple giant hyssop**

**Wetland Indicator:** NC

**Form/Color:** Single stem growing to 3-5'; purple irregular flowers bloom July-September; dry-seeded achenes.

**Habitat:** Dry upland woodlands.

**Hydrology:** Moist to dry soil conditions.

**Horticultural Value:** One of the tallest mints. Terminal spikes of purple-red flowers are held atop purplish stems with opposite leaves.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.0-7.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts hummingbirds and butterflies.

**Compatibility:**

**Other:**

**Ageratina altissima**

**Common white snakeroot**

**Wetland Indicator:** FACU

**Form/Color:** Single stem growing to 5', flowers white in July-October.

**Habitat:** Moist forests.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** White inflorescence throughout fall.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.1-6.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterfly species and birds.

**Compatibility:** Can spread aggressively by rhizomes.

**Other:** Somewhat weedy, poisonous if ingested.

**Alisma subcordatum**

**Southern water plantain**

**Wetland Indicator:** OBL

**Form/Color:** Perennial emergent aquatic, grows to 4', triangular flower stem, flowers white in July-August.

**Habitat:** Shallow water, edges of open ponds, swamps.

**Hydrology:** Intolerant of drought, water depth to 1' or saturated soil.

**Horticultural Value:** Leaves in a basal rosette with small white flowers held on long branched stems in summer. Dense rings of dry seeds give the overall plant a gold to

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Adapated to medium and fine soils, high tolerance of soil compaction, tolerates moderate disturbance.

**Ecosystem Services:** Wildlife value moderate.

**Compatibility:** Clonal from rhizomes.

**Other:**

**Allium canadense**

**Meadow garlic**

**Wetland Indicator:** FACU

**Form/Color:** Perennial succulent grass-like form grows to 8-24", flowers white-pink in May-June.

**Habitat:** Moist, open areas.

**Hydrology:** Tolerant of some drought.

**Horticultural Value:** Grass-like leaves with a strong onion odor surround a flowering stalk with a cluster of star-like white-pink flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.6-7.5

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to some bees and butterflies, avoided by rabbits and deer.

**Compatibility:** Does not compete well with taller forbs. Can form colonies.

**Other:** Smells strongly of onion or garlic.



**Allium tricoccum**

**Wild leek**

**Wetland Indicator:** FACU

**Soil:** pH 6.8-7.2

**Form/Color:** Succulent grass-like spring ephemeral, flower stalks appear after leaves die back, flowers white in June-July.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Forest interior, rich woods.

**Ecosystem Services:**

**Hydrology:** Moist to wet soil conditions.

**Horticultural Value:** Pairs of glossy green leaves appear in spring before the flower stalk. White flowers form in umbrella-shaped cluster and produce black seeds.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Shade tolerant

**Anaphalis margaritacea**

**Pearly everlasting**

**Wetland Indicator:** FACU

**Soil:** pH 6.0-7.5

**Form/Color:** 1' to 3' high, white flowers; stem and underside of leaves white wooly, July - September, fast grower.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Dry open sites.

**Ecosystem Services:** Attracts butterflies.

**Hydrology:** Medium textured soils; medium drought tolerance; medium moisture usage.

**Horticultural Value:** Cotton-like appearance. White pearly bracts surround a yellow center in the cluster of flowers.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Minor species for increased diversity and aesthetics in restoration of open habitats, dry grasslands, meadows, sandy fill.

**Shade Tolerance:** Intolerant

**Anemone canadensis**

**Canadian anemone**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, grows to 2'; white flowers bloom May-July.

**Habitat:** Sandy shores, wet meadows.

**Hydrology:** Moderately drought tolerant, prefers moist sandy soil.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.8-7.2

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies and insects.

**Compatibility:** Can be aggressive in favorable conditions. Can form colonies.

**Other:** Used for increased diversity and aesthetics in wetland restoration and mitigation.

**Anemone quinquefolia**

**Wood anemone**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, spring ephemeral, grows to 8", solitary basal leaf, flowers white in April-May.

**Habitat:** Rich, moist, open woods.

**Hydrology:** Prefers moist soil, tolerant of drought.

**Horticultural Value:** Early spring flowering in large, low-lying patches. Foliage is finely divided with delicate five-petaled white flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.0-6.0

**Stormwater Tolerance:** Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:** Can form colonies.

**Other:** Poisonous if ingested.

**Anemone virginiana**

**Tall thimbleweed**

**Wetland Indicator:** FACU

**Form/Color** Perennial, grows up to 2-3', white flowers in May-Jun.

**Habitat:** Rocky or dry open woods, wooded slopes, river banks, fields, meadows.

**Hydrology:** Dry to moderately wet soil conditions.

**Horticultural Value:** White flowers in the Spring and Summer and fluffy seedheads in the Fall and Winter.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.8-7.2

**Stormwater Tolerance:** Insufficient research to determine

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to bees.

**Compatibility:**

**Other:** Toxic if eaten in large quantities.

**Antennaria neglecta**

**Field pussytoes**

**Wetland Indicator:** UPL

**Form/Color** Perennial single stem growing to 1'; white flowers bloom in May-July; slow grower.

**Habitat:** Dry fields, sterile meadows, sandy fill.

**Hydrology:** Dry soil conditions; fine and medium textured soil; low drought tolerance.

**Horticultural Value:** Creates groundcover of white, hairy, rounded basal leaves. Flowering heads are dense and turn a fluffy white when in seed.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 5.5-7.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds and butterflies. Host of painted lady butterfly.

**Compatibility:**

**Other:** Minor species for increasing diversity and aesthetics in restoration of dry, open habitats, dry grasslands, meadows.



**Antennaria plantaginifolia**

**Woman's tobacco**

**Wetland Indicator:** NC

**Form/Color** Perennial, grows up to 6", terminal cluster of fuzzy, rayless white or slightly pink flower heads that resemble a cat's paw in Mar-Jun.

**Habitat:** Dry open woodlands, meadows, and rocky places.

**Hydrology:** Dry soil conditions.

**Horticultural Value:** Pure white male flowers and pink tinged female flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Intolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Tolerant of compaction.

**Ecosystem Services:** Attracts bees and flies. Eaten by flies, moths, Bobwhite Quail, White-Tailed Deer, and Cottontail Rabbits.

**Compatibility:**

**Other:**

**Apocynum cannabinum**

**Indianhemp**

**Wetland Indicator:** FAC

**Form/Color** Perennial, grows to 4', red in full sun, flowers whitish in terminal clusters in May-September.

**Habitat:** Open areas, fill, edges, roadsides, vacant lots, meadows.

**Hydrology:** Moderate tolerance to drought.

**Horticultural Value:** Reddish purple stems and long oval leaves. White flowers grow in clusters and produce long skinny pods that turn brown and fluffy when mature.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 4.5-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Tolerates fill, vacant lots, nutrient poor soil, concrete debris, moderate tolerance of soil compaction.

**Ecosystem Services:** Attractive to butterflies, host to some butterfly larvae.

**Compatibility:** Can compete with mugwort. Can form colonies.

**Other:** Contains various toxins.

**Aquilegia canadensis**

**Wild columbine**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, grows to 6.5', flowers red and yellow in May-June.

**Habitat:** Rocky, undisturbed woods.

**Hydrology:** Tolerant of drought, well-drained soil.

**Horticultural Value:** Finely divided blue green foliage lays low beneath a flowering stem. Showy red and yellow flowers nod with long spurs pointing upward.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** Acidic and alkaline soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Somewhat tolerant of urban pollution.

**Ecosystem Services:** Attractive to hummingbirds and bees.

**Compatibility:**

**Other:**

**Aralia nudicaulis**

**Wild sarsaparilla**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, grows to 15", dioecious, flowers tiny, whitish in May-July, blackish fruit in July-August, dioecious.

**Habitat:** Undisturbed, moist forest understories.

**Hydrology:** Moderate tolerance to drought.

**Horticultural Value:** Single leaf stalks divide with oval leaflets. Whitish flowers in round clusters. Purple to black round berries.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.4-7.2

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, no tolerance of soil compaction.

**Ecosystem Services:** Attractive to bumble bees, other bees, and syrphid flies, fruits eaten by some birds and mammals.

**Compatibility:** Frequently forms colonies.

**Other:**

**Aralia racemosa**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, grows to 6.5', widely branched, large leaves, flowers white in June-August, dark purple fruit.

**Habitat:** Undisturbed forest understories, moist to moderately dry soil.

**Hydrology:** Tolerant of drought, prefers moist soil.

**Horticultural Value:** Large compound leaves with aromatic, white flowers in branched clusters. Purple red berries follow in fall.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**American spikenard**

**Soil:** pH 6.1-7.8

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Fruit eaten by a few birds and mammals.

**Compatibility:** Can form colonies.

**Other:**

**Arisaema triphyllum**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, slow grower to 2', brown-purple spathe arches over whitish spadix, red fruit.

**Habitat:** Undisturbed moist woods, swamp forests, edges in good soil.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Brown-purple to green spathe arches over a white spadix. Oval cluster of red berries.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Jack-in-the-pulpit**

**Soil:** pH 4.0-7.0

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Adapted to coarse and medium soils, moderate tolerance of soil compaction.

**Ecosystem Services:** Fruit eaten by birds, foliage eaten by pheasants.

**Compatibility:**

**Other:** May change sex seasonally, susceptible to rust fungus.

**Asarum canadense**

**Wild ginger**

**Wetland Indicator:** UPL

**Form/Color:** Perennial, very slow grower to 8", round-cordate dark green leaves, flowers at base of stems.

**Habitat:** Forest interior, rich, moist soil.

**Hydrology:** Intolerant of drought.

**Horticultural Value:** Low-growing perennial with heart shaped leaves. Velvety stem hides solitary dark red-brown flower.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.0-7.0

**Stormwater Tolerance:** Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Eaten by the pipevine swallowtail butterfly.

**Compatibility:** Can form colonies.

**Other:** Spreads very slowly.

**Asclepias exaltata**

**Forest milkweed**

**Wetland Indicator:** UPL

**Form/Color:** Perennial, grows from 2-6', bicolored (green or pale purple petals, white or light pink hoods and column) and slightly droopy flowers in Jun-Aug.

**Habitat:** Flood plains, forest edges, forests, marshes, meadows, open woods, prairies.

**Hydrology:**

**Horticultural Value:** Purple flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-8.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts bumblebees and butterflies.

**Compatibility:**

**Other:**

## *Asclepias incarnata*

## Swamp milkweed

<b>Wetland Indicator:</b>	OBL
<b>Form/Color</b>	Perennial, single-stemmed, slow grower to 5', leafy stems, flowers pink in July-August, narrow fruit pods.
<b>Habitat:</b>	Open, undisturbed wet areas, marshes, pond edges.
<b>Hydrology:</b>	Tolerant of drought and periodic flooding.
<b>Horticultural Value:</b>	Small rose-purple flowers with reflexed petals clustered in an inflorescence atop a thick stem. Long pointed seed pods fluff out when ripe.
<b>Salt Tolerance:</b>	Moderately tolerant
<b>Shade Tolerance:</b>	Intolerant

<b>Soil:</b>	pH 5.0-8.0
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation
<b>Urban Tolerance:</b>	Adapted to medium and fine soils, high tolerance of soil compaction, performs well in the right of way.
<b>Ecosystem Services:</b>	Wildlife value high, attractive to butterflies, bees, wasps. As with other milkweeds, host to monarch butterfly.
<b>Compatibility:</b>	Can form colonies.
<b>Other:</b>	Occasionally attacked by chrysomelid beetles, monarch butterfly larvae, and some aphids.

## *Asclepias syriaca*

## Common milkweed

<b>Wetland Indicator:</b>	UPL
<b>Form/Color</b>	Perennial, single-stemmed, grows to 6.5', stout, hairy stem, umbrella-shaped inflorescence, flowers muddy mauve.
<b>Habitat:</b>	Open areas, roadsides, fill, abandoned lots.
<b>Hydrology:</b>	Tolerant of drought.
<b>Horticultural Value:</b>	Large ball shaped drooping flowers that are pink-brown and fragrant. Wide oval leaves and green seed pods with warts will split and fluff out when mature.
<b>Salt Tolerance:</b>	Moderately tolerant
<b>Shade Tolerance:</b>	Intolerant

<b>Soil:</b>	pH 5.6-7.5
<b>Stormwater Tolerance:</b>	Stormwater greenstreet, Retention pond, Rain garden, Upland
<b>Urban Tolerance:</b>	Tolerant of fill soils, disturbance, concrete debris.
<b>Ecosystem Services:</b>	Attractive to bees, wasps, flies, butterflies, moths, eaten by monarch butterfly larvae, curculionid and cerambycid beetles, lygaeid bugs.
<b>Compatibility:</b>	Can form colonies. Often found with dogbane and common aster.
<b>Other:</b>	Sap is toxic, attacked by aphids, parasitized by several fungi.

## *Asclepias tuberosa*

## Butterflyweed

**Wetland Indicator:** NC

**Form/Color** Perennial, single-stemmed, grows to 2', flowers orange in July-August, in umbels.

**Habitat:** Open, undisturbed, upland areas.

**Hydrology:** High tolerance to drought.

**Horticultural Value:** Showy orange flowers radially symmetrical. Narrow lanceolate leaves line the stem and excrete a milky-sap when damaged.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 4.8-6.8

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes

**Urban Tolerance:** Adapted to coarse and medium soils, no tolerance of soil compaction, performs well in the

**Ecosystem Services:** Attractive to bees, butterflies, seedlings eaten by rabbits.

**Compatibility:** Not a good competitor in dense vegetation, easily shaded out by other plants.

**Other:**

## *Baptisia tinctoria*

## Yellow wild indigo

**Wetland Indicator:** NC

**Form/Color** Perennial, grows to 3', sometimes mounding, freely branched, flowers yellow, in short, unbranched clusters in June-July.

**Habitat:** Dry, open areas, sandy soil.

**Hydrology:** High tolerance to drought.

**Horticultural Value:** Small rounded, blue-green foliage in threes along thin green stems. Yellow flowers at tips of branches. Seed pods turn black and rattle when mature.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.8-7.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Adapted to coarse and medium soils, no tolerance of soil compaction.

**Ecosystem Services:** Moderately palatable by browse animals, host to some butterfly species.

**Compatibility:**

**Other:** Leaves are black when dead, nitrogen fixer.

**Bidens frondosa**

**Devil's beggarticks**

**Wetland Indicator:** FACW

**Soil:** pH 5.2-7.2

**Form/Color** Annual, grows to 4', purple stems, flowers yellow in June-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Adapted to coarse and medium soils, moderate tolerance of soil compaction.

**Habitat:** Wet, open areas, fields, edges, disturbed soil.

**Ecosystem Services:** Seeds eaten by birds, plant eaten by rabbits.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Yellow flower heads without rays can reach up to 4 ft tall. The distinctive seeds are flat and awned, hitchhiking with all those that pass it by.

**Compatibility:** Can be weedy.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Intolerant

**Boehmeria cylindrica**

**False nettle**

**Wetland Indicator:** OBL

**Soil:** pH 5.1-7.0

**Form/Color** Perennial, grows to 3', dioecious, stem erect and opaque, flowers green/white in rounded clusters, female flowers in slender clusters.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Adapted to medium and fine soils, moderate tolerance of soil compaction.

**Habitat:** Wet to moist shady areas, swamp forests, flood plains, edges, stream corridors.

**Ecosystem Services:** Host to mourning cloak butterfly larvae, question mark butterfly, and comma butterfly.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Large toothed leaves hang below tiny green flowers that grow on spikes from the leaf axils.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Similar in form to stinging nettle.

**Shade Tolerance:** Shade tolerant

**Borodinia canadensis**

**Sicklepod**

**Wetland Indicator:** NC

**Form/Color** Biennial to 40", winter rosette evergreen, flowers cream-white in May-July, fruits in August-September.

**Habitat:** Rocky banks, rich woods, thickets.

**Hydrology:** Prefers mesic to dry conditions.

**Horticultural Value:** Small cream-white flowers on long stalks line a thin stem. Long drooping sickle-shaped pods form covering papery seeds.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** Stormwater greenstreet, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to bees and flies.

**Compatibility:**

**Other:**

**Cakile edentula**

**American searocket**

**Wetland Indicator:** FACU

**Form/Color** Annual, grows to 32", succulent leaves, flowers pale purple to white in June-October.

**Habitat:** Coastal, primary dunes, upland of high high-tide line.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Succulent stems with shallow toothed leaves and pale purple to white flowers. Rocked-shaped seed pods turn a pale yellow when ripening.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** Circumneutral soils.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Tolerant of gravelly, rocky, sandy soils.

**Ecosystem Services:** Attractive to bees and other insects.

**Compatibility:**

**Other:**



**Caltha palustris**

**Marsh marigold**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, grows to 1-2', heart-shaped leaves, large, showy, buttercup-like yellow flowers in Apr-May.

**Habitat:** Wet woodland, marshy hollows, swamps, floodplains, stream edges, ditches.

**Hydrology:** Moist or wet soil conditions.

**Horticultural Value:** Large, showy yellow flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.9-6.8

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Nectar and pollen attracts flies and bees. Seeds eaten by Wood Ducks, Sora Rails, some upland gamebirds, and small rodents.

**Compatibility:**

**Other:**

**Capnoides sempervirens**

**Pink corydalis**

**Wetland Indicator:** NC

**Form/Color:** Wintergreen, annual or biennial, grows to 2', pale foliage, waxy-green, flowers pink/yellow in May-June, fruit in June-September.

**Habitat:** Dry rocky woodlands.

**Hydrology:** Dry soil conditions.

**Horticultural Value:** Bluish-green foliage is very delicate and lacy. Pink and yellow tubular dangling flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.0-6.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Caulophyllum thalictroides**

**Blue cohosh**

**Wetland Indicator:** NC

**Form/Color** Perennial, grows to 32", stems and leaves waxy-pale, flowers yellow-green or purplish in April-June, blue seeds.

**Habitat:** Interior, moist forests, rich woods.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Yellow-green to purplish flowers and globe-like blue fruits covered with a whitish bloom. Foliage has lobed leaflets and is purplish in the spring.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-7.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Adapted to medium soils, low tolerance of soil compaction.

**Ecosystem Services:** Attractive to bees.

**Compatibility:**

**Other:** Plant poisonous, leaves live 20 weeks.

**Chamaecrista fasciculata**

**Partridge pea**

**Wetland Indicator:** FACU

**Form/Color** Annual, grows from 1-3', large yellow flowers in Jun-Oct.

**Habitat:** Prairies, bluffs, riverbanks and river bottoms, as well as upland woods of the Great Plains. Sandy to sandy loam soils.

**Hydrology:**

**Horticultural Value:** Bright yellow flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.5-7.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Can be found along railroads and roadsides. Favors disturbed areas.

**Ecosystem Services:** Seeds eaten by birds and small mammals. Dense stands are used as cover by game birds and non game birds, small mammals, and waterfowl. Nectar attracts ants and leaves provide food for butterfly

**Compatibility:** Fixes soil nitrogen.

**Other:** Leaves fold together when touched and can be used along road and stream banks to control erosion.

**Chelone glabra**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, grows to 3' tall, flowers white to pinkish in July-August.

**Habitat:** Open marshes, open swamp forest.

**Hydrology:** Tolerant of wet soil.

**Horticultural Value:** White to pinkish tubular flowers bunched in a terminal cluster atop a stem of long narrow dark opposite green leaves.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**White turtlehead**

**Soil:** pH<6.8

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Host for some butterfly species, including Baltimore checkerspot butterfly, attractive to hummingbirds.

**Compatibility:**

**Other:** Exploitably vulnerable in New York state.

**Chrysopsis mariana**

**Wetland Indicator:** UPL

**Form/Color:** Grows to 32", fruits and flowers yellow in August-November.

**Habitat:** Sandy soil, open woods.

**Hydrology:** Wet to moist soil conditions.

**Horticultural Value:** Stems and leaves that are slightly hairy with a purplish tinge. Yellow asters bloom in late summer. Attractive fluffy seed heads persist throughout the fall.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Maryland goldenaster**

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Cirsium discolor**

**Field thistle**

**Wetland Indicator:** UPL

**Form/Color:** Grows to 6', spiny leaves with white underside, flower purple in July-October.

**Habitat:** Open sites, fields, disturbed sites, moist to dry soils, wetland margins, forest edges, roadsides.

**Hydrology:** Drought tolerant, can handle damp to wet soil conditions

**Horticultural Value:** Tall flowering biennial that will self seed

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** Not available.

**Stormwater Tolerance:** Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Will grow in poor soils

**Ecosystem Services:** Nectar flower for bees, butterflies, hummingbirds and beetles. Seeds eaten by birds.

**Compatibility:**

**Other:**

**Claytonia virginica**

**Spring beauty**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, spring ephemeral, grows to 7", several flowering stems, flowers pinkish-white in April-June.

**Habitat:** Understory of moist forests, sometimes in lawns and hedgerows.

**Hydrology:** Rich, moist soil conditions.

**Horticultural Value:** This delicate spring ephemeral has showy pinkish-white flowers and long narrow smooth leaves.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to bees, flies, seeds eaten by mice.

**Compatibility:** Forms colonies in nature. Often found with trout-lily.

**Other:**

**Collinsonia canadensis**

**Northern horsebalm**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, grows to 3', egg-shaped leaves, flowers pale yellow in July-September.

**Habitat:** Woodland herb of moist or wet soil.

**Hydrology:** Medium moisture usage.

**Horticultural Value:** Flowers and foliage have a distinct lemon or citronella scent. Wide oval leaves line the stems. Small yellow flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.0-7.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Cryptotaenia canadensis**

**Canada honewort**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, grows to 3.3', shiny, unbranched stem, flowers white, black and dark Gray striped fruit.

**Habitat:** Moist to wet, rich woods.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Irregular umbels of flowers with ascending white rays. Three-parted toothed leaves line the stem and distinctive narrow seeds split in two.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to butterfly species.

**Compatibility:**

**Other:**

**Decodon verticillatus**

**Swamp loosestrife**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, grows to 4', flowers pink-purple in July-August.

**Habitat:** Open, shallow water, saturated soils of ponds and sunny vernal pools.

**Hydrology:** Intolerant of drought.

**Horticultural Value:** Sessile pink-purple flower clusters. Arching leafy stems can become woody and root at the tip.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.9-8.6

**Stormwater Tolerance:** Retention pond, Inundation

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Attractive to bees, butterflies, wasps.

**Compatibility:** Forms extensive colonies.

**Other:**

**Desmodium canadense**

**Showy tick trefoil**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, grows to 6.5', one to several stems, flowers rose-purple to blue in July-August.

**Habitat:** Moist, open woods, edges.

**Hydrology:** Dry to moist soil conditions.

**Horticultural Value:** Large rose-purple pea like flowers make this the showiest species of the Genus. Velvet hairs cover the stems and leaves and the plant can get quite

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Seeds eaten by some birds and mammals, host to some butterfly species.

**Compatibility:**

**Other:** Seeds stick to fur and clothing, nitrogen fixer.

**Desmodium paniculatum**

**Panicled ticktrefoil**

**Wetland Indicator:** FACU

**Soil:** pH 6.0-7.0

**Form/Color** Perennial, grows to 3', slender, erect, several stems from base, flowers pinkish in July-August.

**Stormwater Tolerance:** Green roof

**Habitat:** Dry woods and edges.

**Urban Tolerance:** Adapted to medium and fine soils, no tolerance of soil compaction.

**Hydrology:** Moderate tolerance to drought.

**Ecosystem Services:** Host to larvae of orange sulfur butterfly.

**Horticultural Value:** Slender, pinkish flowers line long stems with narrow lanceolate leaves in threes.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Seeds stick to fur and clothing, nitrogen fixer.

**Shade Tolerance:** Intolerant

**Dicentra cucullaria**

**Dutchman's breeches**

**Wetland Indicator:** NC

**Soil:** pH 6.0-7.0

**Form/Color** Perennial, spring ephemeral, grows to 6", pale blue-green plant with dark blotches, flowers white-yellowish in April-May, foliage disappears by mid-May.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Moist forests.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Intolerant of flooding, intolerant of drought.

**Ecosystem Services:** Attractive to bees, ants.

**Horticultural Value:** Blue-green fern-like foliage. Rows of nodding white-yellow flowers line a thin stem.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Shade tolerant

**Doellingeria umbellata**

**Parasol whitetop**

**Wetland Indicator:** FACW

**Form/Color:** Herbacious perennial; wide flat-top cluster of white flowers bloom August-September.

**Habitat:** Moist thickets, swamp edges, woods.

**Hydrology:** Loamy, sandy soil; moist to wet.

**Horticultural Value:**

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-6.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies and bees.

**Compatibility:**

**Other:**

**Drymocallis arguta**

**Tall cinquefoil**

**Wetland Indicator:** NC

**Form/Color:** Grows to 3', flowers white in May-June, fruits in July-August.

**Habitat:** Dry, rocky, open woods, fields.

**Hydrology:** Low tolerance to drought; deep mesic or alluvial soils; moist soil conditions.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.0-8.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Adapted to medium soils, moderate tolerance of soil compaction.

**Ecosystem Services:**

**Compatibility:**

**Other:**



**Equisetum hyemale**

**Wetland Indicator:** FAC

**Form/Color:** Evergreen chambered stalk growing to 4'; no flowers; can form dense colonies.

**Habitat:** Open or partly shaded areas in moist to wet sandy soil, shady stream margins.

**Hydrology:** Moist, wet sandy soil.

**Horticultural Value:**

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Scouringrush horsetail**

**Soil:** Acidic soils.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Tolerates wide range of soil, performs well in the right of way.

**Ecosystem Services:**

**Compatibility:** Aggressive spreader.

**Other:**

**Erigeron pulchellus**

**Wetland Indicator:** FACU

**Form/Color:** Well-branched aster with erect stem growing to 20"; violet to whitish flowers bloom May-June.

**Habitat:** Rich, open woods, meadows, streambanks.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Numerous narrow rays of violet to white make up the inflorescence. Basal leaves are paddle shaped, soft and hairy.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Robin's plantain**

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** High wildlife value.

**Compatibility:**

**Other:**

**Erythronium americanum**

**Trout lily**

**Wetland Indicator:** NC

**Form/Color:** Perennial, spring ephemeral, grows to 8", pale blue-green plant with dark blotches, flowers yellow.

**Habitat:** Undisturbed moist woods.

**Hydrology:** Moist, rich soil conditions.

**Horticultural Value:** Yellow, bell-shaped flowers with darker spots, blue-green plant.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Soil:** pH 5.0-6.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to bees, seeds eaten by mice, birds, insects.

**Compatibility:** Forms extensive colonies.

**Other:**

**Eupatorium altissimum**

**Tall boneset**

**Wetland Indicator:** NC

**Form/Color:** Perennial, grows to 31"-6.5', stems solitary or paired, very leafy, flowers white in August-October.

**Habitat:** Dry, open woods.

**Hydrology:** Moist to dry soils.

**Horticultural Value:** White flowers throughout the fall.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Soil:** Circumneutral soils.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to bees, wasps, butterflies, plant eaten by caterpillars.

**Compatibility:**

**Other:**

**Eupatorium hyssopifolium**

**Wetland Indicator:** NC

**Form/Color:** Grows 1-3', flowers white, Aug - Nov, vary narrow leaves usually growing in whorls of four

**Habitat:** Dry, sandy or gravelly fields roadsides, and railroad right of ways; woods, fields, salt meadows

**Hydrology:** Dry to moist sandy soils

**Horticultural Value:** Large cluster of late season white flowers

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Hyssop-leaved thoroughwort**

**Soil:** Not available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance

**Ecosystem Services:** Attracts birds

**Compatibility:**

**Other:**

**Eupatorium perfoliatum**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, grows to 4', most parts very hairy, flowers dull white in July-October.

**Habitat:** Open wet areas, marsh edges, wet roadsides.

**Hydrology:** Moist to wet soil conditions.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Common boneset**

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to bees, wasps, butterflies, plant eaten by caterpillars.

**Compatibility:**

**Other:**

**Eupatorium serotinum**

**Late throughwort**

**Wetland Indicator:** FACW

**Soil:** Not Available.

**Form/Color** Perennial, grows to 1-6.5', stems Grayish-purple, flowers dull pinkish-white in August-October.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Moist to dry open areas, sandy soil, fill.

**Ecosystem Services:** Seeds eaten by some birds.

**Hydrology:** Moist soil conditions; medium moisture usage.

**Horticultural Value:** Pinkish-white flowers in heads of 9-15 flowers.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Euphorbia polygonifolia**

**Seaside sandmat**

**Wetland Indicator:** NC

**Soil:** Not Available.

**Form/Color** Annual, widely branching, prostrate, forms mat, flowers in July-October.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Dunes, beaches, sandy soil.

**Ecosystem Services:** Attractive to small bees and flies, seeds eaten by birds.

**Hydrology:** Prefers mesic to dry conditions.

**Horticultural Value:** Spreading with red stems and small flowers. Rounded seed pods develop on the ends of the branching stems.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Intolerant

**Eurybia divaricata**

**White wood aster**

**Wetland Indicator:** NC

**Form/Color:** 2.5"; herbaceous perennial; white with yellow/red centers bloom August-September.

**Habitat:** Dry woods.

**Hydrology:** Dry to medium moisture conditions; well-drained soil; tolerates drought.

**Horticultural Value:** Showy white flowers in late summer to early fall.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.8-7.2

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies; seeds eaten by birds.

**Compatibility:** Can form colonies. Can be aggressive in the right environment.

**Other:**

**Euthamia caroliniana**

**Slender goldenrod**

**Wetland Indicator:** FAC

**Form/Color:** Herbaceous perennial; yellow flowers bloom August-November; deciduous.

**Habitat:** Moist, marshy, sandy areas.

**Hydrology:** Moist soils.

**Horticultural Value:** Yellow flowers bloom in late fall.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Euthamia graminifolia**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, grows to 1-5', ray flowers yellow in July-October.

**Habitat:** Open areas, dry to moist soil of meadows, roadsides and path edges.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Common flat-topped goldenrod**

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Tolerant of poor, gravelly, sandy, or dry soils.

**Ecosystem Services:** Seeds eaten by some birds and small mammals, foliage eaten by rabbits, flowers eaten by Blister beetles.

**Compatibility:** Leaf extracts have inhibited seed germination in other plants, may displace other species if left unmanaged.

**Other:**

**Eutrochium dubium**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, grows to 15-40", stems have purple speckles, flowers dull purple in July-September.

**Habitat:** Open moist sandy, gravelly acidic soil, wet woods, edges.

**Hydrology:** Medium moisture usage.

**Horticultural Value:** Purple flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Coastal plain Joe Pye weed**

**Soil:** Acidic soils.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Eaten by some birds, host for some butterfly species.

**Compatibility:**

**Other:**

**Eutrochium fistulosum**

**Trumpetweed**

**Wetland Indicator:** FACW

**Form/Color** Perennial, grows from 2-7', stem is hollow, flowers are fragrant and purple or pink in Jul-Sep.

**Habitat:** Alluvial woods, meadows, bogs and marshes, stream banks.

**Hydrology:** Damp, moist to wet, rich soils.

**Horticultural Value:** Fragrant, purple or pink flowers with leaves in whorls of 4 to 7.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Nectar attracts a variety of pollinators, including butterflies, skippers, and long-tongued bees. Eaten by various caterpillars and also attractive to birds.

**Compatibility:**

**Other:**

**Eutrochium maculatum**

**Spotted Joe Pye weed**

**Wetland Indicator:** OBL

**Form/Color** 2-10'; Perennial; clusters of pink to purplish flowers blooms July-September.

**Habitat:** Moist soil along shores.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Pink, purplish flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Circumneutral to alkaline soils.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:**

**Eutrochium purpureum**

**Purple Joe Pye weed**

**Wetland Indicator:** FAC

**Form/Color** Herbaceous perennial; grows to 7'; pink and purple flowers blooms July-September.

**Habitat:** Low moist ground; wooded slopes; wet meadows; thickets; stream margins.

**Hydrology:** Average to medium moisture soil conditions.

**Horticultural Value:** Showy, fragrant pink and purple flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Alkaline soils.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:**

**Fragaria virginiana**

**Wild strawberry**

**Wetland Indicator:** FACU

**Form/Color** Perennial, low growing to about 6", winter-green, flowers white, red fruit with small seeds in fruit surface, fruits in June-July.

**Habitat:** Low vegetation, fields or open woods, good soil.

**Hydrology:** Dry soil conditions.

**Horticultural Value:** Red fruit in summer.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Fruit eaten by songbirds, pheasants, and mammals, foliage eaten by rabbits, deer, and other herbivores.

**Compatibility:** Can form colonies.

**Other:**



**Geranium maculatum**

**Wild geranium**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, grows to 15", flowers pink-purple in loose clusters in April-June.

**Habitat:** Undisturbed moist to dry woods, good soil.

**Hydrology:** Tolerant of drought; medium moisture usage.

**Horticultural Value:** Pink-purple clusters of flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.4-5.6

**Stormwater Tolerance:** Rain garden, Slopes, Upland

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Seeds eaten by birds and small mammals, foliage eaten by deer.

**Compatibility:**

**Other:**

**Geum canadense**

**White avens**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, evergreen, grows to 3', flowers white with petals longer than sepals, upper stem and leaves hairy.

**Habitat:** Woods, part shaded edges, meadows in moist to dry soil.

**Hydrology:** Dry to moist soil conditions; medium moisture usage.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-7.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Helienium autumnale**

**Common sneezeweed**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, grows to 20-60", flowers yellow in August-October.

**Habitat:** Rich, moist thickets, shores.

**Hydrology:** Medium to wet moisture soil conditions.

**Horticultural Value:** Yellow flowers in the fall.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Helianthemum canadense**

**Longbranch frostweed**

**Wetland Indicator:** NC

**Form/Color:** Grows to 16", flowers yellow in May-July, fruits in August-October.

**Habitat:** Dry, sandy soil, wooded edges, barrens.

**Hydrology:** Sandy, loamy, well-drained soil; dry to moist soil.

**Horticultural Value:** Showy yellow flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Helianthus decapetalus**

**Thin-leaved sunflower**

**Wetland Indicator:** FACU

**Soil:** Not Available.

**Form/Color:** Perennial, grows to 5', rough textured, yellow rays in August-October.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Open woods, rich, moist soil.

**Ecosystem Services:** Seeds eaten by birds and small mammals.

**Hydrology:** Dry or moist soil.

**Horticultural Value:** Yellow flowers in fall.

**Compatibility:** Clonal from rhizomes.

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Helianthus divaricatus**

**Woodland sunflower**

**Wetland Indicator:** NC

**Soil:** pH 5.0-7.0

**Form/Color:** Perennial, grows to 5', waxy-pale stem, yellow rays in August-October.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Dry, thin woods.

**Ecosystem Services:** Seeds eaten by birds and small mammals, attractive to butterfly species.

**Hydrology:** Dry to medium moisture conditions.

**Horticultural Value:** Yellow flowers.

**Compatibility:** Clonal from rhizomes.

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Helianthus giganteus**

**Giant sunflower**

**Wetland Indicator:** FACW

**Soil:** Not Available.

**Form/Color** Perennial, grows to 9', usually hairy, flowers yellow in July-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Wet woods, rich thickets, marshes, wooded swamps.

**Ecosystem Services:**

**Hydrology:** Moist to wet soil conditions.

**Horticultural Value:** Yellow flowers throughout fall.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Shade tolerant

**Heliopsis helianthoides†**

**Smooth oxeye**

**Wetland Indicator:** FACU

**Soil:** pH 5.6-6.8

**Form/Color** 3-5' tall, branching occasionally and becoming rather bushy in open situations. Opposite dark green leaves have a rough texture. July -September.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Urban Tolerance:** Performs well in the right of way.

**Habitat:** Dry, open woods, dry banks.

**Ecosystem Services:** Attracts butterflies.

**Hydrology:** Dry to moderately moist soil conditions; tolerates drought.

**Horticultural Value:** Yellow flowers.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Used for increased diversity and aesthetics in restoration of open woodlands, edges. Also known as false sunflower.

**Shade Tolerance:** Tolerant of partial shade

**Hibiscus moscheutos**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, slow grower to 3-7', flowers pink to white in July-September.

**Habitat:** Open marshes, undisturbed wet ditches, pond edges, tolerates brackish water.

**Hydrology:** Low drought tolerance; moist to wet soil conditions; high water usage.

**Horticultural Value:** Very showy pink to white flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Crimsoneyed rosemallow**

**Soil:** pH 4.0-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Host to some butterfly species, attractive to hummingbirds.

**Compatibility:** Often in small colonies.

**Other:**

**Hieracium paniculatum**

**Wetland Indicator:** NC

**Form/Color:** Perennial, grows from 1-4', yellow flowers with narrow and 5-toothed petals from Jul-Sept.

**Habitat:** Stabilized sand dunes, plateaus, sand prairies, sand upland savannah, openings in sandy or rocky woodlands.

**Hydrology:** Mesic or dry soil conditions.

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Narrowlead hawkweed**

**Soil:** Not Available.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Nectar and/or pollen attracts bees and other insects such as aphids. Eaten by ruffed grouse, wild turkey, cottontail rabbits and white-tailed deer.

**Compatibility:**

**Other:**

**Hieracium venosum**

**Rattlesnakeweed**

**Wetland Indicator:** NC

**Form/Color:** Perennial, grows to 3', reddish-purple midrib and veins, flowers yellow in May-July.

**Habitat:** Open, rocky, dry woods.

**Hydrology:** Dry soil conditions.

**Horticultural Value:** Yellow flowers, attractive foliage.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Hydrophyllum virginianum**

**Virginia waterleaf**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, grows to 30", usually low, sprawling, flowers pale violet to white in clusters in May-June.

**Habitat:** Moist to wet, open woods, stream banks.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Pale violet to white flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.0-7.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:** Can form colonies.

**Other:**

**Hypericum hypericoides**

**St. Andrew's cross**

**Wetland Indicator:** FACU

**Soil:** Not Available.

**Form/Color:** 1-3'; perennial; yellow flowers bloom June-September.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Dry woods, pine barrens; sand hills; ridges; floodplains,

**Ecosystem Services:**

**Hydrology:** Dry to moist soil conditions.

**Horticultural Value:** Yellow flowers.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Impatiens capensis**

**Jewelweed**

**Wetland Indicator:** FACW

**Soil:** pH 5.6-7.0

**Form/Color:** Annual, grows to 5', stem succulent, flowers orange in June-September.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Swamp forests, shady or open marsh, stream edges, moist woods.

**Ecosystem Services:** Seeds eaten by birds and mice, flowers attractive to hummingbirds.

**Hydrology:** Moist to wet. Not drought tolerant.

**Horticultural Value:** Showy orange flowers.

**Compatibility:** Often forms dense monocultures.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Impatiens pallidaf**

**Yellow jewelweed**

**Wetland Indicator:** FACW

**Soil:** pH 6.8-7.4

**Form/Color** Annual, grows to 3-6', pale yellow tubular flowers occasionally spotted with reddish brown from Jun-Oct.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Habitat:** Wet woods and meadows, often on mountainsides in wet, shady, limestone or neutral sites.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Moist or wet soil conditions.

**Ecosystem Services:** Nectar attracts the Ruby-Throated Hummingbird and bumblebees. Eaten by caterpillars of moths, gamebirds, the White-Footed Mouse, and White-Tailed Deer.

**Horticultural Value:** Large yellow flowers.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Shade tolerant

**Ionactis linariifolius**

**Flaxleaf whitetop aster**

**Wetland Indicator:** NC

**Soil:** Acidic soils.

**Form/Color** Perennial, herbaceous; white, yellow, blue and purple flowers bloom August-October.

**Stormwater Tolerance:** Green roof

**Habitat:** Dry clearings, rocky banks.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Dry to moist soil conditions.

**Ecosystem Services:**

**Horticultural Value:** Blue and purple flowers.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Intolerant



## *Iris versicolor*

**Wetland Indicator:** OBL

**Form/Color:** Perennial, slow grower to 32", often forms large clumps, leaves usually purple at base, flowers blue-violet in May-July.

**Habitat:** Undisturbed marshes, pond edges, swamp forest gaps, freshwater and brackish tidal marshes.

**Hydrology:** Tolerant of flooding or saturated soil.

**Horticultural Value:** Showy blue-violet flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

## *Krigia virginica*

**Wetland Indicator:** UPL

**Form/Color:** Annual, slender, grows to 12", basal rosette forming leaves, flowers yellow in May-July.

**Habitat:** Dry to mesic, sandy soil.

**Hydrology:** Dry, well-drained soil.

**Horticultural Value:** Yellow flowers, similar in appearance to dandelions.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

## Harlequin blueflag

**Soil:** Acidic soils.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Inundation

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Flowers attractive to hummingbirds, insects, and birds.

**Compatibility:** Can form colonies.

**Other:**

## Virginia dwarf dandelion

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:** Leaves and flowering stems contain a white latex.

**Lathyrus japonicus**

**Beach pea**

**Wetland Indicator:** FACU

**Soil:** pH 6.0-7.5

**Form/Color:** Perennial, grows to 2', pink or purple flower in May-Aug.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Dunes, sandy to stony beaches, steep beach ridges or other such shores.

**Urban Tolerance:** Threatened by non-native plants and vehicles, and possibly threatened by trail maintenance and foot

**Ecosystem Services:** Attracts butterflies.

**Hydrology:** Dry to moist soil conditions.

**Horticultural Value:** Pink or purple flowers.

**Compatibility:** Has symbiotic relationship with certain soil bacteria, these bacteria form nodules on the roots and fix atmospheric nitrogen.

**Salt Tolerance:** High tolerance

**Other:** Stabilizes sand with deep expansive root system.

**Shade Tolerance:** Intolerant

**Lechea maritima**

**Beach pinweed**

**Wetland Indicator:** NC

**Soil:** Acidic soils.

**Form/Color:** Red flowers bloom June-July.

**Stormwater Tolerance:** Green roof

**Habitat:** Dunes, beaches; sandy soils.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Hydrology:** Dry, well-drained soil. Drought tolerant.

**Horticultural Value:** Red flowers.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Intolerant

**Lechea mucronata**

**Hairy pinweed**

**Wetland Indicator:** NC

**Form/Color** Perennial, grows to 32", one or few flowering stems, brownish-purple, flowers reddish in July-October.

**Habitat:** Open, dry woods, fields, sandy or gravelly soil.

**Hydrology:** Dry, well-drained soil.

**Horticultural Value:** Small reddish flowers throughout fall, reddish brown stems throughout winter.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Lespedeza capitata**

**Roundhead lespedeza**

**Wetland Indicator:** FACU

**Form/Color** Perennial, single stem, grows to 5', flowers dull white with purple spot at base.

**Habitat:** Open fields, sandy soil, tolerates sterile soil.

**Hydrology:** Dry, well-drained soil conditions.

**Horticultural Value:** Dull white flowers with purple at the bases.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Seeds eaten by birds, plants eaten by deer.

**Compatibility:**

**Other:** Nitrogen fixer.

## *Lespedeza hirta*

<b>Wetland Indicator:</b>	NC
<b>Form/Color</b>	Perennial, grows to 5', flowers pea-flower-shaped, yellowish-white with purple base in July-October.
<b>Habitat:</b>	Dry open rocky or sandy soil, open woods, fields.
<b>Hydrology:</b>	Sandy, dry soil conditions; low moisture usage.
<b>Horticultural Value:</b>	Pea-flower-shaped flowers in yellowish-white with purple base.
<b>Salt Tolerance:</b>	Intolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

## *Lilium superbum*

<b>Wetland Indicator:</b>	FACW
<b>Form/Color</b>	Perennial, grows to 8', flowers orange in July-August.
<b>Habitat:</b>	Moist to wet forests.
<b>Hydrology:</b>	Low drought tolerance; moist, loamy, sandy soil; medium moisture usage.
<b>Horticultural Value:</b>	Orange flowers, petals curled back.
<b>Salt Tolerance:</b>	Low tolerance
<b>Shade Tolerance:</b>	Shade tolerant

## Hairy bush clover

<b>Soil:</b>	pH 5.7-8.2
<b>Stormwater Tolerance:</b>	Green roof
<b>Urban Tolerance:</b>	Insufficient information to determine tolerance.
<b>Ecosystem Services:</b>	Seeds eaten by birds, plants eaten by deer, host to some butterfly species.
<b>Compatibility:</b>	
<b>Other:</b>	Nitrogen fixer.

## Turk's cap lily

<b>Soil:</b>	pH 4.4-5.0
<b>Stormwater Tolerance:</b>	Retention pond, Rain garden, Inundation, Slopes
<b>Urban Tolerance:</b>	Insufficient information to determine tolerance.
<b>Ecosystem Services:</b>	Attractive to hummingbirds, bulbs may be eaten by voles and muskrats.
<b>Compatibility:</b>	Sometimes forms colonies.
<b>Other:</b>	

**Limonium carolinianum**

**Sea lavender**

**Wetland Indicator:** OBL

**Form/Color:** Grows to 1'; herbaceous perennial; branching cluster of small, pale, purple flower bloom June-August.

**Habitat:** Salt marshes.

**Hydrology:** Moist clay, loamy, sandy soil; high moisture use.

**Horticultural Value:** Pale purple flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Lobelia cardinalis**

**Cardinalflower**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, single stem, slow grower to 20-60", flowers scarlet in July-September.

**Habitat:** Swamp forests and marshes.

**Hydrology:** Tolerant of flooding.

**Horticultural Value:** Showy scarlet flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.5-7.0

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Flowers attractive to hummingbirds, host to some butterfly species.

**Compatibility:**

**Other:**

**Lobelia siphilitica**

**Great blue lobelia**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, single stem, grows to 20-60", flowers blue in August-September.

**Habitat:** Open marshes, swamp forests.

**Hydrology:** Low drought tolerance; moist to wet clay, loamy, sandy soil conditions.

**Horticultural Value:** Showy blue flowers in late summer.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:** Spreads easily from seed.

**Ludwigia alternifolia**

**Seedbox**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, grows to 4', flowers yellow in July-August.

**Habitat:** Open marshes, moist to wet forest edges.

**Hydrology:** Wet to moist soil.

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Lycopus americanus**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, single stem, grows to 35", flowers white in June-September.

**Habitat:** Open or part-shaded wet soil, ditches, swamp forests, pond edges, wet roadsides.

**Hydrology:** Intolerant of drought, tolerant of flooding.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Lycopus virginicus**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, grows to 2', white flowers in Jul-Sep.

**Habitat:** Shores of rivers or lakes, swamps, wetland margins

**Hydrology:** Moist or wet soil conditions.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**American water horehound**

**Soil:** pH 5.2-7.8

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:** Tolerant of competition. Clonal from rhizomes.

**Other:**

**Virginia water horehound**

**Soil:** pH 5.0-6.3

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to bees, wasps, and flies.

**Compatibility:**

**Other:**

**Lysimachia ciliata**

**Fringed loosestrife**

**Wetland Indicator:** FACW

**Form/Color:** 24"-30"; narrowly egg-shaped stem leaves; five-petaled yellow flowers bloom June-July; round fruit capsule; fast grower.

**Habitat:** Moist to well-drained soils; swamps, partial shade in undisturbed woods; floodplains.

**Hydrology:** Drought tolerant.

**Horticultural Value:** Yellow flowers June to July.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.8

**Stormwater Tolerance:** Retention ponds, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies and other insects.

**Compatibility:** Can form colonies.

**Other:** Used for increasing diversity and aesthetics of wetland restoration and mitigation; used for erosion control.

**Lysimachia quadrifolia**

**Whorled yellow loosestrife**

**Wetland Indicator:** FACU

**Form/Color:** 3'; yellow flowers bloom June-August; fruit August-October.

**Habitat:** Open woods, gaps, edges.

**Hydrology:** Suited best for dry uplands.

**Horticultural Value:** Yellow flowers June to August.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.8-5.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies and insects.

**Compatibility:**

**Other:** Used for increasing diversity and restoration of aesthetics of open woodlands, gaps, and edges.



**Maianthemum canadense**

**Canada mayflower**

**Wetland Indicator:** FACU

**Form/Color:** Grows to 8"; white flowers develop May-June, flowering stalks usually only have two leaves, fleshy red fruit ripen from June to July.

**Habitat:** Moist, beech, oak, or conifer woods.

**Hydrology:** Moist to wet; prefers humus-rich soil.

**Horticultural Value:** Red fruit, delicate white flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.4-5.4

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Provides valuable cover.

**Compatibility:** Frequently forms colonies.

**Other:** A common understory plant, frequently found with Solomon's seal, false Solomon's seal, sessile-leaved bellwort, wild sarsparilla.

**Maianthemum racemosum**

**False Solomon's seal**

**Wetland Indicator:** FACU

**Form/Color:** Grows to 32"; single stem, white flowers bloom May-June; fleshy, speckled red fruit September-October.

**Habitat:** Frequent in New York City woodlands; mixed deciduous forests.

**Hydrology:** Drought tolerant.

**Horticultural Value:** White flowers, berries.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH < 6.8

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Dispersed by small mammals and birds.

**Compatibility:** Can form colonies.

**Other:** Used for increased diversity and aesthetics in restoration of moist forest understories.

## **Maianthemum stellatum**

**Wetland Indicator:** FAC

**Form/Color:** Grows to 2'; single stem, white 1 cm wide flowers bloom May to July; green with blackish stripes, three-lobed fruit ripens to red June-September.

**Habitat:** Moist, sandy, gravelly, open forests, floodplains, margins of seasonal or temporary streams and flooded areas, moist swales, in black dune forests.

**Hydrology:** Dry to moist soil conditions.

**Horticultural Value:** White flowers May-July, berries.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

## **Mimulus ringens**

**Wetland Indicator:** OBL

**Form/Color:** Grows to 3': pink-purple flowers bloom July-August; fruit August-September;

**Habitat:** Swamp forests, shady stream banks, wet meadows.

**Hydrology:** Medium to wet moisture conditions.

**Horticultural Value:** Attractive foliage and pink- purple flowers July to August.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

## **Starry false lily of the valley**

**Soil:** pH 5.9

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreets, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:** Used in restoration and mitigation of wetland in sandy soil, coastal woodlands. Slow to moderate grower.

## **Allegheny monkeyflower**

**Soil:** Not Available.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:** Common name refers to resemblance of the flower to a monkey's face when it is squeezed by the fingers.

**Mitchella repens**

**Partridgeberry**

**Wetland Indicator:** FACU

**Form/Color** Low-growing groundcover; 8"; white flowers bloom June-July; fleshy red fruit develop August-October.

**Habitat:** Rich, moist to dry woods.

**Hydrology:** Dry to moist soil conditions.

**Horticultural Value:** White flowers June-July,

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Eaten by birds and small mammals.

**Compatibility:** Can form colonies.

**Other:** Used for increasing diversity and aesthetics in restoration of moist forest understories.

**Monarda fistulosa**

**Wild bergamot**

**Wetland Indicator:** FACU

**Form/Color** Grows to 4'; lilac or pink flowers bloom July-September; fruit develops August-October.

**Habitat:** Upland, open woods.

**Hydrology:** Intolerant of drought; high moisture usage.

**Horticultural Value:** Lilac or pink flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 6.0-8.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts hummingbirds, bees, and butterflies.

**Compatibility:** Can form colonies.

**Other:**

**Nuphar lutea**

**Yellow pond lily**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, aquatic, can grow in water 16' deep, single, yellow, fleshy flower with lobed stigma in Mar-Oct.

**Habitat:** Ponds, lakes, bayous, bogs, streams and springs.

**Hydrology:** Wet soil conditions.

**Horticultural Value:** Yellow flower.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Retention pond, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds and insects.

**Compatibility:**

**Other:**

**Nuttallanthus canadensis**

**Blue toadflax**

**Wetland Indicator:** NC

**Form/Color:** 2'; pale blue flowers bloom April-May; fruits develops June-September.

**Habitat:** Open, sterile, sandy; maritime grassland or shrubland, forests, sandy fields; dry or poor soils.

**Hydrology:** Prefers dry to moist conditions; tolerant of drought.

**Horticultural Value:** Pale blue flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Tolerant of concrete debris. Found in disturbed areas.

**Ecosystem Services:** Provides low amount of cover for large mammals.

**Compatibility:**

**Other:** Used for increased diversity and aesthetics in restoration of open sand barren and coastal grassland habitat; helps with erosion control.

## *Nymphaea odorata*

<b>Wetland Indicator:</b>	OBL
<b>Form/Color</b>	Perennial, aquatic, can grow in water 8' deep, single white flower with golden yellow stamens in Mar-Oct.
<b>Habitat:</b>	Ponds, lakes, slow streams, and ditches.
<b>Hydrology:</b>	Wet soil conditions.
<b>Horticultural Value:</b>	Flagrant, white flower.
<b>Salt Tolerance:</b>	Insufficient research to determine
<b>Shade Tolerance:</b>	Intolerant

## *Oenothera biennis*

<b>Wetland Indicator:</b>	FACU
<b>Form/Color</b>	Yellow flower bloom in late spring to early fall; fast grower.
<b>Habitat:</b>	Common in open, disturbed areas, vacant lots, fill, and roadsides.
<b>Hydrology:</b>	Medium drought tolerance; medium moisture usage.
<b>Horticultural Value:</b>	Yellow flowers.
<b>Salt Tolerance:</b>	Tolerant
<b>Shade Tolerance:</b>	Intolerant

## **American white waterlily**

<b>Soil:</b>	Not Available.
<b>Stormwater Tolerance:</b>	Retention pond, Inundation
<b>Urban Tolerance:</b>	Insufficient information to determine tolerance.
<b>Ecosystem Services:</b>	Attracts bees, flies, beetles, and birds. Eaten by waterfowl and mammals.
<b>Compatibility:</b>	
<b>Other:</b>	

## **Common evening primrose**

<b>Soil:</b>	pH 5.0-7.0
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Upland
<b>Urban Tolerance:</b>	Performs well in the right of way.
<b>Ecosystem Services:</b>	Seeds eaten by birds.
<b>Compatibility:</b>	Can become weedy.
<b>Other:</b>	Short lifespan.

**Oenothera fruticosa**

**Wetland Indicator:** FACU

**Form/Color:** Grows to 1'-3'; slender, hairy stems; alternating elliptic leaves; showy, bright yellow four-petaled flowers; four-sided, club-shaped fruit pods.

**Habitat:** Dry open woods, meadows, disturbed sites.

**Hydrology:** Course, fine, medium textured soils; high moisture usage; low drought

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Narrowleaf evening primrose**

**Soil:** pH 4.5-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds, hummingbirds, and bees.

**Compatibility:**

**Other:** Moderate lifespan.

**Oenothera perennis**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, stems to 2', unbranched, narrow leaves, flowers yellow in June-August.

**Habitat:** Moist or wet soil in undisturbed, open areas, meadows.

**Hydrology:** Moist to average sandy or gravelly soil.

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Little evening primrose**

**Soil:** Not Available.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to hummingbirds.

**Compatibility:**

**Other:**

**Opuntia humifusa**

**Eastern prickly pear**

**Wetland Indicator:** NC

**Form/Color:** Grows to 1'; evergreen, prickly; showy, yellow flowers bloom in June-July; reddish, fleshy fruit ripe October-November.

**Habitat:** Dry sand, back dunes, cliff faces and rocky sites.

**Hydrology:** Drought tolerant; grows well on varied moisture conditions; well drained soil.

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.5-7.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Used for protection and shelter by birds, snakes, and lizards. Flower very attractive to bees.

**Compatibility:** Can form colonies.

**Other:** Also known as Devil's tongue

**Osmorhiza claytonii**

**Clayton's sweetroot**

**Wetland Indicator:** FACU

**Form/Color:** Grows to 2'; white flowers bloom May-June; fruit ripe June-August.

**Habitat:** Rich, moist mixed hardwood forests; urban parks.

**Hydrology:** Grows well on drained gravelly or sandy loams; poorly drained clay loams.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:**

**Osmorhiza longistylis**

**Long-styled sweet cicely**

**Wetland Indicator:** FACU

**Form/Color** Compound umbrella-shaped with 3-6 rays; small white flowers, styles longer than petals, bloom May-June; blackish, bristly fruit ripe June-August.

**Habitat:** Moist woods, floodplain forests.

**Hydrology:** Drought tolerant; prefers rich loamy soil.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:** Used for increasing diversity and aesthetics in restoration of moist, mixed deciduous woodland understories.

**Packera aurea**

**Golden ragwort**

**Wetland Indicator:** FACW

**Form/Color** Grows to 3', yellow showy flowers, from May-July, semi-evergreen basal rosette of foliage

**Habitat:** Moist woods, mucky seepage areas

**Hydrology:** Prefers soil with consistent moisture

**Horticultural Value:** Daisy like flowers, can form groundcover

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-8.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Inundation

**Urban Tolerance:** Can tolerate concrete debris

**Ecosystem Services:** Nectar and pollen source for bees, provides wildlife cover.

**Compatibility:**

**Other:** Calciphile- often found in calcareous soil, can form colonies.



**Packera obovata**

**Wetland Indicator:** FACU

**Form/Color:** Grows 6-28". Flowers yellow from Apr-Jun. Oval leaves, semi-evergreen basal rosette of foliage

**Habitat:** Upland woodlands and slopes, open rocky glades, road banks.

**Hydrology:** Prefers moist to dry-mesic conditions

**Horticultural Value:** Daisy like flowers, can form groundcover

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Round-leaved ragwort**

**Soil:** Prefers basic soil

**Stormwater Tolerance:** Retention Pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient research to determine

**Ecosystem Services:** Attracts butterflies and bees

**Compatibility:**

**Other:** Spreads by rhizomnes forming colonal patches.

**Peltandra virginica**

**Wetland Indicator:** OBL

**Form/Color:** Grows to 30"; green-white flowers bloom June-July; fruit ripe August; slow grower.

**Habitat:** Fresh to slightly brackish tidal and nontidal marshes and pond edges.

**Hydrology:** Tolerant of flooding 100% of growing season.

**Horticultural Value:** Green-white flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

**Green arrow arum**

**Soil:** pH 5.0-9.5

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Tolerant of concrete debris.

**Ecosystem Services:** Provides cover for invertebrates and small fish.

**Compatibility:** Can form colonies.

**Other:** Used for erosion control, vegetation, diversity, and aesthetics for the margins of ponds and lakes; used for wetland mitigation.

**Penstemon digitalis**

**Wetland Indicator:** FAC

**Form/Color:** Moderate grower to 5', single stem, waxy-whitish or purplish, flowers white or pale purple in May-July.

**Habitat:** Part shade, edges and meadows, second growth.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** White or pale purplish flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

**Foxglove beardtongue**

**Soil:** pH 5.5-7.0

**Stormwater Tolerance:** Retention pond, Rain garden, Upland

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, low tolerance of soil compaction.

**Ecosystem Services:** Attracts birds and butterflies.

**Compatibility:**

**Other:**

**Penstemon hirsutus**

**Wetland Indicator:** NC

**Form/Color:** Grows to 32", single stem, flowers white and purplish in May-June.

**Habitat:** Dry sandy or rocky fields, open woods.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** White and purplish flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Hairy beardtongue**

**Soil:** pH 5.5-6.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Penthorum sedoides**

**Ditch stonecrop**

**Wetland Indicator:** OBL

**Form/Color:** Grows to 2': whitish flowers bloom July-September; fruit ripe August-October.

**Habitat:** Marshes, wet edges in low, sparse vegetation; undisturbed, open areas.

**Hydrology:** Medium drought tolerance; medium moisture usage; fine textured soils.

**Horticultural Value:** Interesting white flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:** Can form colonies.

**Other:** Used for shoreline stabilization and increased diversity and aesthetics in wetland restoration, pond edges.

**Persicaria arifolia**

**Halberd-leaved tearthumb**

**Wetland Indicator:** OBL

**Form/Color:** Single stem with hooked prickles; arrow-shaped leaves; pink, white, or green flowers bloom August-September; shiny brown seeds.

**Habitat:** Open marshes and pond edges.

**Hydrology:** Wet to moist soils.

**Horticultural Value:** Pink, white, green flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Seeds eaten by birds and small mammals.

**Compatibility:**

**Other:**

**Persicaria hydropiperoides**

**Swamp smartweed**

**Wetland Indicator:** OBL

**Form/Color:** Grows to 6'; reclining stems; tops of leaves fringed with long bristles; pink to white flowers bloom July-November; slow grower.

**Habitat:** Open, wet soil, pond edges; freshwater tidal and nontidal marshes.

**Hydrology:** Intolerant of drought; medium moisture usage; fine and medium textured soils.

**Horticultural Value:** Pink to white flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.8-8.8

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Moderate wildlife value.

**Compatibility:** Can form colonies.

**Other:** Used as a minor species for increasing diversity and aesthetics in marsh and swamp habitat restoration; wetland mitigation.

**Persicaria pensylvanica**

**Pennsylvania smartweed**

**Wetland Indicator:** FACW

**Form/Color:** Annual, grows from 2-4', stems are reddish brown and have swollen nodes, small pink or rose flowers on a short spike in Mar-May, seeds are black.

**Habitat:** Wet prairies, prairie swales, swamps, low area near ponds or rivers, edges of marshes, degraded seasonal wetlands, abandoned fields.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Clusters of bright pink flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 4.0-8.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Can be found in low areas along railroads, roadside ditches, vacant lots, fence rows and waste areas.

**Ecosystem Services:** Attracts bees, wasps, flies, butterflies, moths, and weevils. Seeds are eaten by birds and small rodents. Turtles also feed on this plant.

**Compatibility:**

**Other:**

**Persicaria sagittata**

**Arrow-leaved tearthumb**

**Wetland Indicator:** OBL

**Form/Color:** Grows to 6'; reclining stems; pink to green flowers bloom and fruits August-November; fast grower.

**Habitat:** Freshwater tidal and nontidal marshes.

**Hydrology:** Course, fine, medium textured soils; low drought tolerance.

**Horticultural Value:** Pink to green flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.0-8.5

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Low wildlife value as food for waterbirds.

**Compatibility:**

**Other:** Secondary species erosion control on open soil of newly restored wetlands and wetland mitigation.

**Persicaria virginiana**

**Jumpseed**

**Wetland Indicator:** FAC

**Form/Color:** 6'; single stem, greenish white flowers bloom July-October; produces fruit August-November.

**Habitat:** Woods, floodplain forests, common in disturbed woodlands and urban forests.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Greenish white flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:** Can form colonies.

**Other:** Used for erosion control and soil cover in degraded forest understory.

**Phlox subulata ssp. subulata**

**Moss phlox**

**Wetland Indicator:** NC

**Soil:** pH 5.0-8.0

**Form/Color:** Ground cover, semi-evergreen, rapid grower to 8", flowers purple to pink in May-July.

**Stormwater Tolerance:** Green roof

**Habitat:** Gravelly, sandy soil, rocky ledges.

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, no tolerance of soil compaction.

**Ecosystem Services:**

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Purple and pink showy flowers.

**Compatibility:** Quickly overgrown by taller vegetation.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Phryma leptostachya**

**American lopseed**

**Wetland Indicator:** FACU

**Soil:** pH 5.5-5.9

**Form/Color:** Perennial, grows to 1.5-3', white or pinkish-lavender flowers in Jul-Sep.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Moist woods and thickets.

**Urban Tolerance:** Tolerant of compacted soils. Found on trail edges.

**Ecosystem Services:** Attracts some small bees.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** White or pinkish-lavender flowers.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Physostegia virginiana**

**Obedient plant**

**Wetland Indicator:** FACW

**Soil:** pH 5.0-6.5

**Form/Color:** Perennial, grows to 5', flowers pale purple-pink in July-September.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Moist soil, riverbanks.

**Ecosystem Services:**

**Hydrology:** Moist, humus rich soil conditions.

**Horticultural Value:** Pale purple-pink flowers.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Pityopsis falcata**

**Sickle-leaved golden aster**

**Wetland Indicator:** NC

**Soil:** Acidic soils.

**Form/Color:** 8"-15"; single stem, yellow flowers bloom July-September; leaves and stem white-wooly;

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Dry, sandy soil near the coast, pine barrens.

**Ecosystem Services:**

**Hydrology:** Dry, sandy, well-drained soil. Not flood tolerant.

**Horticultural Value:** Yellow flowers.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Used in restoration of coastal back dunes and grasslands. Has a restricted range, though common in region.

**Shade Tolerance:** Intolerant

**Plantago aristata**

**Largebracted plantain**

**Wetland Indicator:** NC

**Soil:** Not Available.

**Form/Color:** Grows to 6"-12"; white, green, brown flowers bloom May-November.

**Stormwater Tolerance:** Green roof

**Habitat:** Roadsides, dry soil.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Moderate drought tolerance.

**Ecosystem Services:** Eaten by large mammals and terrestrial birds.

**Horticultural Value:**

**Compatibility:**

**Salt Tolerance:** Low tolerance

**Other:**

**Shade Tolerance:** Intolerant

**Pluchea odorata**

**Saltmarsh fleabane**

**Wetland Indicator:** OBL

**Soil:** Not Available.

**Form/Color:** Annual, perennial, grows to 2' or more, flat-topped clusters of pink-lavender flower heads in Jun-Oct.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation

**Habitat:** Saline to brackish marshes.

**Urban Tolerance:** Tolerant of pollution.

**Hydrology:** Moist soil conditions.

**Ecosystem Services:**

**Horticultural Value:** Clusters of pink-lavender flowers.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade



**Podophyllum peltatum**

**Mayapple**

**Wetland Indicator:** FACU

**Soil:** pH < 6.8

**Form/Color** Grows to 20"; erect stems; large umbrella-shaped leaves; white flowers with yellow center blooms in May; yellow fruit ripe in July-August.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Moist, undisturbed woods.

**Ecosystem Services:** Fruit eaten by box turtles, birds, and small mammals.

**Hydrology:** Medium moisture; well-drained soil.

**Horticultural Value:** White flowers.

**Compatibility:** Frequently forms colonies.

**Salt Tolerance:** Intolerant

**Other:** Sometimes affected by bright orange rust fungus.

**Shade Tolerance:** Shade tolerant

**Polygonatum biflorum**

**Smooth Solomon's seal**

**Wetland Indicator:** FACU

**Soil:** pH < 6.8

**Form/Color** Arching stem grows to 12"; bright yellow green foliage; pale green to white flowers bloom April-June.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Rich, dry to moist woods; thickets; calcareous hammocks.

**Ecosystem Services:** Roots eaten by mammals; fruit attracts butterflies and birds.

**Hydrology:** Medium moisture; moist, acid soils.

**Horticultural Value:** White flowers, fruit.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Polygonatum pubescens**

**Hairy Solomon's seal**

**Wetland Indicator:** FACU

**Form/Color:** Single stem, to 15", has minute hairs on underside of leaves; green fruit; blooms April-June

**Habitat:** Dry to moist woods.

**Hydrology:** Moist soil; intolerant of drought.

**Horticultural Value:** Flowers, fruit.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.0-7.6

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds and butterflies.

**Compatibility:** Can form colonies.

**Other:** Poisonous berries.

**Polygonella articulata**

**Coastal jointweed**

**Wetland Indicator:** NC

**Form/Color:** Grows to 4"-20" ; erect tall forb, thin stems; white to pink flowers bloom July-October.

**Habitat:** Dry, sandy cliffs; acidic soil.

**Hydrology:** Drought tolerant.

**Horticultural Value:** White to pink flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Pontederia cordata**

**Wetland Indicator:** OBL

**Form/Color:** 3'; spike, showy blue flowers bloom July-September; moderate grower.

**Habitat:** Shallow water; tolerates brief tidal submersion; pond edges; freshwater to slightly brackish tidal marshes.

**Hydrology:** Tolerant of flooding or saturated soil 100% of growing season.

**Horticultural Value:** Blue flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Pickerelweed**

**Soil:** pH 6.0-8.0

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Tolerant of alkaline fill and concrete debris.

**Ecosystem Services:** High wildlife value as cover for fish and invertebrates; cools water by providing shade.

**Compatibility:** Can form colonies.

**Other:** Used for erosion control, diversity, aesthetics for restoration of pond and lake edges, marshes; wetland mitigation.

**Potentilla canadensis**

**Wetland Indicator:** NC

**Form/Color:** Grows to 1.5'; yellow flowers bloom April-June.

**Habitat:** Dry to moist soils in woods and fields.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Dwarf cinquefoil**

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Minor food source for small and large mammals and terrestrial birds, host of grizzled skipper.

**Compatibility:**

**Other:**

**Potentilla simplex**

**Wetland Indicator:** FACU

**Form/Color:** Yellow flowers bloom April-June; produces fruit in July; prostrate stems.

**Habitat:** Dry woods, fields, meadows; open areas, lawns, edges, low vegetation.

**Hydrology:** Moderately drought tolerant.

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Common cinquefoil**

**Soil:** pH 5.5-7.0

**Stormwater Tolerance:** Green roof, Retention pond, Rain garden, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts bees.

**Compatibility:**

**Other:** Used for erosion control plantings and soil cover in degraded, open woodlands, roadsides, and low meadows.

**Prenanthes trifoliata**

**Wetland Indicator:** NC

**Form/Color:** Grows to 7'; whitish flowers bloom August-October.

**Habitat:** Dry to moist woods, gaps, edges, sandy soil.

**Hydrology:** Dry to moist, sandy soil conditions.

**Horticultural Value:** Whitish flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Gall-of-the-Earth**

**Soil:** pH 5.0-5.2

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:** Used to increase diversity and aesthetics in restoration of dry woodlands on sandy soils.

**Pseudognaphalium obtusifolium**

**Rabbit-tobacco**

**Wetland Indicator:** NC

**Soil:** Acidic soils.

**Form/Color:** Single stem, whitish, yellow, round flowers bloom August-November.

**Stormwater Tolerance:** Green roof

**Habitat:** Pine woods and dry open areas.

**Urban Tolerance:** Tolerant of dry, poor soil.

**Hydrology:** Dry, well-drained soil.

**Ecosystem Services:** Attracts butterflies and other insects.

**Horticultural Value:** Yellow flowers.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Pycnanthemum incanum**

**Hoary mountain mint**

**Wetland Indicator:** NC

**Soil:** pH < 6.8

**Form/Color:** Grows to 2' - 3'; Dense flowerheads have small white-pink spotted flowers and a frosty white bloom that covers leaves and stems around and just below the heads, July - September.

**Stormwater Tolerance:** Green roof

**Habitat:** Thickets; pastures.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Tolerant of drought.

**Ecosystem Services:** Attracts butterflies.

**Horticultural Value:** White flowers.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Insufficient research to determine

**Other:** Used for erosion control.

**Shade Tolerance:** Tolerant of partial shade

**Pycnanthemum tenuifolium**

**Wetland Indicator:** FAC

**Form/Color:** Grows to 30"; leafy, short axillary branches; white flowers with purple spots bloom June-September.

**Habitat:** Moist to dry soil, fields, bogs.

**Hydrology:** Dry to moist soil conditions; medium water usage.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Narrowleaf mountain mint**

**Soil:** pH < 6.8

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds and butterflies.

**Compatibility:** Can form colonies.

**Other:**

**Pycnanthemum virginianum**

**Wetland Indicator:** FACW

**Form/Color:** Grows to 1'to 3'; Flowers in numerous , roundish heads, leaves lance-shaped, stalkless and rounded at the base, July-September.

**Habitat:** Open areas, upland woods, fields.

**Hydrology:** Moist soil.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Virginia mountain mint**

**Soil:** pH 5.5-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:** Can form colonies.

**Other:**

**Pyrola americana**

**American wintergreen**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, evergreen, grows to 1', flowers white in June-August, shiny, leathery and almost round leaves.

**Habitat:** Moist to dry undisturbed woods.

**Hydrology:** Moist, organic soil.

**Horticultural Value:** White bell shaped flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

**Ranunculus arborvitus**

**Littleleaf buttercup**

**Wetland Indicator:** FAC

**Form/Color:** Grows to 20"; small, yellow flowers bloom April-June; fruit ripe June-September.

**Habitat:** Wet woods, shores; moist to wet herb layers of open forests, stream banks.

**Hydrology:** Moist to wet soil.

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:** Minor species for restoring wet woodlands, open areas and increasing diversity.

**Rudbeckia hirta**

**Wetland Indicator:** FACU

**Form/Color:** Grows to 15-36"; yellow, orange ray flowers sometimes with a dark base, blooms June-October; rapid grower.

**Habitat:** Open areas, roadsides.

**Hydrology:** Medium drought tolerance, fine and medium textured soils.

**Horticultural Value:** Yellow, orange flowers

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Black-eyed Susan**

**Soil:** pH 6.0-7.0

**Stormwater Tolerance:** Green roof, ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Eaten by mammals and terrestrial birds.

**Compatibility:**

**Other:** Used in wildflower mixes for restoration projects.

**Rudbeckia laciniata**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, grow to 1.5-10', hairless stems, waxy-pale plant, flowers yellow in July-September.

**Habitat:** Stream banks, moist places, rich low ground.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Yellow flowers in summer and fall.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Cutleaf coneflower**

**Soil:** pH 4.5-7.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, low tolerance of soil compaction.

**Ecosystem Services:**

**Compatibility:** Can form colonies.

**Other:**



**Rudbeckia triloba v. triloba†**

**Browneyed Susan**

**Wetland Indicator:** FACU

**Soil:** Not Available.

**Form/Color:** Short-lived perennial or biennial, grows to 1.5-5', flowers yellow to orange in June-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Moist open woods, thickets.

**Ecosystem Services:**

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Showy yellow to orange flowers in summer and fall.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Rumex verticillatus†**

**Swamp dock**

**Wetland Indicator:** OBL

**Soil:** Not Available.

**Form/Color:** Grows to 4'; perennial, ascending branches; green flowers; 3-winged flower fruit June-September.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Pond edges, swamps.

**Ecosystem Services:**

**Hydrology:** Intolerant of drought.

**Horticultural Value:**

**Compatibility:** Can form colonies.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Sagittaria latifolia**

**Broadleaf arrowhead**

**Wetland Indicator:** OBL

**Form/Color:** Basal leaves; leaf blades are arrowhead-shaped; white three-petaled flowers bloom summer through fall.

**Habitat:** Ditches, marshes, pools along stream and lake edges.

**Hydrology:** Intolerant of drought conditions; high moisture usage.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.7-8.9

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds.

**Compatibility:** Can form colonies.

**Other:**

**Salicornia depressa**

**Virginia glasswort**

**Wetland Indicator:** OBL

**Form/Color:** Herbaceous perennial, emergent, erect, succulent stem, to 12", green turning red in the fall.

**Habitat:** Salty marshes.

**Hydrology:** Medium moisture usage.

**Horticultural Value:**

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 6.6-8.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:** Can form mats.

**Other:** Minor species for salt marsh restoration

**Sanguinaria canadensis**

**Bloodroot**

**Wetland Indicator:** FACU

**Form/Color:** Grows to 15", white flowers with 8-12 petals and yellow stamens bloom March-April.

**Habitat:** Interiors of undisturbed forests, moisted woods, sometimes floodplains or slopes of streams.

**Hydrology:** Drought tolerant; medium moisture usage.

**Horticultural Value:** Showy white flowers, bloom time only a few days, scallop shaped leaves.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.8-7.2

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds and butterflies.

**Compatibility:**

**Other:**

**Sanicula canadensis**

**Canada sanicle**

**Wetland Indicator:** FACU

**Form/Color:** 75 cm; greenish yellow flowers bloom May-July; hooked, bristly fruit.

**Habitat:** Dry open woods.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Greenish yellow flowers, often overlooked due to their small size.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:**

## *Saururus cernuus*

## Lizard's tail

**Wetland Indicator:** OBL

**Soil:** Not Available.

**Form/Color:** Grows to 4'; hairy, erect stem; spike of small whitish flowers bloom June-August.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Still water, wet lowlands, stream and lake edges.

**Ecosystem Services:** Attracts birds.

**Hydrology:** Moist to wet soil conditions.

**Horticultural Value:**

**Compatibility:** Can form colonies.

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Shade tolerant

## *Silene stellata*

## Starry campion

**Wetland Indicator:** NC

**Soil:** pH <6.8

**Form/Color:** Grows to 2'-3'; perennial, multi-stemmed, white flowers bloom July-August; fringed petals.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Open woods.

**Ecosystem Services:**

**Hydrology:** Moist, rich soils.

**Horticultural Value:** Brilliant white flowers.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Insufficient research to determine

**Other:** Used for increased diversity and aesthetics in restoration of open woodlands.

**Shade Tolerance:** Tolerant of partial shade

**Sisyrinchium angustifolium**

**Narrow-leaved blue-eyed grass**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, grows to 6-20", flowers pale-blue in June-July.

**Habitat:** Moist, open soil, open woods, fields.

**Hydrology:** Low tolerance of drought; medium moisture usage.

**Horticultural Value:** Radially symmetrical, pale-blue flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Browsed by large mammals and terrestrial birds.

**Compatibility:**

**Other:**

**Solidago bicolor**

**White goldenrod**

**Wetland Indicator:** NC

**Form/Color:** 1-5 stems to 3'; white flowers bloom August-October.

**Habitat:** Dry, open, oak, woods on sterile, rocky soil.

**Hydrology:** Dry soil conditions.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-6.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts bees.

**Compatibility:**

**Other:** Used for increased diversity and aesthetics in restoration of open, dry woodlands, butterfly gardens.

**Solidago caesia**

**Wreath goldenrod**

**Wetland Indicator:** FACU

**Form/Color:** 3': yellow flowers bloom August-October; moderate grower.

**Habitat:** Rich, open, deciduous woods; frequent in NYC understories.

**Hydrology:** Fine and medium textured soils; low drought tolerance.

**Horticultural Value:** Showy, yellow flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:** Used for increased diversity and aesthetics in restoration of moist forest understories; used in butterfly gardens; short lifespan.

**Solidago canadensis**

**Canada goldenrod**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, multi-stemmed to 6'; yellow flowers bloom August-October; fast grower.

**Habitat:** Open areas and old fields.

**Hydrology:** Fine, coarse, and medium textured soils; medium drought tolerance.

**Horticultural Value:** Showy, yellow flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 4.8-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Urban Tolerance:** Tolerant of fill and concrete.

**Ecosystem Services:** Eaten by small and large mammals and terrestrial birds.

**Compatibility:** Can compete with Mugwort invasion in nutrient rich, open fill soils, considered aggressive.

**Other:** Used for erosion control on open slope, degraded open areas, meadows with concrete, roadsides.

**Solidago juncea**

**Early goldenrod**

**Wetland Indicator:** NC

**Form/Color:** Perennial, frequently multistemmed to 4'; showy, yellow flowers bloom July-August.

**Habitat:** Dry fields and roadsides.

**Hydrology:** Dry to moist, sandy soils.

**Horticultural Value:** Showy, yellow flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Soil:** pH 5.0-6.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Tolerant of concrete and fill soil.

**Ecosystem Services:** Attracts birds and butterflies.

**Compatibility:**

**Other:** Used for increased diversity and aesthetics in vegetation of open slopes, degraded open areas, roadsides, meadows with concrete.

**Solidago nemoralis**

**Gray goldenrod**

**Wetland Indicator:** NC

**Form/Color:** Perennial, frequently multistemmed to 3'; showy, yellow flowers bloom August-September.

**Habitat:** Open, dry, sandy soil, old fields, thin woods, edges.

**Hydrology:** Coarse and medium textured soils; medium drought tolerance.

**Horticultural Value:** Showy, yellow flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.5-7.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Tolerant of fill soils.

**Ecosystem Services:** Eaten by small and large mammals and terrestrial birds.

**Compatibility:**

**Other:** Used for restoration of coastal grasslands and meadows on dry, sandy, sterile soils.

**Solidago odora**

**Sweet goldenrod**

**Wetland Indicator:** NC

**Form/Color:** Perennial, frequently multistemmed to 5'; showy, yellow flowers bloom July-October.

**Habitat:** Dry, sandy soil in open woods, fields, edges.

**Hydrology:** Dry and sandy soil.

**Horticultural Value:** Showy, yellow flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH < 6.8

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Eaten by small and large mammals and terrestrial birds; attracts honey bees.

**Compatibility:**

**Other:** Used for increased diversity and aesthetics in restoration of thin meadows, open woodlands on dry, sandy, sterile soils.

**Solidago rugosa**

**Wrinkleleaf goldenrod**

**Wetland Indicator:** FAC

**Form/Color:** Perennial, frequently multistemmed to 4'; showy, yellow flowers bloom August-November; fast grower.

**Habitat:** Moist to dry open areas.

**Hydrology:** Medium moisture usage; wet, well-drained soil conditions.

**Horticultural Value:** Showy, yellow flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Urban Tolerance:** Tolerant of fill soils and concrete, Performs well in the right of way.

**Ecosystem Services:** Attracts birds.

**Compatibility:** Can form colonies.

**Other:** Prevents invasion from mugwort in nutrient rich, moist fill soils.



**Solidago sempervirens**

**Seaside goldenrod**

**Wetland Indicator:** FACW

**Soil:** pH 5.5-7.5

**Form/Color** Perennial, frequently multistemmed to 5'; thick leathery leaves, showy yellow flowers bloom September-November; produces fruit September-November.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Habitat:** Low dunes, brackish wet areas, salt marsh edges.

**Urban Tolerance:** Tolerant of concrete, performs well in the right of way.

**Hydrology:** Coarse and medium textured soils; medium drought tolerance.

**Ecosystem Services:** Attracts butterflies, bees, and small mammals.

**Horticultural Value:** Showy, yellow flowers.

**Compatibility:**

**Salt Tolerance:** High tolerance

**Other:** Used for increasing diversity when restoring high salt marsh habitats, back dune swales, and low fore-dunes.

**Shade Tolerance:** Intolerant

**Solidago speciosa**

**Showy goldenrod**

**Wetland Indicator:** NC

**Soil:** pH 6.0-7.0

**Form/Color** Perennial, frequently multistemmed to 5'; showy, yellow flowers bloom August-October.

**Stormwater Tolerance:** Insufficient research to determine

**Habitat:** Meadows, woodland edges, dry, rocky fields.

**Urban Tolerance:** Tolerates poor, dry soil.

**Hydrology:** Dry to medium soil conditions.

**Ecosystem Services:** Attracts butterflies.

**Horticultural Value:** Showy, yellow flowers.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:** Used for increased diversity and aesthetics in vegetation of open slopes, meadows, roadside.

**Shade Tolerance:** Tolerant of partial shade

**Symphyotrichum cordifolium**

**Blue wood aster**

**Wetland Indicator:** NC

**Form/Color:** Grows to 5'; purple flowers bloom in summer; moderate grower.

**Habitat:** Open woods, clearings.

**Hydrology:** Coarse and fine textured soils; medium drought tolerance; low moisture usage.

**Horticultural Value:** Purple flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 5.7- 7.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:** Short lifespan.

**Symphyotrichum ericoides**

**White heath aster**

**Wetland Indicator:** FACU

**Form/Color:** Grows to 3'; white flowers bloom August-October.

**Habitat:** Dry, open areas; sandy soil in New York City coastal habitats and successional scrub.

**Hydrology:** Moist to dry soil.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** Acidic soils.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Tolerant of concrete debris.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:** Used for vegetation in restoration of open areas, meadows, warm season grasslands, coastal black dune habitats. Used in butterfly gardens.

## *Symphyotrichum laeve*

## Smooth blue aster

**Wetland Indicator:** FACU

**Soil:** pH 5.8-7.8

**Form/Color:** Grows to 3'; waxy dark green leaves; showy blue flowers bloom August-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Habitat:** Dry, open woods, sandy soil.

**Urban Tolerance:** Tolerant of concrete debris and other urban conditions.

**Hydrology:** Moist to dry soil.

**Ecosystem Services:** Attracts butterflies.

**Horticultural Value:** Showy, blue flowers.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Used for open, sandy soil, in restoration of meadows, warm season grasslands, coastal back-dune successional habitats. Used in butterfly gardens.

**Shade Tolerance:** Tolerant of partial shade

## *Symphyotrichum novae-angliae*

## New England aster

**Wetland Indicator:** FACW

**Soil:** pH < 6.8

**Form/Color:** Grows to 6'; showy, blue-purple flowers bloom August-October; produces fruit October-November; slow grower.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Habitat:** Moist meadows, swamps, pond edges.

**Urban Tolerance:** Performs well in the right of way.

**Hydrology:** Tolerant of flooding 25% of growing season; tolerant of moderate drought.

**Ecosystem Services:** Attracts butterflies.

**Horticultural Value:** Showy, blue-purple flowers.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Used for open wetland restoration and mitigation; used in butterfly gardens.

**Shade Tolerance:** Intolerant

**Symphyotrichum novi-belgii**

**New York aster**

**Wetland Indicator:** FACW

**Soil:** pH 5.5-7.0

**Form/Color:** Grows to 4': showy, blue flowers bloom August-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Moist to wet open areas.

**Ecosystem Services:** Attracts butterflies.

**Hydrology:** Medium moisture conditions.

**Horticultural Value:** Showy, blue flowers.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Used for increased diversity and aesthetics in restoration of moist to dry open areas, meadows, warm-season grasslands.

**Shade Tolerance:** Intolerant

**Symphyotrichum pilosum**

**Hairy white oldfield aster**

**Wetland Indicator:** FACU

**Soil:** pH 5.4-7.0

**Form/Color:** Perennial, frequently multistemmed, 5': white flowers bloom August-November.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Tolerant of concrete debris and other urban conditions.

**Habitat:** Dry to moist open habitats, slopes, meadows, butterfly gardens.

**Ecosystem Services:** Attracts butterflies.

**Hydrology:** Moist to dry, sandy soil.

**Horticultural Value:** White flowers.

**Compatibility:**

**Salt Tolerance:** Low tolerance

**Other:**

**Shade Tolerance:** Intolerant

**Symplocarpus foetidus**

**Skunk cabbage**

**Wetland Indicator:** OBL

**Form/Color:** Grows to 2'; purple green floral bract February-March; blackish, green, fleshy fruit August-September.

**Habitat:** Swamp forests, freshwater tidal and nontidal marshes, shady steeps, stream banks.

**Hydrology:** Tolerant of saturated soil 100% of growing season.

**Horticultural Value:** Purple flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-6.2

**Stormwater Tolerance:** Retention pond, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Low wildlife value.

**Compatibility:** Can form colonies.

**Other:** Used for increasing diversity and aesthetics in restoration of swamp forests herb layer; wetland mitigation.

**Tephrosia virginiana**

**Goat's rue**

**Wetland Indicator:** NC

**Form/Color:** Alternate compound leaves to 28"; pale yellow and pink flowers bloom June-July; produces fruit August- October.

**Habitat:** Sandy or rocky soil of of back-dune grasslands, open pine or oak barrens.

**Hydrology:** Dry, sandy soil conditions.

**Horticultural Value:** Pale yellow and pink flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Eaten by small and large mammals and terrestrial birds.

**Compatibility:**

**Other:** Parts of plant considered toxic. Used for increased diversity and aesthetics in restoration or open woodlands or barrens on dry sandy soil.

**Teucrium canadense**

**Wetland Indicator:** FACW

**Form/Color:** Perennial, grows to approximately 3', spike-like cluster of lavender-pink flowers from May-Agu.

**Habitat:** Prairie, plains, edges of bottomland forests, meadows, edges of marshes, pastures, savannahs.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Clusters of lavender-pink flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**American germander**

**Soil:** pH 4.5-8.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Can be found in more developed areas, such as abandoned fields, partially vacant lots, poorly drained

**Ecosystem Services:** Attractive to butterflies.

**Compatibility:**

**Other:**

**Thalictrum dioicum**

**Wetland Indicator:** FACU

**Form/Color:** Perennial, grows to 2.5', dioecious, petal-less flowers with hanging yellow stamens in Apr-May.

**Habitat:** Rich mesic woodlands, open woods, wooded clay slopes, shaded areas near cliffs, and rocky ravines.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Male flowers have bright yellow stamens.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Early meadow rue**

**Soil:** pH 4.0-8.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Feed caterpillars of moths.

**Compatibility:**

**Other:** Susceptible to white-tailed deer predation.

**Thalictrum pubescens**

**Tall meadow rue**

**Wetland Indicator:** FACW

**Form/Color:** Grows to 9'; stalkless stem leaves; pale green flowers bloom June-August; small rounded head of achenes.

**Habitat:** Wet woods, meadows, marshes, stream banks.

**Hydrology:** Wet or moist soil; well-drained soil.

**Horticultural Value:** Pale green flowers.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-8.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts butterflies and bees.

**Compatibility:**

**Other:** Short lifespan.

**Thalictrum thalictroides**

**Rue anemone**

**Wetland Indicator:** FACU

**Form/Color:** 8"; white flowers bloom April-May; produces fruit May-June.

**Habitat:** Dry to moist woods.

**Hydrology:** Medium, well-drained soil; tolerant of drought.

**Horticultural Value:** This tiny spring perennial reaches only 8 inches tall. Delicate five-petaled white flowers are held above small leaves that resemble meadow-rue leaves.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH < 6.8

**Stormwater Tolerance:** Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:**

**Compatibility:**

**Other:** Minor species for increased diversity and aesthetics in restoration of moist woodland habitats.

**Tradescantia virginiana**

**Spiderwort**

**Wetland Indicator:** UPL

**Soil:** pH 4.0-8.0

**Form/Color:** Grows to 18"; 3-petaled blue flowers on erect stem bloom in small clusters May-June.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes, Upland

**Urban Tolerance:** Tolerant of fill soils.

**Habitat:** Open woods, edges, fill.

**Ecosystem Services:** Attracts butterflies and bees.

**Hydrology:** Fine and medium textured soils.

**Horticultural Value:** Blue flowers.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Short lifespan, fast grower.

**Shade Tolerance:** Tolerant of partial shade

**Triadenum virginicum**

**Virginia marsh St. Johnswort**

**Wetland Indicator:** OBL

**Soil:** Acidic soils.

**Form/Color:** Grows to 2'; pinkish, 5-petaled pinkish flowers.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Wet, open areas, pond edges, clean, undisturbed marshes.

**Ecosystem Services:**

**Hydrology:** Tolerates some flooding.

**Horticultural Value:** Pink flowers.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Low tolerance

**Other:** Used for increased diversity and aesthetics, erosion control, in wetland restoration and mitigations.

**Shade Tolerance:** Intolerant



**Trichostema dichotomum**

**Forked blue curls**

**Wetland Indicator:** UPL

**Form/Color:** Grows to 6-24"; blue irregularly 5-lobed flowers bloom August-September.

**Habitat:** Open, dry, soil, old fields, open woods, open dry, disturbed soil.

**Hydrology:** Dry, sandy soil conditions.

**Horticultural Value:** Blue flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Acidic soils.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Valuable to native bees.

**Compatibility:**

**Other:** Used for increased diversity and aesthetics in restoration of dry grasslands or coastal meadows.

**Typha angustifolia**

**Narrowleaf cattail**

**Wetland Indicator:** OBL

**Form/Color:** Tall grasslike form, wide leaves, to 10'; brown flowers bloom May-June; produces fruit July-August; fast grower.

**Habitat:** Swamps, pond margins, freshwater and brackish tidal marshes, open saturated soil.

**Hydrology:** Coarse, fine, and medium textured soils; low drought tolerance.

**Horticultural Value:** Brown flowers and seed heads.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 3.5-8.7

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Moderate wildlife value; rhizomes eaten by muskrats; red-wing blackbirds use for nesting.

**Compatibility:** Frequently forms colonies.

**Other:** Sometimes used in restorations and mitigations; used for controlling erosion in wetland soils in brackish or alkaline soils; long lifespan.

## *Typha latifolia*

## Broadleaf cattail

**Wetland Indicator:** OBL

**Soil:** pH 5.5-8.7

**Form/Color:** Tall grasslike form, broad leaves, to 10'; male yellowish flowers, dark brown female flowers bloom May-July; fast grower.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Habitat:** Clean water, marshes, roadside ditches.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Coarse, fine, and medium textured soils; intolerant of drought; high

**Ecosystem Services:** Seeds eaten by waterfowl; rhizomes eaten by muskrats.

**Horticultural Value:** Yellowish flowers.

**Compatibility:** Frequently forms colonies.

**Salt Tolerance:** Low tolerance

**Other:** Used for erosion control, bank stabilization, in freshwater wetlands, restorations of pond margins, marshes, and wetland mitigations.

**Shade Tolerance:** Intolerant

## *Uvularia sessilifolia*

## Sessileleaf bellwort

**Wetland Indicator:** FACU

**Soil:** pH 4.8-5.6

**Form/Color:** Grows to 4-12"; pale yellow flowers with 6 petals, dangle from under the stem, bloom April-mid-July; 3-sided fruit produced in summer.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Habitat:** Undisturbed moist forest interiors.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Prefers moist conditions.

**Ecosystem Services:**

**Horticultural Value:** Pale yellow flowers, attractive fruit.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Low tolerance

**Other:** Used for increased diversity and aesthetics in restoration of moist forest understories.

**Shade Tolerance:** Shade tolerant

**Verbena hastata**

**Swamp verbena**

**Wetland Indicator:** FACW

**Form/Color:** Grows to 4', perennial; blue tubular flowers bloom July-September.

**Habitat:** Open areas, part shade, marshes, pond edges.

**Hydrology:** Prefers moist conditions.

**Horticultural Value:** Blue flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Seeds eaten by birds; plants eaten by rabbits.

**Compatibility:**

**Other:**

**Verbena urticifolia**

**White vervain**

**Wetland Indicator:** FAC

**Form/Color:** Grows to 4'; erect hairy single stem; small tubular white flowers bloom June-August; small dry fruit.

**Habitat:** Wetland edges; partially shaded open edges in good soil.

**Hydrology:** Moist, well-drained soils.

**Horticultural Value:** White flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Seeds eaten by songbirds; plant eaten by rabbits.

**Compatibility:**

**Other:**

**Vernonia noveboracensis**

**New York ironweed**

**Wetland Indicator:** FACW

**Form/Color** Grows to 3-6'; purple flowers August-October; dry achene with dark brownish plume fruit; moderate grower.

**Habitat:** Open marshes, wet edges.

**Hydrology:** Moderate drought tolerance; medium moisture usage.

**Horticultural Value:** Purple flowers.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.5-8.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Attracts butterflies and insects.

**Compatibility:**

**Other:** Short lifespan.

**Viola cucullata**

**Blue marsh violet**

**Wetland Indicator:** OBL

**Form/Color** To 8". Pale violet flowers with dark blue-veined center bloom April-July; egg-shaped fruit, dry capsule with black seeds April-July.

**Habitat:** Swamps, bogs.

**Hydrology:** Moist, well-drained soils.

**Horticultural Value:** Pale violet flowers.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Shade tolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds.

**Compatibility:** Can form colonies.

**Other:**

**Viola labradorica**

**Labrador violet**

**Wetland Indicator:** FAC

**Soil:** pH 5.0-6.5

**Form/Color:** Evergreen, perennial; grows 1-3"; violet to lavender flowers bloom in May.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Woods and grassy places.

**Ecosystem Services:** Attracts butterflies and birds.

**Hydrology:** Well-drained soil; moist soil conditions.

**Horticultural Value:** Lavendar, purple flowers.

**Compatibility:**

**Salt Tolerance:** Insufficient research to determine

**Other:**

**Shade Tolerance:** Shade tolerant

**Viola pubescens**

**Downy yellow forest violet**

**Wetland Indicator:** FACU

**Soil:** pH 6.0-7.0

**Form/Color:** Grows to 18"; showy, yellow flowers bloom April-May; produces fruit July-August.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Rich woods and floodplain forests.

**Ecosystem Services:** Attracts butterflies.

**Hydrology:** Medium textured soils; medium drought tolerance.

**Horticultural Value:** Showy, yellow flowers.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Used for increased diversity and aesthetics in restoration of forest understories; short lifespan.

**Shade Tolerance:** Shade tolerant

**Viola sororia**

**Common blue violet**

**Wetland Indicator:** FAC

**Form/Color:** Grows to 6"; showy, violet flowers bloom April-May; produces fruit June-July.

**Habitat:** Open woods, shady lawns.

**Hydrology:** Low drought tolerance; high moisture usage; fine and medium textured soils.

**Horticultural Value:** Violet flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.0-7.8

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes

**Urban Tolerance:** Tolerant of disturbance. Tolerates calcium deicers.

**Ecosystem Services:** Attracts butterflies.

**Compatibility:**

**Other:** Used for shady edges.

**Xanthium strumarium**

**Rough cocklebur**

**Wetland Indicator:** FAC

**Form/Color:** Annual, greenish male and female flower heads in Aug-Oct, brown fruit covered in hooked prickles.

**Habitat:** Open riparian woodlands, intermittent streambeds, beach habitats, cultivated fields, vacant lots, sandpits, and dry washes.

**Hydrology:**

**Horticultural Value:**

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** Not Available.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Tolerant of concrete debris, poor dry soil.

**Ecosystem Services:**

**Compatibility:**

**Other:** Inspiration for George deMastral, in 1948, for the invention of Velcro.

## Zizia aurea

**Wetland Indicator:** FAC

**Form/Color:** Grows to 32", shiny compound leaves with 3-5 leaflets, flowers yellow in April-June, fruits in August-October.

**Habitat:** Rich, moist meadows, wet, open woods, rich soil.

**Hydrology:** Moist soils, not drought tolerant.

**Horticultural Value:** Showy yellow flowers in spring and summer.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

## Golden alexanders

**Soil:** pH 5.5-7.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Host to some butterfly species.

**Compatibility:**

**Other:**

## Vines

Vines, either woody or herbaceous, can climb vertical structures, provide erosion control on slopes, or create a groundcover. Consider the surface or area you want a vine to colonize when planting (i.e. they can provide shade or help capture stormwater over impervious surfaces). Most native vine species are companion plants and are not considered aggressive; they do not strangle other plants in the landscape.



Top: *Parthenocissus quinquefolia* (Virginia creeper)  
Right: *Dioscorea villosa* (Wild yam)





## *Apios americana*

## Groundnut

**Wetland Indicator:** FACW

**Soil:** pH 6.0-7.5

**Form/Color:** Herbaceous, twining vine, flowers brownish purple-pink in July-September, fruit dry in September-October.

**Stormwater Tolerance:** Rain garden, Slopes, Upland

**Habitat:** Marshes, moist woods, edges.

**Urban Tolerance:** Adapted to coarse, medium, and fine soils, high tolerance of soil compaction.

**Ecosystem Services:** Attractive to butterflies. Seeds eaten by some birds.

**Hydrology:** Low drought tolerance.

**Horticultural Value:** Brownish purple-pink flowers.

**Compatibility:** Can be aggressive and difficult to control in well-manicured environment.

**Salt Tolerance:** Tolerant

**Other:** Nitrogen fixer can help improve sterile soil.

**Shade Tolerance:** Tolerant of partial shade

## *Clematis virginiana*

## Virgin's bower

**Wetland Indicator:** FAC

**Soil:** pH 6.0-8.5

**Form/Color:** Deciduous, twining, flowering vine, 12-20' high, fast grower, white flowers in July-August, fruit dry September-October.

**Stormwater Tolerance:** Retention pond, Slopes, Upland

**Habitat:** Low woods. Climbs trellises, fences, rock walls, and other structures.

**Urban Tolerance:** Tolerant of concrete debris and soil compaction.

**Ecosystem Services:** Minor element for increased diversity.

**Hydrology:** Moist to wet soil. Tolerant of drought and flooding.

**Horticultural Value:** Small white fragrant flowers.

**Compatibility:**

**Salt Tolerance:** Low tolerance

**Other:** Leaves may be irritating. Needs limestone (calcareous) soil.

**Shade Tolerance:** Tolerant of partial shade

**Dioscorea villosa**

**Wild yam**

**Wetland Indicator:** FAC

**Soil:** pH 5.0-6.0

**Form/Color** Herbaceous, slender, twining vine to 15', thin reddish-brown stems, broad heart shaped leaves with deep veins, flowers small, green in June-July.

**Stormwater Tolerance:** Retention pond, Slopes, Upland

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Open thickets, woods, wetland edges, roadsides.

**Ecosystem Services:**

**Hydrology:** Moist soils, low tolerance to drought.

**Horticultural Value:** Small green flowers. Persistent winged fruits. Flowers vanilla scented.

**Compatibility:**

**Salt Tolerance:** Low tolerance

**Other:** Related to the tropical Yam found in grocery stores, but does not produce edible tubers.

**Shade Tolerance:** Shade tolerant

**Lonicera dioica**

**Limber honeysuckle**

**Wetland Indicator:** FACU

**Soil:** pH 6.0-8.5

**Form/Color** Shrub or woody climber to 9', moderate to fast grower, flowers bright yellow May-June, red fleshy fruit July-September.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Tolerant of concrete debris. Moderately tolerant of soil compaction.

**Habitat:** Moist, rocky woods.

**Ecosystem Services:** Moderate wildlife value. Attractive to hummingbirds.

**Hydrology:** Tolerant of drought. Moderately tolerant of flooding.

**Horticultural Value:** Bright yellow flowers and red, fleshy fruit.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Needs limestone (calcareous) soil.

**Shade Tolerance:** Shade tolerant

**Lonicera sempervirens**

**Trumpet honeysuckle**

**Wetland Indicator:** FACU

**Form/Color** Deciduous, flowering, twining vine, 10-20' in height at maturity, bright flowers in yellow, pink, red, and orange in May throughout summer, red fleshy fruit in August-October.

**Habitat:** Open woods edges, woodlands. Support by trellis, arbor, or fence.

**Hydrology:** Grows best in moist soil. Tolerant of drought. Intolerant of flooding.

**Horticultural Value:** Bright flowers in yellow, pink, red, and orange, leaves have silver undersides, red fleshy fruit.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.0-7.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Moderately tolerant of soil compaction.

**Ecosystem Services:** Attractive to hummingbirds. Fruit eaten by songbirds. Moderate wildlife value.

**Compatibility:**

**Other:**

**Menispermum canadense**

**Moon seed**

**Wetland Indicator:** FAC

**Form/Color** Woody climber or ground cover to 12', very fast grower, flowers whitish in June-July, fleshy blue-black fruit in September.

**Habitat:** Moist rich woods, edges, open uplands.

**Hydrology:** Tolerant of flooding. Moderately tolerant of drought.

**Horticultural Value:** Whitish flowers. Blue-black fleshy fruit.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.5

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Tolerant of soil compaction.

**Ecosystem Services:** High wildlife value.

**Compatibility:** Can form colonies. Sprawls over other vegetation.

**Other:** Poisonous fruit. Needs or tolerates acidic soils.

**Mikania scandens**

**Climbing hempvine**

**Wetland Indicator:** OBL

**Soil:** pH 5.7-7.5

**Form/Color:** Herbaceous, twining vine, stems to 17' long, dull purple flowers in July-October.

**Stormwater Tolerance:** Retention pond, Slopes

**Habitat:** Wet soil, swamps, stream margins, marshes.

**Urban Tolerance:** Adapted to medium and fine soils, moderate tolerance of soil compaction.

**Ecosystem Services:** Minor species for increased diversity. Attractive to honeybees, bumblebees, and other native bees

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Purple flowers.

**Compatibility:** Can be aggressive in high nutrient soils. Climbs over shrubs.

**Salt Tolerance:** Low tolerance

**Other:**

**Shade Tolerance:** Shade tolerant

**Parthenocissus quinquefolia**

**Virginia creeper**

**Wetland Indicator:** FACU

**Soil:** pH 4.8-7.0

**Form/Color:** Woody climber to 35', ground cover, tiny, dull yellow flowers in June-July, blue-black fleshy fruit with red stems in September-October.

**Stormwater Tolerance:** Green roof, Upland

**Habitat:** Woods, edges, back dunes scrub.

**Urban Tolerance:** Tolerant of soil compaction, pollution. Commonly found along roadsides and fences.

**Ecosystem Services:** High wildlife value, fruit eaten by songbirds and mammals, foliage eaten by rabbits.

**Hydrology:** Tolerant of flooding and drought.

**Horticultural Value:** Good fall color. Dull yellowish flowers. Blue-black fruit with red stems.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Tolerant

**Other:** Used for slope stabilization. Vegetation of fills. Needs or tolerates acidic soils.

**Shade Tolerance:** Shade tolerant

**Smilax herbacea**

**Carrion flower**

**Wetland Indicator:** FAC

**Form/Color:** Herbaceous, unarmed climber to 7', yellowish flowers in May-June, blue fleshy fruit July-September.

**Habitat:** Moist rich woods, flood plains.

**Hydrology:** Moist soil conditions.

**Horticultural Value:** Yellowish flowers, blue fleshy fruit.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.1-7.8

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Fruit eaten by birds and mammals, stems eaten by rabbits and deer.

**Compatibility:**

**Other:**

**Strophostyles helvola**

**Trailing wild bean**

**Wetland Indicator:** FAC

**Form/Color:** Annual, herbaceous, twining vine to 3', flowers pink-purple, becoming greenish in July-September, fruit dry in August-October.

**Habitat:** Dry to moist sandy soil, often on cinders, open woods, old fields.

**Hydrology:** Sandy soil. Moderately tolerant of drought.

**Horticultural Value:** Delicate pink-purple flowers become greenish.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** Not Available.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Tolerant of poor, dry soil. Can be found along railroads and coastal areas.

**Ecosystem Services:** Attractive to butterflies.

**Compatibility:** Can be aggressive.

**Other:** Nitrogen fixer can help improve sterile soil.

**Vitis aestivalis**

**Summer grape**

**Wetland Indicator:** FACU

**Soil:** pH 5.3-7.0

**Form/Color** Woody, high climber, flowers greenish in June-July, small dark purple fleshy fruit in September-October.

**Stormwater Tolerance:** Green roof

**Habitat:** Moist woods, edges, thickets, and streambanks.

**Urban Tolerance:** Insufficient information to determine tolerance.

**Hydrology:** Tolerant of drought.

**Ecosystem Services:** Fruit eaten by birds and mammals, secondary species for wildlife food and shelter along roadsides and edges.

**Horticultural Value:** Greenish flowers. Small, dark purple fruit.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Revegetation of fill, can be used for sites.

**Shade Tolerance:** Tolerant of partial shade

**Vitis labrusca**

**Fox grape**

**Wetland Indicator:** FACU

**Soil:** pH 5.5-7.5

**Form/Color** Woody, high climber to 35', very fast grower, greenish flowers in June-July, fleshy dark purple fruit September-October.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Habitat:** Edges, thickets, woods, moist soil.

**Urban Tolerance:** Tolerant of soil compaction.

**Hydrology:** Tolerant of flooding. Moderately tolerant of drought when established.

**Ecosystem Services:** Very high wildlife value, fruit eaten by birds and mammals, secondary species for wildlife food and shelter along roadsides and edges.

**Horticultural Value:** Greenish flowers. Fleshy dark purple fruit.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Will not bloom or fruit in shade.

**Shade Tolerance:** Shade tolerant

**Vitis riparia**

**River grape**

**Wetland Indicator:** FAC

**Soil:** pH 6.0-8.5

**Form/Color:** Woody, high climber to 35', very fast grower, greenish flowers in June, black fleshy fruit in August-September.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Tolerant of soil compaction and concrete debris.

**Habitat:** Moist to wet rich soil of edges, stream margins, and flood plains.

**Ecosystem Services:** Eaten by birds and mammals, provides moderate shelter.

**Hydrology:** Tolerant of flooding and drought.

**Horticultural Value:** Greenish flowers. Dark fleshy fruit.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Needs limestone (calcareous) soil.

**Shade Tolerance:** Shade tolerant

## Shrubs

Shrubs are small to medium sized, multi-stemmed woody plants. These plant species are generally less than twenty feet tall. They can provide various ornamental characteristics, shelter and food sources for wildlife, and add spatial definition to the landscape. Careful selection can ensure a long season of ornamental interest and abundant food and nectar sources for wildlife.



Top: *Baccharis halimifolia* (Eastern baccharis) Left: *Rhus typhina* (Staghorn sumac)



**Alnus serrulata**

**Smooth alder**

**Wetland Indicator:** OBL

**Soil:** pH 5.5-7.5

**Form/Color** Deciduous, forms thickets, fast to 20', 12-20' wide, flowers red to purple catkins in March-April, fruit dry, cone-like in August-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Inundation

**Urban Tolerance:** Tolerant of soil compaction and poor soil.

**Habitat:** Swamp, spring, pond or lake edges, meadow, forest.

**Ecosystem Services:** Wildlife value high, host to some butterfly larvae, seeds eaten by some songbirds, twigs and leaves eaten by rabbits and deer.

**Hydrology:** Tolerant of flooding and drought.

**Horticultural Value:** Flowers, catkins, conelike fruit.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Intolerant

**Other:** Nitrogen fixer, susceptible to borers, tent caterpillars, and other insects, weakened plants susceptible to canker and other fungi.

**Shade Tolerance:** Intolerant

**Arctostaphylos uva-ursi**

**Bearberry**

**Wetland Indicator:** UPL

**Soil:** pH 4.5-6.0

**Form/Color** Evergreen, low-growing, groundcover, pink flowers in spring, red fruits, slow grower to 6-12" tall, 2-4' wide or more.

**Stormwater Tolerance:** Green roof, Stormwater greenstreet, Upland

**Urban Tolerance:** Sensitive of soil compaction.

**Habitat:** Forest, dune, bald, barrens.

**Ecosystem Services:** Wildlife and birds eat fruits.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Small pink flowers, glossy green leaves turn reddish brown in winter, bright red fruits, great ground cover.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Intolerant

## *Aronia arbutifolia*

## Red chokeberry

**Wetland Indicator:** FACW

**Soil:** pH 5.0-6.5

**Form/Color:** Deciduous, upright, multi-stemmed shrub, white flowers in spring, bright red to reddish-purple in fall, red fruits, to 6-10' tall, 3-5' wide.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Habitat:** Swamps, wet woods, salt marsh edges, back dune swales.

**Urban Tolerance:** Tolerant of soil compaction, performs well in the right of way.

**Hydrology:** Tolerant of flooding, moderately tolerant of drought.

**Ecosystem Services:** Wildlife value moderate, fruit eaten by birds, twigs eaten by deer and rabbits, seeds eaten by mice, host to some butterfly larvae. Host of rare precious underwing (*Cataoia pretiosa*) moth.

**Horticultural Value:** Delicate white flowers in spring, red fall colors, glossy red fruits.

**Compatibility:** Can form suckering colony.

**Salt Tolerance:** Tolerant

**Other:** Susceptible to Japanese beetles and leaf spots. Fruit persists in winter.

**Shade Tolerance:** Tolerant of partial shade

## *Aronia melanocarpa*

## Black chokeberry

**Wetland Indicator:** FAC

**Soil:** pH 5.0-6.5

**Form/Color:** Deciduous, slow grower to 6' tall, flowers white in April-May, black fruit in July-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Habitat:** Swamps, wet woods.

**Urban Tolerance:** Tolerant of soil compaction, performs well in the right of way.

**Hydrology:** Tolerant of flooding and drought.

**Ecosystem Services:** Wildlife value moderate, host to some butterfly larvae, birds eat fruit, pollinated by native bees and European honeybees.

**Horticultural Value:** White showy flowers in spring, fleshy black fruit in summer and fall.

**Compatibility:** Slow colonization rate.

**Salt Tolerance:** Tolerant

**Other:** Not attacked by many insects, infected by quince rust, powdery mildew, leaf spot fungi.

**Shade Tolerance:** Tolerant of partial shade

**Aronia prunifolia**

**Purple chokeberry**

**Wetland Indicator:** FACW

**Soil:** pH 5.0-6.5

**Form/Color** Deciduous, can form colonies, to 12' tall, fall red foliage, flowers white in April-May, dark purple fruit in August-September.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Tolerant of soil compaction.

**Habitat:** Swamps, wet woods.

**Ecosystem Services:** Wildlife value moderate, host to some butterfly larvae.

**Hydrology:** Tolerant of flooding, moderately tolerant of drought.

**Horticultural Value:** White showy flowers in spring, fleshy dark purple fruit in late summer and fall, red fall foliage.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Probably hybrid between *P. pyrifolia* and *P. melanocarpa*.

**Shade Tolerance:** Tolerant of partial shade

**Baccharis halimifolia**

**Eastern baccharis**

**Wetland Indicator:** FACW

**Soil:** pH 5.5-8.5

**Form/Color** Semievergreen, rounded shrub, upright branches, cottony fruits in fall, fast grower to 5-12' tall, 5-12' wide.

**Stormwater Tolerance:** ROW Rain garden, Retention pond, Stormwater greenstreet, Inundation, Slopes

**Urban Tolerance:** Tolerant of soil compaction, concrete debris.

**Habitat:** Coastal, salt marsh edges, usually upland of *Iva*. spp.

**Ecosystem Services:** Cover for wildlife, nectar for bees, butterflies, moths, nsects, birds eat seeds.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** Deep green to gray-green leaves, cottony fruits.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Mostly pest free.

**Shade Tolerance:** Intolerant

**Ceanothus americanus**

**New Jersey tea**

**Wetland Indicator:** NC

**Form/Color:** Deciduous, slow to moderate grower to 3' tall, , flowers white in June-July, fruit dry in August-October.

**Habitat:** Open, dry, oak woods.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** White flowers in summer.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-6.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction.

**Ecosystem Services:** Host to some butterfly larvae.

**Compatibility:** Can form colonies.

**Other:** Nitrogen fixer. Exceptionally deep roots make it well adapted to persist after fires.

**Cephalanthus occidentalis**

**Buttonbush**

**Wetland Indicator:** OBL

**Form/Color:** Deciduous, grows to 12' tall, flowers white in July-August, fruit dry in September-January.

**Habitat:** Freshwater tidal and nontidal marshes, pond edges, shallow standing water.

**Hydrology:** Tolerant of flooding. Intolerant of drought.

**Horticultural Value:** Flowers in white, ball-shaped clusters.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 6.0-8.5

**Stormwater Tolerance:** ROW Rain garden, Retention pond, Stormwater greenstreet, Inundation, Slopes

**Urban Tolerance:** Tolerant of soil compaction, concrete debris, performs well in the right of way.

**Ecosystem Services:** Seeds eaten by ducks and other birds, twigs eaten by deer and rabbits.

**Compatibility:** Can form colonies.

**Other:** Dispersed by water, dies in closed canopy swamp forest.

**Chimaphila maculata**

**Striped prince's pine**

**Wetland Indicator:** NC

**Form/Color** Evergreen, grows to 1' tall by 1'8" wide, usually smaller, flowers white-pinkish in June-August, waxy, whorled.

**Habitat:** Rich, dry woods, sandy soils.

**Hydrology:** Requires consistently moist soil. Intolerant of drought.

**Horticultural Value:** Fragrant white-pinkish flowers in small clusters at top of stem.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.1-6.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction and disturbance.

**Ecosystem Services:** Edible leaves, good ground cover.

**Compatibility:**

**Other:** Also known as striped wintergreen or striped Prince's pine.

**Clethra alnifolia**

**Sweet pepperbush**

**Wetland Indicator:** FAC

**Form/Color** Deciduous, grows to 8' tall, flowers white in July-August, fruit dry September-October.

**Habitat:** Moist to wet woods.

**Hydrology:** Tolerant of flooding. Intolerant of drought.

**Horticultural Value:** White flowers in summer, fragrant.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-6.5

**Stormwater Tolerance:** ROW Rain garden, Retention pond, Stormwater greenstreet, Inundation, Slopes

**Urban Tolerance:** Tolerant of soil compaction, performs well in the right of way.

**Ecosystem Services:** Wildlife value low, host to some butterfly larvae, twigs eaten by rabbits and deer.

**Compatibility:** Can form colonies.

**Other:** Tolerates shade but better in gaps and edges.

**Comptonia peregrina**

**Sweetfern**

**Wetland Indicator:** NC

**Form/Color** Deciduous, dense, rounded shrub, slow grower to 2-4' tall, 4-8' wide, flowers catkins in May-June.

**Habitat:** Grassland, meadows, fields, open woodlands.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Lustrous leaves, resemble fern frond, fragrant.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.5-6.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Intolerant of soil compaction, tolerant of poor soils, performs well in the right of way.

**Ecosystem Services:** Wildlife value low.

**Compatibility:** Suckers can form colonies.

**Other:** Can be difficult to establish, nitrogen fixer. Sexes on separate plants.

**Cornus alternifolia**

**Alternaleaf dogwood**

**Wetland Indicator:** FACU

**Form/Color** Small, deciduous, stratified branching, to 15-25' tall, 20-30' wide, white/yellow and green foliage, off-white flowers in May-June, dark blue fruits in July-September.

**Habitat:** Rich woods, stream and pond banks, prefers moist soil.

**Hydrology:** Moderately tolerant of flooding, intolerant of drought.

**Horticultural Value:** Small cluster of off-white flowers, dark blue fruits, fragrant.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.5-7.5

**Stormwater Tolerance:** Retention pond, Slopes

**Urban Tolerance:** Moderately tolerant of soil compaction.

**Ecosystem Services:** Wildlife value very high, fruit eaten by birds.

**Compatibility:**

**Other:** Susceptible to dogwood borer and cottony scales.

## **Cornus amomum**

<b>Wetland Indicator:</b>	FACW
<b>Form/Color</b>	Deciduous, sprawling, grows to 9' tall, flowers white in May-July, blue-white fruit in August-September.
<b>Habitat:</b>	Open freshwater tidal and nontidal marshes, pond edges, flood plain forests, wet habitats.
<b>Hydrology:</b>	Tolerant of flooding, moderately tolerant of drought.
<b>Horticultural Value:</b>	Flowers in white, showy clusters in summer, fleshy blue-white fruit in late summer and fall.
<b>Salt Tolerance:</b>	Intolerant
<b>Shade Tolerance:</b>	Intolerant

## **Silky dogwood**

<b>Soil:</b>	pH 6.0-8.5
<b>Stormwater Tolerance:</b>	ROW Rain garden, Retention pond, Stormwater greenstreet, Rain garden, Inundation, Slopes
<b>Urban Tolerance:</b>	Tolerant of concrete debris, moderate disturbance, performs well in the right of way.
<b>Ecosystem Services:</b>	Wildlife value very high, host to some butterfly larvae, fruit eaten by birds, raccoons, skunks, leaves and twigs eaten by deer and rabbits.
<b>Compatibility:</b>	Branch tips rooting.
<b>Other:</b>	Most common Cornus species in NYC, can be infected by leaf spot in cool, wet summers, wounded plants may be infected by cankers.

## **Cornus racemosa**

<b>Wetland Indicator:</b>	FAC
<b>Form/Color</b>	Deciduous, moderate grower to 15', flowers white in May-July, white fruit with red stems in July-September.
<b>Habitat:</b>	Moist soil.
<b>Hydrology:</b>	Moderately tolerant of flooding, drought.
<b>Horticultural Value:</b>	White, showy, flower clusters in summer, fleshy white fruit with red pedicels.
<b>Salt Tolerance:</b>	Intolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

## **Gray dogwood**

<b>Soil:</b>	pH 6.0-8.5
<b>Stormwater Tolerance:</b>	ROW Rain garden, Retention pond, Stormwater greenstreet, Rain garden, Inundation, Slopes
<b>Urban Tolerance:</b>	Should tolerate concrete debris, alkaline fill, soil compaction; performs well in the right of way.
<b>Ecosystem Services:</b>	Wildlife value very high, fruit eaten by many bird species.
<b>Compatibility:</b>	Can form colonies.
<b>Other:</b>	Roots fairly well from cuttings. Also known as Red-Panicked Dogwood.

## **Cornus sericea**

<b>Wetland Indicator:</b>	FACW
<b>Form/Color</b>	Deciduous, grows to 8', flowers white in May-August, white fruit in August-October.
<b>Habitat:</b>	Pond and marsh edges.
<b>Hydrology:</b>	Tolerant of swampy conditions, wet soils.
<b>Horticultural Value:</b>	Flowers white in showy clusters, fleshy white fruit in late summer and fall. Red stems add winter interest.
<b>Salt Tolerance:</b>	Tolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

## **Redosier dogwood**

<b>Soil:</b>	pH 6.0-8.5
<b>Stormwater Tolerance:</b>	ROW Rain garden, Retention pond, Stormwater greenstreet, Rain garden, Inundation, Slopes
<b>Urban Tolerance:</b>	Tolerant of concrete debris, performs well in the right of way.
<b>Ecosystem Services:</b>	Fruit eaten by birds, raccoons, skunks, twigs and leaves eaten by rabbits and deer, host to some butterfly larvae.
<b>Compatibility:</b>	Branch tips rooting.
<b>Other:</b>	Does not reproduce well in New York City, roots well from cuttings.

## **Corylus americana**

<b>Wetland Indicator:</b>	FACU
<b>Form/Color</b>	Deciduous, moderate to fast grower to 9', flowers yellow catkins in March-April, fruit in September.
<b>Habitat:</b>	Moist woods, thickets.
<b>Hydrology:</b>	Moderately tolerant of drought, intolerant of flooding.
<b>Horticultural Value:</b>	Yellow catkins in spring, fruit in September.
<b>Salt Tolerance:</b>	Intolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

## **American hazelnut**

<b>Soil:</b>	pH 6.0-7.5
<b>Stormwater Tolerance:</b>	Unsuitable
<b>Urban Tolerance:</b>	Moderately tolerant of soil compaction.
<b>Ecosystem Services:</b>	Wildlife value moderate, nuts eaten by birds and mammals.
<b>Compatibility:</b>	
<b>Other:</b>	



**Dasiphora fruticosa**

**Shrubby cinquefoil**

**Wetland Indicator:** FACW

**Soil:** pH 6.0-8.5

**Form/Color:** Deciduous, rounded shrub, yellow flowers from June until frost, slow grower to 2-4' tall, 2-4' wide.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Habitat:** Open areas, wet to moist soil.

**Urban Tolerance:** Should tolerate concrete debris, tolerant of poor soils, performs well in the right of way.

**Ecosystem Services:** Attracts butterflies.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** Bluish-green leaves, bright yellow, white, pink, or red flowers.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Very few pests.

**Shade Tolerance:** Intolerant

**Diervilla lonicera**

**Northern bush honeysuckle**

**Wetland Indicator:** NC

**Soil:** pH 6.0-6.5

**Form/Color:** Deciduous, short-lived, fast grower to 3', flowers yellow to red in June-July, fruit dry in August-October.

**Stormwater Tolerance:** Stormwater greenstreet, Upland

**Habitat:** Dry woods, rocky soil.

**Urban Tolerance:** Tolerant of soil compaction.

**Ecosystem Services:** Wildlife value low, flowers attractive to hummingbirds.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Yellow to red flowers in summer.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Shade tolerant

**Epigaea repens**

**Trailing arbutus**

**Wetland Indicator:** NC

**Form/Color** Evergreen, creeping mat, grows to 4-6", flowers white or pink in March-May, white fruit, dioecious.

**Habitat:** Sandy to peaty woods or clearings.

**Hydrology:** Intolerant of flooding, drought.

**Horticultural Value:** Aromatic, leathery leaves, trumpet-shaped white-pale pink flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-6.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction, roots easily injured, human disturbance causes leaf browning and rot.

**Ecosystem Services:** Wildlife value low, attracts butterflies.

**Compatibility:**

**Other:** Exploitably vulnerable in New York state, does not tolerate disturbance.

**Eubotrys racemosa**

**Swamp doghobble**

**Wetland Indicator:** FACW

**Form/Color** Deciduous, grows to 12', flowers white in May-June, fruit dry September-October.

**Habitat:** Swamp forests, margins of woodland ponds, vernal pools, moist to wet oak woodlands understory.

**Hydrology:** Wet soil conditions; medium moisture usage.

**Horticultural Value:** Small, white flowers in summer.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.4-6.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Wildlife value low, eaten by deer.

**Compatibility:** clonal from root sprouts.

**Other:**

**Gaultheria procumbens**

**Eastern teaberry**

**Wetland Indicator:** FACU

**Soil:** pH 4.5-6.5

**Form/Color:** Slow grower to 6", stoloniferous with creeping horizontal rhizomes, forms a mat, dark green foliage, flowers white to pinkish in spring, red fruit.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Tolerant of soil compaction.

**Habitat:** Bog, swamp, barrens, dune, forest, old field.

**Ecosystem Services:** Wildlife value low, limited use by large and small mammals, and birds.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** White flowers, red fruit.

**Compatibility:** Can slowly form colonies.

**Salt Tolerance:** Low tolerance

**Other:** Difficult to transplant.

**Shade Tolerance:** Tolerant of partial shade

**Gaylussacia baccata**

**Black huckleberry**

**Wetland Indicator:** FACU

**Soil:** pH 3.9-4.8

**Form/Color:** Deciduous, very slow grower to 3', flowers white-pinkish in May-June, black fruit in August-September.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Performs well in the right of way.

**Habitat:** Dry, sandy, or rocky oak woods, pine barrens.

**Ecosystem Services:** Wildlife value high, fruit eaten by birds and mammals, host to some butterfly larvae.

**Hydrology:** Moderately tolerant of drought.

**Horticultural Value:** White flowers, fleshy black fruit.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Low tolerance

**Other:**

**Shade Tolerance:** Tolerant of partial shade

**Gaylussacia frondosa**

**Blue huckleberry**

**Wetland Indicator:** FAC

**Form/Color:** Deciduous, very slow grower to 6', flowers white in May-June, blue fruit in August-September.

**Habitat:** Moist to dry open oak or pine woods.

**Hydrology:** Sandy, wet soil conditions.

**Horticultural Value:** White flowers, fleshy blue fruit.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-6.5

**Stormwater Tolerance:** Retention pond, Upland

**Urban Tolerance:** Adapted to coarse soils, intolerant of anaerobic conditions.

**Ecosystem Services:** Wildlife value high, fruit eaten by birds and mammals, host to some butterfly larvae, pollinated by bumble bees and smaller bees.

**Compatibility:** Can form colonies.

**Other:**

**Hamamelis virginiana**

**Witchhazel**

**Wetland Indicator:** FACU

**Form/Color:** Deciduous, slow grower to 25', flowers yellow in September-November, fruit dry in autumn of the following year.

**Habitat:** Moist, rich, open woods.

**Hydrology:** Intolerant of flooding, drought.

**Horticultural Value:** Lemon yellow fall foliage, yellow flowers in fall and interesting fruits that release seeds explosively.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.0-6.5

**Stormwater Tolerance:** Stormwater greenstreet, Slopes

**Urban Tolerance:** Intolerant of soil compaction, performs well in the right of way.

**Ecosystem Services:** Seeds eaten by wild turkeys, squirrels, twigs eaten by deer and rabbits; leaves fed on by several insects.

**Compatibility:**

**Other:** Susceptible to leaf spot and blight.

**Hudsonia ericoides**

**Wetland Indicator:** NC

**Form/Color:** Evergreen, mound or mat-forming to 1' or less, flowers yellow in May-June, fruit dry July-August.

**Habitat:** Sandy soil of pine barrens, acid, rocky outcrops.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Yellow showy flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Pine barren goldenheather**

**Soil:** pH 5.1-7.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attractive to bees, butterflies, and birds.

**Compatibility:** Cannot compete with weedy vegetation in good quality soil.

**Other:**

**Hudsonia tomentosa**

**Wetland Indicator:** NC

**Form/Color:** Evergreen, shrubby, less than 1', flowers yellow in May-June, fruit in June-August.

**Habitat:** Coastal, open sandy soil, back dunes.

**Hydrology:** Tolerant of moderate drought, sandy, moist soil conditions; low moisture

**Horticultural Value:** Yellow flowers.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**False heather**

**Soil:** pH 5.5-6.9

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Tolerant of coarse soil, intolerant of anaerobic soils.

**Ecosystem Services:** Attractive to bees, butterflies, and birds.

**Compatibility:**

**Other:**

**Ilex glabra**

**Inkberry**

**Wetland Indicator:** FACW

**Form/Color:** Evergreen, slow grower to 6', flowers white in June-July, black fruit in September-November, dioecious.

**Habitat:** Margins of bogs, swamps of coastal plain and pine barrens, Atlantic white cedar swamps.

**Hydrology:** Tolerant of flooding, intolerant of drought.

**Horticultural Value:** Small, white flowers in summer, black fleshy fruit in the fall.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-6.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes, Upland

**Urban Tolerance:** Tolerant of soil compaction, performs well in the right of way.

**Ecosystem Services:** Wildlife value high, fruit eaten by birds, winter cover for small birds, seeds eaten by small mammals, twigs eaten by deer.

**Compatibility:** Eventually clonal.

**Other:**

**Ilex verticillata**

**Winterberry**

**Wetland Indicator:** FACW

**Form/Color:** Deciduous, slow grower to 15', flowers white in June-July, red fruit in September-October, dioecious.

**Habitat:** Freshwater tidal marshes, shrub swamps, swamp forest, flood plain forests.

**Hydrology:** Tolerant of flooding, moderately tolerant of drought.

**Horticultural Value:** Small white flowers in summer, red fleshy fruit in fall, persisting into the winter.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-6.0, tolerates to 8.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Inundation

**Urban Tolerance:** Tolerates soil compaction, performs well in the right of way.

**Ecosystem Services:** Wildlife value high, fruit eaten by birds throughout winter, also eaten by small mammals.

**Compatibility:** Males often form colonies.

**Other:**

**Iva frutescens**

**Marsh elder**

**Wetland Indicator:** FACW

**Soil:** pH 5.0-7.5

**Form/Color:** Grows to 9', usually dies back in winter, flowers greenish in August-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation

**Urban Tolerance:** Tolerant of concrete debris.

**Habitat:** Coastal, high salt marsh, salt marsh edges.

**Ecosystem Services:** Attractive to song birds. Habitat for generalist wetland birds. Secondary nesting habitat for Saltmarsh Sparrows.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** Greenish flowers and fruits.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Intolerant

**Juniperus communis var. depressa**

**Common juniper**

**Wetland Indicator:** FACU

**Soil:** pH 5.0-8.5

**Form/Color:** Evergreen, columnar, slow grower to 6', no true flowers, fruit berry-like blue-black cone in October.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Tolerates concrete debris.

**Habitat:** Sterile, dry, open rocky soil.

**Ecosystem Services:** Wildlife value very high, evergreen cover and food for small birds, fruit eaten by birds.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Berry-like cone of blue-black fruit. Evergreen foliage.

**Compatibility:** Does not tolerate competition from weedy vegetation.

**Salt Tolerance:** Moderately tolerant

**Other:** It has the most extensive worldwide native range of any conifer. Sexes on separate plants.

**Shade Tolerance:** Intolerant

**Kalmia angustifolia**

**Sheep laurel**

**Wetland Indicator:** FAC

**Form/Color:** Evergreen, slow grower to 3', flowers pink in May-June, fruit dry in August-October.

**Habitat:** Dry to moist, acid, sterile sandy soil, oak or pine woods, barrens, bog edges.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** Pink showy flowers in early summer.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-6.0

**Stormwater Tolerance:** Retention pond, Slopes, Upland

**Urban Tolerance:** Tolerant of soil compaction.

**Ecosystem Services:** Wildlife value low.

**Compatibility:** Gradually forms colonies.

**Other:** Adapted to fire, attacked by very few insects, leaves infected by several fungi.

**Kalmia latifolia**

**Mountain laurel**

**Wetland Indicator:** FACU

**Form/Color:** Evergreen, slow grower to 9', flowers white in May-July, fruit dry in August-October.

**Habitat:** Sandy or rocky, oak or pine woods, north-facing slopes, oak forests, pine barrens.

**Hydrology:** Moderately tolerant of drought, intolerant of flooding.

**Horticultural Value:** White showy flowers in early summer.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-6.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction.

**Ecosystem Services:** Wildlife value low.

**Compatibility:**

**Other:** Foliage toxic but eaten by deer.



**Lindera benzoin**

**Spicebush**

**Wetland Indicator:** FACW

**Form/Color** Deciduous, slow grower to 15', flowers yellow in March-April, red fruit September-October, yellow fall foliage, dioecious.

**Habitat:** Swamp forests, understory of moist forests.

**Hydrology:** Moderately tolerant flooding, intolerant of drought.

**Horticultural Value:** Aromatic leaves, small yellow flowers in early spring before leafing out, red fleshy fruit in fall, fall foliage clear yellow.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-7.7

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes, Upland

**Urban Tolerance:** Somewhat tolerant of urban pollution, performs well in the right of way.

**Ecosystem Services:** Wildlife value very high, oily fruit good for migrating birds, host to some butterfly larvae, such as the Spicebush Swallowtail.

**Compatibility:**

**Other:** A common plant in New York City, does not grow well in heavy clay soils.

**Lyonia ligustrina**

**Maleberry**

**Wetland Indicator:** FACW

**Form/Color** Deciduous, moderate grower to 12', flowers white in May-July, fruit dry September-October.

**Habitat:** Swamps, moist to wet open woods, pond edges.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** Small white flowers in summer.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-6.0

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes

**Urban Tolerance:** Tolerates soil compaction.

**Ecosystem Services:** Wildlife value low.

**Compatibility:**

**Other:**

**Lyonia mariana**

**Wetland Indicator:** FAC

**Form/Color:** Grows to 6', flowers white in May-June, fruit dry in September-October into winter.

**Habitat:** Moist sandy soil, open oak or pine woods, needs acid soil.

**Hydrology:** Moist to wet soil conditions.

**Horticultural Value:** White flowers in early summer. Interesting seed heads.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**Piedmont staggerbush**

**Soil:** pH 4.0-6.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Attractive to bees.

**Compatibility:** Can form colonies.

**Other:**

**Morella pensylvanica**

**Wetland Indicator:** FAC

**Form/Color:** Deciduous, irregular shrub, upright branches, blue-gray fruits in late summer through winter, fast grower to 5-12' tall, 5-8' wide.

**Habitat:** Coastal regions.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Deep green leaves, blue-gray fruits, fragrant.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Northern bayberry**

**Soil:** pH 5.5-7.8

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes, Upland

**Urban Tolerance:** Tolerant of infertile soils.

**Ecosystem Services:** Attracts birds. Primary winter food of yellow-rumped warbler.

**Compatibility:** Tends to sucker and form colonies.

**Other:** Nitrogen fixer.

**Physocarpus opulifolius†**

**Ninebark**

**Wetland Indicator:** FACW

**Soil:** pH 6.0-8.5

**Form/Color** Deciduous, vase-shaped, multi-stemmed shrub, flowers plum or pink in early June, moderate to fast grower to 5-10' tall, 6-10' wide.

**Stormwater Tolerance:** Retention Pond, Rain garden, Slopes, Upland

**Habitat:** Open shores, swamp margins, streamsides, wet shrublands, sandy or rocky moist soil.

**Urban Tolerance:** Should tolerate concrete debris, tolerant of soil compaction, performs well in the right of way.

**Hydrology:** Tolerant of flooding, drought.

**Ecosystem Services:** Wildlife value moderate.

**Horticultural Value:** Deep plum or pink foliage, reddish-orange bark.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Moderately tolerant

**Other:** Not deer resistant.

**Shade Tolerance:** Tolerant of partial shade

**Prunus maritima**

**Beach plum**

**Wetland Indicator:** NC

**Soil:** pH 5.8-7.7

**Form/Color** Deciduous, irregular shrub, upright branches, flowers pink in spring, plum colored fruits in August, fast grower to 4-15' tall, 4-15' wide.

**Stormwater Tolerance:** Stormwater greenstreet, Upland

**Habitat:** Dunes; sandy soil.

**Urban Tolerance:** Tolerant of coarse, medium soils, moderately tolerant of anaerobic soils, performs well in the right of way.

**Hydrology:** Tolerant of drought.

**Ecosystem Services:** Attracts bees, fruit is edible.

**Horticultural Value:** Pink flowers, plum colored fruit.

**Compatibility:** Tends to sucker and form colonies.

**Salt Tolerance:** Tolerant

**Other:** Pest problems include brown rot, plum curculio, tent caterpillar, and black knot.

**Shade Tolerance:** Intolerant

**Quercus ilicifolia**

**Bear oak**

**Wetland Indicator:** NC

**Form/Color:** Deciduous, moderate grower to 15', blooms May, acorns ripen September of the following year.

**Habitat:** Dry rocky or sandy, sterile acid soil in oak and pine barrens, coastal scrub, dry, sandy sterile soil.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Blooms in May.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.0-7.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Wildlife value very high, acorns eaten by birds and mammals.

**Compatibility:**

**Other:**

**Quercus prinoides**

**Dwarf chinquapin oak**

**Wetland Indicator:** FACU

**Form/Color:** Deciduous, slow grower to 9', blooms in May, acorns ripen September-October of the following year.

**Habitat:** Dry rocky rich soils, slopes, oak barrens.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Blooms in May.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 5.0-8.5

**Stormwater Tolerance:** Stormwater greenstreet, Upland

**Urban Tolerance:** Should tolerate concrete debris, intolerant of soil compaction.

**Ecosystem Services:** Wildlife value very high.

**Compatibility:**

**Other:**

**Rhododendron maximum**

**Great laurel**

**Wetland Indicator:** FAC

**Soil:** pH 4.5-6.0

**Form/Color:** Evergreen, grows to 30', flowers white in June-July, fruit dry September-November.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction, disturbance.

**Habitat:** Wet to moist woods, Atlantic white cedar bogs, cool, moist, high shade.

**Ecosystem Services:** Wildlife value low, winter cover for birds.

**Hydrology:** Tolerant flooding, intolerant of drought.

**Horticultural Value:** White showy flowers in summer.

**Compatibility:** Gradually forms colonies.

**Salt Tolerance:** Intolerant

**Other:** Damaged by various fungi and insects.

**Shade Tolerance:** Shade tolerant

**Rhododendron periclymenoides**

**Pinxterbloom azalea**

**Wetland Indicator:** FAC

**Soil:** pH 4.2-5.5

**Form/Color:** Deciduous, slow grower to 6', flowers pink in April-May, fruit dry in September.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Tolerant of soil compaction.

**Habitat:** Moist oak woods, acid soil.

**Ecosystem Services:** Wildlife value low.

**Hydrology:** Tolerant of flooding, moderately tolerant of drought.

**Horticultural Value:** Pink showy flowers in spring.

**Compatibility:** Gradually forms colonies.

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Shade tolerant

**Rhododendron viscosum**

**Swamp azalea**

**Wetland Indicator:** FACW

**Form/Color:** Deciduous, moderate grower to 6', flowers white in June-July, fruit dry September-October.

**Habitat:** Open swamp forests, bogs.

**Hydrology:** Moderately tolerant of drought.

**Horticultural Value:** White, showy, fragrant flowers in summer.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-6.0

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Tolerant of soil compaction.

**Ecosystem Services:** Wildlife value low.

**Compatibility:** Slow colonization rate.

**Other:**

**Rhus aromatica**

**Fragrant sumac**

**Wetland Indicator:** UPL

**Form/Color:** Deciduous, low-growing, spreading plant, to 2' tall, 6-8' wide, soft red fruit in late summer into winter, often dioecious.

**Habitat:** Wooded edges in acid soil.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Fragrant trifoliolate leaves, fiery red autumn color, yellow catkin-like flowers, small red fruits.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.8-7.2

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Attracts butterflies and bees.

**Compatibility:** Spreads by root suckers.

**Other:**

**Rhus copallinum**

**Winged sumac**

**Wetland Indicator:** UPL

**Form/Color** Deciduous, fast grower to 25', fall foliage red, flowers greenish in July-September, red fruit clusters in August-October through winter.

**Habitat:** Open, sandy, sterile soil, fill, back dune shrublands.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Fall foliage bright red, flowers greenish, showy pink fruit clusters, winged leaves.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 6.0-7.0

**Stormwater Tolerance:** Stormwater greenstreet, Upland

**Urban Tolerance:** Intolerant of soil compaction. Found along roadsides and coastal areas.

**Ecosystem Services:** Wildlife value high, fruit eaten by birds.

**Compatibility:** Tolerates weedy vegetation. Can form colonies.

**Other:** Common in New York City. Sexes on separate plants.

**Rhus glabra**

**Smooth sumac**

**Wetland Indicator:** NC

**Form/Color** Deciduous, grows to 15', red-orange fall foliage, flowers greenish in June-July, red fruit clusters in July-October.

**Habitat:** Open areas, rich soils, fill, soils.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Fall foliage orange-red, flowers greenish, red fruit clusters.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 6.0-7.0

**Stormwater Tolerance:** Stormwater greenstreet, Upland

**Urban Tolerance:** Intolerant of soil compaction. Found along roadsides and coastal areas.

**Ecosystem Services:** Fruit eaten by some birds.

**Compatibility:** Tolerates weedy vegetation. Can form colonies.

**Other:** Sexes on separate plants.

**Rhus typhina**

**Staghorn sumac**

**Wetland Indicator:** NC

**Soil:** pH 6.0-7.0

**Form/Color** Deciduous, coarse, low spreading branches, moderate grower to 15-25' tall, 15-30' wide, flowers greenish in June-July, red fruit clusters in July-September.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction. Found along roadsides and coastal areas.

**Habitat:** Open, rocky areas, edges, fill.

**Ecosystem Services:** Fruits eaten by gamebirds, songbirds, large and small mammals.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Some cultivars have golden foliage, fiery autumn color, bright crimson upright fruits.

**Compatibility:** Tolerates weedy vegetation. Can form colonies.

**Salt Tolerance:** Tolerant

**Other:** Sexes on separate plants.

**Shade Tolerance:** Intolerant

**Rosa carolina**

**Carolina rose**

**Wetland Indicator:** FACU

**Soil:** pH 6.0-8.5

**Form/Color** Deciduous, multistemmed, prickly, fast grower to 3', flowers pink in June, red fruit.

**Stormwater Tolerance:** Stormwater greenstreet, Upland

**Urban Tolerance:** Should tolerate concrete debris, some tolerance of soil compaction, performs well in the right of way.

**Habitat:** Dry, open areas, old fields, sandy or rocky soil.

**Ecosystem Services:** Wildlife value moderate, fruit eaten by birds and mammals.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Pink showy flowers in June, fleshy red fruit.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Intolerant



**Rosa palustris**

**Swamp rose**

**Wetland Indicator:** OBL

**Form/Color:** Deciduous, multistemmed, prickly stems, grows to 6', flowers pink in June-July, red fruit in September-October.

**Habitat:** Freshwater tidal and nontidal marshes, pond edges.

**Hydrology:** Tolerant of flooding.

**Horticultural Value:** Pink showy flowers, red fleshy fruit.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 5.6-6.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Wildlife value high, fruit eaten by birds.

**Compatibility:** Aggressively forms colonies.

**Other:**

**Rosa virginiana**

**Virginia rose**

**Wetland Indicator:** FAC

**Form/Color:** Deciduous, multi-stemmed, dense shrub, flowers pink with yellow centers in summer, red rose hips throughout winter, to 4-6' tall, 4-6' wide.

**Habitat:** Open areas, moist to dry soil, especially sandy areas, back dune scrub.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Pink flowers with yellow centers, red rose hips.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** ROW Rain garden, Retention pond, Stormwater greenstreet, Rain garden, Inundation, Slopes

**Urban Tolerance:** Performs well in the right of way.

**Ecosystem Services:** Eaten by birds.

**Compatibility:** Will sucker and spread quickly.

**Other:** Very disease resistant.

**Rubus allegheniensis**

**Common blackberry**

**Wetland Indicator:** FACU

**Soil:** pH 4.5-7.5

**Form/Color** Stout, curved, sharp prickles, fast grower stems to 6', flowers white in May-July, black fruit in August-September.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Moderately tolerant of soil compaction, tolerates poor soil.

**Habitat:** Wide tolerance in soils and moisture, grows in fill soils.

**Ecosystem Services:** Wildlife value very high, fruit eaten by birds and mammals.

**Hydrology:** Moderately tolerant of flooding, drought.

**Horticultural Value:** White flowers in summer, black fruit in summer and early fall.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Intolerant

**Other:** Roots well from cuttings.

**Shade Tolerance:** Tolerant of partial shade

**Rubus flagellaris**

**Northern dewberry**

**Wetland Indicator:** FACU

**Soil:** pH 5.0-7.0

**Form/Color** Deciduous, grows to about 1', stems arching, prickles stout, sharp, flowers white in June-July, black fruit in July-August.

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Tolerant of concrete debris.

**Habitat:** Open soil, fill, weedy sites.

**Ecosystem Services:** Fruit and seeds eaten by birds and small mammals.

**Hydrology:** Low tolerance to drought.

**Horticultural Value:** Trailing vine or groundcover. Flowers white in summer, black fleshy fruit in late summer.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Tolerant

**Other:**

**Shade Tolerance:** Intolerant

**Rubus hispidus**

**Swamp dewberry**

**Wetland Indicator:** FACW

**Soil:** pH 4.5-7.0

**Form/Color:** Moderate grower to 2', flowers white, gray-green foliage, black fruit.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Adapted to coarse, medium and fine soils, low tolerance of soil compaction.

**Habitat:** Moist thickets, open woods, clearings.

**Ecosystem Services:** Food for songbirds, game birds, and mammals.

**Hydrology:** Moderately tolerant of drought.

**Horticultural Value:** Trailing delicate vine or ground cover. White flowers, red to black fruit.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Low tolerance

**Other:**

**Shade Tolerance:** Intolerant

**Rubus idaeus**

**Red raspberry**

**Wetland Indicator:** FACU

**Soil:** pH 5.0-7.5

**Form/Color:** Deciduous, moderate grower, stems to 2', slender-based prickles, flowers white-greenish, red fruit.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Habitat:** Swamps, bogs, recently disturbed sites.

**Ecosystem Services:** Food and cover for birds, mammals.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** White-greenish flowers.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:**

**Shade Tolerance:** Shade tolerant

**Rubus occidentalis**

**Black raspberry**

**Wetland Indicator:** NC

**Form/Color:** Deciduous, fast grower to 4', prickly, bluish stems, flowers white in May-June, black fruit in June-July.

**Habitat:** Open areas, edges, part shade, open woodlands, rich acid soil.

**Hydrology:** Tolerant of drought, moderately tolerant of flooding.

**Horticultural Value:** Bluish-purple stems providing good winter color, white flowers in early summer, black fruit in summer.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-6.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Moderately tolerant of soil compaction.

**Ecosystem Services:** Wildlife value very high, fruit eaten by birds and mammals.

**Compatibility:** Can form colonies.

**Other:** Grows poorly in full shade

**Rubus odoratus**

**Purpleflowering raspberry**

**Wetland Indicator:** NC

**Form/Color:** Deciduous, fast grower to 6', unarmed, flowers purple in July-August, red fruit in August-September.

**Habitat:** Moist part shade, rocky woodland edges.

**Hydrology:** Moderately tolerant of drought, intolerant of flooding.

**Horticultural Value:** Purple showy flowers, red fleshy fruit.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-6.0

**Stormwater Tolerance:** Insufficient research to determine

**Urban Tolerance:** Moderately tolerant of soil compaction.

**Ecosystem Services:** Wildlife value very high, fruit eaten by birds and mammals.

**Compatibility:** Can form colonies.

**Other:**

**Rubus pensilvanicus**

**Pennsylvania blackberry**

**Wetland Indicator:** FACU

**Form/Color:** Purple canes to 10' long, stout prickles, flowers white in May-June, black fruit in July-August.

**Habitat:** Thickets, woodland edges, successional habitats.

**Hydrology:** Moderately tolerant of drought.

**Horticultural Value:** Canes can be reddish in color, white flowers, black fleshy fruit.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.7-7.6

**Stormwater Tolerance:** Insufficient research to determine

**Urban Tolerance:** Tolerant of concrete debris.

**Ecosystem Services:** Fruit eaten by birds and mammals.

**Compatibility:**

**Other:**

**Salix discolor**

**Pussy willow**

**Wetland Indicator:** FACW

**Form/Color:** Grows 6-15' tall, 4-12' spread; Yellow flowers in March and April

**Habitat:** Marshy, low ground; stream banks; ditches

**Hydrology:** Thrives in moist soils, but can tolerate some drying conditions

**Horticultural Value:** Early silver and yellow color

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.8-7.2

**Stormwater Tolerance:** Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance

**Ecosystem Services:** Early pollen source for native bees; Larval host for native butterflies

**Compatibility:** Fast-growing and will sucker.

**Other:**

**Salix humilist**

**Wetland Indicator:** FACU

**Form/Color:** Grows to 3', flowers in catkins March-April, fruit in May.

**Habitat:** Dry, exposed, sandy barrens, open woodlands, roadsides.

**Hydrology:** Tolerant of drought.

**Horticultural Value:** Attractive catkins.

**Salt Tolerance:** Insufficient research to determine

**Shade Tolerance:** Intolerant

**Dwarf prairie willow**

**Soil:** Acidic soils.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Host to some butterfly larvae.

**Compatibility:** Can form colonies.

**Other:** Sexes on separate plants.

**Sambucus nigra ssp. canadensis**

**Wetland Indicator:** NC

**Form/Color:** Deciduous, fast grower to 12', flowers white in June-July, black fruit in July-September, forms thickets.

**Habitat:** Freshwater tidal and nontidal marshes, wet edges, shrub swamps.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** White, showy, clusters of flowers, black fleshy fruit.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Common elderberry**

**Soil:** pH 6.0-8.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes, Upland

**Urban Tolerance:** Tolerant of soil compaction, probably tolerant of concrete debris.

**Ecosystem Services:** Wildlife value very high, fruit eaten by birds, mammals.

**Compatibility:** Can form colonies.

**Other:** Will not bloom or fruit in dense shade.

**Spiraea alba var. latifolia**

**Meadowsweet**

**Wetland Indicator:** FACW

**Soil:** pH 6.6-7.5

**Form/Color:** Deciduous, fast grower to 6', flowers white in June-August, fruit dry September-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Tolerant of soil compaction.

**Habitat:** Moist wet open uplands, rocky slopes, meadows.

**Ecosystem Services:** Wildlife value moderate, host to some butterfly larvae.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** White, showy, clusters of flowers.

**Compatibility:** Can form colonies.

**Salt Tolerance:** Low tolerance

**Other:** Roots fairly well from cuttings, attacked by the Spiraea aphid, Spiraea leaf roller moth, and the Spiraea scale.

**Shade Tolerance:** Intolerant

**Spiraea tomentosa**

**Steeplebush**

**Wetland Indicator:** FACW

**Soil:** pH 5.0-6.0

**Form/Color:** Deciduous, fast grower to 5', flowers pink in July-September, fruit dry in September-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes

**Urban Tolerance:** Tolerant of soil compaction, performs well in the right of way.

**Habitat:** Open swamps, wet meadows, rocky, acid, sterile soil.

**Ecosystem Services:** Wildlife value moderate, host to some butterfly larvae.

**Hydrology:** Tolerant of flooding, drought.

**Horticultural Value:** Pink, showy, clusters of flowers.

**Compatibility:** Clonal from root sprouts.

**Salt Tolerance:** Low tolerance

**Other:** Roots fairly well from cuttings, affected by same insects and fungi of Spiraea alba.

**Shade Tolerance:** Intolerant

**Staphylea trifolia**

**American bladdernut**

**Wetland Indicator:** FAC

**Form/Color:** Deciduous, moderate grower to 15', striped bark, flowers white in May, fruit dry in September-October.

**Habitat:** Forest understories, edges in moist, often rocky soil.

**Hydrology:** Moderately tolerant of drought, flooding.

**Horticultural Value:** Striped bark. Yellow, balloon-like hanging fruit.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 6.0-8.0

**Stormwater Tolerance:** Retention pond, Slopes

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Wildlife value low.

**Compatibility:**

**Other:**

**Taxus canadensis†**

**Canada yew**

**Wetland Indicator:** FACU

**Form/Color:** Evergreen, slow grower to 6', no flowers, red fruit, dioecious.

**Habitat:** Rocky or sandy upland forest understories.

**Hydrology:** Intolerant of flooding, drought.

**Horticultural Value:** Fleshy red fruit, evergreen needles.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 5.0-7.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction.

**Ecosystem Services:** Wildlife value moderate, cover for birds.

**Compatibility:**

**Other:**



**Vaccinium angustifolium**

**Lowbush blueberry**

**Wetland Indicator:** FACU

**Form/Color:** Deciduous, slow grower to 2', flowers white in May-June, blue fruit in August-September.

**Habitat:** Sandy or rocky soil, open oak woods, needs acid soil.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Low-growing shrub. White flowers in summer, blue fleshy fruits in late summer.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-6.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Intolerant of soil compaction, performs well in the right of way.

**Ecosystem Services:** Fruit eaten by birds and mammals, twigs eaten by many birds and mammals.

**Compatibility:** Eventually forms colonies.

**Other:** Susceptible to blueberry witches'-broom rust.

**Vaccinium corymbosum**

**Highbush blueberry**

**Wetland Indicator:** FACW

**Form/Color:** Deciduous, slow grower to 9', flowers white in May-June, blue fruit in July-August, red foliage in fall.

**Habitat:** Swamps edges, moist upland forests, shrub swamps.

**Hydrology:** Tolerant of flooding, moderately tolerant of drought.

**Horticultural Value:** Red fall foliage, fleshy blue fruit in July-August, white, small flowers in May-June.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 3.5-6.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Rain garden, Inundation, Slopes Upland

**Urban Tolerance:** Tolerant of soil compaction.

**Ecosystem Services:** Wildlife value very high, host to some butterfly larvae, fruit eaten by birds and mammals.

**Compatibility:**

**Other:** Grown commercially for fruit, susceptible to canker and dieback disease.

**Vaccinium macrocarpon**

**American cranberry**

**Wetland Indicator:** OBL

**Form/Color:** Perennial, grows up to 3', white to pink tube-shaped flowers in nodding clusters in May-Jul, red fruits in Aug-Oct.

**Habitat:** Coastal areas, cool bogs, swamps.

**Hydrology:** Wet to moist soil conditions.

**Horticultural Value:** White to pink tube-shaped flowers.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH <6.8

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Attracts birds.

**Compatibility:** Difficult to transplant.

**Other:** The source of all commercially cultivated cranberries.

**Vaccinium pallidum**

**Blue Ridge blueberry**

**Wetland Indicator:** NC

**Form/Color:** Deciduous, slow grower to 3', flowers white in May-July, blue fruit in August-September.

**Habitat:** Open, oak woods, sandy, acid soil, prefers deep humus.

**Hydrology:** Moist to droughty soil conditions; medium moisture usage.

**Horticultural Value:** Low-growing shrub. White flowers in summer, blue fleshy fruits in late summer.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 3.9-5.0

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Wildlife value very high, fruit eaten by birds and mammals.

**Compatibility:** Can form colonies.

**Other:**

**Vaccinium stamineum**

**Deerberry**

**Wetland Indicator:** FACU

**Form/Color:** Deciduous, slow grower to 5', flowers greenish-white in May-June, yellowish to blue fruit in July-September.

**Habitat:** Dry to moist open oak woods, pine barrens.

**Hydrology:** Tolerant of drought, intolerant of flooding.

**Horticultural Value:** Flowers greenish-white in summer, fleshy yellowish to blue fruit in late summer/early fall.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-6.5

**Stormwater Tolerance:** Green roof

**Urban Tolerance:** Moderately tolerant of soil compaction.

**Ecosystem Services:** Wildlife value high, fruit eaten by birds, host to some butterfly larvae, like the red-spotted purple butterfly.

**Compatibility:** Eventually forms colonies.

**Other:**

**Viburnum acerifolium**

**Mapleleaf viburnum**

**Wetland Indicator:** UPL

**Form/Color:** Deciduous, to 7', usually 3-4', pinkish-purple fall foliage, flowers white in May-June, black fruit in August-September.

**Habitat:** Understory of moist to moderately dry forests, with oak, beech, hickory, maple, prefers deep humus.

**Hydrology:** Moderately tolerant of drought, intolerant of flooding.

**Horticultural Value:** Fall foliage pinkish-purple, white flowers in showy clusters, black fleshy fruit.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 3.9-6.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Moderately tolerant of soil compaction.

**Ecosystem Services:** Wildlife value high, fruit eaten by overwintering birds, host to some butterfly larvae.

**Compatibility:** Eventually forms colonies.

**Other:**

## *Viburnum dentatum*

## Arrowwood

<b>Wetland Indicator:</b>	FAC
<b>Form/Color</b>	Deciduous, multistemmed, moderate grower to 10', flowers white in June-July, dark blue fruit in August-October.
<b>Habitat:</b>	Swamps, freshwater tidal and nontidal marshes, pond edges, swamp forest gaps moist to wet soil.
<b>Hydrology:</b>	Tolerant of flooding, drought.
<b>Horticultural Value:</b>	White, showy, clusters of flowers in summer, fleshy dark blue fruit in late summer and fall.
<b>Salt Tolerance:</b>	Moderately tolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

<b>Soil:</b>	pH 3.9-7.0
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes
<b>Urban Tolerance:</b>	Moderately tolerant of soil compaction, performs well in the right of way.
<b>Ecosystem Services:</b>	Wildlife value high, fruit eaten by mammals and birds, host to some butterfly larvae.
<b>Compatibility:</b>	Can form colonies.
<b>Other:</b>	Common in New York City. Attacked by <i>Viburnum</i> leaf beetle.

## *Viburnum lentago*

## Nannyberry

<b>Wetland Indicator:</b>	FAC
<b>Form/Color</b>	Deciduous, forms thickets, fast grower to 30', often a small tree, flowers white in May-June, black fruit in August-October.
<b>Habitat:</b>	Open woods, edges, rich, moist soil.
<b>Hydrology:</b>	Tolerant of drought, tolerant of flooding.
<b>Horticultural Value:</b>	White, fragrant, showy clusters of flowers, black fleshy fruit.
<b>Salt Tolerance:</b>	Intolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

<b>Soil:</b>	pH 6.0-8.5
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes
<b>Urban Tolerance:</b>	Intolerant of soil compaction, should tolerate concrete debris.
<b>Ecosystem Services:</b>	Wildlife value high, host to some butterfly larvae, fruit eaten by birds.
<b>Compatibility:</b>	
<b>Other:</b>	Roots fairly well from cuttings.

**Viburnum prunifolium**

**Black haw**

**Wetland Indicator:** FACU

**Soil:** pH 5.0-8.5

**Form/Color:** Deciduous, to 15', small tree, flowers white in April-May, black fruit in September-October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes, Upland

**Urban Tolerance:** Should tolerate concrete debris, intolerant of soil compaction.

**Habitat:** Open woods, open habitats, edges.

**Ecosystem Services:** Wildlife value high, host to some butterfly larvae, fruit eaten by birds and mammals.

**Hydrology:** Tolerates drought, intolerant of flooding.

**Horticultural Value:** White, showy, clusters of flowers.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Very slow grower.

**Shade Tolerance:** Tolerant of partial shade

## Trees

Trees, single-stemmed woody plants with a mature height generally over twenty feet, are dominant landscape elements. They perform a number of functions in a park or residential setting, such as providing shade, habitat for wildlife species, and regulating the climate. Because plants do not adhere to the definitions we place on them, some species grow with a more shrub like habit (i.e. multi stemmed) but at a height more like trees (i.e. over twenty feet). As a result some species are often considered both a tree and a shrub. Consideration should be given to the mature size of a species, as well the ornamental qualities of fruit, form, bark, floral display, and fall color.



From top right counter clockwise: *Liriodendron tulipifera* (Tulip poplar), *Quercus rubra* (Red oak), *Juniperus virginiana* (Eastern red cedar)

**Abies balsamea**

**Balsam fir**

**Wetland Indicator:** FAC

**Form/Color** Conical evergreen; 50'-75'; 20'-35' wide spread; autumn and winter; red purple and yellow cone; purple brown cone mid July-mid October.

**Habitat:** Swamp, bog, mesic north and east slope aspects, moist steep rocky land, areas of cool air drainage.

**Hydrology:** Tolerant of flooding; very poor to well drainage; wet to moist moisture levels.

**Horticultural Value:** Evergreen foliage.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.0-6.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction.

**Ecosystem Services:** High wildlife value for songbirds, small mammals, hoofed browsers.

**Compatibility:**

**Other:** Medium lifespan.

**Acer negundo**

**Boxelder**

**Wetland Indicator:** FAC

**Form/Color** Woody wetland tree, grows from 35' to 50', 35' to 50' spread, yellow green to lime green in mid April, green to tan brown fruit in July-September, fast grower.

**Habitat:** Forest, lowland wet, river channel, lake edge, floodplain depressions, wet ravines, roadsides.

**Hydrology:** Tolerant of drought, flooding, saturated soil 75% of growing season.

**Horticultural Value:** Odd pinnate compound leaves with larger yellow samaras.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 6.5-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention Pond, Inundation, Slopes

**Urban Tolerance:** Resistant of soil compaction and demolition debris, pollution tolerant, intolerant of shade.

**Ecosystem Services:** Seeds, buds, flowers eaten by songbirds, waterbirds, small and large mammals.

**Compatibility:**

**Other:** Host of the Asian longhorn beetle and Boxelder bug, may be poisonous to livestock; light and soft wood; short lifespan.

## *Acer rubrum*

## Red maple

**Wetland Indicator:** FAC

**Soil:** pH 4.5-7.0

**Form/Color:** 75' to 100', 50'-75' wide spread; ovoid to globular form; winter red, knobby flower buds; flowers in March; fruit May-June, medium to fast grower.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes

**Habitat:** Moist woods to swampy forests.

**Urban Tolerance:** Tolerates soil compaction, pollution, ozone and sulfur dioxide, performs well in the right of way.

**Ecosystem Services:** Seeds, buds, flowers, and twigs eaten by birds and mammals.

**Hydrology:** Tolerant of flooding, saturated soil 25% growing season

**Horticultural Value:** Early spring red flowers before leafing out, red leaves in fall.

**Compatibility:**

**Salt Tolerance:** Low tolerance

**Other:** A host of the Asian longhorn beetle, attacked by various fungi; used as street tree, and in parks, natural areas

**Shade Tolerance:** Shade tolerant

## *Acer saccharinum*

## Silver maple

**Wetland Indicator:** FACW

**Soil:** pH 4.0-7.0

**Form/Color:** Irregular and globular form; 75' to 100', 75' to 100' wide spread; red to orange twigs; winter reddish, brownish flowerbuds; dull green flowers February to March; fruit April- May.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Inundation

**Habitat:** Forest, savanna, low open areas, floodplains, streamside, low lakeshore and swamp.

**Urban Tolerance:** Tolerates soil compaction, sensitive to ozone.

**Ecosystem Services:** Seeds, buds, flowers, and twigs eaten by birds and mammals.

**Hydrology:** Tolerant of flooding, saturated soil 25% growing season

**Horticultural Value:** Green bell-shaped flowers.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Fast grower, 130 year lifespan, host of the Asian longhorn beetle; used in restoration of swamp forests, flood plains, wetland mitigation.

**Shade Tolerance:** Tolerant of partial shade



## *Acer saccharum*

## Sugar maple

**Wetland Indicator:** FACU

**Soil:** pH 5.5-7.3

**Form/Color** Oval to rounded form; 75' to 100', 35' to 50' wide spread; pale yellow green bell-shaped flowers April- early May; green to tan brown samara fruit in September.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Forest, mesic ravines, coves, north and east facing slopes, floodplains.

**Urban Tolerance:** Does not tolerate soil compaction, performs well in the right of way.

**Hydrology:** Intolerant of flooding; grows well in limestone soils

**Ecosystem Services:** Seeds, buds, flowers eaten by upland songbirds, small mammals.

**Horticultural Value:** Range of yellow to orange to red fall color.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Slow grower, to 150 years; susceptible to Verticillium wilt; host to sugar maple borer, Asian longhorn beetle; foliage susceptible to gypsy moth.

**Shade Tolerance:** Shade tolerant

## *Amelanchier arborea*

## Common serviceberry

**Wetland Indicator:** FACU

**Soil:** pH 5.5-7.5

**Form/Color** Rounded crown; 12' to 30'; dark green foliage; white flowers April-May; red-purple fleshy fruit June.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes

**Habitat:** Upland woods, rich limestone soil; rocky soils on open slopes, wood edges, and stream banks.

**Urban Tolerance:** Tolerates concrete debris, performs well in the right of way.

**Hydrology:** Grows best in medium well-drained acidic soils

**Ecosystem Services:** Fruit eaten by birds and mammals; host to larvae of some butterfly species.

**Horticultural Value:** Red-orange fall color, fragrant white flowers April-May.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Edible fruit; used for forest restoration.

**Shade Tolerance:** Tolerant of partial shade

## *Amelanchier canadensis*

<b>Wetland Indicator:</b>	FAC
<b>Form/Color</b>	Low shrubby and multi-stemmed; 25'; white flowers April-May; purple fleshy fruit June-July; moderate growth rate.
<b>Habitat:</b>	Shrub swamp, moist, sterile sandy soil of back dune thickets
<b>Hydrology:</b>	Moist to dry soil; intolerant of drought; saturated soil 25% growing season.
<b>Horticultural Value:</b>	Red-orange fall color, white flowers April-May.
<b>Salt Tolerance:</b>	Tolerant
<b>Shade Tolerance:</b>	Shade tolerant

## *Amelanchier laevis*

<b>Wetland Indicator:</b>	NC
<b>Form/Color</b>	Globular or obovoid; to 25' tall; 25'-35' wide spread; red to maroon green in spring, blue green in summer, orange to dull red in fall; deciduous early May to mid October.
<b>Habitat:</b>	Mesic coves, north and east slope aspects, cool rich woods.
<b>Hydrology:</b>	Well to moderately well drainage; very intolerant of flooding.
<b>Horticultural Value:</b>	Orange, red fall color.
<b>Salt Tolerance:</b>	Low tolerance
<b>Shade Tolerance:</b>	Shade tolerant

## Canadian serviceberry

<b>Soil:</b>	pH 5.0-6.5
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation
<b>Urban Tolerance:</b>	Intolerant of soil compaction, sensitive to ozone, performs well in the right of way.
<b>Ecosystem Services:</b>	Fruit eaten by birds and mammals; host to larvae of some butterfly species.
<b>Compatibility:</b>	
<b>Other:</b>	Used for back dune woodland, shrub swamps, moist woodland, and swamp forest.

## Allegheny serviceberry

<b>Soil:</b>	pH 6.1-6.5
<b>Stormwater Tolerance:</b>	ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation
<b>Urban Tolerance:</b>	Sensitive of soil compaction, sensitive to ozone, performs well in the right of way.
<b>Ecosystem Services:</b>	High wildlife value for songbirds, small mammals, and humans.
<b>Compatibility:</b>	
<b>Other:</b>	Medium lifespan.

**Betula alleghaniensis**

**Yellow birch**

**Wetland Indicator:** FAC

**Form/Color** Grows to 80'; blooms April-May; yellowish silvery bark; fruits August-October, catkins egg-shaped and upright.

**Habitat:** Northern forest with well drained, fertile loam soils.

**Hydrology:** Intolerant of flooding; moist well drained, fertile loam soils.

**Horticultural Value:** Yellow fall color.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.6-6.9

**Stormwater Tolerance:** Retention pond, Inundation

**Urban Tolerance:** Tolerant of urban conditions.

**Ecosystem Services:** Seeds, sap, and bark eaten by birds and mammals.

**Compatibility:**

**Other:** Minor element in forest restorations north of New York City.

**Betula lenta**

**Black birch**

**Wetland Indicator:** FACU

**Form/Color** Grows to 70'; blooms April-May; pale yellow color in fall; young bark marked by thin horizontal lenticels, older bark often cracked.

**Habitat:** Moist to dry, well-drained, upland, acid forest soil.

**Hydrology:** Moderately tolerant of drought

**Horticultural Value:** Yellow fall color.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.0-6.8

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Sensitive to soil compaction.

**Ecosystem Services:** Seeds eaten by birds.

**Compatibility:**

**Other:** Also known as sweet birch and cherry birch. Broken twigs give off wintergreen odor.

**Betula populifolia**

**Gray birch**

**Wetland Indicator:** FAC

**Soil:** pH 5.0-7.5

**Form/Color** 30'; white bark at maturity with black horizontal lines and chevron-shaped markings; light green to yellow green catkins in April; medium green to tan brown strobiles September-December.

**Stormwater Tolerance:** Green roof, ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Tolerant of soil compaction, prefers acidic soils

**Habitat:** Wetland edges; lowland wet, upland dry; swamp edges; low lake edges; dry steep rocky land.

**Ecosystem Services:** Seeds and fruit eaten by birds and mammals; leaves eaten by various moth species.

**Hydrology:** Tolerates flooding, saturated soil 75% growing season.

**Horticultural Value:** Yellow fall color; smooth white bark.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Used for vegetation restoration on open, bare mineral soil; park tree; common lifespan 15 to 30 years, fast grower.

**Shade Tolerance:** Intolerant

**Carpinus caroliniana**

**American hornbeam**

**Wetland Indicator:** FAC

**Soil:** pH 4.0-7.5

**Form/Color** Obovoid to globular form; 35'-50' ; 35'-50' wide spread; red/reddish green catkin late April to early May; orange to red drooping 3-winged samara clusters mid June to October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Sensitive to soil compaction. Performs well in the right of way.

**Habitat:** Lowland or upland wet mesic; understory in moist, undisturbed woods; swamp forest edges; closed canopy woodlands.

**Ecosystem Services:** Low wildlife value for songbirds and water fowl.

**Hydrology:** Sensitive to drought and flooding, poor to excessive drainage.

**Horticultural Value:** Green to yellow, hanging fruit. Good fall color. Trunk has a distinctive muscular appearance.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Medium lifespan, mature at about 150 years; susceptible to fire, slow grower. Also known as blue beech, musclewood and ironwood.

**Shade Tolerance:** Shade tolerant

## *Carya cordiformis*

<b>Wetland Indicator:</b>	FAC
<b>Form/Color</b>	Globular form; 75'-100'; 75'-100' wide spread; yellow green catkins bloom May; round yellow green to brown nut late August to mid October.
<b>Habitat:</b>	Lowland wet mesic, upland mesic and mesic dry; flood plain; moist or dry slopes and uplands.
<b>Hydrology:</b>	Moderate tolerance of drought and flooding.
<b>Horticultural Value:</b>	Globular form, yellow-green catkins.
<b>Salt Tolerance:</b>	Low tolerance
<b>Shade Tolerance:</b>	Shade tolerant

## *Carya glabra*

<b>Wetland Indicator:</b>	FACU
<b>Form/Color</b>	Irregular obovoid; 75'-100'; 35'-50' wide; yellow green catkins mid May, pear shaped yellow green nut in early September to late October.
<b>Habitat:</b>	Upland dry, steep rocky land, sandy hills, upland ridges and ravines, warm south facing slopes.
<b>Hydrology:</b>	Tolerant of drought, intolerant of flooding.
<b>Horticultural Value:</b>	Obovoid, yellow-green catkins.
<b>Salt Tolerance:</b>	Intolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

## **Bitternut hickory**

<b>Soil:</b>	pH 5.5-8.5
<b>Stormwater Tolerance:</b>	Unsuitable
<b>Urban Tolerance:</b>	Tolerant of concrete debris.
<b>Ecosystem Services:</b>	Moderate value.
<b>Compatibility:</b>	
<b>Other:</b>	Medium to long lifespan, shortest lived 200 years; increases diversity and aesthetics in upland forest; park tree, street tree, slow grower.

## **Pignut hickory**

<b>Soil:</b>	pH 6.1-7.5
<b>Stormwater Tolerance:</b>	Unsuitable
<b>Urban Tolerance:</b>	Intolerant of soil compaction.
<b>Ecosystem Services:</b>	Intermediate value to songbirds and small mammals.
<b>Compatibility:</b>	
<b>Other:</b>	Long lifespan, can live to 300 years, slow grower.

## Carya ovata

<b>Wetland Indicator:</b>	FACU
<b>Form/Color</b>	Irregular ovoid and obovoid; 75'-100'; 35'-50' wide spread; yellow green catkins in mid May; globular brown nut in early September to mid October.
<b>Habitat:</b>	Upland moist to dry undisturbed forests; upland mesic dry; dry south and west facing slopes.
<b>Hydrology:</b>	Moderately poor to well drained soil; intolerant of flooding.
<b>Horticultural Value:</b>	Shreddy bark when older, yellow-green catkins, yellow fall color.
<b>Salt Tolerance:</b>	Intolerant
<b>Shade Tolerance:</b>	Tolerant of partial shade

## Carya tomentosa

<b>Wetland Indicator:</b>	NC
<b>Form/Color</b>	Irregular-obovoid; 75'-100'; 35'-50' wide spread; yellow green catkins in mid May; globular brown nut in early September to mid October; slow grower.
<b>Habitat:</b>	Upland moist to dry forests.
<b>Hydrology:</b>	Intolerant of flooding.
<b>Horticultural Value:</b>	Irregular obovoid, yellow-green catkins.
<b>Salt Tolerance:</b>	Low tolerance
<b>Shade Tolerance:</b>	Intolerant

## Shagbark hickory

<b>Soil:</b>	pH 6.1-6.5
<b>Stormwater Tolerance:</b>	Retention pond, Inundation
<b>Urban Tolerance:</b>	Intermediate tolerance of soil compaction.
<b>Ecosystem Services:</b>	Nuts, flowers, bark eaten by birds and mammals.
<b>Compatibility:</b>	
<b>Other:</b>	Long lifespan, 300 years; susceptible to fire damage.

## Mockernut hickory

<b>Soil:</b>	pH 6.1-6.5
<b>Stormwater Tolerance:</b>	Unsuitable
<b>Urban Tolerance:</b>	Intolerant of soil compaction.
<b>Ecosystem Services:</b>	Nuts, flowers, bark eaten by birds and mammals.
<b>Compatibility:</b>	
<b>Other:</b>	Long lifespan; susceptible to fire; park and street tree; increases diversity and aesthetics in upland forest.

## *Celtis occidentalis*

## Common hackberry

**Wetland Indicator:** FAC

**Soil:** pH 6.5-8.5

**Form/Color:** Globular form; 75'-100' tall', 75'-100' wide spread; light blue green in summer; pale yellow in autumn; purple brown berry September to February.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Slopes, Upland

**Habitat:** Lowland wet-mesic, upland dry mesic, drainage basins, mature floodplains, wooded slopes, windbreaks.

**Urban Tolerance:** Tolerant of concrete debris; intolerant of soil compaction, performs well in the right of way.

**Hydrology:** Moderately tolerant of flooding and saturated soil 25% growing season.

**Ecosystem Services:** Fruit eaten by humans, songbirds, and small mammals. Host to numerous butterflies and moths including the hackberry emperor and American snout.

**Horticultural Value:** Pale yellow color in fall.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Medium to long lifespan; frequently infected by witches' broom, powdery mildew, leaf spots, moderately fast growers.

**Shade Tolerance:** Tolerant of partial shade

## *Cornus florida*

## Flowering dogwood

**Wetland Indicator:** FACU

**Soil:** pH 5.5-7.0

**Form/Color:** Globular form; 35'-50'; 35'-50' wide spread; light green or yellow green in spring, bright green in summer, scarlet red in fall; yellow flowers April- early May; red berry clusters early September-mid November.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Wooded slopes, ravines, bluffs.

**Urban Tolerance:** Intolerant of soil compaction.

**Hydrology:** Moist well-drained soil; intolerant of flooding.

**Ecosystem Services:** Seeds, fruit, and twigs eaten by migratory birds and deer.

**Horticultural Value:** White flowers early April-June. Clusters of showy red fruit and red-purple fall leaf color.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Medium lifespan, mature at about 150 years; park tree; secondary species used in diversifying and restoring forest understories.

**Shade Tolerance:** Shade tolerant

## *Crataegus crus-galli*

## Cockspur hawthorn

**Wetland Indicator:** FAC

**Form/Color** Grows to 20'-35'; 20'-35' wide spread; globular; bright green in spring, dark green in summer, bright orange to red foliage in fall; white flowers bloom in May; orange to red fruit from August to January.

**Habitat:** Dry and rocky places; on slopes of low hills in rich soils; floodplains; borders of woods.

**Hydrology:** Tolerant of flooding.

**Horticultural Value:** Orange to red fall color, attractive fruit.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-7.2

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Tolerant of compacted soil and various soil pH levels, performs well in the right of way.

**Ecosystem Services:** Intermediate wildlife value; fruit eaten by songbirds, upland ground birds, large and small mammals.

**Compatibility:**

**Other:** Susceptible to fire blight, powdery mildew, scab; host to aphids, borers, lace bugs; short lifespan, moderate grower.

## *Fagus grandifolia*

## American beech

**Wetland Indicator:** FACU

**Form/Color** Conical/ovoid; 75'-100'; 50'-75' wide spread; blue green in summer, yellow to brown in fall; yellow green hanging globe flower clusters in April-May, tan nut September-mid November.

**Habitat:** Floodplain knolls, elevated terrace, mesic ravines, cool air drainage areas, north and east slope aspects.

**Hydrology:** Intolerant of flooding, well to moderately well drainage.

**Horticultural Value:** Silver bark.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.1-6.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction.

**Ecosystem Services:** Nuts eaten by wildlife.

**Compatibility:** Known to sucker vigorously.

**Other:** Slow to medium grower; sometimes infected by beech bark disease; bark susceptible to frost and fire damage and fungi attack.



## *Ilex opaca*

## American holly

**Wetland Indicator:** FACU

**Soil:** pH. 4.0-7.5

**Form/Color** Evergreen, green shiny, pointed leaves; 40'; small white flowers May - June, red fruit October- November into winter.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Slopes

**Urban Tolerance:** Intolerant of concrete debris. Performs well in the right of way.

**Habitat:** Coastal; sterile, sandy soils, back-dune forests.

**Ecosystem Services:** Fruit eaten by birds, wintercover for birds.

**Hydrology:** Moderately tolerant of drought; prefers well-drained moist soil.

**Horticultural Value:** Small white flowers in May-June. Evergreen leaves with red fruit persistent throughout the winter.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Used for in back dune holly forests and scrub. Attacked by leafminer and tortricid moth leaf rollers.

**Shade Tolerance:** Shade tolerant

## *Juglans nigra*

## Black walnut

**Wetland Indicator:** FACU

**Soil:** pH.4.6-8.2

**Form/Color** Irregular form; 75'-100'; 75'-100' wide spread; golden yellow in fall; yellow green catkins May-June; yellow green nut turns black from August to late September.

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Moderately tolerant of soil compaction.

**Habitat:** Alluvial floodplain, stream banks, upland in open or abandoned fields.

**Ecosystem Services:** Low wildlife value. Edible for humans and small mammals.

**Hydrology:** Moderately tolerant of flooding; grows on deep well-drained soil.

**Horticultural Value:** Golden yellow color in fall. Large green-yellow fruit.

**Compatibility:** Allelopathic.

**Salt Tolerance:** Moderately tolerant

**Other:**

**Shade Tolerance:** Intolerant

**Juniperus virginiana**

**Eastern red cedar**

**Wetland Indicator:** FACU

**Soil:** pH 6.1-8.0

**Form/Color** Evergreen; conical; blue green in spring, dark olive green in summer and fall; red purple and yellow flowers through late May, gray/blue green cone of berries July-late March.

**Stormwater Tolerance:** Green roof, ROW Rain garden, Stormwater greenstreet, Upland

**Habitat:** Dry hillsides, semi-barren land, calcareous cliffs, steep rocky land, abandoned farmland, occasionally in open alluvial woods.

**Urban Tolerance:** Intolerant of soil compaction; tolerant of concrete debris, performs well in the right of way.

**Hydrology:** Moderately poor to excessive drainage; moist conditions; tolerates drought.

**Ecosystem Services:** Cones eaten by birds and mammals, winter cover for birds.

**Horticultural Value:** Red purple and yellow flowers through late May.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Long lifespan, slow grower, grows in old fields and back dune coastal woodlands; used for vegetation of sandy dredge spoil.

**Shade Tolerance:** Intolerant

**Larix laricina**

**Eastern larch**

**Wetland Indicator:** FACW

**Soil:** pH 4.8-7.5

**Form/Color** Conical; 50'-75'; 35'-50' wide spread; golden yellow in fall; deciduous, bright purplish red cone flower early through mid May; oval light tan brown cone.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Habitat:** Swamp, lake margins, stream borders, seep borders; found in fine heavy clay to coarse wet sand.

**Urban Tolerance:** Tolerant of soil compaction, sensitive to ozone, performs well in the right of way.

**Hydrology:** Moderately poor to very poor drainage; very intolerant of flooding.

**Ecosystem Services:** Intermediate wildlife value for small mammals and songbirds.

**Horticultural Value:** Golden yellow fall color.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Used for swamp forest reforestation and wetland mitigation; medium lifespan, fast grower.

**Shade Tolerance:** Intolerant

**Liquidambar styraciflua**

**Sweetgum**

**Wetland Indicator:** FAC

**Form/Color** Conical to ovoid; 75'-100'; 50'-75' wide spread; scarlet red to purple in fall; deciduous in late April to late October.

**Habitat:** Alluvial floodplain, stream edges, moist forests, swamp forests.

**Hydrology:** Well to poor drainage, tolerant of flooding and poorly drained soil.

**Horticultural Value:** Scarlet red color in fall. Globe-like hanging fruit with spines that may persist into the winter.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 6.1-6.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation, Slopes, Upland

**Urban Tolerance:** Tolerant of soil compaction, performs well in the right of way, minimal tolerance of pollution.

**Ecosystem Services:** Low wildlife value.

**Compatibility:**

**Other:** Slow to medium grower; long lifespan, used for wetland mitigation; street and park tree.

**Liriodendron tulipifera**

**Tulip poplar**

**Wetland Indicator:** FACU

**Form/Color** Columnar form; 75'-100'; 35'-50' wide spread; lemon yellow in summer; yellow green with orange splotched flowers in early to mid June; medium lifespan.

**Habitat:** Sheltered coves, lower slopes and hills, stream valleys.

**Hydrology:** Well to moderately well drainage, moist to average moisture; intolerant of

**Horticultural Value:** Very showy large yellow flowers and tulip shaped leaves. Tall straight trunk.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 6.0-6.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction, performs well in the right of way.

**Ecosystem Services:** Low wildlife value for small mammals and songbirds.

**Compatibility:**

**Other:** Used for reforestation of sites with good quality moist soil, very fast grower.

## *Nyssa sylvatica*

## Black tupelo

**Wetland Indicator:** FAC

**Soil:** pH 6.1-6.5

**Form/Color** Broad conical form; 50'-75'; 35'-50' wide spread; scarlet red in fall; greenish white small flower clusters May- early June; blue berry clusters Sept through mid October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Inundation

**Urban Tolerance:** Performs well in the right of way.

**Habitat:** Low ridges or second bottoms, alluvial flats, dry upper and middle flats.

**Ecosystem Services:** Intermediate wildlife value for songbirds and small mammals.

**Hydrology:** Intolerant of flooding.

**Horticultural Value:** Scarlet red to purple leaf color in fall. Purple fruit. Horizontal branching pattern.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Used for swamp reforestation, floodplains, and wetland mitigation.

**Shade Tolerance:** Tolerant of partial shade

## *Ostrya virginiana*

## Hop hornbeam

**Wetland Indicator:** FACU

**Soil:** pH 4.2-8.0

**Form/Color** Conical form; 35'-50'; 20'-35' wide spread; maroon green in spring, yellow green in summer, pale golden yellow in fall; red brown catkins early through mid May; tan brown samara late June-late October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Intolerant of soil compaction; tolerant of concrete debris, performs well in the right of way.

**Habitat:** Moist to dry upland slopes, coves and ravines, rocky stream edges, moist to dry forest understory.

**Ecosystem Services:** Low wildlife value for songbirds and small mammals.

**Hydrology:** Intolerant of flooding.

**Horticultural Value:** Green to yellow hanging fruit. Fine peeling bark. Pale golden yellow leaf color in fall.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Slow grower.

**Shade Tolerance:** Shade tolerant

**Picea rubens†**

**Red spruce**

**Wetland Indicator:** FACU

**Form/Color** Evergreen; oval shape; 50'-70'; medium green color in spring; remains green in fall; light brown, ovoid cone; yellow flower.

**Habitat:** Moist, rocky woods, hillsides, uplands.

**Hydrology:** Medium drought tolerance; medium moisture usage.

**Horticultural Value:** Yellow flowers bloom mid Spring, evergreen foliage.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Shade tolerant

**Soil:** pH 4.5-5.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Insufficient information to determine tolerance.

**Ecosystem Services:** Low provider of food for small mammals and terrestrial birds; provides moderate cover for small mammals; provides high cover for terrestrial birds.

**Compatibility:**

**Other:** Long lifespan, medium grower.

**Pinus resinosa†**

**Red pine**

**Wetland Indicator:** FACU

**Form/Color** Evergreen; conical to ovoid; 75'-100'; 50'-75' wide; bright green to dark green foliage by midsummer; reddish purple cone mid May- early June; tan brown to silvery gray cone from mid August- late October.

**Habitat:** Dry sandy or rocky soil; low ridges adjacent to lakes, ridgetops, outwash plains.

**Hydrology:** Intolerant of flooding; prefers moist conditions but tolerates dry conditions.

**Horticultural Value:** Reddish-brown, scaly bark, evergreen foliage.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-6.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Sensitive to soil compaction.

**Ecosystem Services:** Very high wildlife value for songbirds, upland ground birds, small mammals, hoofed browsers.

**Compatibility:**

**Other:** Long lifespan, medium grower.

**Pinus rigida**

**Pitch pine**

**Wetland Indicator:** FACU

**Soil:** pH 4.6-6.5

**Form/Color** Evergreen; irregular and globular form; 50'-75'tall; 50'-75' wide spread; dark yellow green; red purple cone in May.

**Stormwater Tolerance:** Green roof

**Habitat:** Sterile sandy soil; shallow soil on steep rocky land, ridges, south or west facing slopes, windbreak.

**Urban Tolerance:** Intolerant of soil compaction, sensitive to ozone.

**Hydrology:** Tolerates drought; intolerant of flooding and saturated soil for more than 25%

**Ecosystem Services:** Very high wildlife value for songbirds, upland birds, and small birds.

**Horticultural Value:** Irregular globular form, persisting cones, evergreen foliage.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Able to tolerate fire. Used for restoring rocky or pine barren habitats, short lifespan, fast grower.

**Shade Tolerance:** Intolerant

**Pinus strobus**

**Eastern white pine**

**Wetland Indicator:** FACU

**Soil:** pH 4.0-6.5

**Form/Color** Evergreen; conical to ovoid; 75'-100'; 50'-75'; light green spring and bright green summer, fall, and winter; medium grower.

**Stormwater Tolerance:** Retention pond, Slopes, Upland

**Habitat:** North-facing slopes, sheltered coves, rocky stream edges, steep rocky land.

**Urban Tolerance:** Intolerant of soil compaction, sensitive to ozone.

**Hydrology:** Moderately poor to well drainage.

**Ecosystem Services:** Very high wildlife value for songbirds, upland birds, and small birds.

**Horticultural Value:** Conical form, evergreen foliage.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Typical roosting place for owls; long lifespan.

**Shade Tolerance:** Tolerant of partial shade

**Platanus occidentalis**

**Wetland Indicator:** FACW

**Form/Color** Distinctive mottled brown bark flakes off in puzzle like pieces exposing yellow and white patches underneath; blooms April-May; fast grower.

**Habitat:** Flood plains, moist fill soil.

**Hydrology:** Tolerant of flooding or saturated soil 25% of growing season.

**Horticultural Value:** Brown and chalky white, bark. Hanging globe-like fruit persisting into winter.

**Salt Tolerance:** Intolerant

**Shade Tolerance:** Tolerant of partial shade

**American sycamore**

**Soil:** pH 6.5-8.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Inundation

**Urban Tolerance:** Tolerant of concrete debris and soil compaction, performs well in the right of way.

**Ecosystem Services:** Low wildlife value.

**Compatibility:**

**Other:** Used for floodplain forest restoration, rivers, streambanks, wetland mitigation. Fast grower.

**Populus deltoides**

**Wetland Indicator:** FAC

**Form/Color** Reaches 150'; reddish catkins bloom March- April; produces egg-shaped fruit May-June.

**Habitat:** Moist fill soils; disturbed sites on bare soil, old fields.

**Hydrology:** Tolerant of flooding.

**Horticultural Value:** White bark, early flower, reddish catkins.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Eastern cottonwood**

**Soil:** pH 5.5-7.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Slopes, Upland

**Urban Tolerance:** Tolerant of soil compaction and disturbed soil.

**Ecosystem Services:** Buds, catkins, eaten by birds; twigs and leaves eaten by rabbits and deer.

**Compatibility:** Fluffy white seeds considered a nuisance.

**Other:** Susceptible to fire damage; attacked by many insects and fungi; short lifespan, fast grower.

**Populus grandidentata**

**Bigtooth aspen**

**Wetland Indicator:** FACU

**Form/Color** Columnar; 50'-75' tall; 20'-35' wide spread; golden yellow in fall; silvery gray catkin in late April; yellow green capsules May-mid June.

**Habitat:** Lower slopes with northeast aspects or high terraces, mesic shoulder of upland ridges.

**Hydrology:** Moderately well to excessively drained; wet to moist soils; intolerant of flooding.

**Horticultural Value:** Early flower, golden yellow leaves in fall, white bark.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 5.0-6.3

**Stormwater Tolerance:** Retention pond, Rain garden, Upland

**Urban Tolerance:** Intolerant of soil compaction.

**Ecosystem Services:** High wildlife value for songbirds, upland groundbirds, and small mammals.

**Compatibility:** Frequently forms colonies.

**Other:**

**Populus tremuloides**

**Quaking aspen**

**Wetland Indicator:** FACU

**Form/Color** Columnar; 35'-50'; 20'-35' wide spread; light green spring, bright green in summer, bright yellow in fall; silvery gray catkins March - April; yellow green conical capsuls May.

**Habitat:** Seeps; slopes with cool air drainage; rocky streams; north- and east-facing slopes; disturbed sites.

**Hydrology:** Moderately well to excessively drainage; moderately tolerant of

**Horticultural Value:** Early flower, yellow color in fall, white bark.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.8-6.5

**Stormwater Tolerance:** Green roof, Retention pond, Rain garden, Inundation, Slopes, Upland

**Urban Tolerance:** Intolerant of soil compaction, sensitive to ozone.

**Ecosystem Services:** High wildlife value for songbirds, upland groundbirds, small mammals, and hoofed browsers.

**Compatibility:** Frequently forms colonies.

**Other:** Short lifespan, fast grower; Susceptible to canker, leaf spot, shoot blight, poplar borer, poplar fall, scale, and red humped caterpillar.



**Prunus americana**

**American plum**

**Wetland Indicator:** UPL

**Soil:** pH 6.6-7.5

**Form/Color** Globular; 20'-35'; 20'-35' wide spread; pale golden yellow in fall; deciduous late May- late September; white flat-topped clusters of flowers early through mid May; large fleshy plum-like red to purplish berry.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Sensitive to soil compaction.

**Habitat:** Upland pastures, margins of woods, fencerows, steep rocky hillsides, streambanks, open oak woods.

**Ecosystem Services:** Very low wildlife value.

**Hydrology:** Very intolerant of flooding; moderately well to excessive drainage; tolerates

**Horticultural Value:** Pale golden yellow fall color.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Short lifespan.

**Shade Tolerance:** Intolerant

**Prunus serotina**

**Black cherry**

**Wetland Indicator:** FACU

**Soil:** pH 6.0-8.0

**Form/Color** Columnar to ovoid; 35'-50' wide spread; maroon green in spring; dark green in summer; yellow to orange in fall; white flowers May- early June. Bark resembles burnt cornflakes.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Intolerant of soil compaction. Common tree found throughout urban areas.

**Habitat:** Rocky hillside, fence rows; borders of wooded areas, abandoned fields, alluvial bottomlands; found on sandy, acid back dunes soil and concrete debris.

**Ecosystem Services:** Very high wildlife value for songbirds and small mammals.

**Hydrology:** Well to moderately well drainage; very intolerant of flooding, very tolerant of

**Horticultural Value:** White flowers in spring, long raceme of purple fruit in summer.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Common early succssional species of open areas, eroded, open slopes, burns, wildlife corridors.

**Shade Tolerance:** Intolerant

**Prunus virginiana**

**Chokecherry**

**Wetland Indicator:** FACU

**Soil:** pH 6.8-7.2

**Form/Color** Obovoid; 35;-50'; 20'-35' wide spread; golden yellow to orange in fall; white fragrant flower in early May; red fleshy fruit edible in August to October.

**Stormwater Tolerance:** Green roof, ROW Rain garden, Stormwater greenstreet, Retention pond, Slopes, Upland

**Urban Tolerance:** Intolerant of soil compaction, performs well in the right of way and in well-drained fill soils.

**Habitat:** Open-wooded slopes, wood edges, open woods, open fields, fencerows.

**Ecosystem Services:** Very high wildlife value for songbirds, small mammals, and large mammals.

**Hydrology:** Moderately well to well drainage; prefers moist to dry moisture conditions.

**Horticultural Value:** Long raceme of red fruit in summer.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Used for vegetation of open areas, slope stabilization, wildlife corridors.

**Shade Tolerance:** Tolerant of partial shade

**Quercus alba**

**White oak**

**Wetland Indicator:** FACU

**Soil:** pH 6.1-7.5

**Form/Color** Globular; 75'-100'; 75'-100' wide spread; bright red to silvery gray in spring, medium green to blue green in summer, burgundy in fall; yellow green catkins late May; acorns September- early October.

**Stormwater Tolerance:** Retention pond, Upland

**Urban Tolerance:** Very intolerant of soil compaction, sensitive to ozone, performs well in the right of way.

**Habitat:** Moist, warm south and west facing slopes, upland flats, rocky hillsides.

**Ecosystem Services:** Very high wildlife value for songbirds, upland ground birds, small mammals, hoofed browsers.

**Hydrology:** Intolerant of flooding.

**Horticultural Value:** Burgundy fall color.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Long lifespan.

**Shade Tolerance:** Tolerant of partial shade

**Quercus bicolor**

**Swamp white oak**

**Wetland Indicator:** FACW

**Form/Color:** Ovoid; 75'-100'; 50'-75' wide spread; purlish green in spring, dark green in summer; golden yellow brown in fall.

**Habitat:** Maturing or older swamp forests; edges of swamp forests and Phragmites marsh.

**Hydrology:** Tolerant of flooding; wet to moist moisture levels.

**Horticultural Value:** Yellow green catkins early through mid May.

**Salt Tolerance:** Moderately tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 5.0-7.0

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Slopes, Upland

**Urban Tolerance:** Resistant to soil compaction, performs well in the right of way.

**Ecosystem Services:** Very high wildlife value for waterbirds, upland birds, songbirds, small mammals, hoofed browsers.

**Compatibility:**

**Other:** Oak anthracose outbreaks can kill tree; medium lifespan, medium to fast grower.

**Quercus coccinea**

**Scarlet oak**

**Wetland Indicator:** NC

**Form/Color:** Globular form; 50'-75 tall';50'-75' wide spread; green in spring, bright green in summer, scarlet red in fall.

**Habitat:** Steep rocky land, ridgetops, warm upper and middle slopes, south and west slope aspects.

**Hydrology:** Very intolerant of flooding; well to excessive drainage; average to dry.

**Horticultural Value:** Scarlet red color in fall.

**Salt Tolerance:** Low tolerance

**Shade Tolerance:** Intolerant

**Soil:** pH 6.1-6.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Sensitive to soil compaction, performs well in the right of way.

**Ecosystem Services:** Very high wildlife value for songbirds, upland ground birds, small mammals, and hoofed browsers.

**Compatibility:**

**Other:** Long lifespan 200-300 years, medium to fast grower.

**Quercus marilandica**

**Blackjack oak**

**Wetland Indicator:** NC

**Form/Color** Ovoid; 35'-50' tall; 35'-50' wide spread; bright red to yellow green in spring; yellow green in summer; red in fall; yellow green or pale orange red catkins mid May-early June; ripe acorns Sept.

**Habitat:** Rocky sandy ridgetops, edges of woods, sand terrace.

**Hydrology:** Intolerant of flooding; tolerant of dry droughty soils.

**Horticultural Value:** Red leaf color in fall.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 4.0-5.0

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction, performs well in the right of way.

**Ecosystem Services:** Very high wildlife value for upland ground birds, songbirds, hoofed browsers, and small mammals.

**Compatibility:**

**Other:** Long lifespan 200-300 years.

**Quercus montana**

**Chestnut oak**

**Wetland Indicator:** NC

**Form/Color** 70'; bark is dark, deeply ridged, and distinctive; blooms in May; ripe acorns September-November.

**Habitat:** Dry, rocky, sandy soil; rocky slopes; upland forests.

**Hydrology:** Intolerant of flooding; drought tolerant.

**Horticultural Value:** Massively ridged gray-brown bark.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 3.5-6.5

**Stormwater Tolerance:** Unsuitable

**Urban Tolerance:** Intolerant of soil compaction, performs well in the right of way.

**Ecosystem Services:** Very high wildlife value; acorns eaten by birds and small mammals.

**Compatibility:**

**Other:** Used for forest restoration in old fields and parks; host to some butterfly larvae species; long lifespan; slow grower.

**Quercus palustris**

**Pin oak**

**Wetland Indicator:** FACW

**Form/Color** Conical; 50'-75' tall; 50'-75' wide spread; maroon green in spring; dark green in summer; deep scarlet red in fall.

**Habitat:** Swamp and floodplains forests, second bottoms, alluvial flats, rich mesophytic forest.

**Hydrology:** Tolerant of flooding and saturated soil up to 25% of growing season.

**Horticultural Value:** Scarlet red color in fall.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Intolerant

**Soil:** pH 5.5-6.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Retention pond, Inundation

**Urban Tolerance:** Sensitive to soil compaction, tolerant of sulfur dioxide, performs well in the right of way.

**Ecosystem Services:** Very high wildlife value for songbirds, waterbirds, upland groundbirds, small mammals, and hoofed browsers.

**Compatibility:**

**Other:** Used for in swamp forest reforestation, flood plains, wetland mitigation, street tree; medium lifespan 125-175 years, fast grower.

**Quercus rubra**

**Northern red oak**

**Wetland Indicator:** FACU

**Form/Color** 50'-75'; 75'-100' wide spread; distinctive bark with shallow furrows often compared to ski trails; blooms in May; ripe acorns September-October.

**Habitat:** Common in New York City forests; Appalachian oak-hickory forest; rich mesophytic forest.

**Hydrology:** Deep, moist, well-drained soils; intolerant of flooding.

**Horticultural Value:** Yellowish to red fall color.

**Salt Tolerance:** Tolerant

**Shade Tolerance:** Tolerant of partial shade

**Soil:** pH 4.5-6.5

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Tolerant of soil compaction, tolerant of pollution, performs well in the right of way.

**Ecosystem Services:** High wildlife value; acorns eaten by birds and small mammals.

**Compatibility:**

**Other:** Used for restoring upland deciduous forests; park tree; street tree; long lifespan; slow grower.

**Quercus stellata**

**Post oak**

**Wetland Indicator:** FACU

**Soil:** pH 4.6-6.5

**Form/Color** Globular form; 35'-50'; 35'-50' wide spread; dark red in spring, deep dark green in summer, yellow green catkins May-early June; acorns ripe September-early October.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Slopes, Upland

**Urban Tolerance:** Intolerant of soil compaction.

**Habitat:** Sandy ridges, dry rocky hillsides, southern slopes.

**Ecosystem Services:** Very high wildlife value; acorns eaten by birds and small mammals, host to larvae of some butterfly species.

**Hydrology:** Intolerant of flooding; tolerant of drought.

**Horticultural Value:** Dark red color in spring, golden yellow brown in fall.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Long lifespan of 200-300 years; slow grower. Used to reforest woodlands in sandy soils of coastal, back dune oak barrens, or rocky uplands.

**Shade Tolerance:** Intolerant

**Quercus velutina**

**Black oak**

**Wetland Indicator:** NC

**Soil:** pH 5.0-6.5

**Form/Color** Ovoid and commonly globular; 75'-100'; 75'-100' wide spread; bright crimson red in spring; yellow green catkins mid through late May; light red brown acorn ripen September.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Upland

**Urban Tolerance:** Intolerant of soil compaction.

**Habitat:** Clay and gravelly ridges, sand dunes, middle and upper slope forests with low nutrient soils.

**Ecosystem Services:** Very high wildlife value for upland ground birds, songbirds, hoofed browsers, and small mammals.

**Hydrology:** Very intolerant of flooding; moderately well to excessive drainage; tolerant of

**Horticultural Value:** Crimson red in spring, yellow to golden brown in fall.

**Compatibility:**

**Salt Tolerance:** Tolerant

**Other:** Used for reforestation of upland forest.

**Shade Tolerance:** Tolerant of partial shade

**Salix eriocephala**

**Missouri river willow**

**Wetland Indicator:** FACW

**Soil:** pH 4.0-7.0

**Form/Color:** Grows to 12'; catkins April-May; fruit May-June; fast grower.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation, Slopes

**Urban Tolerance:** Tolerant of soil compaction.

**Habitat:** Open, wet soil, pond edges, ditches.

**Ecosystem Services:** Low wildlife value.

**Hydrology:** Low tolerance for drought conditions; high moisture use.

**Horticultural Value:** Dark gray, scaly bark.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Used for wetland reforestation and mitigation in open habitats, pond edges, stream banks, and flood plains.

**Shade Tolerance:** Shade tolerant

**Salix nigra**

**Black willow**

**Wetland Indicator:** OBL

**Soil:** pH 6.5-7.5

**Form/Color:** Columnar form; 35'-35'; 20'-35' wide spread; yellow green in fall; yellow green catkins mid March- early April; green yellow strobiles late April-mid May.

**Stormwater Tolerance:** Retention pond, Rain garden, Inundation

**Urban Tolerance:** Tolerant of fill soils, concrete debris, and soil compaction.

**Habitat:** River margins, low lying lakeshore, swamps, swales, gullies.

**Ecosystem Services:** High wildlife value for songbirds, waterfowl, and small mammals.

**Hydrology:** Very poor to moderately poor drainage; wet to moist; very tolerant of flooding.

**Horticultural Value:** Yellow green fall color.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Very fast grower, used for restoring flood plain and riverbank restoration; wetland mitigation.

**Shade Tolerance:** Intolerant

## *Sassafras albidum*

## Sassafras

**Wetland Indicator:** FACU

**Soil:** pH 3.8-7.0

**Form/Color** Conical and irregular form; 35'-50'; 35'-50' wide spread; yellows, oranges, reds, and purples in fall, small clusters of bright yellow and sweet fragrant flowers late April-early May.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Intolerant of soil compaction.

**Habitat:** Found in frequently burned open areas; open woods, abandoned fields, dry ridges and upper slopes.

**Ecosystem Services:** Low wildlife for songbirds, host for some butterfly larvae.

**Hydrology:** Very intolerant of flooding; well to excessive drainage.

**Horticultural Value:** Varying colors of yellow, orange, red, and purple in fall, foliage = 3 kinds of leaves.

**Compatibility:** Frequently forms colonies.

**Salt Tolerance:** Tolerant

**Other:** Short lifespan 50-75 years.

**Shade Tolerance:** Intolerant

## *Thuja occidentalis*

## Arborvitae

**Wetland Indicator:** FACW

**Soil:** pH 6.0-8.0

**Form/Color** Conical; 50'-75'; 35'-50' wide spread; small red brown cone early through late May; tan brown to silvery gray egg-shaped cone early August- February.

**Stormwater Tolerance:** Retention pond, Rain garden, Slopes, Upland

**Urban Tolerance:** Intolerant of soil compaction.

**Habitat:** Swampy areas, bogs, margins of lakes, mesic coves, open rocky hillsides, open rocky pastureland.

**Ecosystem Services:** Low wildlife value for songbirds, waterfowl, and small mammals; browsed by small mammals and white-tailed deer.

**Hydrology:** Tolerant of flooding; poor to well drainage; wet to dry moisture levels.

**Horticultural Value:** Dark green foliage turns yellow-green to brown in winter.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Long lifespan, fast to medium grower.

**Shade Tolerance:** Tolerant of partial shade



**Tilia americana**

**American linden**

**Wetland Indicator:** FACU

**Soil:** pH 6.5-7.5

**Form/Color** Ovoid;75'-100';50'-75' wide spread; golden yellow in fall; clusters of pale yellow flowers late June-early July; tan brown samara September-October; medium grower.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Mesic ravines, coves, north and east slope aspects, floodplain knobs, areas of cool air drainage

**Urban Tolerance:** Tolerant of concrete; intolerant of soil compaction, performs well in the right of way, minimal tolerance of

**Hydrology:** Intolerant of flooding; moderate to well drainage; average moisture levels.

**Ecosystem Services:** Very low wildlife value.

**Horticultural Value:** Golden yellow leaves in fall.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Susceptible to Verticillium wilt, powdery mildew, leaf blight, canker.

**Shade Tolerance:** Shade tolerant

**Tsuga canadensis**

**Eastern hemlock**

**Wetland Indicator:** FACU

**Soil:** pH 4.6-6.5

**Form/Color** Broadly conical; 75'-100'; 35'-50' wide spread; coniferous evergreen; light yellow male cone and pale green female cone late May- early June; tan brown cone September - January.

**Stormwater Tolerance:** Unsuitable

**Habitat:** Protected coves, mesic ravines, moist cool valleys, north and east slope aspects, benches, hollows under cliffs.

**Urban Tolerance:** Intolerant of soil compaction, sensitive to ozone.

**Hydrology:** Very intolerant of flooding; well to poor drainage; wet to average moisture

**Ecosystem Services:** Intermediate wildlife value for songbirds, small mammals, and hoofed browsers; good winter cover for wildlife.

**Horticultural Value:** Dark green foliage year round.

**Compatibility:**

**Salt Tolerance:** Intolerant

**Other:** Very susceptible to drought and heat; susceptible to wooly adelgid; long lifespan; medium to slow grower.

**Shade Tolerance:** Shade tolerant

**Ulmus americana**

**American elm**

**Wetland Indicator:** FACW

**Soil:** pH 6.6-8.0

**Form/Color:** Globular; 75'-100'; 75'-100' wide spread; golden yellow in fall; small clusters of red brown flowers early-mid April; tan brown samara May.

**Stormwater Tolerance:** ROW Rain garden, Stormwater greenstreet, Inundation, Slopes

**Habitat:** Alluvial flats; mesic ravines, moist forest slopes.

**Urban Tolerance:** Intermediate tolerance of soil compaction.

**Hydrology:** Intermediate tolerance of flooding; moderate to well drainage; moist to dry.

**Ecosystem Services:** Intermediate wildlife value for waterfowl, songbirds, upland ground birds, small mammals.

**Horticultural Value:** Golden yellow fall color.

**Compatibility:**

**Salt Tolerance:** Moderately tolerant

**Other:** Susceptible to diseases: Dutch elm disease, cankers, Verticillium wilt; frequently susceptible to gypsy moth, bark beetles, elm borer, etc.

**Shade Tolerance:** Tolerant of partial shade

# Glossary

Acidic	Pertaining to habitat or substances having a pH less than 7
Alkaline	Pertaining to habitat or substances having a pH greater than 7
Allelopathic	Related to the release by a plant of chemicals which suppress the growth of nearby competing plants
Anaerobic	An environment without oxygen; commonly occurring in water saturated soils
Annual	A plant which has a life cycle completed in a single year or growing season
Aromatic	Having a noticeable and pleasant smell; fragrant
Biennial	A plant which has a life cycle completed in two years, where blooming occurs in the second year
Biodiversity	The existence of many different kinds of plants and animals in an environment
Canopy	The highest layer of branches in a forest or on a tree. A protective covering
Canopy Cover	The proportion of land area covered by tree crowns, as viewed from the air
Catkin	A dense spike or raceme bearing many small flowers or fruits
Colonial	Of or relating to a colony; owning or made up of colonies
Columnar	Having the shape of a column
Conical	Having the shape of a cone
Coniferous	A plant which bears its seeds in cones
Culm	The stem of a grass or a sedge
Deciduous	Having a life cycle in which foliage is shed and regrown annually
Dioecious	Individual plants are of a single sex; Plants of both sexes must be present on the same site or nearby for reproduction to occur
Drought	A period of below average rainfall, longer than a dry spell

Ecosystem	A system in which plants and animals interact with one another and their physical environment
Ecosystems Services	The benefits that people obtain from an ecosystem; there are four types: provisioning, regulating, cultural, and supporting
Ephemeral	A plant which completes its life cycle in a short period of time, often just a few weeks
Evergreen	Remaining green throughout the winter
Fauna	Animals, considered as a group
Fern	Flowerless, seedless plant that reproduces by spores
Floodplain	An area of low, flat land along a stream or river that may flood; An area of land built up from soil left by floods
Flora	Plants, considered as a group
Forb	A herbaceous flowering plant other than a grass
Forest	A relatively large area of mature trees
Forever Wild	Highest quality natural areas owned by NYC Parks
Fragmentation	Breaking up of one patch of habitat into several smaller patches; Isolation of one habitat fragment from other areas of habitat
Fronde	The leaf of a fern
Globular	Having the shape of a globe
Graminoid	Any of the grass-like plants, including grasses, sedges, and rushes
Grassland	Land covered with grasses and other soft plants but not with bushes and trees
Groundwater	Water within the earth especially that supplies wells and springs
Hardwood	The wood of a tree, such as an oak or maple, that is heavy and hard
Herbaceous	Flowering plants which do not have woody stems, and which die back to the ground, wholly or in part, at the end of the growing season
Hydrology	A science dealing with the properties, distribution, and circulation of water on and below the earth's surface and in the atmosphere

Indigenous	Produced, living, or existing naturally in a particular region or environment
Inflorescence	The arrangement of flowers on a stem
Invasive Species	A non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health
Landfill	A system or area in which waste materials are buried under the ground
Larvae	The juvenile stage of many insect species, resembling a caterpillar
Loam	A type of soil that is good for growing plants. A mixture composed chiefly of moistened clay
Maritime	Located near or next to the sea
Marsh	An area of soft, wet land that has many grasses and other plants.
Mineral Soil	Soil derived from minerals or rocks and containing little humus or organic matter
Non-native Species	A species introduced outside its natural past or present distribution
Overstory	The layer of foliage in a forest canopy; the trees contributing to an overstory
Ovoid	Having the shape of an oval
Perennial	A plant which has a life cycle which occurs over several years, and using the same rootstock to produce growth
Permeability	The quality or state of being permeable
Plant Community	A collection or association of plant species within a designated geographical unit, which forms a relatively uniform patch, distinguishable from neighboring patches of different vegetation types
Raceme	An unbranched flower cluster in which individual flowers are distributed at intervals along a central stalk
Rhizome	A horizontal underground stem of some plants, which sends out roots and shoots from its nodes
Rosette	A cluster of leaves in crowded circles or spirals arising basally from a crown or apically from an axis with greatly shortened internodes

Runoff	Water from rain or snow that flows over the surface of the ground into streams
Salt Tolerance	The degree to which a plant can withstand moderate or high concentrations of salt
Samara	The winged fruit of trees such as ash, elm, and maple
Sandy Loam	A loam consisting of less than 7 percent clay, less than 50 percent silt, and between 43 and 50 percent sand
Saturated Soil	Soil in which all easily drained pores between soil particles are temporarily or permanently filled with water
Savanna	A grassland with occasional trees
Shade Tolerance	The ability of a plant to tolerate shade
Shrubland	Land on which shrubs are the dominant vegetation
Softwood	The wood of a tree that is soft and easy to cut
Soil Compaction	The process by which stress is applied to a soil causing densification as air is displaced from the pores between the soil grains
Species	A group of animals or plants that are similar and can produce young animals or plants: a group of related animals or plants that is smaller than a genus
Stamen	The structure in a flower which produces pollen.
Stipe	The stalk of the front of a fern
Stormwater	Water that is not absorbed into soil and rapidly flows downstream, increasing the level of waterways
Strobiles	Scaly multiple fruits resulting from the ripening of an ament in certain plants, such as the hop or pine; a cone
Succession	Unidirectional change in the composition of an ecosystem as the available competing organisms and especially the plants respond to and modify the environment
Tidal	Of, relating to, caused by, or having tides; periodically rising and falling or flowing and ebbing
Understory	An underlying layer of vegetation; the vegetative layer, between the forest canopy and the ground cover
Upland	Ground elevated above the lowlands along rivers or between hills

Vegetative Spread	The propagation of plants by nonsexual processes or methods
Well Drained	Water is allowed to percolate through reasonably quickly and not pool
Wetland	An area of land that is covered often intermittently with shallow water or have soil saturated with moisture
Woodland	A circumscribed area of vegetation dominated by a more or less closed stand of short trees

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