

APPENDIX B - NATURAL RESOURCES

ECOLOGY BY ROOM

CURE + RUTGERS UNIVERSITY

The Great Falls State Park at Paterson provides great potential to restore high levels of biodiversity to Paterson and the lower Passaic River Valley. We propose a series of native habitats distributed through the Great Falls State Park rooms (e.g. meadows, floodplain, woodland, cliff-rocks.) These plant communities will be based the New York Metropolitan Flora Data set, which has been prepared through the Brooklyn Botanic Garden, our partner on this project. A comprehensive restoration will maximize ecological potential, increasing biodiversity for ecological services, creating public amenities, increasing aesthetic beauty, and improving the environment of the lower Passaic River area.

The intensive restoration process will include 1) the targeting of local ecological communities, which have been described through the habitats of the various rooms 2) addition of plant species to maximize beauty and wildlife 3) the identification and targeted removal of invasive species 4) soil improvement when necessary 5) installation of key species (potentially with the help of local community members) 6) monitoring of the success and growth and assimilation of ecological communities to inform future phases of GFSP, and 7) the training and management of local guides from the Paterson community and school to lead visitors and share the Park's interest and value to the state of New Jersey.

The result of this restoration will culminate in the creation of habitat zones will lend character, and reinforce the quality and life of each of the distinct "rooms" of the Field Operations proposal. Our preliminary species recommendations, ecology goals and possible opportunities for community interaction are as follow:

THE BALCONY, LANDING AND OVERLOOK PLAZA ROOM

This area mainly consists of horticultural trees such as Japanese maple (*Acer palmatum*) and shrubs such as Yew (*Taxus baccata*) as well as patches of lawn. It is poor habitat for wildlife except as resting sites for birds. While it is understandable that a manicured appearance is important for the public use of this area, native shrubs and trees could be added in order to increase the ecological value of this section while maintaining an orderly appearance.

QUARRY LAWN ROOM

The quarry room lawn is an open, grassy area colonized mainly by common urban introduced herbs such as Common plantain (*Plantago major*), Yellow oxalis (*Oxalis stricta*), Pineapple weed (*Matricaria discoides*), Crownvetch (*Coronilla varia*), Garlic mustard (*Alliaria petiolata*), and Red clover (*Trifolium pratense*). There are no native wildflowers characteristic of open sunny habitats. The area has the potential to be habitat for birds and butterflies if native species are added.

INDUSTRIAL ARCHAEOLOGY ROOM

The ruins area consists of a non-planted woodland that has invaded here interspersed with derelict and abandoned buildings, including the former Colt Gun Factory. There is much construction rubble and a few paved concrete areas in this section. Native woody plant species in the wooded area include Cottonwood (*Populus deltoides*), Quaking aspen (*Populus tremuloides*), Bigtooth aspen (*Populus grandidentata*), Sycamore (*Platanus occidentalis*), Silver maple (*Acer saccharinum*), White ash (*Fraxinus pennsylvanica*), White mulberry (*Morus alba*), Black willow (*Salix nigra*), American elm (*Ulmus americana*) and Hackberry (*Celtis occidentalis*). Invasives include Glossy buckthorn (*Frangula alnus*), Norway maple (*Acer platanoides*), Multiflora rose (*Rosa multiflora*) and Tree of Heaven (*Ailanthus altissima*). Native herbs present are American alumroot (*Heuchera americana*), White snakeroot (*Ageratina altissima* = *Eupatorium rugosum*), White wood aster (*Eurybia divaricata*), and Daisy fleabane (*Erigeron annuus*). Invasive herbs include Purple loosestrife (*Lythrum salicaria*), Garlic mustard (*Alliaria petiolata*), Spotted knapweed (*Centaurea stoebe*), Japanese knotweed (*Fallopia japonica*) and Japanese honeysuckle (*Lonicera japonica*). This area has the potential to house an ecological and culturally historic community after some landscape management.

LOWER AND MIDDLE RACEWAY

Within the ATP area is an approximately 2 yard by 30 yard wetland created by the tailrace of a former mill. There is open water in the raceway channel as well as a border of moist soil and herbaceous species. The wetland includes such interesting wildflower and woody natives as *Impatiens capensis*, *Peltandra virginica*, *Lemna minor*, *Salix eriocephala* and *Quercus palustris*, as well as the introduced *Iris pseudacorus*. Many additional wetland species could be introduced to this area, making it an ecological resource for wildlife and a beauty spot.

RIVER ROOM

A proposed river walk will run along the Passaic River beside the ATP area. The dominant woody species of this section of forest are Norway maple (*Acer platanoides*), Sycamore (*Platanus occidentalis*), White mulberry (*Morus alba*), and Tree of Heaven (*Ailanthus altissima*). Herbs and vines are sparse but include the native Virginia creeper (*Parthenocissus quinquefolius*) as well as the invasive Garlic mustard (*Alliaria petiolata*) and Japanese honeysuckle (*Lonicera japonica*). This area is an atypical forest in that it is open with very little shrubby understory and few understory tree species.

SUM ISLAND

[This area is outside current Park Boundaries.]

The island in the Passaic River is currently all industrial except for the river edge which mimics the wooded riverine community seen along the Valley of the Rocks. The main tree species are Norway maple (*Acer platanoides*), Sycamore (*Platanus occidentalis*), and Tree of Heaven (*Ailanthus altissima*). Vines include Japanese honeysuckle (*Lonicera japonica*) and herbs include Garlic mustard (*Alliaria petiolata*). Like the riverine forest, the area is open with little understory. Most of the plants are not native to the area and can spread destructively to other reaches of the river.

OUTDOOR EXERCISE ROOM, ROCK CLIFF AND FOREST ROOM

The Valley of the Rocks consists of a steep rock slope colonized by temperate upland forest with an herbaceous understory. The area also includes a riverine forest along the Passaic River with little herbaceous understory. There is also a small, sunny clearing in this area.

A paved walkway runs along the foot of the rock slope. The dominant woody species at the base of the rock slope include White oak (*Quercus alba*), Norway maple (*Acer platanoides*), White ash (*Fraxinus pennsylvanica*), and White mulberry (*Morus alba*). The most common vines are Virginia creeper (*Parthenocissus quinquefolius*) and the aggressive invasive, Oriental bittersweet (*Celastrus orbiculata*). Herbs of the rock face include American alumroot (*Heuchera americana*), White wood aster (*Eurybia divaricata*) and White snakeroot (*Ageratina altissima* = *Eupatorium rugosum*).

Another unpaved walkway runs approximately 4 yards above the river. The dominant woody species of the riverine forest are Norway maple (*Acer platanoides*), Sycamore (*Platanus occidentalis*), Red maple (*Acer rubrum*), White mulberry (*Morus alba*), and Tree of Heaven (*Ailanthus altissima*). Herbs and vines are sparse but include the native Virginia creeper (*Parthenocissus quinquefolius*) and Riverbank grape (*Vitis riparia*) as well as the invasive Garlic mustard (*Alliaria petiolata*), Japanese honeysuckle (*Lonicera japonica*), and Swallow-wort (*Cynanchum louiseae*). This area is an atypical forest in that it is open with very little shrubby understory and few understory tree species. The area is relatively clear of debris and is infrequently traveled.

Finally, the sunny clearing that opens up approximately 150 yards down the trail from Kramer Park is dominated by Crownvetch (*Coronilla varia*), Wild garlic (*Allium vineale*), and Birdfoot trefoil (*Lotus corniculata*). There no wildflowers typical of open sunny habitats present; consequently this is currently poor habitat for

birds and butterflies.

RIVER PARK ROOM

The West Woods is a small area between the Passaic River and Maple Street to the west of the falls. The area is wooded and there is a short path through it. The plant community consists mainly of typical upland temperate forest species with an herbaceous understory. Some noteworthy woody natives in this area include Silver maple (*Acer saccharinum*), Sycamore (*Platanus occidentalis*), White mulberry (*Morus alba*), and White oak (*Quercus alba*). Native herbs present include White snakeroot (*Ageratina altissima* = *Eupatorium rugosum*) and Common blue violet (*Viola sororia*), and native vines include Virginia creeper (*Parthenocissus quinquefolia*). Invasives include Garlic mustard (*Alliaria petiolata*), and Norway maple (*Acer platanoides*) which are abundant, and Japanese honeysuckle (*Lonicera japonica*).

GREAT FALLS ROOM

The steep rock face that overlooks the falls is sparsely vegetated. There are a few trees on the larger top ledges, the most abundant being Tree of Heaven (*Ailanthus altissima*) and White mulberry (*Morus alba*). Vines are dominated by Virginia creeper (*Parthenocissus quinquefolia*) and Boston ivy (*Parthenocissus tricuspidatum*). A few grasses such as *Bromus* sp. and herbs such as Garlic mustard (*Alliaria petiolata*) and Stonecrop (*Sedum sarmentosum*) grow on the rock face as well. This community is a mixture of native vines and typical urban invasive trees. No rare species are present and additional native species can be added to improve the habitat quality.

UPPER RACEWAY AND UPPER RACEWAY PARK

The raceway district consists of a gravel path on one side of the raceway and a steep rock face on the other, each with a different plant community. The open path ends in a wooded area through which the path continues up the slope. The rock face community is dominated by woody trees and shrubs but has a fairly diverse herbaceous understory consisting of a mix of native and introduced species. Some of the notable woody species along the rock face include American elm (*Ulmus americana*), Smooth sumac (*Rhus glabra*), Black oak (*Quercus velutina*), Pignut hickory (*Carya glabra*), Serviceberry (*Amelanchier canadensis*), Arrowwood (*Viburnum dentatum*), Blackhaw (*Viburnum prunifolium*), and Elderberry (*Sambucus canadensis*). Native herbs include American alumroot (*Heuchera americana*), Indian hemp (*Apocynum cannabinum*), Venus's looking glass (*Triodanis perfoliata*), Wreath goldenrod (*Solidago caesia*) and Canada goldenrod (*Solidago canadensis*). Invasives along the rock face include Norway maple (*Acer platanoides*), Glossy buckthorn (*Frangula alnus*), Japanese knotweed (*Fallopia japonica*), and Garlic mustard (*Alliaria petiolata*). Generally, this is the best native woodlot on site with a good diversity of plant species. With some management, an historic plant community could be easily attained.

The pathedge, across the raceway from the rock slope, is dominated by a mix of native and introduced herbaceous species including *Erigeron canadensis*, *Coronilla varia*, *Silene vulgaris*, *Melilotus officinalis* and *Lotus corniculata*. This mixture of native and weedy species is typical of mowed urban areas under management.

The small wooded area along the raceway consists of woody species such as White ash (*Fraxinus pennsylvanica*), and White mulberry (*Morus alba*) and herbs including White snakeroot (*Ageratina altissima* = *Eupatorium rugosum*) and Moonseed vine (*Menispermum canadense*). Invasives include Multiflora rose (*Rosa multiflora*), Norway maple (*Acer platanoides*), and Garlic mustard (*Alliaria petiolata*).

EXISTING SPECIES LIST

THE UPPER RACEWAY

SCIENTIFIC NAME	COMMON NAME	NATIVE
TREES		
<i>Acer platanoides</i> L.	Norway Maple	invasive
<i>Ailanthus altissima</i> (Mill.) Swingle	Tree of Heaven	invasive
<i>Betula lenta</i> L.	Sweet birch	native
<i>Betula populifolia</i> Marsh.	Gray birch	native
<i>Carya glabra</i> (Mill.) Sweet	Pignut hickory	native
<i>Catalpa bignonioides</i> Walt.	Catalpa	native
<i>Fraxinus pennsylvanica</i> Marsh.	White ash	native
<i>Morus alba</i> L.	White mulberry	native
<i>Platanus occidentalis</i> L.	Sycamore	native
<i>Populus deltoides</i> Bartr. ex Marsh.	Cottonwood	native
<i>Prunus serotina</i> Ehrh.	Black cherry	native
<i>Quercus palustris</i> Muenchh.	Pin oak	native
<i>Quercus rubra</i> L.	Red oak	native
<i>Quercus velutina</i> Lam.	Black oak	native
<i>Rhus glabra</i> L.	Smooth sumac	native
<i>Rhus hirta</i> (L.) Sudworth	Staghorn sumac	native
<i>Robinia pseudo-acacia</i> L.	Black locust	native
<i>Salix eriocephala</i> Michx.	River willow	native
<i>Tilia americana</i> L.	Basswood	native
<i>Ulmus americana</i> L.	American elm	native
SHRUBS		
<i>Amelanchier canadensis</i> (L.) Medik.	Serviceberry	native
<i>Celtis occidentalis</i> L.	Hackberry	native
<i>Euonymus alata</i> (Thunb.) Sieb.	Winged euonymus	invasive
<i>Frangula alnus</i> Mill.	Glossy buckthorn	invasive
<i>Rosa multiflora</i> Thunb. ex Murr.	Multiflora rose	invasive
<i>Rubus allegheniensis</i> Porter ex Bailey	<i>sensu lato</i> Allegheny blackberry	native
<i>Rubus phoenicolasius</i> Maxim.	Wineberry	invasive
<i>Sambucus canadensis</i> L.	Elderberry	native
<i>Viburnum dentatum</i> L.	Arrowwood	native
<i>Viburnum prunifolium</i> L.	Blackhaw	native
VINES		
<i>Calystegia sepium</i> (L.) R. Br.	Hedge false bindweed	native
<i>Celastrus orbiculata</i> Thunb.	Oriental bittersweet	invasive
<i>Convolvulus arvensis</i> L.	Field bindweed	intro
<i>Lonicera japonica</i> Thunb.	Japanese honeysuckle	invasive
<i>Lonicera maackii</i> (Rupr.) Maxim.	Amur honeysuckle	invasive
<i>Menispermum canadense</i> L.	Moonseed vine	native
<i>Parthenocissus quinquefolia</i> (L.) Planch. ex DC.	Virginia creeper	native
<i>Toxicodendron radicans</i> (L.) Kuntze	Poison Ivy	native
<i>Vitis riparia</i> Michx.	Riverbank grape	native
GRASSES		
<i>Bromus japonicus</i> Thunb. ex Murr.	Field brome	intro
<i>Dactylis glomerata</i> L.	Orchardgrass	intro
<i>Microstegium vimineum</i> (Trin.) Camus	Japanese stiltgrass	invasive
<i>Phalaris arundinacea</i> L.	Reed canarygrass	native
<i>Schedonorus phoenix</i> (Scop.) Holub	Tall fescue	intro
HERBACEOUS		
<i>Achillea millefolium</i> L.	Yarrow	intro
<i>Ageratina altissima</i> (L.) King & H.E. Robins.	White snakeroot	native
<i>Alliaria petiolata</i> (Bieb.) Cav. & Grande	Garlic Mustard	invasive
<i>Allium vineale</i> L.	Wild Garlic	intro
<i>Ambrosia artemisiifolia</i> L.	Ragweed	native
<i>Apocynum cannabinum</i> L.	Indian Hemp	native
<i>Arenaria serpyllifolia</i> L.	Thyme-leaved sandwort	intro
<i>Artemisia vulgaris</i> L.	Mugwort	intro
<i>Barbarea vulgaris</i> R. Br. ex Ait.	Yellow Rocket	intro
<i>Centaurea stoebe</i> L. ssp. <i>micranthos</i> (Gugler) Hayek	Spotted knapweed	invasive
<i>Chamaesyce maculata</i> (L.) Small	Spotted sandmat	native

SCIENTIFIC NAME	COMMON NAME	NATIVE	SCIENTIFIC NAME	COMMON NAME	NATIVE
<i>Chenopodium album</i> L.	Lambs quarters	intro	<i>Populus deltoides</i> Bartr. ex Marsh.	Cottonwood	native
<i>Commelina communis</i> L.	Asiatic dayflower	intro	<i>Populus grandidentata</i> Michx.	Bigtooth aspen	native
<i>Conyza canadensis</i> (L.) Cronq.	Canadian Horseweed	native	<i>Populus tremuloides</i> Michx.	Quaking aspen	native
<i>Coronilla varia</i> L.	Crownvetch	invasive	<i>Prunus avium</i> (L.) L.	Sweet cherry	intro
<i>Daucus carota</i> L.	Wild carrot	intro	<i>Prunus serotina</i> Ehrh.	Black cherry	native
<i>Dianthus armeria</i> L.	Deptford pink	intro	<i>Quercus palustris</i> Muenchh.	Pin oak	native
<i>Dysphania botrys</i> (L.) Mosyakin &	Clematis		<i>Rhus glabra</i> L.	Smooth sumac	native
	<i>Dysphania</i>		<i>Robinia pseudo-acacia</i> L.	Black locust	native
<i>Elodea canadensis</i> L. Rich. ex Michx.	Canadian waterweed	native	<i>Salix atrocinerea</i> Brot	Gray willow	intro
			<i>Salix eriocephala</i> Michx.	River willow	native
<i>Erigeron annuus</i> (L.) Pers.	Daisy fleabane	native	<i>Salix nigra</i> Marsh.	Black willow	native
<i>Eurybia divaricata</i> (L.) Nesom	White wood aster	native	<i>Ulmus americana</i> L.	American elm	native
<i>Fallopia japonica</i> (Houttuyn) Ronse	Decraene		<i>Ulmus pumila</i> L.	Siberian elm	intro
	Japanese knotweed	invasive			
<i>Galium aparine</i> L.	Rough bedstraw	native	SHRUBS		
<i>Galium mollugo</i> L.	False baby's breath	intro	<i>Celtis occidentalis</i> L.	Hackberry	native
<i>Geranium carolinianum</i> L.	Carolina geranium	native	<i>Frangula alnus</i> Mill.	Glossy buckthorn	invasive
<i>Glechoma hederacea</i> L.	Ground ivy	intro	<i>Rosa multiflora</i> Thunb. ex Murr.	Multiflora rose	invasive
<i>Heuchera americana</i> L.	American alumroot	native	<i>Rubus allegheniensis</i> Porter ex Bailey	sensu lato	
<i>Hieracium caespitosum</i> Dumort.	Meadow hawkweed	intro		Allegheny blackberry	native
<i>Lamium amplexicaule</i> L.	Deadnettle	intro	<i>Rubus laciniatus</i> Willd.	Cut-leaf blackberry	intro
<i>Lemna minor</i> L.	Duckweed	native	<i>Rubus occidentalis</i> L.	Black raspberry	native
<i>Leucanthemum vulgare</i> Lam.	Oxeye daisy	intro	<i>Rubus phoenicolasius</i> Maxim.	Wineberry	invasive
<i>Linaria vulgaris</i> Mill.	Butter and eggs	intro			
<i>Lotus corniculatus</i> L.	Birdfoot trefoil	intro	VINES		
<i>Ludwigia palustris</i> (L.) Ell.	Marsh seedbox	native	<i>Calystegia sepium</i> (L.) R. Br.	Hedge false bindweed	native
<i>Lythrum salicaria</i> L.	Purple loosestrife	invasive	<i>Celastrus orbiculata</i> Thunb.	Oriental bittersweet	invasive
<i>Medicago lupulina</i> L.	Black medic	intro	<i>Convolvulus arvensis</i> L.	Field bindweed	invasive
<i>Melilotus alba</i> Desr. ex Lam.	White sweetclover	intro	<i>Cynanchum louiseae</i> Kartesz & Gandhi		
<i>Melilotus officinalis</i> (L.) Pallas	Yellow sweetclover	intro		Swallow-wort	invasive
<i>Myriophyllum spicatum</i> L.	Eurasian watermilfoil	invasive	<i>Lonicera japonica</i> Thunb.	Japanese honeysuckle	invasive
<i>Oenothera biennis</i> L.	Evening primrose	intro	<i>Parthenocissus quinquefolia</i> (L.) Planch. ex DC.		
<i>Oxalis stricta</i> L.	Yellow oxalis	native		Virginia creeper	native
<i>Persicaria longiseta</i> (Bruijn) Kitagawa			<i>Parthenocissus tricuspidata</i> (Sieb. & Zucc.) Planch. ex DC		
	Ladysthumb	native		Boston ivy	intro
<i>Persicaria virginiana</i> (L.) Gaertner	Jumpseed	native	<i>Toxicodendron radicans</i> (L.) Kuntze		
<i>Phytolacca americana</i> L.	Pokeweed	native		Poison ivy	native
<i>Plantago lanceolata</i> L.	Narrow leaved plantain	intro			
<i>Plantago major</i> L.	Common plantain	intro	GRASSES		
<i>Portulaca oleracea</i> L.	Purslane	native	<i>Anthoxanthum odoratum</i> L.	Sweet vernalgrass	intro
<i>Potentilla argentea</i> L.	Silver cinquefoil	intro	<i>Dactylis glomerata</i> L.	Orchardgrass	intro
<i>Potentilla simplex</i> Michx.	Common cinquefoil	native	<i>Microstegium vimineum</i> (Trin.) Camus		
<i>Scleranthus annuus</i> L.	Knotgrass	intro		Japanese stiltgrass	invasive
<i>Silene vulgaris</i> (Moench) Garcke	Bladder campion	intro	<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Phrag	invasive
<i>Smilax rotundifolia</i> L.	Greenbrier	native			
<i>Solanum dulcamara</i> L.	Climbing nightshade	intro	RUSH		
<i>Solanum ptycanthum</i> Dunal	West Indian nightshade	native	<i>Juncus tenuis</i> Willd.	Poverty rush	native
<i>Solidago caesia</i> L.	Wreath goldenrod	native			
<i>Solidago canadensis</i> L.	Canada goldenrod	native	SEDGES		
<i>Spirodela polyrhiza</i> (L.) Schleid.	Duckmeat	native	<i>Carex annectens</i> (Bickn.) Bickn.	Yellowfruit sedge	native
<i>Stellaria media</i> (L.) Vill.	Common chickweed	intro	<i>Carex cephalophora</i> Muhl. Ex Willd		
<i>Taraxacum officinale</i> Weber ex Wiggers	Dandelion	intro		Oval leaved sedge	native
<i>Trofolium dubium</i> Sibth.	Suckling clover	intro	HERBACEOUS		
<i>Trifolium pratense</i> L.	Red clover	intro	<i>Ageratina altissima</i> (L.) King & H.E. Robins.		
<i>Trifolium repens</i> L.	White clover	intro		White wood aster	native
<i>Triodanis perfoliata</i> (L.) Nieuwl.	Venus's looking glass	native	<i>Alliaria petiolata</i> (Bieb.) Cav. & Grande		
<i>Verbascum thapsus</i> L.	Mullein	intro		Garlic Mustard	invasive
<i>Verbena urticifolia</i> L.	White vervain	native	<i>Allium vineale</i> L.	Wild Garlic	intro
<i>Vicia tetrasperma</i> (L.) Schreb.	Lentil vetch	intro	<i>Ambrosia artemisiifolia</i> L.	Ragweed	native
			<i>Apocynum cannabinum</i> L.	Indian Hemp	native
			<i>Arenaria serpyllifolia</i> L.	Thymeleaved sandwort	intro
			<i>Artemisia vulgaris</i> L.	Mugwort	intro
			<i>Barbarea vulgaris</i> R. Br. ex Ait.	Yellow Rocket	intro
			<i>Cardamine impatiens</i> L.	Narrowleaf bittercress	invasive
			<i>Centaurea stoebe</i> L. ssp. <i>micranthos</i>	(Gugler) Hayek	
				Spotted knapweed	invasive
			<i>Chelidonium majus</i> L.	Celandine	intro
			<i>Commelina communis</i> L.	Asiatic dayflower	intro
			<i>Conyza canadensis</i> (L.) Cronq.	Canadian Horseweed	native
			<i>Coronilla varia</i> L.	Crownvetch	invasive
			<i>Daucus carota</i> L.	Wild carrot	intro
			<i>Dianthus armeria</i> L.	Deptford pink	intro
			<i>Erigeron annuus</i> (L.) Pers.	Daisy fleabane	native
			<i>Eupatorium serotinum</i> Michx.	Thoroughwort	native
			<i>Eurybia divaricata</i> (L.) Nesom	White wood aster	native

THE QUARRY, LOWER + MIDDLE RACEWAY, RIVER AND INDUSTRIAL ARCHEOLOGY ROOM

TREES

<i>Acer platanoides</i> L.	Norway Maple	invasive
<i>Acer saccharinum</i> L.	Silver maple	native
<i>Ailanthus altissima</i> (Mill.) Swingle	Tree of Heaven	invasive
<i>Betula nigra</i> L.	Sweet birch	native
<i>Betula populifolia</i> Marsh.	Gray birch	native
<i>Catalpa bignonioides</i> Walt.	Catalpa	native
<i>Fraxinus pennsylvanica</i> Marsh.	White ash	native
<i>Malus P.</i> Mill.	Escaped apple	intro
<i>Morus alba</i> L.	White mulberry	native
<i>Paulownia tomentosa</i> (Thunb.) Sieb. & Zucc. ex Steud.		
	Princesstree	intro
<i>Platanus occidentalis</i> L.	Sycamore	native

SCIENTIFIC NAME	COMMON NAME	NATIVE
Fallopia japonica (Houttuyn) Ronse Decraene	Japanese knotweed	invasive
Galium aparine L.	Rough bedstraw	native
Galium mollugo L.	False baby's breath	intro
Glechoma hederacea L.	Ground ivy	intro
Gleditsia triacanthos var. inermis (L.) Schneid.	Honeylocust	native
Heuchera americana L.	American alumroot	native
Hieracium caespitosum Dumort.	Meadow hawkweed	intro
Humulus japonicus Sieb. & Zucc.	Japanese hops	intro
Impatiens capensis Meerb.	Jewelweed	native
Iris pseudacorus L.	Yellow iris	invasive
Lemna minor L.	Duckweed	native
Lepidium virginicum L.	Virginia pepperweed	native
Ligustrum obtusifolium Sieb. & Zucc.	Privet	invasive
Linaria vulgaris Mill.	Butter and eggs	intro
Lotus corniculatus L.	Birdfoot trefoil	intro
Lythrum salicaria L.	Purple loosestrife	invasive
Matricaria discoidea DC.	Pineapple weed	intro
Medicago lupulina L.	Black medic	intro
Melilotus alba Desr. ex Lam.	White sweetclover	intro
Melilotus officinalis (L.) Pallas	Yellow sweetclover	intro
Mollugo verticillata L.	Green carpetweed	native
Oenothera biennis L.	Evening primrose	native
Oxalis stricta L.	Yellow oxalis	native
Peltandra virginica (L.) Schott ex Schott & Endl.	Arrow arum	native
Persicaria longiseta (Bruijn) Kitagawa	Ladysthumb	native
Persicaria maculosa	Gray spotted ladysthumb	intro
Phytolacca americana L.	Pokeweed	native
Plantago lanceolata L.	Narrow leaved plantain	intro
Plantago major L.	Common plantain	intro
Potentilla argentea L.	Silver cinquefoil	intro
Potentilla recta L.	Sulphur cinquefoil	intro
Rumex acetosella L.	Sheep sorrel	intro
Rumex crispus L.	Curly dock	intro
Rumex obtusifolius L.	bitter dock	intro
Saponaria officinalis L.	Bouncing bet	intro
Scleranthus annuus L.	Knotgrass	intro
Silene antirrhina L.	Sleepy silene	native
Silene vulgaris (Moench) Garcke	Bladder campion	intro
Solanum dulcamara L.	Climbing nightshade	intro
Solanum ptycanthum Dunal	West Indian nightshade	native
Solidago canadensis L.	Wreath goldenrod	native
Spirodela polyrhiza (L.) Schleid.	Duckmeat	native
Stellaria graminea L.	Grasslike starwort	intro
Stellaria media (L.) Vill.	Common chickweed	intro
Taraxacum officinale Weber ex Wiggers	Dandelion	intro
Tragopogon pratensis L.	Tragopogon	intro
Trifolium dubium Sibth.	Suckling clover	intro
Trifolium pratense L.	Red clover	intro
Trifolium repens L.	White clover	intro
Verbascum blattaria L.	Moth mullein	intro
Verbascum thapsus L.	Mullein	intro
Verbena urticifolia L.	White vervain	native
Veronica peregrina L.	Neckweed	native
Woodsia obtusa (Spreng.) Torrey	Bluntlobed cliff fern	native

THE GREAT FALLS, VALLEY OF THE ROCKS AND EXERCISE ROOM

TREES

Acer platanoides L.	Norway Maple	invasive
Acer rubrum L.	Red maple	native
Acer saccharinum L.	Silver maple	native
Ailanthus altissima (Mill.) Swingle	Tree of Heaven	invasive
Albizia julibrissin Durazz.	Silktree	intro
Betula nigra L.	Sweet birch	native
Catalpa bignonioides Walt.	Catalpa	native
Fraxinus pennsylvanica Marsh.	White ash	native
Gleditsia triacanthos var. inermis (L.) Schneid.	Honeylocust	native
Juglans nigra L.	Black walnut	native
Malus P. Mill.	Escaped apple	intro

SCIENTIFIC NAME	COMMON NAME	NATIVE
Morus alba L.	White mulberry	native
Platanus occidentalis L.	Sycamore	native
Populus deltoides Bartr. ex Marsh.	Cottonwood	native
Prunus serotina Ehrh.	Black cherry	native
Quercus alba L.	White oak	native
Robinia pseudo-acacia L.	Black locust	native
Tilia americana L.	Basswood	native
Ulmus americana L.	American elm	native
Ulmus pumila L.	Siberian elm	intro

SHRUBS

Acer negundo L.	Boxelder	native
Celtis occidentalis L.	Hackberry	native
Euonymus fortunei (Turcz.) Hand.	Winter creeper	intro
Rosa multiflora Thunb. ex Murr.	Multiflora rose	invasive
Rubus allegheniensis Porter ex Bailey sensu lato	Allegheny blackberry	native
Rubus flagellaris Willd.	Dewberry	native
Rubus laciniatus Willd.	Cut-leaf blackberry	intro
Rubus occidentalis L.	Black raspberry	native
Rubus phoenicolasius Maxim.	Wineberry	invasive

VINES

Calystegia sepium (L.) R. Br.	Hedge false bindweed	native
Celastrus orbiculata Thunb.	Oriental bittersweet	invasive
Clematis virginiana L.	Devil's darning needle	native
Convolvulus arvensis L.	Field bindweed	intro
Cynanchum louiseae Kartesz & Gandhi	Swallow-wort	invasive
Lonicera japonica Thunb.	Japanese honeysuckle	invasive
Lonicera maackii (Rupr.) Maxim.	Amur honeysuckle	invasive
Parthenocissus quinquefolia (L.) Planch. ex DC.	Virginia creeper	native
Parthenocissus tricuspidata (Sieb. & Zucc.) Planch. ex DC	Boston ivy	intro
Toxicodendron radicans (L.) Kuntze	Poison ivy	native
Vitis riparia Michx.	Riverbank grape	native

GRASSES

Bromus tectorum L.	Cheatgrass	intro
Dactylis glomerata L.	Orchardgrass	intro
Dichanthelium latifolium (L.) Gould & C. Clark	Broadleaf rosette grass	native
Hordeum murinum L.	Mouse barley	intro
Microstegium vimineum (Trin.) Camus	Japanese stiltgrass	invasive
Phleum pratense L.	Timothy	intro
Phragmites australis (Cav.) Trin. ex Steud.	Phrag	invasive
Schedonorus phoenix (Scop.) Holub	Tall fescue	intro
Setaria pumila (Poir.) Schultes	Yellow foxtail	intro

HERBACEOUS

Ageratina altissima (L.) King & H.E. Robins.	White snakeroot	native
Alliaria petiolata (Bieb.) Cav. & Grande	Garlic Mustard	invasive
Allium vineale L.	Wild Garlic	intro
Ambrosia artemisiifolia L.	Ragweed	native
Apocynum cannabinum L.	Indian Hemp	native
Arctium minus (Hill) Bernh.	Lesser burdock	intro
Arenaria serpyllifolia L.	hymeleaved sandwort	intro
Artemisia vulgaris L.	Mugwort	intro
Barbarea vulgaris R. Br. ex Ait.	Yellow Rocket	intro
Capsella bursa-pastoris (L.) Medik.	Shepherd's purse	intro
Centaurea stoebe L. ssp. micranthos (Gugler) Hayek	Spotted knapweed	invasive
Cichorium intybus L.	Chicory	intro
Commelina communis L.	Asiatic dayflower	intro
Coryza canadensis (L.) Cronq.	Canadian Horseweed	native
Coronilla varia L.	Crownvetch	invasive
Datura stramonium L.	Jimsonweed	intro
Daucus carota L.	Wild carrot	intro
Erigeron annuus (L.) Pers.	Daisy fleabane	native
Eurybia divaricata (L.) Nesom	White wood aster	native
Fallopia japonica (Houttuyn) Ronse Decraene	Japanese knotweed	invasive

SCIENTIFIC NAME	COMMON NAME	NATIVE	SCIENTIFIC NAME	COMMON NAME	NATIVE
Galium aparine L.	Rough bedstraw	native	Alliaria petiolata (Bieb.) Cav. & Grande		
Galium mollugo L.	False baby's breath	intro		Garlic Mustard	invasive
Glechoma hederacea L.	Ground ivy	intro	Arctium minus (Hill) Bernh.	Lesser burdock	intro
Heuchera americana L.	American alumroot	native	Calystegia sepium (L.) R. Br.	Hedge false bindweed	native
Hibiscus syriacus L.	Rose of Sharon	intro	Chenopodium album L.	Lambs quarters	intro
Humulus japonicus Sieb. & Zucc.	Japanese hops	intro	Daucus carota L.	Wild carrot	intro
Juncus tenuis Willd.	Poverty rush	native	Galium aparine L.	Rough bedstraw	native
Lamium purpureum L.	Deadnettle	intro	Glechoma hederacea L.	Ground ivy	intro
Leonurus cardiaca L.	Motherwort	intro	Oxalis stricta L.	Yellow oxalis	native
Lepidium virginicum L.	Virginia pepperweed	native	Persicaria longiseta (Brujin) Kitagawa		
Linaria vulgaris Mill.	Butter and eggs	intro		Ladysthumb	native
Lotus corniculatus L.	Birdfoot trefoil	intro	Persicaria maculosa Gray	spotted ladysthumb	intro
Lythrum salicaria L.	Purple loosestrife	invasive	Phytolacca americana L.	Pokeweed	native
Matricaria discoidea DC.	Pineapple weed	intro	Plantago lanceolata L.	Narrow leaved plantain	intro
Medicago lupulina L.	Black medic	intro	Plantago major L.	Common plantain	intro
Oenothera biennis L.	Evening primrose	native	Potentilla recta L.	Sulphur cinquefoil	intro
Oxalis stricta L.	Yellow oxalis	native	Silene vulgaris (Moench) Garcke	Bladder campion	intro
Persicaria longiseta (Brujin) Kitagawa			Solanum dulcamara L.	Climbing nightshade	intro
	Ladysthumb	native	Solidago caesia L.	Wreath goldenrod	native
Persicaria maculosa	Gray spotted ladysthumb	intro	Stellaria media (L.) Vill.	Common chickweed	intro
Persicaria virginiana (L.) Gaertner	Jumpseed	intro	Tragopogon pratensis L.	Tragopogon	intro
Phytolacca americana L.	Pokeweed	native	Trifolium repens L.	White clover	intro
Plantago lanceolata L.	Narrow leaved plantain	intro	Verbascum thapsus L.	Mullein	intro
Plantago major L.	Common plantain	intro	Viola sororia Willd.	Common blue violet	native
Portulaca oleracea L.	Purslane	intro			
Potentilla argentea L.	Silver cinquefoil	intro			
Rumex acetosella L.	Sheep sorrel	intro			
Rumex crispus L.	Curly dock	intro			
Rumex obtusifolius L.	bitter dock	intro			
Scleranthus annuus L.	Knotgrass	intro			
Sedum samentosum Bunge	Stringy stonecrop	intro			
Silene antirrhina L.	Sleepy silene	native			
Solanum dulcamara L.	Climbing nightshade	intro			
Solanum ptycanthum Dunal	West Indian nightshade	native			
Solidago caesia L.	Wreath goldenrod	native			
Solidago canadensis L.	Canadian Horseweed	native			
Stellaria media (L.) Vill.	Common chickweed	intro			
Taraxacum officinale Weber ex Wiggers					
	Dandelion	intro			
Trifolium dubium Sibth.	Suckling clover	intro			
Trifolium pratense L.	Red clover	intro			
Trifolium repens L.	White clover	intro			
Verbascum blattaria L.	Moth mullein	intro			
Verbascum thapsus L.	Mullein	intro			
Verbena urticifolia L.	White vervain	native			
Veronica arvensis L.	Corn speedwell	intro			
Viola sororia Willd.	Common blue violet	native			
Woodsia obtusa (Spreng.) Torrey	Bluntlobed cliff fern	native			

THE RIVER PARK ROOM

TREES

Acer platanoides L.	Norway Maple	invasive
Acer saccharinum L.	Silver maple	native
Ailanthus altissima (Mill.) Swingle	Tree of Heaven	invasive
Catalpa bignonioides Walt.	Catalpa	native
Morus alba L.	White mulberry	native
Platanus occidentalis L.	Sycamore	native
Prunus serotina Ehrh.	Black cherry	native
Quercus rubra L.	Red oak	native
Robinia pseudo-acacia L.	Black locust	native

SHRUBS

Rosa multiflora Thunb. ex Murr.	Multiflora rose	invasive
Rubus allegheniensis Porter ex Bailey sensu lato	Allegheny blackberry	native
Rubus phoenicolasius Maxim.	Wineberry	invasive

VINES

Lonicera japonica Thunb.	Japanese honeysuckle	invasive
Parthenocissus quinquefolia (L.) Planch. ex DC.	Virginia creeper	native
Toxicodendron radicans (L.) Kuntze	Poison Ivy	native

HERBACEOUS

Ageratina altissima (L.) King & H.E. Robins.	White snakeroot	native
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**PROPOSED SPECIES LIST
THE UPPER RACEWAY**



American elm (*Ulmus americana*), Black oak (*Quercus pubescens*), Fignut hickory (*Carya glabra*), Indian hemp (*Apocynum cannabinum*), Venus's Looking Glass (*Triodanis perfoliata*)

THE QUARRY LAWN ROOM



Sassafras (*Sassafras albidum*), Shagbark Hickory (*Carya ovata*), Red Oak (*Quercus rubrum*), Red Cedar (*Juniperus virginiana*), Grey dogwood (*Cornus racemosa*), Goldenrod (*Solidago caesia*)

THE LOWER AND MIDDLE RACEWAY



Cattails (*Typha augustifolia*), Bulrush (*Scirpus longii*), Blue Flag Iris (*Iris versicolor*), American Beautyberry (*Callicarpa americana*)

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THE INDUSTRIAL ARCHEOLOGY ROOM



Urban forest, Grey birch (*Betula populifolia*), Sumac (*Rhus glabra*), Blueberry (*Vaccinium corymbosum*), Aster wildflowers (*Aster* spp.), Goldenrod (*Solidago caesia*), Mikweed wildflowers (*Eupatorium purpureum*), Butterflyweed (*Aesclepias tuberosa*)

THE RIVER ROOM



Elderberry (*Sambucus racemosa*), Red maple (*Acer rubrum*), Sycamore (*Platanus occidentalis*), River birch (*Betula nigra*), Spicebush (*Lindera benzoin*), Arrowwood (*Viburnum dentatum*)

VALLEY OF THE ROCKS ROOM



Eastern White Pine (*Pinus strobus*), American beech (*Fagus grandifolia*), Redbud (*Cercis canadensis*), Spring beauty (*Calytonia virginica*), Jack-in-the-Pulpit (*Arisaema triphyllum*), Pinxterbloom azalea (*Rhododendron penclymenoides*), Trillium (*Trillium spp.*), Violet (*Viola papilionacea*)

EXERCISE ROOM



Spleenwort (*Asplenium platyneuron*), Sensitive fern (*Onoclea sensibilis*), Alumroot (*Heuchera americana*), Sedum (*Sedum ewersii*), Columbine (*Aquilegia canadensis*), Sedges (*Cyperus polystachyos*)

MARY ELLEN KRAMER PARK



Eastern Hemlock (*Tsuga canadensis*), Eastern White Pine (*Pinus strobus*), White Ash (*Fraxinus americana*)

THE RIVER PARK ROOM



Moist woodland community, Silver Maple (*Acer saccharinum*), Sycamore (*Platanus occidentalis*), White Oak (*Quercus pubescens*), White snakeroot (*Ageratina altissima*)

THE LANDING



Cockspur Hawthorn (*Crataegus crus-galli*), Crabapple (*Malus 'Pink Spires'*), Flowering Cherry (*Prunus serotina*), Sassafras (*Sassafras albidum*)

BIRD SPECIES INDEX -POTENTIAL

List Courtesy of NJAS and Mike Gochfeld

DISTURBANCE COMMUNITIES

SUMMER

Dominant

Screech Owl
Rock Dove
Moming Dove
Chimney Swift
Common Flicker
Barn Swallow
Blue Jay
Common Crow
House Wren
Northern Mockingbird
Gray Catbird
American Robin
Wood Thrush
Starling
Red Eyed Vireo
Common Yellowthroat
English Sparrow
Northern Oriole
Common Grackle
Cardinal
House Finch
Chipping Sparrow
Song Sparrow

Sub Dominant

American Kestrel
Common Nighthawk
Rubythroated Hummingbird
Downy Woodpecker
Eastern Kingbird
Great Crested Flycatcher
Eastern Phoebe
Eastern Wood Pewee
Rough-winged swallow
Black Capped Chickadee
Tufted Titmouse
White breasted nuthach
Brown Thrasher
Warbling Vireo
Yellow Warbler
Brown Headed Cowbird
American Goldfinch

SPRING + FALL

Dominant

Screech Owl
House Finch

Sub Dominant

Eastern Bluebird

DOMINANT TRANSIENTS

SUMMER

Least Flycatcher
Tree Swallow
Red Breasted Nuthatch
Brown Creeper
Winter Wren
Northern Mockingbird
Hermit Thrush
Olive Backed Thrush
Veery
Golden Crowned Kinglet
Ruby Crowned Kinglet
Cedar Waxwing
Black and White Warbler
Blue Winged Warbler
Northern Parula
Magnolia Warbler
Black Throated Blue Warbler
Chestnut Sided Warbler
Blackpoll Warbler
Prairie Warbler
Palm Warbler
Ovenbird
Northern Waterthrush
Louisiana Waterthrush
Canada Warbler
American Redstart
Red Winged Blackbird
Scarlet Tanager
Cardinal
Rose Breasted Grosbeak
Indigo Bunting
Purple Finch
Rufous sided Towhee
Savannah Sparrow
Dark Eyed Junco
Field Sparrow
White Throated Sparrow
Fox Sparrow

BUTTERFLY SPECIES INDEX -POTENTIAL

COMMON NAME	SCIENTIFIC NAME	HOST PLANT
Monarch	<i>Danaus plexippus</i>	Milkweed
Least Skipper	<i>Ancyloxypha numitor</i>	grasses
Sachem	<i>Atalopedes campestris</i>	grasses
Silver-spotted Skipper	<i>Epagyreus clarus</i>	Legumes
Wild Indigo Duskywing	<i>Erynnis baptisiae</i>	Crown vetch
Horace's Duskywing	<i>Erynnis horatius</i>	Oaks
Dreamy Duskywing	<i>Erynnis icelus</i>	Poplars, willows, birches
Juvenal's Duskywing	<i>Erynnis juvenalis</i>	Oaks
Dun Skipper	<i>Euphyes vestris</i>	Sedges
Broad-winged Skipper	<i>Poanes viator</i>	grasses
Peck's Skipper	<i>Polites peckius</i>	grasses
Tawry-edged Skipper	<i>Polites themistocles</i>	grasses
Little Glassywing	<i>Pompeius verna</i>	grasses
European Skipper	<i>Thymelicus lineola</i>	Phleum
Northern Broken-Dash	<i>Wallengrenia egeremet</i>	grasses
Juniper Hairstreak	<i>Callophrys gryneus</i>	Red cedar
Red-banded Hairstreak	<i>Calycopis cecrops</i>	Sumacs, oaks
Spring Azure	<i>Celastrina "ladon"</i>	various shrubs
Summer Azure	<i>Celastrina neglecta</i>	various shrubs
Eastern Tailed-Blue	<i>Cupido cornyntas</i>	White clover
Harvester	<i>Feniseca tarquinius</i>	Aphids, alders
American Snout	<i>Libytheana carineta</i>	Hackberry
American Copper	<i>Lycaena phlaeas</i>	Rumex acetosella
Common Sootywing	<i>Pholisora catallus</i>	Chenopodium, Amaranthus
Banded Hairstreak	<i>Satyrus calanus</i>	Oak, walnut, hickory
Striped Hairstreak	<i>Satyrus liparops</i>	Rose family
Coral Hairstreak	<i>Satyrus titus</i>	Rose family
Gray Hairstreak	<i>Strymon melinus</i>	Mallows, Legumes
Hackberry Emperor	<i>Asterocampa celtis</i>	Hackberry
Tawry Emperor	<i>Asterocampa clyton</i>	Hackberry
Common Wood Nymph	<i>Cercyonis pegala</i>	grasses
Common Ringlet	<i>Coenonympha tullia</i>	turfgrass
Variagated Fritillary	<i>Euptoieta claudia</i>	Violets
Common Buckeye	<i>Junonia coenia</i>	Verbena
Viceroy	<i>Limenitis archippus</i>	Black Willow
Red-spotted Purple	<i>Limenitis arthemis</i>	birches
Little Wood Satyr	<i>Megisto cymela</i>	grasses
Mourning Cloak	<i>Nymphalis antiopa</i>	Various trees
Compton Tortoiseshell	<i>Nymphalis vaualbum</i>	Cottonwood, birches
Pearl Crescent	<i>Phyciodes tharos</i>	Asters
Eastern Comma	<i>Polytonia comma</i>	generalist
Question Mark	<i>Polytonia interrogationis</i>	generalist
Appalachian Brown	<i>Satyrodes appalachia</i>	Sedges
Great Spangled Fritillary	<i>Speyeria cybele</i>	Violets
Red Admiral	<i>Vanessa atalanta</i>	nettle
Painted Lady	<i>Vanessa cardui</i>	legumes
American Lady	<i>Vanessa virginiensis</i>	Pearly Everlast-
ing		
Pipevine Swallowtail	<i>Battus philenor</i>	Pipevine
Eastern Tiger Swallowtail	<i>Papilio glaucus</i>	Tuliptree
Black Swallowtail	<i>Papilio polyxenes</i>	generalist
Spicebush Swallowtail	<i>Papilio troilus</i>	Spicebush
Falcate Orangetip	<i>Anthocharis midea</i>	Native cresses
Orange Sulphur	<i>Colias eurytheme</i>	legumes
Clouded Sulphur	<i>Colias philodice</i>	Legumes
Cloudless Sulphur	<i>Phoebis sennae</i>	Partidge pea
Cabbage White	<i>Pieris rapae</i>	Crucifers
Checkered White	<i>Pontia protodice</i>	peppergrass