

# RAIN GARDEN & BAYSCAPE MAINTENANCE



Greenbelt Homes Inc. 2018

Planting diagram  
Plant identification  
Seasonal maintenance  
Invasive plant removal



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## Introduction

### Background

The rain garden located at 20 Court Ridge Road is the living part of a stormwater treatment system designed to address stormwater runoff from the impervious surfaces affecting the court, including the 20 Court and neighboring Green Ridge House parking lots, roof surfaces, sidewalks, and decks. The adjacent section of Ridge Road that drains downhill toward 20 Court also adds to the runoff.

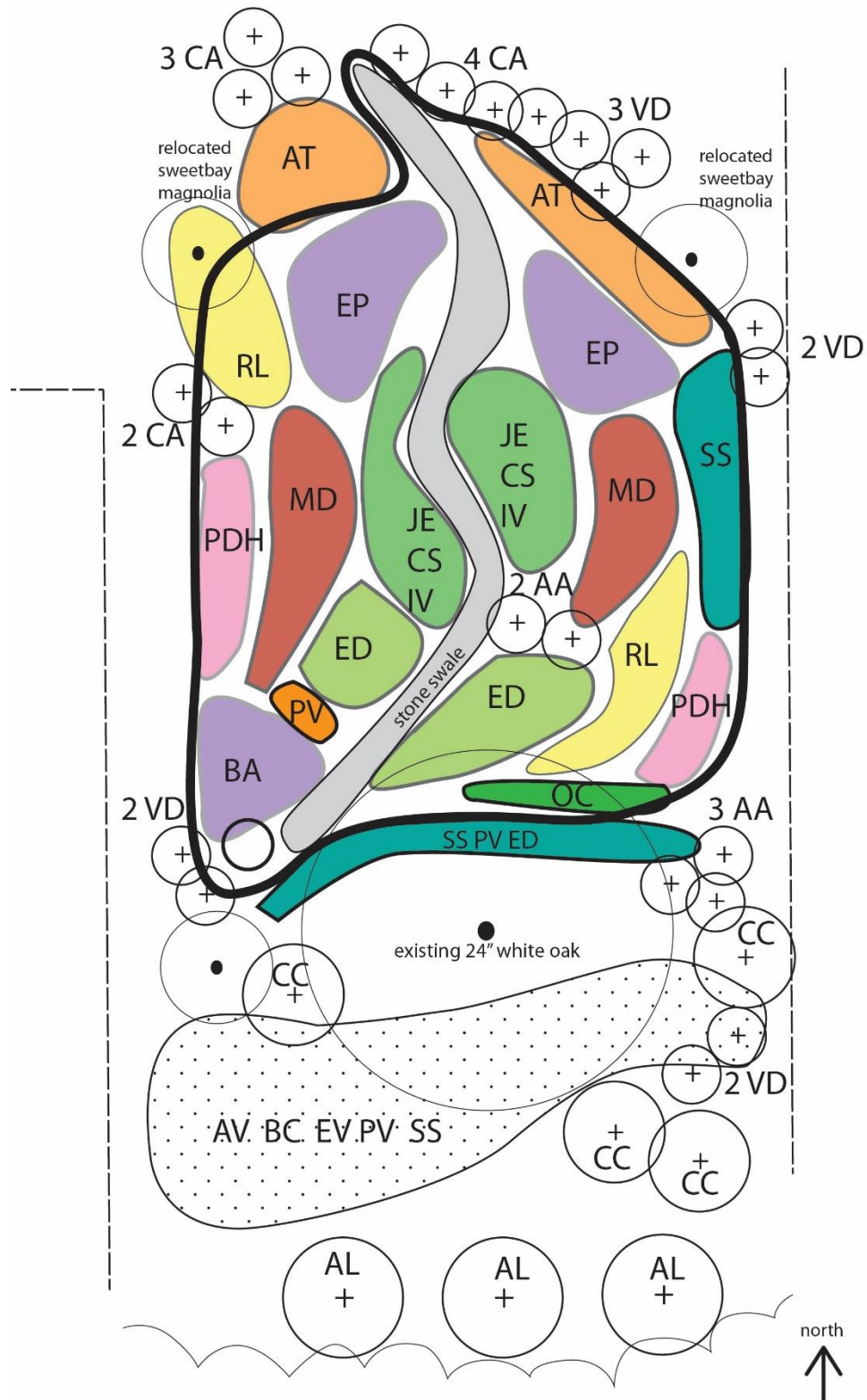
The rain garden soil and plantings serve as the final treatment step for stormwater runoff, capturing sediments and preventing pollutants from entering the local waters. Additional plantings consisting of understory trees, native woodland grasses and a woodland edge meadow surround the white oak tree behind the rain garden. These plantings are designed to serve as a buffer to capture runoff that overflows the rain garden during extreme precipitation events. The rain garden and adjacent buffer are referred to as a BayScape. BayScape is a term coined by the US Fish and Wildlife Service to describe a landscape “planted and maintained to benefit people, the local environment, and the Chesapeake Bay.” A BayScape uses all native plants to provide habitat for local and migratory animals, improve water quality, and reduce the need for chemical pesticides and herbicides. See <https://www.fws.gov/chesapeakebay/bayscapes.htm>.

The 20 Court Ridge Road stormwater treatment system, including the BayScape rain garden and woodland edge buffer, were constructed and planted between September 2017 and April 2018, under the direction of the GHI Storm Water Management Task Force, Ecosite, Inc. (engineering consultant), and UrbanBiology LLC (landscape architect). The rain garden was designed and installed with Maryland native herbaceous plants, grasses and shrubs. These were selected for adaptation to a range of wet or drier conditions, seasonal color, and wildlife habitat value. Full descriptions of each plant with seasonal photos from different lifecycle phases can be found on the plant identification pages.

The 20 Court rain garden and BayScape was constructed and planted between September 2017 and April 2018, under the direction of the GHI Storm Water Management Task Force, Ecosite, Inc. engineering consultant and UrbanBiology LLC, landscape architecture.

The GHI rain garden and BayScape were funded with the generous support of Prince George’s County Department of the Environment, administered by the Chesapeake Bay Trust. This booklet was prepared by UrbanBiology LLC, May 2018.

# Planting Diagram (key is on plant list)



GREENBELT COURT 20 - RAIN GARDEN PLANTING PLAN

drawn at 1"=10'

## Plant List – Rain Garden & BayScape

TREES			
Key	Common Name	Latin Name	Quantity
AL	Allegheny serviceberry	<i>Amelanchier laevis</i>	3
CC	Redbud	<i>Cercis canadensis</i>	5
	<b>Total</b>		<b>8</b>
SHRUBS			
Key	Common Name	Latin Name	Quantity
AA	Red chokeberry	<i>Aronia arbutifolia</i>	5
CA	Beautyberry	<i>Callicarpa americana</i>	9
VD	Arrowwood viburnum	<i>Viburnum dentatum</i>	9
	<b>Total</b>		<b>23</b>
PERENNIALS			
Key	Common Name	Latin Name	Quantity
AT	Butterfly weed	<i>Asclepias tuberosa</i>	150
BA	False blue indigo	<i>Baptisia australis</i>	40
ED	Joe Pye weed	<i>Eutrochium dubium</i> 'Little Joe'	90
EP	Purple coneflower	<i>Echinacea purpurea</i>	120
IV	Blue flag iris	<i>Iris versicolor</i>	90
MD	Beebalm	<i>Monarda didyma</i>	105
PDH	Foxglove beardtongue	<i>Penstemon digitalis</i> 'Husker Red'	105
RL	Cutleaf coneflower	<i>Rudbeckia laciniata</i>	40
OC	Cinnamon fern	<i>Osmunda cinnamomeum</i>	40
	<b>Total</b>		<b>780</b>
GRASSES			
Key	Common Name	Latin Name	Quantity
CS	Tussock sedge	<i>Carex stricta</i>	60
EV	Virginia wild rye	<i>Elymus virginicus</i>	100
JE	Soft rush	<i>Juncus effusus</i>	200
PV	Switchgrass	<i>Panicum virgatum</i> 'Northwind'	100
SS	Little bluestem	<i>Schizachyrium scoparium</i>	108
	<b>Total</b>		<b>618</b>
BAYSCAPE GRASSES			
Key	Common Name	Latin Name	Quantity
AV	Broomsedge	<i>Andropogon virginicus</i>	100
SS	Little bluestem	<i>Schizachyrium scoparium</i>	100
EV	Virginia wild rye	<i>Elymus virginicus</i>	100
BC	Sideoats grama	<i>Bouteloua curtipendula</i>	100
PV	Switchgrass	<i>Panicum virgatum</i> 'Northwind'	50
	<b>Total</b>		<b>450</b>



## Allegheny serviceberry

## *Amelanchier laevis*

- Deciduous, usually multi-trunked understory tree or tall shrub native to thickets, open woods, sheltered slopes and wood margins in Eastern North America
- Height 15-25' (less frequently to 40') tall.
- Showy, 5-petaled, slightly fragrant, white flowers in drooping clusters which appear in early spring (April) before the leaves.
- Berries small, round, edible, ripening to dark purplish-black in June, resembling blueberries in size, color and taste.
- Leaves finely-toothed, obovate, with a bronzish-purple tinge in April, mature to lustrous dark green May-September turning red-orange in October-November.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING ©Missouri Botanical Garden



SUMMER ©Missouri Botanical Garden



FALL ©Missouri Botanical Garden



WINTER ©UMD Arboretum and Botanical garden



## Eastern redbud

*Cercis canadensis*

- Deciduous, often multi-trunked understory tree, native to eastern and central North America, found in open woodlands, thickets, woodland margins, limestone glades and along rocky streams and bluffs.
- Height 20-30' tall with a slightly larger spread.
- Flowers are intense rose-purple, blooming profusely on bare branches in early spring (March-April) before the foliage emerges. Flowers (to ½" wide) bloom in clusters of 4-10.
- Flowers are followed by flattened leguminous bean-like dry seedpods (to 2-4" long) that mature to brown in summer. Each pod has 6-12 seeds. Pods may remain on the tree into winter.
- Leaves are alternate, simple, cordate, broadly ovate to nearly orbicular, dull green to blue-green color (3-5" across), turning pale yellow to greenish-yellow in October.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING ©Missouri Botanical Garden



SPRING (LATE) ©VCU Field Botany



SUMMER ©Missouri Botanical Garden



FALL ©Missouri Botanical Garden



## Red Chokeberry

*Aronia arbutifolia*

- Deciduous, multi-stemmed shrub native to wet and dry thickets in Eastern North America.
- Height 6-10' tall and 3-6' wide, vase-shaped form, tends to sucker and form colonies.
- Flowers in clusters of white to light pink, 5-petaled, 1/3" diameter, blooming in April-May.
- Fruits are abundant, glossy, red, 1/4" diameter, appearing in dense clusters along the branches. Fruits ripen in late summer and persist on the shrub throughout fall and well into winter.
- Leaves elliptic to oblong to obovate, up to 3 1/2" long, glossy dark green above and pubescent grayish-green beneath. Foliage turns bright red in fall, September-November.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING ©Missouri Botanical Garden



SUMMER ©Missouri Botanical Garden



FALL © 2018 William Cullen



WINTER © Conservation Garden Park



## Beautyberry

*Callicarpa americana*

- Deciduous shrub native to Southeastern U.S. forests.
- Height 3-6 feet tall, spread 3-6 feet wide.
- Flowers whitish, insignificant, blooming June-August.
- Fruits are spectacular, bright violet to magenta berry-like drupes which encircle the stem. Fruits persist August-November, remaining attractive for a long time through fall.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SUMMER ©Backyard Nature



FALL ©Missouri Botanical Garden



SPRING ©National Gardening Association



SUMMER ©SFA Forestry, Stephen F. Austin State University



## Arrowwood viburnum

## *Viburnum dentatum*

- Deciduous upright, rounded, multi-stemmed, shrub native to Eastern North America.
- Height 6-10' tall, 6-10' wide, may reach a height of 15' in optimum growing conditions.
- Showy white flowers in flat-topped corymbs (to 4" diameter) appear May-June.
- Fruits are blue-black, berry-like drupes, attractive to birds and wildlife.
- Leaves ovate, toothed, glossy dark green to 4" long. Fall color ranges from drab yellow to shades of orange and red, September-November.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING-SUMMER © Missouri Plants



SUMMER © Cold Stream Farm



FALL © University of Minnesota UMN extension



WINTER © Jeremy Stovall

## Butterfly weed

*Asclepias tuberosa*

- Perennial, native to Eastern and Southern U.S., occurring in dry/rocky open woods, glades, prairies, fields and roadsides.
- Height 1-3' tall with features clusters (umbels) of bright orange to yellow-orange flowers atop upright to reclining, hairy stems with narrow, lance-shaped leaves. Bloom time June-August.
- Seed pods are prominent, spindle-shaped, 3-6" long, which split open when ripe releasing numerous silky-tailed seeds for dispersal by the wind. Seed pods are valued in dried flower arrangements.
- Flowers are a nectar source for many butterflies and leaves are a food source for monarch butterfly larvae (caterpillars).
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SUMMER © Missouri Botanical Garden



FALL © Arthur Haines



WINTER © Deborah Silver



## Blue false indigo

*Baptisia alba*

- Upright perennial, native to Eastern and Southeastern U.S.
- Height 3-4' tall with showy purple, lupine-like flowers in erect racemes (to 12") atop flower spikes extending well above a foliage mound of clover-like, trifoliate, bluish-green leaves (leaflets to 2" long). Blooms May-June.
- Seed pods 2.5" long turn charcoal black when ripe, providing ornamental interest and use in dried flower arrangements.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING © Missouri Botanical Garden



EARLY SPRING © Missouri Botanical Garden



FALL © Missouri Botanical Garden



WINTER © Missouri Botanical Garden



## Joe Pye weed

## *Eutrochium dubium* 'Little Joe'

- Herbaceous perennial, cultivar of Joe Pye weed, bred for compact growth habit and greater drought tolerance. Native to sandy swamps, riverbanks and moist thickets in Eastern North America
- Grows to 3-5' tall and to 2-4' wide on purple-spotted stems clad with ovate, coarsely-toothed, strongly three-veined leaves (to 6" long) arranged in whorls of 3-4.
- Small disk flowers (rays absent) ranging in color from pale pink to dark purple bloom in corymbiform, dome-shaped clusters (4-7" across) from July to September.
- Joe Pye was reportedly an Indian herbalist and healer from the New England area.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SUMMER-EARLY FALL © Missouri Botanical Garden



SPRING © Dave's Gardens



FALL-WINTER © Obsessive Neurotic Gardener



## Purple coneflower

*Echinacea purpurea*

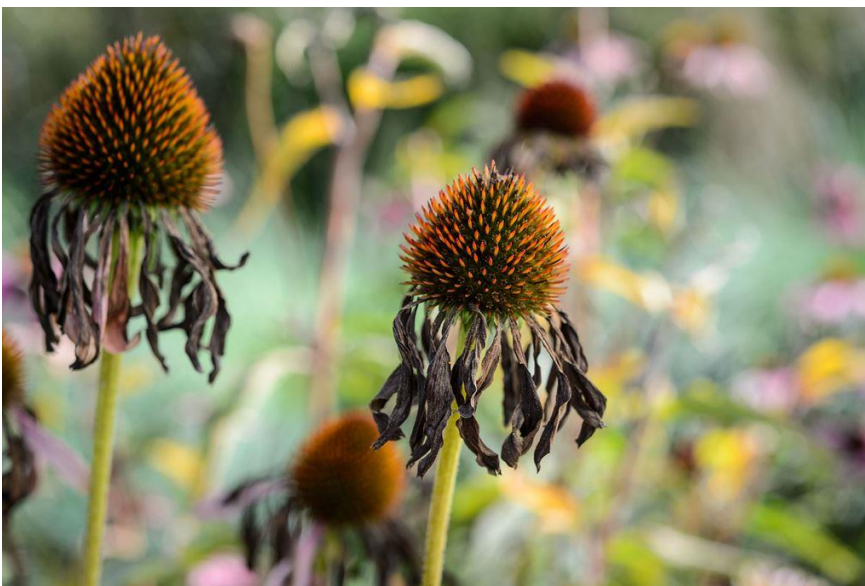
- Herbaceous perennial native to moist prairies, meadows and open woods of the central to southeastern United States.
- Height 2-4 feet tall, coarse, rough-hairy appearance
- Flowers are showy daisy-like purple coneflowers, up to 5" diameter, blooming July-September atop stiff stems clad with coarse, ovate to broad-lanceolate, dark green leaves.
- Dead flower stems persist well into the winter. Cones may be visited by goldfinches or other birds that feed on the seeds.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SUMMER © Missouri Botanical Garden



SPRING © 2013 Cameron Allen



WINTER © Rhone Street Gardens



## Blue flag iris

*Iris versicolor*

- Rhizomatous iris that is native to marshes, swamps, wet meadows, ditches and shorelines of Eastern and Central U.S.
- Aquatic plant along wetland margins, forming a clump of narrow, arching-to-erect, sword-shaped, blue-green leaves (to 24" long and 1" wide). Clumps spread slowly by tough, creeping rhizomes.
- Flowering stalks rise from the clump to 30" tall in late spring, with each stalk producing 3-5 bluish-purple flowers (to 4" wide) with bold purple veining. Sepals have a central yellow blotch surrounded by a white zone.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



LATE SPRING © Missouri Botanical Garden



SUMMER © Houzz



SPRING © John Hixson, Wildflower Center Digital Library

## Bee balm

*Monarda didyma*

- Mint family member, known by different common names including bee balm, Oswego tea and bergamot.
- Native to Eastern North America where it typically occurs in bottomlands, thickets, moist woods and along streambanks.
- Flowers are tubular, two-lipped, bright scarlet-red, terminal flowerheads to 3-4" across, somewhat resembling unkempt mop-heads. Flowerheads bloom June-August atop 2-4' tall square stems clad with opposite, ovate to ovate-lanceolate, medium green leaves 3-6" long with serrate margins.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



WINTER Image courtesy of Creative Commons



SPRING © Weeds to Herbs



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## Foxglove beardtongue

## *Penstemon digitalis* 'Husker Red'

- Beardtongue is a clump-forming, native U.S. perennial which typically grows 3-5' tall, found in prairies, fields, wood margins, open woods and along railroad tracks.
- 'Husker Red' cultivar typically grows 2-3' tall. Features white (sometimes with a pink blush), two-lipped, tubular flowers borne in panicles atop erect, rigid, reddish-color stems. Leaves are maroon (hence the cultivar name).
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



LATE SPRING © Missouri Botanical Garden



WINTER © Michigan Nature Guy



EARLY SPRING Image courtesy of Creative Commons



## Cutleaf coneflower

*Rudbeckia laciniata*

- Perennial, also known as green-headed coneflower, native to most of U.S, favors moist soils in rich woodlands, thickets or along streams, sloughs or other bodies of water.
- Grows to 9' tall in the wild, typically to 3-4' tall in cultivation.
- Daisy-like flowers to 3.5" across with drooping yellow rays and dome-like, green center disks. Pinnate, deeply-lobed (3-5 parted), light green leaves. Bloom period July-September.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SUMMER-FALL © Missouri Botanical Garden



SPRING © Missouri Botanical Garden



WINTER © Knoll Gardens



## Cinnamon fern

*Osmunda cinnamomeum*

- Native to most of U.S., occurring in moist, boggy ground along streams and on shaded ledges and bluffs.
- Grows in clumps to 2-3' tall, with sufficient moisture can reach 5' in height.
- Spore-bearing, stiff, fertile fronds appear in early spring, turning cinnamon-colored in May-June. The "fiddleheads" also emerge from the base of the plant and unfurl into large, erect, pinnately-compound, yellowish-green, sterile fronds (2-4' long), which remain throughout the summer.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



LATE SPRING © Missouri Botanical Garden



EARLY SPRING © Missouri Botanical Garden



EARLY SPRING © Missouri Botanical Garden



SUMMER Image courtesy of Wildflower Center Digital Library.



## Tussock sedge

*Carex stricta*

- Rhizomatous evergreen sedge native to Eastern North America. Emergent aquatic found primarily in wet swales, marshes, bogs, wet meadows and creek margins.
- Grows in dense tussocks (clumps) to 1-3' tall and to 2' wide, with narrow, glaucous, yellowish-green grass-like leaves to 3/8" wide.
- Flowers appear May-June in reddish-brown spikes atop stems rising above the foliage
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING © Missouri Botanical Garden



EARLY SUMMER Image courtesy of Wikipedia



FALL © Pinelands Nursery



## Soft rush

*Juncus effusus*

- Grasslike-like, rhizomatous, wetland perennial also known as common rush, bog rush or mat rush, found growing in ditches, bogs, swamps, marshes, wet pastures, and along the margins of lakes and rivers throughout much of the world.
- Smooth, upright, cylindrical, unjointed, spire-like green stems (leaves are absent) growing in spreading basal clumps to 20-40" tall. It is one of the true rushes.
- Insignificant, minute, yellowish-green to pale brown flowers bloom July to September in one-sided clusters located on stem sides slightly below the stem tips.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SUMMER-FALL-WINTER © Pinelands Nursery



SUMMER © Missouri Botanical Garden



SPRING © 2014 Dios Franco



## Little bluestem

## *Schizachyrium scoparium*

- Prairie grass native to Central U.S, found in prairies, fields, clearings, hills, limestone glades, roadsides, waste areas and open woods. One of the dominant grasses of the vast tallgrass prairie region which once covered rich and fertile soils in many parts of central North America.
- Height typically 2-4', upright clumps of slender, flat, linear green leaves (to 1/4" wide), with each leaf having a tinge of blue at the base.
- Purplish-bronze flowers appear in 3" long racemes on branched stems rising above the foliage in August, followed by clusters of fluffy, silvery-white seed heads which often persist into winter. Outstanding bronze-orange fall foliage color in October-December.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SUMMER © Missouri Botanical Garden



FALL WINTER © Missouri Botanical Garden



WINTER Images courtesy of Sam C. Strickland, Strickland Native Grass Scans



## Broomsedge

*Andropogon virginicus*

- Native prairie perennial grass, also known as including broomsedge bluestem, yellowsedge bluestem, native to the southeastern United States and as far north as the Great Lakes.
- Narrow clumps of stems to 3 feet. Stems and leaves are green when new, turning purplish to orange and then straw-colored with age.
- Prolific seed producer, with a high germination rate and seedling survival rate, thriving in poor soils.
- Source: National Wildflower Center website, accessed March 2018.



SPRING © Plants for a Future



SUMMER-FALL Image courtesy of USDA



FALL © phytoimages.siu.edu



WINTER © 2013 Carolyn Fannon, Wildflower Center Digital Library



## Sideoats grama

## *Bouteloua curtipendula*

- Midwestern US native prairie grass, occurring in glades, prairies, open rocky woodlands and along railroad tracks.
- Purplish-tinged flowers appear on arching stems above the foliage emerging July-August. Oat-like seed spikes hang from only one side of its flowering stems.
- Narrow, bluish-gray leaf blades to 1/4" wide typically form a dense clump growing 1-1.5' tall, with inflorescences rising above leaves to 3' tall.
- Foliage turns golden brown September-October.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING © Warner Brothers Seed Company



SPRING-SUMMER © Missouri Botanical Garden



SUMMER © Missouri Botanical Garden



FALL © Conservation Garden Park



## Virginia wild rye

*Elymus virginicus*

- Cool season perennial bunch grass native to a variety of habitats including bottomland forests, upland prairies, glades, stream banks, pastures, fields, roadsides, and disturbed areas in North America
- Typically grows in a clump to 2-4' tall, with linear, pointed leaf blades (to 3/8" wide) appearing in tufts rising to 12" tall.
- Non-showy greenish flowers bloom in June on stiff, terminal, arching, bristly, wheat/rye-like flower spikes (to 6" long) located atop flowering stems (culms) rising above the foliage to 4' tall.
- Attracts butterflies.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING © Hoffman Nursery



SUMMER © jimbotany



FALL Image courtesy of Wildflower Center Digital Library



## Switchgrass

## *Panicum virgatum* 'Northwind'

- Tallgrass prairie grass, native to Midwestern U.S, occurring in both wet and dry soils in prairies and open woods, gravel bars and stream banks and along railroad tracks.
- Clump-forming, upright, warm season grass typically growing to 3' tall, with flower panicles increasing plant height to 5-6' tall. Foliage clump is topped in July by finely-textured, pink-tinged, branched flower panicles which hover over the foliage like an airy cloud.
- Green leaves turn yellowish in September-October, fading to tan-beige in winter. Panicles turn beige as the seeds mature in fall with the seed plumes persisting well into winter. Seeds are a food source for birds in winter.
- 'Northwind' features one of the best vertical forms of any of the many panicum cultivars currently available in commerce. Olive-green to bluish-green foliage forms a compact, narrow, erect, 4-5' tall clump.
- Source: Missouri Botanical Garden Plant Finder website, accessed March 2018.



SPRING © Gardenia



SUMMER © Missouri Botanical Garden



FALL © Missouri Botanical Garden



## Seasonal Maintenance Schedule

<b>TASKS: 2018 -2019</b>	<b>FEB-MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>SEPT</b>	<b>OCT</b>
Maintenance training (1)		X					
Trim grasses, remove winter debris (2)	X						
Prune damaged woody plants (3)	X						
Invasives removal (4)		X		X	X	X	X
Hand pull English ivy (5)	X						
Hand pull garlic mustard (6)		X					
Weed rain garden and stone swale (7)		X	X	X	X	X	X
Remulch bare areas		X					
Evaluate/replant natives (8)		X				X	X
<b>TASKS: 2020-beyond</b>							
Maintenance training (1)		X					
Trim grasses, remove winter debris (2)	X						
Prune damaged woody plants (3)	X						
Invasives removal (4)		X		X			X
Hand pull English ivy (5)	X						
Hand pull garlic mustard (6)		X					
Weed rain garden and stone swale (7)		X	X	X	X	X	X
Remulch bare areas		X					
Evaluate/replant natives (8)		X				X	X

- (1) Train volunteer force or maintenance staff to identify and remove invasive species and common weeds
- (2) Trim meadow grasses in rain garden and Bayscape; compost cut pieces
- (3) Prune woody shrubs and trees for damaged stems and plant health
- (4) Hand cut all problem vegetation to the ground, leaving native species intact (see note below)
- (5) Inspect for English ivy; pull ground runners taking care to not disturb native plants
- (6) Hand pull garlic mustard including taproot prior to plant setting seed
- (7) Cut or hand pull weedy plants from garden area, taking care to not disturb adjacent plants.
- (8) Evaluate native plants for replacement and replant if needed

Note: Following GHI's IPM policy, other non-toxic controls must be used first and herbicides only if other methods fail.

## Maintenance Tasks

### Garden Maintenance

- Cut grasses to within 3 inches of the ground in late winter (February-March) and remove cut pieces for composting. This will help to make room for new growth.
- Evaluate garden for erosion, animal digging or other signs of disturbance (March). Repair soils and mark areas for spring replanting.
- Repair dislodged stones in rock inlet and swale. Inspect for excess sedimentation and remove sediment by removing rocks and excavating buildup of sediment, debris or leaves.
- Prune dead and diseased woody stems from trees and shrubs that have been damaged over the winter (March). Prune for health – remove no more than 1/3 shrub stems during the year.
- Begin weeding as soon as plants can be safely identified is warm enough to work (April). Avoid pulling weeds from frozen ground since you may be disturbing nearby perennials or grasses.
- Weed every one-two weeks, taking care to limit ground disturbance. Plants with long rhizomes should be pulled carefully to avoid too much disturbance to ground or damage to nearby plants.
- Inspect plants for new growth (April-June). Perennials can be divided once they've grown for several seasons.
- Water for the first two growing seasons on a weekly basis to compensate for below-normal rainfall in a given week.
- Plants should be evaluated for overall health throughout the season. Replace diseased plants so that nearby healthy plants are not affected.
- For invasive plants, follow recommendations for each species, as shown in training videos and materials (March through June; Oct-Nov)

### Mulching

- The rain garden is designed with dense planting that should completely fill in over time. This “green mulch” will reduce the need for woody mulch.
- Mulch bare spots with aged shredded bark mulch to a depth of 2 inches. Mulching the entire garden will reduce the designed water volume of the garden and could result in mulch piling at the overflow point.
- For mulching around trees and shrubs, aged shredded hardwood mulch composts more quickly than new wood chips. New wood chips can be used to mulch woodland trees in the BayScape area and beyond, as these will decompose over the season.
- Maintain three inches clear area around trees - avoid piling mulch next to tree stems. Follow the 3-3-3 rule for plant mulching: 3 inches away from woody stems, 3 feet mulch circle and inches settled mulch depth.



## Invasive Plant Removal

### Overall Goals

Reduce or eliminate invasive plant species using hand control methodology and plant area with native plants described in plant schedule. Hand control is recommended over chemical means, since the area is not large and over-spraying of herbicides could harm desirable native plants.

Invasive plants will be repeatedly cut to the ground, forcing the plant to deplete stored energy, eventually wearing the plant out. By using selective cutting, native vegetation is left intact and continues to grow and eventually outcompete the weakened invasive vegetation. Cut stump application of herbicide may be necessary for control of Oriental bittersweet.

Due to the presence of a large viable seed bank, continued maintenance is necessary to prevent re-infestation of invasive species. The seasonal maintenance schedule lays out a schedule of activities through October 2023. Beyond 2023, once-yearly maintenance will be necessary to deal with seeds dropped by birds from other areas and any viable seeds in the ground that may be disturbed.

Species - specific techniques for invasive plant removal are described in the maintenance training videos for the following species:

Common Name	Scientific Name
Garlic mustard	<i>Alliaria petiolata</i>
Japanese barberry	<i>Berberis vulgaris</i>
Asiatic bittersweet	<i>Celastrus orbiculatus</i>
Winged euonymus	<i>Euonymus alatus</i>
English ivy	<i>Hedera helix</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Bush honeysuckle	<i>Lonicera tartarica</i> , <i>L. mackii</i>
Bamboo	<i>Phyllostachys aurea</i> <i>P. vulgaris</i> , <i>P. japonica</i>
Multiflora rose	<i>Rosa multiflora</i>
Periwinkle	<i>Vinca minor</i> , <i>V. major</i>

### Tools needed for vegetation management

- Gas-powered oscillating hedge-trimmer with adjustable head. (Recommend Stihl HL-KM 145° Adjustable Hedge Trimmer)
- Sharp loppers with 2" cutting capacity. (Recommend A.M. Leonard compound action bypass loppers)
- Sharpening blade for loppers
- Stump-killer
- Herbicide-rated bottle with sponge applicator

## Species-specific recommendations for common invasive plants

### Garlic Mustard



- Biannual
- Spread through plant-thrown seed, humans, animals
- Long lasting seed bank
- Hand pulling, torching (before seed set)

Sustainable Resource Management, Inc 2011

Image source: Illinois Wildflowers

### Japanese barberry



- Compact deciduous shrub
- Spread by: birds and layering
- Hand pulling, digging, mowing (before seed), weed wrench, gas-powered trimmer
- Grazing
- Herbicide: consult a professional for proper chemical formulation and timing.

Sustainable Resource Management, Inc 2011

Image Source: Mass Audubon



### Asiatic bittersweet



- Perennial climbing vine
- Spread by: birds, animals, humans
- Hand pulling, digging, mowing
- Grazing
- Cut stump herbicide application: consult a professional for proper chemical formulation and application timing

Sustainable Resource Management, Inc 2011  
Image source: GoBotany – New England Wildflower Society

### Winged euonymus



- Deciduous shrub
- Spreads by birds, people
- Repeated hand-cutting, digging, weed wrench, mowing (before seed)
- Herbicide: consult a professional for proper formulation and timing

Sustainable Resource Management, Inc. 2011  
Image source: Sustainable Resource Management, Inc

## English Ivy



- Woody tree climbing vine, evergreen in Maryland
- Attaches to trees by means of rootlike structures; can kill trees
- Cut climbing stems above ground – see training video
- Cut ground vines at base of tree, pull vines along ground level
- Dispose of vines in black plastic bags or managed composting facility where heat will destroy plants

Sustainable Resource Management, Inc. 2011

Image source: Invasive Species Council of BC

## Japanese honeysuckle



- Woody twining vine; can twine around trees
- Pull ground vines in the spring when soil is moist
- Use loppers to cut tree climbing vines – see training video
- Herbicide: consult a professional for proper formulation and timing

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Image source: Invasives Plants in Arlington

## Bush honeysuckle



- Deciduous shrub
- Spreads by birds, people
- Repeated hand-cutting, digging
- Take care to distinguish from coralberry - see training video
- Herbicide: consult a professional for proper formulation and timing

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Image source: Friends of Sligo Creek



## Bamboo



- Cut bamboo at ground level in spring, using a sawsall or oscillating hedge-trimmer
- Allow new shoots to grow through summer – apply herbicide to fresh leaves in fall
- Herbicide: consult a professional for chemical formulation and timing

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Image source: Texas Invasives

## Multiflora Rose



- Woody shrub creates impenetrable thickets
- spread by birds, humans
- digging, weed wrench, repeated cutting or grazing – see training video
- Herbicide: consult a professional for chemical formulation and timing

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Image source: Connecticut Invasive Plant Working Group

## Periwinkle



- Perennial vine commonly sold in landscape nursery centers
- Mowing, hand-pulling, grubbing
- Consult a professional for herbicide application rates and timing

Sustainable Resource Management, Inc. 2011

Image source: Sustainable Resource Management, Inc.

## Resources

Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed

<https://www.fws.gov/Chesapeakebay/pdf/NativePlantsforWildlifeHabitatandConservationLandscaping.pdf>

Homeowner Guide for a more Bay-Friendly Property by Chesapeake Stormwater Network.

[http://chesapeakestormwater.net/wp-content/uploads/dlm\\_uploads/2013/04/Homeowner-Guide.pdf](http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2013/04/Homeowner-Guide.pdf)

University of Maryland Extension: Rain Gardens and Maintenance

[https://www.cleanwaterhoward.com/sites/default/files/sw\\_mgmt\\_and\\_rg\\_maint.pdf](https://www.cleanwaterhoward.com/sites/default/files/sw_mgmt_and_rg_maint.pdf)

Prince George's County Department of the Environment: Guidelines for Rain Garden

<https://www.princegeorgescountymd.gov/DocumentCenter/View/180>

Low Impact Development Center: Rain Garden Templates for Maryland

<https://lowimpactdevelopment.org/rain-garden-templates-for-maryland/>

BayScapes

<https://www.fws.gov/chesapeakebay/bayscapes.htm>

Essentials of Conservation Landscaping

[www.chesapeakelandscapes.org/resources/the-eight-essential-elements](http://www.chesapeakelandscapes.org/resources/the-eight-essential-elements)

Invasive Forest Plants of the Mid-Atlantic, Penn State Extension

<https://extension.psu.edu/invasive-forest-plants-of-the-mid-atlantic>

Chesapeake Bay Program - <http://www.chesapeakebay.net/>

Chesapeake Bay Native Plant Center – <http://www.nativeplantcenter.net/>

Center for Watershed Protection - <http://www.cwp.org/>

Maryland Invasive Species Council - <http://mdinvasives.org/>

Sustainable Resource Management Inc. - <http://www.sustainableresourcemanagementinc.com/>