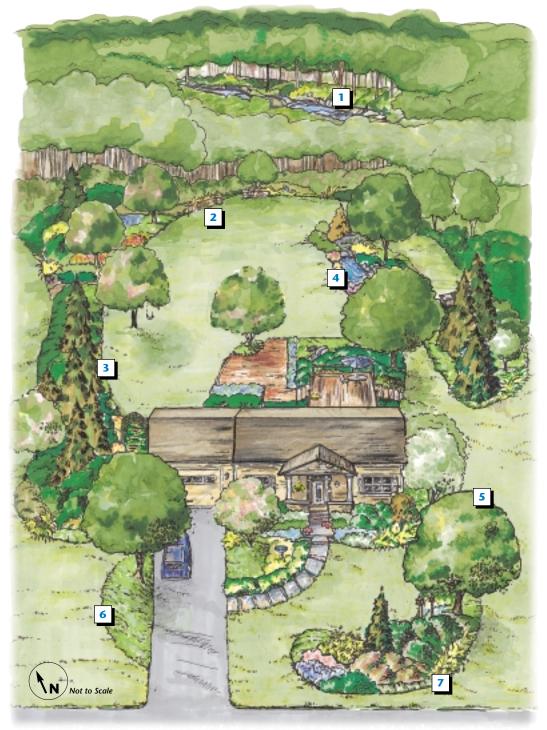


# Homeowners' Guide to Designing Your Property

This guide is designed to help you implement the concepts of BayScaping in your own yard. The enlargements on the inside pages show plant types and quantities for different areas of the property. The back page features a plant list for you to use to install this design.



Many BayScapes principles are illustrated in the features of this yard design.

### 1. Streambank Plantings:

water-loving trees, shrubs and perennial plants protect streambank from soil erosion.

### 2. Dry Laid Stone Wall:

provides habitat for small mammals.

### 3. Buffer Plantings:

screen winter winds; create wildlife habitat and corridors.

### 4. Water Garden:

provides water for wildlife.

### 5. Trees:

provide shade, reduce water runoff and clean the air.

#### 6. Groundcovers:

reduce lawn and are perfect for sloped and rarely utilized areas.

### 7. Planting Islands:

add privacy and habitat, reducing high-maintenance lawns.

### These planting plans are examples of how to landscape using BayScapes principles.

### **BayScapes Principles**

Plan for the Long Term • Create Diversity • Use Beneficial Plants • Conserve Water • Practice Conservation Landscaping

# Front Yard

Planting islands feature plantings layered or integrated with a mix of trees, shrubs and groundcovers to reduce lawnmowing, fertilizer, herbicide and pesticide use. These islands also provide year-round beauty and homes for birds and other wildlife. A variety of native trees and shrubs should be used in combination with long-blooming perennials and groundcovers. Bird feeders and bird baths can be added to attract birds.



### **LEGEND**

LT = Large Tree

SS = Small Shrub

**ST** = Small Tree LS = Large Shrub **P** = Perennial **GC** = Groundcover

**ET** = Evergreen Tree

**GR** = Grass

- The numbers indicate a general quantity of plants to be installed.
- Use the spacing chart to determine the exact quantity of plants for your
- Use the plant list to help you choose your plants.

# Side Yard Planting Screen

Groupings of beneficial plants create a privacy screen while blocking cold winter winds. The evergreen plantings provide nesting habitat. Consider teaming with your neighbors to plant a wider border to increase these benefits and make a corridor for wildlife to move between the properties. Stepping stones allow you to walk among the groundcovers. The arbor provides a place for climbing vines, which attract bees, butterflies and hummingbirds.

Reduce lawn areas with the use of groundcovers such as moss for shady areas or thyme for sunny areas.

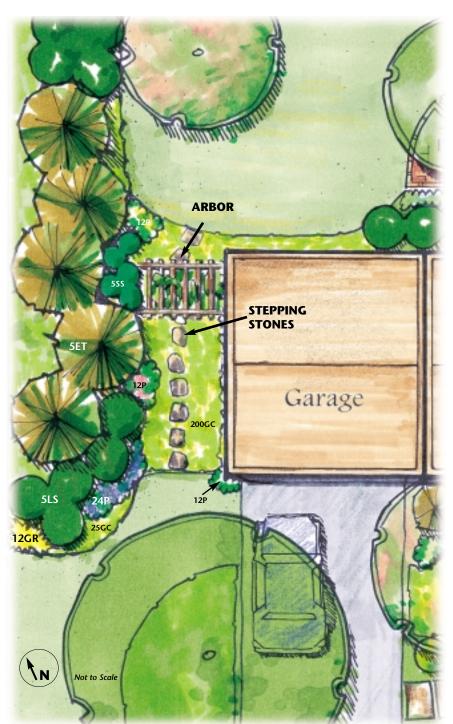
### Tree and Shrub Spacing

When planning for tree and shrub plantings, consider their ultimate spread. Allow that distance between the trunks of the two plants.

### Perennial and **Groundcover Spacing**

Perennials and groundcovers need to be spaced according to their ultimate size. To determine how many plants you will need, multiply the number of square feet by the number of plants required per square foot using this table. Distance apart is measured from the center of the plant.

Distance Apart	Plants/Sq. Ft.
4"	9.1
6"	2.5
8"	2.25
9"	1.77
10"	1.44
12"	1.00
18"	0.45
24"	0.24
36"	0.11



### **LEGEND**

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## Back Yard and Water Garden

The back yard features spaces for human enjoyment as well as wildlife habitat:

The *deck and patio* provide seating space for enjoyment of the back yard. Plantings include one large tree and a small tree to provide shade at differing heights. Groupings of large and small shrubs, perennials and groundcovers soften the structures.

The water garden is a visual focal point and a water source for wildlife. Groupings of evergreen and deciduous plants ensure interest in every season.

The *compost bin* allows recycling of kitchen and yard waste (including leaves), creating homemade organic fertilizer. Adding compost to planting beds replenishes nutrients without using synthetic fertilizers. Compost also enriches the soil to better support plants.

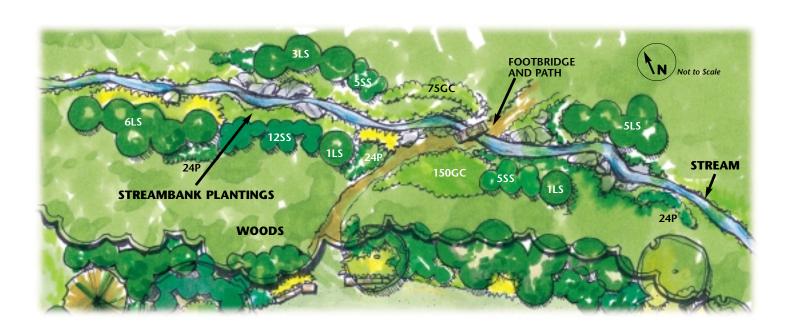
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# Stream Buffer Planting

Planting native trees, shrubs and perennials next to streams protects the water from soil erosion and nutrient runoff. Stream buffers protect water quality by absorbing and filtering runoff from lawns and open spaces before it reaches the water. *Streambank or "riparian" plantings* also create aquatic habitat for bugs and fish by providing shade and places to hide.



#### LEGEND

- LT = Large Tree
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- The numbers indicate a general quantity of plants to be installed.
- Use the spacing chart to determine the exact quantity of plants for your garden area.
- Use the plant list to help you choose your plants.

For more information such as additional Homeowners' Guides, native plant lists, and/or more BayScapes information, visit our website at:

### www.acb-online.org

or contact The Alliance for the Chesapeake Bay at

1.800.662.CRIS







BayScaping benefits people and wildlife.

### Beneficial Plants for BayScaping in the Chesapeake Bay Region

This plant list is a guide to help you install your landscape plan. There are many more native plants that are suitable for BayScaping. Be careful to avoid invasive plants. Consult native plant lists for your region or your local nursery or agricultural extension agent for additional plants which may fit into your landscape.

Red maple   Am nobrat   Setub right   Setu	LARGE TREE	BOTANICAL NAME	REGION	HEIGHT	BLOOM/FRUIT	SUN/SHADE	DRY/WET	VALUE
Miles blaich   Men begrow   pechnomit & costal   50 - 75′   cathen flower   ps- fs   w - m   widding, further, ornamental leafer or green and   name   pechnomic & costal   50 - 75′   commendate appule   man   m - m   widding, commendate   m - m   m   widding, commendate   m - m   m   widding, commendate   m - m   widding, commendate   m								
Red or gram ah   Province pertray/warcine   Profestive Scatcal   \$97 - 75'   Sam   m   buller	River birch					•		, ,
	Red or green ash	•	•	50' – 75'		•	m	
Table   Common principation   Common princ	Sweet gum	• •	•	50' – 75'	ornamental capsule		m – w	
White cask	Tuliptree		all	75' – 100'	yellow-green bloom	sun	d – m	
SM. TREFLC. SHRUB  BOTANICAL NAME  REGION  HISCHT  20" - 30" deep Back, edible fruit  20" - 30" pinisk 10 bloom  sun - 15 d - m omaneralal  relevant depresentation  sun - 15 d - m omaneralal  relevant depresentation  sun - 15 d - m omaneralal  relevant depresentation  with labournicantel bernis  sun - ps d - m omaneralal  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  relevant depresentation  sun - ps d - m omaneralal  relevant depresentation  relevant depresentation  sun - ps d - m in omaneralal  relevant depresentation  sun - ps d - m in omaneralal  relevant depresentation  sun - ps d - m in ps visibility  ps d - w light visibility  sun - ps d - m light visibility  ps d - w light visibility  sun - ps d - m light visibility  ps d - w light visibility  sun - ps d - m light visibility  ps d - w light visibility  ps d - w light visibility  sun - ps d - w light visibility  sun - ps d - m light visibility  sun - ps d - w light visibility  sun - ps d - w light visibility  sun - ps d - m light visibility  sun - ps m - visibilit	Black gum	Nyssa sylvatica	all	50' - 75'		sun – ps	d	ornamental, high wildlife
Shabblow servicebery	White oak	Quercus alba	all	75' – 100'	acorn fruit	sun	d – m	very high wildlife
Eastern refubud   Carris concelents    mountains & piedmont   20" - 30"   prinkish bloom   sun - 1s   d - m   ornamental   mountains & piedmont   20" - 35"   white bloom/scarlet buries   sun - 1s   d - m   wildlife, conamental   white bloom/scarlet buries   sun - 1s   d - m   wildlife, conamental   white bloom/scarlet buries   sun - 1s   d - m   wildlife, conamental   white bloom/scarlet buries   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white sun - 1s   white bloom-in fall   sun - 1s   d - m   wildlife, conamental   white sun - 1s   white bloom-in fall   sun - 1s   m   white sun - 1s   white bloom-in fall   sun - 1s   m   white sun - 1s   white sun - 1s   white sun - 1s   white sun - 1s   m   white sun - 1s   wh	SM. TREE/LG. SHRUB	BOTANICAL NAME	REGION	HEIGHT	BLOOM/FRUIT	SUN/SHADE	DRY/WET	VALUE
Flowering dogwood   Cornur finde   all   10 - 30'   white bloom/carlet berries   sun - ps   d - m   wildlife, ornamental   wildlife, or	Shadblow serviceberry	Amelanchier canadensis	all	20' - 30'	deep black, edible fruit	sun – ps	d – m	very high wildlife, buffer
Wilterberny holly         like vericilitate         all         67–12°         residented fruit         ps         m — w.         wildlife, consmental borders           Northern bagberny         Myrka penyhanica         pledmont & coastal         67–12°         withe bloom purple fruit         ps         d — w.         high widdlife, ornamental fruit           Free Presentation         Myrka penyhanica         all         67–12°         withe bloom purple fruit         sun – fs         d — w.         very high widdlife, ornamental fruit           Free Presentation         Vaccimum conymbourn         pledmont & coastal         37–10°         blobs-black hate         sun – fs         d — w.         wildlife, ownamental fruit           VERCREEN TERES/19RUB         BOTANICAL NAME         RECION         HECKT         BLOOM/FRUIT         SUN/SHADE         DRY/WET         ACUSE, high widdlife, orn.           Common Juriple         Juripenes virginiona         pleidmont & coastal         30°-50°         red berry         sun – ps         m         cover, high widdlife, orn.           Eastern eric cedar         Juripenes virginiona         pleidmont & coastal         75°-100°         blow-Black berry         sun – ps         m         cover, high widdlife, orn.           SIMALE SHRUBS         BOTANICAL NAME         RECION         HECHT         BLOOM/F	Eastern redbud	Cercis canadensis	mountains & piedmont	20' - 30'	pinkish bloom	sun – fs	d – m	
Width hazel         / Informereks virginiona         all         20" – 35"         yellow bloom-in fall         sun – ps         d         ornamental, borders high widdlife           Konthem bayberny         Mortine proprieting         Mortine proprieting         6" – 12"         waay grey fruit         so         d         - w         very high widdlife           Common elektherry         Sornbauc conodensis         all         4" - 10"         dark blue from the born(purple fruit         sun – fs         d         - w         very high widdlife           Highbash blacked bright         Victoria condensis         4" - 10"         dark blue fruit         sun – fs         d         - w         well high widdlife         but black before         www. 15 m.         - w         widdlife         but black before         widdlife         but black before         widdlife         but black before         www. 15 m.         - w         widdlife         well black before         www. 15 m.         d         - w         well black before         www. 15 m.         d         cover, high widdlife, orn.         cover, high widdlife, orn.         widdlife         www. 15 m.         d         cover, high widdlife, orn.         widdlife         www. 15 m.         d         cover, high widdlife, orn.         widdlife         www. 15 m.         d         cover, bigh widdlif	Flowering dogwood	Cornus florida	•	10' - 30'	white bloom/scarlet berries	sun – ps	d – m	wildlife, ornamental
Northern bayberry	Winterberry holly	llex verticillata	all	6' – 12'	red-berried fruit	ps .	m – w	wildlife, ornamental
Northern bayberry	Witch hazel	Hamamelis virginiana	all	20' - 35'	yellow bloom-in fall	sun – ps	d	ornamental, borders
Highblash blaeberry Vacrirum corporbosum all acid soil of -10" dark blaeberry blummind entratum piedmont & coastal 6'-12" bluish-black fruit sun -5 m -w wildlife, ornamental blush-black fruit sun -5 m -w wildlife, purfer, ornamental blummind entratum piedmont & coastal 30'-50' red berry sun -ps m cover, high wildlife, orn. Common jumper jumpers communis all 2'-30' blue-black berry sun -ps m cover, high wildlife, orn. Common jumper jumpers communis all 2'-30' blue-black berry sun -ps m cover, high wildlife, orn. Common jumper jumpers communis all 2'-30' blue-green berry sun d cover, high wildlife, orn. Common jumper jumpers wirginiona piedmont & coastal 50'-75' blue-green berry sun d very high wildlife, orn. Common jumpers wirginiona piedmont & coastal 50'-75' blue-green berry sun d very high wildlife, buffer statem white pine Pinus strobus mountains & piedmont 75'-100' five-needled bundle sun d ving wildlife, ornamental linkberry holy [lex globar 3'shamonck"] all 4'-6' black berry sun -ps d d ornamental linkberry holy [lex globar 3'shamonck"] all 4'-6' black berry ps d d ornamental linkberry holy [lex globar 3'shamonck"] all 4'-6' black berry ps d d weretreen, cover compact Oregon grapholly Mohanic auditolium "Compacto" all 2'-3' yellow flower, blue berries ps -fs m -w ceregreen, cover Pinusterbloom azalea Richard State St	Northern bayberry		piedmont & coastal	6' – 12'	waxy gray fruit	ps .	d – w	high wildlife
Southern arrowwood   Wournum dentatum   piedmont & coastal   6'-12'   bluish-black fruit   sun - 5   m - w   wildlife, poffer, ornamental	Common elderberry	Sambucus canadensis	all	6' – 12'	white bloom/purple fruit	sun – fs	d – w	very high wildlife
Princer   Prin	Highbush blueberry	Vaccinum corymbosum	all - acid soil	3' – 10'	dark blue fruit	sun – fs	d – m	high wildlife, ornamental
American holly   Nex opaca   Coastal   30'-50'   red berry   Sun -ps   m   Cover, high wildlife, orn. Common jumiper   Juniperus virginiana   piedmont & coastal   2'-30'   blue-black berry   Sun   d   cover, high wildlife, orn. Common jumiper   Lastern medicedar   Juniperus virginiana   piedmont & coastal   50'-75'   blue-green berry   Sun   d   very high wildlife   buffer   Sun   Statem red cedar   Juniperus virginiana   piedmont & coastal   mountains & piedmont   75'-100'   five-needled bundle   Sun   Statem   Sun   Statem	Southern arrowwood	Viburnum dentatum	piedmont & coastal	6' – 12'	bluish-black fruit	sun – fs	m - w	
Common juniper    Junipenus communis   Lunipenus communis   Lunipenus virginiona   piedmont & coastal   50" - 75"   blue-Biack berry   sun   d   cover, high wildlife   Eastern red cedar   Junipenus virginiona   piedmont & coastal   50" - 75"   blue-green berry   sun   d   very high wildlife   Eastern red cedar   Junipenus virginiona   mountains & piedmont   75" - 100"   five-needled bundle   sun   d   high wildlife   buffer	EVERGREEN TREE/SHRUB	BOTANICAL NAME	REGION	HEIGHT	BLOOM/FRUIT	SUN/SHADE	DRY/WET	VALUE
Eastern white pine Pinus stription products a piedmont & coastal pountains & piedmont & coastal products from the pine Pinus strobus products and pr	American holly	llex opaca	coastal	30' - 50'	red berry	sun – ps	m	cover, high wildlife, orn.
Eastern white pine	Common juniper	Juniperus communis	all	2' - 30'	blue-black berry	sun	d	cover, high wildife,
BRAIL SHRUBS   BOTANICAL NAME   REGION   HEIGHT   BLOOM/FRUIT   SUN/SHADE   DRY/WET   VALUE	Eastern red cedar	Juniperus virginiana	piedmont & coastal	50' - 75'	blue-green berry	sun	d	very high wildlife
Bearberry Arctostophlos urva-ursi all 3'-5' white bottlebrush flowers sun – fs m – w ornamental fothergilla gardenii all 4'-6' bleach berry ps d – w evergreen, cover Compact Oregon grapeholly llex gibra "Shamrock" all 4'-6' yellow flower, blue berries ps – fs m – w evergreen, cover Compact Oregon grapeholly Mahonia aquidolium "Compactor" all V-3' yellow flower, blue berries ps – fs m – w evergreen, cover Pirxterbloom azalea Rhododendron periclymenoides mountains - acid soil 6' pink bloom ps m – w ornamental Perental Rhododendron periclymenoides mountains - acid soil 6' pink bloom ps m – w ornamental Perental Rhododendron periclymenoides all 8''-24" red & yellow flowers sun – fs d – m wildlife, ornamental Wild columbine Aquilegia canodensis all 8''-24" red & yellow flowers sun – fs d – m wildlife, ornamental Swamp milkweed Asclepias incamata all 2'-5' pink-red flowers sun – fs m – w wildlife, ornamental New England aster Aster novae-anglize all 1'-3' yellow flowers sun – fs d – m wildlife, ornamental Rickseed Corespis verticilator all 1'-3' yellow flowers sun d wildlife, ornamental Wild bleeding heart Dicentre verinia mountains & piedmont 1'-2' yellow flowers sun d wildlife, ornamental Rickseed Eupatorium risulussum all 3'-4' pink to violet flowers sun d wildlife, ornamental Wild peranium Geranium mountains & piedmont 1'-2' yellow flower sun m – w wildlife, buffer, ornamental Wild geranium Geranium mountains & piedmont 1'-2' yellow flowers sun m – w wildlife, buffer, ornamental Wild geranium Geranium mountains & piedmont 1'-2' yellow flowers sun m – w wildlife, buffer, ornamental Geranium mountains & piedmont 1'-2' yellow flowers sun m – w wildlife, buffer, ornamental wild geranium Geranium mountains & piedmont 1'-2' yellow flowers sun m – w wildlife, buffer, ornamental Wild geranium Geranium mountains & piedmont 1'-2' yellow flowers sun m – w wildlife, buffer, ornamental wild geranium Geranium mountains & piedmont 1'-2' yellow flowers sun m – w wildlife, buffer, ornamental wildlife purpa ornamental wildlife, or	Eastern white pine	Pinus strobus	mountains & piedmont	75' – 100'	five-needled bundle	sun	d	high wildlife, buffer
Fothergilla Fothergilla gardenii all 3' - 5' white bottlebrush flowers sun - fs m - w ornamental inkberry holy liex globra "Sharmock" all 4' - 6' black berry ps d - w evergreen, cover Compact Oregon grapeholly Ilex globra "Sharmock" all 2' - 3' yellow flower, blue berries ps - fs m - w evergreen, cover Compact Oregon grapeholly Ilex globra "Sharmock" all 2' - 3' yellow flower, blue berries ps - fs m - w evergreen, ornamental Prinxterbloom azalea Rhododendron peri/ymenoides mountains - acid soil 6' pink bloom ps m - w ornamental Prinxterbloom azalea Rhododendron peri/ymenoides mountains - acid soil 6' pink bloom ps m - w ornamental Prinxterbloom azalea Rhododendron peri/ymenoides mountains - acid soil 6' pink bloom ps m - w ornamental Prinxterbloom azalea Rhododendron peri/ymenoides mountains - acid soil 6' pink bloom ps m - w ornamental Prinxterbloom azalea Rhododendron peri/ymenoides mountains - acid soil 6' pink bloom ps m - w ornamental Prinxterbloom azalea Rhododendron peri/ymenoides mountains - acid soil 6' pink bloom ps m - w ornamental Prinxterbloom azalea Rhododendron peri/ymenoides m - wildlife, puriamental Sudambine - sun - fs d - m wildlife, puriamental Wild Call Call Call Call Call Call Call Ca	SMALL SHRUBS	BOTANICAL NAME	REGION	HEIGHT	BLOOM/FRUIT	SUN/SHADE	DRY/WET	VALUE
Inkberry holly   liex glabra "Shamrock"   all   4' - 6'   black berry   ps   d - w   evergreen, cover	Bearberry	Arctostaphlos urva-ursi	mountains & piedmont	1′	red berries	ps	d	ornamental
Compact Oregon grapeholly Mohonio aquifolium "Compacta" all 2'-3' yellow flower, blue berries ps - fs m - w evergreen, ornamental Pinxterbloom azalea Rhodocendron periclymenoides mountains - acid soil 6' pink bloom ps m - w ornamental PERENNIAL BOTANICAL NAME REGION HEIGHT SUN/FRUTT SUN/SHADE DRY/WET VALUE Wildlife, pornamental Swamp milkweed Asclepias incarnata all 8"-24" red syellow flowers sun - fs d - m wildlife, ornamental Swamp milkweed Asclepias incarnata all 2'-5' pink-red flowers sun - fs m - w wildlife, buffer wildlife, buffer wildlife, buffer all 1'-3' yellow to red flowers sun d wildlife, ornamental Now Expland aster novae-angliae all 3'-4' pink to videl flowers sun m wildlife, ornamental Nitfolkweed Coreopsis verticillata all 1' yellow flowers fs d - m long flowering ornamental Nitfolkweed Coreopsis verticillata all 1' yellow flowers fs d - m long flowering ornamental Nitfolkweed Explanding mountains & piedmont 8'-12' pink flowers ps - fs m ornamental Purple coneflower Explanding mountains & piedmont 8'-12' pink flowers ps - fs m ornamental Nitfolkweer Explanding mountains & piedmont 1'-2' pink flowers sun d wildlife, pourfer, ornamental Nitfolkweer Explanding mountains & piedmont 1'-2' pink flowers sun m wildlife, pourfer, ornamental Nitfolkwer Explanding mountains & piedmont 1'-2' pink flowers sun m wildlife, buffer, ornamental Nitfolkwer Explanding mountains & piedmont 1'-2' pink flowers sun m wildlife, buffer, ornamental Nitfolky provided	Fothergilla	Fothergilla gardenii	all	3' – 5'	white bottlebrush flowers	sun – fs	m – w	ornamental
"Compacta" all 2'-3' yellow flower, blue berries ps - fs m - w evergreen, ornamental Rhododendron periclymenoides mountains - acid soil 6' pink bloom ps m - w ornamental periclymenoides mountains - acid soil 6' pink bloom ps m - w ornamental periclymenoides mountains - acid soil 6' pink bloom ps m - w ornamental sun, state the provided provide	Inkberry holly	Ilex glabra "Shamrock"	all	4' - 6'	black berry	ps	d – w	evergreen, cover
PERENNIAL BOTANICAL NAME RECION HEIGHT SUN/SHADE DRY/WET VALUE  Wild columbine Aquilegia canadensis all 8°-24" red & yellow flowers sun - fs m - w wildlife, buffer wildlife, buffer ormamental sull 1'-3' yellow to red flowers sun - fs m - w wildlife, buffer sull flower figure or wildlife, buffer sun description of the su	Compact Oregon grapeholly	Mahonia aquifolium						
PERENNIAL BOTANICAL NAME RECION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE  Wild columbine Aquilegia canadensis all 8" − 24" race & yellow flowers sun − fs d − m wildlife, buffer ormanental wild bleeding heart Dicentra eximia mountains & piedmont 1' − 2' yellow flowers sun m wildlife, ormanental Wild beleding heart Dicentra eximia mountains & piedmont 1' − 2' yellow flowers sun m wildlife, ormanental Wild gleen higher than the properties of the properties o		"Compacta"	all	2' - 3'	yellow flower, blue berries	ps – fs	m – w	evergreen, ornamental
PERENNIAL BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE  Wild columbine Aquilegia canadensis all 8" - 24" red & yellow flowers sun - fs d - m wildlife, ornamental wamp milkweed Asclepias incarnata all 1" - 3" yellow for red flowers sun - fs m - w wildlife, ornamental New England aster Aster novae-angliae all 1" - 3" yellow for red flowers sun d wildlife, ornamental New England aster Aster novae-angliae all 1" yellow flowers sun m wildlife, ornamental Tickseed Coreopsis verticillata all 1" yellow flowers fs d - m long flowering ornamental Wild bleeding heart Dicentra eximia mountains & piedmont 8" - 12" pink flowers ps - fs m ornamental Wildlife, ornamental Eupatorium colestinum all 2" - 3" pink flower/seed heads sun d wildlife, ornamental Mistflower Eupatorium fistulosum all 3" - 4" violet-blue flowers fs m - w wildlife, buffer, ornamental loe-pye-weed Eupatorium fistulosum all 5" - 10" pink-purple flowers sun m - w wildlife, buffer, ornamental Gayfeather Liatris spicata all 2" purple flower spikes sun d ornamental wildlife black-eyed susan Rudbeckia fulgida all 2" purple flowers sun m ornamental Slack-eyed susan Rudbeckia fulgida all 2" - 7" yellow flowers sun be wildlife, buffer, ornamental Wronwed Vernonia noveboracensis all Up to 7" deep purple flowers sun m - w wildlife, buffer, ornamental CROUNDCOVER BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE Creeping phlox Phlox stolonifera all 8" - 4" - 12" yellow-green flowers sun - ps m ornamental wildlife, buffer, ornamental dried brown spore-stalks ps - fs m - w wildlife, ornamental GRASS BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE Wildlife, ornamental dried brown spore-stalks ps - fs m - w wildlife, ornamental wildlife, ornamental dried brown spore-stalks ps - fs m - w wildlife, ornamental wildlife, ornamental dried brown spore-stalks ps - fs m - w wildlife, ornamental wildlife, ornamental dried brown spore-stalks ps - fs m - w wildlife, ornamental wildlife, ornamental wildlife, ornamental wildlife, orna	Pinxterbloom azalea	Rhododendron						
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Purple coneflower    Echinacea purpurea   all   2'-3'   pink flower/seed heads   sun   d   wildlife, ornamental	Tickseed	,		•	,		d – m	
Mistflower Eupatorium colestinum all 3'-4' violet-blue flowers fs m-w wildlife, buffer, ornamental Joe-pye-weed Eupatorium fistulosum all 5'-10' pink-purple flowers sun m-w wildlife, buffer, ornamental Wild geranium Geranium maculatum mountains & piedmont 1'-2' rose-purple flowers sun m ornamental Gayfeather Liatris spicata all 2' purple flower spikes sun d ornamental, wildlife Black-eyed susan Rudbeckia fulgida all 2'-3' yellow flowers sun d wildlife, buffer, ornamental Goldenrod Solidago rugosa all 2'-7' yellow flowers sun ps d-m wildlife, buffer wildlife, buffer or wildlife, buffer of the purple flowers sun m-w wildlife, buffer, ornamental GROUNDCOVER BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE Green and gold Chrysogonum virginianum all 4"-12" yellow-green flowers ps - fs m ornamental Woodland phlox Phlox divaricata mountains & piedmont 6"-18" blue flowers, semi-evergreen ps m wildlife, ornamental Creeping phlox Phlox stolonifera all 3"-4" semi-evergreen sun ps m ornamental Sensitive fern Onoclea sensibilis all 18"-24" dried brown spore-stalks ps - fs m - w ornamental Foamflower Tiarella cordifolia mountains & piedmont 6" white flower ps m w ornamental CRASS BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE Switchgrass Panicum virgatum all 3'-5' seeds sun d wildlife, ornamental Little bluestem Schizachyrium scoparium all up to 3' seeds sun d wildlife, ornamental	9		•		'	•		
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Wild geranium  Geranium maculatum  mountains & piedmont  1' - 2'  rose-purple flowers  sun  d  ornamental  d  ornamental  d  ornamental  d  ornamental  d  ornamental  d  ornamental, wildlife  black-eyed susan  Rudbeckia fulgida  all  2' - 3'  yellow flowers  sun  d  wildlife, buffer, ornamental  Solidago rugosa  all  2' - 7'  yellow flowers  sun - ps  d - m  wildlife, buffer  New York ironweed  Vernonia noveboracensis  all  Up to 7'  deep purple flowers  sun  m - w  wildlife, buffer  ornamental  DRY/WET  VALUE  Green and gold  Chrysogonum virginianum  all  4" - 12"  yellow-green flowers  ps - fs  m ornamental  Woodland phlox  Phlox divaricata  mountains & piedmont  6" - 18"  blue flowers, semi-evergreen  sun - ps  m wildlife, ornamental  Creeping phlox  Phlox stolonifera  all  3" - 4"  semi-evergreen  sun - ps  m ornamental  ornamental  Tiarella cordifolia  mountains & piedmont  6" - 18"  blue flowers, semi-evergreen  sun - ps  m ornamental  dried brown spore-stalks  ps - fs  m - w  ornamental  froamflower  Tiarella cordifolia  mountains & piedmont  6" white flower  ps  m - w  ornamental  CRASS  BOTANICAL NAME  REGION  HEIGHT  BLOOM/FRUIT  SUN/SHADE  DRY/WET  VALUE  Ornamental  dried brown spore-stalks  ps - fs  m - w  ornamental  BLOOM/FRUIT  SUN/SHADE  DRY/WET  VALUE  Switchgrass  Panicum virgatum  all  3' - 5'  seeds  sun  d  wildlife, ornamental  wildlife, ornamental  wildlife, ornamental		•				fs	m – w	
Gayfeather Liatris spicata all 2' purple flower spikes sun d ornamental, wildlife Black-eyed susan Rudbeckia fulgida all 2'-3' yellow flowers sun d wildlife, buffer, ornamental Solidago rugosa all 2'-7' yellow flowers sun ps d - m wildlife, buffer wildlife, buffer ornamental Vernonia noveboracensis all Up to 7' deep purple flowers sun m - w wildlife, buffer ornamental CROUNDCOVER BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE  Green and gold Chrysogonum virginianum all 4"-12" yellow-green flowers ps - fs m ornamental Woodland phlox Phlox divaricata mountains & piedmont 6"-18" blue flowers, semi-evergreen ps m wildlife, ornamental Creeping phlox Phlox stolonifera all 3"-4" semi-evergreen sun - ps m ornamental Sensitive fern Onoclea sensibilis all 18"-24" dried brown spore-stalks ps - fs m - w ornamental Foamflower Tiarella cordifolia mountains & piedmont 6" white flower ps m - w ornamental CRASS BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE  Switchgrass Panicum virgatum all 3'-5' seeds sun d wildlife, ornamental Little bluestem Schizachyrium scoparium all up to 3' seeds sun d wildlife, ornamental		'			1 1 1			, ,
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New York ironweed Vernonia noveboracensis all Up to 7' deep purple flowers sun m – w wildlife, buffer, ornamental  GROUNDCOVER BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE  Green and gold Chrysogonum virginianum all 4" – 12" yellow-green flowers ps – fs m ornamental  Woodland phlox Phlox divaricata mountains & piedmont 6" – 18" blue flowers, semi-evergreen ps m wildlife, ornamental  Creeping phlox Phlox stolonifera all 3" – 4" semi-evergreen sun – ps m ornamental  Sensitive fern Onoclea sensibilis all 18" – 24" dried brown spore-stalks ps – fs m – w ornamental  Foamflower Tiarella cordifolia mountains & piedmont 6" white flower ps m – w ornamental  GRASS BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE  Switchgrass Panicum virgatum all 3' – 5' seeds sun d wildlife, ornamental  Little bluestem Schizachyrium scoparium all up to 3' seeds sun d wildlife, ornamental	-	•			,			
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Green and gold  Chrysogonum virginianum  All  A" - 12"  yellow-green flowers  ps - fs  m  ornamental  Woodland phlox  Phlox divaricata  mountains & piedmont  6" - 18"  blue flowers, semi-evergreen  ps  m  wildlife, ornamental  3" - 4"  semi-evergreen  sun - ps  m  ornamental  Nonclea sensibilis  all  18" - 24"  dried brown spore-stalks  ps - fs  m - w  ornamental  ps - fs  m - w  ornamental  white flower  ps m - w  ornamental  HEIGHT  BLOOM/FRUIT  SUN/SHADE  BRY/WET  VALUE  Switchgrass  Panicum virgatum  all  3' - 5'  seeds  sun  d  wildlife, ornamental  up to 3'  seeds  sun  d  wildlife, ornamental				Up to /'		sun		wildlife, buffer, ornamental
Woodland phlox       Phlox divaricata       mountains & piedmont       6" – 18"       blue flowers, semi-evergreen       ps       m       wildlife, ornamental         Creeping phlox       Phlox stolonifera       all       3" – 4"       semi-evergreen       sun – ps       m       ornamental         Sensitive fern       Onoclea sensibilis       all       18" – 24"       dried brown spore-stalks       ps – fs       m – w       ornamental         Foamflower       Tiarella cordifolia       mountains & piedmont       6"       white flower       ps       m – w       ornamental         GRASS       BOTANICAL NAME       REGION       HEIGHT       BLOOM/FRUIT       SUN/SHADE       DRY/WET       VALUE         Switchgrass       Panicum virgatum       all       3' – 5'       seeds       sun       d       wildlife, ornamental         Little bluestem       Schizachyrium scoparium       all       up to 3'       seeds       sun       d       wildlife, ornamental					· · · · · · · · · · · · · · · · · · ·			
Creeping phlox  Phlox stolonifera  all  3" - 4" semi-evergreen sun - ps m ornamental  18" - 24" dried brown spore-stalks ps - fs m - w ornamental  Foamflower  Tiarella cordifolia  mountains & piedmont  6" white flower ps m - w ornamental  white flower  ps m - w ornamental  ps m - w ornamental  Proamflower  BOTANICAL NAME  REGION  HEIGHT  BLOOM/FRUIT  SUN/SHADE  DRY/WET  VALUE  Switchgrass  Panicum virgatum  all  3' - 5' seeds  sun d wildlife, ornamental  Little bluestem  Schizachyrium scoparium  all  up to 3' seeds  sun d wildlife, ornamental	•	, ,			, ,			
Sensitive fern  Onoclea sensibilis  All  18" – 24" dried brown spore-stalks ps – fs m – w ornamental Foamflower  Tiarella cordifolia mountains & piedmont 6" white flower ps m – w ornamental  GRASS  BOTANICAL NAME REGION  HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE  Switchgrass Panicum virgatum All  3' – 5' seeds sun d wildlife, ornamental  Little bluestem Schizachyrium scoparium All  up to 3' seeds sun d wildlife, ornamental	•		•		, ,	•		
Foamflower Tiarella cordifolia mountains & piedmont 6" white flower ps m – w ornamental  GRASS BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE  Switchgrass Panicum virgatum all 3' – 5' seeds sun d wildlife, ornamental  Little bluestem Schizachyrium scoparium all up to 3' seeds sun d wildlife, ornamental					9	•		
GRASS BOTANICAL NAME REGION HEIGHT BLOOM/FRUIT SUN/SHADE DRY/WET VALUE Switchgrass Panicum virgatum all 3'-5' seeds sun d wildlife, ornamental Little bluestem Schizachyrium scoparium all up to 3' seeds sun d wildlife, ornamental						•		
Switchgrass Panicum virgatum all 3' – 5' seeds sun d wildlife, ornamental Little bluestem Schizachyrium scoparium all up to 3' seeds sun d wildlife, ornamental	Foamflower	Tiarella corditolia	mountains & piedmont	6"	white flower	ps	m – w	ornamental
Little bluestem Schizachyrium scoparium all up to 3' seeds sun d wildlife, ornamental	GRASS					SUN/SHADE		
	Switchgrass	9				sun		•
Indian grass Sorghastrum nutans all 5′ – 6′ seeds sun d – m wildlife, ornamental	Little bluestem	· · · · · · · · · · · · · · · · · · ·		•		sun		
	Indian grass	Sorghastrum nutans	all	5' – 6'	seeds	sun	d – m	wildlife, ornamental

L	E	G	E	N	D

VALUE: Wildlife = provides food and/or shelter

Buffers = for streamside or riparian area

Buffers = for streamside or riparian areas Ornamental = attractive, decorative plant SUN/SHADE: sun = sun

ps = partial shade fs = full shade DRY/WET:

//WET: w = moisture
m = moderate
d = drought tolerant

### APPENDIX D - VEGETATIVE REPLACEMENT STANDARDS

The vegetation replacement standards are a complilation of information from many sources. The following list reflects the major sources of information used to develop the replacement and restoration standards:

### USDA:

Natural Resources Conservation Service Forest Service

Virginia Department of Conservation and Recreation

Virginia Department of Forestry

Chesapeake Bay Local Assistance Department

Conversations and emails with members of the Technical Committee.

Maryland Chesapeake Bay Critical Area Commission

Maryland Department of Natural Resources Forest Service

Pennsylvania Releaf

Local governments in Virginia and Maryland

VEGETATION REPLACEMENT RATES			
VEGETATION REMOVED	PREFERRED REPLACEMENT VEGETATION	ACCEPTABLE ALTERNATIVE VEGETATION	
1 tree or sapling <sup>1</sup> /2"-2 <sup>1</sup> /2" caliper	1 tree @ equal caliper or greater	Or 2 large shrubs @ 3'-4' Or 10 small shrubs or woody groundcover *@ 15"-18"	
1 tree $\geq 2^{-1/2}$ " caliper	1 tree @ 1 <sup>1</sup> /2" - 2" caliper,or 1evergreen tree @ 6' min. ht., per every 4" caliper of tree removed (ex: a 12" cal. tree would require 3 trees to replace it)	Or 75% trees @ 1½" - 2" and 25% large shrubs @ 3'-4' per every 4" caliper of tree removed. (ex: a 16" cal. tree removed would require 3 trees and 1 large shrub) Or 10 small shrubs or woody groundcover @ 15"-18" per 4"caliper of tree removed (ex: a 8" caliper tree removed requires 20 small shrubs .)	
1 large shrub	1 large shrub @ 3'-4'	Or 5 small shrubs or woody groundcover @ 15"-18"	

<sup>\*</sup> Woody groundcover is considered to be a woody, spreading shrub that remains close to the ground, to 18" high, such as a shore juniper, *juniperus conferta*. Vines may not be considered "woody groundcover" for the purpose of vegetation replacement.

### RESTORATION / ESTABLISHMENT TABLE A

### **Definitions:**

<u>Canopy tree:</u> a tree that reaches 35 feet in height or larger when mature <u>Understory tree:</u> a tree that matures to a height of 12 feet to 35' <u>Large shrub:</u> a shrub that reaches 10 feet of height or greater at maturity <u>Small shrub:</u> a woody plant that can reach up to 10 feet of height at maturity

### 1/4 acre or less of buffer

Up to 10,890 square feet or less

For every 400 square-foot unit (20'x20') or fraction thereof plant:

one (1) canopy tree @ 1½" - 2" caliper or large evergreen @ 6' two (2) understory trees @ ¾" - 1½" caliper or evergreen @ 4' or one (1) understory tree and two (2) large shrubs @ 3'-4' three (3) small shrubs or woody groundcover @ 15" - 18"

### **Example:**

A 100-foot wide lot x 100-foot wide buffer is 10,000 square feet. Divide by 400 square feet (20'x20' unit) to get: 25 units

<u>Units</u> x	plant/unit	Number of plants
25 units x	1 canopy tree 2 understory trees 3 small shrubs	25 canopy trees 50 understory trees 75 small shrubs 150 plants
		150 plants

### RESTORATION / ESTABLISHMENT TABLE B

### Greater than 1/4 acre of buffer

More than 10,890 square feet

- A. Plant at the same rate as for \( \frac{1}{4} \) acre or less.
- B. The waterside 50% of the buffer (from the waterline inland for the first 50 feet): For every 400 square-foot unit (20'x20') or fraction thereof plant:

```
one (1) canopy tree @ 1½" - 2" caliper or large evergreen @ 6'
two (2) understory trees @ ¾" - 1½" caliper or evergreen @ 4'
or one (1) understory tree and two (2) large shrubs @ 3'-4'
three (3) small shrubs or woody groundcover @ 15" - 18"

AND
```

# The landward 50% of buffer (from 50 feet inland to 100 feet inland): either plant

Bare root seedlings or whips at 1,210 stems per acre<sup>1</sup>, approximately 6'x6' on center (Minimum survival required after two growing seasons: 600 plants,)

or

Container grown seedling tubes at 700 per acre approximately 8'x 8' on center (Minimum survival required after two growing seasons: 490 plants)

C. If the applicant is willing to enter into a five year maintenance and performance guarantee: 100% of buffer planted with:

Bare root seedlings or whips at 1,210 per acre, approximately 6'x 6' on center (Minimum survival required after two growing seasons: 600 plants)

Or

Container grown seedling tubes at 700 per acre approximately 8'x 8' on center (Minimum survival required after two growing seasons: 490 plants).

### 1 acre or more of buffer

With an evaluation from an arborist or forester or other professional, natural regeneration may be an acceptable method of buffer establishment, however, a forestry management plan must be in place prior to any vegetation being removed. A minimum of 35 feet next to the water must be left in forest and protected prior to any vegetation being removed. If over 20 percent of the vegetation must be removed for the health of the woodlot, within the 35 feet closest to the shoreline, vegetation must be reestablished by seedling plantings at the rates above.

<sup>1</sup> Palone, Roxanne S., and Al Todd, *Chesapeake Bay riparian handbook: A guide for establishing and maintaining riparian forest buffers.* May 1977. p. 7-20.



# Sample Landscape / Mitigation Plan for Ches. Bay Waiver / Exception Process

Title (Name and No.), Legend (# plants, type, name), and typical survey features

