

TREES

	Ecological Benefits	Description/Habitat	Site Conditions	Characteristics
Black Willow <i>Salix nigra</i> 	Supports native pollinators, twigs eaten by larger mammals Fibrous root system and tolerance of wet conditions prevent stream banks from eroding	Deciduous lowland tree, grows in moist and saturated soils along streams, rivers and other floodplain or wetland areas. Easy to establish from cuttings.	Soil pH: 5.0-8.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: Male and Female greenish catkins, Apr-Jun Fruit: Seeds, after 10 yrs Fall Color: Insignificant Height: 10'-40'
Red Maple <i>Acer rubrum</i> 	Early flowering time supports native pollinators in the spring and the seeds and twigs are eaten by birds and mammals. It is often used in site rehabilitation	Maples are very adaptable, living in swamps and drier upland areas. The bright-red fall color is aesthetically pleasing.	Soil pH: 5.5-7.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: Red rarely yellow, Mar-May Fruit: Red, winged seeds, May-Jul Fall Color: True to its name, leaves turn bright red Height: 20'-40'
Silver Maple <i>Acer saccharinum</i> 	Provide seeds and nesting sites for birds, early pollen producer. Rapid growth makes it beneficial in reclamation areas, but may shade out other species.	Lowland riparian tree, lives in well-drained, moist soils in floodplains and along water sources. Feathery canopy appearance. Subject to breakage.	Soil pH: 5.5-7.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: Greenish/reddish, short clusters, Feb-May Fruit: Winged seeds Apr-Jun Fall Color: Pale yellow Height: 40'-60'
American Sycamore <i>Platanus occidentalis</i> 	Animals eat twigs, cavities provide shelter, shade Good for rehabilitating sites with saturated soils, may shade out smaller species	Large, fast growing trees, with an open, irregular crown and distinguishing bark. They tolerate a range of conditions, mainly growing around rivers and lakes	Soil pH: 5.0-6.5 Type: Loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: Small, brown globose heads Apr-Jun Fruit: Small, hairy, Oct-winter, available for animals Fall Color: Yellowish brown Height: 50'-130'
Tulip Poplar <i>Liriodendron tulipifera</i> 	Provides pollen for native insects and fruits and twigs for mammals Often planted in restoration but shouldn't be overused since rapid growth pushes out other plants	Known for its fast, straight growth and the attractive, tulip-like flowers. It grows best in lowland areas with well-drained, loose texture soils.	Soil pH: 4.5-7.5 Type: Loam, sand Moisture: Moist Light: ☀️☀️🌑	Flowers: Orange/green, tulip-like, very show and fragrant, May-Jun. Fruit: Slim, Sept-Oct Fall Color: Golden yellow Height: 70'-100'
Swamp White Oak <i>Quercus bicolor</i> 	Provides shelter and shade, as well as food (acorns) for animals, very valuable for wildlife	Swamp white oaks are large deciduous trees. Leaves feature two-toned color on the top and bottom*. They live in swamps and along stream edges.	Soil pH: 4.3-6.5 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: Catkins, male(red), female (green/yellow), Mar-May Fruit: Acorns, fall Fall Color: Gold brown/red Height: 60'-70'
Yellow Birch <i>Betula alleghaniensis</i> 	Provides food and shelter for songbirds Commonly used riparian tree enjoy wetter conditions and grow fairly rapidly	Displaying beautiful fall color, yellow birch is a tree with attractive, papery bark and open canopy. Lives along streams, ponds, rivers, and swamps	Soil pH: 4.0-8.0 Type: Clay, loam Moisture: Moist-Wet Light: ☀️🌑	Flowers: Yellow Green, Apr-May Fruit: Green to tan, cone-like, July-Oct Fall Color: Yellow Height: 60'-80'



SHRUBS

	Ecological Benefits	Description/Habitat	Site Conditions	Characteristics
Buttonbush <i>Cephalanthus occidentalis</i> 	Provides for native insects and pollinators. They are good for erosion control along stream banks.	Button bush is a small to medium-sized shrub, growing in marshes, forest wetlands, and along bodies of fresh water. Can grow in shade but needs sun to flower	Soil pH: 6.1-8.5 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: Distinctive dense, round clusters of white flowers, Jul-Aug Fruit: Green/brown, Sep-Jan Fall Color: Insignificant Height: 3'-10'
Northern Spicebush <i>Lindera benzoin</i> 	Food for birds and butterflies, all parts are edible and aromatic leaves and berries can be used to make tea	The spicebush grows in forested areas, along streams and in floodplains	Soil pH: 4.5-6.5 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️🌑	Flowers: Small and yellow, before leaves, Mar-May Fruit: Bright red berries, Sep-Oct Fall Color: Golden-yellow Height: 3'-15'
Red-Osier Dogwood <i>Cornus sericea</i> 	Wildlife eat twigs and the fruit are eaten by birds. The shrubby, multi-stemmed structure provides great nesting sites for birds and small mammals. (Can also be used in Zone 3)	Red Osier dogwoods are shrubby lowland plants know for their bright red stems	Soil pH: 4.5-6.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: White, flat-topped clusters May-Aug Fruit: White, Jul-Oct Fall Color: Reddish green with bright red stems that add color in winter Height: To 10'
Silky Dogwood <i>Cornus amomum</i> 	Provides for songbirds, waterfowl, and mammals. (Can also be used in Zone 3)	Shrubby dogwood that likes forested wetlands, stream and pond banks	Soil pH: 4.5-6.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: White, flat-topped clusters May-Aug Fruit: White, Jul-Oct Fall Color: Reddish green with bright red stems that add color in winter Height: To 10'
Swamp Rose <i>Rosa palustris</i> 	Edible fruit provides for song birds, small mammals and insects	This thorny plant tolerates flooding. Its showy flowers are aesthetically pleasing.	Soil pH: 4.0-7.0 Type: Clay, loam Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: Pink, Jun-Aug Fruit: Red berry, Jul-Mar Fall Color: Height: 8'
Southern Arrowwood <i>Viburnum dentatum</i> (V. <i>recognitum</i>) 	Dark berries attract birds and small mammals like chipmunks	Densely leaved and often used in landscaping, due to it's form. Straight stems, nice structure in winter. Likes wooded floodplains and stream banks with loamy soil.	Soil pH: 5.1-6.5 Type: Clay, loam, sand Moisture: Dry-Wet Light: ☀️☀️🌑	Flowers: White, May-Jun Fruit: Blue/black berry, Sep-Nov Fall Color: Reddish purple Height: 10'-15'
Winterberry Holly <i>Ilex verticillata</i> 	Although poisonous to humans, berries provide food for birds and mammals in winter	Thrive in fresh tidal and shrub swamps and forested wetlands	Soil pH: 4.3-6.5 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️☀️🌑	Flowers: Greenish white, Jun-Jul Fruit: Red berries, Aug-Feb, persist into winter Fall Color: Yellow, brown Height: 6'-12'



SOURCES

Information Sources:

<http://www.wildflower.org/plants>
<http://plants.usda.gov/>
Trees and shrubs George A. Petrides
DEP riparian buffer guide 2010
Native Plants for Wildlife Habitat and Conservation Landscaping:
Chesapeake Bay Watershed

These are also great places to find more information on the listed native species!

Photo Sources

(a is top or left picture, b is bottom or right picture)

Black Willow

a <http://www.erynpierce.com/black-willow/>
b https://www.extension.iastate.edu/forestry/iowa_trees/trees/black_willow.html

Red Maple

a <http://www.horsedvm.com/poisonous/red-maple/>
b <http://pencilandleaf.blogspot.com/2009/02/leaf-of-daysamara-of-southern-red-maple.html>

Silver Maple

a <http://dendro.cnre.vt.edu/dendrology/syllabus/factsheet.cfm?ID=5>
b https://www.extension.iastate.edu/forestry/iowa_trees/trees/silver_maple.html

American Sycamore

a <http://www.gardenvoice.com/trees/sycamore-tree--the-friendly-giant.aspx>
b <http://www.messiah.edu/sustainability/map/tree-info/american-sycamore.html>

Tulip Poplar

a http://www.ncwildflower.org/plant_galleries/details/liriodendron-tulipifera
b <http://www.landscapeofus.com/garden/tulip-poplar-liriodendron-tulipifera/>

Swamp White Oak

a <http://www.xavier.edu/green/Native-Plants.cfm>
b <http://americannativeliners.com/quercus-bicolor-swamp-white-oak/>

River Birch

a. <https://mycherokeegarden.com/2015/09/04/river-birch-betula-nigra/>
Buttonbush

a http://www.treetopics.com/cephalanthus_occidentalis/index.htm

b <http://amc-nh.org/resources/guides/wildflowers/species-gallery.php?Species=Cephalanthus%20occidentalis>

Northern Spicebush

a <http://www.motherearthliving.com/gardening/7-herbs-that-grow-in-shade-spicebush.aspx>
b <http://www.discoverlife.org/20/q?search=Lindera+benzoin>

Red Osier Dogwood

a <http://www.plantstoyou.ca/red-osier-dogwood.html>
b <http://www.johnshomeandyard.com/plant-of-the-day-red-osier-dogwood/>

Silky Dogwood

a <https://florapittsburghensis.wordpress.com/2012/06/01/silky-dogwood-cornus-amomum/>
Swamp Rose

a <http://www.landscapeofus.com/garden/rosa-palustris-swamp-rose/>
Southern Arrowwood

a <http://www.extension.umn.edu/garden/yard-garden/trees-shrubs/viburnum-dentatum/index.html>
b <http://viburnum.com/viburnum-dentatum-arrowwood-viburnum/>

Winterberry Holly

a http://statebystategardening.com/state.php/pa/hotplants/winterberry_holly/
b <http://www.crosscreeknursery.com/winterberry-holly.html>

A SHORT LIST OF SUGGESTED BUFFER PLANTS

ZONE 1

A native riparian forested area planted with trees and shrubs offers long-term stream and watershed health



Of course, some maintenance is involved (like removing invasives). However, **there's no harvesting of products in this zone since it's crucial in providing for your growing ecosystem!** Functions of this zone include bank stabilization, slowing down runoff, encouraging more infiltration, and providing food, shelter, and shade for the local wildlife, fish, and beneficial insects. This zone is also a future source of large woody material for stream habitat.

If you need to use chemicals such as herbicide or pesticides, be purposeful in selection and application. Use **"aquatic rated"** kinds to prevent damaging aquatic life.



ZONE 1

From water's edge to about 15 feet in
Keep it native!

ZONE 2

Native fruit and nut trees for you and wildlife

ZONE 3

Herbaceous perennials that can be mechanically harvested. "Well-behaved" non-natives allowed here

TREES

	Ecological/ Human Benefits	Potential Products/Income	Habitat/ Site Conditions	Description/ Characteristics
Black Walnut <i>Juglans nigra</i> 	The black walnut provides edible nuts for human and animals as well as lumber as a long-term product.	Nutmeats, shells, oils, syrup In shell-\$9.25/lb, Shelled-\$12/lb, Mature trees produce 6,000 lb nuts/acre/year x 10\$/lb=\$60,000/acre/year)	Soil pH: 5.5-8.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️ Wet, riparian soils and should be planted near species that are juglone tolerant*	Coarse, sharp-looking branches, spreading head Flowers: Catkins, Apr-Jun Fruit: Nut, large spherical husk, Oct-Nov Fall Color: First to drop leaves and last to leaf out Height: 70'-100'
Sweet Crab Apple <i>Malus coronaria</i> 	Fleshy fruits are too sour for people to eat raw but provide food for wildlife and attracts pollinators. The tangling branches provide nesting sites for birds.	Varied production, 6bushels of apples/tree and 100 trees/acre, \$30/bushel, \$18,000 per acre	Soil pH: 6.0-7.5 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️ Forest edges, rock streams and fields	Broad, irregular crown, occasionally multi-trunked Flowers: Pink, highly fragrant April to May Fruit: Yellow/green Sep-Nov Fall Color: Yellow/red Height: 15'-30'
Pawpaw <i>Asimina triloba</i> 	Fruit eaten by mammals. Although native, it tastes "tropical" with a custard-y texture, and is eaten fresh or used in desserts.	Fresh fruit: \$2/lb wholesale, \$3+/lb retail Frozen Pulp: \$6/lb retail Jam: \$6/6oz jar retail	Soil pH: 5.0-7.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☀️-● Grows in depressional areas with rich, moist soil	Tree with large leaves and a full, egg-shaped head Flowers: Purplish, Apr-May Fruit: Yellow/green stubby bananas, Aug-Oct Fall Color: Yellow-red Height: to 10'
Persimmon <i>Diospyros virginiana</i> 	Fruit eaten by almost all birds and mammals, as well as humans	Fresh-\$2.75/lb retail, frozen-\$8+/lb retail, dried-\$11+/lb retail, \$4,125/acre estimate using \$2.75/lb	Soil pH: 5.0-7.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☀️-● Grows in dry to moist soils and prefers drier, open areas	Small tree Flowers: Yellowish, May-Jun Fruit: Orange, size of a large cherry, Aug-Oct Fall Color: Orange/yellow Height: 30'-50'
Downy Service Berry <i>Amelanchier arborea</i> 	Food for birds and mammals, fruits are eaten by over 50 species of wildlife. Berries can also be used for making jam if the birds haven't eaten them all.	Est. \$15,000/acre for berries	Soil pH: 4.5-7.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☀️-● Wooded areas with moist, well-drained soils, tolerates drier conditions	Medium-sized tree or multi-trunked shrub, open canopy Flowers: White clusters, Mar-June Fruit: Red berries, June Fall Color: orange/gold and red/green Height: 15'-25'



SHRUBS

	Ecological/ Human Benefits	Potential Products/Income	Habitat/ Site Conditions	Description/ Characteristics
Black Raspberry <i>Rubus occidentalis</i> 	A brambly, native shrub that produces black raspberry fruits for people to eat, as well as the wildlife. The brambles also provides nesting sites for small mammals and birds.	Harvested: \$1.50-3.50/pint; Pick-your-own-\$3-\$5/lb; Net return varies widely, up to \$27,000/acre depending on yield and price/acre	Soil pH: 6.8 or less Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☀️-● Likes sandy, moist or dry soils that are slightly acidic, along stream banks	Brambly, stemming shrub with purplish stems and thorns Flowers: , March to June Fruit: Black berries, June to August Fall Color: Insignificant Height: To 6'
Common Elderberry <i>Sambucus canadensis</i> 	A native shrub provides fruit for wildlife and helps with erosion control along stream banks. Considered "Nature's Medicine Chest"	Juice: \$15-\$17/11oz jar Syrup: \$18/4oz jar retail Wine \$10-\$13/bottle Cough Drops: \$2.50/15 retail	Soil pH: 5.0-7.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☀️-● Tolerant of a range of conditions, prune heavily in winter to maintain thick form	Large, dense, and fast-growing, attractive flowers Flowers: White, flat-topped, June-July Fruit: Purple/black, Aug-Oct Fall Color: Insignificant Height: 3'-13'
Black Chokeberry <i>Aronia melanocarpa</i> 	Small tree or shrub that provides food for birds and mammals	Possible \$10-\$12/lb (mid-west Iowa markets) \$0.50-\$1.25/lb shipping to value-added producers	Soil pH: 6.5-8.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☀️-● Lowland woods, swamps, bogs, moist thickets	Upright, spreading deciduous shrub, attractive flowers Flowers: White, flat-topped, May Fruit: Berries, black, summer/fall Fall Color: Crimson Height: 3'-6'
Highbush Blueberry <i>Vaccinium corymbosum</i> 	A native shrub that provides fruit for birds and mammals. Potential products are raw fruit and jams.	\$2-\$5/pint (\$3,000-\$18,000/acre, depending on pints/acre) \$.65-\$1.50/lb to processor	Soil pH: 4.5-7.5 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️ Forested wetlands, swamps, bogs, rock outcroppings	Twiggy, thicket-forming shrub with nice fall color Flowers: May-June Fruit: Blue/black berries Jun-Sept Fall Color: Bright red Height: To 12'
American Hazelnut <i>Corylus americana</i> 	Nuts are great source of income. Provide a great source of fiber, sold in the shell or shelled, or made into flours, candies, butters, and oils	In-shell: \$3/lb wholesale Shelled: \$6/8oz retail Oils \$8/8oz jar retail	Soil pH: 5.5-7.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☀️-● Rich, well-drained soils, forests, disturbed areas	Dense, deciduous shrub with one main stem, thicket-forming Flowers: May-June Fruit: Nuts, ragged husk, Jul-Sept Fall Color: Bright yellow to deep red Height: To 10'
Beach Plum <i>Prunus maritima</i> Marsh 	Require cross-pollination, used in jams and sold at farmers markets	Frozen or whole: \$6/lb Fruit must be cleaned	Soil pH: 6.0-6.5 Type: Loam, sand Moisture: Dry-Moist Light: ☀️ Sandy, well-drained, nutrient-poor soils	Low, spreading, and scraggly shrub or tree Flowers: White, May Fruit: Purple, Aug-Sep Fall Color: Red/orange Height: To 5'

SOURCES

Information Sources:

<http://www.wildflower.org/plants>
<http://plants.usda.gov/>
Trees and shrubs George A. Petrides
DEP riparian buffer guide 2010
Native Plans for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed. US Fish and Wildlife Service & Chesapeake Bay Foundation office
<http://www.missouribotanicalgarden.org/PlantFinder>
<https://www.arborday.org/TREES/treeguide>

These are also great places to find more information on the listed native species!

Picture Sources:

(a is top picture, b us bottom picture)

Black Walnut

a http://herbarium.desu.edu/arboretum/scientific_names/Juglans_nigra/index.html

b http://www.florafinder.com/Species/Juglans_nigra.php

Sweet Crab Apple

a <https://redslipperdiary.wordpress.com/2010/03/19/lovely-spring/>

b <http://www.inaturalist.org/taxa/54831-Malus-coronaria>

Pawpaw

a <https://www.ppd.purdue.edu/PPDL/weeklypics/9-23-13.html>

b http://www.blossomnursery.com/pawpaw_products.html

Persimmon

a <http://www.sfgate.com/homeandgarden/goldengategardener/article/Persimmon-tree-may-be-in-alternate-bearing-cycle-2452881.php>

b <https://foxywiththetruth.wordpress.com/2011/12/11/persimmons-etc/>

Downy Service Berry

a <http://www.naturallandscapesnursery.com/amelanchier.html>

Black Raspberry

a https://en.wikipedia.org/wiki/Rubus_occidentalis

Common Elderberry

a <http://www.carolinanature.com/trees/saca.html>

b <http://www.photorobg.com/photos/plants/wildedible/photo154elderberry.html>

Black Chokerberry

a <http://www.henriettes-herb.com/galleries/photos/a/ar/aronia-melanocarpa-7.html>

Highbush Blueberry

a https://en.wikipedia.org/wiki/Vaccinium_corymbosum

American Hazelnut

a http://www.treetopics.com/corylus_americanana/compframe.htm

b http://www.florafinder.com/Species/Corylus_americanana.php

Beach Plum

a <https://www.flickr.com/photos/corvid01/2791082519>

A SHORT LIST OF SUGGESTED BUFFER PLANTS

ZONE 2

An area planted with native fruit and nut trees for harvesting, selling, and personal consumption



Incorporating edibles into your buffer really increases the benefits of planting one. Not only do fruit and nut trees provide people with home-grown food, but these lovely natives will attract plenty of wildlife. Using these suggested plant species and others, you can **customize your buffer to fit your needs AND improve water quality and wildlife habitat!**

Of course, maintenance is essential to ensuring your trees are yielding maximumly so the use of aquatic and environmentally safe pesticides, herbicides, and fertilizers may be used. Using chemicals that pollute the waterways counteracts the purpose of the buffer, so **think before you apply.**



ZONE 1

From water's edge to about 15 feet in
Keep it native!

ZONE 2

Native fruit and nut trees for you and wildlife

ZONE 3

Herbaceous perennials that can be mechanically harvested. "Well-behaved" non-natives allowed here

TREES & SHRUBS

Ecological Benefits/ Potential products	Description/Habitat	Site Conditions	Characteristics
Witch Hazel <i>Hamamelis virginiana</i>  <p>A small tree or shrub. Game birds and mammals eat the twigs, buds and leaves. Has medicinal purposes. Woody floral*</p>	Noted for fall/winter bloom. Witch hazel is shade tolerant, growing in rich, well-drained acidic soils. It is often multi-trunked with an open crown.	Soil pH: 5.5-6.5 Type: Clay, loam, sand Moisture: Dry-Moist Light: ☀️-☾️●	Flowers: Yellow, Sept-Dec Fruit: Tan capsule, Oct-Nov Fall Color: Golden Height: 15'-30'
Pussy Willow <i>Salix discolor</i>  <p>Eaten by wildlife, but is well-known for its fuzzy catkins which are often cut and sold on the floral market. Woody floral*</p>	Small ornamental tree or shrub with upright, spreading stems. Grows in full sun in damp lowlands, short-lived but fast growing.	Soil pH: Acidic Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☾️●	Flowers: Fuzzy catkins, aesthetically pleasing, Feb-May Fruit: Brown Fall Color: Not notable Height: 15'-25'
Curly Willow <i>Salix mastudana</i>  <p>The curly willow provides twigs for animals to eat, "curled" branches are aesthetically pleasing and can cut and sold. Woody floral*</p>	Small ornamental with interesting branching tree grows in wetter conditions	Soil pH: Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☾️●	Flowers: Yellow Fruit: Fall Color: Golden Height: To 30'
Hops (Hoptree) <i>Ptelea trifoliata</i>  <p>The Hoptree provides sweet nectar for native bees and butterflies and seeds for birds and mammals. It's fruit is available through the winter. The Seed can be used to replace hops in beer.</p>	The tree tolerate a range of soil conditions, often growing in gravelly or sandy soils with a near neutral pH in full sun to full shade.	Soil pH: Type: Clay, loam, sand Moisture: Dry-Moist Light: ☀️-☾️●	Flowers: Small, green clusters, may-Jun Fruit: Flat, circular, papery, Sept-spring Fall Color: Yellow Height: 10'-20'
Flowering Quince <i>Chaenomeles speciosa</i>  <p>A non-native flowering shrub that attracts wildlife like rabbits and humming birds. Woody floral.</p>	Small, multi-stemmed shrub with showy flowers, very aesthetically pleasing in a hedge row. Is not picky about soil but requires full sun	Soil pH: Wide range Type: Wide range Moisture: Wide range Light: ☀️	Flowers: Showy, red, March (before leaves) Fruit: Yellow/green, fall Fall Color: Height: 6'-10'
Chinese Chestnut <i>Castanea mollissima</i>  <p>Provides nuts and shelter for wildlife, as well as shade Potential, unidentified market for nuts which can also be eaten by humans</p>	A medium-sized, wide spreading tree with dense shade. Grows in moist, well-drained soils. Resistant to the Chestnut blight	Soil pH: Slightly acidic Type: Clay, loam, sand Moisture: Dry-Moist Light: ☀️	Flowers: yellow/white catkins Fruit: Nut in husk, Sep-Oct Fall Color: Height: 40'-60'
American Holly <i>Ilex opaca</i>  <p>This iconic evergreen tree provides winter berries that are mostly eaten by song birds. Woody floral*</p>	The aesthetically pleasing tree has notable, prickly leaves. It enjoys growing in sandy wooded areas.	Soil pH: 4.0-7.5 Type: Clay, loam Moisture: Moist Light: ☀️-☾️●	Flowers: White, May-Jun Fruit: Red berries Fall Color: Evergreen Height: 15'-50'

☀️ Partial sun ☾️ Full shade ●

TREES & SHRUBS

Ecological Benefits/ Potential products	Description/Habitat	Site Conditions	Characteristics
Wild Hydrangea <i>Hydrangea arborescens</i>  <p>A plant grown for aroma and aesthetics, but is also beneficial for pollinators and insects. Woody floral*</p>	Wild hydrangeas are a fast-growing, short-lived understory shrub with showy flowers. Its natural habitat is on rocky banks and ravines	Soil pH: 6.1-8.5 Type: Loam, sand Moisture: Moist Light: ☀️-☾️●	Flowers: Green/white, Jun-Aug Fruit: Brown, late summer Fall Color: insignificant Height: 3'-6'
Red-Osier Dogwood <i>Cornus sericea</i>  <p>Wildlife eat twigs and the fruit are eaten by birds. Attracts pollinators. The shrubby, nesting. Woody floral*</p>	Shrubby, multi-stemmed lowland plants with showy flowers and fruit	Soil pH: 4.5-6.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☾️	Flowers: White, flat-topped clusters May-Aug Fruit: White, Jul-Oct Fall Color: Reddish green, bright red stems add color in winter Height: To 10'
Silky Dogwood <i>Cornus amomum</i>  <p>Provides for songbirds, waterfowl, and mammals. (Can also be used in Zone 1)</p>	Shrubby dogwood that likes forested wetlands, stream and pond banks	Soil pH: 4.5-6.0 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️-☾️	Flowers: White, flat-topped clusters May-Aug Fruit: White, Jul-Oct Fall Color: Reddish green with bright red stems that add color in winter Height: To 10'
Highbush Blueberry <i>Vaccinium corymbosum</i>  <p>A native shrub that provides fruit for birds and mammals. Potential products are raw fruit and jams.</p>	\$2-\$5/pint (\$3,000-\$18,000/acre, depending on pints/acre) \$.65-\$1.50/lb to processor	Soil pH: 4.5-7.5 Type: Clay, loam, sand Moisture: Moist-Wet Light: ☀️	Flowers: May-June Fruit: Blue/black berries Jun-Sept Fall Color: Bright red Height: To 12'
<p>*Woody florals Cuttings can be taken every 2-3 years and sold to the floral/crafts industry</p> <p>Cuttings: \$0.37-\$0.45/stem retail Wreaths: \$45+ each retail</p>			

HERBACEOUS PLANTS

Canada Mayflower <i>Maianthemum canadense</i>  <p>A small, perennial understory plant that grows in northern forests</p>	Flowers: White clusters, Spring-Summer Fruit: Red berries Height: 2-6"
Bee Balm <i>Monarda didyma</i>  <p>A garden plant, escaped cultivation, favorite of hummingbirds. Likes rich soil</p>	Flowers: Dense head with red bracts, Jul-Sept Fruit: nut-like Height: 1-5'
Cardinal Flower <i>Lobelia cardinalis</i>  <p>Aesthetic plant that grown on stream banks and damp meadows, attracts pollinators and hummingbirds, biennial must be reseeded</p>	Flowers: Scarlet, Jul-Oct Fruit: Height: 2-5'
Native Wildflowers and Grasses  <p>Common Milkweed <i>Asclepias syriaca</i></p>	<p>A band of native flowers and grasses can be a first line of defense in "buffering" the effects of runoff. They can be planted for aesthetics and to attract wildlife and pollinators. Native Milkweed varieties (pictured), in particular, provide food and shelter for Monarch butterflies.</p>

SOURCES

Information Sources:

<http://www.wildflower.org/plants>
<http://plants.usda.gov/>
Trees and shrubs George A. Petrides
DEP riparian buffer guide 2010
Native Plans for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed. US Fish and Wildlife Service & Chesapeake Bay Foundation office
Working Trees factsheet
<http://www.pnwplants.wsu.edu/PlantDisplay.aspx?PlantID=109>
<https://www.arborday.org/TREES/treeguide>

These are also great places to find more information on the listed native species!

Picture Sources:

(a is top or left picture, bi is bottom or right)

Witch Hazel
a. <http://wildseedproject.net/2015/10/hamamelis-virginiana-witch-hazel-hamamelidae/>
Pussy Willow
a. <http://dendro.cnre.vt.edu/dendrology/syllabus/factsheet.cfm?ID=366>
b. <http://www.keyword-suggestions.com/c2FsaXggZGlzY295b3l/>
Curly willow
a. <https://www.etsy.com/listing/236874701/curly-willow-corkscrew-willow-tree-salix>
Hops Tree
a. <http://rslandscapeblog.blogspot.com/2010/08/ptelea.html>
b. <https://www.uwgb.edu/biodiversity/herbarium/trees/ptetri01.htm>
Flowering Quince
a. http://plants.oaklandnursery.com/12130001/Plant/669/Texas_Scarlet_Flowering_Quince
Chinese Chestnut
a. http://gardeningolutions.ifas.ufl.edu/mastergardener/outreach/plant_id/fruits_nuts/chestnut.shtml
American Holly
a. <http://pgtnaturegarden.org/2011/11/american-holly/>
Wild Hydrangea
a. <https://jrcraulstonarboretum.wordpress.com/2013/06/09/pic-of-the-day-hydrangea-arborescens-abetwo/>
Red-Osier Dogwood a. <http://www.plantstoyou.ca/red-osier-dogwood.html>
Silky Dogwood
a. <https://florapittsburghensis.wordpress.com/2012/06/01/silky-dogwood-cornus-amomum/>
Industrial Hemp
a. <http://www.pihg.net/what-is-industrial-hemp/>
Canada Mayflower
a. <http://sagebud.com/canada-mayflower-maianthemum-canadense/>
Bee Balm
a. <http://www.grimenurseryvt.com/bee-balm-care>
Cardinal Flower
a. <https://hummingbirdgardener.com/2012/08/30/cardinal-flower-a-favorite-native/>
Common Milkweed
a. <http://columbus.wildones.org/2015/04/20/common-milkweed-essential-for-monarchs/>

A SHORT LIST OF SUGGESTED BUFFER PLANTS

ZONE 3

The “working” part of your buffer, allowing mechanical harvesting and planting of your crops



This zone offers the most flexibility in what you want to plant and how you want to maintain and harvest your crops. **Species planted here can be edibles, biomass crops, plants providing wildlife benefits, industrial uses, or just for aesthetic beauty.** Lower-growing grasses and wildflowers can attract a variety of native pollinators.

As always, **use chemicals carefully and don't use anything that will pollute the water.** Planting non-native species may be considered but have a plan to control its spread and prevent it from becoming invasive.



ZONE 1

From water's edge to about 15 feet in
Keep it native!

ZONE 2

Native fruit and nut trees for you and wildlife

ZONE 3

Herbaceous perennials that can be mechanically harvested. “Well-behaved” non-natives allowed here