



Woody Rain Gardens

What do rain gardens do?

They capture, filter and clean stormwater runoff using plants and trees.

Why do we need rain gardens?

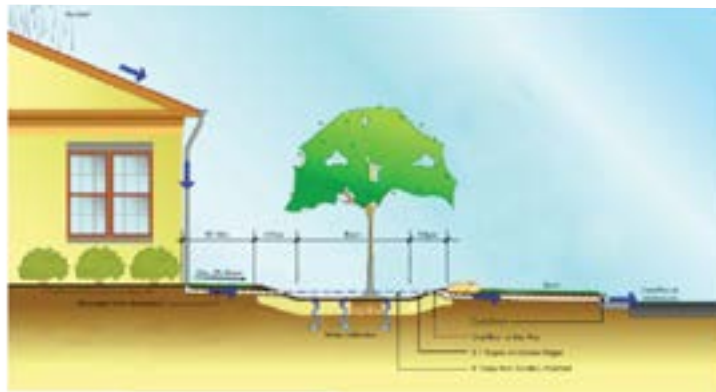
Most water pollution comes from runoff. When woods and meadows are developed into housing, parking lots and roads, rain runoff is not slowed or filtered as it once was. It easily picks up dirt, oil, trash, lawn debris and other pollutants, flowing very quickly into nearby streams.

What are some of the benefits rain gardens provide?

They reduce high flows in our streams, cut down on pollution entering our streams, add beauty and provide habitat and food for wildlife.

How much of a difference could a rain garden make on my property?

A rain garden receiving the runoff from the roof of an average-sized house could reduce the runoff to our waterways by hundreds of thousands of gallons in a typical year.



What are woody rain gardens?

They are landscape features planted with trees and/or shrubs that are designed and located to capture runoff from roofs and other hard surfaces.

Why woody rain gardens?

For some people woody rain gardens can be an appealing alternative to traditional rain gardens planted with flowering perennials and native grasses. While woody plant material may not be suitable in all rain gardens, it can be easier to keep an area with a tree and/or shrubs free from weeds than to weed a garden with perennials and native grasses. Trees and shrubs are also familiar landscape plants and have the potential to capture even more water than flowering perennials and native grasses during certain times of the year.

Do trees in rain gardens have particular benefits?

Trees intercept the rain as it falls, reducing runoff from the area under the tree. They can be particularly good at removing some pollutants. Their leaves can be used to improve the soil in lawns and gardens. Trees help clean the air, cool the environment, have been shown to reduce violence in neighborhoods and can increase property values.

Designing, Constructing and Planting a Woody Rain Garden

The basics of design and construction are the same as those used for regular rain gardens (see: www.centralohioraingardens.org/). However, there are some differences:

- When locating the garden, it is important to plant trees away from utility lines and underground pipes. **Make sure to get utilities marked before you dig!** Also, keep in mind available space around the garden. How much room would there be for a tree?
- There will be fewer plants in a woody rain garden. A single medium or large tree should be adequate vegetation for a residential rain garden. You may be able to plant multiple small trees and/or shrubs. The size of the spread of the tree/shrub and/or the distance they ought to be planted apart should give you a sense of how many would be needed to fill your garden.
- See resources below for guidance on planting and tree selection. A soil test could be helpful as well.
- If you are planting a large tree, add approximately 12 ft² to the garden's area to allow for the space that will be taken up by the mature tree's trunk.
- Leave at least 5' of space on all sides of a medium or large tree and 3' in all directions for a small tree. As a general rule, leaving more than enough space is better than leaving too little space, especially with large trees.
- If there is room and it would look better to you, add some flowering perennials, native grasses or small shrubs at the border, keeping sufficient room for the tree.
- In cases where there will be a lot of exposed mulch, using a good, permeable weed barrier under the mulch would be helpful to reduce weed growth in the garden. **Do not use weed killer in a rain garden.**

Trees and Shrubs for Rain Gardens

Large Trees	Ht.	Medium and Small Trees (Cont.)	Ht.
River birch (<i>Betula nigra</i>) ^{FS-PS}	40'-60'	Sweetbay magnolia (<i>Magnolia virginica</i>) ^{FS-PS}	15'-25'
Black gum (<i>Nyssa sylvatica</i>) ^{FS-PS}	40'-60'	American hornbeam (<i>Carpinus caroliniana</i>) ^{FS-FSh}	20'-30'
Red Maple (<i>Acer rubrum</i>) ^{FS-PS}	40'-50'	White Cedar (<i>Thuja occidentalis</i>) ^{FS-PS**}	3'-60'
Swamp white oak (<i>Quercus bicolor</i>) ^{FS}	50'-70'	Dwarf river birch (<i>Betula nigra</i> 'Little King') ^{FS-PS}	8'-10'
Bald cypress (<i>Taxodium distichum</i>) ^{FS-PS}	40'-70'	Shrubs	Ht.
Hackberry (<i>Celtis occidentalis</i>) ^{FS-PS}	40'-60'	Buttonbush (<i>Cephalanthus occidentalis</i>) ^{FS-PS}	5'-12'
American sycamore (<i>Platanus occidentalis</i>) ^{FS-PS}	75'-100'	Chokeberry (<i>Aronia arbutifolia/melanocarpa</i>) ^{FS-PS**}	3'-10'
Pin Oak (<i>Quercus palustris</i>) ^{FS}	50'-80'	Common Elderberry (<i>Sambucus canadensis</i>) ^{FS-PS}	5'-12'
Black willow (<i>Salix nigra</i>) ^{FS-PS}	30'-60'	Common winterberry holly (<i>Ilex verticillata</i>) ^{FS-PS}	6'-10'
Sweetgum (<i>Liquidambar styraciflua</i>) ^{FS}	60'-75'	Dogwoods (<i>Cornus amomum/racemosa/sericea</i>) ^{FS-PS**}	7'-15'
Common honeylocust (<i>Gleditsia triacanthos</i>) ^{FS}	40'-50'	Inkberry (<i>Ilex glabra</i>) ^{FS-FSh}	6'-8'
Willow Oak (<i>Quercus phellos</i>) ^{FS}	40'-70'	Spicebush (<i>Lindera benzoin</i>) ^{FS-PS}	6'-10'
Medium and Small Trees	Ht.	Virginia sweetspire (<i>Itea virginica</i>) ^{FS-FSh}	2'-12'
American Holly (<i>Ilex opaca</i>) ^{FS-PS}	15'-40'	Viburnum (<i>Viburnum dentatum/nudum</i>) ^{FS-PS**}	6'-12'

FS=full sun, PS=part shade, FSh=full shade

** - Characteristics vary by species and/or cultivar

Resources:

- www.arborday.org/trees/planting/
- <http://forestry.ohiodnr.gov/urbanforestrytoolbox>
- www.na.fs.fed.us/spfo/pubs/uf/plant_trees/planting_trees.htm
- www.na.fs.fed.us/pubs/uf/tom/090202_tom_lr.pdf
- www.treesaregood.org/treeowner
- www.epa.gov/sites/production/files/2016-11/documents/final_stormwater_trees_technical_memo_508.pdf
- www.midohioenergy.com/sites/midohioenergymidohioenergy/files/images/tree_planting_guide_tree_planting_guide.pdf



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