



What Is a Rain Garden?

Rain gardens are beautiful natural landscape features that require less maintenance and fewer chemicals than lawns. Rain gardens capture runoff from impervious areas such as roofs and driveways and allow it to seep slowly into the ground. Most importantly, rain gardens help preserve nearby streams and lakes by reducing the amount of runoff and filtering pollutants.



Why Plant a Rain Garden?

Rain gardens provide for the natural infiltration of rainwater into the soil. This helps to filter out pollutants including fertilizer, pesticides, oil, heavy metals and other chemicals that are carried with the rainwater that washes off your lawn, rooftop and driveway. Rain gardens also reduce peak storm flows, helping to prevent stream bank erosion and lowering the risk for local flooding. By collecting and using rainwater that would otherwise run off your yard, rain gardens allow you to have an attractive landscape with less watering.



How Do Rain Gardens Work?

A rain garden receives runoff water from roofs or other impervious (hard) surfaces such as driveways. The rain garden holds the water on the landscape so that it can be taken in by plants and soak into the ground instead of flowing into a street and down a storm drain or drainage ditch. The plants, mulch and soil in a rain garden combine natural physical, biological and chemical processes to remove pollutants from runoff. Many pollutants will be filtered out and break down in the soil over time.

Water should stand in a rain garden no longer than 24 hours after the rain stops. Mosquitoes cannot complete their breeding cycle in this length of time, so a rain garden should not increase mosquito populations.

Special thanks to Rose Mary Seymour, Ph. D., P.E. of the University of Georgia, College of Agricultural and Environmental Science, Biological and Agricultural Engineering, Griffin Campus, UW-Extension Office, the Pollution Prevention Assistance Division (P2AD), Alfred Vick, ECOs Environmental Designs and Maplewood, Minnesota (for photos).



RAIN GARDENS FOR HOME LANDSCAPES



40 Courtland Street, NE
Atlanta, Georgia 30303

WWW.CLEANWATERCAMPAIGN.COM



Where Are The Best Places to Locate Rain Gardens?



Rain gardens are best located in natural depressions (low lying areas where water flows naturally). They should be sited at least 10 feet from a house or building. While they should not be next to building foundations, rain gardens near impervious surfaces such as driveways, patios and sidewalks help capture the runoff from these areas.

Sites with steep slopes (an elevation change of more than 12 feet down per 100 feet in length) may not be

suitable for rain gardens. Further, if you have a septic system, avoid planting a rain garden over the top of the drainfield. It is recommended that a landscape professional be consulted if you plan to build a rain garden larger than 300 square feet.



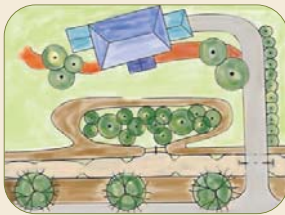
Where Are Rain Gardens Not Beneficial?

- Rain gardens are not appropriate where the seasonal high water table is within 24 inches of the soil surface because the water table will prevent infiltration.
- Rain gardens should not be placed over a septic system.
- Rain gardens should not be located next to building foundations.



How To Create a Rain Garden

1. Locate a site for a rain garden in a natural depression in the landscape.
2. Determine the size and shape of the rain garden.



- To calculate the size, consider the area draining to a rain garden, including the roof area or impervious area that drains to the downspout and the area of land between the downspout and the rain garden. The larger the roof or impervious (hard) area and the slower that water infiltrates into the soil, the more area of rain garden needed.
- An effective rain garden depends on water infiltrating into the soil of the garden. Soils with a lot of clay will infiltrate water very slowly, so the size of a rain garden in clay soils should be 60 percent of the total drainage area. Sandy soils infiltrate water more quickly, so a rain garden in a sandy location does not need to be as large. For sandy soils, the rain garden size should be about 20 percent of the area draining to it. Loamy soils can be sized somewhere between 20 and 60 percent, keeping in mind that the slower the infiltration, the larger the area should be. It is important to know your soil before you start a rain garden project. To test the infiltration of your soil, dig a hole 6-8 in deep in the area that the rain garden will be located. Fill the hole with water. Observe how long it takes for the water to move (infiltrate) into the soil. If any water stays in the hole for 12 hours or longer, then the soil is not suitable for a rain garden.
- If you determine that your rain garden area needs to be greater than 300 square feet and you wish to plan the site without outside assistance, divide the drainage area between two or more rain gardens, and build each so you can easily manage them both.

- A rain garden should be curvy in shape and is best situated with the longest length perpendicular to the slope of the land.
- Use rope to lay out the boundary of the rain garden.

3. Once the rain garden is laid out, you can start digging.

- Begin by removing soil in the rain garden so that the deepest part is about 8-10 inches deep.
- The bottom of the rain garden should be as level as possible so some minor grading may be necessary.
- The extra soil removed from the rain garden should be used on the downhill side of the garden to create a berm, an earthen dam or barrier that will keep the water in the rain garden. The top of the berm should not be higher than the uphill edge of the rain garden (no more than 12 inches high). The rain garden should be designed to hold no more than 6 inches of water above the ground surface.



4. Mix organic matter into the soil within the rain garden by spreading 2 to 4 inches of compost over the area and mixing the organic matter in with the existing soil.

- If the soil is acidic (has a low pH), add lime to neutralize the pH of the soil. Contact a local University of Georgia Cooperative Extension Service office for a soil sampling test by calling 770-228-7274 or go online to www.ces.uga.edu.
- For soils with high clay content, it may be beneficial to remove about 1-2 feet of the soil and replace it with a more porous "rain garden soil." A soil mix suitable for rain gardens is 50-60 percent sand, 20-30 percent topsoil, and 20-30 percent compost. The clay content in the rain garden soil replacement mix should be no more than 10 percent.

5. A shallow swale or corrugated drain pipe should be set up to carry the water from the roof downspout to the rain garden.

- Make sure that the ground slopes away from the house so that water does not collect around the foundation.

6. Establish a grass or groundcover border along the upper edge of the rain garden to slow down the runoff water as it enters the rain garden, and do the same over the berm to stabilize it as a border of the rain garden.

7. Select and plant drought tolerant, wet tolerant and hardy plants. A mix of ornamental grasses, shrubs and self-seeding perennials are good choices. See *chart of plants*.

8. Once plants are in place, cover the garden with a 3" layer of mulch. Lighter mulches such as pine bark and straw will float in water and may be washed away to the edges of the rain garden. Better mulch choices for a rain garden are more dense materials such as pine straw, wood chips or shredded wood.

9. To maintain your rain garden, remove weeds on a regular basis as the landscape plants grow, and replenish mulch as needed.

- As the plants in the rain garden mature, there will be less need for mulch and weeding.
- Rain gardens should be relatively low maintenance if the correct plants are chosen.

10. IMPORTANT NOTE: Plan on providing an "overflow" path for water to take if the rain garden fills and more rain comes. This path should be stabilized with a hardy grass or groundcover.



What Plants Should You Use?

Finding plants for your rain garden is not difficult. Many well-suited plants are available at your nearest landscaping supply store. Here are some suggested plants (common and *scientific* names):



Trees

Trees are effective in rain gardens that are larger than 150 square feet. Plant trees at least eight feet apart.

Bald Cypress
Black Gum
Crape Myrtle
Fringetree
Green Ash
Musclewood/American Hornbeam
Red Maple
River Birch
Sweetbay Magnolia
Willow Oak
Witch Hazel

Taxodium distichum
Nyssa sylvatica
Lagerstroemia indica
Chionanthus virginicus
Fraxinus pennsylvanica
Carpinus caroliniana
Acer rubrum
Betula nigra
Magnolia virginiana
Quercus phellos
Hamamelis virginiana

Shrubs

American Beautyberry
Bottlebrush Buckeye
Buttonbush
Common Winterberry/Winterberry Holly
Inkberry
Oakleaf Hydrangea
Rose of Sharon
Summersweet Clethra
Virginia Sweetspire
Wax Myrtle

Callicarpa americana
Aesculus parviflora
Cephalanthus occidentalis
Ilex verticillata
Ilex glabra
Hydrangea quercifolia
Hibiscus syriacus
Clethra alnifolia
Itea virginica
Myrica cerifera

Perennials, Grasses and Groundcovers

Asters
Blackeyed Susan
Blue Lobelia
Broadleaf Uniola/Indian Woodoats
Broomsedge
Cardinal Flower
Cinnamon Fern
Clubed Begonia
Golden Ragwort
Goldenrod
Ironweed
Joe-Pye Weed
Liatris
Narrowleaf Dragonhead
New England Aster
Red Columbine
Royal Fern
St. John's Wort
Scarlet Rosemallow/Swamp Hibiscus
Swamp Milkweed
Swamp Sunflower
Switchgrass
Wild Ginger
Yellow Stargrass

Aster spp.
Rudbeckia hirta
Lobelia siphilitica
Chasmanthium latifolium
Andropogon virginicus
Lobelia cardinalis
Osmunda cinnamomea
Begonia cucullata
Packera aurea
Solidago flexicaulis
Vernonia noveboracensis
Eupatorium fistulosum
Liatris pycnostachya
Physotegia angustifolia
Aster novae-angliae
Aquilegia canadensis
Osmunda regalis
Hypericum fasciculatum
Hibiscus coccineus
Asclepias incarnata
Helianthus angustifolius
Panicum virgatum
Asarum canadense
Hyperoxis spp.

For help in finding a location to purchase native plants, go to the Georgia Native Plant Society's website at www.gnps.org.

An additional list of plants suitable for rain gardens can be obtained through the University of Georgia Cooperative Extension Service. The bulletin, called "A Compilation of Low-Maintenance Plants for Georgia Landscapes" (H-91-009), lists both native and non-native plants that are drought and moisture tolerant. The bulletin can be found at a local extension office or online at www.ces.uga.edu.