BUILDING A
GREENER LIFESTYLE
FOR FREDERICK COUNTY

Design and Construction of a Rain Garden

RAIN, RAIN-SOAK IN!

Workshop participants plant a rain garden at the Friends Meeting School in Ijamsville, MD.

Where does the rainwater go that runs off your rooftop, driveway and sidewalk? This "stormwater runoff" is usually conveyed to curbs, gutters, drains or sewers, then piped to a stormwater detention pond and gradually released to the nearest stream or lake. However, stormwater was not regulated until the mid 1980's, which means that roads and buildings constructed before stormwater regulations might not have any treatment before water reaches the stream. How old is your home? Your road?

A novel, progressive alternative to the conventional 'pipe and pond' approach to stormwater management is the use of a Rain Garden to store and treat run-off and recharge groundwater. A rain garden functions like a miniature wetland—rainwater from paved surfaces, downspouts and lawn is collected in shallow, low-lying areas planted with native flowers and other vegetation to be stored temporarily, absorbed by plants and percolated into the ground. Pollutants such as fertilizer, pesticide residue or even oil and heavy metals are effectively trapped by the rich organic soil and root systems in the rain garden, permitting clean water to slowly soak down through the soil and rocky subsoil until it recharges groundwater supplies.

Rain gardens are suitable for any land use situation—residential, commercial, and industrial.

Native plant species that can tolerate the extremes of wet soils and dry periods are preferred for use in a rain garden. They are best adapted to the local climate, are deep-rooted, and are attractive to butterflies, hummingbirds and other nectar and berry feeders. The rain garden plant palette can include swamp milkweed, asters, columbine, ironweed, lobelia, blue flag, bluebells, bluestem grasses, bee balm, ferns, sedges and swichgrass, boneset, liatris, cardinal flower, and much more.

Many of these natives are now sold by local nurseries, where experienced horticultural staff can help match suitable plants with your rain garden needs. You will need to consider sun or shade exposure, how moist your garden soil is and the duration of wetness, and also think about how well your plants selections can tolerate drought periods.

Rain gardens can be your personal contribution to cleaner water, healthier fish and wildlife populations and a greatly improved environment for you and your community. Each rain garden may seem small, but collectively they produce substantial neighborhood and regional environmental benefits. Rain gardens work for us in several ways by:

- Increasing the amount of water filtering into the ground, which recharges groundwater and helps reduce the amount of pollutants washing off to lakes and streams;
- Helping sustain adequate flows in streams during dry spells;
- Providing valuable wildlife habitat;
- Enhancing the beauty of your yard and the neighborhood;
- Helping protect communities from flooding and drainage problems;
- Helping protect streams and lakes from damaging flows and reducing erosion of the stream banks;
- Reducing the need for costly municipal storm water treatment structures.

RESOURCES:

- **Potomac Conservancy and Montgomery County Department of Environmental Protection**
  www.montgomerycountymd.gov/mc/services/dep/rainscapes/home.html
- **Maryland Native Plant Society:**
  www.mdflora.org
- **Chesapeake Bay Foundation:**
  www.cbf.org
  search for "rain gardens"

Building a Rain Garden

Key steps in the process include sizing, choosing appropriate plants, construction, planting and maintenance. You might decide to do all or some of the steps yourself or you might select a professional landscaper to help.

There are several ways to construct a rain garden. Low-lying areas that collect water can become rain gardens by improving the soil and planting native plants. Other options include constructing a garden to collect runoff from parking lot and other paved surfaces or by redirecting flow from gutter downspoints.

To do this last option choose at least one downspout that can be redirected toward an area that slopes gradually away from your house. Keep rain garden about 10-15 feet from the house. Use a hose or rope to create an outline of your rain garden.

Twine and stakes used to lay-out area for rain garden

Same rain garden immediately after excavation and soil amendments and mulch added, prior to planting

Create an area that will act like a sponge to soak up hundreds of gallons of rainwater. Heavy clay soils will not function properly in a rain garden—-you will need to amend or replace the clay with compost. Use the compost by itself or mix it with topsoil, sand, or some of the excavated soil. Most of the material you remove can be used to build-up or 'berm' the sides of the garden.

Before planting, let your garden handle several rainstorms to ensure that your soil amendments have settled appropriately and to guarantee that water will not pond in the garden more than 3 days. If designed properly, excess rainfall will flow over the garden and continue across your lawn, and water 'harvested' by the garden will be absorbed within 24—48 hours. If water ponds for 3 days or more, you will need to improve the soil with more organic amendments and possibly lower the downslope side of the garden to improve runoff.

Photo Courtesy of the Potomac Conservancy

Community Commons

The Building a Greener Lifestyle series is a public outreach component of the Frederick County WRAS (Watershed Restoration Action Strategy), an alliance of diverse stakeholders interested in improving water quality and wildlife habitat in the Monocacy and Catoctin Watersheds. Community Commons coordinated the series to empower citizens to take action in their own homes and yards towards improving water quality. More information about the WRAS can be found at www.co.frederick.md.us/cleanstreams or by calling 301.694.1741. Community Commons can be reached at 301.662.3000 or at www.communitycommons.org.