

“A Conversation with Greenable Woodbridge” RAIN GARDENS – A BEAUTIFUL SOLUTION TO STORMWATER POLLUTION

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Stormwater runoff can create serious environmental problems including urban flooding and stream contamination, especially in urban and agricultural areas. Rain gardens and rainscaping practices can be easy, local solutions to significantly reduce stormwater runoff. These solutions work by allowing precipitation to infiltrate the ground where it lands, before it reaches the street and the storm sewer.

Stormwater runoff alone can cause flooding in urban areas when the municipal stormwater systems are under designed or ineffective. But stormwater runoff also picks up unwelcome ‘passengers’ in its journey through roads and rooftops. These passengers include organic pollutants and contaminants such as litter, cigarette butts, motor oil, pet wastes, road salt, yard wastes, and both pesticides and fertilizers from agricultural use and suburban lawn care. These unwelcome passengers are carried through storm drains to surface waters, eventually ending up in our lakes, reservoirs, and oceans. Additional problems with surface runoff include:

- Drying up of streams and reduction of potable well water due to lower groundwater levels, since less water is infiltrated into the ground;
- Stream bank erosion, since high velocity water is carried on land and into the streams. Erosion causes sediment from the stream banks to be displaced into the streams, filling in the channels, negatively affecting stream water flow and aquatic life.

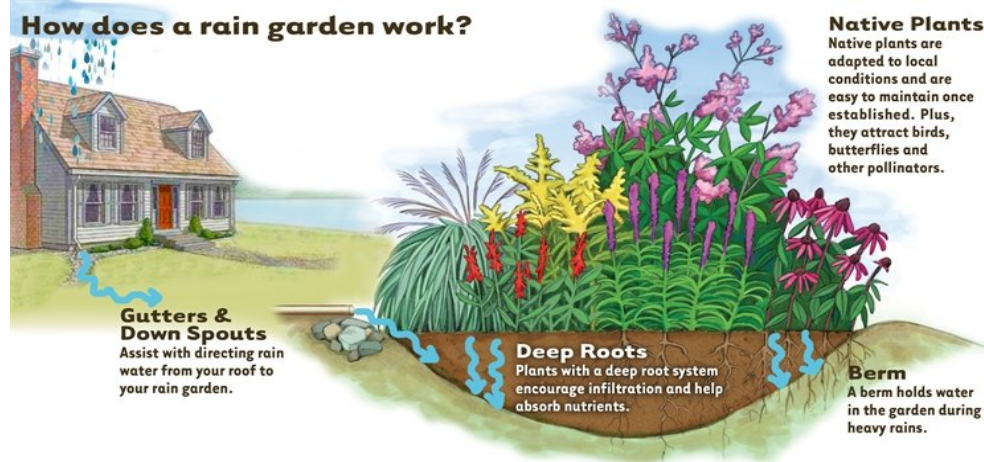


In a natural environment, the land and the vegetation act as a stormwater retention and filtering system; when it rains, this system absorbs and filters a significant portion of stormwater. New Jersey is the second most populated state in the USA (District of Columbia ranks first), with 1,195.5 persons per square mile . With high population density comes more land development and urbanization, which has resulted in a decrease in pervious natural landscapes and a corresponding increase in impervious surfaces, such as roads, parking lots, sidewalks, houses and other buildings. These impervious surfaces facilitate stormwater runoff and urban floods. Luckily, the creation of both rain gardens and rainscaping at our properties are options to help improve the retention of stormwater on our properties

WHAT IS A RAIN GARDEN?

A rain garden is a depression in the landscape, planted with deep-rooted native plants and grasses, which collect rain and surface runoff, facilitating increased infiltration and reduced stormwater runoff. The plants use their deep roots to promote infiltration, help absorb nutrients, and to filter the infiltrating stormwater. In addition, a berm or a shelf on the side of the garden holds water during heavy rains. The

best location for an installation of a rain garden is near the rainwater source, like a downspout, gutter, driveway or sump pump, in the direction of the rainwater flow and is an area where water flows naturally. A rain garden is easy to build, requires low maintenance, is relatively inexpensive to install and creates a beautiful feature in your yard. Compared to a patch of lawn, a rain garden allows about 30% more water to soak into the ground .



Here are some of the many advantages of planting a rain garden:

- Reduces the amount of surface runoff
- Reduces pollution, which would have otherwise ended up in streams:
 - o Excess nutrients are used by plants for growth
 - o Pathogens are removed by biological and physical processes
 - o Metals and nutrients are adsorbed to soil particles
- Creates important habitats for bees, butterflies, and birds.
- Less water usage for irrigation means lower water bills.

To decide on the size of the garden consider the amount of runoff (New Jersey's average annual rainfall is 46 inches) and the soil texture in your garden. Clayey soil has slow infiltration rates as compared to sandy and silty soils, and will require a larger garden to achieve the same effects. Building 40 rain gardens in your neighborhood can treat and recharge 1,000,000 gallons of water per year .

HOW TO PLANT A RAIN GARDEN?

Materials you will need:

1. Soil-mix (50-60% sand, 20-30% top soil, and 20-30% compost)
2. Native plants (a hardy mix of grasses, small shrubs, and self-seeding perennials are good choices, especially those that are both wet- and drought tolerant)
3. A dense-material mulch that won't float away.

Tools you will need:

1. Soil excavating tools
2. Planting tools

For easy instructions on how to install a rain garden step by step please visit Wiki How article "How to Create a Rain Garden" and watch this video. Also, please see this Rain Garden Manual for New Jersey prepared by The Native Plant Society of New Jersey. Remember to contact New Jersey's "One Call" system at 1-800-272-1000 for a free markout before you dig! For more information on rain gardens, please visit:

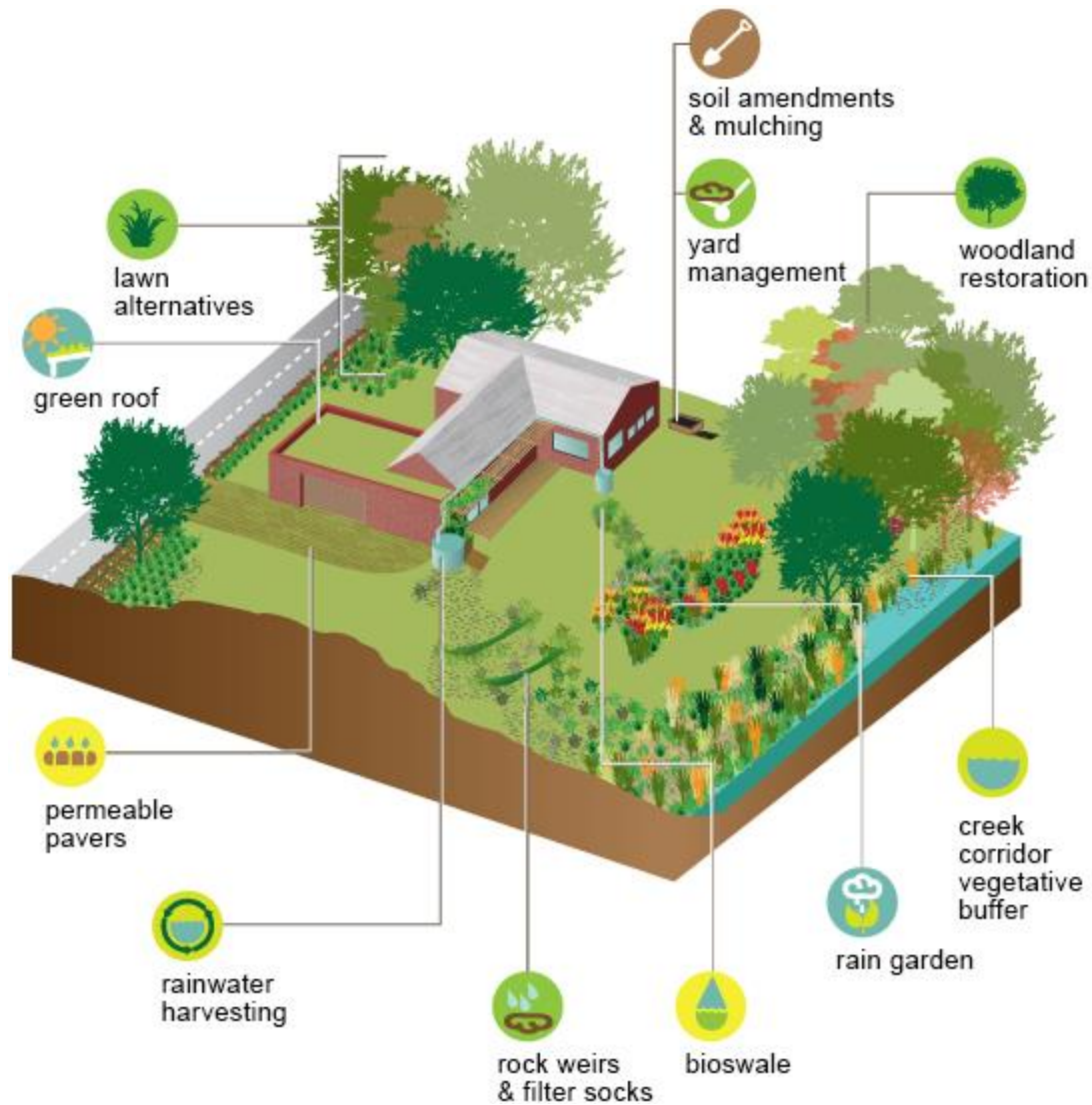
– The Native Plant Society of New Jersey – Rain Garden Manual

- New Jersey Watershed Protection Programs – Rain Gardens
- Ocean County Soil Conservation District – Rain Garden Resources



WANT TO DO MORE? TRY RAINSCAPING!

Rainscaping is a branch of landscaping and/or architecture, which implements different techniques designed to manage stormwater runoff on a property. For example; permeable pavement, catch basins, green roofs, water features, soil amendments and mulching, lawn alternatives and rainwater harvesting are all features that constitute rainscaping. These methods improve water quality, reduce stormwater runoff and improve overall ecology of the area.



Each of the above shown rainscaping techniques can be explored on Missouri Botanical Garden – Rainscaping Guide website.

Rainscaping facts:

- Planting trees over a driveway can reduce the amount stormwater; tree leaves absorb water that would normally fall on the driveway
- Water harvested in rain barrels can be used for watering on dry days
- Native plants, shrubs and trees are capable of conserving more water than lawns.
- Permeable pavements allow for water infiltration instead of runoff.

- Green roofs add energy savings by insulating the roof thus reducing heating and cooling costs



For more information on rainscaping please visit:
– Chesapeake Ecology Center - RainScaping

