

## What's Happening to the Water Cycle?

As we develop our land and increase the amount of paved surfaces and buildings (known as impervious cover), the water cycle is changed. Less rainfall and snowmelt sinks into the ground and more water flows rapidly over the land into our lakes, rivers, and estuaries. Stormwater runoff can lead to increased flooding, erosion, pollution, and decreased groundwater recharge during dry periods.

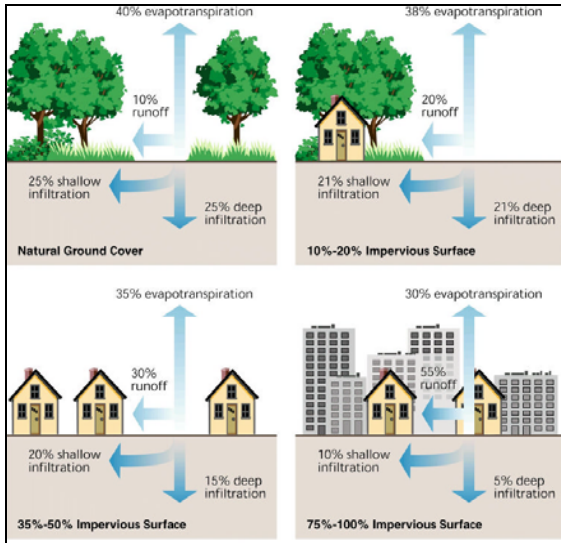


Photo: FISRWG

As impervious surfaces increase, the problems associated with stormwater also increase. Stormwater can contain pollutants such as sediment, nutrients, bacteria, and chemicals that can threaten aquatic health and contribute to the loss of water dependent recreational activities. Stormwater is recognized nationally as the leading cause of water pollution today.

Conventional methods of land development collect and convey stormwater quickly into a series of drains and pipes that flow directly into the closest waterbody with little or no water quality treatment.

## How can we help? A Rain Garden!

Low Impact Development (LID) techniques manage stormwater runoff by mimicking the natural movement of water in the environment. One of the easiest and most cost effective methods for recharging groundwater resources, decreasing the volume of stormwater runoff, and improving water quality is to **INSTALL A RAIN GARDEN**. Rain gardens help to infiltrate water on site and improve water quality by filtering out pollutants. Rain gardens can also be attractive additions to the landscape that provide habitat for birds, butterflies, and other wildlife year round.



Photo: TRBP

## What is a Rain Garden?

Rain gardens, also called bio-retention areas or bio-filters, are depressed garden beds filled with a variety of native perennials and shrubs that are both water and drought-tolerant. Rain gardens collect runoff from impervious surfaces and allow it to infiltrate into the ground. Designed to fill with a few inches of water from a storm, rain gardens slowly release runoff into the ground rather than allowing it to flow into the stormwater system.

## Why Plant a Rain Garden?

Studies suggest that stormwater runoff is the number one source of water pollution in the nation. Planting a rain garden can improve water quality in your community by preventing sediment, nutrients, bacteria, and chemicals from flowing into streams, rivers, and lakes. By infiltrating stormwater, rain gardens can:

- Keep oil and grease from paved areas from entering waterways
- Filter pesticides and fertilizers from lawns
- Protect rivers and streams from erosion
- Recharge local groundwater resources
- Provide habitat for beneficial insects and birds and other wildlife

Installing a rain garden is as easy as planting a regular garden, with the added benefits of improving water quality and decreasing stormwater runoff! However, it is important to properly plan your rain garden to maximize stormwater infiltration.

## Planting a Rain Garden

**Location** – The rain garden should be located 10 feet from the house and away from septic tanks, wells or areas that remain wet. A flat site with plenty of sun works best.



Photo: E. Thomas

**Soils** – The soil of your rain garden should allow for proper infiltration. If you are unsure of your soil, dig a hole 6 inches deep and fill it with water. If water remains after 24 hours, the site is not suitable for a rain garden.



Photo: TRBP

**Size**– The rain garden should be able to retain and infiltrate the first one inch of runoff from the area that drains to it.



Photo: E. Thomas

Detailed examples can be found in the manuals cited at the end of this brochure.

**Design** – A rain garden is just like any other garden that you might have in your yard.



Photo: E. Thomas

The only difference is the plants must be able to handle both wet and dry conditions. A variety of native plants and shrubs

that bloom throughout the season will add color and interest as well as food and habitat for birds, butterflies and other wildlife.

**Installation**- Dig the garden about eight inches deep, creating a flat basin where the water will collect. The extra soil can be used to create a berm to help retain the water. Be sure that there are no underground utilities that will be in the way. Use the toll free CT *Call Before You Dig* service (1-800-922-4455) if you are unsure.



Photo: TRBP

## Maintenance

Maintaining a rain garden does not require specialized gardening skills. As with any garden, it is necessary to water the garden until it is established, weed, replace dead plants, and add mulch as needed.



Photo: TRBP

## Common Questions About Rain Gardens

### Does a rain garden hold standing water?

No. Rain gardens are designed to infiltrate water and remain dry between rainfall events. The water that collects in the rain garden should infiltrate within 36 hours after a storm. Properly constructed rain gardens do not provide breeding areas for mosquitoes because 1-2 weeks of standing water are needed to successfully complete the mosquito life cycle.

### How much does a rain garden cost?

An average residential rain garden costs between 3-5 dollars per square foot. The main expenses are associated with purchase of plants and any necessary drainage piping. These costs can be minimized by using native plants transplanted from elsewhere in your yard or from a friend's property. Another way to minimize costs is to install it yourself. A simple rain garden can be created in just a few hours with help from family or friends.

### Do rain gardens work in winter?

Yes. If it is warm enough to rain or for snow to melt, the soil will absorb runoff. The roots of the plants will also help to infiltrate the water. The garden can also be designed to provide wildlife with winter food and habitat and provide year-round interest.

### Are rain gardens difficult to maintain?

No. A rain garden requires no more effort to maintain than a regular garden bed. As with all new gardens, rain gardens may require additional watering and weeding until the plants establish root systems. Yearly mulching and pruning will help to maintain the functionality and aesthetic qualities of your rain garden.

## Want to Know More? Click to Explore!

### Statewide Information:

Connecticut DEEP's Watershed Management Program:

<http://www.ct.gov/dep/watershed>

Call Before You Dig

<http://www.cbyd.com/>

1-800-922-4455

The UCONN Cooperative Extension System's guide to building a rain garden:

<http://www.nemo.uconn.edu/tools/publications.htm>

The Connecticut Master Gardener Association:

<http://www.ctmga.org/>

### Planting Information:

The *Connecticut Native Tree and Shrub*

*Availability List* published by the CT DEP:

[http://www.ct.gov/dep/lib/dep/wildlife/pdf\\_files/habitat/ntvtree.pdf](http://www.ct.gov/dep/lib/dep/wildlife/pdf_files/habitat/ntvtree.pdf)

The Connecticut College Arboretum's information on native plants:

<http://arboretum.conncoll.edu/>

The *Connecticut Native Plant and Resource List* by the US DOT Federal Highway Administration:

<http://www.fhwa.dot.gov/environment/rdsduse/ct.htm>

### Local Connecticut Examples:

Town of Coventry Rain Garden Demonstration:

<http://www.thamesriverbasinpartnership.org/coventry.raingarden.htm>

The USDA Natural Resource Conservation Service information about rain gardens at:

[http://www.ct.nrcs.usda.gov/elc-educational\\_materials.html](http://www.ct.nrcs.usda.gov/elc-educational_materials.html)

### Other State Resources:

The Vermont Rain Garden Manual:

<http://www.vermontconservation.org/images/stories/vtraingardenmanual.pdf>

The Wisconsin Department of Natural Resources Rain Garden Manual:

<http://www.dnr.state.wi.us/org/water/wm/dsfm/shore/documents/rgmanual.pdf>

The Kansas City 10,000 Rain Gardens Project:

<http://www.rainkc.com/>

### Additional Town Information:

*Including contacts and local resources*

### \*Second Brochure of the LID Series\*

For more information contact Connecticut DEEP's Watershed Management Program:

(860) 424-3020

<http://www.ct.gov/dep/watershed>

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This rain garden in Vernon, CT was constructed as a demonstration project to treat and infiltrate runoff from an outdoor pavilion. Photo: USDA NRCS



Connecticut Department of Energy and Environmental Protection  
Bureau of Water Protection and Land Reuse  
Planning and Standards Division  
79 Elm Street, Hartford, Connecticut 06106

# Rainfall as a Resource

## A Resident's Guide to Rain Gardens in Connecticut