



Maintenance and Care of a Rain Garden

Updated 2018

What is a Rain Garden?

Rain gardens are designed to capture stormwater runoff from nearby impervious areas like rooftops and driveways so that rainwater can soak into the ground below, where pollutants are gradually filtered out instead of entering waterways. Simple inlet and outlet structures made from pipe, stone, or both help water enter and leave the garden. Rain gardens can be planted with a variety of native plants and maintained to appear anywhere from manicured to naturalistic.



Above, image of residential rain garden courtesy of University of New Hampshire.

Healthy & Functional

Any landscaped area requires maintenance—rain gardens are no different. Along with basic steps for maintaining plant health such as watering and weeding, rain gardens also require some attention to how water moves in and out and keeping edges and berms intact to prevent erosion from taking place. Regular inspections and maintenance will keep your rain garden healthy and allow it to soak up and clean plenty of stormwater.



Volunteers maintain the rain garden at Southside Cultural Center in Providence by weeding.

Maintenance By Season



Image of pruning courtesy of UMaine Cooperative Extension.

SPRING AND SUMMER

Water the rain garden during summer droughts and unseasonably hot and dry periods in early spring or autumn.

Weed regularly, before seeds can spread. For weed identification help see the guide in the troubleshooting/resources section.

Inspect the rain garden bed for standing water lasting over 48 hours after heavy rain of 1 inch or more, as this may indicate that the surface layer is clogged. See troubleshooting section for more on standing water.

Replace plants that are not thriving. Annuals may also be used to maintain ground cover.

FALL AND EARLY SPRING

New trees and shrubs should be planted from late August – October or April – June.

Cut back perennials and mow tall grasses (removing clippings) in the fall, or leave task until early spring for winter interest and to provide habitat for birds and other wildlife. **Do not mow** rain garden plants unless the garden is designed to be mowed.

Prune trees/shrubs before leaves appear; prune flowering trees/shrubs after they blossom.

Mulch should be replenished once per year to a depth of 2-3", using shredded non-dyed hardwood mulch.

New Rain Garden? Special Considerations

- **Inspect** new rain garden after first two rainstorms of 1 inch or more. Check that water is ponding and soaking into the garden within 48 hours, if water is bypassing the rain garden by flowing through or around it, and if garden is being damaged by erosion.
- New rain gardens will need **supplemental watering**. During their first 3 growing seasons after installation, rain gardens must receive 1" of water per week including rainfall. Water new trees and shrubs weekly until soil to depth of roots is moist. **TIP: Use a flat-sided can (such as a tuna can) to measure depth of rainfall.**
- Water is intended to pool in rain gardens, but young plants need time to get established. Until then, they are at **risk of over-saturation**. If a large rain event is expected shortly after the installation of a new rain garden, cut an indentation even lower than the overflow notch in the berm. Fill in the indentation in a few weeks or months when plants are more established.
- **Weekly weeding** is important during the first few growing seasons. As the rain garden plants grow larger and closer together, less weeding will be necessary. **TIP: Mark young rain garden plants with planting sticks or flagging tape until they are established.**

Maintenance Checklist

WEEKLY

- Water** 1 inch per week including rainfall for the first 3 years. Water new trees and shrubs weekly until soil at depth of roots is moist. Water established rain gardens during summer droughts and unseasonably hot and dry periods.
- Weed** regularly, before seeds can spread.*
- Mow** lawn around rain garden and direct clippings away from the rain garden as they can cause clogging. **Do not mow** rain garden plants (unless garden is designed to be mowed).
- Clean up** trash, organic debris, and pet waste from within and around garden.
- Inspect** the rain garden bed for standing water lasting over 48 hours after a heavy rain. This indicates a clogged surface layer.*

MONTHLY, *following heavy rain, or as needed.*

- Replace plants** that are not thriving with approved native plants to maintain ground cover. Annuals may also be used to maintain ground cover.
- Remove sediment buildup** from inflow structure and any flow channels (including gutters if they are directed toward garden) and from bed of rain garden when it accumulates 1 inch of sediment.
- Cut back perennials** and mow tall grasses (removing clippings) in the fall, or leave task until early spring for winter interest and to provide habitat for birds and other wildlife.
- Prune** trees and shrubs to encourage growth in the spring or fall.
- Repair gullies** and any other problems caused by soil erosion in or near the rain garden.*
- Stabilize soil** if there is erosion on areas draining to the rain garden. Cover bare soil with mulch or reseed.
- Fill animal burrows** and gently pack if there are any in or around rain gardens.
- Replenish mulch** once per year to a depth of 2-3", using shredded non-dyed hardwood mulch.
- Never fertilize** rain garden, apply pesticides, or add compost. Fertilizer and compost add nutrients that are not needed.

**See the Troubleshooting page for more information and guidance.*

Troubleshooting

At some point a rain garden may begin to exhibit signs of trouble. This is normal: in order to function optimally, rain gardens almost always require some adjustment over time, especially when newly installed. Make a habit of inspecting the rain garden regularly, especially during and after heavy rains.

Plants are not thriving/are dying... When plants die and leave voids in the garden they must be replaced. The cause of poor plant health should be diagnosed before the plants are replaced. For assistance, contact URI Master Gardeners March – October, Monday – Thursday, 9:00 AM – 2:00 PM by phone **(401) 874 - 4836** or by email gardener@uri.edu.

The original rain garden plants are being joined or outcompeted by invading plants... For help identifying weeds refer to *In the Weeds*, a stormwater system weed identification guide available to print or use from your mobile device at web.uri.edu/riss/in-the-weeds-a-guide/.

It looks like soil is moving within, into, or out of the rain garden... Erosion within the system signals different problems depending upon location.

- Erosion **throughout the garden** in the form of rills and gullies means energy dissipators like stones must be adjusted or added in order to spread the flow of water more evenly over the garden.
- Erosion **at the edge of the garden** indicates that runoff is entering at other points in addition to the inlet area—check that edges are intact or construct a berm to correct this.
- Erosion **near or past the overflow** means the rain garden is too small to handle the amount of runoff that it is receiving. Enlarge the footprint of the garden.

Sediment is building up in the rain garden... When sediment is building up at the inflow structure or on top of the mulch in the bed of the rain garden, then erosion is likely taking place outside of the rain garden. Remove the sediment build-up in the garden and check the contributing area, stabilizing the soil there if needed. If gutters are connected to the rain garden, they should be cleaned out regularly.

The rain garden has standing water over 48 hours after a rain storm... Stormwater is meant to pool in the rain garden for some time before infiltrating, but water standing over 48 hours after a rainfall indicates that the rain garden is clogged. Sediment entering the garden can form a visible crust that will prevent drainage. If this happens, remove about 2" of surface crust and mulch with a flat shovel and replace with fresh soil mixture and shredded non-dyed hardwood mulch. If the standing water problem persists, amend the rain garden soil with coarse sand or adjust the overflow structure to let more water out during a rain storm.

The rain garden looks different than when it was first installed... Rain gardens will change over time. Plants that are most adapted to the site may multiply while others die out, shrubs and trees may begin to dominate, and new plants may settle in (and attract native pollinators). This naturalized look does not affect the functioning of the rain garden. If a more manicured look is preferred it can be achieved with weeding and pruning.





Problem Deep gullies are forming within a rain garden.

Above images courtesy of Rutgers University.



Solution Add river rock and more plants to better dissipate the flow of water.



Problem There is sediment build-up in the inlet, covering the river rock, allowing plants to take root, and blocking flow into the garden.



Solution Weed as needed and remove sediment and other debris. Look for bare soil in the area draining to rain garden and correct the problem at the source. Above is a typical rain garden inlet. The stone and pipe will need cleaning out from time to time.



Problem The lowest points in the rain garden have begun to gather dark sediment build-up over the brighter mulch layer.



Solution Carefully remove top layer of sediment with a flat shovel to prevent or stop clogging. Add fresh mulch if needed.

For Best Results

Follow these tips to get the best performance out of a rain garden:

Proper tree and shrub installation A major cause of tree and shrub loss is that they are often planted too deep. When planting, keep trunk flare at or a little above existing ground level and when backfilling do not cover trunk flare. Mulch should be at least 4 inches away from the trunk.

Soil pH testing Soil pH testing is recommended every 3-5 years. Maintain a pH range of 5.2 - 7.0 by adding soil amendments when no precipitation is expected to avoid leaching. *Soil pH testing is a free service. For instructions on how to gather a sample and where to take it head to web.uri.edu/mastergardener/soil-testing-service/.*

Signage Does the rain garden have an informational sign? Periodically check that it is not vandalized or missing. Many people are unfamiliar with rain gardens, so signage is valuable in educating the public and provides useful guidance to landscape workers.

Not all unfamiliar plants are weeds Beneficial native plant species have been known to appear in the habitats that rain gardens provide—use the Simple ID Key by New England Wild Flower Society to identify and learn the status of plants not found in *In the Weeds* at gobotany.newenglandwild.org/simple/.



Native blooms like those of swamp milkweed *Asclepias incarnata*, cardinal flower *Lobelia cardinalis*, and blue flag *Iris versicolor* add color and attract pollinators to the rain garden.

Rain Garden Resources

- Find overviews of rain gardens and their installation & maintenance as well as additional resources on RI Stormwater Solutions: web.uri.edu/riss/take-action/simple-steps-at-home/rain-gardens/
- UCONN has a number of step-by-step videos and a variety of tools available online, including the Rain Garden mobile app which has RI-specific information: nemo.uconn.edu/raingardens/101.htm
- Rutgers Rain Garden Information Center is a directory of general information like webpages, white papers, manuals, fact sheets, and more: water.rutgers.edu/Rain_Gardens/RGWebsite/rginfo.html
- *In the Weeds: A Guide for Maintaining Vegetation in Stormwater Treatment Systems in Rhode Island* is a guide compiled to identify the most aggressive weeds. Print or use from your mobile device: web.uri.edu/riss/in-the-weeds-a-guide/
- Rhody Native, a native plant initiative of RINHS offers a variety of genetically native plants for sale to nurseries, garden centers and landscape and restoration professionals: rinhs.org/who-we-are-what-we-do/programs-projects/rhody-native-home/
- The RI Coastal Plant Guide is an interactive and extensive list of RI's coastal plants, created by the Coastal Resources Management Council (CRMC) in partnership with the URI Cooperative Extension: cels.uri.edu/testsite/coastalPlants/CoastalPlantGuide.htm/