

Rain Gardens...

Capture the Flow and Watch it Grow!

What is a rain garden?

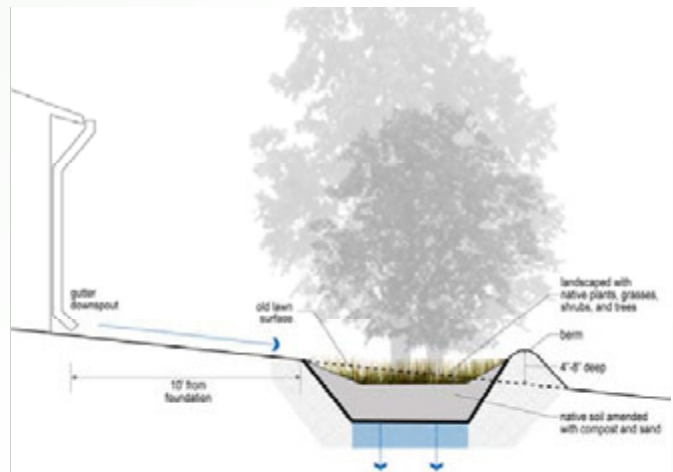
As their name implies, rain gardens are cultivated areas created to harvest rain.

A rain garden is a landscaped depression that collects runoff from a roof, driveway or yard.

The garden's flat bottom helps distribute rain water evenly across the planted area, allowing the water to slowly soak into the ground within 48 hours after the rain stops. Rain gardens will not increase mosquito populations since they cannot complete their breeding cycle in this length of time.

While they are beautiful, low-maintenance additions to your yard, rain gardens also provide important environmental benefits.

Landscaped with native plants, rain gardens provide habitat that attracts local wildlife including butterflies and birds. By catching and allowing rainwater to slowly percolate into the soil, rain gardens recharge groundwater supplies and decrease stormwater runoff into the storm drainage system. The result is reduced flooding and erosion in local creeks and streams during storm events and more sustained flows during dry periods of the year.



Rain garden detail created by Jeff Huber, University of Arkansas Community Design Center



This rain garden of native trees, shrubs and perennial flowers captures stormwater runoff from a park pavilion roof

Rain gardens work for us by...

Protecting local streams and lakes from urban stormwater pollutants including sediment, fertilizers, pesticides, auto fluids, and metals

Increasing water infiltration and recharging groundwater supplies

Enhancing the beauty of yards, neighborhoods, and businesses through beautiful landscaped areas

Providing habitat for birds, butterflies and beneficial insects

Reducing flooding and drainage problems in yards and communities

Sustaining creek flows during dry periods

Reducing the flow intensity of creeks during storm events

A one inch rain over one acre equals more than 27,000 gallons of water!

Before Starting...

Placement and Sizing

A good way to begin planning for a rain garden is by drawing the layout of your property. Indicate the directions of roof runoff, gutter downspout locations, and high and low spots in your yard to visualize where water flows during a rainstorm.

While building the garden will be easiest on level ground or on a gentle slope, the key is to **intercept stormwater runoff before it reaches a stormdrain inlet or waterway**. A rain garden might be developed near the house to collect and use runoff from a roof, whereas a rain garden out in the yard can capture runoff from the lawn or driveway.

Be sure to build your garden at least 10 feet from buildings so water soaking into the ground will not damage the foundation. Also, do not build the garden directly over a septic system or under a large tree. Finally, avoid areas where water already ponds after a storm since rain gardens



Downspouts direct roof runoff into a rain garden

will not drain properly where soil conditions already restrict percolation. Perform a simple percolation test by filling a 12-inch deep hole with water. If the water has not drained two days later, consider another location.

Rain gardens can be most any size or shape, but a good rule of thumb is to **design the garden to be 4 to 8 inches deep and 1/3 of the size of the roof and other paved areas it drains**. If your drainage area will require more than 300 square feet of rain garden, consider splitting it into two smaller gardens.

Plant Selection

When choosing grasses, perennial flowers, shrubs, and trees for rain gardens, it is essential to consider their ability to **flourish in both extreme wet and dry conditions**.

The roots of native species can grow down deep into the ground and are very efficient in absorbing water. Since they are well-accustomed to local temperature and rainfall conditions, species that

are **native to the Ozarks** can survive periods of drought without irrigation once established. In addition, native plants don't need fertilizers or pesticides and they provide habitat to attract local wildlife.

As with all landscape design, consider plant size, color, texture and sun/shade tolerance when deciding on a planting scheme. Although not as showy within the first couple of years, an economical way to establish a rain garden is to buy plants as seedlings or in very small containers. The demonstration rain gardens across Fayetteville showcase several native plants, shrubs and trees. In fact, the four rain gardens at the Seven Hills Supportive Housing facility exclusively feature plants that serve as butterfly host plants or nectar sources.



Cardinal Flower, Lobelia, and Black-Eyed Susan thrive in NW Arkansas rain gardens

Site Preparation

Before you do any digging, whether by hand or with mechanized equipment, be sure to circle the area for the planned garden with white spray paint or flags and call "**Arkansas One Call**" at **800-482-8998**. Within two working days, member utility companies will verify that it's OK to dig within your site.

With the high clay content of many Northwest Arkansas' subsoils, **organic matter and sand will help improve**

the soil's infiltration rate and water-holding capacity. A few inches compost and sand can be added across the entire garden area and mixed to amend the existing topsoil. If much of topsoil was used to build a berm around the garden, additional topsoil may also be necessary.

Remember, the garden should be about 4-8 inches deep (measuring from the top of the berm to the flat surface in the center of the garden).

During a 4-year study on 17 rain gardens in Minnesota, rain gardens reduced surface runoff volumes by 90%

Source:
Civil Engineering, December 2006



Examine plant placement before digging

Planting Your Rain Garden

Once you have amended your soil and shaped the garden, it is time for planting - - Include friends and family to make the work fun and fast!

It is a good idea to set out all of the plants to see how the whole garden will look. This way, you can **make any needed spacing adjustments before the plants are installed**. If you had amended your soil with

layers of sand and compost, thoroughly mixing the materials in and around the planting holes will ensure happy roots.

Once the plants are in, **add several inches of mulch to help prevent erosion, conserve soil moisture, reduce weeds and regulate soil temperatures**. Shredded hardwood mulch is best since it doesn't float.

Maintenance

One of the great benefits of rain gardens is that they **require little long-term maintenance**.

After planting and during hot, dry periods in the initial year, you'll need to **irrigate until the roots are established** and the plants begin to grow. Once established, native plants should not require additional watering.

During establishment, weeding may also be necessary, but **as the native plants grow, they will out compete and crowd out weeds**.

In the fall, leaving plants intact will provide winter interest, but **clearing dead vegetation and applying a new layer of mulch in the spring** will prepare the plants for a new growing season.



Watering during establishment is critical

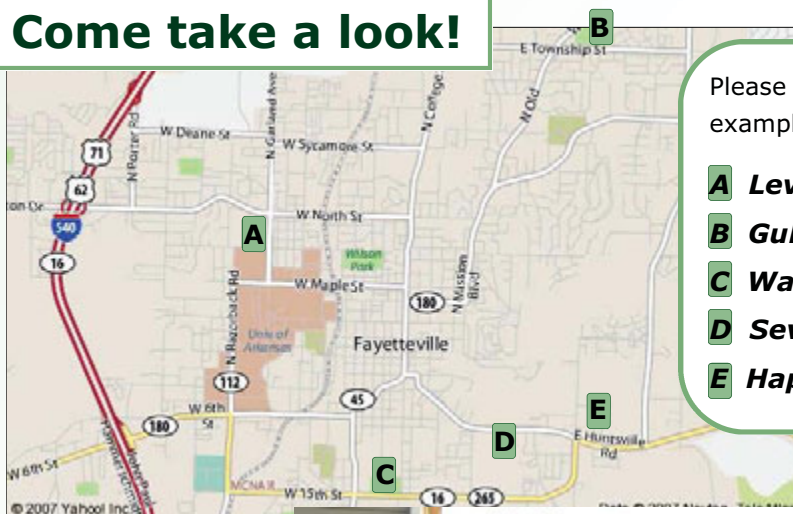
Every drop counts!

Rain Garden Demonstrations in Fayetteville

Thanks to a \$12,000 **Arkansas Forestry Commission** grant through the **Urban Forestry** program, eight demonstration rain gardens have been established in Fayetteville through a collaborative partnership among:

- ◆ **Beaver Water District**
- ◆ **City of Fayetteville, Arkansas**
- ◆ **Fayetteville Public Schools**
- ◆ **Happy Hollow Elementary School**
- ◆ **Illinois River Watershed Partnership**
- ◆ **Leverett Elementary School**
- ◆ **NWA Urban Stormwater Education Program**
- ◆ **U of A Cooperative Extension Service**
- ◆ **U of A Landscape Architecture Department**
- ◆ **Washington County Master Gardeners**
and
- ◆ **Botanical Garden of the Ozarks**
- ◆ **Seven Hills Supportive Housing Facility**

Come take a look!



Please take advantage of these local public examples and visit the rain gardens at:

- A Leverett Elementary School**
- B Gulley Park**
- C Walker Park**
- D Seven Hills Supportive Housing**
- E Happy Hollow Elementary School**



Gutter downspouts are directed into each of the four rain gardens at the Seven Hills Supportive Housing Facility

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DIVISION OF AGRICULTURE
Cooperative Extension Service

The University of Wisconsin Cooperative Extension Service's "**Rain Gardens—A How-To Manual for Homeowners**" contains more detailed information for planning and installing rain gardens:
<http://learningstore.uwex.edu/pdf/GWQ037.pdf>

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