Creating a Rain Garden

Rain Garden

Rain gardens are landscaped depressions that are designed to capture and filter stormwater from roofs, driveways, and other hard surfaces. By collecting water and allowing it to slowly soak into the ground, rain gardens reduce the potential for erosion and minimize the amount of pollutants flowing from your lawn into a storm drain, and eventually into our lakes, rivers, and streams. Planting your rain garden with native plants not only enhances the beauty of your yard, but also provides valuable habitats for birds and butterflies.
Rain Garden Basics

• What is a rain garden?
• Why are they important?
• Where can I put a rain garden?
• How do I construct it?
  – Examples
• What plants should I use?
• Questions???
What is a rain Garden?

- Landscape area designed to collect rain water – usually from impervious surface or downspout.
- Holds water on site until it can naturally infiltrate into ground.
Rain gardens are not wetlands
Wetlands - areas of complex geology and biology

- Allow rainwater to infiltrate slowly and recharge groundwater
- May be wet all or part of the year
- Filter pollutants
- Create vital habitat for wildlife
Unlike wetlands, rain gardens are designed to drain quickly.
If you have an area of springs or wetlands, call the Pennsylvania Department of Environmental Protection
So why are rain gardens so important?
Hydrologic Cycle

Wetlands, forests, meadows, play an important role in this cycle. They catch and hold runoff, returning it to groundwater.
Our activities have disrupted the cycle

We lose between 400 and 700 sq. miles of wetlands each year
**WATER BALANCE**

**PRE-DEVELOPMENT**
- Baseflow: 96%
- Surface Runoff: 4%

**POST-DEVELOPMENT**
- Baseflow: 62%
- Surface Runoff: 38%
Rain falls on our roadways, parking lots, roofs and lawns
Water emerges at a high velocity through storm sewer systems.
The result is flooding
And with each rain “runoff”, organic matter, soil, fertilizer, oil and chemicals get added to our lakes and streams.
If each of these houses had a rain garden
This

...And this

Might be avoided
So, do you need a Rain Garden?
Do you have?

- Low lying areas
- Drainage from pavement, driveways, downspouts
OR:
• Are you concerned about pollutants entering the storm-water system?
• Are you concerned about the Quality of Streams, Rivers, Lakes, etc...?
• Are you concerned about wildlife?
• Do you like plants and want to beautify your yard?
Do you need a Rain Garden?

YES!
Where can rain gardens be placed?

- Any low lying area
At source of water – natural or man-made

Runoff from road

Downspouts
Down-slope of any lawn area
Boulevards
Parking lot planter islands
(bioretenion)
Even industrial locations can have a rain garden
There is no one-size fits all for rain gardens

Can be simple or complex, large or small
Tips for Siting Your Rain Garden

Your rain garden

• Should be at least ten feet from a foundation
• Integrate with your landscaping
• Sunny or partly sunny locations are best, but a shade garden is possible
Siting Your Rain Garden (cont)

• Should not be located where water ponds 4-5 days

Do a perk (infiltration) test – if water doesn’t drain within 24 hours the site isn’t right for a rain garden.
Answering Neighbors’ Concerns

• There shouldn’t be any if the garden is properly sited and designed.
• Mosquitoes have a 7 to 12 day life cycle from egg to adult.
• Mosquitoes that carry most diseases don’t live in ponds. They prefer small amounts of standing water such as holes in trees, old tires or bird baths.
Siting Your Rain Garden (cont)

- A site with less than 12% slope is best
- Do not locate over septic system
Determining Rain Garden Depth & Size

Balance between:

- drainage area
- slope
- soil type
- desired garden size
Drainage area

- Sizing example

Area of the house roof is 60’ x 30’ or 1800 sq ft
¼ of this drains to one downspout where rain garden will be.

Contributing area is 1800 x 0.25 = 450 sq ft

Divide this area by 6.  450 sq ft/6 = 75 sq ft.
(this sizes garden to hold 1” runoff in a garden 6” deep)
Soil type

Depth & size depends on soil type

- Extremely well drained? Gravelly, sandy soils
- Well drained? Silty, loamy soils
- Poorly drained? Clay

Your goal is to have all water drain from the site within a day or two.
Slope

Depth of garden also depends on slope:

- Slope less than 4% - dig 3-5” deep
- Slope between 5-7% - 6-7” deep
- Slope between 8-12% - 8” deep
For more information on how to size a rain garden, see the Wisconsin Rain Garden Manual online.
A Rain Garden Example
uphill

Down spout

uphill

berm

downhill
Add a weed barrier and mulch
Planting Your Rain Garden
(The fun part)
Go Native!
Value of Using Native Plants

- Deeper roots - absorbs more water
- Use no fertilizer
- Use little or no pesticides
- Easy maintenance after first year
- Do not require watering after establishment
- Wildlife benefit
Planting a Rain Garden

- Variety ...
  - Woody Shrubs give great structure and provide additional wildlife habitat
Rain Garden Design - Plants

• Variety ...
  – Perennials provide the constant changes throughout the seasons ...
Plant in “zones” determined by moisture levels

- *Monarda didyma* (bee balm)
- *Chelone glabra* (white turtlehead)
- *Osmunda regalis* (royal fern)
- *Ilex verticillata* (winterberry holly)
- *Clethra alnifolia* (sweet pepperbush)
- *Osmunda cinnamomea* (cinnamon fern)
- *Lobelia cardinalis* (red lobelia)
- *Cornus stolonifera* (red-osier dogwood)

A simple rain garden design, with red lobelia and royal fern occupying the lowest, wettest zone.
Plants for Rain Gardens
Zone 1 - Wittest Zone

The wetter the area, the more sun plants can take.
Shrubs
Aronia melanocarpa
Black chokeberry

- Ht – 3-6’
- Sun to part shade
Cephalanthus occidentalis
Buttonbush

Ht –to 15’
Sun to part shade
*Ilex verticillata* – Winterberry Holly

Ht: 6-12’

Full sun to part shade
Viburnum nudum - Possumhaw

• Ht: 5-20’
• Full sun to part shade
Wet Zone
Herbaceous perennials
**Iris versicolor** – Blue Flag Iris

- **Ht:** 1’
- **Sun to part shade**

Image of purple flowers with green foliage in the background.
Packera aurea (Golden Ragwort)
Osmunda sensibilis – Sensitive Fern

Ht: 1-2’

Shade-part shade
Lobelia cardinalis
Cardinal Flower

Ht: 2-4’
Sun-part shade
Middle Zone
Trees and Shrubs
Amelanchier laevis or canadensis
Serviceberry

• Ht: ~35’
• Sun to part shade
**Ilex glabra** – Inkberry holly

Ht: 3-6’

Sun to part shade
Itea virginica - Virginia Sweetspire

Ht: 2-6’ depending on plant

Sun to shade
Middle Zone
Herbaceous Perennials
Liatris spicata  Blazing Star

Ht: 3-4’
Full sun
Eupatorium fistulosum  Joe Pye Weed

Ht: to 8’

Full sun
Plants for Transition Zone

Most garden plants will work in this zone
Clethra alnifolia - Summersweet

Ht: 2-8’

Full sun to part shade
Viburnum dentatum
Arrowwood viburnum

- Ht: 6-8’
- Sun to part shade
Transition Zone
Herbaceous Perennials
Baptisia australis – Blue False Indigo

- Ht: 2-3’
- Sun
Amsonia tabernaemontana
Blue Star

- Ht: 2-3’
- Sun to part shade
Chrysogonum virginianum
(Green and Gold)
Solidago sphacelata ‘Golden fleece’
Goldenrod

- Ht: 1-2’
- Sun to part shade
Schizachyrium scoparium
Little bluestem

- Ht: 2-3’
- Sun
Rain garden - East Wing
QUESTIONS ??

You are invited:

• MAEscapes Native Plant Fest & Sale – York County Extension, May 18, 9am till 2:00 pm

• Join our Native Garden Tour on June 29, 2013
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