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WATER PROBLEMS? WATER SOLUTIONS! WHERE THE RAIN DROPS GO!

Learning Objectives

- Identifying the proper location for water solutions
- Understanding the basics
- Designing for form, function, and beauty
- Installation
- Management and Care



Problems....

- What constitutes a problem?
 - How wet?
 - How long?
 - Soil consistency
 - Temporary/Long Term
 - Grading
 - Irrigation
 - Grey or Green
 - Use



Soil Testing

Soil

-Soil infiltration Test

-Dig a hole and watch how fast the water stays, flows, or goes!

-18" deep hole

-Fill with water- let it drain completely over 6-18/24 hours
(amend soils)less than 6- typically functional
more than 18/24-try again!)

-Refill and record:

Infiltration rate= the rate fall of the water in the
hole/time= inches/hour

-Use a ruler and measure the rate at which the water
drains- divide by the amount of time

-Standards:

I > or equal to 0.5 inches/hour- site will support
I < or + 0.5 inches/hour then under drain, or soil
amendment are needed or a different location

-Clay can drain!

-Compensate

-Go big or go home

-Rough it up (new construction)

- Compaction



Identifying and Utilizing

- Water, Soil, Time
 - Don't put a band aid on it!
 - Grow water loving plants
 - Add compost
 - Green Infrastructure or Grey!
 - Rain Garden Construction
 - French Drain or Dry Well or Drain Tile
 - Give in and create a bog or pond!

Smarter Not Harder....

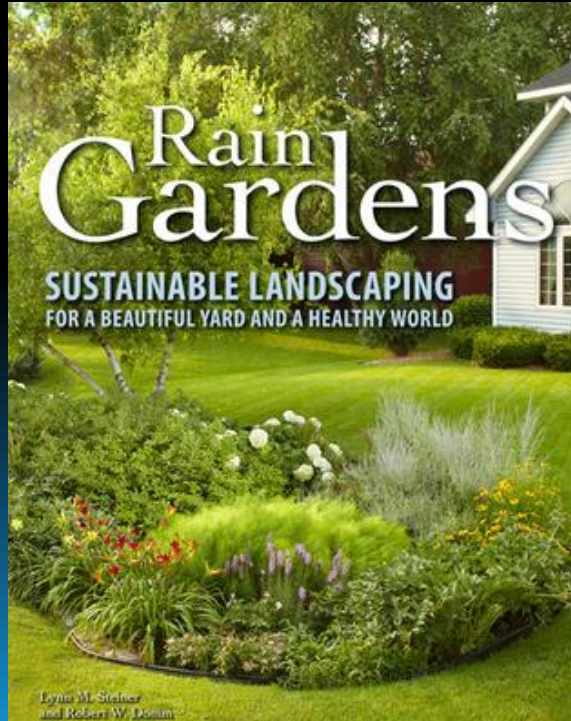
- Use your resources... (Dunnett/Clayden-Woelfle-Erskine/Uncapher-Steiner/Domm)
- Look at examples/case studies
- Utilize others with skill (may include your kids!)
- Make it fun and solve a problem!



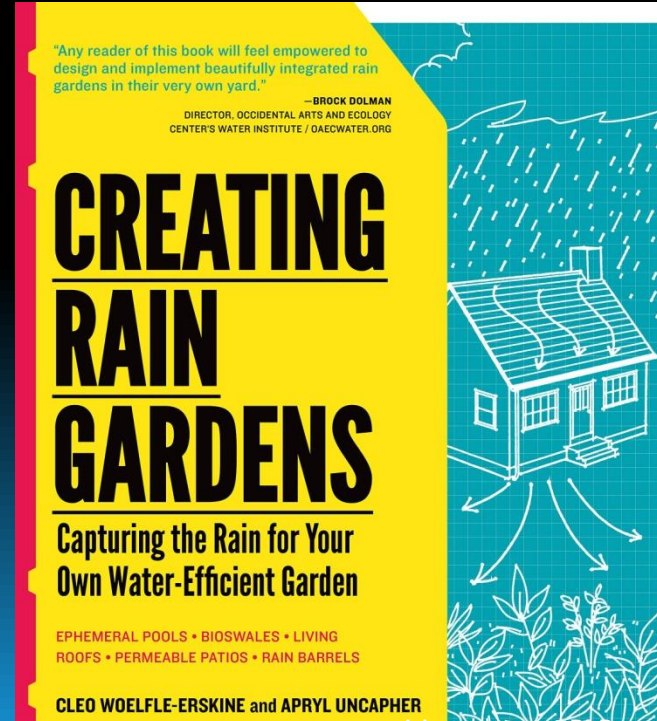
Nigel Dunnett and Andy Clayden

RAIN GARDENS

Managing water sustainably in the garden and designed landscape



Lynn M. Steiner
and Robert W. Domm



"Any reader of this book will feel empowered to design and implement beautifully integrated rain gardens in their very own yard."

— BROCK DOLMAN
DIRECTOR, OCCIDENTAL ARTS AND ECOLOGY
CENTER'S WATER INSTITUTE / OACWATER.ORG

CREATING RAIN GARDENS

Capturing the Rain for Your
Own Water-Efficient Garden

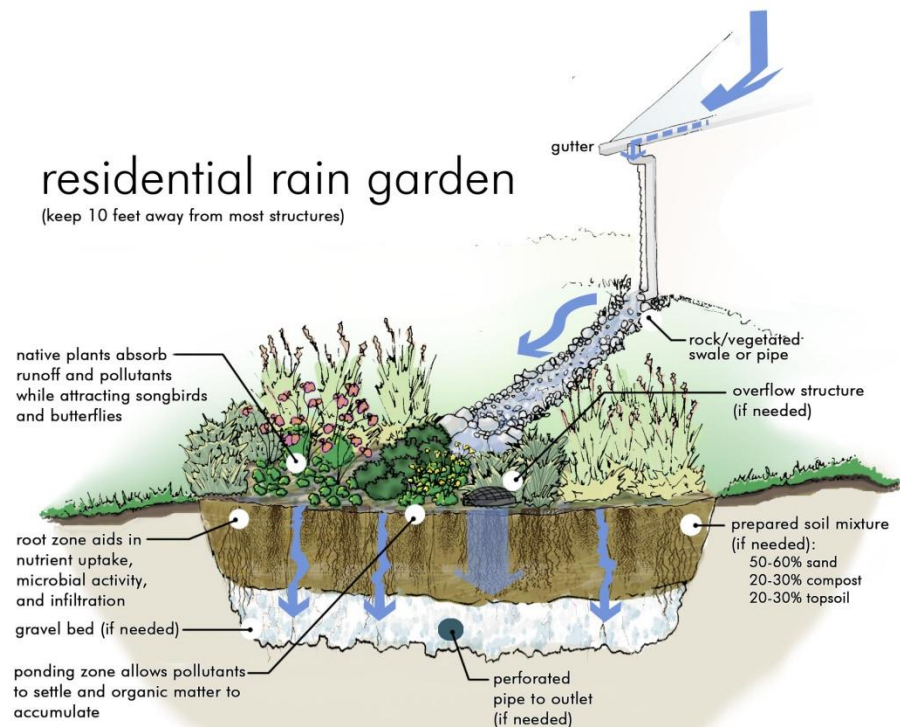
EPHEMERAL POOLS • BIOSWALES • LIVING
ROOFS • PERMEABLE PATIOS • RAIN BARRELS

CLEO WOELFLE-ERSKINE and APRYL UNCAPHER

AArnold, 2005, 218 p.

Identifying the Proper Location

- Collect as much impervious surface water as possible
- Best areas are where water drains but doesn't hold
- Minimum 10-15' away from your home
- Consider location of trees, utilities, easements, setbacks, understanding soil and the groundwater table
- Consider the world around you- you are not an island!



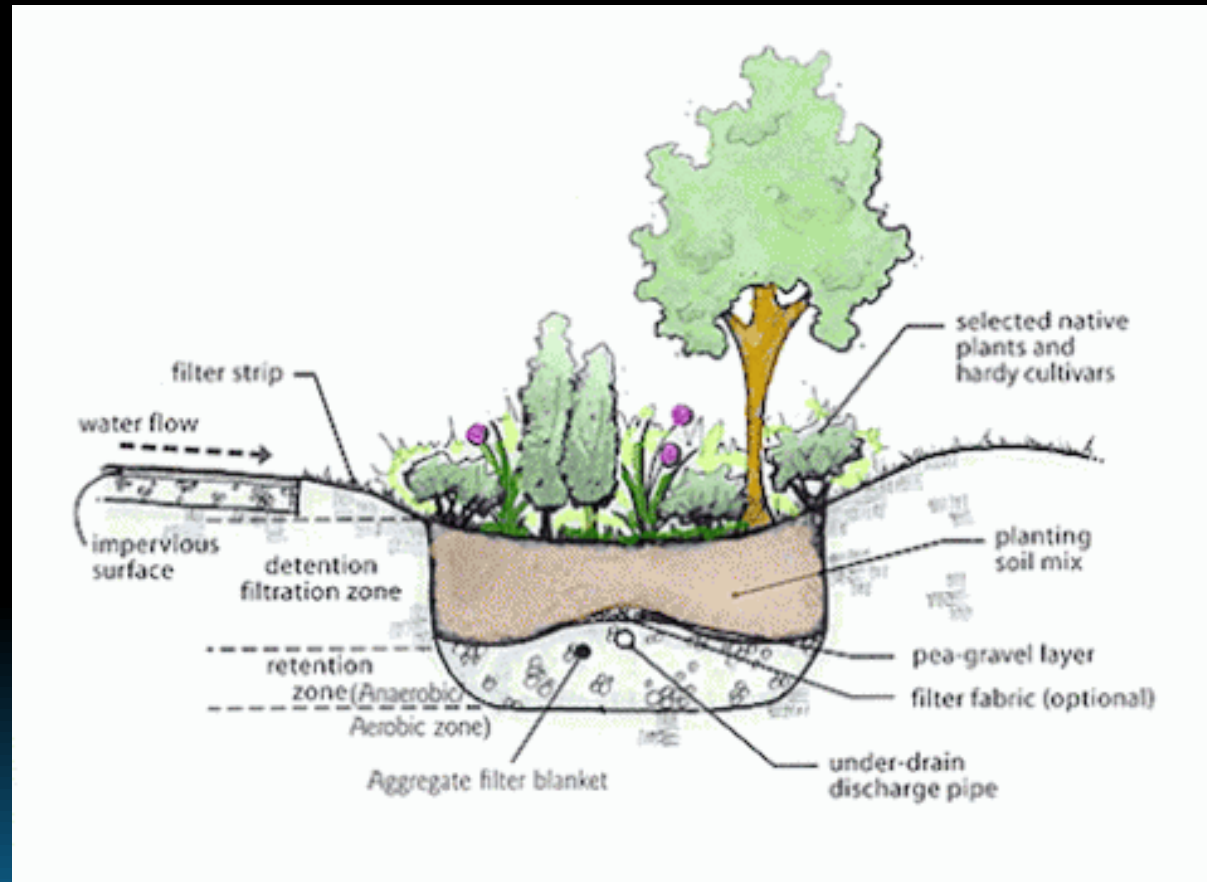
Understanding the Basics

Goals

- Water
- Flower
- Use
- Function

Water

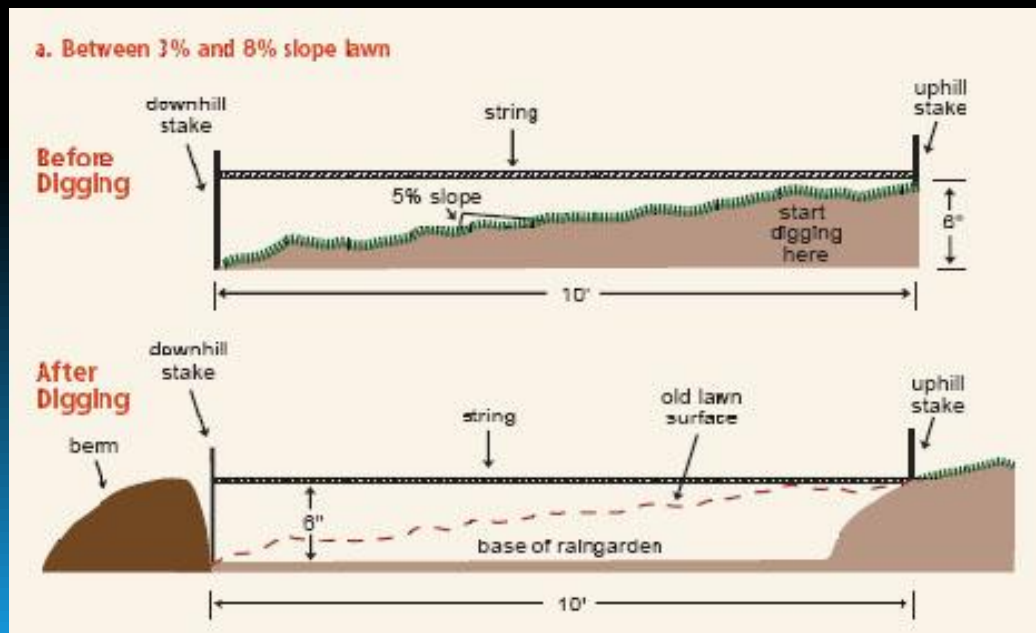
- Groundwater Table
- Surface Runoff
- Surface Cover



Understanding the Basics

Location

- Trees
- Proximity
- Utilities
- Slope- (string and stake method)
 - 4% or less – 4" rain garden
 - 5-7% - 6" garden
 - 8-12%- 8" garden
 - Greater than 12%- find a different location



Sizing your Rain Garden

Goals, Water, Location, Soil.... Now what!!!

Size your garden:

- Are any downspouts being considered? Does this include the sump pump? What grey infrastructure do you need? Want?
- Surface- how much is being drained to this space
- Surface- what do you need/want to direct to this space

Various methods:

- Complex and detailed
- Simple Calculations
- Cheats and Tricks!



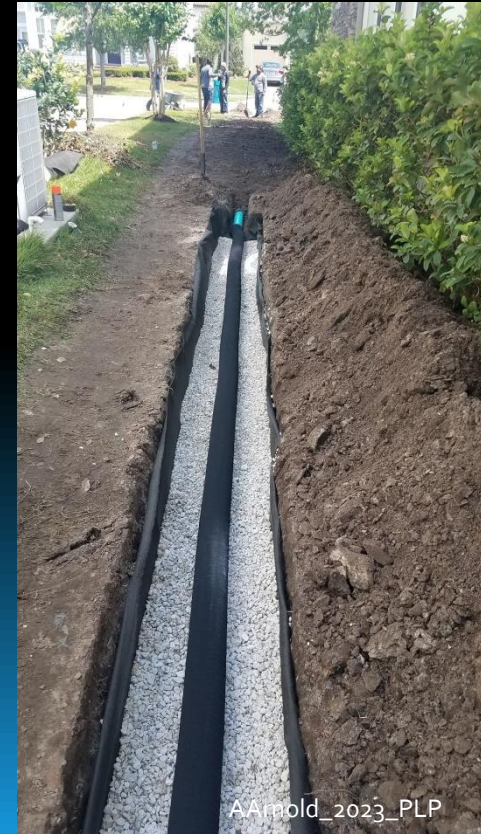
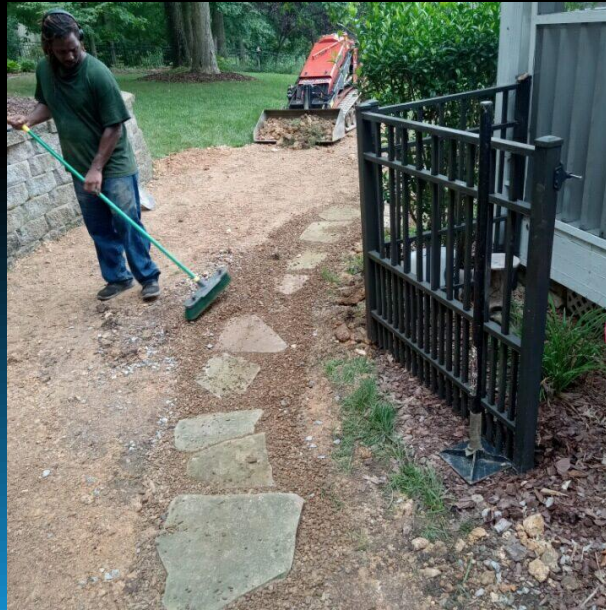
Sizing your Rain Garden: Sump Pumps

- Where do the sump pumps go?
 - Freezing
 - Overflow
 - Understanding flows



Sizing your Rain Garden: Grey

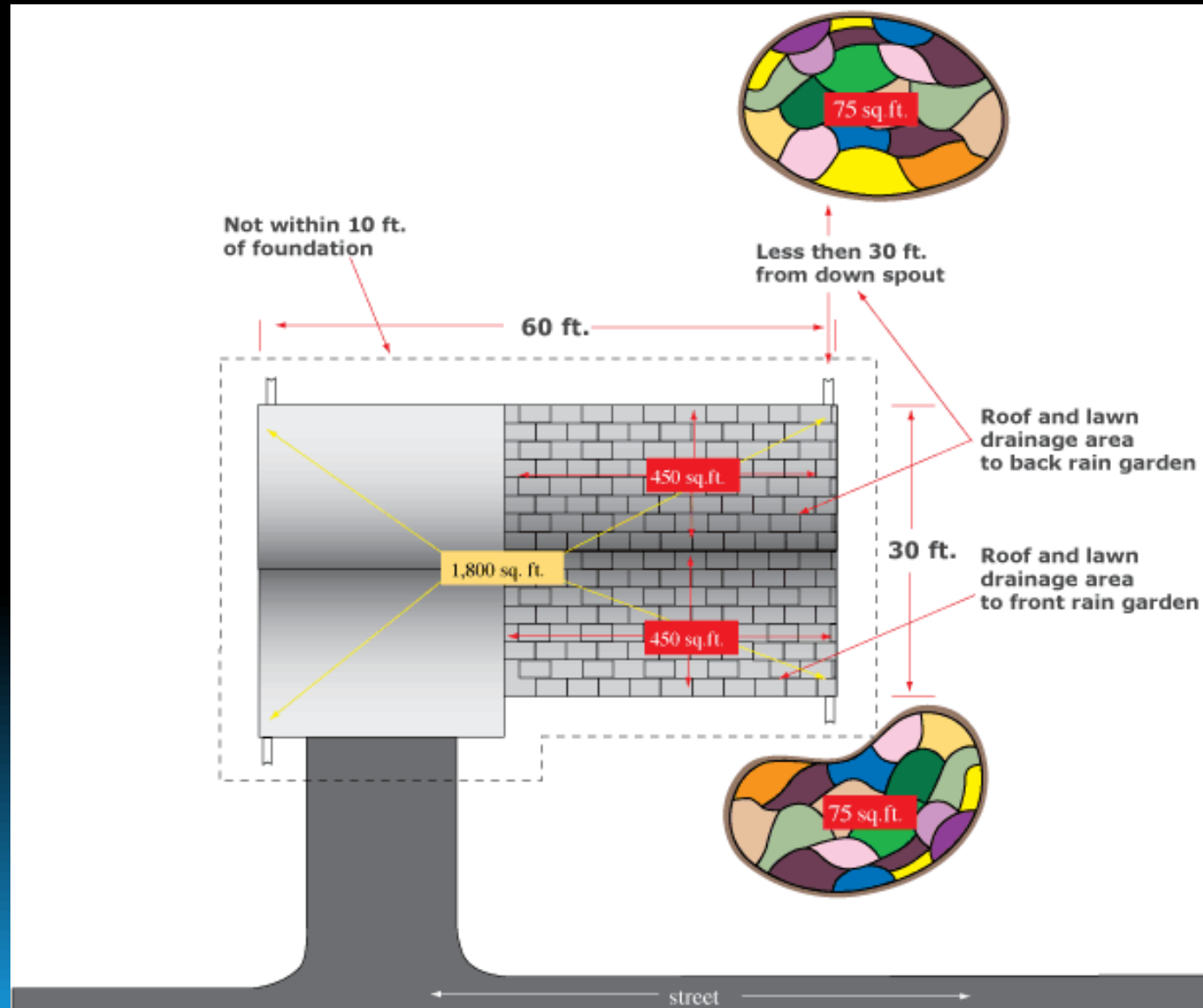
- If you need the big tools- grey infrastructure is a must!
- 90% of the time we incorporate both methods



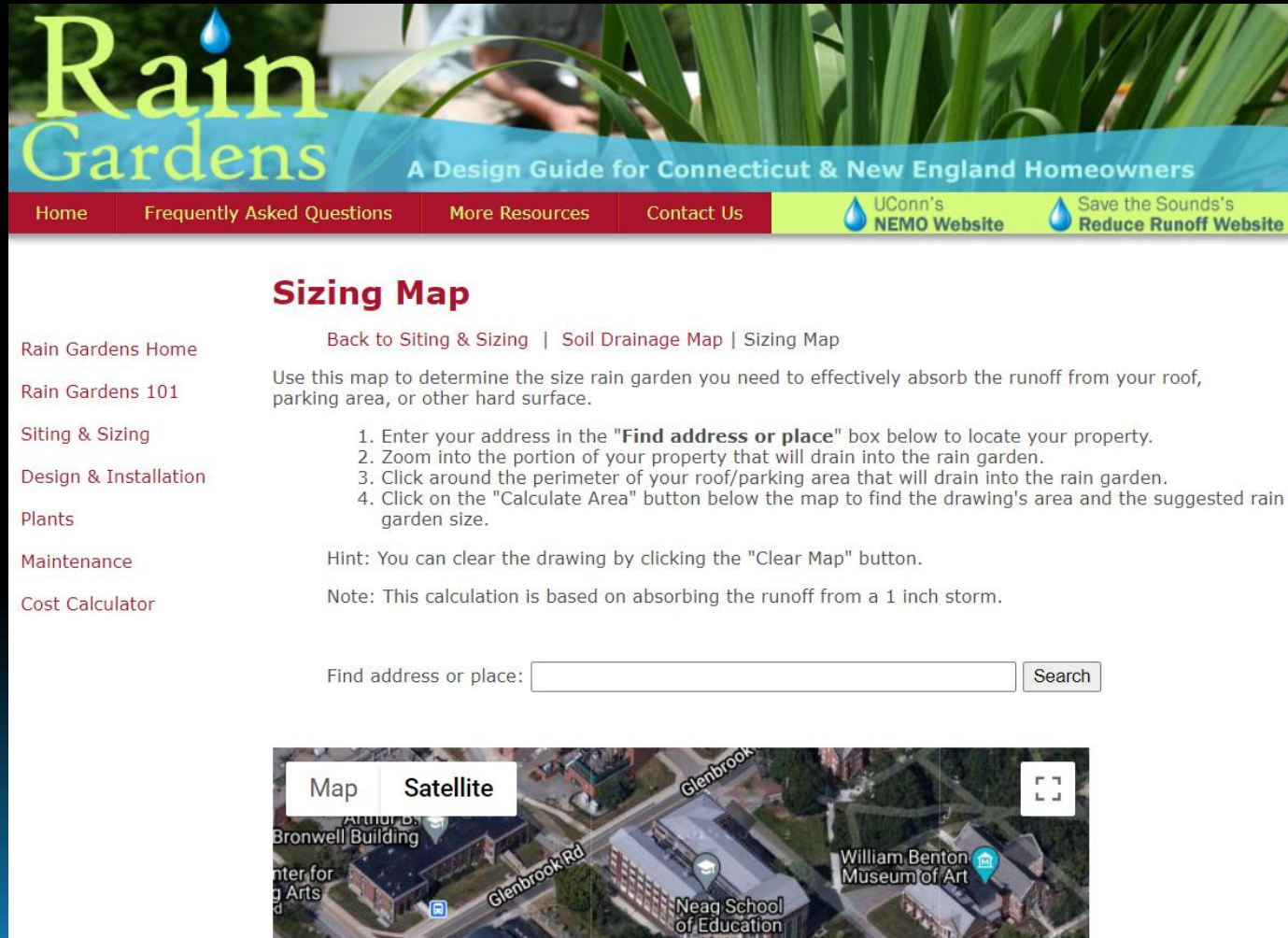
Sizing your Rain Garden

- Measure the footprint of your house. This is the area taken up by your house if looking down from above. Multiply the length by the width of the house, the answer will be square feet.
- Estimate how much of the area actually drains to the area where you want to install the garden. Typically, gutters drain to both ends of a house, so the length can be cut in half, but this is not always the case.
- If you are collecting runoff from your driveway or a section of road, just estimate the size of the impervious surface draining to the spot where you want to put the garden, and continue to step 4.
- Divide this area by 6. This calculation sizes the garden to hold one inch of runoff from the drainage area, in a garden 6 inches deep. The result is the area in square feet (or square meters) that you need for your rain garden. See the example below.
- You can make the garden and shape you like, as long as it is roughly the size that you calculated above. Ovals or kidney-shaped gardens tend to look nicer than square or rectangular gardens, but it's up to you.

Sizing your Rain Garden



Sizing your Rain Garden



The screenshot shows the 'Rain Gardens' website. The header features the title 'Rain Gardens' in large green letters with a blue water drop icon, and the subtitle 'A Design Guide for Connecticut & New England Homeowners'. Below the header is a navigation bar with links: Home, Frequently Asked Questions, More Resources, Contact Us, UConn's NEMO Website, and Save the Sounds's Reduce Runoff Website. The main content area is titled 'Sizing Map' in red. On the left is a sidebar with links: Rain Gardens Home, Rain Gardens 101, Siting & Sizing, Design & Installation, Plants, Maintenance, and Cost Calculator. The main text under 'Sizing Map' includes a description of the map's purpose, a numbered list of four steps for using the map, a hint about the 'Clear Map' button, and a note about the calculation being based on a 1 inch storm. Below this is a search bar with the placeholder text 'Find address or place:' and a 'Search' button. At the bottom is a satellite map of a campus area with labels for 'Glenbrook', 'Arthur B. Bronwell Building', 'Center for Arts', 'Glenbrook Rd', 'Neag School of Education', and 'William Benton Museum of Art'. The map includes a 'Map' button, a 'Satellite' button, and a full-screen icon.

Rain Gardens
A Design Guide for Connecticut & New England Homeowners

Home | Frequently Asked Questions | More Resources | Contact Us | UConn's NEMO Website | Save the Sounds's Reduce Runoff Website

Sizing Map

[Back to Siting & Sizing](#) | [Soil Drainage Map](#) | [Sizing Map](#)


Use this map to determine the size rain garden you need to effectively absorb the runoff from your roof, parking area, or other hard surface.

1. Enter your address in the "**Find address or place**" box below to locate your property.
2. Zoom into the portion of your property that will drain into the rain garden.
3. Click around the perimeter of your roof/parking area that will drain into the rain garden.
4. Click on the "Calculate Area" button below the map to find the drawing's area and the suggested rain garden size.

Hint: You can clear the drawing by clicking the "Clear Map" button.

Note: This calculation is based on absorbing the runoff from a 1 inch storm.

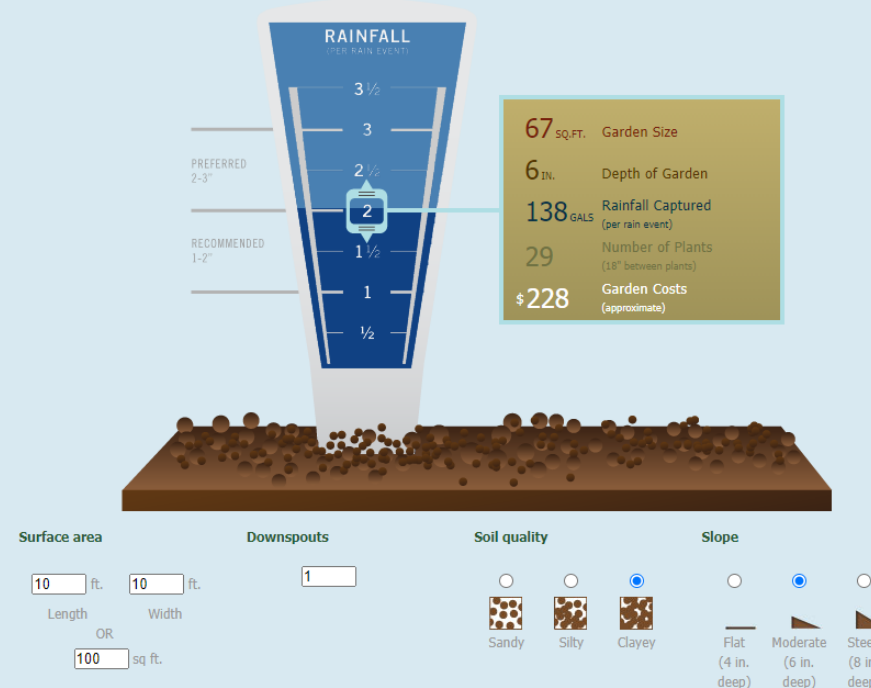
Find address or place:



Sizing your Rain Garden

What size garden do I need?

Before using our garden calculator below, read these guidelines to get you started. The size of your garden is determined by a number of variables. Some of these are established by the conditions of your yard (such as soil type and yard slope), while others are determined by you (such as amount of roof top to be addressed or rainfall to prepare for). Enter information for the four items across the top (surface area, downspouts, soil type, and slope) then slide the rain gauge up and down to see how rainfall capacity influences the size and cost of your garden.



Most houses are square or rectangular so measuring the length and width of your house will give you the surface area that collects water. If you have an unusually shaped house or are just connecting a portion of an area, calculate the square footage and enter it directly here.

Most roofs are symmetrical so you can enter the number of downspouts attached to the surface area that you just measured. All values are per downspout — if connecting more than one downspout to the garden, multiply garden size by total number of connections.

Soil type determines how quickly water is absorbed into the ground. Most soil in Western PA has a high clay content, we can help you determine [your soil type](#).

Yard slope determines how deep your garden is. Find [the slope](#) of your yard.

Designing for **Form**, Function, and Beauty

-Shape

- Utilize the lay of the land
- Any free form shape- can be a swale!
- Protect trees
- Better to size larger than smaller
- Fit will existing landscape (what is your landscape style?)
- How will it be viewed (one sided, multiple sides?)
- Remember where you want your water to flow



Designing for Form, **Function**, and Beauty

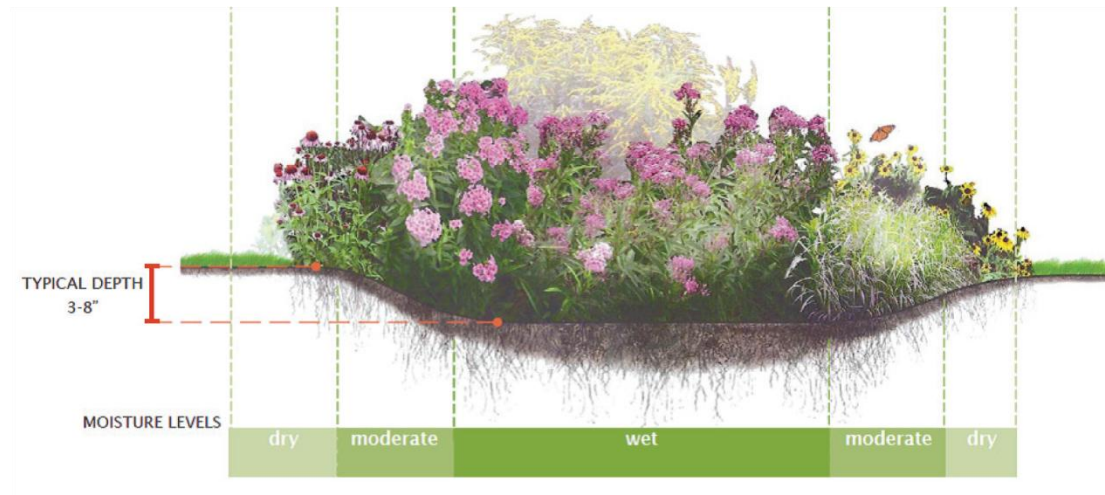
- Excavate soil- Loose soils that offer filtration
 - Typical mix- 50-60% Sand/20-30% Topsoil- low clay/ 20-30Compost or 30/30/30!
 - Utilize excavated soil to 'regrade' area to assist in rain garden form
- Cover- gravel or mulch:
 - Erosion Control
 - Traps and holds moisture
 - May need reinforcements (select stones- especially at downspouts or slopes)



Designing for Form, Function, and Beauty

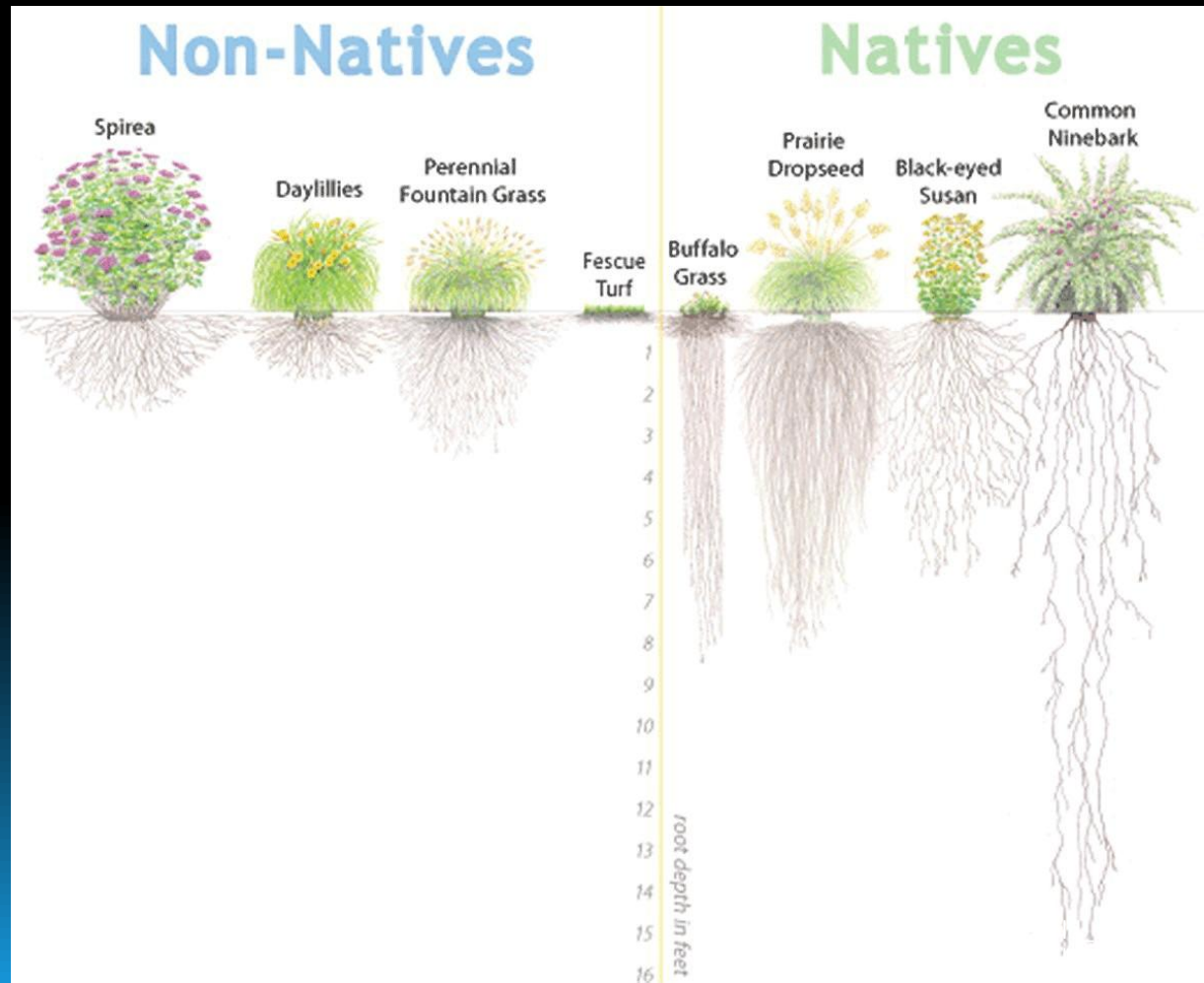
Wetland Indicator Status Codes

DRY	Almost never occurs in a wetland
MODERATE	Occurs in wetlands and non-wetlands
WET	Always occurs in a wetland



Designing for Form, Function, and Beauty

- Plants- the fun part!:
 - Wetland Edge plants
 - Sun/Partial/Shade
 - Aesthetics
 - Goals



Designing for Form, Function, and Beauty

Sample Rain Garden Plants



Swamp Milkweed
*Asclepias
incarnata*



Marsh Blazing Star
*Liatris
spicata*



White Turtlehead
*Chelone
glabra*



Wild Geranium
*Geranium
maculatum*



Oval Sedge
*Carex
bicknellii*



Brown Fox Sedge
*Carex
vulpinoidea*



Golden Alexanders
*Zizia
aurea*



Great Blue Lobelia
*Lobelia
siphilitica*



Whorled Milkweed
*Asclepias
verticillata*



Jack-in-the-Pulpit
*Arisaema
triphylum*



Queen of the Prairie
*Filipendula
rubra*



Eastern Star
Sedge
*Carex
radiata*



Prairie Blazing Star
*Liatris
pycnostachya*



Foxglove
Beardtongue
*Penstemon
digitalis*



Zigzag Goldenrod
*Solidago
flexicaulis*



Bee Balm
*Monarda
fistulosa*



Purple Coneflower
*Echinacea
purpurea*



Penn Sedge
*Carex
pennsylvanica*



Showy Black-Eyed
Susan
Rudbeckia fulgida var.
speciosa



Prairie Dropseed
*Sporobolus
heterolepis*



Wild Columbine
*Aquilegia
canadensis*



Woodland Phlox
*Phlox
divaricata*



False Solomon's Seal
*Maianthemum
racemosum*



Blue Flag Iris
*Iris virginica
shrevei*



We save land. We save rivers.

Build your own RAIN GARDEN



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THE CONSERVATION FOUNDATION

We save land. We save rivers.

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www.theconservationfoundation.org

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Learn how to use native plants to solve water
problems on your property!

Designing for Form, Function, and Beauty

Rain Garden Design

What is a rain garden?

A rain garden is simply a shallow depression in your yard that's planted with native wildflowers and grasses that are able to thrive in changing soil moisture. Its purpose is to gather, filter and infiltrate rainwater into the ground (restoring the aquifer), provide habitat for wildlife, and deliver enjoyment to its owner (that's you!)

Rain gardens are gaining popularity for 3 reasons:

1. Rain gardens make good use of the rainwater; the native plants filter and clean water as it soaks into the ground. By keeping runoff out of storm drains, rain gardens also help protect water quality in local lakes and streams and restore the aquifer, our underground water supply.
2. Rain gardens are planted with beautiful, hardy, low-maintenance native perennial plants and native shrubs.
3. Rain gardens provide food and shelter for birds, butterflies and beneficial insects, such as mosquito-devouring dragonflies!



Simple Construction

It's easy! Just follow these easy steps:

1. Dig a shallow depression with a level bottom. The size depends on your drainage needs. A good guesstimate is 20% of the square feet of your drain area for sandy soil, 30% for loam, and 40-50% for clay.
 2. Pick a naturally low spot in your yard at least 10ft from your house. Full sun is best. Try to choose a spot with at least half-day sunlight. Do not put the rain garden in the area of a septic field.
 3. A depression of about 2-6 inches is fine. Slope the sides gradually from the edge to the level bottom. For heavy clay soils, dig the rain garden deeper or mix topsoil with compost to improve drainage.
 2. Direct your downspout or sump pump outlet to your rain garden, either by digging a shallow swale—a linear depression designed to channel water—or by routing it through a buried 4" pipe. Always plan that the overflow location is lower than where the water enters.
 3. Plant your native rain garden with native plants appropriate for your soil type and sun/shade conditions.
 4. If it doesn't rain, keep the soil moist but not wet for the first growing season until plants are well-established.
- Once your native rain garden plants are established, standard garden maintenance is all that is required.

Too much of a good thing

During heavy rains, your garden may overflow. Make sure this overflow follows the drainage pattern originally designed for your lot. Test this by filling your depression with a garden hose and watching the overflow. If needed, dig a shallow swale to direct overflow toward the street or other downhill areas away from buildings. It should not drain to your neighbors' property.

True Natives vs. Cultivars

We recommend using true natives which are adapted to survive under our local conditions (rainfall, drought, and temperature fluctuations) and support wildlife who are dependent on plants for their food and development. Cultivars have been artificially cloned or bred for specific characteristics such as flower color and may not function as well as the true native. The name of the plant gives a clue if it's a pure native; if the botanical name is followed by a common name in single quotation marks then it is a cultivar (e.g. *Echinacea purpurea* 'White Swan'). Purchasing from well-respected growers/nurseries is a dependable strategy for getting the right plants.

More Tips

- Weed biweekly until native plants are established.
- Avoid using lawn fertilizers near the rain garden. They stimulate weeds without benefitting plants.
- Don't worry about mosquitoes. A properly constructed rain garden will not hold water long enough for mosquitoes to reproduce and it attracts dragonflies, snailbots, and other controls to keep them in check.
- Place natural rocks, bird houses, a bench or garden ornaments in and around your rain garden. Have fun with this!
- Include native sedges and grasses to help physically support taller species.

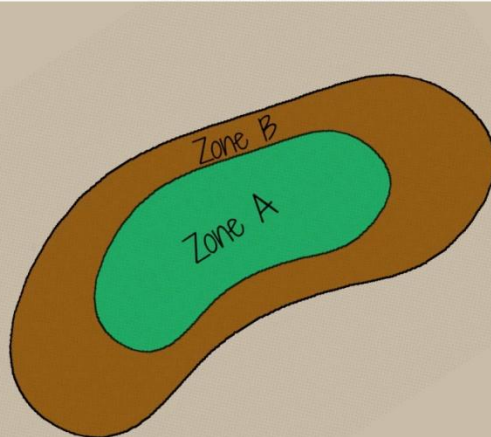


The Conservation Foundation...

is a nonprofit organization dedicated to preserving open space and natural lands, protecting rivers and watersheds, and promoting stewardship of the environment in Northeast Illinois.

Established in 1912, we work closely with citizens, elected officials, developers, land-use planners, park districts, and forest preserves. We have helped protect more than 30,000 acres of open space. The Conservation Foundation has more than 5,000 donors and members, and 500 volunteers.

Our main office is at the McDonald Farm in Naperville, IL, with another at Dickson-Murst Farm in Montgomery, IL. For more information, visit www.theconservationfoundation.org



Zone B Plants (drier)

Whorled Milkweed	<i>Asclepias verticillata</i>
Foxglove Beardtongue	<i>Penstemon digitalis</i>
Zigzag Goldenrod	<i>Solidago flexicaulis</i>
Bee Balm	<i>Monarda fistulosa</i>
Shawny Black-Eyed Susan	<i>Rudbeckia fulgida</i> var. <i>speciosa</i>
Purple Coneflower	<i>Echinacea purpurea</i>
Prairie Blazing Star	<i>Liatris pycnostachya</i>

Sedges (Zone B)

Bicknell's Sedge	<i>Carex bicknellii</i>
Eastern Star Sedge	<i>Carex radiata</i>
Prairie Dropseed	<i>Sporobolus heterolepis</i>

Zone A Plants (wet/moist)

Swamp Milkweed	<i>Asclepias incarnata</i>
Great Blue Lobelia	<i>Lobelia siphilitica</i>
Marsh Blazing Star	<i>Liatris spicata</i>
White Turtlehead	<i>Chelone glabra</i>
Blue Flag Iris	<i>Iris virginica</i> shrevei
Golden Alexanders	<i>Zizia aurea</i>

Sedges (Zone A)

Brown Fox Sedge	<i>Carex vulpinoidea</i>
Palm Sedge	<i>Carex muskingumensis</i>

Moist Shaded Areas

Great Blue Lobelia	<i>Lobelia siphilitica</i>
Wild Columbine	<i>Aquilegia canadensis</i>
Woodland Phlox	<i>Phlox divaricata</i>
Wild Ginger	<i>Asarum canadense</i>
Shooting Star	<i>Dodecatheon meadia</i>
Jack-in-the-Pulpit	<i>Arisaema triphyllum</i>
Wild Geranium	<i>Geranium maculatum</i>

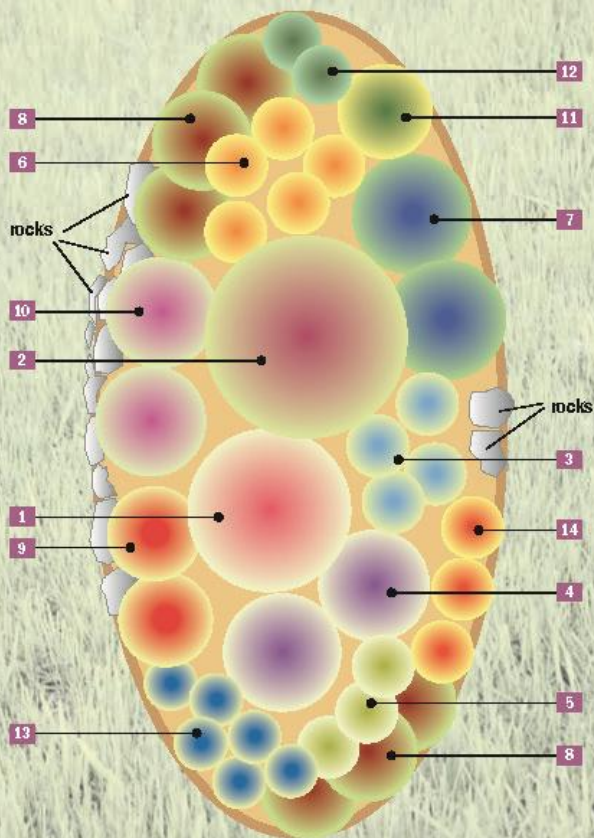
Sedges

Penn Sedge	<i>Carex pensylvanica</i>
Palm Sedge	<i>Carex muskingumensis</i>
Plantain-Leaved Sedge	<i>Carex plantaginifolia</i>

Designing for Form, Function, and Beauty

A Rain Garden for Sun (continued)

12x24 feet



2

A Rain Garden for Sun (continued)

(See the plant diagram on page 2.)



5 Astilbes (Astilbe), which are long-lived, moisture-loving perennials that will thrive in the sunny rain garden if planted where they get some afternoon shade from taller shrubs nearby. They bloom in summer and are available in pinks, reds, purple, and white. 1 to 3 feet tall; Zones 5 to 8. Three plants.



6 Daylilies (Hemerocallis), which may not be natives but can keep your rain garden in bloom over a long season if you plant early, midseason, and late varieties. Assorted heights and a rainbow of colors are available. Zones 4 to 11. Five plants.

For the drier outer edge . . .



7 Blueberries (Vaccinium), whether highbush (up to 5 feet tall) or lowbush (up to 2 feet tall) varieties, which add both a flowering shrub and an edible fruit to your landscape. Zones 3 to 8. Two plants.



8 American cranberry (Vaccinium macrocarpon), which is a pretty, ground-covering shrub that also bears edible fruit. About 6 inches tall; Zones 2 to 7. Six plants.



9 Bee balm (Monarda), which in summer features brilliant-red, pink, or white flowers that attract hummingbirds and butterflies. Look for a mildew-resistant variety 3 feet tall and wide; Zones 3 to 9. Two plants.



10 New England aster (Aster novae-angliae), which will carry the show into fall with its bright, violet-purple flowers. It gets quite tall but can be cut back to half its height in June to create a shorter and bushier plant, if desired. Up to 6 feet tall; Zones 4 to 8. Two plants.

11 Sneezeweed (Helenium autumnale), which bears sunny yellow flowers in late summer. It is highly adaptable to wet or dry soil. 3 to 5 feet tall; Zones 4 to 8. One plant.

12 Meadow anemone (Anemone canadensis), which is deer-resistant and salt-tolerant. This tough little perennial bears pure-white blossoms in late spring. 2 feet tall; Zones 2 to 9. Two plants.

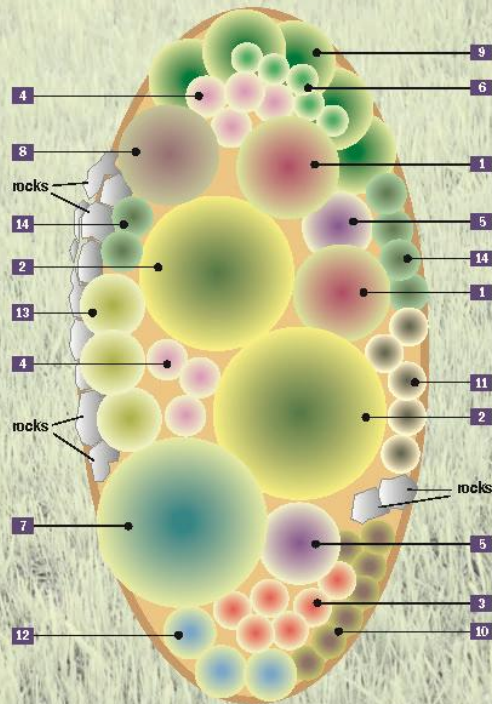
13 Blue cardinal flower (Lobelia siphilitica), which has spikes of true blue flowers in late summer 2 to 4 feet tall; Zones 5 to 9. Six plants.

14 Butterfly weed (Asclepias tuberosa), which features orange blossoms that provide excellent nectar for butterflies. In addition, the plants are an important larval food for monarch butterflies. 2 to 3 feet tall; Zones 4 to 9. Three plants.

Designing for Form, Function, and Beauty

A Rain Garden for Shade (continued)

12x24 feet



5

A Rain Garden for Shade

Placing a rain garden in full shade is not recommended; partial shade is best.

(See the plant diagram on page 5.)

In the center, plant...



1 Rhododendrons, especially cold-hardy native rhodora (*Rhododendron canadense*), which like damp soil and partial sun. They will bloom profusely in the spring. 2 to 4 feet tall and wide; Zones 3 to 6. Two plants.



2 Winterberry (*Ilex verticillata*), which needs one male plant to act as a pollinator, along with the females, if you want a crop of colorful red berries. For this garden size, choose from dwarf cultivars. 3 to 5 feet tall; Zones 3 to 9. Two plants.



3 Cardinal flower (*Lobelia cardinalis*), which grows well in sun or partial shade. It has rich red flowers in late summer. 2 to 3 feet tall; Zones 3 to 9. Six plants.



4 Pink turtlehead (*Chelone lyonii*), which is a trouble-free perennial that doesn't die in early fall. 2 to 4 ft.



5 Purple meadow in damp spot in partial shade. Purple-tinged white. 5 to 9. Two plants.

6 Wild columbines (source of nectar for) draw them to your red and yellow blossoms. Five plants.

For the drier outer

7 Arrowwood (*Viburnum*) shrub with glossy leaves and white blossoms in late spring. 6 to 12 feet tall and wide; Zones 3 to 7.

8 Dwarf foxtailgilia white flowers that as the foliage becomes tall and wide; Zones 3 to 7.

9 Common bearberry (*Arctostaphylos uva-ursi*), which is a rugged evergreen ground cover in the heath family. It has white flowers in spring and red berries in late summer. 3 to 8 inches tall, spreading to between 2 and 4 feet wide; Zones 2 to 6. Five plants.

10 Coral bells (*Heuchera sanguinea*), which are colorful foliage plants that send up tall spikes of tiny red, pink, or white flowers in late spring. 6 to 12 inches high and wide; Zones 3 to 8. Seven plants.

11 Foam flower (*Tiarella cordifolia*), which is a deer-resistant plant with white flowers in spring. (Heuchera and Tiarella have been crossed to create a hybrid genus called Heucherella which combines the gorgeous foliage of heucheras with the showy flowers of tiarellas—look for this one!) 5 to 12 inches tall; Zones 3 to 7. Five plants.

12 Jacob's ladder (*Polemonium reptans*), which is a low-growing, spreading perennial with clusters of light-blue flowers. 8 to 12 inches tall; Zones 3 to 8. Three plants.

13 Zigzag goldenrod (*Solidago flexicaulis*), which bears golden yellow flowers in the fall. 2 feet tall and wide; Zones 3 to 8. Three plants.

14 Spotted geranium (*Geranium maculatum*), which has dainty, pinkish-purple flowers that bloom above the mound of lobed leaves in the spring and often again in the fall. 1 to 3 feet tall; Zones 4 to 8. Six plants.



A Rain Garden for Shade (continued)

(See the plant diagram on page 5.)



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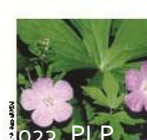
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Designing for Form, Function, and Beauty



STAR PERFORMERS

No matter the size- here are some pollinator favorites!

Happy Planting!



Asclepias
incarnata

96 Species of
Pollinators



Pycnanthemum
virginianum

313 Species of
Pollinators



Rudbeckia
speciosa

106 Species of
Pollinators

Designing for Form, Function, and Beauty

<u>Scientific Name</u>	<u>Common Name</u>	<u>Pollinators</u>	<u>Height</u>	<u>Bloom Time</u>	<u>Bloom Color</u>	<u>Sun</u>	<u>Soil</u>
1. <i>Juncus effusus</i>	Common Rush	6 Species	2'	June-Aug	n/a	☀	Moderate-Wet
2. <i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	65 Species	5'	June-Sept	Pink	☀	Wet
3. <i>Chelone glabra</i>	Turtlehead	8 Species	5'	July-Sept	White	☀	Wet
4. <i>Rudbeckia fulgida</i>	Orange Coneflower	106 Species	3'	July-Sept	Yellow	☀	Moderate
5. <i>Veronicastrum virginicum</i>	Culver's Root	59 Species	5'	June-Aug	White	☀	Moderate
6. <i>Liatris spicata</i>	Marsh Blazingstar	60 Species	5'	July-Sept	Violet	☀	Moderate-Wet
7. <i>Carex lurida</i>	Sallow Sedge	12 Species	3'	May-Aug	n/a	ALL	Wet
8. <i>Carex muskingumensis</i>	Palm Sedge	18 Species	3'	June-July	n/a	ALL	Moderate
9. <i>Sporobolus heterolepis</i>	Northern Dropseed	14 Species	3'	Aug-Oct	Gold/Brown	☀	Moderate-Dry
10. <i>Ruellia humilis</i>	Wild Petunia	20 Species	1'	June-Aug	Violet	☀	Moderate-Dry
11. <i>Echinacea pallida</i>	Pale Purple Coneflower	98 Species	3'	June-Aug	Lavender	☀	Moderate-Dry
12. <i>Coreopsis palmata</i>	Prairie Coreopsis	147 Species	2'	June-Aug	Yellow	☀	Moderate-Dry

Installation- Dreams to Reality!

-Excavate

- Remember to layout out stakes
- Figure out your shape
- You may need a berm or more complex basin; contour to land
- Smarter not harder!
- Hose and Yard Stick Method- understanding conveyance
- Buried Pipes- Sump Lines
- Level Basin-(keep sides around 60%)
- Outlet (need overflow!) is lower than inlet and safe from erosion (berm/stones)
- Install your grey infrastructure first- connect all pipes!

-Soil

- Add and make sure to accor

-Plant

- Center- wettest plants
- Sides- occasional flooding
- Berm- dry!

-Enjoy!



Management and Care

-After installation- Now What?

-Cover and Care-

- Mulch or cover first couple of years
- Plant for overlap and competition
- Check inlet/outlet for erosion and slope/level over time
- Clean downspouts and remove debris as needed

-Weeding-

-You will always have to weed (plant and plan for just a little!)

-Cutting back- spring cut backs

-Ignoring, editing, removing

-Adding the details

-Bird houses/Nesting Boxes

-Benches

-Hummingbird Feeders

-Be flexible with change

-Monitor and adapt



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THANK YOU!

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IMAGE NOTES:

FEEL FREE TO CONTACT FOR DIRECT LINKS AND NOTATIONS:

CONSERVATION FOUNDATION

UNITED STATES BOTANIC GARDENS

CREATING RAIN GARDENS- WOELFLE-ERSKINE/UNCAPHER

SCIENCE NOTES

UNIVERSITY OF CONNECTICUT/NEMO

RAIN GARDEN ALLIANCE

TERRA LANDSCAPES

NEW FAIRFIELD'S HAMLET HUB

STORM WATER ALLIANCE

US WATER PROOFING

OLD FARMER'S ALMANAC

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