

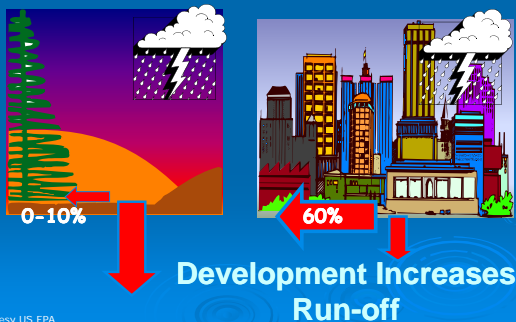
## Going Native with Rain Gardens and Wildlife Habitats



## A Little Background.....

- Rain gardens and agriculture?
- BMPs are BMPs
- Stormwater Programs (MS<sub>4</sub>)
  - Rain gardens
  - Rain Barrels

## Relationships Between Land Use and Water Resources



## What is a Rain Garden?



## Benefits of Rain Gardens

- Low maintenance, low water use, beautiful landscape feature.
- Reduces runoff, flooding risks and stream bed destruction downstream.
- Reduces sediment, nutrients, and other pollutants entering waterways.
- Increases infiltration of rainwater in landscapes with impervious surfaces – infiltrates as much as 30 % more water than a flat or sloped lawn area.
- Attracts wildlife.

## Frequent Concerns

- Ponding should last no more than 48 hours after rain stops. A rain garden is dry between rainfalls.
- Mosquitoes need at least 7 days to lay and hatch eggs.

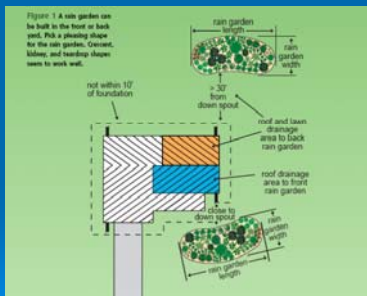
## Planning

- Where do I put it?
- How big should it be?
- What do I plant?

## Locations to avoid

- Next to a building foundation
- Over a septic system
- Where water stands for long periods already – High seasonal water table area
- Inside the dripline of any large trees
- Slopes greater than 12%

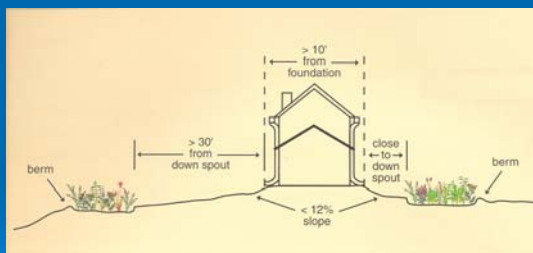
## Location



## Location

- At least 10 ft from a building foundation
- Low area: water will naturally move there
- Easy viewing from inside
- Fitting into the rest of the landscape

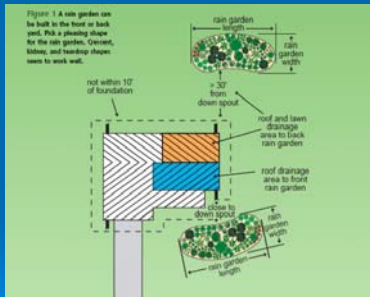
## Size



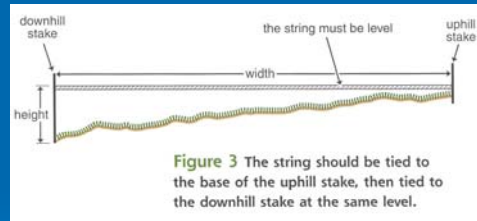
## Size

- Depends on:
  - Drainage area
  - How deep the garden will be (slope)
  - Soils

## Drainage Area



## Slope



$$\frac{\text{Height}}{\text{Width}} \times 100 = \text{slope}$$

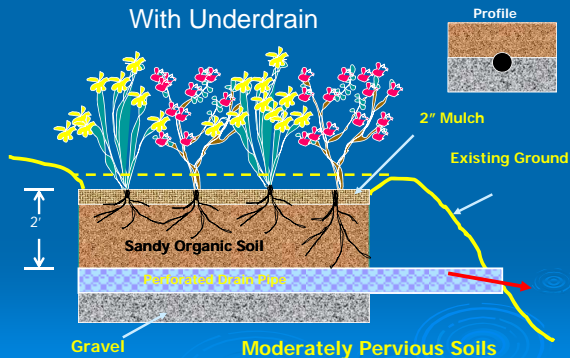
## Slope

- Less than 4% slope, 3 to 5 inches deep
- 5-7%, 6 to 7 inches deep
- 8-12%, 8 inches deep
- Greater than 12%, find a different spot

## Soil: Depth of Ponding

- Infiltration Test
  - Dig a hole 6-8 inches deep and wide
  - Fill hole with water
  - If water does not drain out of the hole in 12 hours, not a good location for a rain garden OR you need an underdrain or emergency overflow.

## Rain Garden Plan With Underdrain



Courtesy NEMO

## Size Summary

Having estimated the drainage area, soil type, and depth for your rain garden, use Table 1 or Table 2 to determine the rain garden's surface area. Use Table 1 if the rain garden is less than 30 feet from the downspout, and use Table 2 if it is more than 30 feet from the downspout.

Table 1 Rain gardens less than 30 feet from downspout.			Table 2 Rain gardens more than 30 feet from downspout.	
	3-5 in. deep	6-7 in. deep	8 in. deep	Size Factor, for all depths
Sandy soil	0.19	0.15	0.08	Sandy soil 0.03
Silty soil	0.34	0.25	0.16	Silty soil 0.06
Clayey soil	0.43	0.32	0.20	Clayey soil 0.10

1. Find the size factor for the soil type and rain garden depth.
2. Multiply the size factor by the drainage area. This number is the recommended rain garden area.
3. If the recommended rain garden area is much more than 300 square feet, divide it into smaller rain gardens.

## Site Preparation

- Indiana Underground Plant Protection Service: 1-800-382-5544 or: 811
- Dig out basin
  - Spring is best
  - Killing grass first makes it easier
- Make small downstream berm from excess soil
- Mix in compost or biosolids

## Plant Selection



## Natives for Wildlife Habitat

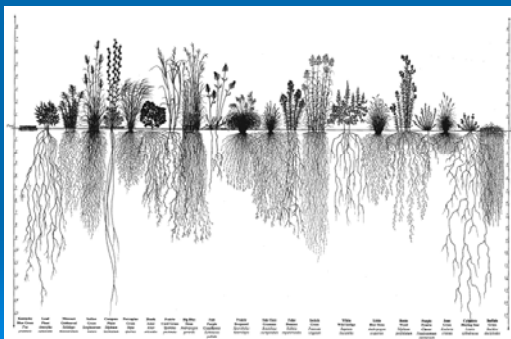
“Once you begin growing native plants, be sure to purchase them only from reputable nurseries that propagate by seed, cutting or division. Collecting plants from the wild is unethical for individuals and professional businesses.”

Indiana Native Plant and Wildflower Society (INPAWS)

## Benefits of Native Perennials

- Adapted to both flooding and drought
- Deep roots increase infiltration
- Attract butterflies, birds, and beneficial insects

## Why Natives?



Elkhart Environmental Center Bioretention Seed Mix	Elkhart Environmental Center Bioretention Plugs	Elkhart Environmental Center Rain Garden Plugs
<b>Grass and Sedges</b>	<b>Grass and Sedges</b>	<b>Grass and Sedges</b>
<i>Carex annectans xanthocarpa</i> (Yellow Fox Sedge)	<i>Paricum virgatum</i> (Switch Grass)	<i>Andropogon scoparius</i> (Little Bluestem)
<i>Carex frankii</i> (Frank's Sedge)	<i>Sorghastrum nutans</i> (Indian Grass)	<i>Carex annectans</i> var <i>xanthocarpa</i> (Yellow Fox Sedge)
<i>Carex vulpinoidea</i> (Fox Sedge)	<i>Scirpus cyperinus</i> (Woolgrass)	<i>Carex vulpinoidea</i> (Fox Sedge)
<i>Elymus virginicus</i> (Virginia Wild Rye)		
<i>Schizachyrium scoparium</i> (Little Bluestem)		
<b>Forbs</b>	<b>Forbs</b>	<b>Forbs</b>
<i>Aster novae-angliae</i> (New England Aster)	<i>Asclepias incarnata</i> (Marsh Milkweed)	<i>Aster novae-angliae</i> (New England Aster)
<i>Echinacea purpurea</i> (Purple Coneflower)	<i>Coreopsis tripteris</i> (Tall Coreopsis)	<i>Echinacea purpurea</i> (Purple Coneflower)
<i>Eupatorium perfoliatum</i> (Boneset)	<i>Eryngium yuccifolium</i> (Rattlesnake Master)	<i>Eupatorium perfoliatum</i> (Boneset)
<i>Iris virginica shrevei</i> (Blue Flag)	<i>Siphium perfoliatum</i> (Cup Plant)	<i>Verbena hastata</i> (Blue Vervain)
<i>Liatris spicata</i> (Dense Blazing Star)	<i>Siphium serotinum</i> (Prairie Dock)	<i>Lobelia cardinalis</i> (Cardinal Flower)
<i>Lobelia cardinalis</i> (Cardinal Flower)	<i>Siphium laciniatum</i> (Compass Plant)	<i>Rudbeckia autumnalis</i> (Sweet Black-Eyed Susan)
<i>Monarda fistulosa</i> (Bergamot)	<i>Eupatorium maculatum</i> (Spotted Joe-Pye Weed)	<i>Liatris aspera</i> (Rough Blazing Star)
<i>Perisetemon calycosus</i> (Smooth Beardtongue)	<i>Echinacea purpurea</i> (Purple Coneflower)	<i>Iris virginica shrevei</i> (Blue Flag Iris)
<i>Perisetemon digitalis</i> (Fingert Beardtongue)		<i>Monarda fistulosa</i> (Bergamot)
<i>Pycnanthemum virginicum</i> (Mountain Mint)		
<i>Rudbeckia fulgida speciosa</i> (Showy Black-Eyed Susan)		
<i>Rudbeckia hirta</i> (Rudbeckia hirta)		
<i>Solidago rigida</i> (Ridged Goldenrod)		
<i>Verbena hastata</i> (Blue Vervain)		
<i>Zizia aurea</i> (Golden Alexander)		

## Plant Selection Considerations

- Soil types
- Plant height
- Plant bloom times and colors
- Mix sedges, rushes, grasses and forbs
- Mix height, shape and texture for interest
- Enhance with stone, fence, bench, ????
- Find a reputable seed and/or plug supplier

## Cost

- Seeds vs. plugs
- If underdrain is needed, this will add to cost.

## Maintenance

- Burn
- Mower or weed-eater at 6 inches
- Periodic weeding by hand

## Rain Barrels



## Why Rain Barrels?

- Retain water for a time when it is needed
- Watering lawns, gardens, indoor plants
- Washing cars or dogs
- Filling wading pools
- Mixing concrete...
- ...and much more

## Rain Barrel Cautions

- Avoid chemical treatments on roof
- Always wash vegetables grown using rain barrel water
- Prevent mosquitoes!
- Minimal maintenance is needed

## Wildlife Habitat

- Food
- Water
- Shelter
- Space
- In a suitable arrangement for survival



What kind of wildlife?

## Getting Started

- Know your site:
  - Soil Type – general description
  - Wet or dry?
  - Sun or shade?
  - Woodland or prairie plants?
- Know yourself
  - Overcome the urge to over-clip
  - Informal style



## Food

- Plant diversity and variety
- To have butterflies, you must feed caterpillars
- Nectar for butterflies and hummingbirds
- Berries, nuts, seeds for birds and others
- (look for plants that provide winter food)
- Repeat after me: bugs are good!

## Shelter

- A place to hide
- Shade
- Protection from wind
- A place to rest
- A place to nest



## Plants That Provide Shelter

- Trees
- Shrubs
- Vines
- Grasses



## Advantages of Natives

- Valuable to native wildlife
- Low maintenance (Let it Grow!)
  - Less fertilizer
  - Less chemicals
  - Less water
- Adapted to our severe climate swings

## Natives for Wildlife Habitat

“Once you begin growing native plants, be sure to purchase them only from reputable nurseries that propagate by seed, cutting or division. Collecting plants from the wild is unethical for individuals and professional businesses.”

Indiana Native Plant and Wildflower Society  
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## Sources for More Information

- Indiana Native Plant and Wildflower Society (INPAWS)
- *Go Native* by Carolyn Harstad
- Purdue Cooperative Extension
- Bird & Butterfly Garden Books
- Local Soil & Water Conservation District
- Commercial catalogs
- Internet Sources



Questions?