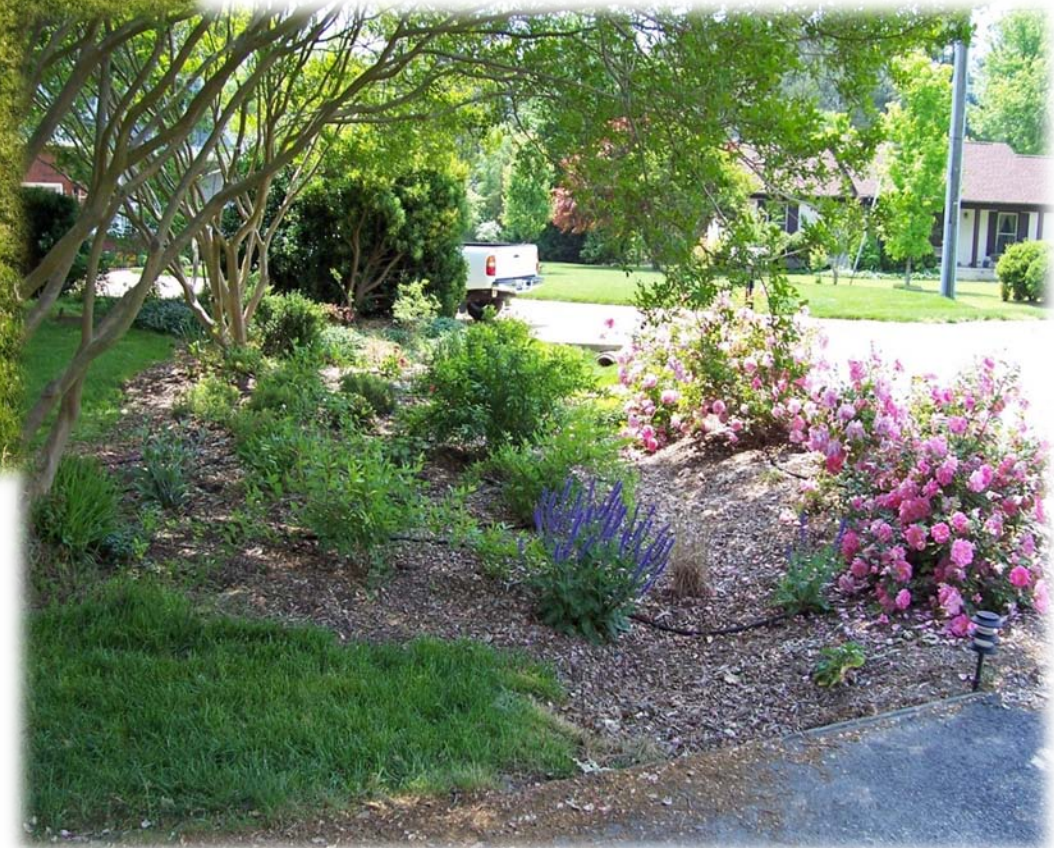


# *Gardening for the Bay* *Which is really Greener?*

*Lawn or*

*Landscape?*



*What can Gloucester  
Home Owners Do?*

# OUTLINE

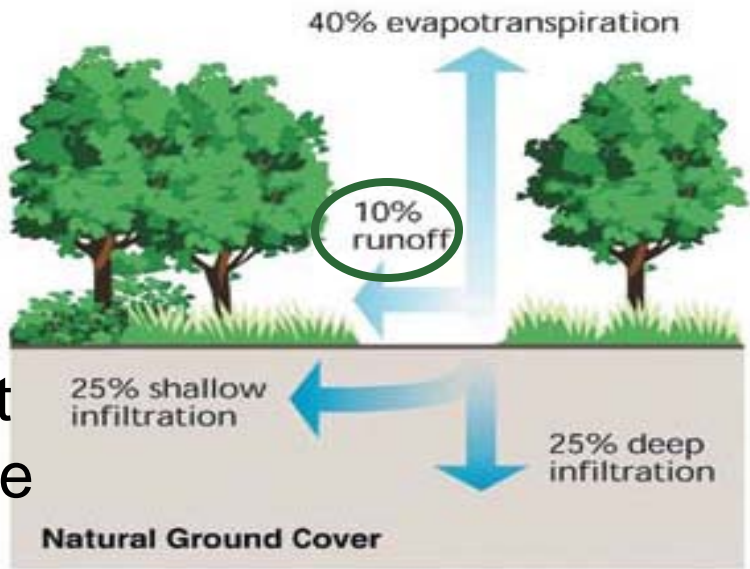
- **What are the problems?**
  - *Polluted runoff.*
- **Reducing lawn size and using native plants**
  - *Bayscaping.*
- **Slowing erosion and buffering the streams and creeks**
  - *Riparian Buffers (RPA)*
- **Reducing waste going into landfills.**
  - *Composting.*
- **Using a garden to capture and filter rain water before it goes further into the water cycle.**
  - *Rain gardens*

# The Problem Before 1507

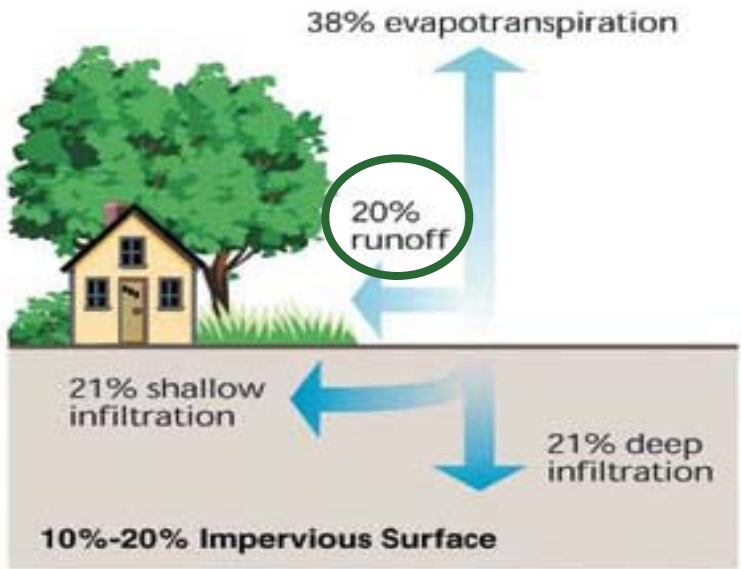
What Happens to Rainfall?

More development leads to more Runoff.

More Runoff means more pesticides, fertilizers, oil, petroleum and heavy metals in the Bay



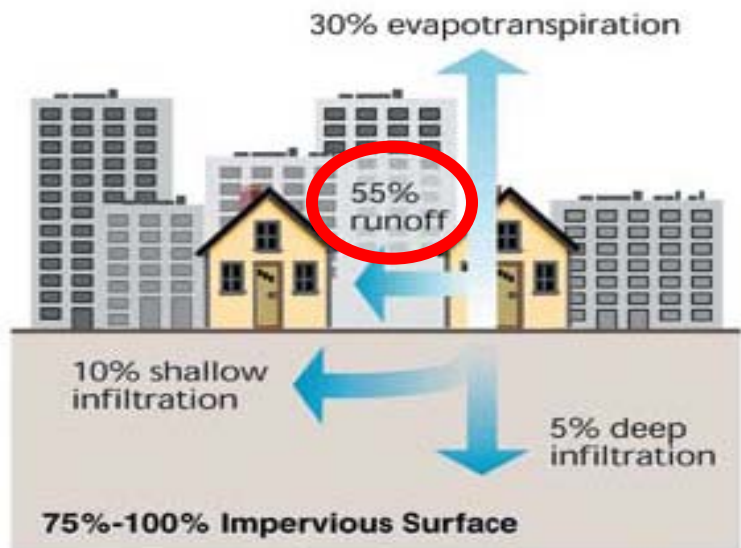
# One house per acre



# Courthouse & Newer Developments



# WalMart – Home Depot area



# *What are Homeowners Doing?*

## Current Situation in US

- 30 Million acres of lawn.
- 100 Million tons of fertilizer
- 80 Million pounds of pesticides
  - 10 x as much as farmers per acre.
- Grass clippings are 25-40% of landfills.
- All these numbers are increasing

## In Chesapeake Bay area alone

In next 25 years

- 3 Million more residents
- 750,000 less acres of forest or farmland.     Source EPA

# What can Homeowners Do?

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## Possibilities

1. Easy Steps that require very little effort
2. Reduce size of lawns and use native plants. (*Bayscaping*)  
beside streams (*Buffers*)
3. Make compost from yard waste
4. Create Rain Gardens to capture and filter runoff.

Degree of difficulty is higher



# 1. Easy Steps

## Possibilities

- Mow at 3", leave grass clippings on the lawn, but not in heaps.
  - Acts like mini compost - does not lead to thatch problems
  - Keeps lawn cooler
  - Reduces evaporation
- Fertilize at the right time of year and the proper amount.
  - Fertilize warm weather grasses (turn brown in winter) in the spring only
  - Fertilize cool weather grasses (stay green in winter) in SON (Sept-Nov), but only a 1/3 application or less each per month.
  - Use organic fertilizer to replace chemicals, a little more expensive but better for the Bay
- Fertilize your garden (& turf) area with compost
  - 2-3 inches, about a cubic yard per 150-100 square feet.
  - Brent Heath *"Feed your soil with compost, and let your soil feed your plants."*
  - Instead of chemical fertilizer on turf, top dress with ¼-½ inch compost
- Water in the morning & use drip irrigation to reduce evaporation in garden areas.

## 2. The Next Steps

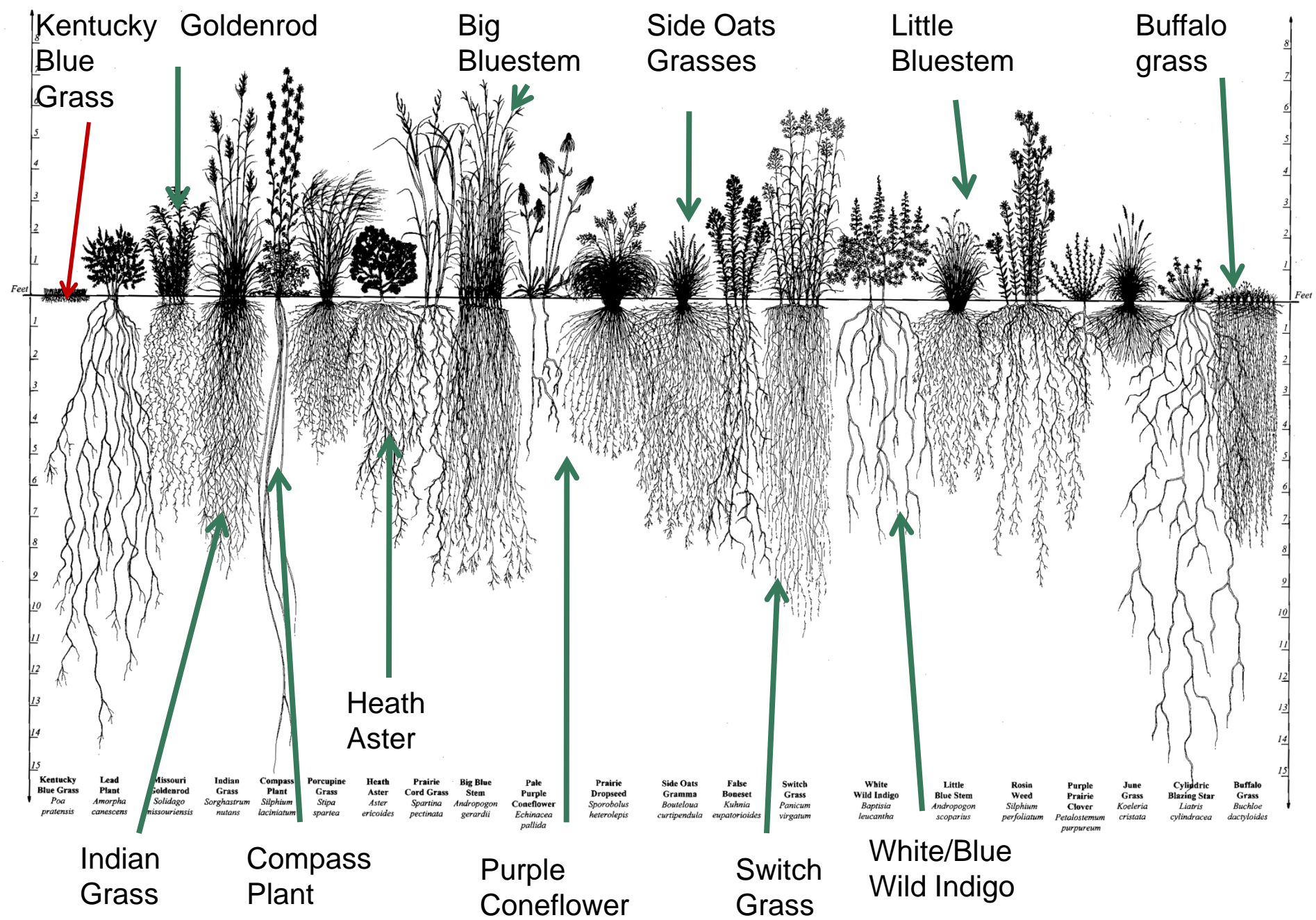
### Possibilities

- Reduce lawn size and increase use of native plants.

This is frequently referred to as Sustainable Landscaping, Bayscaping, Green-Scaping and Earth-kind Landscaping

### Native Plants advantages

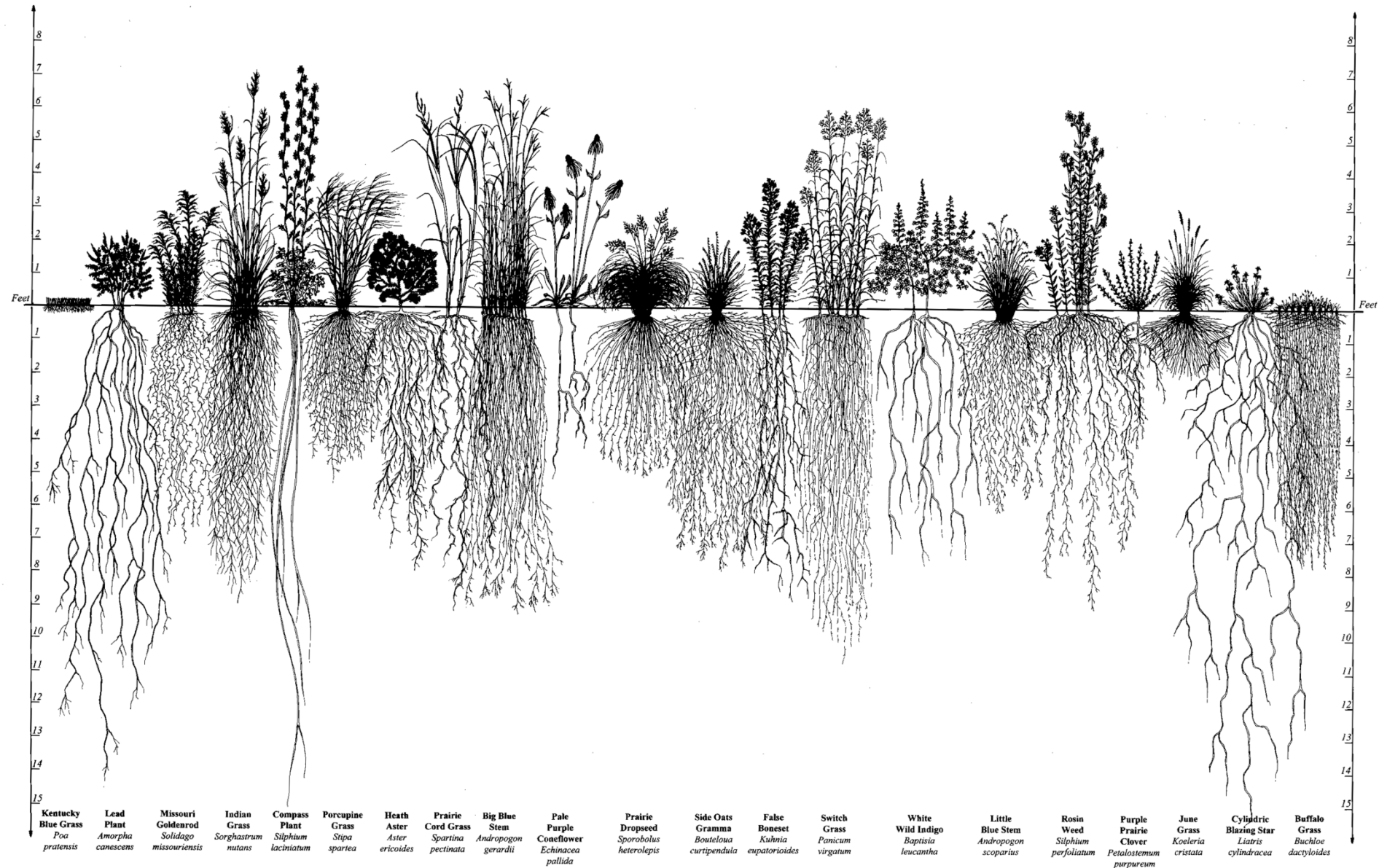
- Have survived in this area for centuries without fertilizer, special care or supplemental watering.
- These plants have far deeper roots than turf grass
  - Aids deeper penetration of rainfall & reduces runoff
  - Reduces erosion
  - Stabilizes slopes and banks
- They provide food and habitat for birds and wildlife



Courtesy of: Heidi Natura of Conservation Research Institute, and used by NRCS



# Root variety points to importance of plant variety



Courtesy of: Heidi Natura of Conservation Research Institute, and used by NRCS



**A situation where we could and should reduce runoff. Lawn slopes steeply towards storm drain, which drains into Sarah's creek. Did not want to mow or fertilize this area.**



**Rototilled the area and then raked out the large clods.**



- Spread 2-3 inches of compost and tilled again.
- Spread newspapers 3-4 sheets and covered with 2 inches of wood mulch
- Then set in the plants.



•Later that summer. Natives: Salvia, forsythia & dianthus, and some roses that have been identified as Earthkind™ by Texas A & M. Drip hose to reduce evaporation.

# *Earthkind Roses*

This is a designation given by Texas A & M to roses (and other plants) that have survived at least eight years in research fields spread across the length and breadth of Texas. After planting, and given some water in the first month, the roses receive no additional care, no fertilizers or pesticides chemical or organic.

You have probably heard of some of the individual species such as Knockout Roses; however, there are twenty varieties in total that have earned this designation.

The goals of Earth-Kind, Bayscaping or other forms of Sustainable Landscaping directions including Riparian Buffers are,

- Water Conservation
- Reduction of fertilizer and pesticide use
- Energy Conservation
- Reduction of Landscape Waste entering landfills

# *Resource Protection Area (RPA)* *Riparian Buffer*

Protection zone for rivers, streams etc

## Regulations permit owners to

- Provide reasonable sight lines
- Construct access paths
- Manage woodlot
- Projects intended to control shoreline erosion

## Regulations prohibit owners from

- Building within 100 foot buffer area, if there is space outside this area.
- This prohibits gazebos, sheds, pools etc in the buffer area.
- Clear cutting the area
- Filling or grading

And discourages fertilizers or pesticides in the buffer area.

Native Plants are more likely to be approved for buffer zone projects and fit within the regulations and recommendations.

# 3. COMPOSTING FOR HEALTHY GARDENS

*All vegetative material eventually breaks down. The time for this process depends on a number of factors:*

- ***Ingredient size:*** *The finer these are chopped the better.*
- ***Mix:*** *6-8 inches of dry leaves to 2 inches of grass clippings. Avoid pine needles (too acidic)*
- ***Moisture:*** *Lightly damp (not wet)*
- ***Turning frequency*** *(from daily to once a week) you decide how much work you want to do and when you need it.*
- ***Exothermic:*** *Should produce heat (when turned may smoke or may look like ashes inside. This is good!)*
- ***Volume:*** *3ftx3ftx3ft is sufficient (less will not have critical mass to generate the needed heat for the process.)*



# **COMPOSTING FOR HEALTHY GARDENS**

- 1. Chop or shred coarse materials to increase surface area.***
- 2. Begin with 3-4 inches of coarser materials twigs or cut up corn stalks or shucks, these should be about 6-10 inches long.***
- 3. Then a 6-8 inch layer of kitchen refuse (vegetable material - no meat or dairy), leaves straw, weeds, coffee grounds, tea bags crushed egg shells etc.***
- 4. Now a layer greens: 2 inches if only grass clippings or manures (horse, chicken, cow) 2-4 inches if other green garden materials (no dog or kitten droppings) included.***
- 5. Repeat steps 2-4. Until the pile reaches 3-feet tall, but not higher than 4 feet .***
- 6. If you run short of greens or manures, you can replace that layer with ½ cup of 10-10-10 fertilizer and some soil.***
- 7. Dampen the mixture.***
- 8. Top with a tarp, soil or plastic cover to retain heat.***
- 9. Turn with pitchfork every few days to aerate mixture.***
- 10. Add additional materials in layers as pile cooks down.***

# COMPOSTING FOR HEALTHY GARDENS

## Carbon-to-Nitrogen Ratio

A blend of high carbonaceous material and high nitrogen material to give a steady 30:1 C:N ratio is ideal.

### *Materials with high nitrogen values*

- ▶ Vegetable Waste      12-20:1
- ▶ Coffee Grounds      20:1
- ▶ Grass Clippings      12-25:1
- ▶ Cow Manure      20:1
- ▶ Horse Manure      25:1
- ▶ Poultry Manure      10:1
- ▶ Pig Manure      5-7:1

### *Material with high carbon values*

- ▶ Foliage      30-80:1
- ▶ Corn Stalks      60:1
- ▶ Straw      40-100:1
- ▶ Bark      100-130:1
- ▶ Dried leaves      120-200:1
- ▶ Paper      150-200:1
- ▶ Wood chips      100-500:1

# COMPOSTING FOR HEALTHY GARDENS

## Fast composting:

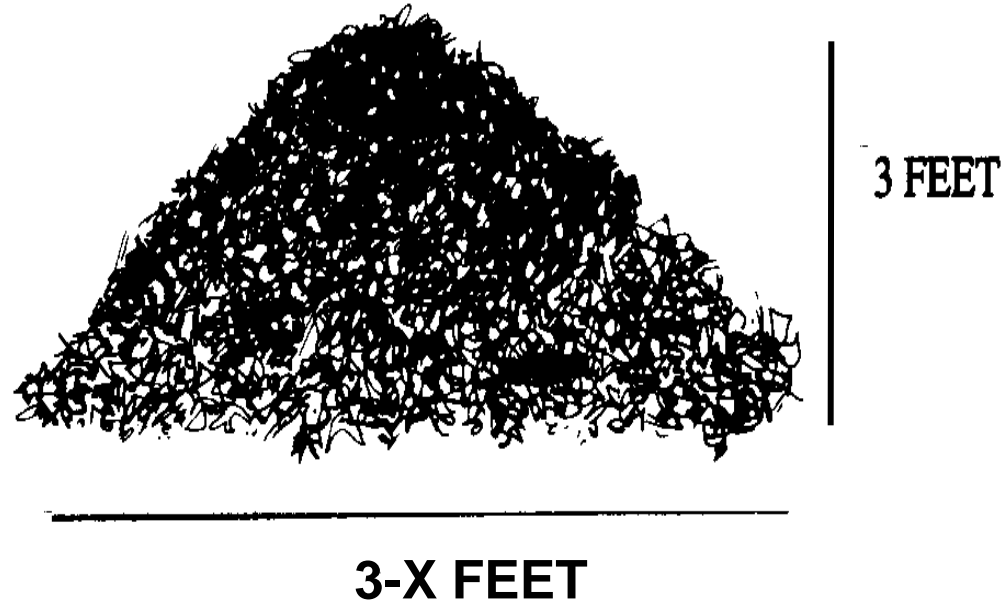
- Have a good mix of browns (6-8 inches dry leaves, shredded paper, dry garden waste, coffee grounds) to greens (2 inches grass clippings, fresh garden cuttings).
- Turning daily 3-5 rotations.
- If using a bin or simple heap a tarp or plastic cover can shorten composting period.
- Compost can be ready in as little as 4-6 weeks during the summer.



# COMPOSTING FOR HEALTHY GARDENS

## Slower composting:

- Same mix of browns to greens.
- Less frequent turning, once or twice a week.
- If using a bin or simple heap a tarp cover can shorten composting period.
- If kitchen waste is included, turn pile and/or cover with soil to reduce odor and varmint problems



## **4. Rain Gardens**

Rain gardens are a way for homeowners, businesses as well as governments to participate in efforts to reduce polluted runoff, simply by planting ***specialized gardens*** to filter the water rather than having it merely run off.

“***Specialized gardens***”- deeply prepared bed to capture runoff (slightly below grade level) using native plants that can survive well even after periods of drought or standing in water. The bed materials and plants are chosen because of their ability to filter pollutants out of the runoff water, such as fertilizers, pesticides, petroleum products and even heavy metals.

This is becoming a popular way to reduce pollutants that are getting into the streams, rivers and the Bay.

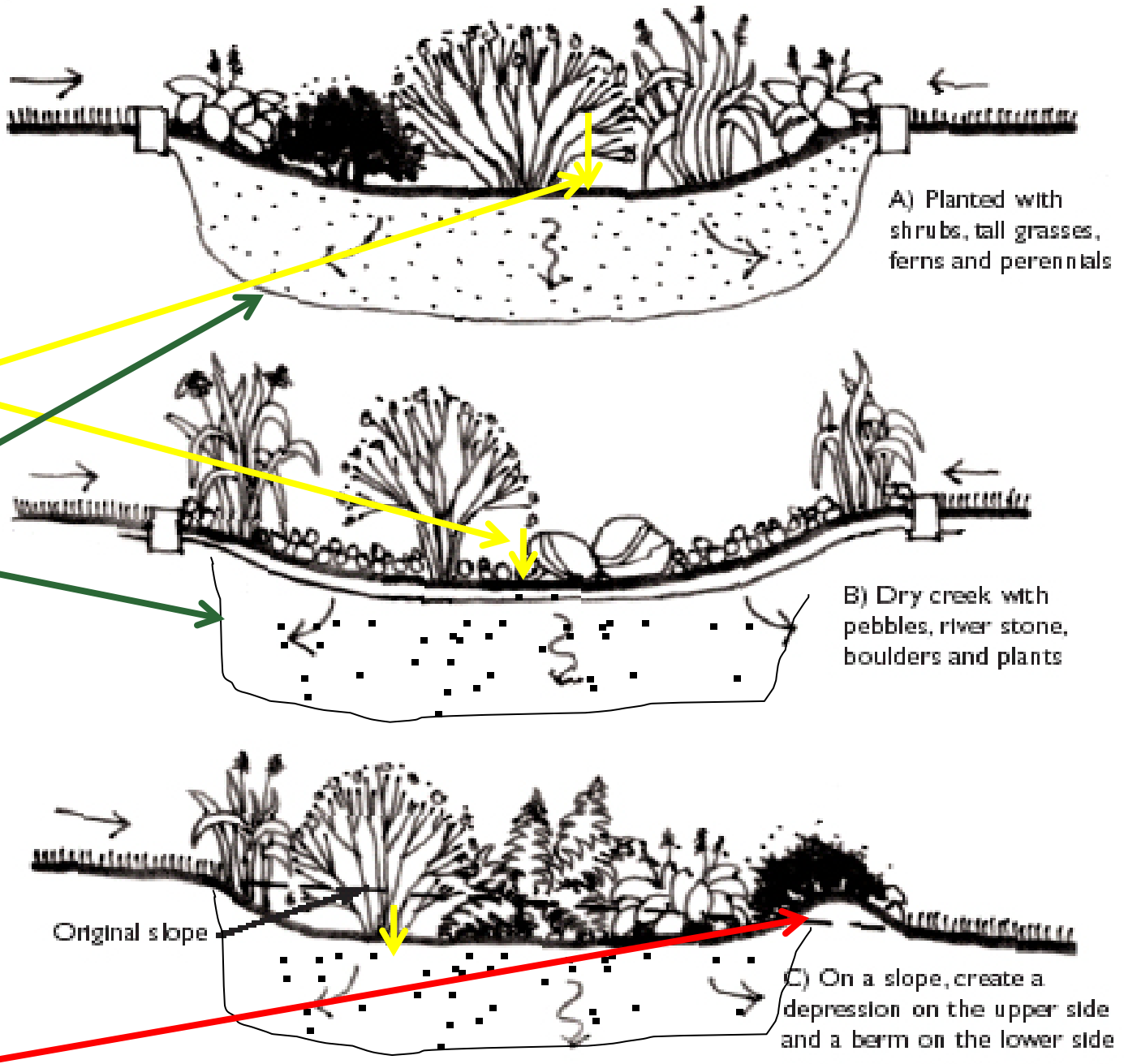
Many smaller rain gardens are more efficient and less costly than treatments centers.



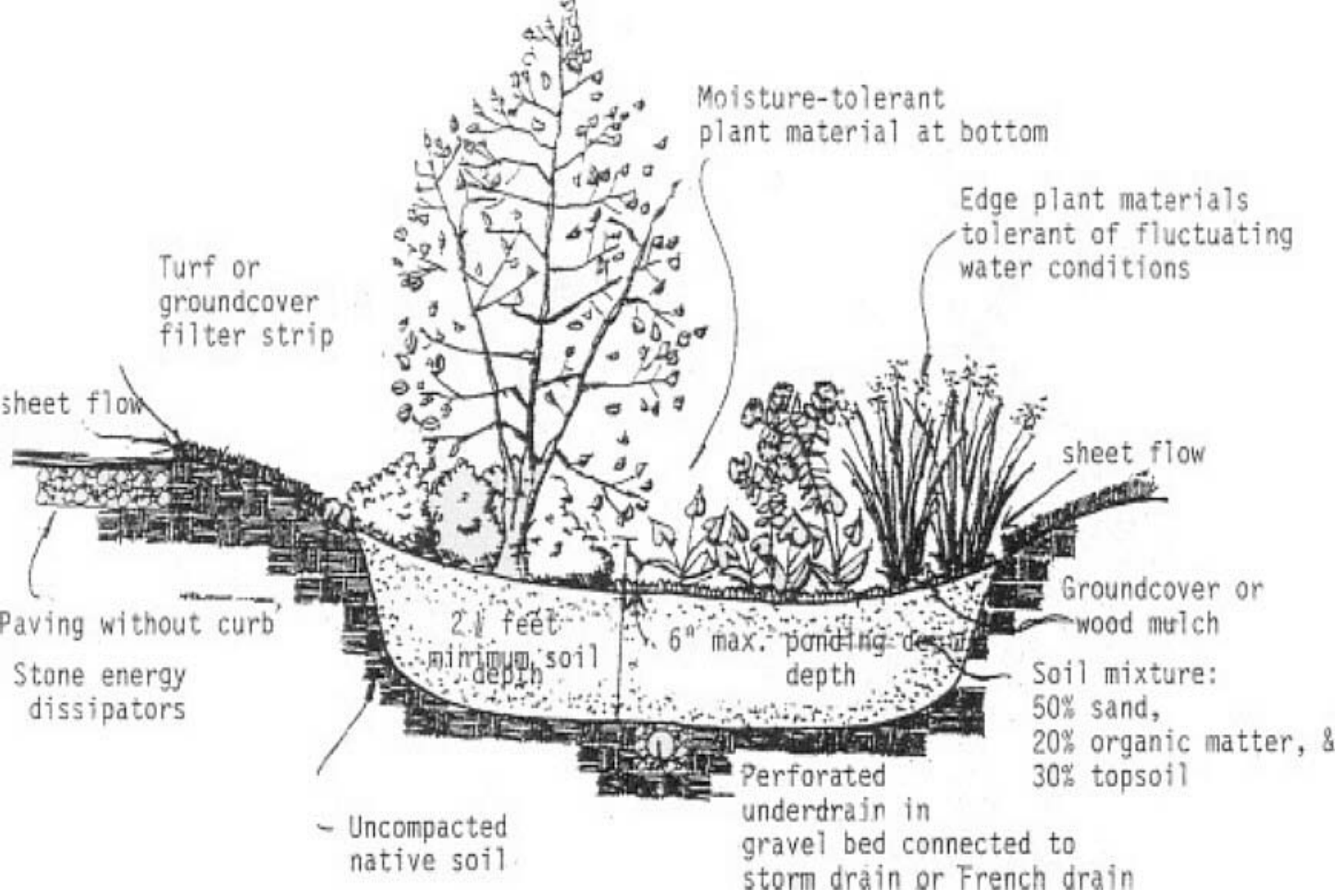
**An established rain garden in bloom. Rain Gardens intercept runoff before it reaches storm drains or streams.**

**Deeply prepared bed** –

The soil in the garden should be 6-8 inches below the original slope. The bed itself should be 2-3 feet deep and filled with a mix of 50% sand, 30% topsoil and 20% compost. Many articles suggest the bed should be 10 feet across. But a smaller garden bed can still work. Note the berm on the down hill side.



All options over sandy to loam soil with organic matter. Infiltration bed under the surface as shown in option A applies to all options.



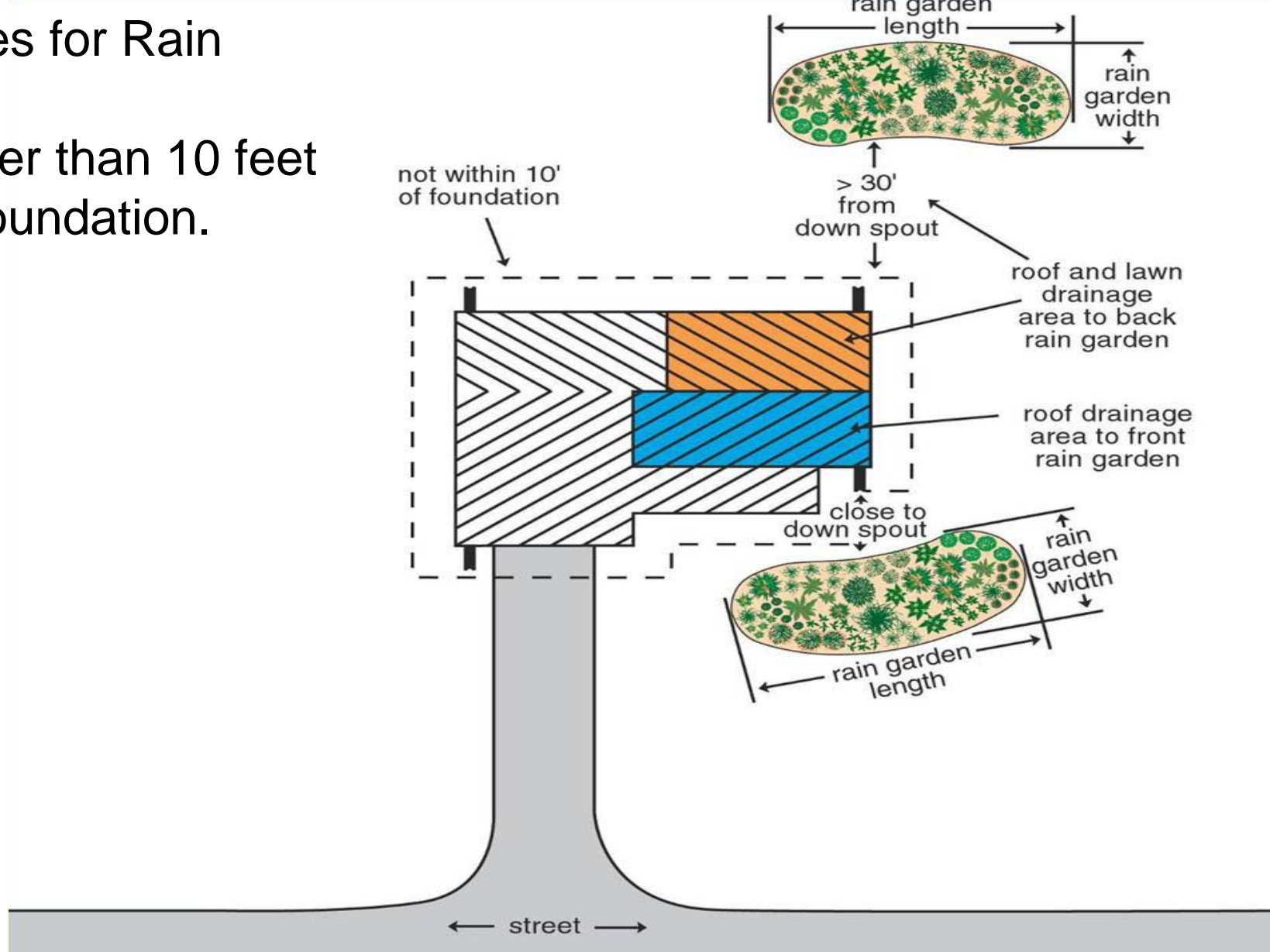




**Many sources of runoff: roofs (few gutters) and parking area or concrete walk and deck. The more impervious surfaces you have contributing runoff the larger the rain garden should be.**

# Guidelines for Rain Gardens

- No closer than 10 feet to your foundation.

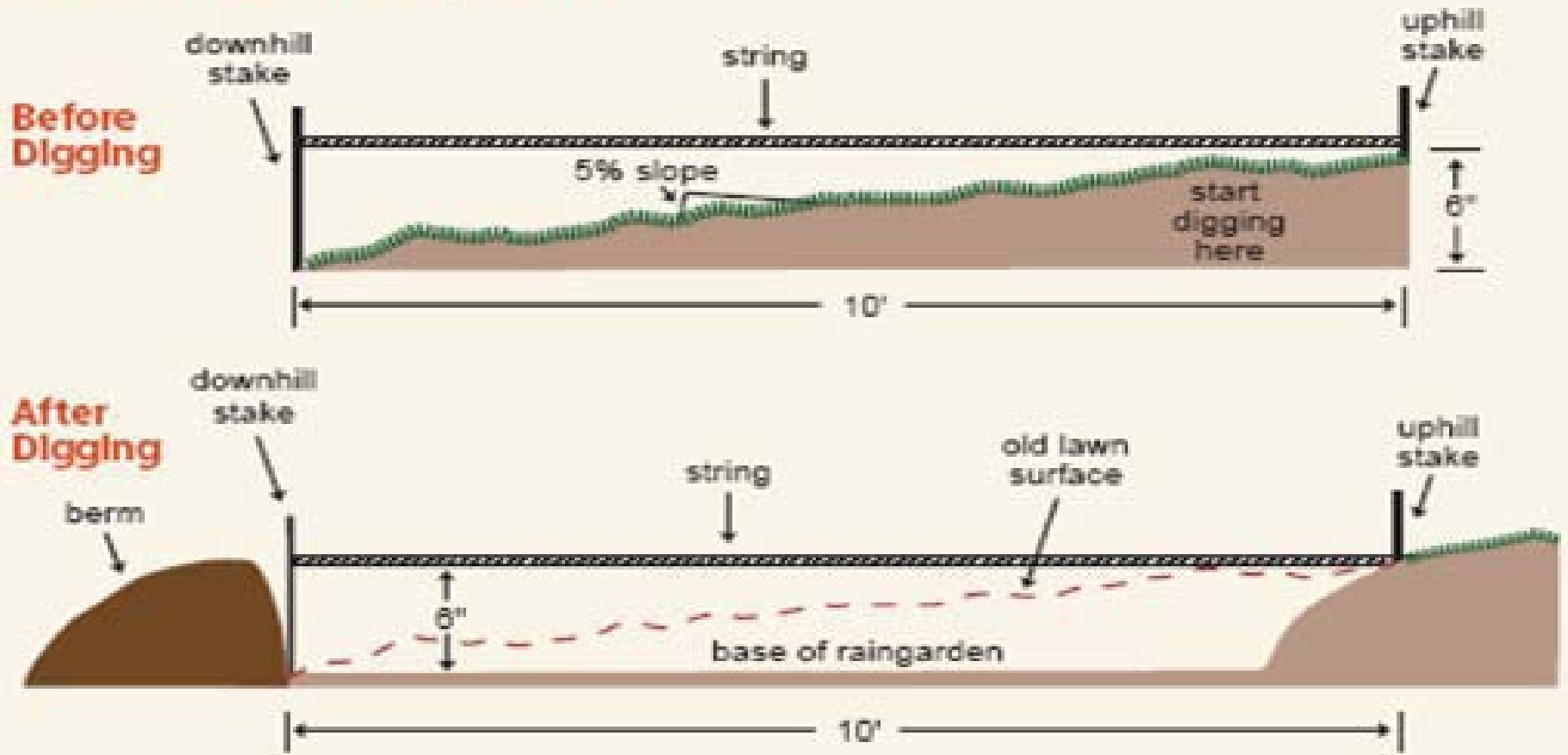


From Wisconsin Department of Natural Resources.

<http://clean-water.uwex.edu/pubs/raingarden/rgmanual.pdf>

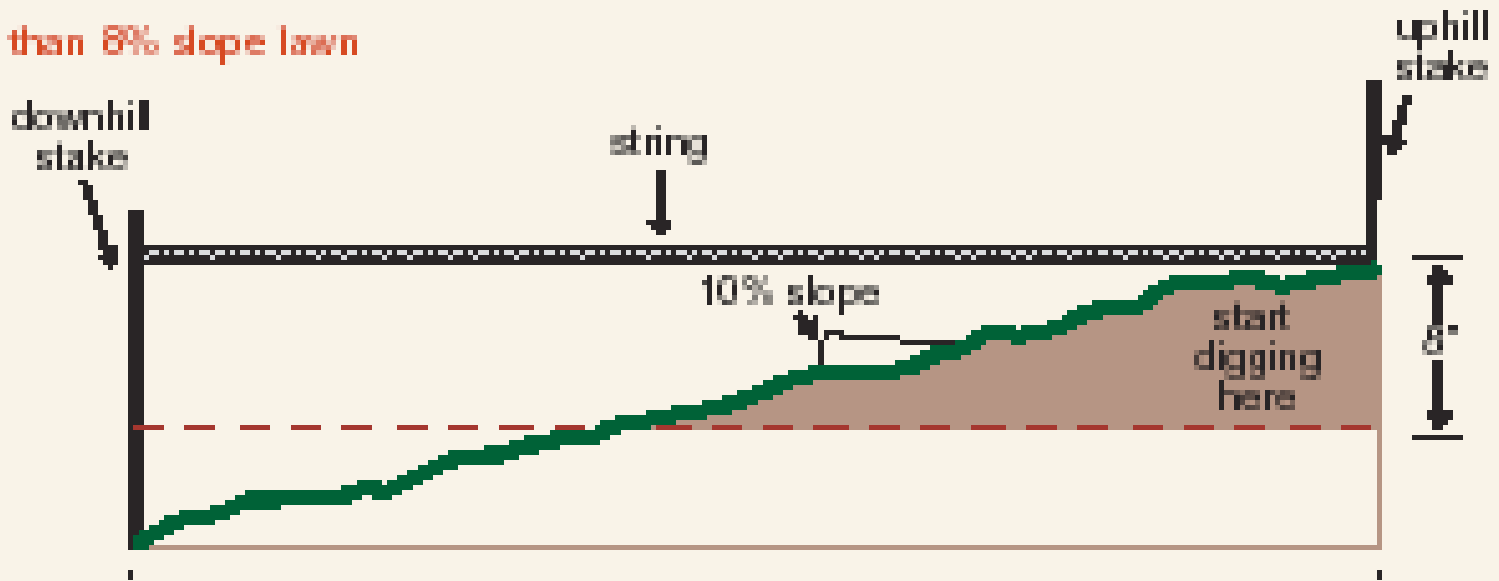
For this and more detailed information, see the suggested references in our handout.

a. Between 3% and 8% slope lawn

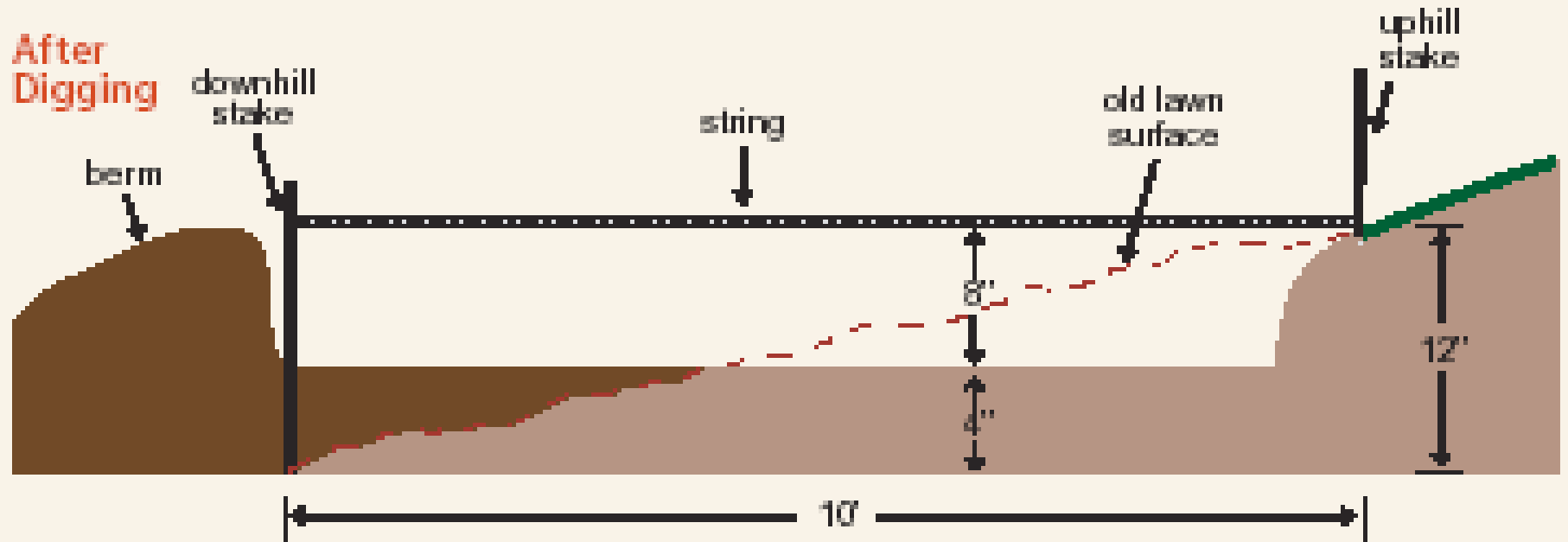


b. Greater than 8% slope lawn

Before Digging



After Digging





**After digging out the area, build berm on downhill side of the rain garden. Level the garden's base and prepare for planting.**



**Usually it is best to place groups of 3 or 5 plants of the same kind and put in several different types of plants. Variety in plants and root structures is better for wildlife, and for plant and soil vitality.**



**Rain gardens are designed to pond for a few hours at a time. Ponding should not last over six hours. Jordan Cove, Urban Watershed Project, Waterford, CT.**



Slope runs toward the rain garden.  
Grass slows the flow rate.  
The berm at back of the garden captures the water so it will not runoff





**A Parking Lot Demonstration by the VDOF**

# Rain Gardens

**Can be pretty and interesting: Some recommendations for Virginia by VDOF**



**Joe Pye Weed**

**Jerusalem Artichoke**

**Great Blue Lobelia**

**VDOF also recommends daylilies, red twig dogwoods, red maples, red or bald cypress. A list is included in our handout.**

**We have  
Choices  
These**



**Or This**





**A Rain Garden to Capture Runoff from the Parking Lot and from the slope.**

## Advice for Making a Rain Garden

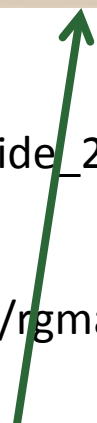
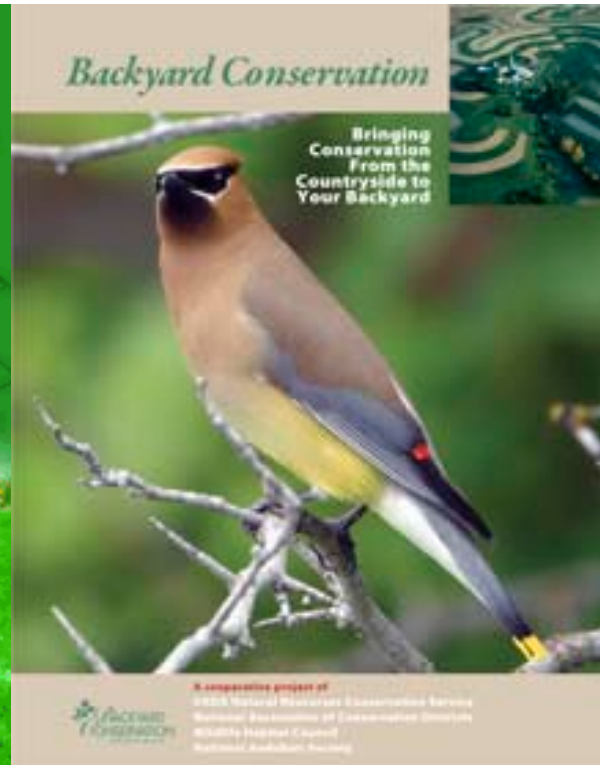
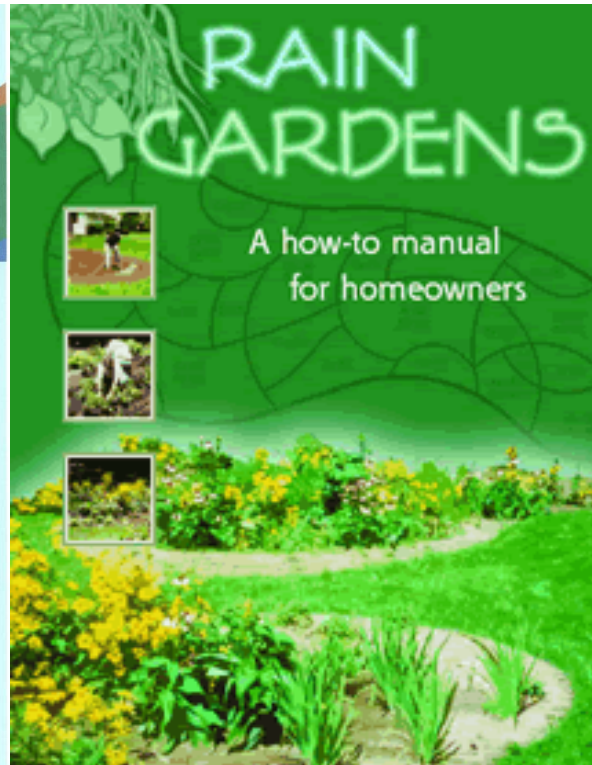
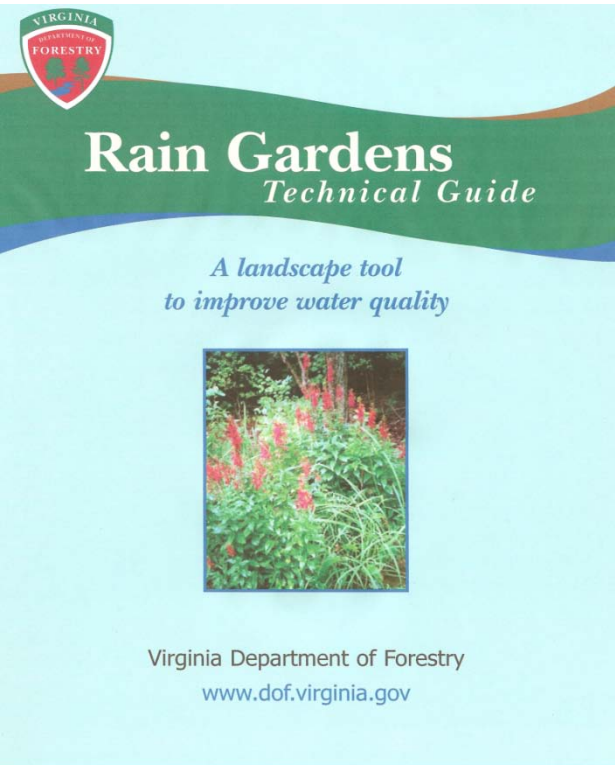
- Call Miss Utility
- Choose a site at least 10 feet from your foundation and down slope from a downspout.
- A garden at a border looks better than a an oval in the middle of a yard.
- Remove sod in an area of 150 square feet or more.
- Bed should be 6 inches below original slope.
- If you soil is sandy you may only need to dig down 8-10 inches.
- If your soil is heavy clay you may need to excavate up to 3'.
- Use some of the removed soil as a berm on the downhill sides.
- Make sure bottom is level.
- Fill with 50% sand, 25-30% topsoil and 20-25% compost.
- Plant with native plants (plus daffodils and daylilies.)
- Top dress with 2 inches of wood chip mulch.

## ● VT Resources

- <http://pubs.ext.vt.edu/426/426-713/426-713.html> Creating a Water Wise Landscape
- <http://pubs.ext.vt.edu/426/426-722/426-722.html> Reducing Erosion and Runoff
- <http://pubs.ext.vt.edu/452/452-231/452-231.html> Compost: What Is It and What's It To You
- <http://pubs.ext.vt.edu/426/426-704/426-704.html> Using Compost in Your Landscape
- <http://pubs.ext.vt.edu/426/426-703/426-703.html> Making Compost: From Yard Waste
- <http://pubs.ext.vt.edu/426/426-043/426-043.html> Urban Water Quality Management:  
Rain Garden Plants
- <http://pubs.ext.vt.edu/426/426-041/426-041.html> Urban Water Quality Management:  
What Is a Watershed? What You Can Do

## ● Other Resources

- <http://www.npwrc.usgs.gov/resource/plants/cattail/stromsta.htm>
- <http://plants.usda.gov/>
- <http://www.fws.gov/ChesapeakeBay/Bayscapes.htm>
- <http://www.dgif.virginia.gov/habitat/habitat-at-home/bayscapes.pdf>
- **Native Plants for Wildlife Habitat and Conservation Landscaping**  
*Chesapeake Bay Watershed US Fish and Wildlife Service*  
<http://www.nps.gov/plants/pubs/chesapeake/>
- <http://www.ares.vt.edu/hampton-roads/gardens/bayscape-garden/index.html>
- <http://www.bae.ncsu.edu/topic/raingarden/>
- <http://www.nrcs.usda.gov/feature/backyard/>



[http://www.dof.virginia.gov/mgt/resources/pub-Rain-Garden-Tech-Guide\\_2008-05.pdf](http://www.dof.virginia.gov/mgt/resources/pub-Rain-Garden-Tech-Guide_2008-05.pdf)

<http://www.dnr.state.wi.us/ORG/WATER/WM/dsfm/shore/documents/rgmanual.pdf>

<http://www.nrcs.usda.gov/feature/backyard/BkYrdHit.html>  
<http://www.nrcs.usda.gov/feature/backyard/BkYrdHit.html> Printed copies of this colorful 28-page booklet on Backyard Conservation and tip sheets are available free by calling 1-888-LANDCARE (single copies only).

***Help Gloucester stay Green  
and save the Bay***