

# Conservation Landscapes: A Practical Review

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- ▶ Conservation landscapes
  - ▶ Definition
  - ▶ Benefits
  - ▶ Methods
  - ▶ Native plant choices and other tips



Rain Garden, Georgetown Waterfront Park

# Definition



Conservation landscaping incorporates environmentally sensitive design, low impact development, non-invasive native and beneficial plants, and integrated pest management to create diverse landscapes that help protect clean air and water, support wildlife, and provide a healthier and more beautiful human environment.

- Chesapeake Conservation Landscaping Council

# Why conservation landscapes are important

## Saving the Chesapeake Bay



US Geological Survey

# Why conservation landscapes are important

Runoff = erosion → pollutes the Bay



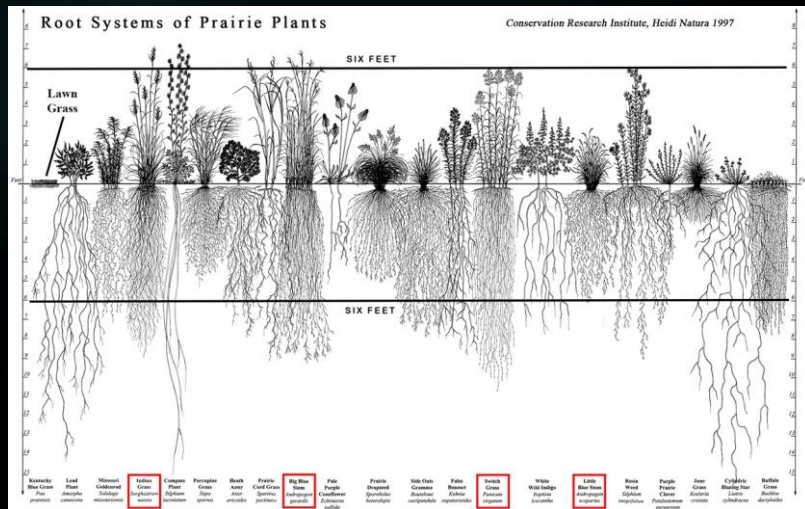
# Elements of conservation landscapes...

1. Are designed to benefit the environment



# Elements of conservation landscapes...

## 2. Use local native plants



*Monarda fistulosa*  
Wild Bergamot

# Elements of conservation landscapes...

## 3. Remove and prevent invasive plant species



### Virginia Invasive Plant Species List

Scientific Name	Common Name	Virginia Invasiveness Rank	REGION		
			Mountain	Piedmont	Coastal
<i>Ailanthus altissima</i>	Tree-of-heaven	High	•	•	•
<i>Alfaria petiolata</i>	Garlic Mustard	High	•	•	•
<i>Alternanthera philoxeroides</i>	Alligator-weed	High			•
<i>Ampelopsis brevipedunculata</i>	Parcelain-berry	High		•	•
<i>Carex kobomugi</i>	Japanese Sand Sedge	High			•
<i>Celastrus orbiculatus</i>	Oriental Bittersweet	High	•	•	•
<i>Centaurea stoebe</i> ssp. <i>micrantha</i>	Spotted Knopweed	High	•	•	•
<i>Cirsium arvense</i>	Canada Thistle	High	•	•	•
<i>Dioscorea polystachya</i>	Cinnamon Vine	High	•	•	•
<i>Elaeagnus umbellata</i>	Autumn Olive	High	•	•	•
<i>Euonymus alatus</i>	Winged Euonymus	High	•	•	
<i>Ficaria verna</i>	Lesser Colandine	High		•	•
<i>Hydrilla verticillata</i>	Hydrilla	High	•	•	•
<i>Iris pseudacorus</i>	Yellow Flag	High	•	•	•
<i>Lespedeza cuneata</i>	Chinese Lespedeza	High	•	•	•
<i>Ligustrum sinense</i>	Chinese Privet	High	•	•	•





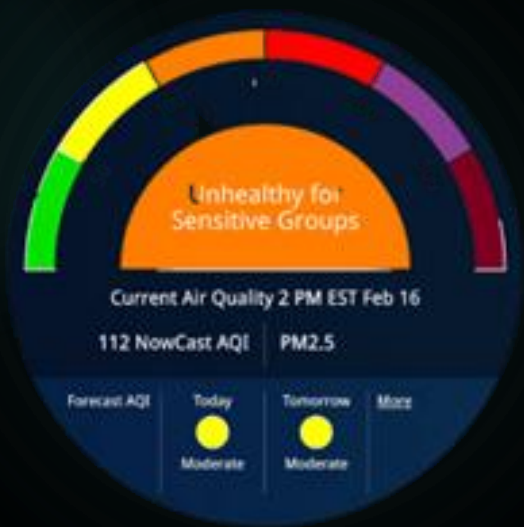
# Elements of conservation landscapes...

## 4. Provide habitat for wildlife



# Elements of conservation landscapes...

## 5. Promote healthy air quality



# Elements of conservation landscapes...

## 6. Conserve and clean water



## 7. Promote healthy soil



<https://www.ecolandscaping.org/02/developing-healthy-landscapes/soil/the-massachusetts-healthy-soils-action-plan-overview-survey/>

# Elements of conservation landscapes...

8. Do not rely on pesticides, fertilizers, or herbicides



## 9. Are climate resilient

Number of days at or above 95F

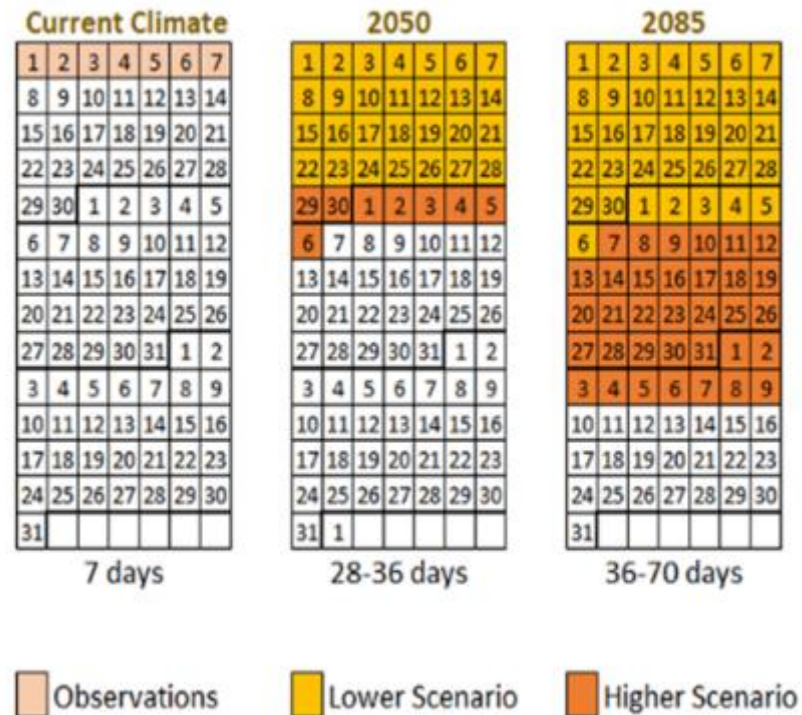


Figure 9. Number of days at or above 95°F under current climate conditions (averaged over 30-year period), 2050 and 2085. Future conditions projected under the lower scenario (RCP4.5) and higher scenario (RCP8.5).

# Conservation landscaping methods

- ▶ Conservation landscapes (horticultural)
- ▶ Structural/infiltration practices:
  - ▶ Rain gardens
  - ▶ Dry wells and infiltration trenches
  - ▶ Pervious pavement
- ▶ Which practice to choose?
  - ▶ Site conditions
  - ▶ Nature and severity of runoff issue
  - ▶ Client goals
  - ▶ Ordinances or rules
  - ▶ Client budget
  - ▶ Requirements of the practice



# Conservation landscapes

- ▶ Conservation landscapes (horticultural)
  - ▶ Modify the visible features of turf grass or eroded areas to absorb runoff and improve ecological function
  - ▶ Examples:
    - ▶ Replacing turf with native plants
    - ▶ Creating meadows
    - ▶ Planting in eroded areas
    - ▶ Planting trees





# Conservation landscapes

Replacing turf with native beds



# Conservation landscapes

## Replacing turf with native beds

Before



After One Year



# Conservation landscapes

## Replacing turf with native beds

Before



Installation



After One Year



# Conservation landscapes

## Replacing turf with native beds

Before



Installation



# Conservation landscapes

Replacing turf with native beds

Before



First Summer



First Fall



# Conservation landscapes

## Meadows



# Conservation landscapes

## Slopes and bare areas

Installation



# Conservation landscapes

## Tree planting





# Conservation landscapes

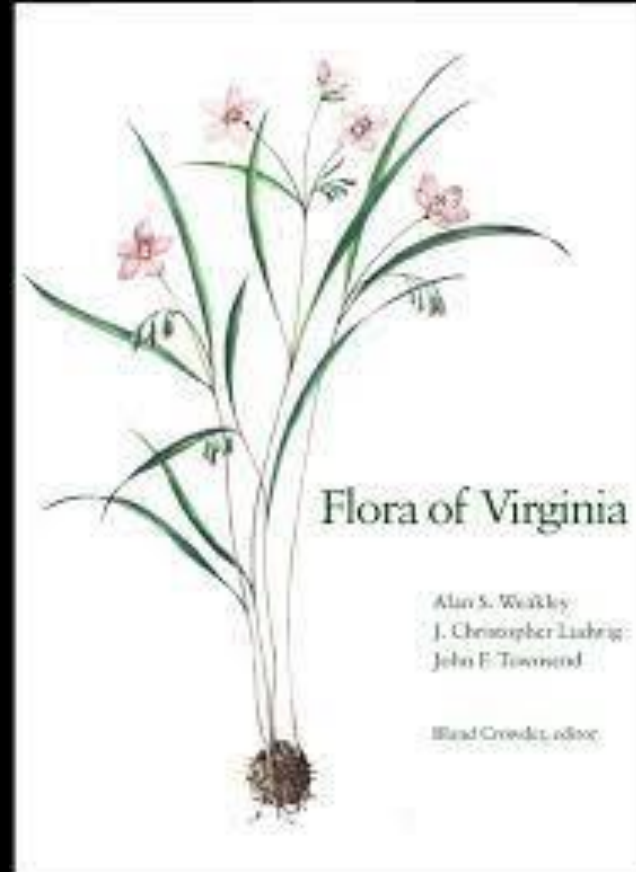


## Tree planting



# Conservation landscapes

## Selecting plants



### COMMONWEALTH of VIRGINIA

#### The Natural Communities of Virginia: Ecological Groups and Community Types



# Conservation landscapes

Minimize soil disruption



# Conservation landscapes

Plant densely



# Conservation landscapes

Use landscape plugs



# Conservation landscapes

Use green  
mulch

*Aster ericoides*  
Heath Aster



*Carex spp.*  
Sedge



*Iris cristata*  
Crested Iris



*Chrysogonum virginianum*  
Green and Gold



*Phlox subulata*  
Moss Phlox



*Packera aurea*  
Golden Groundsel



*Polystichum acrostichoides*  
Christmas Fern



*Sisyrinchium angustifolium*  
Blue Eyed Grass



*Tiarella cordifolia*  
Foamflower



*Viola sororia*  
Violet



# Conservation landscapes

Plant in layers





# Conservation landscapes

## Plan for successive blooms

### Natives for Spring



*Zizia aurea*/Golden Alexander  
& *Geranium maculatum*/Wild Geranium

### Natives for Summer



*Asclepias tuberosa*/Butterfly Weed  
*Monarda fistulosa*/Wild Bergamot  
*Echinacea purpurea*/Coneflower

### Natives for Fall



*Rudbeckia fulgida*/Black Eyed Susan  
& *Aster novae Anglaiae*/New England Aster  
& *Solidago rugose*/Rough Goldenrod

# Conservation landscapes

Know how your plants behave

## SPREADERS



*Conoclinium coelestinum*/  
Blue Mist Flower



*Anemone canadensis*  
Canada Anemone



*Rudbeckia fulgida*  
Black Eyed Susan

## CLUMPERS



*Coreopsis verticillata*  
Threadleaf Tickseed



*Heuchera villosa*  
Alumroot



*Sisyrinchium augustifolium*  
Blue Eyed Grass

# Conservation landscapes

## Cues to care



# Conservation landscapes

Provide a  
management plan



# Conservation landscapes

*Aesclepias tuberosa*  
Butterfly Weed



*Amsonia tabernaemontana*  
Blue Star Amsonia



*Aster spp.*  
Aster



*Coreopsis verticillata*  
Threadleaf Tickseed



*Eupatorium dubium*  
Baby Joe Pye Weed



*Monarda spp.*  
Bee Balm



## Sunny plants

*Pycnanthemum muticum*  
Mountain Mint



*Panicum virgatum*  
Switchgrass



*Rudbeckia fulgida*  
Black Eyed Susan



*Schizachyrium scoparium*  
Little Blue Stem



*Solidago rugose*  
Goldenrod



*Zizia aurea*  
Golden Alexander



# Conservation landscapes

## Perennials and Grasses

*Aster cordifolius*  
Blue Wood Aster



*Aster divaricatus*  
White Wood Aster



*Aquilegia canadensis*  
Columbine



*Chasmanthium latifolium*  
River Oats



*Chelone glabra*  
Turtlehead



*Geranium maculatum*  
Wild Geranium



## Shady plants

*Heuchera villosa*  
Alumroot



*Lobelia cardinalis*  
Cardinal Flower



*Phlox divaricata*  
Woodland Phlox



*Polemonium reptans*  
Jacob's Ladder



*Solidago ceasia*  
Blue Stemmed Goldenrod



*Zizia aurea*  
Golden Alexander



## Sedges and Ferns

*Carex spp.*  
Sedge



*Matteuccia struthiopteris*  
Ostrich Fern



*Osmunda cinnamomea*  
Cinnamon Fern



*Osmunda regalis*  
Royal Fern



*Polystichum acrostichoides*  
Christmas Fern



# Structural/infiltration practices, i.e. BMPs

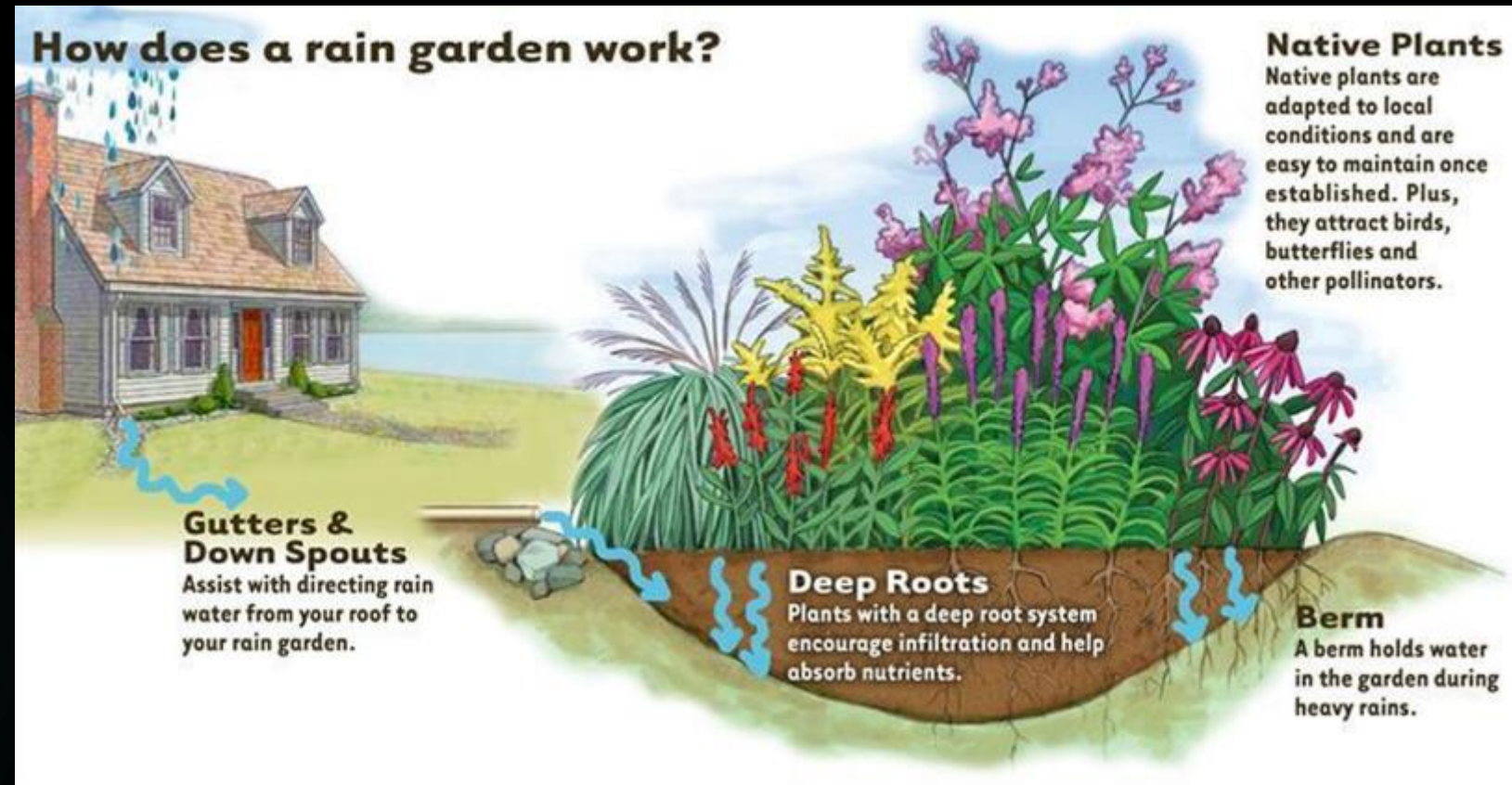
- ▶ Common BMPs:
  - ▶ Rain gardens
  - ▶ Hardscape solutions:
    - ▶ Dry wells
    - ▶ Infiltration trenches
    - ▶ Pervious pavement



**Note that BMPs call for special design and sizing estimates, including a perc test, quantification of runoff, and practice sizing. If applying for a public rebate program such as VCAP, these will be required**

# Structural/infiltration practices, i.e. BMPs

## Rain gardens



<https://dwr.virginia.gov/blog/rain-gardens-for-wildlife/>



# Structural/infiltration practices, i.e. BMPs

## Rain garden excavation



# Structural/infiltration practices, i.e. BMPs

## Rain gardens



# Structural/infiltration practices, i.e. BMPs

## Shrubs

*Clethra alnifolia*  
Summersweet



*Cornus sericea*  
Red Twig Dogwood



*Ilex glabra*  
Inkberry



*Ilex verticillata*  
Winterberry



*Itea virginica*  
Virginia Sweetspire



*Lindera benzoin*  
Spicebush



*Rhododendron viscosum*  
Swamp Azalea



## Rain garden plants

## Perennials

*Asclepius incarnata*  
Swamp Milkweed



*Chelone glabra*  
Turtlehead



*Amsonia tabernaemontana*  
Blue Star Amsonia



*Iris cristata*  
Crested Iris



*Eupatorium dubium*  
Baby Joe Pye Weed



*Lobelia cardinalis*  
Cardinal Flower



*Packera aurea*  
Golden Groundsel



## Floodplain



## Grasses

*Carex spp.*  
Sedge



*Juncus effusus*  
Soft Rush



*Panicum virgatum*  
Switchgrass



## Ferns

*Matteuccia struthiopteris*  
Ostrich Fern



*Osmunda cinnamomea*  
Cinnamon Fern



*Osmunda regalis*  
Royal Fern



# Structural/infiltration practices, i.e. BMPs

## Dry wells



# Structural/infiltration practices, i.e. BMPs

## Infiltration trenches



# Structural/infiltration practices, i.e. BMPs

## Pervious pavement



# Structural/infiltration practices, i.e. BMPs

## Pervious pavement



Thank You! Questions?

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