



RainScapes

Environmentally-Friendly Landscapes for
Healthy Watersheds

Conservation Landscaping Techniques

Why should I implement conservation landscaping?



Each year, Americans spend countless hours tending to over 30 million acres of grass on

their lawns. Millions of pounds of pesticides and millions of tons of fertilizer are applied annually. Lawn mowers use a quart of gasoline each hour and emit as much as 10 times the amount of hydrocarbons as a typical car. Thousands of gallons of water are used to water a single yard during one summer. On the East Coast, an estimated 30 percent of residents' total water use is for lawn irrigation. Traditional lawn and garden care takes time and uses non-renewable resources. What if there was a way to reduce these practices while maintaining a healthy, aesthetically pleasing landscape?

In Montgomery County, much of the native topsoil is stripped during the development process, and if this soil is not carefully replaced, many homeowners are left with soil that is mostly compacted clay. The clay is typically planted with non-native turf grasses which lack the deep roots to penetrate compacted

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What is conservation landscaping?

Conservation landscaping is a type of landscaping that benefits the environment by improving water quality, preserving native species, and providing wildlife habitat. Conservation landscaping replaces some of the turf grass of a traditional lawn with native plants that have adapted to Montgomery County's local rainfall and soil conditions and require less water and maintenance than the lawn grasses. Montgomery County, Maryland is located in the Piedmont region.

The Chesapeake Conservation Landscaping Council defines conservation landscaping through "Eight Essential Elements."

A conservation landscape:

1. Is **designed** to benefit the environment and function efficiently and aesthetically for human use and well-being
2. Uses locally **native plants** that are appropriate for site conditions

3. Institutes a management plan for the removal of existing **invasive plants** and prevention of future nonnative plant invasions
4. Provides **habitat for wildlife**
5. Promotes healthy **air quality** and minimizes air pollution
6. Conserves and cleans **water**
7. Promotes **healthy soils**
8. Is managed to **conserve** energy, reduce waste, and eliminate or minimize the use of pesticides and fertilizers.



Newly planted front yard turf removal project

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soils, and require a great deal of watering, mowing, and other maintenance to keep them green and healthy.

Conservation landscaping is able to reduce the negative impacts on the environment associated with conventional lawn management. Many native plant species are deeply rooted, more resistant to insects, plant disease, and drought. By replacing traditional grass lawns with native plants, you can reduce the use of pesticides, fertilizers, and water.

Conservation landscaping saves you time and money when compared to many other forms of landscaping. There is less area to mow, so environmentally damaging emissions and time spent mowing are reduced. Native plant landscapes that are well-designed are easy to maintain, visually pleasing, and environmentally friendly. Conservation landscaping benefits wildlife, the environment, neighborhoods, and homeowners. The aesthetics of conservation landscaping can vary from traditional (natural) to more formal.



Butterflies are attracted to sun-loving perennials

What are the benefits and incentives?

The RainScapes Rewards Rebate Program offers a rebate for residential properties, institutional, multi-family, or commercial properties for implementing this technique. This rebate applies to the purchase and installation of container-grown plants, not seeding. Conservation landscaping offers many benefits to the community and the local environment, which include:

- Aesthetics
- Improved air quality
- Improved water quality
- Enhanced wildlife habitat
- Water conservation
- Native species conservation
- Reduced erosion
- Reduced expense and time needed for mowing lawns and applying pesticides and fertilizers to conventional gardens

Conservation landscaping is a great way to help the environment and protect your local streams and the Chesapeake Bay.

To apply for a RainScapes Rewards Rebate, please visit www.rainscapes.org



Turf conversion to conservation landscape

How to...

Assess Your Property

Before adding conservation landscaping to your yard, assess your site's conditions.

You want to preserve any existing beneficial environmental features and add conservation landscaping to create new native features. The success of your new native landscape depends on whether you select the right plants for the right places in your yard. Carefully evaluate your property, so you can choose plants based on their sunlight, soil, and moisture requirements. Although native plants are adapted to our region, it is usually beneficial to add compost to the soil at the time of planting.

Take an inventory of your current landscape conditions:

- Identify north on your property. Your property will receive morning sun from the east, afternoon sun from the west, full sun from the south, and full shade on the north-side. Remember that trees and your house cast shade. This will help you select the best plants for your landscape.
- Measure your turf grass area that you wish to convert to conservation landscaping.
- Observe how well water drains in the proposed project location or if there is standing water after heavy rainfall.



Conservation landscape in partial shade catching runoff from adjacent property

Why do you want to use conservation landscaping?

- Capture stormwater runoff or sump-pump discharge
- Attract wildlife (butterflies, pollinators, etc.)
- Block an unattractive view
- Block winter winds
- Create focal points or views that can be enjoyed from your home
- Shade your home or A/C unit

Other site considerations:

- Estimate the area needed for recreational space in your yard
- Estimate storage area needs for firewood, snow piles, lawn furniture, etc.
- Identify any local ordinances, deed restrictions, or homeowners' association restrictions on landscaping

These observations should give you an idea of where to add conservation landscaping that will thrive and help to achieve your goals.



Native plants, grasses and shrubs catch runoff from large ballfield at Rockville High School

How to...

Design and Plan

Choosing the Area



To be eligible for a rebate, at least 250 square feet of your lawn must be converted to conservation landscaping.

The site assessment will help you identify appropriate areas for conservation landscaping in your yard.

Selecting Native Plants

To qualify for the rebate, 75% of plants selected must be native species, which are plants that have adapted to local climate, rainfall, and soil conditions. As a result, these plants require less water and no fertilizer or pesticides. The best choices of native plants have deep root systems that may grow up to many feet deep, whereas the roots of most turf grasses typically only grow 2 to 4 inches deep. Drainage through soil will improve over time with native plants. As the plants mature, the roots grow longer and leave “root channels” or holes in the soil where old roots decayed. These channels break up the soil, allowing water to flow through the channels and soak into the soil more quickly.

Excellent resources for choosing native wildflowers, grasses, and shrubs by region include:

- The U.S. Fish and Wildlife Service’s guide: *Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed*

<http://www.nps.gov/plants/pubs/chesapeake/pdf/chesapeakenatives.pdf>

or

<http://www.nps.gov/plants/pubs/nativesMD/pdf/MD-Piedmont.pdf>

- The National Park Service’s “Plant Lists for Maryland Regions”
<http://www.nps.gov/plants/pubs/nativesMD/lists.htm>
- *Natural Landscaping: Designing with Native Plant Communities*, by John Dickelmann and Robert Schuster.

To find plants that are adapted to Montgomery County’s climate, review the U.S. Department of Agriculture (USDA) Hardiness Zone maps, which divide the U.S. into zones based on temperature. Montgomery County lies in **Zone 7** (<http://www.ahs.org>). To search for plants that can succeed in hardiness Zone 7, visit: <http://www.rainkc.com/index.cfm/fuseaction/plants.search/index.htm>

Use these guides to select plants based on size (how tall and wide plants will grow when they are mature—space them accordingly), the soil moisture conditions you have (dry, moist, or wet), and the amount of sunlight your garden will receive (full sun, partial shade, or shade).



Complete yard conversion



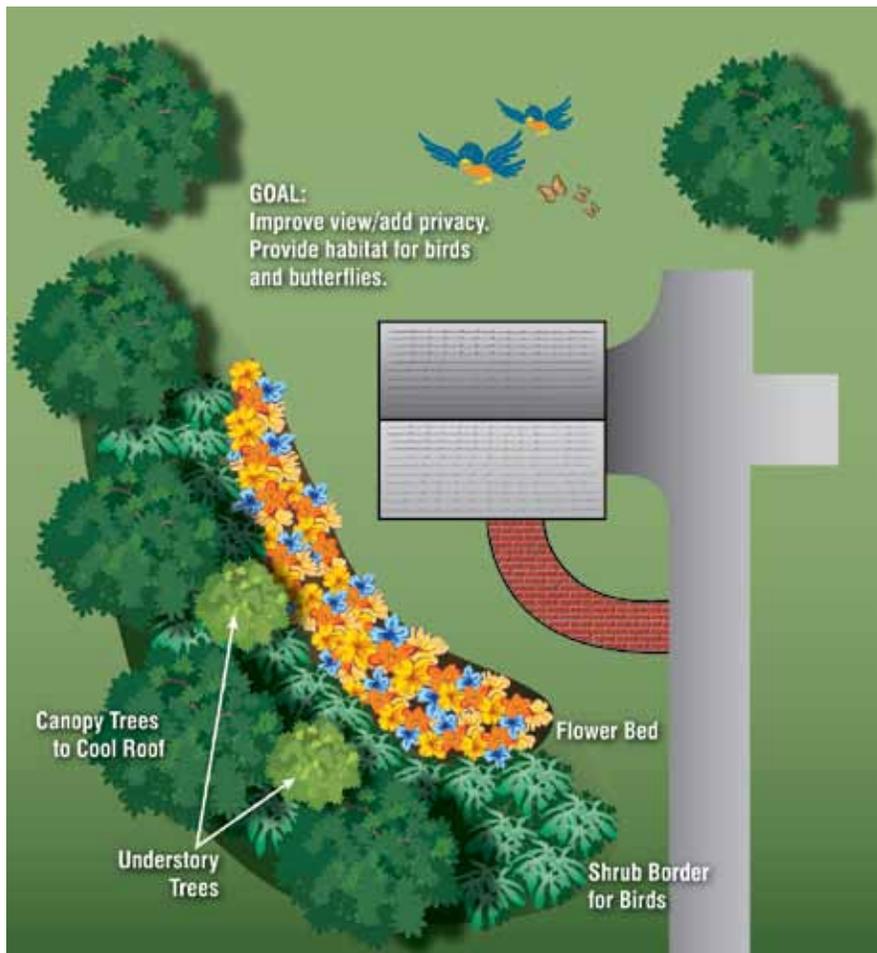
Native landscaping can be integrated throughout yard, along borders, edges, and entries

Developing a Planting Plan

Include a planting plan in your rebate application. The plan should detail the plant species, container sizes of purchased plants, number of plants, planting densities, planting materials, and soil amendments, and include a maintenance plan. If possible, plant canopy, shrub, and ground layer plants in your conservation landscape.



Baptisia australis - wild false indigo is a MD threatened plant species



Placement of the garden should be planned to achieve environmental and aesthetic goals

Sample List of 10 shrubs and herbaceous plants for a Sunny Conservation Landscape

| | |
|--------------------|--|
| arrowwood | <i>Viburnum dentatum</i> 'Emerald Luster' or 'Blue Muffin' |
| black-eyed susan | <i>Rudbeckia fulgida</i> , <i>hirta</i> or <i>triloba</i> |
| blazing Star | <i>Liatrus spicata</i> |
| bluestar Flower | <i>Amsonia tabernaemontana</i> |
| butterflyweed | <i>Aesclepias tuberosa</i> |
| New England Aster | <i>Aster novae-angliae</i> |
| redosier dogwood | <i>Cornus sericea</i> |
| sumac | <i>Rhus</i> 'Tiger Eye' or 'Gro-Lo' |
| switch grass | <i>Panicum virgatum</i> |
| thrift/ moss phlox | <i>Phlox subulata</i> |

Sample List of 10 shrubs and herbaceous plants for a Shady Conservation Landscape

| | |
|---------------------|------------------------------------|
| Christmas fern | <i>Polystichum acrostichoides</i> |
| doghobble | <i>Leucothoe fontanesia</i> 'Nana' |
| inkberry | <i>Ilex glabra</i> 'Densa' |
| Maple-leaf viburnum | <i>Viburnum acerifolium</i> |
| New York fern | <i>Thelypteris noveboracensis</i> |
| oakleaf hydrangea | <i>Hydrangea quercifolia</i> |
| Pennsylvania sedge | <i>Carex pennsylvanica</i> |
| smooth hydrangea | <i>Hydrangea arborescens</i> |
| spicebush | <i>Lindera benzoin</i> |
| Upland seaots | <i>Chasmanthium latifolium</i> |

See also:

<http://www.nps.gov/plants/PUBS/NATIVESMD/pdf/MD-Piedmont.pdf>

<http://mastergardener.umd.edu/files/NativePlantsofMDFeb%2005.pdf>

Can I do this project myself?

Yes. You can use this module as a guide.

If I decide to hire a contractor, what should I ask?

- What experience do you have planting conservation landscapes?
- Are you certified with any nationally recognized landscaping organizations?
- Can you supply references from previous clients?
- Do you intend to use subcontractors?
- Are you insured and bonded in Maryland?
- Do you have a portfolio of completed projects?
- What design do you envision for my conservation landscape?
- Will you develop a planting plan?
- Where will you get the plants?
- What technique do you use to remove turf grass?
- What is included in your services?
- How long do you expect the project to take?
- Do you offer a guarantee for your work?
- Are you available to perform ongoing maintenance of the conservation landscape if needed?
- How much will your services cost?

How to... Add Native Plants to Your Landscape

Plan to install the landscaping project during either the Spring or Fall, generally from late March – early June, and September – Thanksgiving. Avoid planting too early in the Spring when the soil may be too wet, and during mid-summer when watering will be necessary. Woody plants may be planted through the winter as long as the soil is not frozen or saturated.

1. Outline a conservation landscaping area with rope or string.
2. Remove grass with a sod cutter or spade.
3. Loosen soil with a tiller, rake, or shovel. Add 2 inches of compost and till or dig in.
4. Plant native species.
5. Place 2 inches of shredded hardwood mulch over garden bed. Avoid placing mulch directly onto plant stems or tree trunks.
6. Water the landscaped area weekly during the first growing season, then in dry periods after first year to allow plant roots to establish.

Conservation Landscapes on Slopes

Converting turf banks to conservation landscapes can reduce time spent mowing and improve safety by not running a mower on a hill.

Planting on a slope requires creating a series of mini-terraces (see the graphic on page 8 of the Tree Canopy module) that allow

plants to be planted vertically, not on a slant. Each little terrace will soak in more water than the smooth face of the original grassy slope. Your area of turf conversion on the slope must be fully on your property and not in the right-of-way.

Steeper slopes require extra stabilization if turf is removed. On these steeper slopes, a better strategy is to remove pockets of turf (as opposed to all of the turf) and create the mini-terrace planting areas. The rest of the grass can be covered using mulch, allowing the existing grass roots to continue to stabilize the slope as the new plant root systems are developing. If you remove all of the existing turf, you should plan to replant within 2 weeks to prevent erosion.

Plants for slopes should generally be drought tolerant. Plants at the bottom of the slope however may experience wet soils and should be able to withstand “wet feet” in addition to drought.

Turf Grass Removal Techniques

Before you can add conservation landscaping, you must prepare the planting bed. Several methods are commonly used to



Sod removal

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remove existing grass from your lawn.

Manual Removal with a Sod Cutter or a Shovel

If you don't mind the work, you can use a shovel to dig out the layer of grass on your lawn. Make sure you remove the roots of the existing grass and weeds so they do not grow back.

A quicker way to remove grass is with a sod cutter. A sod cutter (manual or powered) is a tool that slices off a thin horizontal layer of sod that can be rolled up for easy removal. Sod cutters are often available to rent from local home goods stores or equipment rental companies. You can recycle your sod elsewhere on your property, or you can donate it in your community.

"Lasagna" Method for Removal by Composting

The "lasagna" method is an easier, but slower way to prepare the planting bed for conservation landscaping. You are not removing grass with this technique. You pile layers of cardboard, compost materials, and mulch on top of your lawn to kill the grass beneath. The layering technique is similar to how you would make lasagna.

The basic steps are:

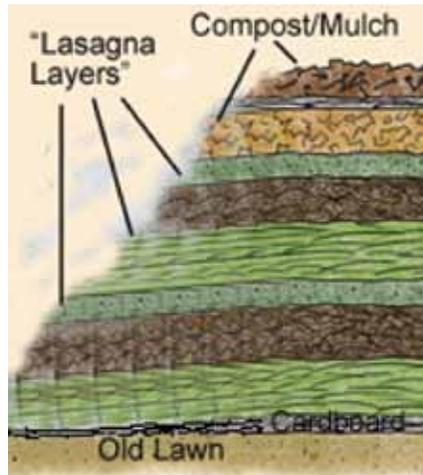
1. Cover an area of grass with cardboard (such as used boxes) or newspaper (4 to 5 layers). No sunlight should reach the grass below the paper.
2. Water the paper.
3. Add 2 to 3 inches of moist topsoil or peat moss over the paper.

4. Place a layer of 4 to 8 inches of compost materials over the top soil.

5. Continue placing alternating layers of peat moss and compost materials until the planting bed is 18 to 24 inches high.

6. Spread 4 inches of mulch on top of the "lasagna" layers.

Common compost materials include grass clippings, leaves, sawdust, manure, chopped up corn cobs, wood ash, hay, and household waste such as coffee grounds and fruit or vegetable peels.



Layering of 'green' and 'brown' compost components

After creating the "lasagna" layers, plant the garden right away or leave the layers to break down the existing grass. Over 2 to 4 weeks, the height of the planting bed will decrease. When you plant your garden, simply dig planting holes and place plants directly into the "lasagna" garden bed.

If you are using this method, consult with RainScapes staff on your project timeline before you begin.



Completed 'lasagna' bed settling in to await planting

Fewer layers of compost components could work for turf removal, but would not provide as much soil conditioning.

Costs

Adding native plant species to your landscape is an affordable way to improve the environment and aesthetics of your property. Depending on the materials selected, a typical price range for conservation landscaping is \$0.10 to \$9 per square foot.

Maintenance

Conservation landscaping requires regular gardening maintenance. Overall, landscaping with native plants requires less maintenance than traditional lawns and gardens.

Typical gardening activities include:

- Annual mulching (no more than 2–3 inches)
- Weeding (by hand)
- Watering (if it has been more than 3 weeks without rain)
- Pruning (as desired)

Remember: pesticides or fertilizers are generally not required.

Different Applications



A more formal front yard



Newly installed conservation landscape with dry wells

For More Information

Where to Buy Native Plants:

Most local nurseries carry native plants. The U.S. Fish and Wildlife Service Web site lists some native plant nurseries in the Chesapeake Bay watershed:

<http://www.fws.gov/chesapeakebay/BayScapes/bsresources/bs-nurseries.htm>

The Maryland Native Plant Society also lists native plant nurseries in the Mid-Atlantic region:

<http://www.mdflora.org/publications/nurseries.html>

How to Avoid Deer Damage:

A list of deer-resistant plants is provided on page 73 of the U.S. Fish and Wildlife Service's guide: *Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed*

To download or order a free copy, visit:

<http://www.fws.gov/chesapeakebay/BayScapes/bsresources/bs-nativeguides.html>

How to Avoid Invasive (Non-Native) Species:

Review the National Park Service and U.S. Fish and Wildlife Service's guide, *Plant Invaders of Mid-Atlantic Natural Areas*:

<http://www.nps.gov/plants/alien/pubs/midatlantic/>

Additional Resources on Conservation Landscaping:

Brooklyn Botanic Garden Links to Sustainable Techniques: <http://www.bbg.org/gar2/topics/sustainable/>

U.S. Forest Service, Native Gardening Web site: <http://www.fs.fed.us/wildflowers/nativegardening/index.shtml>

U.S. Forest Service, *Wild Ones: Landscaping with Native Plants*: http://www.epa.gov/greenacres/wildones/wo_2004b.pdf

The Chesapeake Conservation Landscaping Council, *Conservation Landscaping Guidelines: The Eight Essential Elements of Conservation Landscaping*: <http://www.chesapeakelandscape.org/Guid1207%20.pdf>

U.S. Fish and Wildlife Service, *Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed*:

<http://www.fws.gov/chesapeakebay/BayScapes/bsresources/bs-nativeguides.html>

The "Lasagna" Method for Turf Grass Removal: <http://tbmastergardeners.homestead.com/Handouts/LasagnaGardening.html>

<http://organicgardening.about.com/od/startinganorganicgarden/a/lasagnagarden.htm>

http://ourgardengang.tripod.com/lasagna_gardening.htm

Grow Native! Provides various designs using native plants landscape: <http://www.grownative.org>

Invasive Plants: A Guide to Identification, Impacts and Control of Common North American Species by Sylvan Ramsey Kaufman and Wallace Kaufman

Bringing Nature Home: How you can Sustain Wildlife with Native Plants by Douglas Tallamy