Clean Waters

Starting in Your Home and Yard

Conservation Landscaping for Water Quality

Most gardeners want to be good "citizens of the Earth" but also want great-looking gardens that don't take full-time help or a fortune to maintain. Can they have it both ways? Conservation Landscaping promotes landscape management techniques and philosophies that work with nature to reduce pollution and encourage wildlife habitat. It encourages yard care practices that include using less fertilizers and pesticides, reducing lawn areas, and utilizing native plants. The results are less overall maintenance and less water use in the suburban landscape. This fact sheet suggests practical techniques to assist in evaluating your landscape and maintenance practices. Simple changes may be all that is needed to help your landscape contribute to the health of our environment and the protection of water quality.

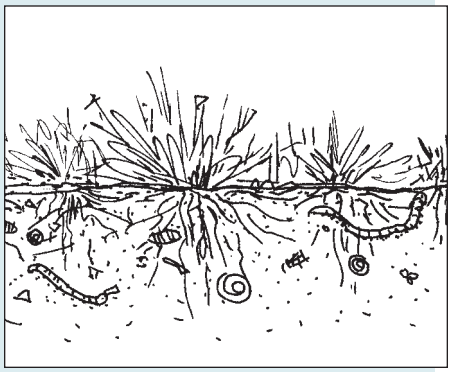
WHY IS CONSERVATION LANDSCAPING IMPORTANT?

A great majority of plant culture or gardening in the United States is devoted to growing ornamental plants and turf. More than 90 million households in the United States are involved in some form of gardening. Every gardener is a landscape manager, even if they never knew it. On a cumulative basis, the landscaping practices of these home landscape managers can pose a huge threat to naturally functioning ecosystems. The excessive use of fertilizers and pesticides, and irrigation practices that wash these and other chemicals, as well as pathogens (bacteria and viruses) from animal waste and eroded soil from the home landscape to local waters, create polluted runoff or non-point source pollution.

Traditional landscaping and gardening practices, along with suburban land development in the United States, have increasingly impacted the remaining natural ecosystems. To reconnect plant and animal species in the remaining natural areas and rebuild ecosystems requires restoring the ecology of individual back yards. Conservation landscaping techniques and practices are systems of gardening that use many of the same principles that natural ecosystems follow. Conservation landscaping is about reducing waste, energy use and materials. It is about observation of nature at work. Its purpose is to design and create systems that imitate nature and turn problems into solutions.

LAYING THE GROUNDWORK

Conservation landscaping begins with understanding the soil. Soil quality affects nearly everything that is part of the landscape – trees, flowers, shrubs and lawn areas. Creating and maintaining good soil quality through thoughtful management is the key to conservation landscaping.



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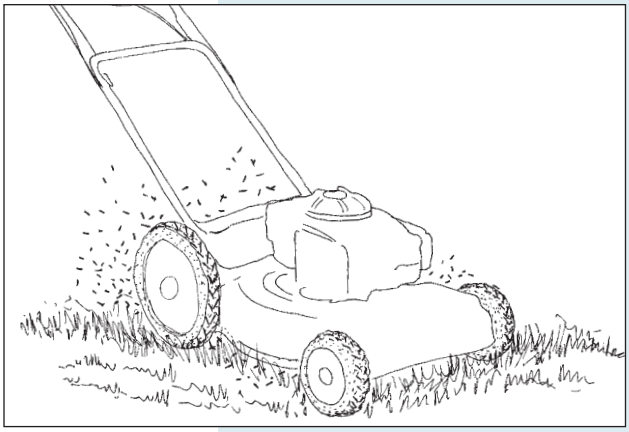
Good, healthy soil is full of earthworms, microorganisms, bacteria and other forms of life. This life feeds on organic matter, which it decomposes into humus, a rich, dark material that holds both moisture and nutrients in the soil. Soil pH (acidity/alkalinity levels) and fertility (nutrient availability) can be evaluated by analyzing soil samples from different soil locations throughout the landscape. Together they determine what plants will thrive in a particular landscape. Soil pH can be adjusted by the addition of limestone or gypsum (to raise pH) or iron sulfate (to lower pH for

acid-loving plants). Soil fertility can be improved by incorporating organic matter such as grass clippings or leaves into the soil. Applications of compost, which includes all the organic nutrients to keep soil life healthy, also helps plants thrive. As a natural fertilizer, compost has its own time release feature – nutrients are dispensed slowly, feeding the soil and plants gradually and preventing water pollution from nutrient runoff.

ON-SITE ORGANIC RECYCLING

Most gardeners know the value of recycling their grass clippings, plant prunings and leaves by composting, but many people still buy commercial fertilizers because they don't have enough compost. Other people give their leaves away in the fall by taking advantage of municipal leaf pick-ups or paying landscaping companies to clean off their lawns because they think they have no room for a leaf compost pile. Then they pay for bags of bark mulch to spread under shrubs and trees and in garden beds. Instead, they could chop the leaves with a mulching mower and rake them into the landscaping beds to use as mulch. Natural forest ecosystems function this way. They were the first "organic gardeners", recycling their own leaves and fallen twigs or branches.



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Another way to recycle organic matter, eliminate large compost piles and save yourself a lot of time is to create beds or areas in your landscape where materials can be recycled right where you are mowing or raking. Increasing the size and number of landscape beds helps decrease the size of the lawn (and the need to mow, rake, fertilize, or water). These beds can be planted with groundcovers that add landscape interest but still require less maintenance than grass or true gardens.

PREVENT BARE SOILS

An important part of protecting the soil and the environment is maintaining a healthy vegetative cover on the land surface. Bare, unvegetated land areas are often eroded by wind and water, leading to soil and nutrient loss and water pollution problems down slope. Vegetative covers can consist of grasses, vines, groundcovers, mulches, or vegetables and herbs, as long as the soil surface is completely covered.

LAWN ALTERNATIVES

In many landscape situations, grass may not be the best choice as a vegetative cover. It may have a hard time growing successfully or it may be hard to mow and maintain, so a different ground cover may be more suitable. Excellent locations for alternative ground covers include areas with steep slopes, wet or shady areas and sites with easily erodible soils. When carefully selected and planted, ground covers can improve infiltration of water into the soil, slow stormwater runoff and reduce landscape maintenance needs. Ground covers come in a variety of textures and colors, many with beautiful blooms. In addition to ground covers, other landscaping techniques help reduce total lawn area, including:

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- Plant a wildflower meadow to provide a colorful, low-maintenance alternative to lawns while creating habitat for birds, butterflies and small animals.
- Wood decks and brick-on-sand patios offer

cozy outdoor seating while allowing water to filter through to the underlying soil.

• Flowing water features introduce sound and texture into the landscape and attract wildlife.

TREE AND SHRUB SELECTION

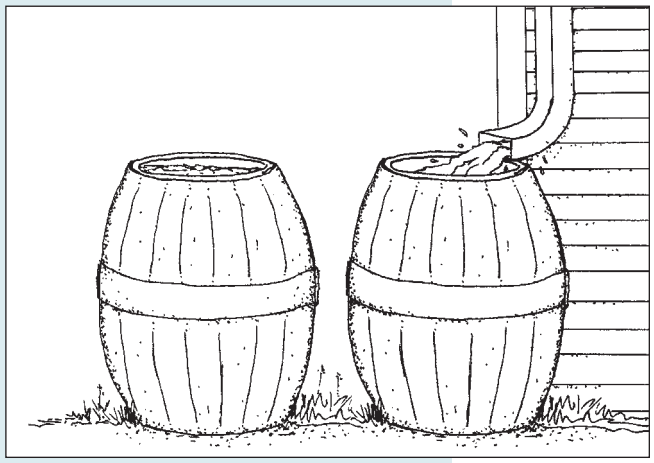
Selecting proper trees and shrubs for the home landscape can seem a daunting task, but it can be simplified with a little research and some time spent walking through nurseries, garden centers or arboretums. Traditionally, trees and shrubs were chosen for such characteristics as seasonal bloom intensity, bloom duration, or fall leaf color. While these characteristics are still important, today's environmentally sound, or conservation, landscapes include trees and shrubs selected for drought tolerance, disease resistance, ease of maintenance, and wildlife benefits, in addition to year-round appearance.

Conservation landscapes should incorporate plantings of native species – those that have thrived under local conditions without human help for thousands of years. Properly situated native plants require little in the way of water, fertilizers or pesticides to provide a beautiful, natural-looking landscape. Even when using native plant species, choose those that are best adapted to your particular landscape. Dwarf conifers are a better choice in a dry, windy site, for example, than roses, while plants from the sand plains should not be planted in moist, highly organic soils. Another advantage to selecting native species is that they attract and provide habitat for beneficial insects, birds and animals that in turn help control problem pests, reducing the need for pesticide use in landscape maintenance.

CONSERVE WATER

Water has become a limiting factor in many communities, especially during hot, dry spells. Landscaping to minimize watering, also referred to as "xeriscaping" ("xeri" is the Greek prefix meaning "dry") includes careful planning, using drought-resistant plant varieties, and improving soils or using mulches to help retain moisture in the soil.

Many varieties of native or non-invasive non-native ornamental plants are adaptable to dry landscapes – sedums and potentillas, for instance. Many grasses and herbs also have low water needs.



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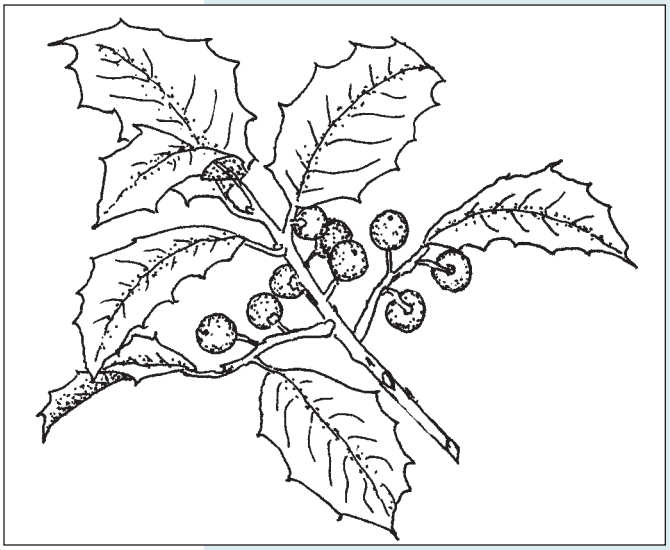
Other sites have an abundance of water, or problems with excessive stormwater runoff causing flooding or erosion, and almost every home has gutters or some other system to direct roof runoff away from the foundation. Many of these situations can be changed from problems to benefits or attractive landscape features. Roof runoff can be stored in rain barrels for later use in watering nearby lawns and gardens. A larger conservation landscaping project would be changing landscape contours to create infiltration swales or rain gardens. These shallow basins or channels are planted with moisture-loving plants and roof or driveway runoff is directed into them so the water will filter into the ground rather than running off the property into the nearest storm drain or water body, creating new habitat areas and preventing water pollution problems.

Swales and rain gardens should be no more than twelve inches deep so that storm water will soak into the ground within a day or two (preventing mosquito breeding problems), and they should be sized to contain the runoff from a fairly large storm. For example, to create a rain garden using the runoff from a roof gutter, first determine the area of the roof that drains to that gutter by measuring the roof's length and width in feet. Then multiply the length by the width to determine the area and multiply that result by 0.05. This calculation determines the approximate volume (cubic feet) of water that will come down the gutter in a large storm. So, if the roof

is 30 feet long and 15 feet wide, the calculation is 15 x 30 x 0.05 = 22.5, so the rain garden needs to have a volume of 22.5 cubic feet. Rounding that up to 24 cubic feet, the rain garden would need to be 4 feet by 6 feet and one foot deep.



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Beyond conserving water and native habitats, conservation landscaping can help conserve energy. Careful placement of selected trees and shrubs around a home can provide shade from summer sun and shielding from winter winds, reducing cooling and heating costs for years to come. Smaller lawn areas require less mowing, and the associated burning of fossil fuels that cost money and create air pollution.

"BAMBI-PROOF" LANDSCAPING?

With the spread of the suburban landscape into former woodlands and fields, and the extensive use of highly edible plant species in traditional landscaping plans, white-tailed deer have become a major problem for homeowners in many areas. Some have resorted to physical (streamers, flashy objects or noisemakers) or chemical (soap, predator urine or other strong scents) repellents. Others wrap plants in mesh or erect fences, even electrical ones. Most of these control measures are at least partially successful, but many are expensive or time-consuming to maintain, and some only work for short periods until the deer becomes acclimated to the sight or smell of the repellent.

An alternative approach is to reduce the landscape "edibility rating" by selecting plants deer prefer not to eat. As deer will browse on any shrub or low-growing tree if the conditions are bad enough, no list of plants can have an absolute guarantee for being "deer-proof". However, deer do tend to avoid plants with thorny stems or prickly leaves and those with strong aromas, making plants like bayberry, boxwood, potentilla, roses, and hollies good choices.

RESTORE THE BALANCE

Tending to one small piece of Earth with all of nature in mind has benefits that go well beyond reducing the time, labor and money spent long-term on landscape management. Natural forest and meadow ecosystems have been around for thousands of years. Their plants have experienced and survived a host of environmental changes. By making some changes in our own backyards, it is possible to work with the natural systems rather than imposing an artificial system that requires constant maintenance and inputs of water, fertilizer and pesticides. One small plot of land may not seem significant, but as more home landscape managers choose to make these sort of changes, the overall effect will have a very positive effect, both in the local neighborhood and the environment as a whole.

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Fact Sheet #5