

Xeriscaping and Conserving Water in the Landscape

Introduction

The term xeriscaping represents a practice or philosophy with the goal to establish and maintain an attractive and healthy landscape while reducing water usage. One of the prime practices in xeriscaping is the use of drought tolerant plants, but xeriscaping is more than that. It also includes changes in the landscape design, soil improvement, efficient irrigation, mulching, and other maintenance practices, all contributing towards a water-wise landscape.

Contrary to popular belief, xeriscaping is not a planting of cactus and yuccas in gravel beds. It is a technique of developing a landscape that conserves water by using plants that have drought tolerance as one of their characteristics. Many of these plants can also be grown under normal rainfall amounts and some can even tolerate wet conditions. A well-planned xeriscape not only uses less water, it is attractive, colorful, and utilizes a variety of landscape forms and textures. Many of our native plants fit well within a xeriscape setting.

How Plants Cope with Drought

Plants have a remarkable ability to adapt to their environment. Some of the adaptations for heat and dryness are not only practical, but also give plants a special beauty and appeal. For example, many xeriphytic (drought tolerant) plants have silvery or

gray foliage. This color is created by a coating of fine hairs, which shades the leaf's surface, reducing moisture loss caused by sun and wind. Another means of drought protection is a thick wax layer on the leaf surface, called cutin, that gives leaves an attractive bluish color.

Most plants that have evolved for survival under arid conditions also have reduced leaf sizes. Less leaf surface area means less moisture loss. Some drought tolerant plants have developed large, fleshy roots. These roots not only allow the plant to reach deep into the soil for moisture but also store moisture for use during dry periods. Another adaptation for drought tolerance is above ground succulent, water storage tissue which is best known in cactus but is also found in many other types of true succulent plants.

Common Misconceptions about Xeriscaping

- Lawn grass is the least expensive landscape planting and the easiest to care for. Actually, lawns require more maintenance time and effort than most other parts of the landscape. If irrigated, grass requires much more water than most other landscape plants.
- Water-conserving landscapes are dull and lack color. Xeriscapes are not all rocks and cactus. Many different and interesting woody and herbaceous plants already in popular use qualify for xeriscaping. A well-planned, water-

conserving landscape can be made attractive and interesting by the use of a well thought out selection of various trees, shrubs, ground covers, and flowering annuals and perennials. A xeriscape will often look no different than any other attractive landscape; it will simply use less water.

- Drought-tolerant plants don't require any water or maintenance. All plants need water, even the drought-tolerant plants. However, drought tolerant plants require less water and tolerate extended dry periods better than other plants. The use of drought tolerant plants can easily reduce landscape water use by 50% or more. As with any landscape, xeriscapes still need occasional weeding, pruning and pest monitoring.

Water Saving Tips

- Only water when necessary. Let your plants' appearance be a guide to when to water. Plants often wilt during the heat of the day but recover during the evening. However, if the plants remain wilted the following morning, it's time to water. Lawns require watering when the grass blades don't straighten up within an hour or two after being depressed. If you walk across the lawn and your footprints are clearly visible several hours later it's time to water. Lawns are heavy water users and some homeowners will try to get through the summer without watering. Cool season lawn grasses, such as tall fescue or Kentucky bluegrass, will deal with summer drought by going dormant. They stop growing, and often turn brown. Dormant lawns will usually recover and green up when the drought ends. However, if the drought is unusually severe, even dormant grasses can eventually die.
- If possible water in the morning. Watering during the heat of the day increases the amount of water lost to evaporation by as much as 40%. Late day, over-head watering increases the chances of some plants being infected by fungal diseases.

- Water infrequently, slowly and deeply. Deep and infrequent watering encourages a deep root system and makes plants more tolerant of future droughts. Frequent light watering encourages shallow root growth. The only plants that seem to benefit from frequent shallow watering are weeds.
- Prevent water from running off the landscape. Often sprinklers and other water devices throw water on paved surfaces. This water goes directly into storm drains and is wasted. Use soaker hoses and low-output sprinklers to reduce this type of water waste. Water can only percolate down into soil at a certain rate. If the application of water exceeds the percolation rate the excess water will run off the surface and usually be wasted. When operating a sprinkler or other watering device, check it often, and if water is running off the surface, shut off the sprinkler for a short time to allow the water to move down into the soil before resuming sprinkler operation.
- Repair leaking hose connections and sprinkle parts. Leaking hose connections can waste up to 50% of the water flowing through a hose.
- Turn off automatic sprinkler systems when it is raining. Automatic sprinkler systems are great, but they still need human supervision. Many sprinkler systems are on a timer and continue to operate even when it's raining.
- Mow the lawn high. Cool season grass species such as Kentucky bluegrass, fine fescue, and tall fescue should be mowed at a height of 3 to 3-1/2 inches. This height reduces weeds, reduces moisture evaporation from the soil, and cools the grass crowns and roots during hot weather.
- Mulch planting beds. Organic mulches, such as bark, are attractive, reduce weeds, lower soil temperatures, and retard water evaporation from the soil. The rough texture of mulch also traps water allowing it to percolate slowly into the soil instead of running off the surface. Do not over mulch. The recommended depth for mulch

is about 2 inches. A shallow layer of mulch will dry quickly forming a moisture barrier that will prevent the loss of moisture from the underlying soil. Don't pile mulch against the stems and trunks of woody plants. This can lead to the rotting of the bark and serious injury or death of the plant.

- Plant trees and shrubs in mass plantings. Most residential landscapes have their trees and shrubs planted in individual holes. By planting trees and shrubs in groupings, or beds, the soil can be prepared over a larger area allowing greater root spread for the plants. This will allow plant roots to draw water from a larger area during droughts and reduce the need to irrigate them. In addition, a landscape design that has trees and shrubs clustered in bed plantings usually is more attractive and natural looking than a design in which trees and shrubs are located individually. Using mass planting beds will also reduce the lawn area and reduce overall landscape maintenance and water use.
- Shrink the lawn. Grass has its uses in the landscape. It's an excellent surface on which to perform many outdoor activities. Unfortunately, a lawn is the most maintenance intensive part of a landscape and usually requires more water per square foot of area, than any other type of landscape planting. In addition, we often try to grow grass in places where it does not grow well, such as heavy shade or sunny hillsides. Try reducing the amount of lawn by expanding landscape beds, using ground cover plants, or using non-plant surfaces such as brick, stone, or wood.
- Plant in the spring or fall when temperatures are lower and water loss from the soil is reduced. This is an easier time for new plantings to get established and less water is usually needed.
- Make small earthen basins around newly planted trees and shrubs to catch water and hold it for the roots to absorb. Newly planted trees and shrubs have a small root system centered around the main trunk or stem of the plant. It's

important to keep the soil in this area moist until the plants are established and the root system has spread out.

- Control weeds. Weeds compete with landscape plants for soil moisture. Control weeds promptly by digging or pulling them or through the use of an appropriate labeled herbicide product.
- Improve your soil's water holding capacity. Regular additions of organic matter increase available water holding capacity of soils. This means that more soil moisture will be available to plant roots during periods of drought.

A Selection of Drought-Tolerant Landscape Plants

The plants listed below generally tolerate dry, hot conditions. These plants may require watering during their first season or during extended droughts, but they require less supplemental watering than other plants. The frequency of watering will vary according to plant species, its condition and maturity, and soil conditions. This list is obviously not exclusive and you are encouraged to seek out other attractive and useful landscape plants that possess the xeriphytic characteristics of drought tolerance.

SMALL AND ORNAMENTAL TREES

Amur Maple	(<i>Acer ginnala</i>)
River Birch	(<i>Betula nigra</i>)
Redbud	(<i>Cercis canadensis</i>)
Crapemyrtle	(<i>Lagerstroemia indica</i>)
Japanese Tree Lilac	(<i>Syringa reticulata</i>)

SHADE TREES

Red Maple	(<i>Acer rubrum</i>)
Yellowwood	(<i>Cladastris kentukea</i>)
Green Ash	(<i>Fraxinus pennsylvanica</i>)
Ginkgo	(<i>Ginkgo biloba</i>)
Tupelo	(<i>Nyssa sylvatica</i>)
Red Oak	(<i>Quercus rubra</i>)
Pin Oak	(<i>Quercus palustris</i>)
Japanese Pagodatree	(<i>Sophora japonica</i>)
Chinese Elm	(<i>Ulmus parvifolia</i>)
Zelkova	(<i>Zelkova serrata</i>)

EVERGREEN TREES

Atlas Cedar	(<i>Cedrus atlantica</i>)
American Holly	(<i>Ilex opaca</i>)
Red Cedar	(<i>Juniperus virginiana</i>)
Colorado Blue Spruce	(<i>Picea pungens glauca</i>)
Scotch Pine	(<i>Pinus sylvestris</i>)
Japanese Black Pine	(<i>Pinus thunbergii</i>)

DECIDUOUS SHRUBS

Red Chokeberry	(<i>Aronia arbutifolia</i>)
Fragrant Wintersweet	(<i>Chimonanthus praecox</i>)
Smoketree	(<i>Cotinus coggyria</i>)
Rose-of-Sharon	(<i>Hibiscus syriacus</i>)
Bush Cinquefoil	(<i>Potentilla fruticosa</i>)
Pinxterbloom Azalea	(<i>Rhododendron nudiflorum</i>)
Flameleaf Sumac	(<i>Rhus copallina</i>)
Rugosa Rose	(<i>Rosa rugosa</i>)

EVERGREEN SHRUBS

Glossy Abelia	(<i>Abelia x grandiflora</i>)
Junipers	(<i>Juniperus spp.</i>)
Northern Bayberry	(<i>Myrica pensylvanica</i>)
Heavenly Bamboo	(<i>Nandina domestica</i>)
False-Holly	(<i>Osmanthus heterophyllus</i>)
Cherry Laurel	(<i>Prunus laurocerasus</i>)
Mugo Pine	(<i>Pinus mugo</i>)
Pyracantha	(<i>Pyracantha coccinea</i>)
Adam=s Needle Yucca	(<i>Yucca filamentosa</i>)
Spanish-dagger Yucca	(<i>Yucca gloriosa</i>)

HERBACEOUS PLANTS

May-June Blooming:

Sea Pink	(<i>Armeria maritima</i>)
Butterfly Weed	(<i>Asclepias tuberosa</i>)
Perennial Bachelor Button	(<i>Centaurea montana</i>)
Gas Plant	(<i>Dictamnus albus</i>)
Cushion Spurge	(<i>Euphorbia spp.</i>)
Day Lily	(<i>Heemerocallis</i>)
Coral Bells	(<i>Heuchera spp.</i>)
Candy Tuft	(<i>Iberis sermpervirens</i>)
Dwarf Crested Iris	(<i>Iris cristata</i>)
Bearded Iris	(<i>Iris spp.</i>)
Iceland Poppy	(<i>Papaver nudicaule</i>)

June-Sept Blooming:

Yarrow	(<i>Achillea filipendulina</i>)
Silvermound	(<i>Artemesia schmidtiana</i>)
New England Aster	(<i>Aster novae-angliae</i>)
Coreopsis	(<i>Coreopsis lanceolata</i>)
Coreopsis	(<i>Coreopsis verticillata</i>)
Foxtail Lily	(<i>Eremurus x isabellinus</i>)
Blue fescue	(<i>Festuca glauca</i>)
Perennial Baby's Breath	(<i>Gypsophila paniculata</i>)
Breath	(<i>Gypsophila paniculata</i>)
Red-Hot Poker	(<i>Kniphofia uvaria</i>)
Liatris	(<i>Liatris spicata</i>)
Moneywort	(<i>Lysimachia nummularia</i>)
Black Eyed Susan	(<i>Rudbeckia hirta</i>)
Perennial Salvia	(<i>Salvia x superba</i>)
Sedum	(<i>Sedum spp.</i>)
Hens and Chicks	(<i>Sempervivum spp.</i>)
Goldenrod	(<i>Solidago spp.</i>)
Lamb=s Ear	(<i>Stachys byzantina</i>)

Do you have a plant or insect pest question?

Visit us at extension.umd.edu/hgic

Author: Raymond Bosmans, University of Maryland Extension Specialist, Home and Garden Information Center. Revised: Robert Stewart, University of Maryland Extension

This publication is a series of publications of the University of Maryland Extension and The Home and Garden Information Center. For more information on related publications and programs, <http://extension.umd.edu/hgic>. Please visit <http://extension.umd.edu/> to find out more about Extension programs in Maryland.

The University of Maryland, College of Agriculture and Natural Resources programs are open to all and will not discriminate against anyone because of race, age, sex, color, sexual orientation, physical or mental disability, religion, ancestry, or national origin, marital status, genetic information, or political affiliation, or gender identity and expression.

For more information on this and other topics visit the University of Maryland Extension website at <http://extension.umd.edu>