LANDSCAPE WATER CONSERVATION

The Seven Principles of Xeriscape

Xeriscaping protects one of our most important natural resources—water. Xeriscape is water conservation through creative landscaping. Gardening styles which utilize xeric techniques, offer rewards for all gardeners, homeowners and professionals alike.

Xeriscape landscaping uses plants that require or tolerate dry (xeric) conditions and is a water wise practice that emphasizes minimal use of fertilizers and pesticides. The low water use garden will support a broad range of plants and can be a haven for wildlife such as songbirds, butterflies and hummingbirds, as well as lizards, chipmunks and squirrels. Foliage can be lush and flowers plentiful. Xeric maintenance is minimal providing us with more time to enjoy the fruits of our labor.

Creating a low water use landscape is simple and uses traditional techniques as well as the concept of gardening appropriately for the climate zone in which we live. Living in the arid high desert, with its uncertain water supply, challenges us to conserve water used outdoors around homes and businesses. As reports of water shortages and drought become more prevalent, we, as Southwestern residents, cannot continue to pour as much as 70 percent of our potable water supply onto landscapes.

Water is necessary to human life and a community cannot grow and prosper without it. Water conservation is an important step toward protecting the pristine beauty of our rim country communities and the bio-diversity of our natural environment. In order to maintain a community that can thrive, both now and in the future, we must all accept the challenge of protecting our most precious commodity. Water!

The basic concept of xeriscape is “nature-scape,” which is gardening with nature to create colorful and dramatic, water efficient landscapes that are congruent with our high country environment. Xeriscaping is a diverse approach to landscaping that utilizes seven basic water-conserving principles, which may be incorporated into any style of garden.

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Planning and Design

The first step in creating an attractive xeriscape is to begin with a good design. Before you move a shovelful of dirt or plant a single flower, take the time necessary to develop an overall plan for your landscape.

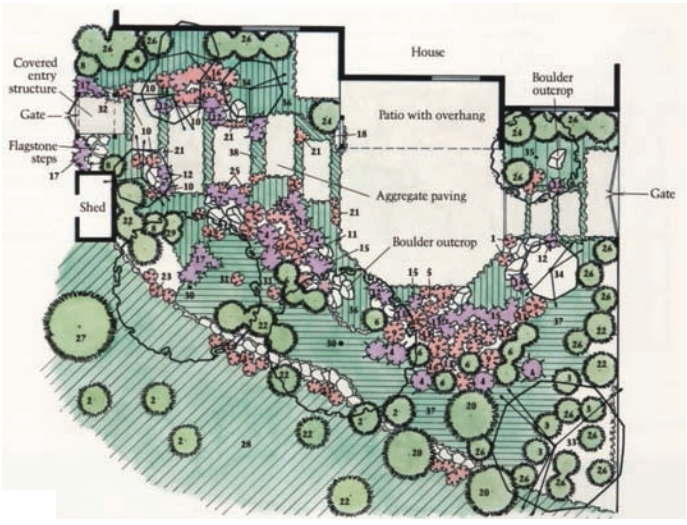
When you are ready to design the garden, you will need a drawing that shows where your home is located on the property. If a site plan is not available, make your own sketch by measuring the house and its relationship to the property lines.

Note on your sketch the location of any structures or features that you want to retain in the new landscape, such as trees, shrubs or rock outcrops. Add comments about existing conditions, for example, the sunniest part of the garden, the shady areas, the places that are windy or protected from the wind, and the low spots where water tends to puddle or stay wet after a storm.

Consider the views you want to protect or screen—desirable distant views that you want to enhance; places where you want to block undesirable views or screen your property from neighbors and views from inside the home out into the landscape.

Determine how you will use the different areas of your landscape and create activity zones for your garden. Draw "bubbles" to denote entry areas and areas that will be used for outdoor entertaining, play and recreation, utility storage, etc.

Consider how much time you want to spend maintaining your landscape. If you'd rather enjoy your garden than work in it, choose low-maintenance plants.



Browse through photographs and landscape plans in books from a local nursery or library to find examples of elements that interest you. Look for discussions on how different types of landscapes and plant placements can be used to enhance different architectural styles and garden settings. Read what makes each design work in terms of its function and visual qualities so that you can adapt the concepts of the design to fit your needs and lifestyle.

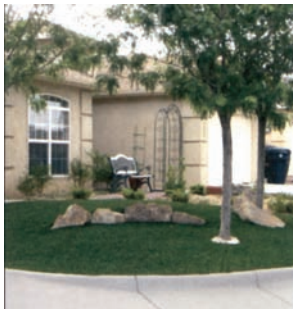
Whether you decide to design a landscape yourself or hire a professional to complete the project, a properly designed xeriscape will meet your needs and provide a beautiful and waterwise outdoor environment to enhance your home.

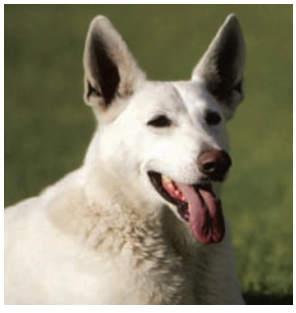
You can improve any soil by incorporating organic matter such as compost, aged sawdust, or well-rotted manure. Adding organic material to clay soils opens up their tight pore spaces, improving drainage and allowing water to soak in rather than run off. Adding organic matter to sandy soils fills some of the large air spaces, slowing the movement of water through the soil so that less water is needed for irrigation.

Amending your soil to a depth of about one foot, or as deep as is practical, produces other benefits. Your plants will have access to more moisture in a deep, loose soil than in a shallow or heavy one. It's better to amend an entire bed rather than just the planting hole, because otherwise plant roots will tend to remain in the richer soil inside the planting hole rather than moving out into the unamended native soil. Don't improve the soil, however, if you are growing native plants adapted to poor soil. They prefer and will thrive in unamended native soil.

Soil Improvements

Appropriate Turf Areas





If you live within the Town of Payson, Water Conservation Resolution No. 1742 *prohibits* the planting of new turf areas within a landscape, with one exception.

An artificial grass made from recycled materials (pictured at the left in this photograph of the multi-purpose fields at Rumsey Park), requires no water and may be used without restriction in commercial and residential landscapes.

These new products are available in a variety of textures to provide a realistic appearance, long-term durability, no maintenance, and a soft, springy feel like natural grass underfoot. Some manufacturers also offer products specifically designed for use with pets or in children's play areas.

Contact the Payson Water Department at (928) 474-5242, Ext. 4 for more information.

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Select native and low water use plants from this publication for your landscape. They are well adapted to our high country climate zone and will provide you with a variety of textures and color.

The plant border pictured at the right, features tough, drought-tolerant perennials such as catmint (*Nepeta*), yarrow (*Achillea*), dwarf lavender, and penstemon.

Organize your plants with similar water needs together. You'll simplify irrigation while providing your plants with the proper amount of moisture that they need for good health.

Low Water-Use Plants

Efficient Irrigation

Drip irrigation is the most efficient method of getting water directly to the roots of plants. Water is applied so slowly by drip irrigation systems, that the output is measured in gallons per hour (gph) rather than gallons per minute (gpm). A drip irrigation system also operates at low pressure, typically 15 to 30 psi. Drip emitters apply water close to the ground which helps prevent runoff and minimizes evaporative losses. Pressure-compensating emitters may be used to allow uniform application of water, even on steep slopes.

Innovative new irrigation controllers are available that use weather data or soil moisture information to control the time and frequency of watering. These devices typically contain rain sensors that do not allow a landscape to be irrigated for a certain period of time after precipitation is detected.

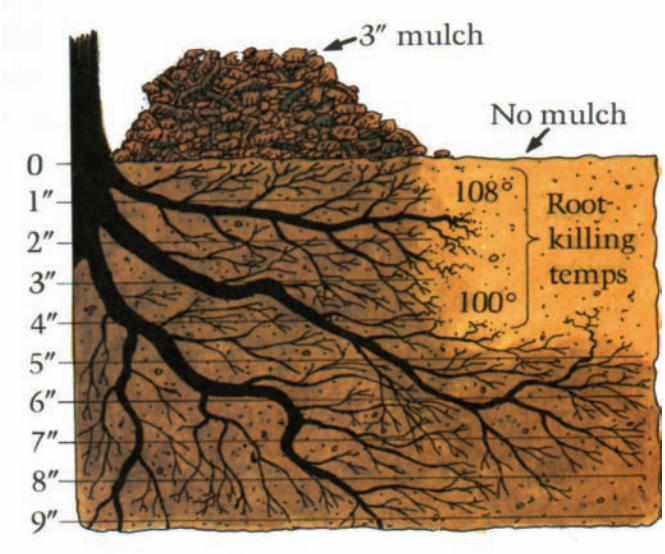
One of the biggest advantages of these controllers, is that they help take the guesswork out of determining a plant's water needs, especially as the weather changes seasonally.

Visit the demonstration garden at the Gila Community College (210 North Mud Springs Road in Payson) to see these systems in action.

Protect your plants by applying mulch, a layer of insulating material placed on the soil surface. Mulches minimize evaporation, cool the soil, reduce weed growth and slow erosion. Mulched plants can go longer between waterings than plants that are in bare soil. In hot weather, a mulch helps to moderate soil temperature, which promotes steady root growth.

Traditional mulch is an organic material that breaks down over time and filters into the soil, improving the composition of the top layers and allowing water to penetrate more easily.

Organic mulches are typically bark and home-made or commercially prepared compost. Under trees, you can allow fallen leaves or needles to remain on the soil as a mulch. Inorganic mulches (such as gravel and decom-posed granite) can also be used to add texture and color under trees and around shrubs.



Mulching

Proper Maintenance

Even though successful xeriscapes are low maintenance, they aren't completely maintenance-free. To ensure that your landscape remains beautiful and water-wise, you'll need to periodically fertilize, prune, weed, mulch and control pests.

Keep irrigation systems properly adjusted for maximum water savings. Repair leaky faucets or hose connections promptly. Check the emitters on drip systems periodically and replace them as needed if they break or clog with calcium deposits from hard water. Inspect drip tubing for breaks and looks for puddles, overly wet areas or little geysers that indicate damage.

Take time to inspect your plants on a regular basis. Don't assume that your automatic watering system is keeping all of your plants healthy. If you are irrigating dead or dying plants, you are wasting water. Tour your garden regularly and assess the condition of the landscape. Check plants with a soil probe as needed to determine if water is reaching the root system.

Most plants, when properly chosen to fit the allocated space, will only require occasional pruning to control wayward branches and to eliminate unproductive growth. Avoid heavy pruning which stimulates vigorous new growth and increases water demand.

Fertilize plants as needed to maintain health, but don't overdo it. Applications of fertilizer, especially those that are high in nitrogen, promote growth-which in turn creates a demand for more water.

Use natural methods of pest control whenever possible to avoid harming desirable landscape visitors, such as bees, butterflies, hummingbirds and other wildlife.

High Country Xeriscape Demonstration Project

The High Country Xeriscape Demonstration Project is located in the center courtyard at the Gila Community College (210 North Mud Springs Road- Payson, Arizona). The project was constructed with grant funds from the Arizona State Land Department-Forestry Division-Urban & Community Forestry and the USDA Forest Service and dedicated on October 03, 2003 (Phase I) and August 11, 2007 (Phase II).

The garden showcases a wide variety of colorful native and low water-use plants that are featured in this publication. An information kiosk on the site provides visitors with information on water conservation, gray water use, rainwater harvesting, compost, mulching, fire-scaping/urban-forest interface, wildlife habitats, zonal gardening, attracting beneficial insects, and other xeriscape topics of interest.

Above— Glen and Rob McCombs from Plant Fair Nursery dig the hole for a Chitalpa tree—a drought tolerant hybrid with large pink, bell-shaped flowers.

Rainwater harvesting has been incorporated throughout the project with a fifty five gallon rain barrel and a series of berms, rock-lined basins and swales in areas with adequate percolation rates. These structures capture and hold rainwater during storm events and slow the flow for maximum plant irrigation and infiltration of excess water into the ground.

One of the most challenging activities in any xeriscape garden is determining how to irrigate correctly so that plants are healthy, but not over or under-watered. The project features two innovative irrigation technologies that are designed to simplify the task of watering plants—a weather-based irrigation controller and soil moisture sensors.

Water-wise gardening is a fun activity for the entire family.

Unlike traditional controllers, weather-based irrigation controllers and soil moisture sensors are state-of-the-art technologies for water conservation. Instead of using a timer that sends signals to open and close irrigation valves, a weather-based irrigation controller adjusts the amount of water applied to your landscape based on actual on-site weather conditions monitored 24 hours per day.

Since weather-based irrigation controllers adjust watering schedules to exactly match the needs of a landscape, they eliminate over-watering and runoff and reduce outdoor water use by about twenty percent. Recent studies indicate that weather-based systems save about 40 gallons per day or 14,600 gallons of water per year.

Spend a few minutes and tour through the xeriscape demonstration garden. You'll learn how to use water wisely here in the Arizona high country and find some great ideas to enhance the outdoor areas around your home.

For more information about the project, visit the web site of the High Country Xeriscape Council of Arizona (a non-profit volunteer organization) who constructed the garden at *www.xeriscapeaz.org.*