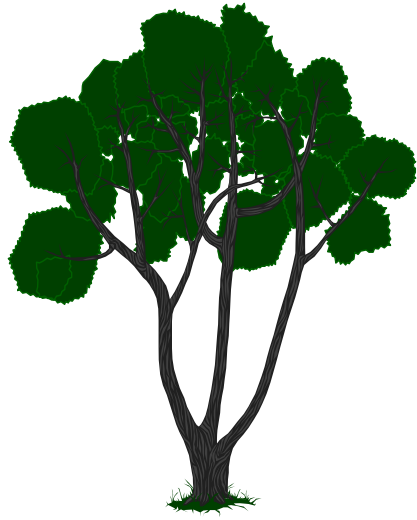

City of Wilsonville



Guidelines for a Water Wise Landscape

Guidelines for a Water Wise Landscape

Prepared for

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March 1998

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GUIDELINES FOR A WATER WISE LANDSCAPE
An Alternative Approach Toward Water Conservation
City of Wilsonville, Oregon

Because of its location in the lushly vegetated northern Willamette Valley, it may be surprising to find that the City of Wilsonville is experiencing water resource limitations. Although the Wilsonville area receives an annual average rainfall of 41 inches, it has become increasingly necessary to conserve water. The Wilsonville area is still vulnerable to short periods of drought, whether it be the effects of El Nino or other cyclic conditions.

Similar to other communities in the State and across the nation, the City now has a municipal water system supply unable to keep pace with the demands of urban growth. For many years, Wilsonville has been one of the fastest growing communities in Oregon. Increased demand on domestic water supply, due to both population and facilities growth, has placed considerable pressure on existing systems in the City.

The increasing need for water resources has begun to exceed the supply available from the municipal well system, particularly during the peak summer demand time. The City has reached the maximum development of wells allowed, and cannot add new wells to the system to increase water supply.

In its efforts to be a responsible steward of water resources, Wilsonville has become an advocate of conservation measures, particularly in summer months when demand for water is at its highest. In addition, the city has in recent years been requiring water rationing measures during peak summer demand times, as the available water supply reaches critically low levels. In concert with these efforts, the City has recognized that new and creative approaches are needed to offset the increased demand and ensure that water resources continue to be utilized wisely.

One of many ways to manage water consumption is to incorporate water-efficient landscaping (**or Xeriscaping**) into existing and proposed development. The following guidelines have been prepared to help consumers better understand the “whys” and “hows” of water conservation in terms of landscape development.

DEFINITION OF XERISCAPE

Xeriscape is the accepted term most often associated with water conservation in the landscape. The term ‘Xeriscape’ is credited to a Colorado group consisting of members of the Denver Water Department, Colorado State University, and the associated Landscape Contractors of Colorado who were charged with the task of developing new ways to conserve water through creative landscaping. The term ‘Xeriscape’ evolved by merging two words “Xero” derived from the Greek word xeros, meaning dry, with the word landscape. The new term ‘Xeriscape’ simply describes water conservation without sacrificing quality of surroundings.¹ Xeriscaping

¹ Connie Ellefson, Tom Stephens, and Doug Welsh, *Xeriscape Gardening* (New York: Macmillan Publishing Company, 1992), p.3. The term Xeriscape and the Xeriscape logo are trademarks of the National Xeriscape Council, Inc., PO Box 767936, Rosewell, GA 30076.

incorporates a series of interconnected steps starting with planning, and ending with maintenance. Implementing Xeriscaping principles into landscape design and management practices can result in a 20 to 80 percent decrease in landscape water consumption.

From the beginning, the intent of the Xeriscape concept has been to create dramatic decreases in landscape water usage with little or no sacrifice in beauty. Even the most elaborate landscapes can be maintained with significant water savings by incorporating an efficient watering strategy through the use of drought tolerant plant materials and specialized irrigation design.

The primary difference between traditional landscaping and the Xeriscape approach is in the selection of plant materials. Initial cost of a Xeriscape will be comparable to that of a traditional landscape. Most of the plant materials listed in the accompanying table are readily available from local nurseries, the remainder may take a little extra effort to search out. Plant nurseries which specialize in native materials may be good sources for the difficult-to-find species. Some drought tolerant grass mixes and particular shrubs may be harder to find, and seed costs will run higher for some varieties of exotic grasses.

There is no need to eliminate open space (lawn area) in a Xeriscape design. Traditional lawn (Rye grass or Rye Grass Fescue mix) can be transitioned or substituted with "Ecology" lawn mixes, allowing open space areas to remain the same in size, while reducing overall water requirements. Traditional plant beds can remain similar in character. Xeriscaping means substituting traditional water loving plants with more drought tolerant plants. Cost savings are realized through the reduction in watering, fertilization, and maintenance requirements. The need for fertilizing can be virtually eliminated, and mowing costs will be greatly reduced or eliminated depending on the approach taken. For example, use native grasses which require minimal water and only one or two mowings during the growing season.

ADVANTAGES OF XERISCAPING

According to the authors of *Xeriscape Gardening* it may take three years to adapt a new or changed landscape to a minimum of applied water, but with careful planning it is possible to reduce or completely eliminate the need for added water above natural precipitation. It is possible to substantially reduce the need for supplemental irrigation systems. There are numerous advantages to be enjoyed by the introduction of Xeriscaping, including:

- significant reduction in water consumption and associated water costs;
- beautiful landscapes, with sunny displays of durable flowers, and interesting collections of shrubs and trees;
- less time required for watering, mowing, trimming, edging, clipping, and weeding than in traditional landscaping, which may result in lower maintenance costs, and
- reduced damage to the environment through the overuse of chemical and water applications.

Although it may take a few years to adapt a new or changed landscape to a minimal low water requirement, the effort will not only result in cost savings but will be better for the overall health of the plant materials. Adapting plants away from supplemental water results in the development of healthier, more extensive root systems. Root systems won't grow deeper in search of water if what they need is readily available at the surface through artificial irrigation methods. The same is true for lawns. Deep watering at longer intervals will promote deeper, healthier root growth.

During the majority of the year, the City of Wilsonville and surrounding area receives significant rainfall. During the months of July and August, however, rainfall can be nil. During the months of April and May rainfall may reach upwards of 4 to 6 inches with remaining summer months averaging around 2 to 3 inches.² During the rainy months, sprinklers are generally scheduled to come on whether the lawns and shrub beds need the water or not. The challenge is to better manage water already allocated through water wise habits, and to consider the use of grasses and plant materials that will reduce or eliminate the necessity for supplemental irrigation.

SPECIAL CONCERNS AND CHALLENGES

Homeowners and developers may be concerned that all drought tolerant landscapes will look alike, or resemble a "moonscape." In the suggested plant list at the end of this guideline there is a wide selection of plant materials that have low water requirements, yet provide the color, texture, form and aesthetic quality desired in commercial and residential landscapes alike. There is no need to sacrifice beauty for water efficiency.

It may be thought that drought-tolerant plants can be placed in the ground and forgotten. All new plantings need some amount of water on a regular basis until they are well established. The period of establishment will be less for some plants than for others. The challenge is to slowly reduce water supplied to the plants to the point that supplemental water is only required during extreme periods of drought. The objective is to implement a design program that combines drought tolerant plants with appropriate watering methods that results in an overall reduction of water consumption.

There will be concern that in order to achieve the goals of a drought tolerant Xeriscape, existing landscapes will have to be disassembled and reconstructed using new and unfamiliar plant materials. It is not necessary to eliminate all of the turf areas or replace all plant materials with only drought tolerant species. Reducing "traditional" lawn areas, or exchanging them for areas with drought tolerant seed mixes (such as the "Ecology" mix), will allow the designer to include open turf areas into landscape and still meet water conservation goals. As existing plants outgrow their locations and require replacement, tougher drought tolerant selections should be used.

It is a misconception that using large quantities of rock and mulch in a landscape is good Xeriscape design. This is far from the Xeriscape vision. Plants absorb heat and light resulting in a cooling affect. Rocks, stones and other paved surfaces reflect light and heat resulting in higher surrounding surface temperatures and increased water evaporation. This concept is further explained under Xeriscaping Principle #6 Mulches.

² Seasonal Rainfall Comparison, Northwest Experiment Station, Aurora, Oregon, averaged over the last thirty years.

A well designed Xeriscape is indistinguishable from the “traditional” landscape palette. The only difference is that the overall plant composition includes plants which require little or no water once established.

FUNDAMENTALS OF WATER EFFICIENT LANDSCAPE - THE SEVEN XERISCAPING PRINCIPLES

The primary objective of Xeriscape is water conservation. Strategies for meeting this objective range between paying closer attention to existing water management, to designing a whole new landscape based on the guidelines set forth under the seven Xeriscape principles below. A Xeriscape approach can involve as little as reducing the amount of lawn area, to renovating an entire existing landscape. The following are seven recognized principles to be incorporated into a Xeriscape design:

1. **Planning and design** - Consider regional and micro climate conditions i.e., soil requirements, water needs, sun and shade tolerance, effect of wind, topographic and existing conditions. Strategically position plants of differing water, sun and shade requirements on the site for optimum water management.
 - a) **Site Inventory** - A site plan reflecting existing conditions may have previously been developed. If a site plan has not been developed, use standard procedures for developing a site plan. The site plan will be helpful during recordation of existing site conditions during the site inventory. The site inventory should identify all lawn, shrub and ground cover areas by species and water demand requirement. Using soil sampling procedures described by a soils lab, take soil samples for analysis of pH level, structure, texture, drainage capability and nutritional requirements. Samples should be cataloged by area of use so that amendments can be added to site areas by specific need, i.e., lawn areas, shrubs, ground covers, flowering plants and bulbs. Next, determine permeability of the soil and map out any hard pan areas or other areas with poor drainage. All of the foregoing will affect the selection of plantings and soil amendments needed.
 - b) **Site Plan** - If a landscape plan is currently in place, review the plants selected and see how they compare to the recommended Xeriscape Landscape Plant List. It may be that many of the plants currently being used are on the recommended plant list. It is not advocated that an existing landscape be removed simply because it does not fit the Xeriscape criteria. The overall plan should be evaluated to identify opportunities to incorporate Xeriscape principles and to meet desired water conservation goals.

In order to reduce water consumption, vast lawn areas can and should be reduced by adding shrubs, trees and ground covers. As shrub beds are renovated, replacements can be made with more drought tolerant materials. If a planting plan needs to be developed, consider topography, drainage, sun orientation and other information gathered during the site inventory. At this point, the plan should be general in nature identifying areas of commonality i.e., hardscape,

lawn, shrubs, perennial and annual beds. Hardscapes decrease the demand for water, but increase heat absorption, light reflection and runoff. Program parameters will vary from site to site, but the general objectives will not change by following the seven Xeriscape Landscape Principles.

- c) **Planting Plan** - Using the attached plant material list, select plants that satisfy design criteria and objectives. Plants of differing water requirements should be grouped or zoned together to simplify water management. Climatic conditions such as sun, shade and exposure should also be considered. By taking advantage of the climatic conditions, irrigation needs can be significantly reduced. Plants can be divided into four watering zones:

- **Zero (no water required)** - dry land seed mixes, wild flowers, select trees and shrubs established at appropriate wet seasons.
- **Very Low (very low water requirement)** - needs water to get established, but once established will survive on seasonal precipitation. Some plant suggestions include salal, kinnickinnick, snowberry, pacific dogwood, strawberry madrone and staghorn sumac.
- **Low (low water requirement)** - requires occasional supplemental watering (1 inch per month), which is more water than is available through seasonal precipitation.
- **Moderate (moderate water requirement)** - requires the greatest amount of supplemental water (1 inch per week) on a weekly basis. Lawns and annual flowers fall into this category.

2. **Soil Analysis (Soil Improvement)** - Soil characteristics are important in determining the best plant selection, fertilizer and amendment improvements that can be made for drainage, moisture retention, and/or water penetration. Soil improvements, properly executed, will increase water absorption, increase water holding capacity, improve drainage and increase the ability of the soil to release nutrients to plant materials. The result of increased effort placed on soil preparation will greatly decrease the effort required to maintain lawns and plants and increase moisture retention to support a Xeriscape design.

- a) **Soil Type** - General classifications are Sandy soils, Sandy Loam, Loam, Silt Loam, Clay Loam and Clay. Water infiltration by depth and rate varies for each of the soil classifications. It is important to understand the characteristic of each of the soil types in order to select the most suitable plant material for the particular soil type. In some cases soil amendments may be added to a particular soil type to better support a specific type of plant material. Heavy clay amended with organic material will have an increased rate of water absorption, increased aeration and increased available nutrients, all of which are important building blocks of good soil.

- b) **Soil pH** - Soil pH indicates soil acidity or alkalinity and is expressed in a scale ranging from 0 to 14, 7 being neutral. Any number below 7 is acidic and any number above 7 is alkaline. Testing the soil for its current pH levels and then proceed with amendments to bring the soil to the desired pH level. Highly acidic soil pH can be neutralized by adding dolomitic limestone or gypsum. A highly alkaline soil can be neutralized by adding sulfur. Add amendments only in proportions specified by a soils lab to bring the pH to the level required by a specific plant. The typical soil pH in the Wilsonville area tends to be more acidic. Addition of lime in amounts recommended by your local turf center will raise the soil pH to levels best suited for turf grass establishment.
 - c) **Soil Drainage** - Water is necessary for all plant life, but standing water over time will kill most plants. Landscaped areas need to be properly drained. If poor drainage is a factor on the site, consider raising plant beds or installing subsurface drain tiles for lawn and plant bed areas.
 - d) **Soil Organic Content** - Good quality topsoil consists primarily of the a top layer several inches deep which contains good quantities of organic matter consisting of decomposed animal and plant matter. Soil building is a continual process. As plants and mulch are added, the leaves, twigs and mulch break down and decompose, increasing the water holding capacity of the soil surface, which add organic matter and nutrients to the soil. An ideal soil will have 25% organic matter.
 - e) **Soil Water Retention** - Soil water retention can be increased by adding polymers or diatomaceous earth. Diatoms are a source of food for marine life which can also be added to soil to increase moisture retention. Soil mixed with this amendment material will be less dense, more permeable to improve drainage, and have a more neutral soil pH level.
3. **Plant Selection (Incorporation of Drought Tolerant Plants)** - It is possible to include plants with varying water requirements into a Xeriscape plan. However, to be most effective in decreasing water consumption, select plants that require minimal supplemental water. See the Suggested Xeriscape Plant Palette included as Exhibit 4 to this document. Plants that naturally require an increased amount of water should be strategically placed in areas that normally hold increased amounts of water such as drainage swales, areas of depression and surface runoff channels.
4. **Turf Area (Limiting Turf Areas)** - The importance of turf selection cannot be overstressed. While traditional turf has a very practical benefit, how and where it is used will result in a significant increase or decrease in consumption. Turf should be limited to areas where it provides the most benefit, such as highly traveled areas. A careful analysis of its use in the landscape should be quantified before it is incorporated into the design.
5. **Efficient Irrigation** - Periodic deep watering (below root level), encourages deep root growth resulting in a healthier, more drought-tolerant landscape. Properly managed irrigation is the key to water conservation. Traditionally, lawns in the Willamette Valley are watered at a rate of 1-1/2 inches per hour over a 20 minute period twice a week or

about one inch per week. The normal infiltration rate of medium-textured loam is 1/4 to 1/2 inches per hour. One inch of water is enough to penetrate soil to a depth of one foot. Water has to be applied at a rate proportional to the soil infiltration rate. Depending on the soil type, water application may have to be broken into cycles over short duration in order to avoid wasteful runoff. Over-watering promotes excessive weed growth and the introduction of other unwanted plants, and erodes fertilizers, herbicides and pesticides into the watershed.

Proper irrigation design and zoning by plant groups helps eliminate overwatering. An irrigation zone is a term used to differentiate areas of water requirement commonality. An irrigation zone is limited by the amount of available water, meter size and pressure. The design of irrigation zones respond primarily to the requirements of the plant materials, ability of the soil to retain moisture, topography, solar exposure, and wind conditions.

6. **Use of Mulches** - Mulching greatly enhances the retention of soil surface moisture, inhibits the establishment of weeds, acts as an insulator against summer hot and winter cold and aids in the control of surface erosion. Mulched areas attract earthworms and other beneficial life to the soil below. Organic mulches such as shredded bark, rotted bark dust, straw, pine needles, and wood shavings eventually decompose adding beneficial nutrients to the soil. Organic mulches should be applied to the soil surface at a depth of 2 to 3 inches and distributed evenly throughout the plant bed. Inorganic mulches such as river rock, pea gravel, woven fabrics, crushed stone, pumice and decomposed granite are often used as an integral part of the landscape. They help retain surface moisture and inhibit weed growth. However, in a Xeriscape design, they should be used sparingly as they absorb and reflect heat which is not desired. Inorganic mulches are useful in lining moist or wet areas, stabilizing soil surfaces and finishing off natural settings.
7. **Maintenance** - Maintenance of both plant materials and the irrigation system is important to ensure maximum effect, highest quality and greatest beneficial return of the Xeriscape approach. On the other hand, following the previous six steps will significantly reduce the need for labor intensive maintenance, fertilizer, pesticides and other chemical applications. Most of all, the implementation of these principles greatly reduces the consumption of precious water. The following are elements of a landscape maintenance program which can be addressed to increase the efficiency of the Xeriscape program.
 - a) *Erosion control* can be a major problem throughout any project, large or small. It is a well documented fact that the loss of topsoil results in poor soil quality, stream contamination and potential financial loss. Erosion can be controlled in part by planting a cover crop until landscape plantings are in place. Proper maintenance of the irrigation system reduces the occurrence of out-washes which is a contributing factor to soil erosion and siltation.
 - b) *Weed control* is a serious concern in landscape maintenance. The most effective way to control weeds is through maintenance of an adequate mulched surface.

Maintain organic mulch at a depth of 2 to 3 inches. Pull established weeds and regularly rake or otherwise disturb the plant bed surface to discourage further weed growth.

- c) *Pruning* of trees and shrubs is costly and time consuming. Select and place plants to grow to their natural growth habit. Using this procedure will reduce the amount of pruning required and attain a more pleasing appearance.
- d) *Mowing* less frequently allows lawns to mature and provide a greater defense against diseases. Environmentally appropriate, or “Ecology” lawn mixes should be maintained at a height between 3 to 5 inches. Tall Fescue lawns in a Xeriscape design should be maintained at a mowing height of 3 inches. Less frequent mowing reduces petrochemical exhaust from equipment and reduces the need for clipping disposal which will mitigate nitrate pollution in our watersheds.
- e) *Pest control* is most effectively managed by eliminating the conditions that promote and allow their existence. Pest problems are often related to watering habits, soil problems or poor plant selection. Healthy plants maintained in healthy growing conditions are most likely to fight off pests, viruses and bacteriological diseases.
- f) *Watering* is the most crucial of all maintenance elements. Apply only the amount of water necessary to replenish what is lost through evapotranspiration. With drip irrigation, make sure filters are cleaned and emitters are clear. Adjust and inspect irrigation systems seasonally to identify repairs or corrections caused by exposure to weather or other conditions which result in wasted water.

IRRIGATION

Irrigation systems can be manual or automatic, located above or below ground, and can distribute high or low volume water application rates. Water application can be disbursed through spray heads, impact heads, rotor heads, micro spray heads and/or drip irrigation applications. All of the described applications can be used independently or together, satisfying separate watering needs.

Impact Heads and Rotor Heads - These are heads designed to deliver high volumes of water over large areas. The droplets emitted from the nozzles are large and have greater impact on small plants and tall grasses. Over large areas, a lot of water is put down in a short amount of time. This type of head would be generally selected for large turf areas where it would be impractical to install subsurface drip irrigation or small spray heads. Tall grasses will have a tendency to get knocked down but will recover quickly.

Spray Heads and Bubblers - Spray heads are generally used on small turf areas and shrub beds. Spray heads are easier to control in tight spaces and have a greater precipitation rate than impact, rotor, micro-spray or drip applications. Bubblers are well suited for plant beds, produce less splash onto leaf surfaces and reduces evaporation rates.

Note: *All of the foregoing—impact heads, rotor heads, micro-spray heads and conventional spray heads—have a greater potential towards water waste through surface run-off and evaporation. Poor water management, especially by overhead spray application methods, can be upwards of 50% water loss before the water ever reaches the root zone.*

Drip Irrigation - Drip irrigation is by far best suited for Xeriscape applications. Water can be applied directly to the root zones where it is needed. This is a simple system that can help save money both through material cost and water conservation. Drip systems can be used over both small and large expanses. Water is disbursed through an emitter either above or below ground. Subsurface irrigation can be installed to distribute water to all plant materials including lawns, shrubs, trees, ground covers and flowers. Drip irrigation can be zoned and configured to care for container plants. Two important components of drip irrigation include pressure regulation and filtration. Air relief and flush valves need to be properly located for the system to function properly. The drip system will have to be flushed out regularly to clean out any collected residue that will clog emitters. Emitter tubing can be laid on the surface but is less intrusive if it is laid on the soil surface under 2 to 3 inches of shredded bark mulch or bark dust.

Controllers - There are many controllers (clock timers) on the market to simplify water management and increase the efficiency of water conservation. One strategy to increase effectiveness is to use the controller to provide deeper, *but less frequent*, watering. An automated system does not negate the necessity to monitor water application, it simply is a tool to control it. Adding a rain gauge to the automatic irrigation system is an excellent method to regulate irrigation during times of precipitation. These devices are added to the irrigation system to collect rainfall. When a certain level of rainfall is trapped, the gauge triggers a sensors which automatically turn off the controller.

Irrigation Zones - As previously mentioned it is important to break the landscape into watering zones based on plant water requirements, shade/sun orientation, soil type and water/pressure availability. Water and shrubs should be watered separately as their needs are different.

Safety and Health - All irrigation systems—new or existing—must be equipped with an approved backflow prevention assembly to assure the safe separation of potable water and irrigation water. Only properly installed, state-approved backflow prevention assemblies will ensure the health and protection of the public. This system should be inspected for certification annually. Contact the City of Wilsonville Public Works Department for more information at 682-9772.

PLANT PALETTE

See the following suggested plant palette for recommended drought tolerant plants. The table is intended as a basic framework for building a plant palette suitable for the Wilsonville area. This list is not all-inclusive, there are a multitude of plant varieties that would be suitable including many more perennials, annuals and grasses. Also, the use of native plants which are obviously adapted to this environment, should be included.

A XERISCAPE EXAMPLE

A demonstration Xeriscape was recently designed by Westlake Consultants, Inc. for construction by the City of Wilsonville at the Wilsonville City Hall Annex located at 8445 SW Elligsen Road just east of I-5. See Exhibits 1, 2, and 3. The objective was to incorporate portions of the existing landscape, develop demonstration plots exemplifying a wide variety of flowering and evergreen shrubs and ground covers, shade tolerant plants, ornamental grasses and different applications of surface and subsurface irrigation. Subsurface irrigation was designed for the turf areas next to the parking area between the Annex building and Elligsen Road. The turf area was divided into three demonstration sectors, each containing a different grass mix, and having the same general water requirement. These areas will be irrigated through a sub-surface automatic drip system. The remaining shrub beds in the demonstration areas will be irrigated by a surface mounted drip irrigation system.

An in-line emitter system was selected to cut down on maintenance, and is zoned to deliver proportionate amounts of water to areas of differing water requirements. The modified irrigation system is being retrofitted to an existing irrigation system utilizing existing mainlines, controller and points of connection. New valves, filters, air-relief valves, and drain valves are being added to accommodate the new system. The surface-mounted drip lines will be placed under a mulch surface consisting of 2 to 3 inches of shredded bark mulch. The mulch will help protect and hide the irrigation lines and also reduce soil surface evaporation. Recommended soil amendments consist of diatomaceous earth to increase water retention, soil workability, and air space.

The plants selected for the entrance and remainder demonstration areas were chosen to perform select functions. The 'Otto Luyken' Laurel with its glossy evergreen leaves serves as a low screen. The various ground covers provide low maintenance surface coverage, seasonal color, and foreground interest to layered shrubs in the background. The trees were selected for drought tolerance, compatibility, and suitability as transitional elements between the existing and modified landscape. Potentilla, Hibiscus, Salvia and other flowering shrubs provide seasonal color, texture and form to the landscape structure.

All of the plants and grasses selected will require regular seasonal watering until they are established. Once stabilized, the plants and grasses will be slowly adapted off water until the time when no supplemental water will be required except during periods of extreme drought. During such time of drought, the irrigation system will act as a safety net providing water as needed.

CONCLUSION

Xeriscape is not a new technology, but rather an ethic and a responsibility. A Xeriscape can provide the same beauty and structure to a setting as traditional landscapes. The cost of plant materials and installation is comparable to conventional landscaping. However, maintenance costs for a Xeriscape can be substantially less than a traditional landscape. Primary use of drip irrigation used in conjunction with other irrigation applications costs less, uses far less water, and minimizes water waste normally experienced through surface runoff and evaporation. Drought tolerant plant materials are available to provide color, texture, structure, and diversity similar to water-loving landscapes.

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RESOURCES

Xeriscape/Native Plants

National Xeriscape Council, Inc.
PO Box 767936
Roswell, GA 30076-7936

Native Plant Society of Oregon
652 West 10th, #1
Eugene, OR 97402

Hortus West Publication
Hortus West Publications
P.O. Box 2870
Wilsonville, OR 97070-2870
1-800-704-7927

Drought Tolerant Plants

See Yellow Pages
Nurseries
Wholesale and Growers

Irrigation

See Yellow Pages
Irrigation Parts and Supplies
Toro Drip Irrigation
Rainbird Drip Irrigation
Netafim Drip Irrigation

EXHIBITS

Suggested Xeriscape Plant Palette

NAME <i>Botanical / Common</i>	MATURE SIZE Ht. x Wd.	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
				ZERO	VERY LOW	LOW	MODERATE		
DECIDUOUS TREES									
<i>Acer campestre</i> Hedge Maple	35'x30'		General		X			Sun	
<i>Acer glabrum</i> Rocky Mountain Maple	24'		General				X	Sun	
<i>Acer grandidentatum</i> Big Tooth Maple	30'x20'		Well drained soil	X				Sun	
<i>Acer saccharinum</i> Silver Maple	80'x50'		General	X				Sun	
<i>Aesculus californica</i> California Buckeye	15'x30'		General	X				Sun	
<i>Ailanthus altissima</i> Tree-of-heaven	40'x30'		General	X				Sun	
<i>Albizia julibrissin</i> Silk Tree	40'x50'		General		X			Sun	
<i>Aralia elata</i> Japanese Angelica Tree	25'x 15'		General Very Spiny Plant				X	Sun/ Pt shade	Mid Summer
<i>Broussoneta papyrifera</i> Paper mulberry	50'x40'		Stony, sterile, alkaline soils strong winds, drought	X X				Sun	
<i>Castanea mollissima</i> Chinese chestnut	60'x40'		Intolerant of alkaline soil occasional deep watering			X		Sun	
<i>Catalpa speciosa</i> Western catalpa	50'x35'		Tolerance to tough conditions, heat, drought	X	X			Sun	
<i>Celtis reticulata</i> Western Hackberry	25'x25'		Tolerates harsh conditions		X			Sun	
<i>Cercis occidentalis</i> Western Redbud	40'x30'		Tolerates heat, wind alkaline soil and pollution		X			Sun	
<i>Cornus nuttallii</i> Pacific Dogwood	50'x20'	X	Reacts to garden watering, pruning, fertilizer & injury		X			Sun	April/May September
<i>Cotinus obovatus</i> American Smoke Tree	15'x15'		At best under stress no water once established		X			Sun	Mid Summer

Suggested Xeriscape Plant Palette

NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
				ZERO	VERY LOW	LOW	MODERATE		
<i>Botanical / Common</i>	Ht. x Wd.								
DECIDUOUS TREES, Cont'd									
<i>Crataegus spp.</i> Hawthorn	15'x25'		Grow plants on dry side		X			Sun	Spring
<i>Fraxinus oxycarpa 'Raywood'</i> Raywood Ash	35'x25'		General		X			Sun	
<i>Fraxinus pennsylvanica</i> Summit Ash	45'x25'		Fast growing, tolerates all types of soil			X		Sun	
<i>Fraxinus pennsylvanica</i> Marshall Seedless Green Ash	50'x40'		Fast growing, tolerates all types of soil			X		Sun	
<i>Ginkgo biloba</i> Ginkgo	45'x35'		Plant deep, loose, well drained soil	X	X			Water through dry season until 10'-20' then let become self-sufficient	Sun
<i>Juglans hindsii</i> California Black Walnut	50'x50'		Drought tolerant		X			Sun	
<i>Malus sargentii</i> Sargent's Crab Apple	10'x20'		Will take rocky, or mildly acidic or alkaline soil		X			Sun	May
<i>Morus alba</i> White Mulberry	30'x25'		Will take some drought; prefers water & feeding			X		Sun	
<i>Morus nigra</i> Black Mulberry	30'x25'		Will take some drought; prefers water & feeding		X	X		Sun	
<i>Phellodendron amurense</i> Amur Cork Tree	35'x40'		General		X			Sun	
<i>Platanus x acerifolia</i> London Planetree	50'x40'		General			X		Sun	
<i>Quercus alba</i> White Oak	50'x86'		Prefers dry, well drained soils pH5.5 - 6.5	X				(hard to establish, avoid disturbance)	Sun
<i>Quercus coccinea</i> Scarlet Oak	50'x40'		General		X			Sun	
<i>Quercus garryana</i> Garry Oak	75'x60'	X	General - good shelter for rhododendrons	X				(minimal water once established)	Sun
<i>Quercus lobata</i> Valley Oak	70'x70'		Prefers deep soil heavy debris, tap root	X				(minimal water once established)	Sun
<i>Sambucus caerulea</i> Blue Elderberry	45'x30'	X	Provide good drainage		X			Sun/ Shade	April- August
NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
<i>Botanical / Common</i>	Ht. x Wd.			ZERO	VERY LOW	LOW	MODERATE		

Suggested Xeriscape Plant Palette

DECIDUOUS TREES, Cont'd									
Sorbus spp.	35'x20'		Withstand wind, sun, light shade, dry soil		X				Late Spring
Taxodium distichum	65'x25'		Prefers deep fine sandy acidic loam, adaptable			X	X	Sun	
Tilia tomentosa	45'x35'		Drought resistant once established	X	X			Sun	
Zelkova serrata	40'x38'		Water deeply to encourage deep rooting	X					
Japanese zelkova									(Drought tolerant once established)
NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
<i>Botanical / Common</i>	Ht. x Wd.			ZERO	VERY LOW	LOW	MODERATE		
EVERGREEN TREES									
<i>Abies concolor</i>	50'x20'		Deep sandy loam, dislikes heavy clay soils	X	X			Sun/ Lt. Shade	
<i>Abies grandis</i>	to 300'	X	Small specimens are good container subjects		X			Sun/ Lt. Shade	
<i>Acacia baileyana</i>	25'x30'		General		X			Sun	
<i>Arbutus menziesii</i>	60'x50'		Must have fast drainage and nonalkaline water	X				Sun	(Water until established)
<i>Arbutus unedo</i>	30'x30'		Must have fast drainage and nonalkaline water	X				Sun	(Water until established)
<i>Calocedrus decurrens</i>	45'x12'		Tolerates poor soils and extreme summer heat	X				Sun	(Water until established)
<i>Cedrus atlantica</i>	60'x20'		General	X				Sun	(Water until established)
<i>Cedrus deodara</i>	50'x25'		General	X				Sun	(Water until established)
<i>Cercocarpus betuloides</i>	15'x12'		Very drought tolerant	X				Sun	
<i>Cercocarpus ledifolius</i>	15'x12'		Very drought tolerant	X				Sun	

Suggested Xeriscape Plant Palette

NAME <i>Botanical / Common</i>	SIZE Ht. x Wd.	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
				ZERO	VERY LOW	LOW	MODERATE		
EVERGREEN TREES, Cont'd									
<i>Cupressocyparis x leylandii</i> Leyland Cypress	20'x5'		Adapts to variety of soils wind & average water			X		Sun	
<i>Cupressus arizonica</i> Arizona Cypress	40'x20'		Used as wind break General	X				Sun	
				(once established)					
<i>Cupressus glabra</i> Smooth-barked Arizona Cypress	40'x20'		Used as wind break General	X				Sun	
				(Drought tolerant once established)					
<i>Eucalyptus niphophila</i> Snow Gum	20'x12'		Well adapted to slopes requires iron supplement	X				Sun	Summer
				(Water daily until established)					
<i>Ilex aquifolium</i> English Holly	30'x20'		Prefers rich, slightly acid well drained soil w/mulch				X	Filtered Sun	
<i>Laurus nobilis</i> Sweet Bay	25'x15'		General requires good drainage	X				Sun	
				(once established)					
<i>Ligustrum lucidum</i> Glossy Privet	35'x15'		Useful as a screen plant 12' apart		X	X		Sun	Late Spring
<i>Lithocarpus densiflorus</i> Tan oak	70'x30'		Withstands some drought	X	X			Sun	
<i>Photinia serrulata</i> Chinese Photinia	35'x15'		Withstands some drought cut water in late summer	X	X			Sun	March- May
<i>Pinus spp.</i> Pine	Varies		General	X				Sun/ Pt. Shade	
				(once established)					
<i>Prunus laurocerasus 'Otto Luyken'</i> Otto Luyken Cherry Laurel	4'x6'		General Dwarf variety		X	X		Sun/ Pt. Shade	Summer
<i>Prunus laurocerasus "Schipkaensis"</i> Schipka Laurel	4'x6'		General Fast growing		X	X		Sun/ Pt. Shade	Summer
<i>Prunus laurocerasus "Zabeliana"</i> Zabel Laurel	4'x6'		General Fast growing		X	X		Sun/ Pt. Shade	Summer
<i>Prunus lusitanica</i> Portuguese Laurel	25'x 30'		Tolerates all soils except water logged soils		X			Sun/ Pt. Shade	Summer
<i>Pseudotsuga menziesii</i> Douglas Fir	60'x30'	X	Well drained soil	X				Sun/ Shade	

Suggested Xeriscape Plant Palette

NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
				ZERO	VERY LOW	LOW	MODERATE		
<i>Botanical / Common</i>	Ht. x Wd.								
EVERGREEN TREES, Cont'd									
<i>Quercus chrysolepis</i>	30'x30'		General	X				Sun/	
Canyon live oak				(Cut water once established)				Shade	
<i>Quercus ilex</i>	50'x50'		Tolerates wind, growth rate varies with soil	X	X			Sun	
Holly Oak									
<i>Sequoiadendron giganteum</i>	65'x40'		Requires deep soil		X			Sun	
Giant Sequoia			(Deep infrequent watering)						
<i>Thuja plicata</i>	40'x12'	X	Prefers cool moist soil	X				Sun	
Western Red Cedar									
<i>Umbellularia californica</i>	75'x100'		Prefers deep soil	X				Sun/	
Oregon myrtle				(once established)				Shade	
DECIDUOUS SHRUBS									
<i>Botanical / Common</i>	Ht. x Wd.								
DECIDUOUS SHRUBS									
<i>Amelanchier alnifolia</i>	20'x15'	X	General				X	Sun	Spring
Western Serviceberry									
<i>Aronia arbutifolia</i>	10'x10'		General	X					April-May
Red Chokeberry									
<i>Aronia arbutifolia</i>	10'x10'		General	X					April-May
Purple Chokeberry									
<i>Buddleia alternifolia</i>	12'x8'		General				X	Sun/	Spring
Fountain butterfly Bush			Best in dry gravelly soil					Pt. Shade	
<i>Callicarpa spp</i>	8'x6'		General				X	Sun	Mid
Beautyberry									Summer
<i>Ceanothus spp</i>	Varies		General	X					March-
Ceanothus				(Water by hand through first dry season)				April	
<i>Chaenomeles spp.</i>	4'x4'		Tolerate light to heavy soil				X	Sun	January
Flowering Quince									
<i>Corylus spp</i>	12'x12'		General				X	Sun/	Summer
Filbert								Pt. Shade	
<i>Cornuta californica</i>	12'x12'	X	General				X	Sun/	Summer
Western Hazelnut								Pt. Shade	

Suggested Xeriscape Plant Palette

NAME <i>Botanical / Common</i>	SIZE Ht. x Wd.	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
				ZERO	VERY LOW	LOW	MODERATE		
DECIDUOUS SHRUBS, Cont'd									
<i>Elaeagnus ssp.</i> Silverberry	Varies		Tolerates heat and wind			X		Sun	Autumn
<i>Forsythia spp.</i> Forsythia	Varies		General				X	Sun	Feb.- April
<i>Hamaelis spp.</i> Witch Hazel	10'x15'		General requires mulched soil				X	Sun/PS/ Pt. Shade	Spring
<i>Holodiscus discolor</i> Ocean Spray	3'x3'	X	Prefers moist, rich soil and partial shade				X	Sun/PtShd	Summer
				(Plant size will increase with preferred conditions)					
<i>Kerria japonica</i> Japanese kerria	8'x6'		General		X			Sun/ Pt. Shade	March- May
				(Water until established)					
<i>Kolkwitzia amabilis</i> Beautybush	10'x6'		General				X	Sun/ Pt. Shade	June
<i>Lavandula spica</i> English Lavender	4'x4'		Requires well drained soil		X			Sun	Spring
				(Use little or no fertilizer)					
<i>Ligustrum spp.</i> Privet	8'x5'		General				X	Sun/ Pt. Shade	Spring
<i>Photinia x fraseri</i> Fraser Photinia	6'x8'		General - Fast growing, high maintenance		X			Sun	Spring
<i>Photinia x glabra</i> Japanese Photinia	6'x8'		General		X			Sun	Spring
<i>Physocarpus capitatus</i> Ninebark	6'x8'	X	Average soil				X	Sun/ Shade	Spring- Early Sumr
<i>Rhamnus frangula</i> Alder Buckthorn	12'x8'		General			X		Sun/ Pt. Shade	
<i>Rhodotypos scandens</i> Jet Bead	7'x8'		General	X				Sun/ Shade	
<i>Ribes aureum</i> Golden Currant	4'x5'	X	General	X			X	Sun/ Pt. Shade	Spring
<i>Ribes sanguineum</i> Red flowering currant	6'x8'	X	General			X			March- June
				(Somewhat drought tolerant, prefers water)					

Suggested Xeriscape Plant Palette

NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
<i>Botanical / Common</i>	Ht. x Wd.			ZERO	VERY	LOW	MODERATE		
					LOW				
DECIDUOUS SHRUBS, Cont'd									
Ribes speciosum	5'x4'		General		X			Pshade	January-May
Fuchsia Flowering Gooseberry									
Robinia hispida	6'x5'		Adapts to sterile, dry,	X					May-June
Rose Acacia			impoverished soils						
Rosa eglanteria	10'x 6'		General	X				Sun	Late
Eglantine rose				(Can be maintained at 4'x4')					Spring
Rosa harisonii	6'x4'		General	x				Sun	Late
Harison's yellow rose									Spring
Rosa multiflora	8'x8'		General	x				Sun	June
Multiflora Rose				(Good for erosion control)					
Shepherdia spp.	6'x8'		General	x					
Buffaloberry				(Cut water once established)					
Symphoricarpos albus	2'x6'	X	Tolerates poor soil,	X				Sun/	May-
Common Snowberry			withstands neglect					Shade	June
Vaccinium parvifolium	6'x6'		Requires highly acidic soil			X		Pshade	April-May
Red Huckleberry			moisture and part shade						
Viburnum spp.	Varies		Prefer heavy rich soil			X		Sun/	
Viburnum			with ample water					Shade	
NAME SIZE NATIVE ADAPTATION WATER REQUIREMENT EXPOSURE FLOWERS									
<i>Botanical / Common</i>	Ht. x Wd.			ZERO	VERY	LOW	MODERATE		
					LOW				
EVERGREEN SHRUBS									
Aucuba japonica	5'x5'		General		X			Shade	
Japanese aucuba									
Berberis stenophylla	1.5'x1.5'		General		X			Sun/	
Rosemary barberry								Pt. Shade	
Berberis verruculosa	3'x3'		General		X			Sun/	
Warty Barberry								Pt. Shade	
Buxus microphylla var. japonica	3'x4'		Prefers moist well drained			X		Sun/	
Japanese Boxwood			soil, mulch shallow roots					Shade	
Carpenteria californica	3'x5'		Prefers moist but well	X				Sun/	May-
Bush Anemone			drained soil	(Cut water once established)				Shade	August

Suggested Xeriscape Plant Palette

NAME <i>Botanical / Common</i>	SIZE Ht. x Wd.	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
				ZERO	VERY LOW	LOW	MODERATE		
EVERGREEN SHRUBS, Cont'd									
<i>Cotoneaster spp</i>	Varies		General	x				Sun	Spring
Cotoneaster				(Cut water once established)					
<i>Euyonymus spp.</i>	Varies		General				X	Sun/	
Euonymus								Pt. Shade	
<i>Garrya elliptica</i>	4'x5'		Prefers well drained soil				X	Sun/	Dec.-
Coast Silk Tassel								Pt. Shade	Feb.
<i>Gaultheria shallon</i>	2'x2'		Tolerates sun/poor soil				X	Sun/	Spring
Salal			Prefers shade/rich soil					Shade	
<i>Halimium ocymoides</i>	2'x2'		General	X				Sun	Spring
Halimium									
<i>Ligustrum spp.</i>	Varies		General				X	Sun/	Spring
Privet								Pt. Shade	
<i>Lonicera nitida</i>	6'x4'		General			X		Sun	June
Shrubby Honeysuckle									
<i>Mahonia aquifolium 'Compacta'</i>	3'x4'		General	X				Sun/	March-
Compact Oregon Grape Holly								Shade	May
<i>Nandina domestica</i>	6'x3'		Prefers rich soil	X				Sun/	Spring
Heavenly Bamboo			ample water					Shade	
<i>Paxistima myrsinites</i>	2'x2'		General				X	Sun/	
Oregon Box								Pt. Shade	
<i>Phillyrea latifolia</i>	6'x5'		General		X			Sun	April-
Mock privet									May
<i>Photinia x fraseri</i>	6'x8'		Requires good garden soil		X			Sun	Spring
Fraser's Red Tip Photinia									
<i>Phygelius capensis</i>	4'x3'		Requires good garden soil			X		Sun	July-
Cape Fuchsia									Sept.
<i>Quercus vaccinifolia</i>	2'x4'		General	X				Sun	
Huckleberry Oak			fits well in rock gardens						
<i>Raphiolepis umbellata</i>	4'x6'		General	X				Sun/	Fall-
Yedda Buckthorn								Pt. Shade	Spring

Suggested Xeriscape Plant Palette

NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
				ZERO	VERY LOW	LOW	MODERATE		
<i>Botanical / Common</i>	Ht. x Wd.								
EVERGREEN SHRUBS, Cont'd									
<i>Rhamnus alaternus</i> Italian Buck	15'x15'		Prefers fertile soil	X	X			Sun/ Pt. Shade	Mid Summer
<i>Rhamnus californica</i> California coffeeberry	10'x10'		General	X	X			Sun	
<i>Stranvaesis davidiana</i> Stranvaesia	8'x10'		Prefers not-too-rich soil protect from hot winds			X			June
<i>Taxus spp.</i> Yew	Varies		General	X				Sun/ Shade	
<i>Vaccinium ovatum</i> Evergreen huckleberry	3'x3'	X	Require acid soil and ample leaf mold	X	X			Sun/Shade	March- May
				(Cut water once established)					
				(Grows larger in deep shade w/ample water)					
NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
<i>Botanical / Common</i>	Ht. x Wd.			ZERO	VERY LOW	LOW	MODERATE		
GROUND COVERS									
<i>Ajuga reptans</i> Carpet Bugle	9"x12"		General				X	Sun/ Pt. Shade	Spring
<i>Armeria maritima</i> Common thrift	6"x18"		Prefers poor, dry, well drained soil / PM shade	X				Sun	Spring
<i>Calluna vulgaris</i> Scotch heather	6"x18"		Requires sandy, rich, moist organic, well-drained soil				X	Sun/ Pt. Shade	June- Nov.
<i>Campanula spp.</i> Bell Flower	Varies		Prefers moist well drained soil				X		Varies
<i>Ceanothus greiseus var. horizontalis</i> Yankee' Point	3'x10'		Requires sheltered well drained site	X				Sun	March- April
<i>Erica carnea</i> Heath	1'x2'		Needs excellent drainage Prefers acid soil				X	Sun/ Pt. Shade	March- April
<i>Erica herbacea</i> Heath	12"		Excellent drainage; acidic, sandy w/peat ideal				X	Sun	Summer
<i>Euonymus fortunei</i> Wintercreeper	4'x6'		Tolerant of all but swampy wet soil conditions		X			Sun/ F. Shade	June- July

Suggested Xeriscape Plant Palette

NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
				ZERO	VERY LOW	LOW	MODERATE		
<i>Botanical / Common</i>	Ht. x Wd.								
GROUND COVERS, Cont'd									
<i>Geranium incanum</i> Cranesbill	1'x2'		Soil adaptable; needs good drainage		X			Sun/ Pt. Shade	April- Sept.
<i>Myoporum parvifolium</i> Myoporum	6"-6'		Fast growing Fire retardant		X			Sun	Summer
<i>Nepeta faassenii</i> Catmint	2'x3'		Easy grower in light soil Aromatic, attractive to cats				X	Sun	June
<i>Osteospermum fruticosum</i> Trailing African Daisy	4'x1'		Needs well-drained soil			X		Sun	Nov- March
<i>Pyracantha spp.</i> Firethorn	1'x2'		Slightly acidic soil			X		Sun	May- June
<i>Rosa spp.</i> Rose	Varies		Open, sunny, fertile, well drained site				X	Sun	Summer
<i>Rubus calycinoides</i> Rubus	6'x		Needs good drainage, average soil	X				Sun/ Shade	Summer
<i>Sarcococca hookerana var. humilis</i> Sarcococca	1'x8'		Soil rich in organic matter				X	Sun/ Shade	March
<i>Saxifraga stolonifera</i> Strawberry geranium	6"x12"		Good drainage, light soil			X		Shade/ Pt. Shade	
<i>Vinca minor</i> Periwinkle	5'x3'		Well drained supplemented soil				X	Sun/ Shade	Mar- April
PERENNIALS									
<i>Botanical / Common</i>	Ht. x Wd.			ZERO	VERY LOW	LOW	MODERATE		
PERENNIALS									
<i>Aethionema spp.</i> Aethionema	6"x15"		Porous soil with lime well drained soil		X			Sun	March- April
<i>Allium moly</i> Allium	14"x14"		Rich, sandy loam well drained soil		X			Sun	June
<i>Amaryllis belladonna</i> Belladonna Lily	2'x3'		Any soil; very long lived		X			Shade	August
<i>Brodiaea spp.</i> Brodiaea	10"x10'		Sandy, gritty soil Well drained soil			X		Sun	March- June
PERENNIALS									
<i>Botanical / Common</i>	Ht. x Wd.			ZERO	VERY LOW	LOW	MODERATE		

Suggested Xeriscape Plant Palette

PERENNIALS, Cont'd									
<i>Calamintha nepetoides</i>	3'x5'		Thrives in dry soil	x				Sun	Summer - autumn
Calamintha									
<i>Cyclamen neapolitanum</i>	4"x8"		Rich, porous soil; lots of humus, dry shade		X			Sun/ Shade	Summer - autumn
Cyclamen									
<i>Dicentra eximia</i>	15"x3'		Rich, light, moist porous soil			X		Lt. Shade	March- April
Hound's Tongue									
<i>Dicentra eximia</i>	1'x2'		Rich, light, moist soil				X	Shade	May- August
Fringed Bleeding Heart				Cut back July/August for second bloom					
<i>Erigeron glaucus</i>	12"x6"		Sandy soil; good drainage				X	Sun	June- Sept.
Beach Aster									
<i>Eryngium tripartitum</i>	2'x3'		Deep, sandy soil		X			Sun	June- Sept.
Eryngium									
<i>Erysium spp.</i>	1'x2'		Needs good drainage; flowers are quite fragrant		X			Sun	March- Oct.
Wallflower									
<i>Iris foetidissima</i>	1'x2'		General	X				Sun/ Shade	March- June
Gladwin iris									
<i>Lithodora diffusa</i>			Loose, well-drained lime-free soil		X			Sun/ Shade	March- June
Lithodora									
<i>Phlomis fruticosa</i>	4'x4'		Prefers well drained soil		X			Sun	June- July
Jerusalem sage									
NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
<i>Botanical / Common</i>	Length			ZERO	VERY LOW	LOW	MODERATE		
VINES									
<i>Campsis radicans</i>	30'		Soil Adaptable				X	Sun	August- Sept.
Trumpet Creeper									
<i>Clematis armandii</i>	10'		Prefers cool/moist soil, well drained, roots mulched				X	Sun	March- April
Evergreen clematis									
<i>Polygonum aubertii</i>	25'		Soil adaptable		X			Sun/ Shade	August
Silver Lace Vine									
<i>Vitis spp.</i>	15'		Soil Adaptable					Sun	
Grape									
NAME	SIZE	NATIVE	ADAPTATION	WATER REQUIREMENT				EXPOSURE	FLOWERS
<i>Botanical / Common</i>	Ht. x Wd.			ZERO	VERY LOW	LOW	MODERATE		
FERN									

Suggested Xeriscape Plant Palette

<i>Athyrium filix-femina</i> Lady Fern	2'x4'		Prefers rich, damp soil				X	Shade	
<i>Dryopteris filix-mas</i> Male Fern	3'x2'		Tolerates dry shade, shallow, chalky soils, clay	X				Sun/ Pt. Shade	
<i>Polystichum munitum</i> Sword Fern	2'x4'	X	Rich soil, organic matter				X	Shade	