

A GUIDE TO

HIGH DESERT LANDSCAPING



MISSION STATEMENT

We have all been drawn to the High Desert because of its quality of life. The environment is beautiful and delicate. As High Desert residents, preserving our quality of life means protecting our local environment, helping each other to understand it, and being responsive to the special conditions of our beautiful area.

Your local water agency is a part of the High Desert community. As a part of that community, we see our responsibility as helping local residents to achieve this goal in a practical way. A key to meeting this goal is to manage and conserve our water resources, using them wisely so that they will serve generations to come.

The information in this booklet is a guide to designing, planting and maintaining attractive and water-efficient landscapes. These techniques, combined with the right plant materials, can create landscapes that work for homes, businesses and public areas.

Your active use of this booklet will help you save water, maintenance time, and landscaping dollars. It will help preserve our precious water resources and create a more attractive community for us all.

Apple Valley Heights
County Water District

Apple Valley Ranchos
Water Company

City of Adelanto
Department of Water

City of Hesperia
Water Department

Mojave Water Agency

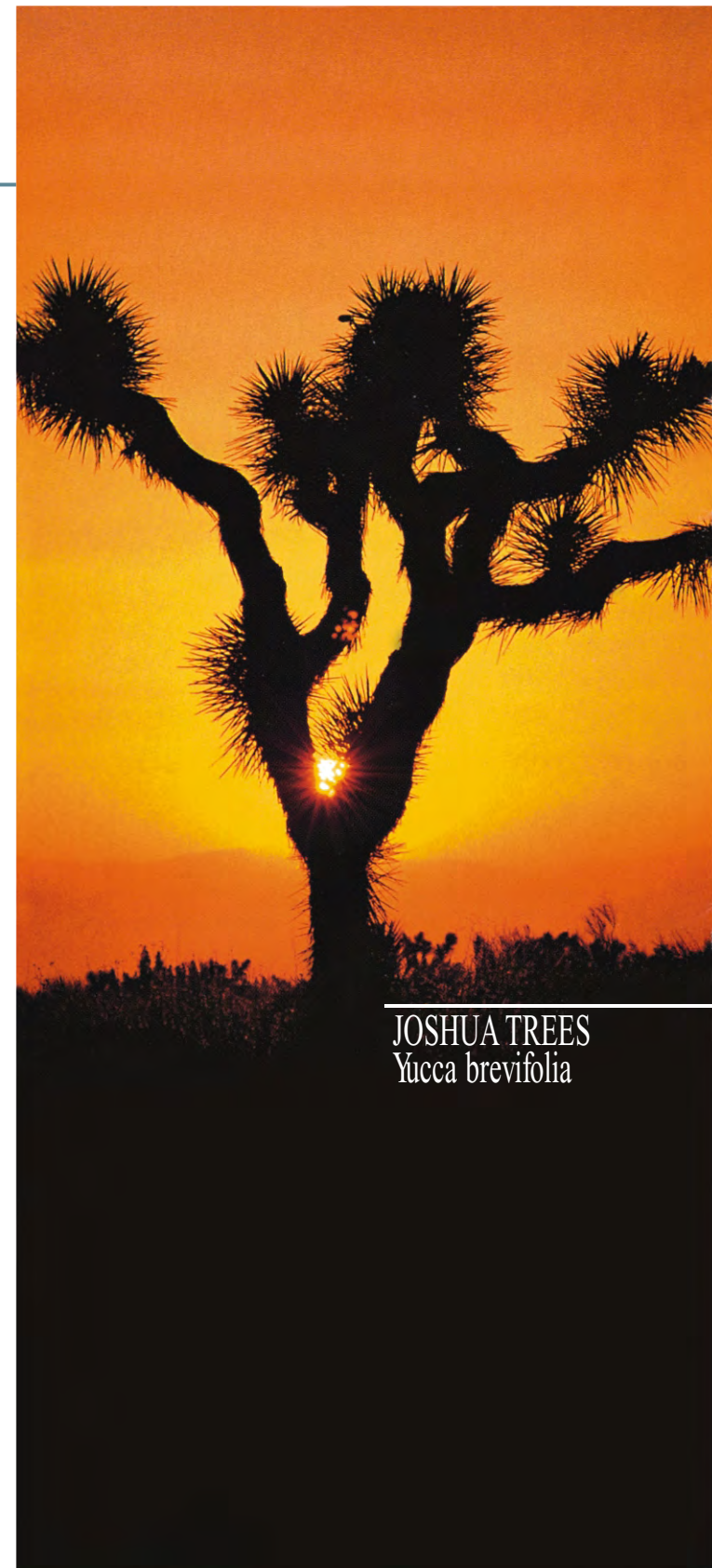
County of San Bernardino
Special Districts Department
Water & Sanitation Division

Golden State Water Company

City of Victorville
Public Works Department

Victor Valley Wastewater
Reclamation Authority

Victorville Water District



JOSHUA TREES
Yucca brevifolia

INTRODUCTION	1	A 3-YEAR GUIDE FOR RELANDSCAPING	10
KNOW YOUR LOCAL HIGH DESERT LANDSCAPE ORDINANCE	1	MAINTAINING AN ESTABLISHED LANDSCAPE	11
DESERT CLIMATE	2	MAINTAINING YOUR IRRIGATION SYSTEM	12
ANALYZE YOUR SITE	3	WATER-BUDGET METHOD OF IRRIGATING TREES AND SHRUBS	13
LANDSCAPING A NEW HOME	5	HIGH DESERT LAWN WATERING GUIDE	13
SOIL AMENDMENTS	6	DO YOU HAVE A FIRE HAZARD?	14
MULCH & FERTILIZERS	7	EROSION CONTROL	15
MAKE YOUR OWN COMPOST	7	THE HIGH DESERT SEASONS	16
DESIGNING & INSTALLING YOUR IRRIGATION SYSTEM	8	TURFGRASSES FOR THE HIGH DESERT	17
RELANDSCAPING FOR THE HIGH DESERT	9	PLANT LIST	17

This striking plant with its shaggy appearance and reaching branches is a symbol of natural High Desert landscapes. The key to maintaining a healthy Joshua Tree is simple: remember they were here before you were. They are well adapted to the High Desert, thriving on seasonal rainfall, and putting out both deep permanent roots and annual broad rhizomes.

Joshua Trees, like other desert plants that include cacti, yucca and agave, are protected by ordinances to make sure they do not become endangered. Contact your local agricultural commissioner's office for information on transplanting Joshua Trees. If you are among the many High

Desert residents fortunate enough to have a Joshua Tree on your property, here are simple guidelines for maintaining its health.

- Under normal conditions, established Joshua Trees require little if any irrigation. Recently transplanted trees should be watered every 2-4 weeks in spring and summer, and with normal rainfall, no irrigation is needed in the cooler season. Joshua Trees obtain their moisture through absorption. The best method of watering is sprinkling from the top down, wetting both the fronds and trunk. **Do not** basin water the tree.

- Avoid all landscaping beneath Joshua Trees. As with other trees, **do not** build walls, patios or other structures requiring trenching within ten feet of the base of a Joshua Tree. Doing so will damage the root system and the tree may eventually be toppled by winds.

The Importance of Water Conservation in the High Desert

Water is a precious resource in the High Desert, and efficient water use is the responsibility of all area residents, businesses and public agencies. The goal of this booklet is to share with you ideas about how you can save water and money by planting a low-water-use landscape.

Because more than 50 percent of water used in homes is used outdoors, creatively planning a landscape that conserves water presents the greatest opportunity to use water wisely. The following pages present the basic principles of low-water-use landscaping:

- Proper planning and design
- Soil analysis
- Appropriate plant selection
- Practical turf areas
- Efficient irrigation
- Use of mulches
- Appropriate maintenance

Here are some other conservation tips that can help you save water outdoors:

Adjust sprinklers so that your landscape, not the sidewalk or street, receive all the water.

Check for broken sprinkler heads.

Use shut-off nozzles on hoses instead of letting the water run.

Adjust your watering schedule each season.

Sweep driveways, sidewalks and patios instead of hosing them down.

Check hoses, faucets, valves and pipes for leaks.

For more information about our High Desert water supply and the importance of water conservation, please contact your local water provider.

INTRODUCTION

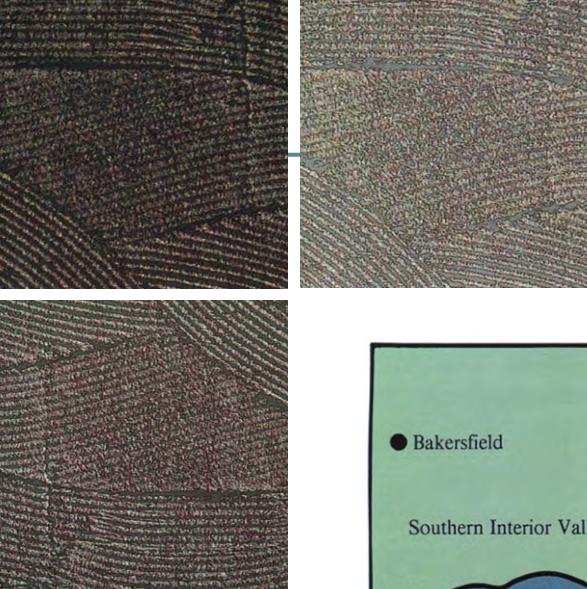
Beautiful, successful, water-efficient landscaping in the High Desert is the result of thoughtful attention and proper information. “A Guide to High Desert Landscaping” provides accurate and practical information to help local residents conserve water while creating an attractive and useful landscape.

Recommendations are based on University of California research, and objective information provided by the USDA Soil Conservation Service, Mojave Desert Resource Conservation District, Western Chapter International Society of Arboriculture, California Department of Forestry and the critically important comments, observations and suggestions of numerous High Desert gardeners and residents.

“A Guide to High Desert Landscaping” stresses reducing water waste by maintaining an effective irrigation system and scheduling irrigation appropriately. Often, large amounts of water can be saved by correcting hardware problems. Examples include: raising sunken sprinkler heads, using matched heads, replacing broken heads and keeping heads vertical.

An irrigation scheduling guideline based on historical evapotranspiration (Eto) for the High Desert is included. Irrigating turfgrass and ornamental plants according to this guideline can save water and result in healthier plants.

A popular misconception is that to conserve water landscapes should be replaced with gravel, cacti and only native plants. Fortunately, successful water-efficient landscaping does not require these drastic measures. In fact, there are many climatically adapted non-native plants that thrive in the High Desert on very limited water. The key to success lies in climatic adaptability, not solely plant origin.



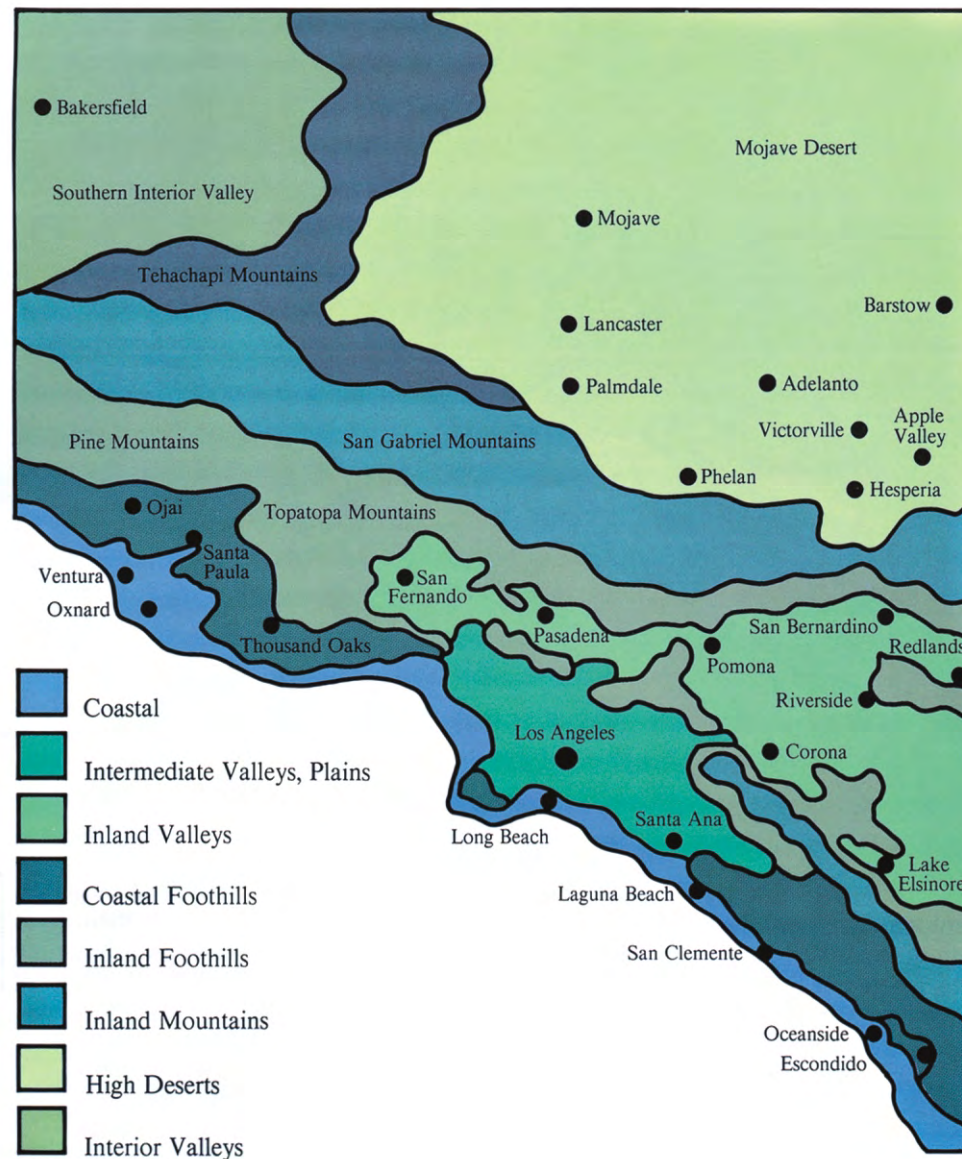
THE DESERT CLIMATE

As shown in the climatic zone map, the High Desert is considerably different than other areas of Southern California. The High Desert is characterized by large temperature fluctuations between summer and winter, as well as between day and night.

Winter temperatures as cold as 0°F have been recorded, as have summer temperatures as high as 117°F. The average minimum winter temperature is 32°F; the average maximum summer temperature is 98°F.

Another characteristic of the High Desert is strong winds, particularly from the west and south in spring. These winds can reach 60 mph or higher and can quickly dry out plants. Regular irrigation and protection from the wind are advised until plants are established.

Also, late spring frosts often occur in the High Desert. These frosts can severely injure or kill sensitive plants. Planting climatically recommended plants and covering young plants can avoid most frost damage.



ANALYZE YOUR SITE

Runoff:

Proper grading of your landscape can help direct the flow of water so that the water you apply will soak in rather than runoff. Grading can also enhance the interest of your landscape. Proper irrigation equipment and watering strategies eliminate wasteful runoff.

Property Value:

Property values are increased by landscapes that provide shade, interest and color, attract birds and butterflies, while costing less in time and water. More plants also mean positive benefits for the environment, including oxygen production, pollution filtration and urban cooling.

Seasonal Variation:

Choose plants that celebrate the seasons of the High Desert, adding color and variety.

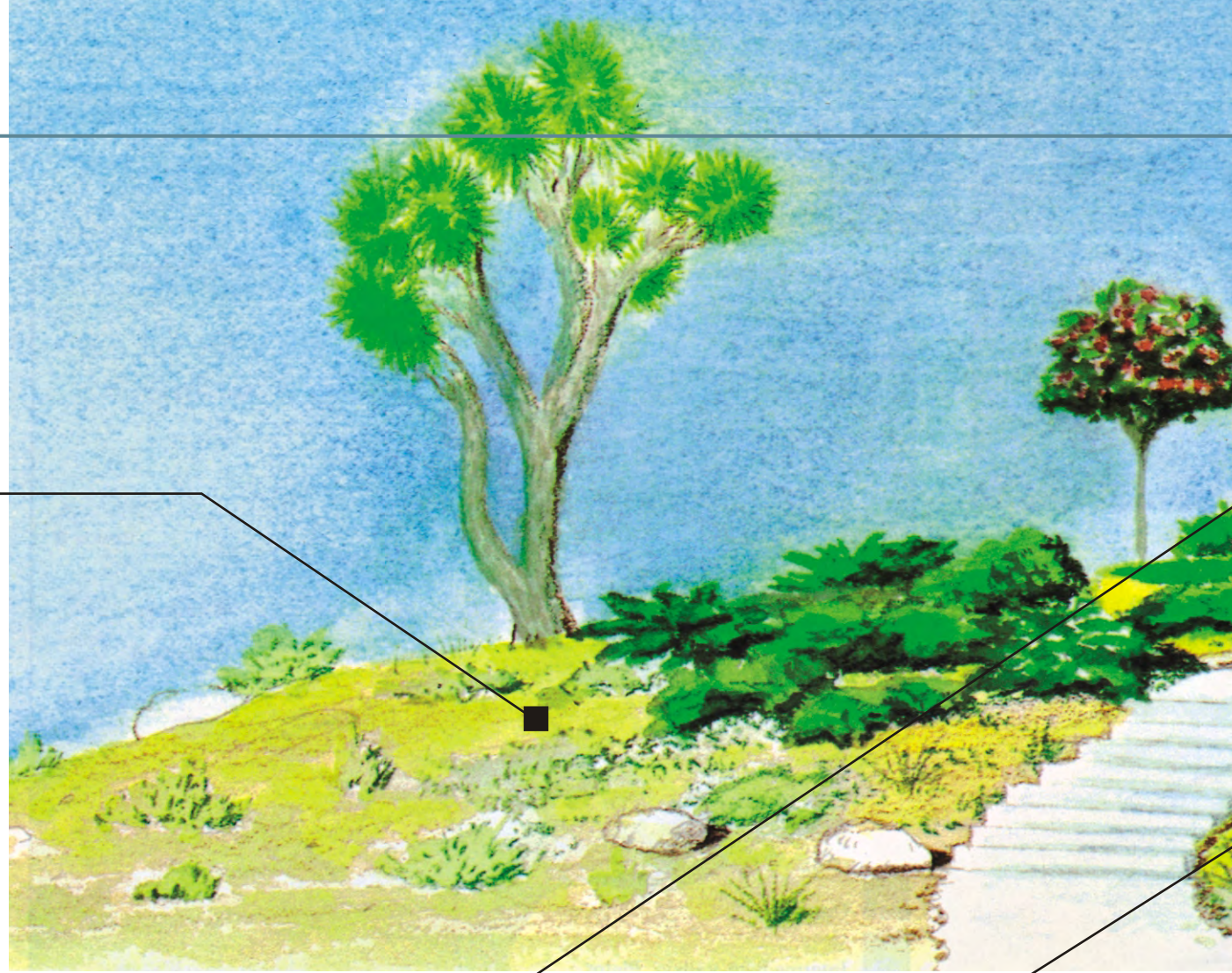
Energy Savings:

Plant materials cool the immediate environment. Appropriately placed trees and shrubs will lower building and street temperatures in the summer.

Using deciduous trees and shrubs, which drop their leaves in the winter, will allow the sun to warm buildings during cooler seasons. Tremendous interior energy savings can be realized.

Entry Aesthetics:

Set a particular ambience of theme that coordinates the look of both the inside and outside of your home or business.



**Safety:**

Trees planted near walkways and in turf can produce surface rooting—a potential safety hazard. Water runoff and overspray make sidewalks slippery for use, particularly during cold periods of the High Desert winter. Make sure your plans avoid potential human hazards.

Plant Zoning:

Grouping plants according to their water needs and maintenance requirements will save water and work. Plan plant zones with landscape uses, microclimates and maintenance budgets in mind to achieve maximum water savings, plant health and natural attractiveness.

Investment Zone:

Create small “investment zones” for maximum visual effect, such as seasonal color at entries. Both of these types of plantings use the most water, require the most maintenance time and are the highest on-going expense in any garden.

Fire Resistant/Retardant:

Plant materials with less flammable parts: more leaf than wood and less woody undergrowth. Well-pruned plants contain less fire fuel.

Parking Areas:

Produce a cooling shade area with appropriate trees planted in large basins.

Microclimates:

Hotter or cooler areas, sunny or shady spots are created by buildings and trees depending upon north/south/east/west exposure. Each microclimate demands specific plant choices and watering strategies.

LANDSCAPING A NEW HOME

The population of the High Desert has increased dramatically over the last twenty years. Many people have moved here from other areas to enjoy cleaner air and a peaceful, less hurried lifestyle. Climatic conditions in the High Desert are harsher and more extreme than marine climates, offering a landscaping challenge.

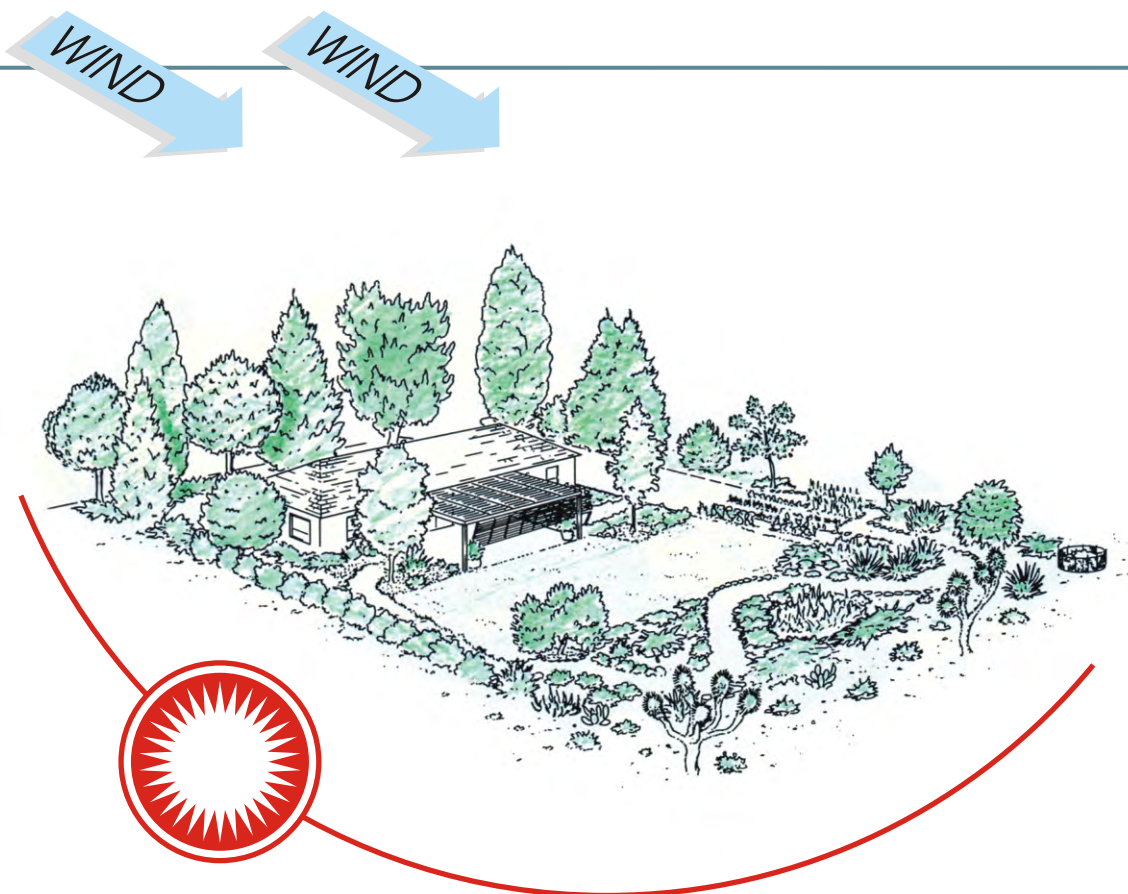
New homes are often purchased on relatively large lots with little or no landscaping provided. This section is divided into **Designing and Installing Your Landscape** and **Designing and Installing Your Irrigation System** to assist with these important issues.

Designing and Installing Your Landscape

First, design your landscape on paper. Begin by listing the functions your landscape should provide your family, such as play areas for small children, entertainment areas and shade. Next, decide where these functional areas should be located for maximum pleasure and use. Consider wind patterns, sunlight, accessibility, and other site specific conditions when creating your landscape plan.

Here are some useful facts to consider when designing your landscape:

- When selecting plants, consider function first and foremost. Next, decide on acceptable maintenance levels. Group plants according to irrigation needs whenever possible.
- Always select plants according to how their mature size and appearance fit into your design. Do not select plants based on initial appearance in immature stages of growth.
- Consider adding interest and color to your landscape by rotating annual flowers in small “investment zones” near your house.



- Plants that are placed by themselves and directly exposed to the sky are more frost-prone than those protected by shade from other plants, patios or other structures.
- In hot, dry, windy weather, shade-loving plants, such as azaleas and begonias, lose water faster than they can absorb it. Keep them in partial shade.
- Large growing trees should be planted at least 20 feet from your house. This gives

tree roots adequate space to grow and prevents structural damage to your home. Also avoid planting trees closer than five feet from sidewalks and driveways.

Once your family has agreed on an acceptable landscape design, specific plants may be selected. The Plant List at the back of this book lists many climatically adapted choices for the High Desert and includes color photos. Keep in mind that other suitable plants do not appear on the list due to space limitations.

SOIL AMENDMENTS

Soil amendments are sometimes beneficial to landscape plantings. If used, they should be added before planting, so plant roots are not disturbed. There are two types of soil amendments: non-chemical and chemical. Descriptions and recommended uses follow:

Non-chemical Soil Amendments

Examples include decomposed products (either commercially prepared or from backyard compost piles) such as compost, lawn clippings, and peat moss. These soil amendments are mixed with landscape soil to increase water-holding capacity and improve soil structure. Since they supply only small amounts of nutrients, soil amendments should not be thought of as fertilizers.

While amendments are often useful, there are cases where you may be better off without them. Here are some general guidelines concerning non-chemical soil amendments:

Most soils in the High Desert are sandy loams. As long as your soil is a consistent texture without layers or hardpan, you do not need to amend it to conserve water or achieve adequate plant growth. This is particularly true in areas to be planted with turfgrass or trees. By properly scheduling irrigations, you can avoid water waste without adding amendments.

Soil amendments are useful in vegetable and flower gardens, and in shrub plantings. Amendments should be mixed thoroughly with original soil, at least 40% by volume. Amended soil should be at least 1 foot deep for gardens and at least 1-1/2 feet deep for shrub plantings.

Never add only a few inches of soil amendment. This causes layering and reduces downward movement of water. It is better to not amend a soil than to add only a shallow layer.

Use only decomposed products as soil amendments. Freshly cut turfgrass, green manure and similar products should be composted first. A rule of thumb is: if it's still recognizable, it's not ready for use!

Chemical Soil Amendments

Gypsum (CaSO_4) is useful for reclaiming soil with high levels of sodium. It will **not** correct problems caused by layered soils. A simple test will help determine whether your soil would benefit from gypsum.

Remove the bottom of two coffee cans. Replace the bottoms with window screen, placing a paper towel filter on top of each screen. Fill each can with one pint of soil, and allow it to dry. Add one tablespoon of gypsum to one coffee can, mixing it thoroughly into the soil. Set each coffee can on an empty cup; fill each can with tap water.

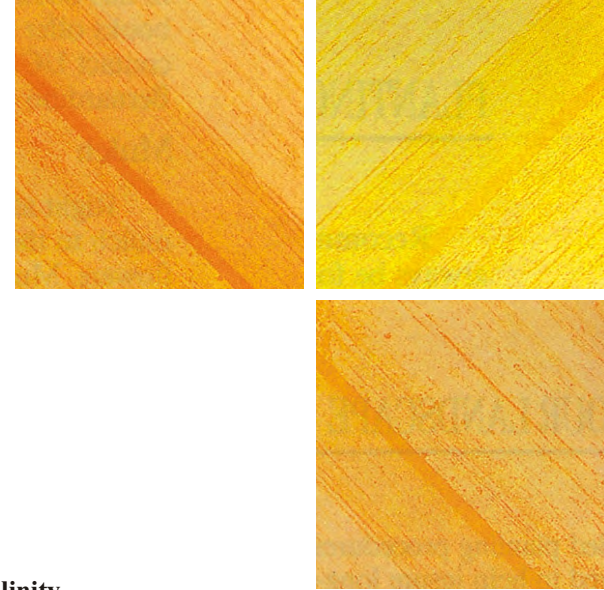
Collect drainage water until ½ pint or more is collected from the gypsum-treated sample. If more than twice as much water has drained from the amended soil, your soil contains excess sodium. Likely, a chemical amendment such as gypsum will help reclaim the soil.

Gypsum contains calcium which replaces the sodium. A sodium salt is formed in the process which must be leached from the soil. Gypsum should be applied as deep as the ultimate rooting depth of the species to be planted. A soil test will indicate how much gypsum is necessary.

Soil Alkalinity

Most High Desert soils are alkaline, with pH's between 7.5 - 9.0. A soil test is useful to determine soil pH. Alkaline soils tie up necessary plant elements, such as phosphorus, manganese, zinc and iron. Even if these elements exist in the soil, they are not available to your plants until the soil is neutralized. A pH of 7.0 is neutral, although most plants grow well in pHs between 6.0 and 7.5.

Ammonium sulfate is a popular and useful fertilizer in the High Desert. It serves a dual purpose by providing both nitrogen and sulphur. The sulphur reduces pH. A soil test is useful to determine proper rates of sulphur. It is usually necessary to apply sulphur over a relatively long time period since reducing alkalinity takes repeated sulphur applications.



MULCHING & FERTILIZERS

Recommended planting procedures should always be followed to help ensure long-term success. Numerous general gardening books offer information on how to plant.

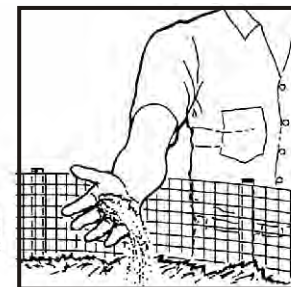
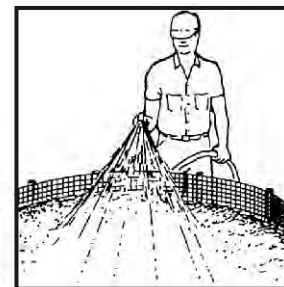
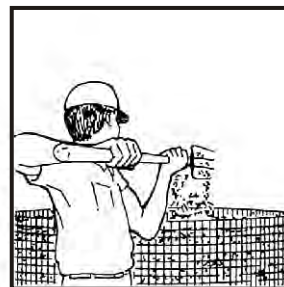
Mulch

Right after planting, it is useful to apply mulch to the top of soil around trees, shrubs and flowers. Mulch reduces soil evaporation, provides weed control and buffers soil temperature. Many materials are suitable, including fabric cloth (alone or beneath other products), rocks, gravel, wood chips and compost. High Desert winds may blow mulch away. Use mulch under a rock layer or cover with landscape netting to reduce erosion.

Mulches should be placed several inches away from tree trunks and should extend several feet outward. Remember to irrigate for a long enough time to allow the water to penetrate into the soil through the mulch.

Fertilizers

Do not fertilize at planting time! Wait until plants are established. Then follow the recommendations in the maintenance section of this booklet.



MAKE YOUR OWN COMPOST

Instead of sending organic materials to landfills, compost your yard clippings and use the mulch to improve your garden by adding organic material to your soil, increasing its ability to hold water.

Composting is the breakdown of organic material by fungi and bacteria. The process of composting builds heat, which destroys weed seed, insects and disease. In the High Desert, this normal heat build-up combined with high temperatures can result in fire. Keep compost piles away from structures.

What can you compost? Good compost can include any organic material such as: grass clippings, weeds, tree leaves, livestock manures, hedge clippings, straw, and vegetable wastes from the kitchen.

Wood chips will decompose very slowly while succulent material will break down relatively quickly

Steps:

1. Stack compost material four to six feet high. Keep in place with wire or wood.
2. Turn the compost pile every month to even the decomposing process.
3. Moisten the pile as needed to keep as wet as a squeezed out sponge.
4. Add a handful of high nitrogen fertilizer with every large amount of organic matter added.
5. Composting will be complete in six weeks to six months, depending upon heat and the size of the materials.
6. Place the composted material on the soil surface around plants, or mix into new planting areas and backfill soils. It is especially good to use in flowerbeds, soil mixes, or with container plants and vegetables.



DESIGNING AND INSTALLING YOUR IRRIGATION SYSTEM

Once you have designed your landscape but before you plant, you should design and install an irrigation system. It should be based on the type and location of your landscape plants. You can design and install the system yourself, or hire an expert. This decision depends on your expertise and the time you have to devote to the project.

This section is intended to give an overview of irrigation approaches for High Desert gardens. Nuts and bolts information on how to install your own irrigation system can be obtained by asking for free irrigation publications from any of the water agencies that sponsored this publication (check the inside back cover for how to contact them), or talk to your local nursery, irrigation specialist or landscape professional.

Irrigation components should be based on your landscape needs and the capabilities of your home plumbing system. The following are three things you should do initially, whether you design and install the system yourself or hire a professional:

1. Draw your landscape plan on graph paper. Include all trees, shrubs, turfgrass and groundcover areas, as well as hardscapes. Mark the location of the service line to your home.
2. Use a pressure gauge to determine the static water pressure. Do this at the outside faucet when no water is running inside or outside. Take several readings throughout the day and use the lowest for designing your system.
3. Determine the size of the service line running from the street to your house and record the size of your water meter.



Here are some design and installation tips:

- Divide areas to be irrigated into squares and rectangles whenever possible.
- Install sprinklers in corners first. Then, install around the perimeter and finally in the center as needed for full coverage.
- Space sprinkler heads for head-to-head coverage.

Select sprinkler types (impulse, closed case rotors, spray heads and bubblers) according to size and use of area.

- Irrigate shrubs, trees and flower beds with drip systems whenever possible.
- Select sprinkler heads according to available pressure. If your static water pressure is less than 40 psi, use plastic heads rather than brass.
- Several circuits are necessary due to water pressure and volume limitations. Each circuit is controlled by one valve. Group control valves together in a convenient location for easy access.
- Consider installing an automatic timer. Select a timer that is compatible with your irrigation scheduling needs.

RELANDSCAPING FOR THE HIGH DESERT

The aim of this booklet is to guide High Desert residents toward beautiful landscapes that are water-efficient and appropriate for the High Desert environment. But many people buy existing homes and inherit gardens planned by others. Also many homeowners may have gardens that they developed before they fully realized the importance of water awareness.

In some cases, existing landscapes may be inappropriate for the High Desert, may be high water use or may not fit your family's needs. If so, there can be many benefits to relandscaping. These include:

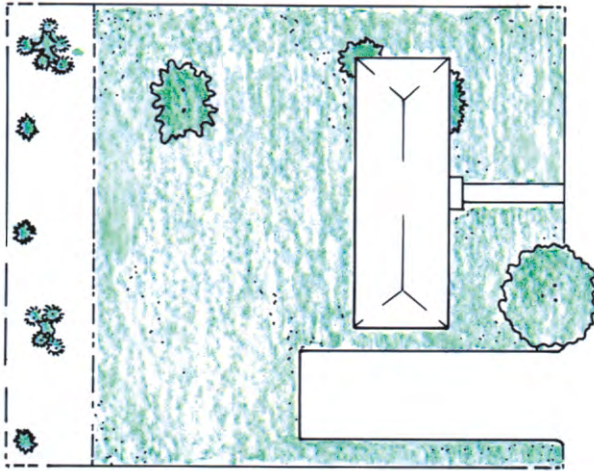
- Decreasing your water use.
- Decreasing the maintenance time for your landscape.
- Matching the landscape to your desired uses for it.
- Lowering costs for both water and indoor energy use.
- Developing a more natural and pleasing landscape.
- Doing your part to conserve High Desert water resources.



KEYS TO YOUR GARDEN MAKEOVER

1. Inspect and repair your irrigation system.
2. Develop an appropriate watering schedule for existing plantings.
3. Evaluate your needs. Will they be met by relandscaping? If so, develop plans that include:

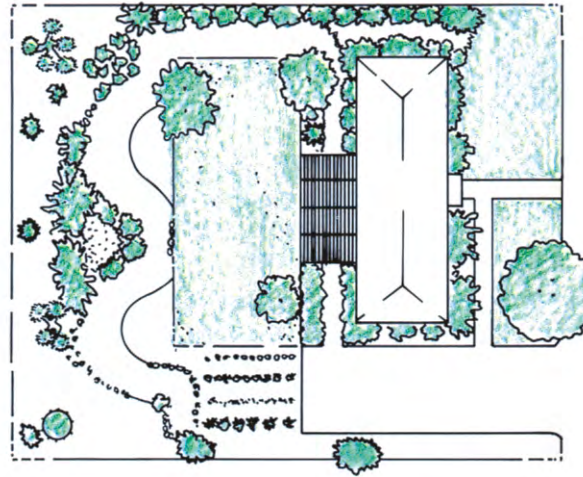
- Planting new materials, including turf to meet only functional needs.
- Installing hardscape patios or decks for recreational uses.
- Replacing labor-intensive plants with low-water-use shrubs and groundcovers.
- Placing trees and shrubs for summer shade and winter sun.
- Developing plant zones and using drip irrigation where possible.
- Using mulches to help soil retain water.



Year One

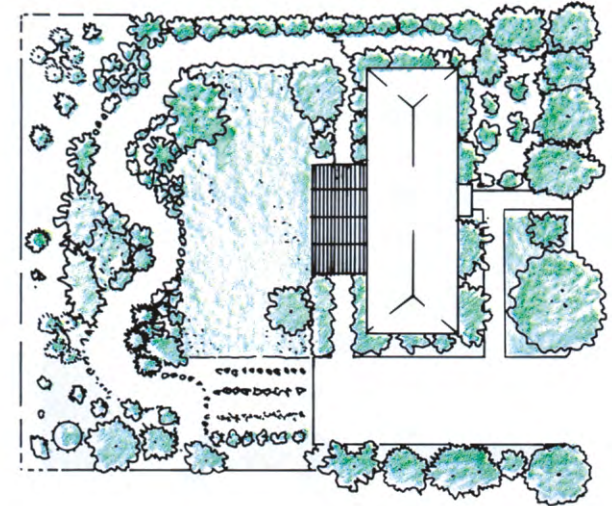
Many typical home gardens have large areas of lawn bordered by a few shrubs, with a scattering of two or three trees planted in the lawn. Begin by identifying your goals. Turfgrass should be kept to areas where it is needed for play or recreation. Hardscapes such as covered patios and decking provide a good surface for outdoor recreation. Shrubs and groundcovers are beautiful, low maintenance alternatives to lawn areas. Trees can provide shade in summer and help keep homes cool. Create intimate, private areas using paths, open areas and garden furniture placed under shady trees.

1. Decide which elements you want to include in your garden.
2. Make a plan that shows lawn, plantings and hardscape. Remember, when you rethink your landscape, consider function first and foremost. Group plants according to irrigation needs whenever possible.
3. Plan your irrigation system so that it meets the needs of your new landscape.



Year Two

1. Begin by installing all hardscape areas. This will prevent you from disturbing your plantings with construction. Hardscapes require no water and can result in dramatic water savings for your landscape.
2. Renovate your existing irrigation system to accommodate your new plan. Replace portions of your spray sprinkler system with a drip irrigation system for trees and shrubs. Drip irrigation is the most water efficient, is healthiest for plants and reduces run off and erosion.
3. Plant deciduous trees on the south and west sides of buildings to provide summer shade but allow winter sun. Evergreen trees and shrubs placed on the north side of your home or business help retain winter warmth.



Year Three

1. Adjust irrigation for new plantings.
2. Add more shade trees, areas of mulch, and lawn furniture for private areas.
3. Add groundcover for extra color.
4. Add shrubs for beauty and a more natural looking landscape.

MAINTAINING AN ESTABLISHED LANDSCAPE

Whether you recently purchased a pre-owned home or have lived in the same home for many years, the following recommended landscape maintenance practices are essential for plant health and water conservation.

Many recommended practices that favor plant health also conserve water. The following is an overview of these practices.



TREES

- Keep turfgrass and other vegetation at least 20 inches from tree trunks. This promotes faster tree growth and reduces competition for water.
- Do not routinely fertilize landscape trees. Over-fertilization (particularly nitrogen) can result in excessive growth, requiring additional water. Fertilize if nutrient deficiencies appear.
- Apply mulch around trees, but keep it several inches away from tree trunks. Mulch reduces soil evaporation, buffers soil temperature and reduces weeds. Remember to apply water long enough to soak through the mulch layer into the roots.
- Avoid soil compaction around trees, which results in poor water infiltration and runoff.
- Control weeds around trees. They compete for water.
- Irrigate trees separately from surrounding vegetation whenever possible. Drip systems (which include mini-sprinklers) are excellent for this purpose. Consider using a water budget as outlined on page 13.
- Irrigate trees based on seasonal water demand. Preliminary research indicates that many species do well on about the same amount of water as warm season turfgrasses, or even less.

- Prune trees when necessary. Remove dead and diseased wood, crossed limbs, suckers and weak vertical growth. Pruning stimulates additional shoot growth, increasing the water requirement.



SHRUBS

- Do not routinely fertilize shrubs. Overfertilization (particularly nitrogen) can result in excessive growth, requiring additional water. Fertilize if nutrient deficiencies appear.
- Apply mulch around shrubs.
- Avoid soil compaction around shrubs.
- Control weeds around shrubs.
- Irrigate shrubs separately from surrounding vegetation whenever possible. Drip systems work well for this purpose.
- Most shrubs are water-efficient once established. Consider using a water budget method (see page 13). Irrigate based on seasonal water demand.



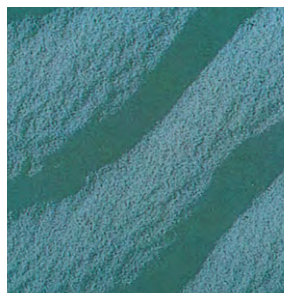
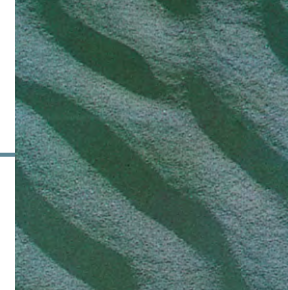
GROUNDCOVERS

- Do not routinely fertilize groundcovers. Fertilize once annually if nutrient deficiencies appear.
- Avoid soil compaction.
- Control weeds.
- Irrigate groundcovers based on seasonal water demand. Consider using a water budget method (see page 13). Preliminary research indicates that many species do well when receiving about the same amount of water as warm-season turfgrass.



TURFGRASSES

- Remove thatch if over one-half inch thick.
- Control weeds.
- Fertilize moderately, applying low end of recommended rates. If conditions dictate, stop fertilizing altogether, except for potassium, which promotes drought resistance.
- Aerate as necessary to avoid soil compaction.
- Follow the lawn watering guide on page 13.



Maintaining an effective irrigation system can prevent more water waste than any other landscape practice. Yet, it is often the most overlooked method of conserving water.

Take time to examine your irrigation system at least once each month. Check for:

- Broken sprinkler heads
- Sunken sprinkler heads
- Unmatched sprinkler heads
- Non-vertical sprinkler heads
- Clogged drip emitters

If brown spots occur in turfgrass areas, conduct a “can test” to check for spray uniformity, as described in the “Lawn Watering Guide.”

Often brown spots occur because trees or shrubs were added after the initial sprinkler system was designed and installed. In this case, add extra heads if the existing heads cannot be adjusted accordingly.

Brown spots may also be caused by female dogs, disease or insects. These problems can be identified by a professional consultant.



Developing a water budget to schedule irrigations for trees and shrubs is often useful. Here's how to set one up:

1. Determine the water-holding capacity of your soil. As discussed earlier, most High Desert soils are sandy loam by definition. Both hold between 1 to 2 inches of water per foot of soil. For setting your water budget, use the low end: Each foot of soil holds 1 inch of water.
2. Consider the ultimate rooting depth of shrubs and trees: Allow 1-1/2 feet of water per shrub and 3 feet per tree.
3. To determine the total water budget per tree, multiply 1 inch of water-holding-capacity per each foot of soil depth: 1 inch of water/foot x 3 feet = 3 inches of water.
4. To determine the total water budget per shrub, multiply 1 inch of water-holding-capacity per shrub, multiply 1 inch of water-holding-capacity per each foot of soil depth: 1 inch of water/foot x 1.5 feet = 1.5 inches of water.
5. Time irrigations accordingly. First, irrigate to fill the entire soil depth (3' for trees, 1-1/2' for shrubs)
6. Schedule future irrigations based on "feel tests." Place some soil in your hand from the lower depth. If it forms a ball and does not ooze water, it is time to irrigate again. If the soil does not form a ball, it may be too dry. If it forms a ball and oozes lots of water, check it again in a day or two before you irrigate.
7. Each irrigation should fill the plant's root area completely.

Minutes to Irrigate Each Week

Warm Season Turfgrass BERMUDA GRASS, ST. AUGUSTINE GRASS, ZOYSIA GRASS				
	Sprinkler Output (Inches Per Hour)			
	0.5"	1.0"	1.5"	2.0"
January	49	25	17	13
February	65	33	22	17
March	103	52	35	26
April	141	71	47	36
May	195	98	65	49
June	211	106	71	53
July	236	118	79	59
August	205	103	69	52
September	156	78	52	39
October	108	54	36	27
November	60	30	20	15
December	39	20	13	10

MINUTES TO IRRIGATE EACH WEEK

Cool Season Turfgrass TALL FESCUE, KENTUCKY BLUEGRASS, PERENNIAL, RYEGRASS				
	Sprinkler Output (Inches Per Hour)			
	0.5"	1.0"	1.5"	2.0"
January	65	33	22	17
February	87	44	29	22
March	137	69	46	35
April	188	94	63	47
May	259	130	87	65
June	281	141	94	71
July	314	157	105	79
August	273	104	70	52
September	208	104	70	52
October	144	72	48	36
November	79	40	27	20
December	52	26	18	13

MINUTES TO IRRIGATE EACH WEEK

If run off or brown spots occur with weekly applications, you can divide the weekly total by 2, 3, or 4, to irrigate two, three, or four times weekly.

1. Determine the output of your sprinklers.

Set six or more straight-sided cans of the same type (tuna or catfood work well) on your lawn between sprinkler heads. Run the sprinklers for 20 minutes and measure the water in each can with a ruler. Water pressure varies depending on time of day. It is best to conduct the can test at the same time you plan to irrigate. (Don't try this during High Desert windy periods; results may be skewed.) Determine the

average amount of water in each can. MULTIPLY BY 3 TO DETERMINE SPRINKLER OUTPUT PER HOUR.

2. Determine how long to irrigate each week.

The table above tells you the total number of minutes to water your lawn each week. Find your sprinkler output and turfgrass type (warm or cool-season) to determine how long to irrigate.

The High Desert has some high fire danger areas, particularly at higher elevations or in mountain chaparral. It is possible to plant an attractive fire retardant landscape in the High Desert. It takes thoughtful planning and careful maintenance.

Use the same process of analyzing your specific landscape site: functional use, energy



savings, color, privacy, etc. Add the priority of using low-fire-fuel plants and grouping plants in fire-fuel zones to protect homes and structures. Within 30 feet of your residence, low-growing, fire-retardant plants should be used. In this 30-foot critical zone, maintain nonflammable landscaping such as small lawn areas and recreation areas. Large shrubs and trees should not be planted directly adjacent to your home, and in no case should trees overhang the roof. Keep trees and shrubs trimmed of dead material. In extremely hazardous areas, a clearance of flammable vegetation for a minimum distance of 30 to 100 feet from structures is recommended.

Making your home safe from fires is an important and complex issue. We urge you to contact the California Department of Forestry and Fire Protection or your local fire agency for complete information on their fire safety guidelines.

Fire Retardant Checklist:

- Plant low-fire-fuel plant materials, particularly within the 30 foot "critical zone."
- Keep trees and shrubs away from structures.
- Prune **all** plant materials of dead wood and excess stems and branches.
- Apply just the right amount of water to keep plants healthy. Too much water will promote excess plant growth which means more potential fire fuel. Too little will lower the plants' moisture content causing them to burn more readily.

Fire Retardant Plant List:

Grass Species: With irrigation, turfgrasses are fire resistant.

Groundcover: *Achillea* spp. (Yarrow)
Baccharis (Coyote Bush)
Ceanothus griseus horizontalis (Carmel Creeper)
Helianthemum (Sunrose)
Oenothera (Mexican primrose)
Santolina virens (Lavender Cotton)
Sedum species (Stonecrop)

Shrubs: *Ceanothus* spp. (California Lilac)
Cistus Spp. (Rockrose)
Heteromeles (Toyon)
Lavendula spp. (Lavender)
Rhanus spp. (Buckthorn)
Rhus ovata (Sugar Bush)

Trees: *Arbutus unedo* (Strawberry Tree)
Gleditsia triacanthus (Honey Locust)
Parkinsonia spp. (Palo Verde)
Umbellularia californica (Laurel)
Washington filifera (California Fan Palm) - if dead fronds are removed.

EROSION CONTROL

The High Desert varies greatly in elevation and many homes have slope areas. Proper landscaping can keep slopes from sliding or eroding. Plantings on sloped areas require a specialized approach to irrigation and a selection of suitable plants.

Drip irrigation will be the most water efficient; it will keep weeds down by putting water only at the roots of desired plants; it will lessen erosion from run off caused by overhead spray systems; and it can be easily placed and moved on difficult slope areas. Container trees and shrubs planted on slopes should be watered using drip emitters.



Plants for Slopes

<i>Artemesia californica</i>	(Sagebrush)
<i>Baccharis pilularis</i>	(Coyote Bush)
<i>Cercocarpus montanus</i>	(Mountain Mahogany)
<i>Cotoneaster species</i>	(Cotoneaster)
<i>Elaeagnus pungens</i>	(Silverberry)
<i>Leucophyllum species</i>	(Texas Ranger)
<i>Oenothera berlandieri</i>	(Mexican Evening Primrose)
<i>Parkinsonia aculeata</i>	(Mexican Palo Verde)
<i>Pyracantha species</i>	(Pyracantha)
<i>Rosa banksiae</i>	(Banks Rose)
<i>Rosmarinus officinalis</i>	(Rosemary-the low spreading form)
<i>Simmondsia chinensis</i>	(Jojoba)





SPRING

High Desert plants come to life in the spring. It is the most active time for plant growth, and the plants will have **moderate** and **consistent** water needs. Spring rains (or even snow) and cool nights and mornings can lower irrigation requirements. You may only need to water once every three days or once a week or once every two weeks, depending on your soil and the weather. Inconsistency is the norm for spring water schedules. Watch the weather, observe the plants and take time to do “feel tests” for soil moisture.

Plant annuals in small “investment zones” at this time of year. Mulch your trees and shrubs to prepare for the summer heat. Early spring is also the time for the season's first applications of fertilizer, if needed.



SUMMER

Summers in the High Desert are hot and plant water requirements climb. During July alone, plants require more watering than they did for the whole four-month period of November, December, January and February. The weather tends to be consistent. Automatic timers can be set on a regular schedule according to your plants' water budgets. Dig into the soil every few days to check the moisture level until you feel confident you know when the plants need irrigation. Be sure to water only in the evening or early morning. Avoid watering during windy periods: your water belongs on your garden, not on the street.



FALL

Many hot days will continue into fall, with periods of high winds and cooler High Desert nights. Watering schedules will change often during the fall months. As in spring, inconsistency reigns. Water needs begin declining dramatically in October. By November, according to research data, irrigation requirements in the High Desert have dropped to about a third of peak summer needs. Watering times and amount should be reduced accordingly.

The cool fall nights in the High Desert offer area gardeners an opportunity unavailable in many other Southern California areas: fall color. The High Desert offers the perfect conditions for a brilliant display of fall leaf colors. Fall color is a result of short warm days coupled with cool, long nights. In general, the cooler the night temperatures, the greater the intensity of color. A number of the trees recommended in the plant list section of this publication have showy fall colors. These include: *Fraxinus velutina*, Arizona Ash; *Koelreuteria paniculata*, Goldenrain Tree; *Pistacia chinensis*, Chinese Pistache; and *Rhus lancea*, African Sumac.



WINTER

Much of your High Desert garden will take a break during the winter months. Trees, shrubs and warm season grasses will be dormant. Even evergreens will require very little irrigation water. Those with automatic irrigation systems may turn them off during this time. The winter months are the wettest time in California and the High Desert. But if the rains and snows don't come, you will have to supplement nature with some infrequent, deep waterings, much like natural storms would bring. Winter is the perfect time to plant bare root deciduous trees and roses. Bare root planting produces healthy, fast-growing plants and saves money.



The following is a discussion of grass species choices for the High Desert based on the latest research.

“Cool Season” Species

“Cool Season” turfgrasses grow mainly in fall, winter and spring but remain green all year. To extend color into fall and winter, annual or perennial ryegrass “cool season” grasses are sometimes used to overseed “warm season” grasses. Alternatively, “cool season” turfgrasses can be established alone. **“Cool season” turfgrasses are higher water use than “warm season” turfgrasses.**

- **Tall fescue** performs better under high temperatures than other “cool season” turfgrasses. It requires sun but accepts partial shade. Tall fescue is moderately wear-resistant but does not recover completely from severe injury. It is a low-maintenance turfgrass. Two or three varieties should be blended for optimum performance.
- **Perennial ryegrass** performs well in partial shade in the High Desert. It is highly competitive against weeds if properly maintained. Two or three varieties should be blended for optimum performance.
- **Kentucky bluegrass** lacks high-temperature tolerance and does not fare well under heavy traffic or compaction during summer when planted alone. Blending two or three good performing varieties together is recommended. It requires moderate maintenance.
- **Kentucky bluegrass/perennial ryegrass** mixtures are preferred over planting either turfgrass singularly. The mixture results in a more disease-resistant strand, offering good color and year-round performance. By weight, at least 15 percent perennial ryegrass is recommended.

“Warm Season” Species

“Warm Season” turfgrasses grow mainly in spring and summer and go dormant in late fall and winter. **They use less water than “cool season” turfgrasses.**

- **Common and hybrid bermuda grass** require full sun but do well in hot High Desert summers. Both recover relatively quickly from moderate wear and severe injury during their growing season. Common bermuda grass is lower maintenance and can be established from seed rather than vegetatively.
- **Zoysia grass** is heat tolerant and takes some shade. It is relatively wear-resistant but recovers slowly from excessive wear due to its slow growth rate.
- **St. Augustine grass** is not commonly grown in the High Desert because it does not always survive the cold winters. It performs well in high heat and is moderate in wear resistance and recovery time.

PLANT LIST

The following plants are well adapted for use in the High Desert. There are many more water efficient plants carried by local nurseries or your local Community College.

Using the following plants will help save High Desert water resources **only** if you combine them with thoughtful garden planning and proper watering strategies.

SHRUBS..... 18-22

VINES 22

GROUNDCOVER 22-24

PLANTS FOR COLOR 24-25

TREES 25-27

DROUGHT-TOLERANT

 PLANTS 28-33

SHRUBS



Agapanthus species, **Lily-of-the-Nile**, an adaptable evergreen perennial to 2 feet in height with white or blue flower stalks. Does well in full sun or partial shade. Drought tolerant when established. Can freeze back during High Desert winters.



Centurea cineraria, **Dusty Miller**, annual or perennial, with silvery white leaves and spring and summer yellow flowers. Use as a border plant and as a foliage contrast. Cut back if leggy.



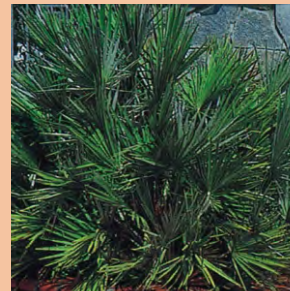
Atriplex canescens, **Saltbush**, silvery leaves, fire retardant, with 3-6 foot growth, good for erosion control. Likes full sun. Use as a naturalizer to native surroundings. Tolerates saline soils.



Cercocarpus betuloides, **Mountain Mahogany**, native to the west, sun or light shade, good under tree canopy, evergreen with open growth 5-10 feet, white spring flowers.



Caesalpinia gilliesii, **Bird of Paradise Bush**, open, sparsely leafed shrub grown for interesting shape and spectacular flowers, long blooming—spring through summer. Fast growing to 10 feet, does best in full sun and well-drained soil.



Chamaerops humilis, **Mediterranean Fan Palm**, hardy to 6 feet, slow growing to 15 feet, use as accent, near pools, sun to partial shade.



SHRUBS

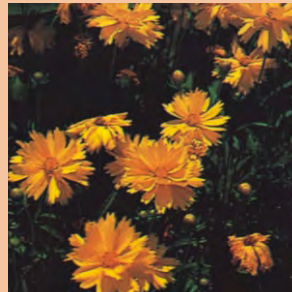
Chilopsis linearis, **Desert Willow**, deciduous large shrub or small tree, drops leaves early and holds seed capsules until removed, showy summer flower clusters pink to white trumpet shaped. Use in full sun, does well in highly exposed and difficult situations.



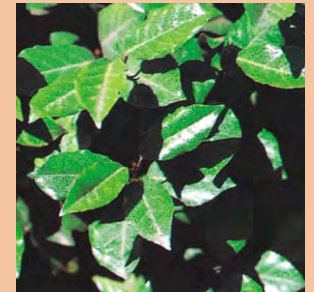
Elaeagnus angustifolia, **Russian Olive**, large shrub or small tree to 20 feet, 10-15 foot spread, deciduous. Attractive silver gray leaves with pale yellow flowers in summer, producing olive-like berries. Hardy, takes nearly any conditions. Use as a screen shrub, small tree, or pruned on a trellis or fence.



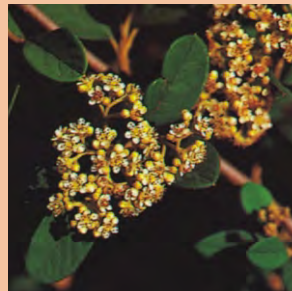
Coreopsis lanceolata, **Coreopsis**, perennial herb to 5 feet with bright yellow daisy-like flowers spring to summer, start by seed then spreads by reseeding, water increases plant size. Use anywhere to get bright color—near buildings or as a naturalizer.



Elaeagnus pungens, **Silverberry**, evergreen shrub to 10 feet with grayish foliage and rust colored undersides, can be shaped with pruning or allowed to naturally sprawl, could be hedge or screen. Sun to partial shade. Alkaline soils may need amendment to adjust pH for successful growth.



Cotoneaster species, **Cotoneaster**, evergreen, semi-deciduous or deciduous groundcovers and small shrubs, arching branches with small leaves and red winter berries, good for erosion control, give north or east exposure with some shade, do not prune, looks best with natural growth, give room to spread.



Eriogonum fasciculatum, **California Buckwheat**, shrub native to the west, hardy, takes heat and wind, but likes well drained soil. White flowers late spring to fall. Low growing to 3 feet, use in rock gardens or as a naturalizer to native surroundings. Prune back after flowering.

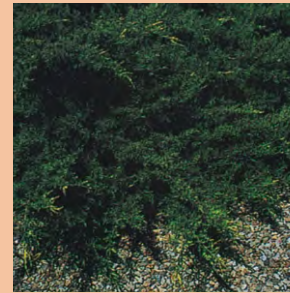
Warning: some other frequently available *Eriogonum* species are of coastal origin and may not tolerate the High Desert heat and cold.



SHRUBS



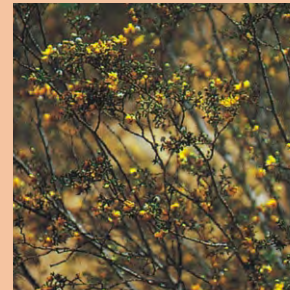
Fremontodendron californicum, **Flannel Bush**, native to California, fast growth to 20 feet with showy yellow spring flowers, needs good drainage and little or no summer water, use as espalier, against walls or as large shrub. Likes sun to partial shade. Various cultivated varieties available, including some low-growing forms.



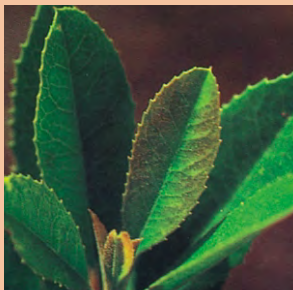
Juniperus species, **Juniper**, many varieties from prostrate form to medium sizes shrubs, use as accent, on slopes, as a barrier, for desert appearance, avoid pruning, give each variety the proper room to grow, will do well in light shade or full sun. *J. californica* and *J. ostosperma* are native to the High Desert. *Juniperous chinensis* is more readily available in High Desert nurseries.



Hemerocallis species, **Daylily**, bulb-like small shrubs with showy summer to fall blooms, generally yellow to orange, use in borders, as mass plantings, near pools, best in shade or east exposure. Very successful in the High Desert, but may suffer some winter freeze damage and wind burn.



Larrea tridentate, **Creosote Bush**, evergreen; 12 feet, native to North American deserts. Use as a natural desert plant, in a hedge, or as an accent.



Heteromeles arbutifolia, **Toyon**, evergreen shrub native to California, use as screen or large shrub, red winter berries, give some summer water, fire retardant with consistent water, good for erosion control. Full sun or partial shade of large trees.



Leucophyllum frutescens, **Texas Ranger**, evergreen, slow-growing shrub 4-10 feet high, 4-5 feet wide. Tolerant of full sun, heat, wind, and alkali soil, lavender flowers in summer and fall. Needs no pruning, use as a hedge, or as an accent with other shrubs. Native to Texas and Mexico.



SHRUBS

Mahonia species, **Oregon Grape**, western natives, low to medium shrubs, yellow spring flowers, fall berries, use in shade or north exposure site. Large varieties make good barrier plants because of their spiny leaves. Mahonia “Golden Abundance” is particularly attractive. Can freeze back during High Desert winters.



Rosa damascena, **Damask Rose**, deciduous old-style spreading rose with pale to deep pink 3-4 inch fragrant flowers, grows 6-8 feet, prickly stems, hardy and green during the hot season, good for erosion control and banks or as hedges. Full sun. Can freeze back during High Desert winters.



Rhus ovata, **Sugar Bush**, evergreen shrub, slow growing with deep green, glossy leaves and an attractive form. Plant in fall. Use as a hedge in full sun or partial shade.



Salvia species, **Sage**, evergreen shrubs with fragrant foliage to 4 feet tall, flowers spring to fall in a range of colors from reds to blues, attracts hummingbirds. Remove dead blooms to prolong flowering. Some species are frost sensitive.



Rosa banksiae, **Banks Rose**, evergreen to deciduous climber to 20 feet, thornless, large clusters of yellow or white flowers spring to summer, use on slopes, fences and arbors. Full sun to partial shade. Can freeze back during High Desert winters.



Simmondsia chinensis, **Jojoba**, evergreen to 10 feet, slow growth, can be trimmed to large screen, can take reflected sun from walls or streets. Full sun.



SHRUBS



Yucca species, **Yucca**, recommended species include both *Yucca chidegera* (Mojave Yucca) and *Yucca whipplei*. These plants are native to Southern California, featuring a cluster of spine-tipped leaves, and white blooms on tall stalks. Fire retardant, needs full sun. Beware: leaf spines can be dangerous, particularly for children, keep away from walks or play areas. Use as accent with other desert plants. Each rosette dies after flowering, but the colony remains.

VINES



Campsis radicans, **Trumpet Vine**, fast growing deciduous vine with 3 inch long orange trumpet-like flowers. A vigorous climber, this plant can be used to cover overhead trellis to which they will cling with aerial rootlets. Can be used as bush or hedge if trimmed.



Wisteria species, **Wisteria**, highly adaptable deciduous vine, with fragrant violet-blue flowers. Can be grown as a climbing vine, or with pruning as bushes or small trees. Reasonably drought, but likes a little extra water during bloom or for fast growth.

GROUNDCOVER



Achillea species, **Yarrow**, fern-like foliage used as groundcover or accent plant, fire retardant, spreading, 18 inch high maximum, good for slopes, free blooming white or yellow summer to fall, use dried flowers in arrangement.



Artemisia species, **Wormwood Sage**, commonly with silver or gray foliage and pungent odor. Many varieties of varied sizes, all sun loving and drought tolerant. Use as a foliage accent color with other green shrubs or groundcovers, flowers generally inconspicuous. Cut back in winter if needed.



Baccharis pilularis, **“Centennial,” Coyote Brush**, full sun to part shade, glossy green leaves, 3 feet high, 5 foot spread. Use as ground cover, on level or sloping ground, prune back once per year to maintain appearance.



GROUNDCOVER

Cerastium tomentosum, **Snow-in-Summer**, low growing groundcover or edging plant, grey foliage, mass of white flowers in late spring and summer, mix as an underplanting with green groundcovers and shrubs, best with light shade, will easily recover from poor winter looks.



Helianthemum nummularium, **Sunrose**, evergreen, small shrub to 12 inches, grayish green foliage with a variety of spring flowers, cut back to encourage fall blooms, use in rock gardens to drape over planters, fire retardant. Partial shade or east exposures.



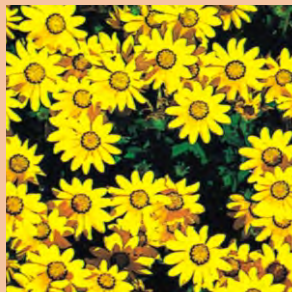
Festuca ovina glauca, **Blue Fescue**, clumping blue-green grass which forms 3-4 inch high mounds. Takes sun but does best in partial shade and with consistent water. Tolerates no foot traffic. Use in rock gardens, on north or east exposures, or as a border to lawns or walks. Cut back after flowering.



Oenothera berlandieri, **Mexican Evening Primrose**, deciduous low growing, spreading roots, with bright pink flowers, use for annual color, good for slopes, fire retardant. Full sun or partial shade.



Gazania species, **Gazania**, low growing groundcover with a spectacular display of daisy-like flowers ranging from yellow to dark red in late spring and summer. Both clumping and trailing varieties. Gazania usually dies out in two to three seasons, requiring replanting. Native to South Africa. Full sun.



Pyracantha species, **Pyracantha**, a hardy, evergreen shrub with cream white flowers in spring and numerous colorful red berries through the fall and winter. Grows 5-12 feet high and wide. Stems are quite thorny. Use as a screen, on a fence, or as a spreading groundcover. Full sun. Can freeze back during High Desert winters.



GROUNDCOVER



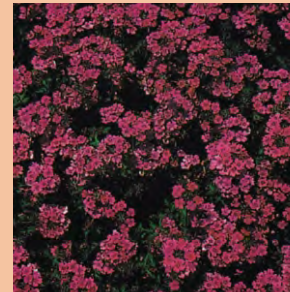
Rosmarinus officinalis, **Rosemary**, evergreen, aromatic foliage, 2 feet high with 4 feet or more spread, light blue winter and spring flowers, attracts birds and bees. Sun to partial shade. Comes in both low spreading and tall (6 feet or more) varieties.



Thymus species, **Thyme**, herbaceous groundcovers for full sun or part shade, best as edging plants and in rock gardens. Grows to 12 inches, moderate spreader, purple flowers in summer. Cut back after bloom ends. Note: many herbs do well in the High Desert, but may freeze back during the winter.



Santolina chamaecyparissus, **Lavender Cotton**, 1 foot high clumping groundcover with gray foliage, yellow summer flowers. Or try *Santolina virens*, same as above but with deep green foliage, cut back to keep low. Full sun with well-drained soil.

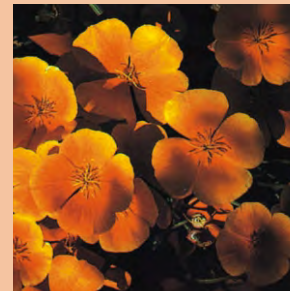


Verbena peruviana, **Verbena**, attractive, low-growing, perennial groundcover with profuse pink to red spring flowers. Takes full sun, good for use in narrow planting beds, rock gardens, or to cover moderate slopes.

PLANTS FOR COLOR



Cosmos, **Cosmos**, annual from seed or nursery stock, easily reseeds, with white, pink, purple summer and fall daisy-like flowers to 3 feet tall, good for daily cut flowers. Full sun to partial shade.



Eschscholzia californica, **California Poppy**, freely seeding annual with bright orange flowers in spring; longer lasting with some water; broadcast seed in the fall for best results; does not transplant. Full sun to partial shade.

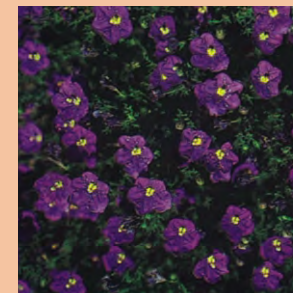


PLANTS FOR COLOR

Lavendula angustifolia, **English Lavender**, evergreen mounding shrub, 3 to 4 feet wide and high, producing lavender flowers in summer. Use as an accent plant, as a rounded hedge row or in rock gardens. Prune dried flower stalks. Full sun or partial shade.



Nierembergia hippomanica, **Cup Flower**, annual, 6 to 12 inches high with violet flowers summer into fall. Will do best in partial shade and with consistent water. Use as a border plant, for a mass of color, or in pots. Trim after blooming to encourage longer life.

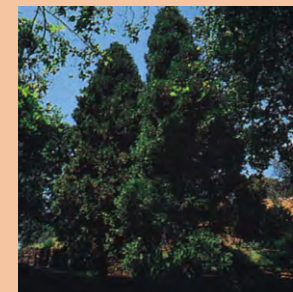


TREES

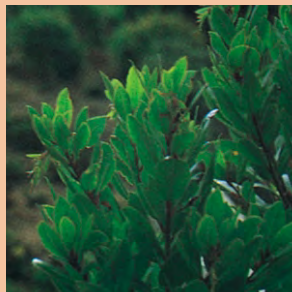
Albizia julibrissen, **Silk Tree**, *highly recommended*, 30 feet tall with 30 foot spread, deciduous with showy pink summer flowers, fern-like leaves, stake until established, makes a good patio tree.



Calocedrus decurrens, **Incense Cedar**, native to California, 60 feet tall, 20 foot spread, symmetrical, good for windbreaks, water deeply, grows slowly when young.

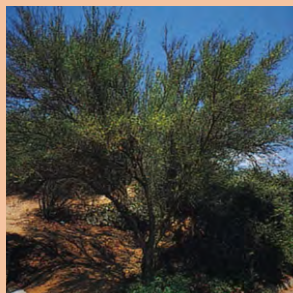


Arbutus unedo, **Strawberry Tree**, *highly recommended*, use as a shade shrub or on north exposures, slow growth to 20 feet, dark green attractive leaves, white flowers and red fruit in fall and winter.



Cedrus deodora, **Deodar Cedar**, moderate growth to 60 feet, 20 foot spread, evergreen. Moderate water when young, stake until established. Takes full sun.





Cercidium floridum, **Blue Palo Verde**, native to western deserts, deciduous with fast growth to 30 feet with equal spread, yellow flowers in spring. Takes full sun in the toughest exposures.



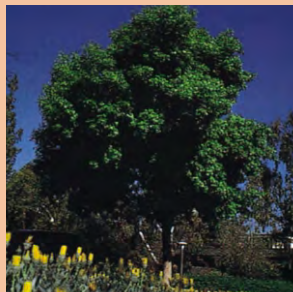
Fraxinus velutia, **Modesto Ash**, *high recommended*, a vigorous Arizona ash variety, fast growth to 50 feet, 30 foot spread, deciduous, yellow fall color. Beware, roots can affect plumbing or septic systems and may lift sidewalks or patios, water deeply to control roots. Full sun.



Cupressus arizonica, **Arizona Cypress**, fast to 30 feet, 15 foot spread, used as screen or windbreak, evergreen. Full sun on the south and west exposure.



Gleditsia triacanthus, **Honey Locust**, small tree to 25 feet, 20 foot spread, deciduous, good in lawns, patios, stake until established. Attractive lime yellow spring leaf color. Suckers profusely and must be trimmed often. Particularly recommended in the High Desert in the “Moraine” variety. Full sun.



Fraxinus velutina, **Arizona Ash**, *highly recommended*, deciduous, excellent shade, 20 or more feet high. A native of Arizona, withstands hot, dry conditions. Beware, roots can affect plumbing or septic systems and may lift sidewalks or patios, water deeply to control roots. Full sun.



Koelreuteria paniculata, **Goldenrain Tree**, *highly recommended*, moderate growth to 30 feet, 25 foot spread, deciduous, white or cream flowers in summer turning to pink seed clusters, needs consistent water when young. Excellent for shade, street, or patio tree. Full sun.



TREES

Parkinsonia aculata, **Mexican Palo Verde**, fast growth to 30 feet tall, 25 foot spread, semi-deciduous with spiny branches, tiny leaves, profuse yellow blooms in spring and summer. Good desert naturalizer. Use as accent or transition to natural surroundings. Full sun.



Prosopis glandulosa, **Texas Mesquite** or **Honey Mesquite**, deciduous, multi-trunked, fast growth to 20 feet, 25 foot spread, native to the southwestern desert. Use as accent or as a tree transitioning to the natural surroundings. Full sun.



Pinus halepensis, **Aleppo Pine**, moderate to 50 feet, 25 foot spread, evergreen, use near lawns and for windswept look. Full sun. Water deeply to prevent shallow rooting. Also recommended is *Pinus eldarica*, slightly smaller than the Aleppo Pine, and with a more conical shape.



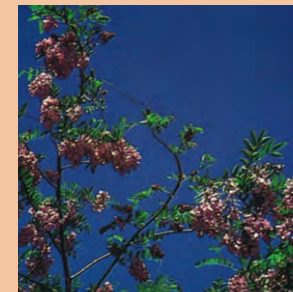
Rhus lancea, **African Sumac**, evergreen shrub, slow growing to 20 feet, 15 foot spread, attractive leaf and form, needs fall planting time. Full sun or partial shade.



Pistacia chinensis, **Chinese Pistache**, **highly recommended**, moderate growth to 50 feet, 30 foot spread, deciduous, brilliant orange fall color, use near street, lawn or as a patio tree.



Robinia pseudoacacia, **Idaho Locust**, deciduous, moderately fast-growing to 35 feet, 20 foot spread. Clusters of white or pink flowers in the spring. Likes heat and full sun. Roots are aggressive and may send up suckers. Use as an accent tree, away from lawns.



The following is a list of additional plants suitable for the High Desert climate.

GROUNDCOVER

DWARF COYOTE BUSH

Baccharis pilularis

Evergreen. Full sun, little water.
Most dependable groundcover.
Dense, billowy, bright green mat, 8-24 inches high spreading to 6 feet or more. Small ½-inch leaves.

GAZANIA

Gazania

Perennial. Full sun. Low-growing groundcover with a spectacular display of daisy-like flowers ranging from yellow to dark red in late spring and summer. Both clumping and trailing varieties. Usually dies out in two or three seasons, requiring replanting.

LAVENDER COTTON

Santolina chamaecyparissus

Evergreen. Full sun. Clumping groundcover, 1-foot high with gray foliage, yellow summer flowers. Clip off spent flowers, cut back in early spring.

PROSTRATA ACACIA

Acacia redolens

Evergreen. Full sun, little water.
Grows 1-2 feet with a 15-foot spread.
Narrow, gray-green leathery leaves.
Flowers puffy yellow balls in the

spring. Groundcover for banks, large areas with poor soil. Endures drought, heat.

SANTOLINA

Santolina virens (Green Lavender Cotton)

Evergreen. Full sun. Clumping groundcover, 1-foot high, with green foliage, yellow summer flowers. Clip off spent flowers, cut back in early spring. Lavender Cotton similar but has gray leaves.

THYME

Thymus pseudolanuginosus (Wooly Thyme)

Perennial groundcover, mat-forming. Full sun or dry shade, low to moderate water. Best as edging plant, between stepping stones and in rock gardens. Spreads to 18 inches, 1-2 inches tall, small pink flowers in early summer. May freeze back during winter.

SHRUBS / PLANTS

AUTUMN SAGE

Salvia greggii

Evergreen perennial. Infrequent deep water. Shelter from midday sun. Bushy to 3-4 feet with medium green leaves. Flowers in reddish purple, late spring, summer, fall and winter in desert.

BRIDAL WREATH

Spiraea prunifolia

Deciduous. Full sun or light shade, 6 feet high, 6 feet wide, tiny white rose-like flower in spring and arching branches. Small dark green leaves turn rich red in fall.

BUSH MORNING GLORY

Convolvulus cneorum

Evergreen. Full sun to partial shade (more compact in full sun). Low water use. Rapid growing to 4 feet high and 4 feet wide. Silky smooth, silvery gray lance-shaped throats open from pink buds May-September.

CISTUS

Cistaceae (Rockrose)

Evergreen. Full sun, 2-5 feet high, 2-5 feet wide, flowers white, purple, or pink dependent on variety.

CLEVELAND SAGE

Salvia clevelandii

Perennial. Full sun, little water. Rounded to 4 feet. Gray-green foliage with marvelous fragrance. Flowers lavender blue in tall open spires, fragrant May-August.

COTONEASTER

Cotoneaster horizontalis (Rock Cotoneaster)

Deciduous. Full sun, little to no water

once established. Can be 2-3 feet tall, 1-5 feet wide, with horizontal branches. Leaves are small, round, bright green in color and turn orange and red before falling.

DATIL YUCCA

Yucca baccata

Evergreen perennial. Single stemless rosettes to 3 feet tall. Leaves 2 feet long, 2 inches wide, beautiful blue-gray-green in color. Flowers May-June.

DESERT SPOON

Dasyllirion wheeleri

Evergreen. Full sun, no water once established. Spiky bluish gray leaves to 3 feet, inch-wide leaves slowly build a trunk to 3 feet tall, eventually produces tiny flowers on tall, slender spike (9-15 feet tall).

EURYOPS

Euryops pectinatus

Evergreen perennial to 6 feet. Flower heads are daisy-like. Long bloom season, cut back after flowering. Easy maintenance and fast growing in full sun.

FEATHERY CASSIA

Cassia artemisioides

Evergreen. Light and airy structure to 5 feet. Leaves are gray, flowers are yellow. Blooms January through April, often into summer.

FUCHSIA-FLOWERING GOOSEBERRY

Ribes speciosum

Nearly evergreen. Full sun to partial shade. Growth 3-6 feet tall. Thick green leaves with drooping deep crimson to cherry red flowers. Blooms January-May.

GOLDEN CURRANT

Ribes aureum

Deciduous. Full sun or partial shade, 3-6 feet high, berries yellow to red to black, bright yellow flowers, fragrant, spring bloom.

GOPHER PURGE

Euphorbia characias

Evergreen perennial. Full sun, little to moderate water. Upright stems make dome-shaped bush 4 feet tall. Narrow, blue-green leaves with clustered flowers.

MANZANITA

Arctostaphylos manzanita

Evergreen. Full sun, some water. Tall shrub or treelike shrub. Grows 6-20 feet high and spreads 4-10 feet wide with purplish red bark. Shiny bright green to dull green oval leaves. Flowers white to pink in open, drooping clusters in spring.

MANZANITA

Arctostaphylos densiflora (Howard McMinn)

Evergreen shrub. Full sun, some water. Grows in mound 5-6 foot tall, creating canopy. Smooth red bark. Flowers white or pink in spring.

MOUNTAIN MAHOGANY

Cercocarpus montanus

Deciduous. Full sun, no water once established, 4-6 feet.

NEW MEXICAN PRIVET

Forestiera neomexicana

Deciduous. Full sun, grows faster with some water. Grows to 8 feet, nearly as wide. Smooth medium green leaves. Flowers negligible. Egg-shaped blue-black fruit on some plants. Fairly fast growth makes this a good screening plant.

OUR LORD'S CANDLE

Yucca whipplei

Evergreen. Full sun, periodic deep soaking. Stemless, with dense cluster of rigid, gray-green needle-tipped leaves 12-21 inches long. Flowering stems to 6-14 feet long. Drooping, bell-shaped, 1-2 inch, creamy white blossoms in large, branched spikes 3-6 feet long. Plant dies after blooming, leaves seeds.

PENDULA YUCCA

Yucca recurvifolia

Evergreen perennial. Single

unbranching trunk 6-10 feet tall. Spreads to offsets to make large groups. Leaves 2-3 feet long, 2 inches wide, beautiful blue-gray-green in color. Large, white, open-clustered flowers in June.

PROSTRATA JUNIPER

Juniperus davurica expansa
(Parsonii)

Evergreen. Sun or partial shade. Some summer water in hot areas. Grow as shrub or tree. Growth to 8 feet. Dense, short twigs on heavy, horizontal branches. Slow growing.

RED-HOT POKER

Kniphofia uvaria
Perennial. Full sun or little shade. No dry season water. Coarse with large, dense clumps of long grass-like leaves. Flower stalks (taller than leaves) are about 2 feet red or yellow, tubular flowers forming poker-like clusters 1 foot long. Blooms spring through summer.

RED YUCCA

Hesperaloe parviflora
Evergreen perennial. Full sun, no dry-season water. Makes dense yuccalike clump of very narrow, swordlike leaves 4 feet long and about 1 inch wide. Pink to rose red flowers in slim 3-4 foot high clusters bloom in early summer. Good large container plant.

RUSSIAN SAGE

Perovskia atriplicifolia
Perennial. Full sun. Woody-based multistemmed plant to 3 feet tall. Gray-green leaves, lavender blue flowers, long summer bloom if old flowers are trimmed off. Dormant in winter.

SALTBUSH

Atriplex lentiformis (Quail Bush)
Deciduous. Full sun, very little water. Densely branched, 3-10 feet high and 6-12 feet wide. Oval, bluish gray leaves. Useful as hedge or windbreak.

SERVICEBERRY

Amelanchier
Deciduous. Full sun. Narrow multi-stemmed shrub or small tree, 10-12 feet. Clusters of white or pinkish flowers in early spring. Purplish new foliage turns deep green, then yellow and red in fall. Small, dark blue fruit, popular with birds.

SHRUBBY CINQUEFOIL

Potentilla fruticosa
Deciduous. Does best in full sun. Low mounded 1-4 feet high, with equal spread. Yellow buttercup-like flowers in spring until first frost. Tolerates extreme cold.

SILVER BUFFALOBERRY

Shepherdia argentea
Deciduous. Full sun, 5-6 feet high

(rarely to 12 feet). Longish oval leaves silvery on both lower and upper surfaces, red or orange berries, sour but edible, used for jams and jellies. Good for attracting birds.

SMALL LEAF MOUNTAIN MAHOGANY

Cercocarpus ledifolius intricatus
Evergreen. Full sun, slow growth 3-9 feet, with intricate branching and tiny inrolled leaves, green above, gray underneath.

SOAPWEED

Yucca glauca
Evergreen. Stemless or short stemmed. Tough, leathery, gray-green, narrow, sharp leaves 1-2 feet tall. Early summer creamy flowers on 3-4 stalks.

SPANISH BAYONET

Yucca aloifolia
Evergreen. Trunk either single or branched or sprawling in picturesque effect, slow growth to 10 feet tall. Sharp-pointed dark green leaves 2-3 feet long, 2 inches wide. Flowers in summer. Sharp-spined leaf tips a hazard if planted near walkway.

SPANISH LAVENDER

Lavandula stoechas
Evergreen. Full sun, little water. Stocky plants to 3 feet tall, with narrow gray leaves. Flowers dark purple, about 1/8-inch long in dense

short spikes topped with tuft of large purple petal-like bracts. Blooms early summer.

SULFUR FLOWER

Eriogonum umbellatum

Perennial. Full sun, some water. Low, broad mats of stems set with green leaves, white felted beneath. In summer, 4-12-inch stalks carry clusters of tiny yellow flowers that age to rust.

SWEET BROOM

Genista

Evergreen. Full sun. No dry-season water. Grows to 10 feet forming a shrub of almost leafless stems. Bright yellow, fragrant flowers in clusters at each branch. Blooms March-August.

WESTERN REDBUD

Cercis occidentalis

Deciduous. Full sun. Grow as shrub or tree, 10-18 feet tall and wide. In spring, 3-week display of brilliant magenta flowers. Blue-green foliage in summer. In fall, whole plant turns light yellow or red. In winter, bare branches hold reddish brown seed pods.

TREES

AFRICAN SUMAC

Rhus lancea

Evergreen. Full sun, little water. Slow growing to 25 feet. Open spreading habit, graceful weeping outer branches.

Dark green leaflets 4-5 inches long. Pea-size, berry-like yellow or red fruit grows on female tree. Useful for screens, clipped hedges or background.

ARIZONA ROSEWOOD

Vauquelinia californica

Evergreen. Full sun, no water once established. Grow as tree or shrub, to 20 feet. Dark gray to reddish brown bark. Lance-shaped leaves with lightly toothed edges to 3 inches long and 1/2-inch-wide. White, 1/4-inch-wide five petaled flowers grow in loose, flattened clusters at branch tips in late spring.

AUSTRIAN BLACK PINE

Pinus nigra

Evergreen. Full sun, little water. Slow to moderate growth to 40 feet. Dense with needles in 2s, 3-6 inches, stiff very dark green. Cones 2-3 inch oval brown. Very hardy.

BAILEY ACACIA

Acacia baileyana (Mimosa)

Evergreen or deciduous. Full sun, little water. Grows to 30 feet with a 40-foot spread. Flowers yellow, fragrant clusters in January-February. Hardy with feathery, finely cut, blue-gray leaves.

EUCALYPTUS

Eucalyptus gunnii (Cider gum)

Evergreen. Full sun. Medium to large, dense, vertical trees, 40-75 feet. Smooth green and tan bark. Small white flowers April-June. Strong and hardy. Good shade, windbreak or privacy screen.

HOLLYWOOD JUNIPER

Juniperus chinensis (Torulosa)

Evergreen. Sun or partial shade. Some summer water in hot areas. Tree or shrub, growth to 15 feet, irregular, upright. Rich green in color. Branches with irregular, twisted appearance.

ITALIAN CYPRESS

Cupressus sempervirens

Evergreen. Columnar Italian Cypress eventually grow to dense, narrow, columnar trees to 60 feet.

OLIVE

Olea europaea

Evergreen. Full sun, likes hot dry summers. Slow growth to 30 feet and 30 feet wide with soft gray-green foliage. Begin training early.

RUSSIAN OLIVE

Elaeagnus angustifolia

Deciduous. Small to 20 feet, 10-15 foot spread. Attractive silver gray leaves with pale yellow flowers in summer, producing olive-like berries. Hardy, takes nearly any conditions. Use as a screen shrub, small tree, or pruned on a trellis or fence.

SMOKE TREE

Cotinus coggygria purpureus

Deciduous. Full sun. Unusual shrub-tree creating broad, urn-shaped mass usually as wide as it is high, eventually to 25 feet. Dramatic puffs of purple to lavender "smoke" come

What is Desert Communities Water Awareness Expo?

The local organizations and communities that make up Desert Communities Water Awareness Expo made possible this booklet through their financial contributions and/or through their collaborative efforts. Those organizations and communities are Apple Valley Heights County Water District, Apple Valley Ranchos Water Company, Baldy Mesa Water District, City of Adelanto, City of Hesperia Water Department, Mojave Water Agency, San Bernardino County Service Areas, Southern California Water Company, City of Victorville Public Works Department, Victor Valley Wastewater Reclamation Authority, and Victor Valley Water District.

Expo participants provide water to residents in the High Desert, and our goal is to educate the public about the importance of conserving and preserving nature's most precious nonrenewable natural resource. We believe the collaborative efforts of Expo participants reinforce the message that we share a collective responsibility to protect our water supply.

Since the early 1990s, Expo has participated in local events, offering conservation literature and presenting a drought-tolerant landscape display. *A Guide to High Desert Landscaping* is one more example of our commitment to serving our community through providing valuable resource material.

If you would like more information about Expo or water issues in your community, please contact your local water supplier.

Authors:

Tom Ash, Director of Landscapes Southern California Style The Water Conservation Education Garden, University of California Cooperative Extension/Western Municipal Water District
Janet Hartin, U. C. Cooperative Extension Horticulture Advisor San Bernardino County

Special thanks for reviewing the original text extended to the following UC Cooperative Extension specialists:

Dr. Victor Gibeault
Dennis Pittenger
J.L. Meyer

Primary photography: Douglas McCulloh



Participating Agencies:

Apple Valley Heights County Water District
9430 Cerra Vista
Apple Valley, CA 92308
760-247-7330

Apple Valley Ranchos Water Company
21760 Ottawa Road
Apple Valley, CA 92308
760-247-6484

City of Adelanto
Department of Water
11600 Air Base Road
Adelanto, CA 92301
760-246-2300

City of Hesperia Water Department
Department of Water
15776 Main Street
Hesperia, CA 92345
760-947-1840

Mojave Water Agency
22450 Headquarters Drive
Apple Valley, CA 92307
760-946-7000

County of San Bernardino
Special Districts Department
Water & Sanitation Division
12402 Industrial Blvd., Bldg. D, Suite 6
Victorville, CA 92392
760-955-9885
800-554-0565

Golden State Water Company
13608 Hitt Road
Apple Valley, CA 92308
760-247-3391
800-999-4033

Southern California Water Company
1521 East Main Street
Barstow, CA 92311
760-256-2275
800-999-4033

City of Victorville
Public Works Department
PO 5001
14343 Civic Drive
Victorville, CA 92393-5001
760-955-5204

Victor Valley Wastewater Reclamation
Authority
20111 Shay Road
Victorville, CA 92394-8539
760-246-8638

Victorville Water District
17185 Yuma Street
Victorville, CA 92392-5887
760-245-6424