Drought Tolerant Landscaping

With increasing population pressures, limited water resources and the uncertain weather patterns in Southern California, the need to conserve water is now greater than ever. The area's history of low rainfall virtually guarantees a limited water supply in the future. Since rains and drought are not predictable, we must plan for tomorrow now! A good place to begin is in your yard, garden or other landscaped area.

Nearly half the home water used in Southern California is applied outdoors for watering thirsty lawns, flowers, shrubs, and shade trees. Much of this water is wasted, because most plants will survive on considerably less water than they are receiving. In many cases, they will look their best and live longer with less. Many plant problems are directly or indirectly linked to **over watering.**

Amending watering habits along with the use of xerophytic (drought tolerant) plants is an excellent way to reduce water consumption—and save money at the same time. All that is required to create a water-saving landscape is some xerophytic knowledge and careful planning.

Homeowners Frequently Apply Twice the Amount of Water Needed on Their Landscape Plants

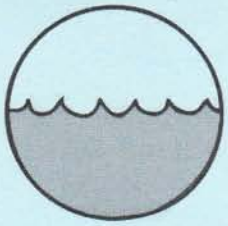
- Over watering creates extra work and expense with little or no benefit to the plants. Everything grows faster, making it necessary for mowing, weeding, pruning, and other tasks to be done more often.
- Many plants can be trained to be less dependent on irrigation. This will increase their chances of surviving should drought, expense, or water rationing limits water availability. Over watered plants may not survive under these conditions; thus creating a potential serious fire hazard for the home and or neighborhood.
- Properly watered landscapes save water, produce healthy plants and are less work to maintain. They will better survive drought conditions.

Where the Water Comes From

THE EFFECTIVE WATERSHED OF THE SOUTHERN CALIFORNIA REGION

*A **XEROPHYTE** is a plant structurally adapted to growing under very dry or desert conditions. These plants often have greatly reduced leaf surfaces for avoiding water loss; they have thick, fleshy parts for water storage; and hairs, spines, or thorns to discourage browsing by animals.*

Irrigation & Watering Practices



DON'T OVER WATER! Conduct a water audit to find out how much water you use. Then adjust irrigation practices to apply only the **minimum** amount of water necessary to keep the landscape healthy.

Drought tolerant characteristics are crucial to plants in unirrigated landscapes. Woody plants can survive drought periods only through adaptations that enable them to obtain or conserve water.

Irrigation Systems:

Existing irrigation systems are generally adequate without extensive or expensive retrofitting. What is needed is a knowledge of exactly how much water they supply. Supplement this with a few water and time saving methods, and they will work more effectively.

Repair Leaks:

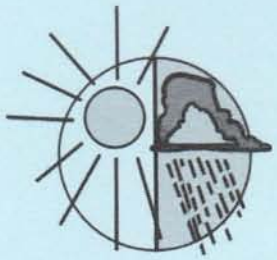
Keep the system in good working order. Malfunctioning irrigation systems can apply too much water to some areas while under watering others.

Conduct a Landscape Water Audit:

Following guidelines established in several available publications **(see** *List of Local Resources* at the end of this booklet), determine how much water your irrigation applies in 15 minutes. The test utilizes measurements from scattered containers (such as cans or coffee cups). In addition, it also shows you which areas of your lawn are getting more water than others. This will allow you to adjust the system to water more uniformly.

> *No matter how carefully you water, you will still have to deal with runoff if you irrigate with a conventional overhead system. There are simple ways of catching excess water. Shallow trenches or basins around plants will hold water until it seeps into the ground.*

DETERMINE the amount of water in the soil **before** you water. You may not need to water! Irrigate only when the soil is dry.



ADJUST to the seasons and weather by changing the length of time you water during different times of the year.

Install Automatic Controllers These can be:

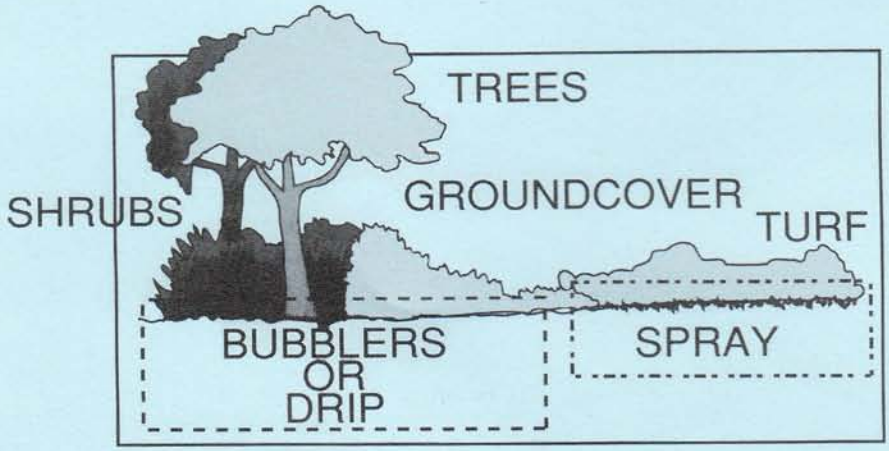
- Programmed to water on a preset schedule.
- Re-programmed depending on the season.
- Turned on when triggered automatically by a sensor that measures available moisture in the soil.

Automatic Shut Off/Override:

Simple devices can be used that will shut the irrigation system off after a certain amount of rain has fallen (if moisture sensors are not being used).

Consider Retrofitting Existing Irrigation System:

Additional water savings can be accomplished if existing spray type heads are replaced with bubblers or drip systems where appropriate in tree, shrub, or groundcover areas. In this way, water is applied directly where the plant needs it. By installing or converting you current system to a drip irrigation system, you can conserve water and increase the drought tolerance of your landscape plants. Drip irrigation also promotes deep watering. A deep-water reserve will help extend watering cycles for longer periods.

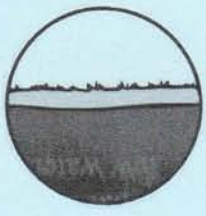


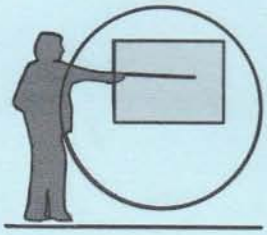
USE MULCH on top of the soil 3-4 inches thick to conserve moisture and control weeds.

Mulch:

Using mulch helps maintain moisture in the soil and helps control weeds.

- Bark, wood chips, & pebbles (underlay with plastic if necessary).
- Leaves, newspapers, and plastic will also work.
- Avoid sawdust or grass clippings: in decomposing they compete for plant nutrients.
- Compost all woody materials prior to use.





EDUCATE those who will run, maintain and monitor the irrigation system.

Watering requirements for plants will differ. This depends upon the plant interacting with its environment. It will also depend upon weather and the amount of rainfall that has been available during the season. Most drought tolerant plants can exist on little or no additional summer water once established.

> *"No plant can make it through a rainless summer if it was just removed from its container and planted. To become drought tolerant a plant must grow its roots down deep into the soil where some moisture from winter rain remains far into the dry season. You must help them grow to that level."*
>
> ***- Sunset Magazine***

Factors that Help Determine Survival:

- The plant's inherent ability to root deeply.
- The weather in your area
- The type, depth, and composition of soil.
- The presence of mulches or the practice of regular cultivation.
- The plants location in the landscape

General Watering Requirements for Newly Established Plants:

FIRST SEASON: Water plants during the first winter and spring if winter rains are not enough to sustain them. Then water 3 or 4 times during their first dry season. Additional irrigation may be required if weather becomes unusually hot or dry.

SECOND SEASON: By their second season, most drought tolerant plants will not need supplemental water, although some may if abnormal weather conditions occur

ONGOING: During very dry years, deep watering in early spring or summer may be required by drought tolerant species if winter rains have not adequately recharged the soil moisture. If soil moisture is adequate at the start, watering may not be required at all.

WATER DEFICIENCY SYMPTOMS

When the water supply to plants is insufficient, leaves wilt and young shoots droop; if the situation persists, the tips and margins of leaves begin to brown and the condition spreads to the veins. The oldest leaves on weak branches begin to fall.

Drought Tolerant Plants

ARBUTUS UNEDO *(Strawberry Tree):* Good screen plant, this European native is noted for its showy yellowish-red strawberry-like fruit Will grow as a large shrub or small tree, 8 to 35 feet tall. Can exist on normal rainfall alone. Readily available.

BACCIIARIS PILULARIS *(Dwarf Coyote Bush):* High growing ground cover or low growing foliage mass. This California native grows to a height of 24 inches and spreads to 6 feet. A very dependable bank cover. Readily available.

CEDRUS DEODARA *(Deodar Cedar):* Large evergreen tree with gray-green foliage and a bent-over top. Grows to a height of 80 feet and has a 40 foot diameter branch sweep. Roots probably go as deep as its branches grow wide. It does not suffer from lack of summer water.Should not be used in areas where Brush Fires occur. Readily available.

CASSIA ARTEMISIOIDES *(Feathery Cassia):* An Australian native with attractive foliage and large showy yellow flowers. Can grow to 5 feet in height. Will hold up through the worst California summers without supplemental water. Not commonly available, but worth looking for.

CEANOTHUS SPP. *(Ceanothus):* This group of shrub is made up of primarily California natives ranging in size from a few inches (prostrate form) to 14 feet high. These plants feature dark green leaves and attractive dark blue or lavender flowers. Most are unthirsty, but many can tolerate some irrigation. Generally available.

DODONAEA VISCOSA *(Hopseed Bush):* Medium-sized shrub native to Arizona with willow-like green or bronze-purple leaves. Will grow to over12 feet tall. It is an exemplary no-irrigation shrub, but needs some water in desert situations. Can be damaged by frost in inland and desert areas. Readily available.

FESTUCA OVINA GLAUCA *(Blue Fescue):* A small, clumping, perennial grass comprised of bluish green leaves with wheat colored flower plumes occur in spring to summer. As grasses go, this one requires little water.

LANTANA SPP. *(Lantana):* Group of shrubs best known for their ability to cover the landscape and provide a profuse display of colorful flowers. Will grow 6 feet high and is very wide spreading. This tropical native is as drought tolerant as most plants can be. Damaged by frost, but is very commonly available in milder climates.

LAGERSTROEMIA INDICA 'TUSCARORA' *(Crape Myrtle):* Deciduous shrub or tree requiring infrequent, deep watering. Attractive trunk and branches when grown as a tree. Many color varieties; long flowering period from July through September.

HETEROMELES ARBUTIFOLIA *(Toyon):* Southern California native shrub or small tree, 10 to 35 feet tall. Good screen and bank plant with abundant colorful red berries in winter. Normally lives on just the rain, but needs supplemental water in desert climates. One of the best natives for landscape use. Generally available.

NERIUM OLEANDER *(Oleander):* An extremely tough plant, oleanders are useful as hedges, screens, or for planting on banks. Most flower throughout the summer. This Mediterranean native grows to 12 feet high and as wide. Does fine with or without supplemental watering. Readily available.

OLEA EUROPAEA *(Olive):* Mediterranean native tree growing to a height of 30 feet and as wide. A choice tree with picturesque branch structure and willowy foliage. The fruit can become a nuisance. Holds up well under most drought situations. Readily available.

QUERCUS SPP. *(Oak): Slow* growing, large sturdy trees to 90 feet high or more and native to the northern hemisphere. Evergreen or deciduous, they can become the dominant tree in many landscape situations. Deep roots allow oaks to get water from many feet down. Readily available.

ROSEMARINUS OFFICINALIS prostratus *(Dwarf Rosemary):* To 2 feet tall with spreading habit. Rosemary tolerates a wide range of growing conditions; enduring both hot sun and temperatures to around 15 degrees farenheit. Widely available.

SALVIA GREGGII *(Autumn Sage):* Bushy shrub growing 3 feet in height, spreading to 3 feet. Flowers in many colors, late spring through winter. Requires little to no irrigation near the coast, benefits from some water and shade inland.

SANTOLINA CHAECYPARISSUS *(Lavender Cotton):* Small evergreen sub-shrub or ground cover with attractive yellow flowers. This Mediterranean area native will grow to 2 feet in height. Generally does better under drought conditions than when watered. Commonly available.

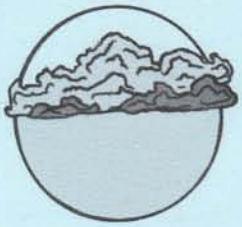
XYLOSMA CONGESTUM *(Xylosma):* A very graceful, spreading, evergreen shrub with shiny, light green foliage growing to 10 feet tall. It is native to southeast China. Will survive any dryness, but might look sparse during the worst dry spells. Readily available.

YUCCA SPP. *(Yucca):* A large group of evergreen stemless shrubs with clusters of sword-shaped leaves native to North America. Good plants for desert gardens, but some varieties may reach 20 feet tall. Can be dry all summer and give no indication of trouble Generally available.

Planting

Planting and Landscaping

What would you expect if your landscape could not be watered this year and next? With a water conserving landscape it would stay healthy, and can be more beautiful than a high water using one. Plants that depend upon frequent watering would wilt, possibly die, and in doing so become highly flammable, thus creating a fire hazard for you and your neighbors. Even if drought were not a problem in Southern California, local sources of water are scarce. We must import most of the water we depend upon from distant sources. This is expensive; and as our population increases, it creates an ever increasing demand for our limited water. There are a number of water saving planting ideas you can utilize.



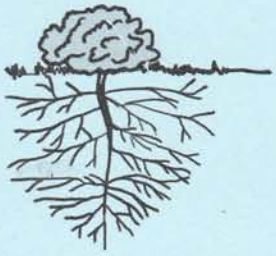
REPLACE thirsty (high water usage) plants with ones that require less water.

Plants that Require Less Water:

Check the List of Local Resources in the back of this publication. Additional publications are listed that will help you find low water use plants that can be just as beautiful and have many more advantages than water wasting ones.

TRAIN plant roots to grow deep and become drought tolerant through proper irrigation practices.

DO THIS



DEEP, INFREQUENT WATERING ENCOURAGES ROOTS TO GROW DEEP. THE PLANT WILL REQUIRE MUCH LESS WATER ONCE IT IS ESTABLISHED, AND WILL WITHSTAND DROUGHT CONDITIONS.

NOT THIS!

SHALLOW, FREQUENT WATERING KEEPS ROOTS CLOSE TO THE TOP SURFACE OF THE SOIL. THE PLANT BECOMES DEPENDENT UPON CONSTANT IRRIGATION. TOO MUCH TOP GROWTH IS CREATED COMPARED TO ROOT MASS, AND THIS CAN'T BE SUPPORTED IF IRRIGATION IS SUDDENLY UNAVAILABLE.

Train Plant Roots to Grow Deep and Become Drought Tolerant:

How and when you apply water will also determine how drought resistant the plant will be. Aside from wasting water, over watering should be avoided. "If a little water is good, doesn't mean more is better!"

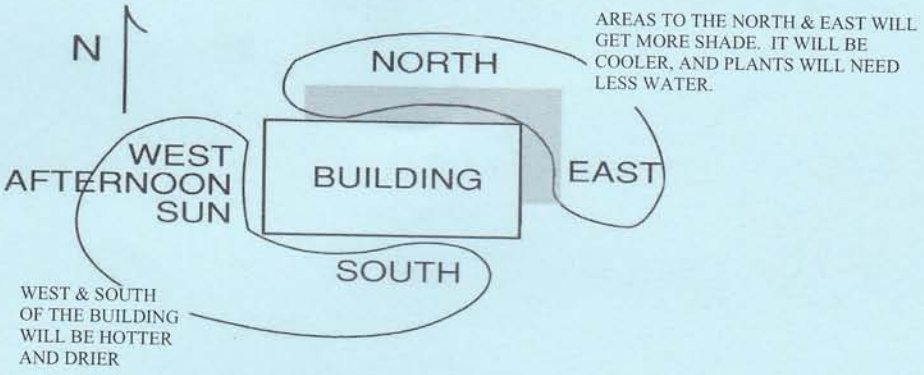
GROUP plants according to their water needs and varying site conditions.

Water Conserving Plants:

These plants have ways of reducing water loss. Their leaves may be small, gray-colored, leathery, or arranged to reduce the amount of sunlight that strikes them. Their stomata [pores] may be structured to conserve moisture.

Group Plants According to Their Water Needs:

If a few water thirsty annuals and other plants are desired, keep these separate and if possible on a separate irrigation schedule from others that need less water. Keep plants that need a little water apart from those that need none at all.



Plant to Match Site Conditions:

Plants on the northern, shady side of a building or wall will need less moisture than those on a hot, sunny, south-facing slope.

Many landscaped areas have restricted supplies of water. Paving and buildings can reduce the amount of moisture that reaches root zones and can also increase transpiration through reflected solar radiation.

AVOID USING TURF except where it will be used for activity. Do not plant just for **show.**

Use Alternatives to Large Areas of Turf:

Lawns use water. Not only do they require more water, they are almost always over watered. Unless lawns are actively used for sports or other activities, consider alternatives that are less costly and time consuming for you as well as being water conserving.

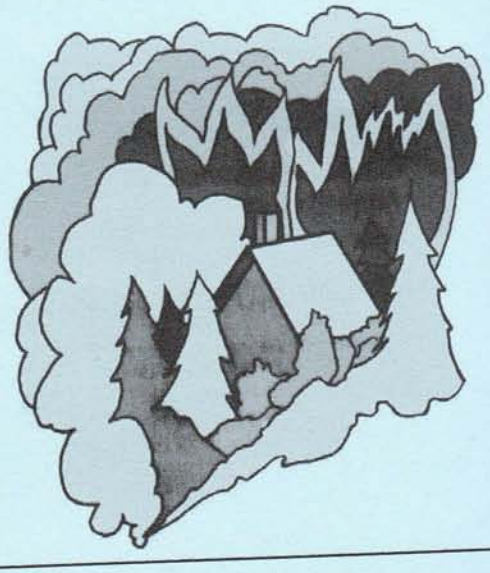
- Crushed rock or gravel.
- Bark or wood chips.
- Bricks or sand.
- Wooden decks.
- Ground covers.

These alternatives also allow for percolation of water into the soil, unlike paved areas.

If lawn is used, consider replacing it with a less water consuming variety. In addition, do not cut a lawn too short: irrigation water evaporates more quickly.

> *A grass's root depth may be an important factor in your choice of grass type: shallow-rooted grasses need to be watered more often for shorter periods of time than deep-rooted grasses, which require deep watering less frequently.*

CONSIDER EROSION CONTROL and **FIRE SAFETY** in hillside and brush covered areas.



Use low fuel volume plants or fire resistive vegetation.

Keep area clear of unwanted weeds and litter.

Properly space large shrubs and trees.

Remove unwanted dead wood from shrubs and trees.

Maintain cleared areas around structures.

Plant large trees and shrubs away from structures.

KNOW where water conserving plants and information about them can be obtained.

LIST OF LOCAL RESOURCES
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

P.O. Box 54153
Los Angeles, California 90054
(213) 250-6000

Sample of available publications:

"How to Have a Green Garden in a Dry State"
"How Saving Water Saves Energy"
"Water for Southern California"
"25 Ways to Save Water"
"Take a Day Off"

CALIFORNIA DEPARTMENT OF WATER RESOURCES
(916) 445-9248 Information
(916) 445-9371 Publications

DWP: LOS ANGELES DEPARTMENT OF WATER AND POWER
(213) 481-5800 Hotline Number

COUNTY OF LOS ANGELES FIRE DEPARTMENT
FORESTRY DIVISION
(323) 890-4330

MEDITERRANEAN CLIMATE

A Mediterranean climate is one that features mild wet winters and mostly rainless summers. These areas normally receive little or no precipitation for four to six months of the growing season. Unless such regions have supplemental sources of water or deep, well-drained soil, their vegetation will be quite different from that in areas that receive rain in the summer. Plants will be smaller, but have relatively large root systems and they will have greater spacing. Some vegetation may have special or modified structures that help to reduce transpiration and others may drop most of their leaves when water is limited.

County of Los Angeles Fire Department
Forestry Division

County of Los Angeles
Board of Supervisors

Gloria Molina, First District
Mark Ridley-Thomas, Second District
Zev Yaroslavsky, Third District
Don Knabe, Fourth District
Michael D. Antonovich, Fifth District

County of Los Angeles Fire Department

P. Michael Freeman, Fire Chief

Brush Clearance Unit
605 N. Angeleno Avenue
Azusa, CA 91702-2904
(626) 969-2375

Camp 17
6555 Stephens Ranch Road
La Verne, CA 91750-1144
(909) 593-7147

Environmental Review Unit
12605 Osborne Street
Pacoima, CA 91331-2129
(818) 890-5719

Fire Plan/Interpretive Unit
12605 Osborne Street
Pacoima, CA 91331-2129
(818) 890-5783

Fuel Modification Unit
605 N. Angeleno Avenue
Azusa, CA 91702-2904
(626) 969-5205

Henninger Flats Forestry Unit
2260 Pinecrest Drive
Altadena, CA 91001-2123
(626) 794-0675

Lake Hughes Forestry Unit
42150 N. Lake Hughes Road
Lake Hughes, CA 93532-9706
(661) 724-1810

Malibu Forestry Unit
942 N. Las Virgenes Road
Calabasas, CA 91302-2137
(818) 222-1108

San Dimas Forestry Unit
1910 N. Sycamore Canyon Road
San Dimas, CA 91773-1220
(909) 599-4615

Saugus Forestry Unit
28760 N. Bouquet Canyon Road
Saugus, CA 91390-1220
(661) 296-8558

Vegetation Management Unit
12605 Osborne Street
Pacoima, CA 91331-2129
(818) 890-5720