Landscape Plants for California Gardens

An Illustrated Reference of Plants for California Landscapes

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Introduction

These pages are contained within the book *Landscape Plants for California Gardens.* They cover information on plant climate zones, estimated water needs of plants, and lists and palettes of plants that are adaptable in meeting water conservation and design needs for a variety of project situations.

The goal is to provide information that can assist in the design and management of landscapes throughout California with an emphasis on water conservation through the use of plant palettes that fit into compatible hydrozones.

Agave attenuata 'Boutin Blue'

Phormium 'Sunset'

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Section One

Plant Climate Zones and Water Estimates

Section One of *Landscape Plants for California Gardens* provides a summary of information regarding California plant climate zones and estimated water needs of plants and landscapes. A combination of maps, tables, calculations and checklists are provided for use in selecting plants, organizing hydrozones and preparing estimated water budgets. These help create a foundation for successfully designing landscapes and gardens throughout California. Information provided in Section One is visibly woven throughout the book to reinforce the connections between climate, water and plants.

The study of climate is essential for understanding the relationship between plants and the environment. Temperature and moisture conditions dominate growth and survival of plants around the world as well as in local landscapes and gardens. The climate zone maps included in this section illustrate the range and diversity of growing conditions in California. Each zone is described and information on temperature, rainfall and evapotranspiration is provided. By understanding the adaptations of plants to temperature and moisture, it becomes possible to match them to various conditions found throughout the state and within specific planting situations. Such information enables one to make good planting choices when selecting appropriate plants for a given location.

Many people familiar with plants are aware that maps, tables, calculations and checklists used to describe climate zones and water needs are only approximations. Plants are adaptable to many conditions which limits any effort to place them in absolute categories. There will always be exceptions. Maps, tables and calculations are intended to be useful guides that bring attention to the most common needs and adaptations of plants. This information is most helpful when combined with sound horticultural knowledge, regular observation and planting experience. A series of plant palettes are presented in Section Three to provide examples that show how information in this section can be applied.

Contents

Ceanothus 'Dark Star'

Introduction to California

Plant Climate Zones

Plants and Climate

The growth and adaptation of plants has occurred over many years in response to a range of environmental conditions. Climate conditions have been among the most important, particularly temperature, precipitation, sun exposure, relative humidity and wind. On balance, cold temperatures most often pose the primary limiting condition on the survival and growth of plants. Plants that cannot tolerate the minimum temperatures of an area can be severely damaged or killed, particularly during record cold cycles. Additionally, the length of the annual growing season that occurs between the last frosts of spring and the early frosts of fall may be too short in some zones for plants to thrive. In these observations, it has been assumed water needs for agricultural and ornamental plantings would be met through irrigation.

In response to this knowledge about the effects of cold temperatures on plants, a number of climate zone maps have been developed over the years to illustrate different growing areas according to temperature. One map prepared by the United States Department of Agriculture illustrates 11 hardiness zones for North America based upon average annual minimum temperature ranges. This map, known as the USDA Plant Hardiness Zone Map, has become a standard reference for the selection and planting of both agricultural and horticultural plants across the country. However, this map illustrates only very broad zones throughout the west coast and has proven to be too general in treatment to be completely useful for the design of landscapes and gardens.

In California, the Cooperative Extension within the Division of Agriculture and Natural Resources of the University of California became involved in developing a plant climate zone map that more accurately represented the climate conditions and zones across the state. This effort was combined with climate maps included in the *Sunset New Western Garden Book* published in 1979 by Lane Publishing Company. The product of this work is the 1989 Generalized Plant Climate Map of California illustrated on the opposite page. This map shows 21 different climate zones occurring in California using annual minimum temperature ranges as the primary basis for delineating each zone. To a large extend, cold temperatures are the greatest limiting constraint on the survival and growth of agricultural and horticultural plants; heat This map has become a standard reference for selecting plants for different areas in California, and continues to be refined and presented in subsequent editions of the *Sunset Western Garden Book*.

The 21 plant climate zones provides a key starting point in identifying and selecting plants that can be grown in different parts of California. However, they are still large zones that often do not have precise boundaries. Many microclimate variations exist within each zone that modify conditions of temperature, sunlight, moisture and wind. This is particularly true in urban areas where the orientation and enclosure of landscape and garden spaces changes the broader climate conditions enough to successfully grow many plants. Once the broader climate conditions are assessed, the next step is to evaluate microclimate conditions to discover additional opportunities or constraints in growing plants.

A number of the key environmental factors that influence Plant climate zones in California are briefly described on this page along with a statewide map illustrating these zones. A more detailed summary of the climate conditions for each Plant Climate Zone is provided on pages 12-17 to further distinguish their similarities and differences.

California Plant Climate Zones

Overview

Plant climate zones identified throughout California are largely defined upon the pattern of cold temperatures. Climate Zones 1, 2 and 3, for example, have the coldest winter conditions in California, including snow and a greatly reduced growing season. Climate Zones 22, 23 and 24 are quite mild by comparison; very few days fall below 32°F each year. Of the 24 plant climate zones mapped across the western United States, 21 are found in California. Many factors and conditions impact the growth of plants and contribute to this rich tapestry of climate zones. Some of these are briefly described below.

Cold Temperature

The successful growth of plants strongly reflects their adaptation to seasonal temperatures and moisture. In essence, cold temperatures pose the primary limiting condition on plant survival and the length of the growing season that occurs between frosts. Plants that cannot tolerate the minimum temperatures of an area can be severely damaged or killed, particularly during record cold cycles.

Warm Temperature

Plants are also impacted by summer heat and average warm temperature conditions. A large number of plants from arid, Mediterranean and subtropical climate zones are planted in California. Many of these plants grow best in zones where there are 60-70 or more days each year where temperatures are above 90°F. Some of these plants can tolerate a fair amount of cold, but they need to be placed in warm microclimates when grown in cooler climate zones.

Pacific Ocean

The existence of the Pacific Ocean along the western edge of California lies at the foundation of regional climate conditions in the state. It is key to the movement of storms into the state during winter months as well as mitigating summer heat and evapotranspiration losses along the coast during summer months. Climate zones located in northern latitudes commonly receive more precipitation and zones closest to the coast have the lowest range of annual evapotranspiration losses.

Continental Climate

Climate conditions that occur within the interior areas of the western United States have a dominant impact on temperature and precipitation conditions along the eastern side of California. Continental climate temperatures are colder and place greater limits on the growth of ornamental plants throughout the Great Basin and Mojave Desert regions of the state.

Topography

Statewide climate conditions are heavily modified by regional topography, including elevation, slope and orientation. It is the remarkably diverse topography of California that largely defines the boundaries of the 21 climate zones by altering regional temperatures, precipitation and sunlight into different local patterns. There are many examples where two very different plant climate zones occur in close proximity to each other, but are separated by a topographic feature such as a ridgeline or the slope of a valley floor.

Reference Evapotranspiration

Reference evapotranspiration is defined as the combined loss of moisture from evaporation and transpiration during the growth of four to seven-inch cool season grass. Reference evapotranspiration is measured by weather stations throughout the state and is summarized on a monthly and annual basis. This data is used in estimating the water needs of plants in different climate zones. The key climatic factors influencing evapotranspiration rates are solar radiation, air temperature, relative humidity and wind speed.

Precipitation and Supplemental Irrigation

Similar to temperature, natural precipitation varies greatly across California. Most of the state has a Mediterranean climate pattern that brings the great majority of rain and snow during winter months and very little during summer months. The widespread use of supplemental irrigation in landscapes and gardens helps offset the lack of summer precipitation. However, the increasing demand for water through population growth and recurring drought cycles necessitates mindful conservation and efficiency in the use of supplemental irrigation.

Microclimates

The broad plant climate zones of California have proven to be highly successful in helping guide the selection of plants for garden and landscape use across California. At the same time, the exact boundaries of these zones are hard to identify and seasonal conditions change from year to year.

Additionally, the occurrence of buildings and pavement as well as the orientation and enclosure of entries, patios and courtyards create microclimate conditions with significantly modified temperature and sunlight, as well as drainage and soils that are completely different from the broader conditions at large. The greatest success of landscapes and gardens rests upon interpreting the microclimate conditions throughout the different seasons of the year in the process of selecting, planting and caring for plants.

Plant Climate Zones

Northern Latitude

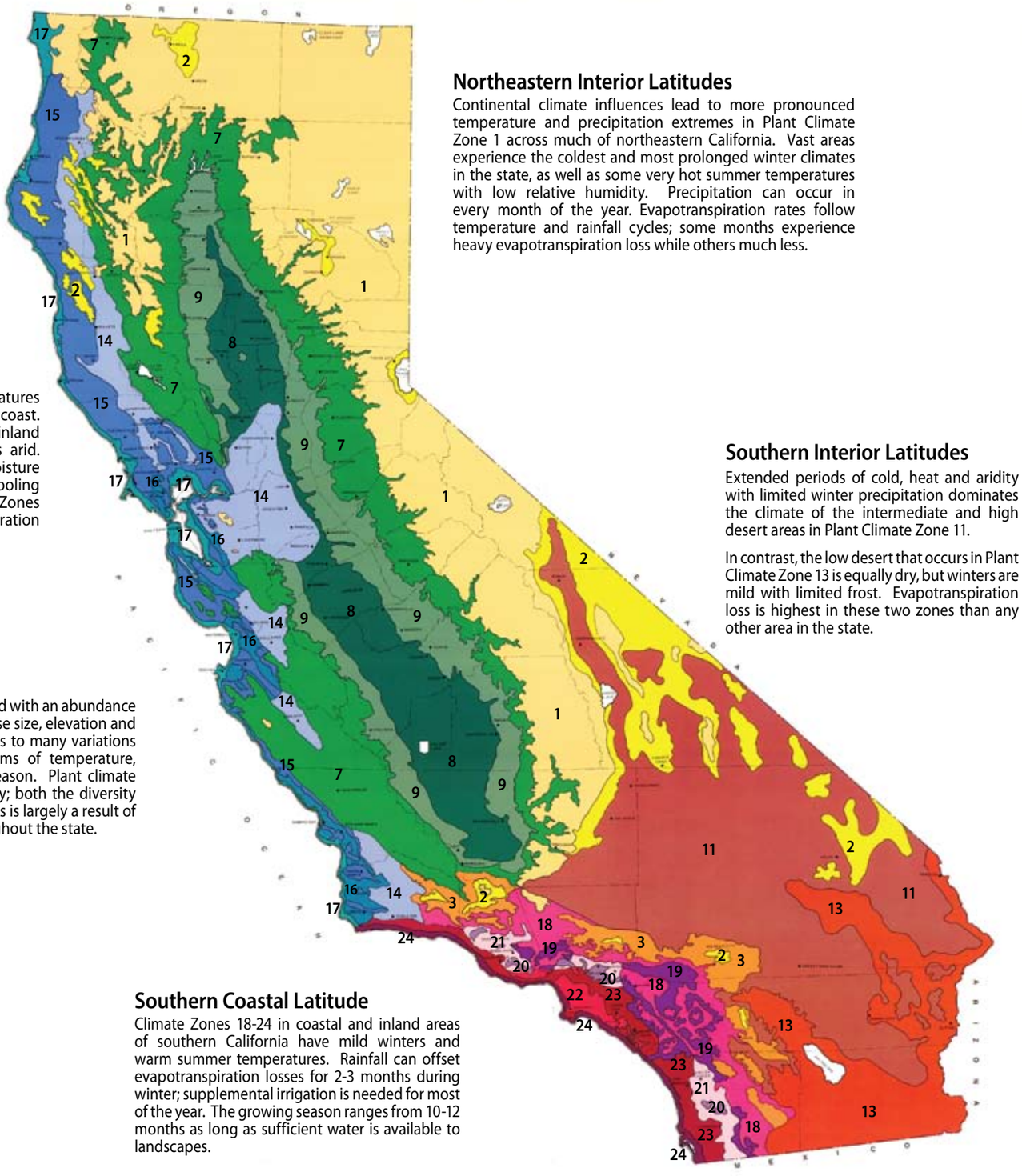
Climate zones of northern latitudes are marked by colder winter temperatures, fewer growing season days and greater levels of annual precipitation in contrast to southern zones of the state. Precipitation exceeds reference evapotranspiration for several winter months of the year. Summers are cool and moist along the coast; inland valleys and foothills are warm and dry with periods of high temperatures and increased moisture stress.

Pacific Ocean

The Pacific Ocean moderates temperatures along the entire length of California's coast. Winter's cold is less extreme than in inland areas; summer heat is milder and less arid. Relative humidity is increased and moisture stress is reduced by the damp and cooling influence of marine air. Plant Climate Zones 17 and 24 have the lowest evapotranspiration levels in the state.

Topography

California's topography is filled with an abundance of ranges and valleys of diverse size, elevation and character. This diversity leads to many variations in climate conditions in terms of temperature, precipitation and growing season. Plant climate zones fit into this topography; both the diversity and boundaries of these zones is largely a result of the varied topography throughout the state.



Northeastern Interior Latitudes

Continental climate influences lead to more pronounced temperature and precipitation extremes in Plant Climate Zone 1 across much of northeastern California. Vast areas experience the coldest and most prolonged winter climates in the state, as well as some very hot summer temperatures with low relative humidity. Precipitation can occur in every month of the year. Evapotranspiration rates follow temperature and rainfall cycles; some months experience heavy evapotranspiration loss while others much less.

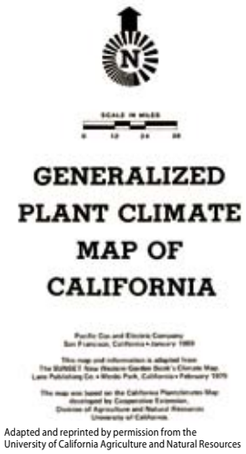
Southern Interior Latitudes

Extended periods of cold, heat and aridity with limited winter precipitation dominates the climate of the intermediate and high desert areas in Plant Climate Zone 11.

In contrast, the low desert that occurs in Plant Climate Zone 13 is equally dry, but winters are mild with limited frost. Evapotranspiration loss is highest in these two zones than any other area in the state.

Southern Coastal Latitude

Climate Zones 18-24 in coastal and inland areas of southern California have mild winters and warm summer temperatures. Rainfall can offset evapotranspiration losses for 2-3 months during winter; supplemental irrigation is needed for most of the year. The growing season ranges from 10-12 months as long as sufficient water is available to landscapes.



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Plant Climate Zones

Northern California

Introduction

Northern California's topography defines a number of north and south oriented ranges and valleys that create many contrasting plant climate zones. Some areas have cold winter temperatures and short growing seasons, others have clearly defined Mediterranean climate conditions. Winter precipitation often exceeds evapotranspiration rates; very little supplemental water is needed for landscapes and gardens for several months of the year. Coastal and high elevation zones have little summer heat in contrast to valley zones that experience high temperatures for extended periods.

Cold Climate Zones - Zones 1, 2

These northern climate zones have severely cold winters with heavy snowfall and remarkably short growing seasons. Hardy native and exotic trees and shrubs along with seasonal annuals and tough perennials provide most of the planting palette. Microclimates are key to mitigating harsh conditions to extend the season of exotic plantings.

Foothill Gray Pine - Zone 7

The foothill gray pine zone almost forms a continuous ring at middle elevations around the Sacramento and San Joaquin valleys throughout California. This zone is dominated by rugged foothill environments with winter temperatures in the northern part of the state falling below 32°F on a regular basis, limiting the growing season to 5-6 months.

Sacramento Valley - Zones 8, 9

The interior of northern California is dominated by the Sacramento Valley. It has two climate zones; both are characterized by cool winters with regular frost and summers with intense sunlight and high temperatures. The lower elevations of this valley comprises a cooler climate zone with more severe winter frosts and a slightly shorter growing season. This climate is ideal for many agricultural crops as well as ornamental plants that thrive in summer heat. Dense wintertime tule fogs occur for many days each year as well as harsh Northern winds. Trees are highly important in these zones to provide shade and protection from hot sun for many flowering shrubs and perennials.

North Coastal Valley - Zone 14

A well defined northern coastal valley zone extends from Sonoma to Humboldt Counties and includes such cities as Napa, Sonoma, Petaluma and Santa Rosa. The southern parts of this zone experience milder winter temperatures and warmer summers to produce a highly favorable climate for many ornamental and native California plants. Northern parts of this zone become increasingly cooler and more favorable to temperate climate plants.

North Coast and Range - Zones 15, 17

Areas falling within the north coast and range zones experience the mildest temperatures and highest levels of precipitation of any part of California. The Pacific Ocean moderates winter cold and brings abundant rainfall during the winter; summer temperatures are seldom above 90°F and dense fog is common. Fog drip along the immediate coast can measure as much as 10 inches per summer. While temperatures are mild, plants from subtropical and arid climates do not get enough heat to do well, instead, plants from maritime and temperate climate zones do very well in these zones.

Cold Climate Zones		Average Temperatures		Average Rainfall		Reference ETo	
1 Growing Season 2-3 Months	Alturas Burney Shasta Weed	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	18-33°F 78-80°F 20-45 160-200	Annual: Nov-Mar: Apr-Oct: Snow:	12-40 in. 15-28 in. 10-12 in. 30-60 in.	Annual: Nov-Mar: Apr-Oct:	54-55 in. 5-6 in. 48-49 in.
2 Growing Season 3-4 Months	Yreka South Lake Tahoe	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	25-28°F 85-88°F 1-55 140-210	Annual: Nov-Mar: Apr-Oct: Snow:	18-30 in. 16-17 in. 2-3 in. 18-194 in.	Annual: Nov-Mar: Apr-Oct:	54-55 in. 5-6 in. 48-49 in.

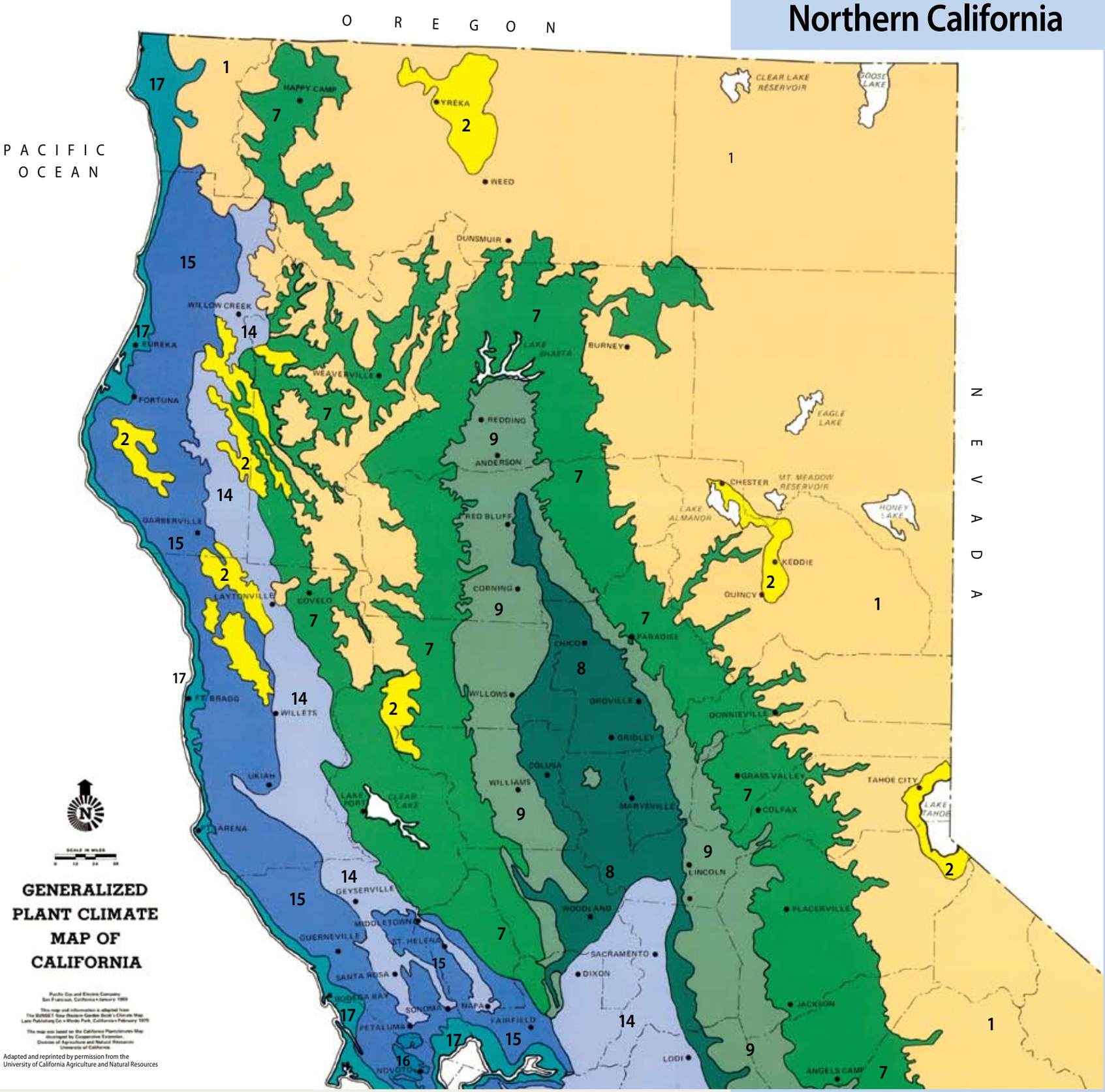
Foothill Gray Pine Zone		Average Temperatures		Average Rainfall		Reference ETo	
7 Growing Season 5-6 Months	Grass Valley Lakeport Nevada City Weaverville	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	28-35°F 85-91°F 40-75 35-40	Annual: Nov-Mar: Apr-Oct: Snow:	30-50 in. 20-39 in. 10-11 in. 1-32 in.	Annual: Nov-Mar: Apr-Oct:	52-54 in. 7-8 in. 45-46 in.

Sacramento Valley Zones		Average Temperatures		Average Rainfall		Reference ETo	
8 Growing Season 9-10 Months	Chico Gridley Marysville Woodland	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	36-39°F 92-94°F 89-94 18-38	Annual: Nov-Mar: Apr-Oct: Snow:	16-23 in. 13-17 in. 3-6 in. 0-1 in.	Annual: Nov-Mar: Apr-Oct:	56-58 in. 7-9 in. 49-50 in.
9 Growing Season 8-9 Months	Oroville Red Bluff Redding Williams Willows Woodland	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	37-39°F 93-94°F 89-97 18-29	Annual: Nov-Mar: Apr-Oct: Snow:	18-39 in. 15-33 in. 3-6 in. 0-6 in.	Annual: Nov-Mar: Apr-Oct:	56-58 in. 7-8 in. 49-50 in.

North Coastal Valley Zone		Average Temperatures		Average Rainfall		Reference ETo	
14 Growing Season 8-9 Months	Napa Petaluma Santa Rosa Sonoma Ukiah Willets	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	33-38°F 80-91°F 20-80 26-80	Annual: Nov-Mar: Apr-Oct: Snow:	25-50 in. 20-41 in. 5-9 in. 0-4 in.	Annual: Nov-Mar: Apr-Oct:	48-50 in. 6-7 in. 42-43 in.

North Coast and Range Zones		Average Temperatures		Average Rainfall		Reference ETo	
15 Growing Season 8-9 Months	Garberville Gurneyville Occidental	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	40-43°F 75-78°F 10-13 2-3	Annual: Nov-Mar: Apr-Oct: Snow:	47-57 in. 39-47 in. 8-10in. 0-.5 in.	Annual: Nov-Mar: Apr-Oct:	44-47 in. 7-9 in. 37-39 in.
17 Growing Season 8-9 Months	Bodega Bay Crescent City Eureka Ft. Bragg Pt. Arena	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	40-42°F 62-66°F 0-1 5-15	Annual: Nov-Mar: Apr-Oct: Snow:	40-70 in. 33-61 in. 7-9 in. 0-1 in.	Annual: Nov-Mar: Apr-Oct:	32-34 in. 4-5 in. 28-29 in.

Northern California



Plant Climate Zones

Central California

Introduction

The climate zones of central California are dominated by some of the best known physiographic features in the state, including the San Francisco Bay, central coastal ranges, the San Joaquin Valley and Sierra Nevadas. While all of these areas fall under the broad umbrella of a Mediterranean climate system, the range of seasonal temperatures and moisture conditions among them are distinctly different.

Sierra Nevada - Zone 1

Elevations above 2,500 ft. in the Sierra Nevada mountains of central California experience very cold winters and extensive amounts of snow. These conditions limit the growing season to two to three summer months, which can be remarkably warm and dry for weeks at a time. Only the hardiest native and exotic plants do well in this zone; annuals and robust perennials provide spring and summer garden interest.

Foothill Gray Pine - Zone 7

The foothill gray pine zone occurs at mid elevations on both sides of San Joaquin Valley of central California. This rugged foothill zone has regular winter frost, but receives far less precipitation with higher evapotranspiration loss in comparison to Zone 7 in the northern part of the state.

San Joaquin Valley - Zones 8, 9

From an agricultural perspective, the San Joaquin Valley is one of the most productive growing environments in the world. This is the result of cool moist winters, long warm summers and rich sedimentary soils. These same climate and soil conditions also support the growth of many types of ornamental plants. Winters are too cold for subtropical plants, but many species from temperate, Mediterranean and arid climate zones thrive in this valley. Native and ornamental trees, including the venerable valley oak, grow to monumental sizes in deep soils with regular moisture and summer heat. Hot summer months result in over 45 inches of evapotranspiration loss.

San Joaquin Delta - Zone 14

The San Joaquin delta encompasses low elevation areas between the southern part of the Sacramento Valley and northern part of the San Joaquin Valley. Throughout this low lying drainage basin, cooler maritime climate conditions flow through the San Francisco bay area and interfaces with the warmer interior valley climate. The maritime climate keeps winter temperatures warmer than adjacent valley areas and brings more humidity. This zone has a very warm nine month long growing season that can produce robust and diverse ornamental plantings with regular supplemental irrigation in such cities as Davis, Sacramento and Stockton.

San Francisco Bay Area and Central Coast - Zones 15-17

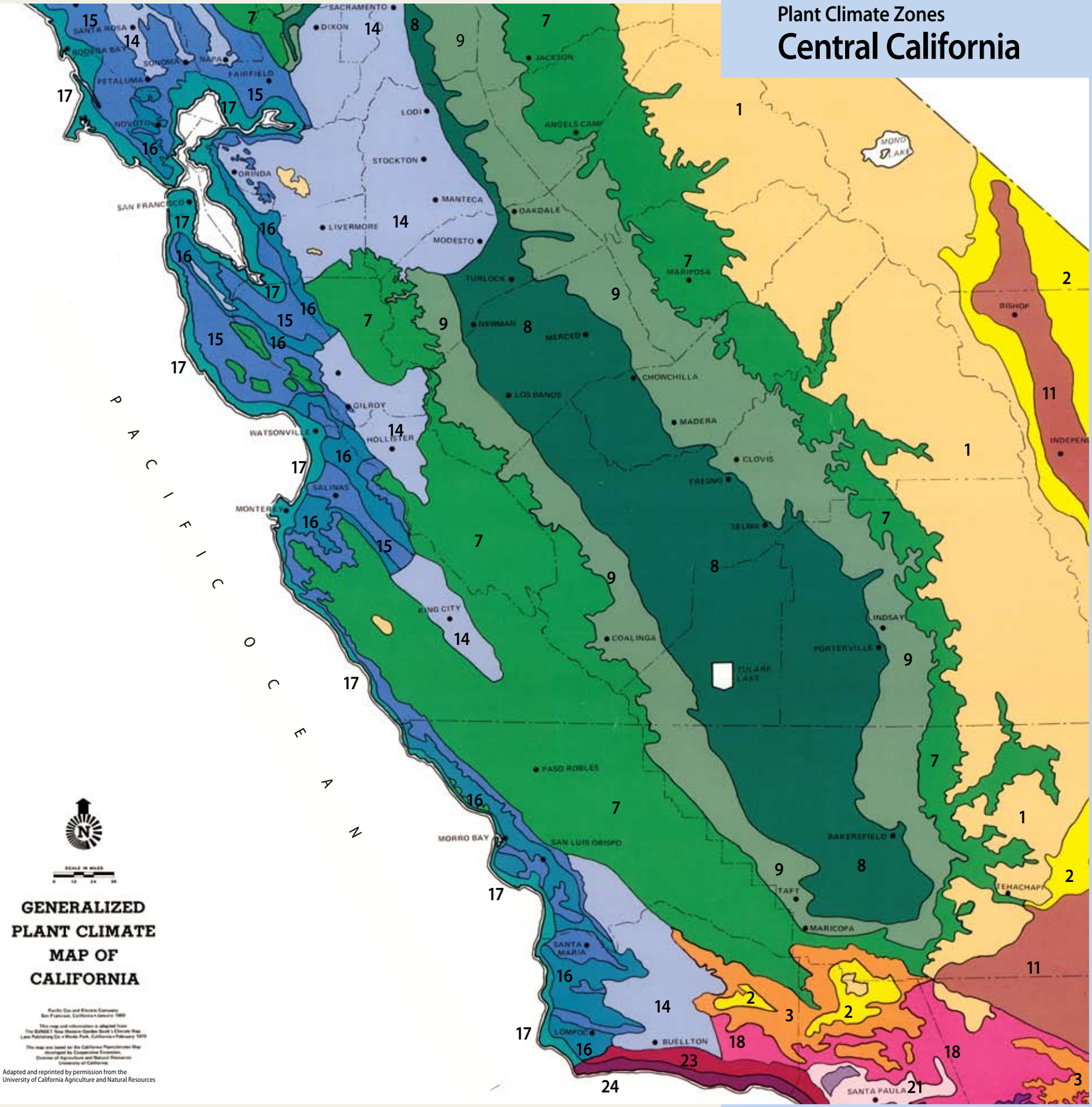
The coastal ranges of this part of the state buffers the full impact of fog and wind, and produces conditions in Zones 15 and 16 that are much warmer and drier in such communities as Palo Alto, Saratoga and the foothills of Walnut Creek. The highly diverse topographic character of the bay area produces many sudden variations among these zones.

Many parts of the San Francisco bay area and the coastline that extends through Santa Cruz, Monterey and Carmel to Pismo Beach, comprise Zone 17, and reflect a departure from warm summer temperatures widely associated with Mediterranean climate zones. Few days each year get above 90°F; dense fog and cool maritime breezes are common due to the proximity to the Pacific Ocean.

Sierra Nevada Zone		Average Temperatures		Average Rainfall		Reference ETo	
1 Growing Season 2-3 Months	Grant Grove Huntington Lake	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	22-26°F 70-73°F 0 150-175	Annual: Nov-Mar: Apr-Oct: Snow:	37-43 in. 29-34 in. 8-9 in. 190-200 in.	Annual: Nov-Mar: Apr-Oct:	57-58 in. 7-8 in. 49-50 in.
Foothill Gray Pine Zone		**Average Temperatures**		**Average Rainfall**		**Reference ETo**	
7 Growing Season 5-6 Months	Atascadero Lake Nacimiento Paso Robles	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	24-29°F 94-95°F 95-97 40-50	Annual: Nov-Mar: Apr-Oct: Snow	12-15 in. 10-12 in. 2-3 in. 0 in.	Annual: Nov-Mar: Apr-Oct:	49-51 in. 6-7 in. 43-44 in.
San Joaquin Valley Zones		**Average Temperatures**		**Average Rainfall**		**Reference ETo**	
8 Growing Season 9-10 Months	Bakersfield Fresno Hanford Los Banos Merced Visalia	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	35-38°F 95-98°F 95-110 20-40	Annual: Nov-Mar: Apr-Oct: Snow:	6-11 in. 5-8 in. 1-3 in. 0 in.	Annual: Nov-Mar: Apr-Oct:	54-58 in. 8-12 in. 45-46 in.
9 Growing Season 9-10 Months	Coalinga Folsom Madera Maricopa	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	47-51°F 74-76°F 95-105 20-30	Annual: Nov-Mar: Apr-Oct: Snow:	8-12 in. 7-9 in. 1-3 in. 0 in.	Annual: Nov-Mar: Apr-Oct:	54-58 in. 8-12 in. 45-46 in.
San Joaquin Delta Zone		**Average Temperatures**		**Average Rainfall**		**Reference ETo**	
14 Growing Season 8-9 Months	Davis Modesto Sacramento Santa Ynez Stockton	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	36-39°F 80-90°F 70-80 15-30	Annual: Nov-Mar: Apr-Oct: Snow:	13-18 in. 11-15 in. 2-3 in. 0 in.	Annual: Nov-Mar: Apr-Oct:	48-57 in. 9-10 in. 39-47 in.
San Francisco Bay & Central Coast		**Average Temperatures**		**Average Rainfall**		**Reference ETo**	
15 Growing Season 8-9 Months	Menlo Park Palo Alto Santa Maria San Luis Obispo Walnut Creek	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	37-42°F 72-80°F 5-15 10-15	Annual: Nov-Mar: Apr-Oct: Snow:	15-22 in. 13-19 in. 2-3 in. 0 in.	Annual: Nov-Mar: Apr-Oct:	46-52 in. 8-12 in. 38-40 in.
16 Growing Season 8-9 Months	Belmont Carmel Valley Los Altos Hills Saratoga San Anselmo	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	43-45°F 75-80°F 5-9 9-12	Annual: Nov-Mar: Apr-Oct: Snow:	20-30 in. 18-27 in. 2-3 in. 0 in.	Annual: Nov-Mar: Apr-Oct:	43-46 in. 7-8 in. 36-38 in.
17 Growing Season 8-9 Months	Monterey Oakland Richmond San Francisco Santa Cruz Vallejo	Winter Minimum: Summer Maximum: Days above 90°F: Days below 32°F:	43-45°F 65-71°F 1-4 1-3	Annual: Nov-Mar: Apr-Oct: Snow:	20-25 in. 18-22 in. 2-3 in. 0 in.	Annual: Nov-Mar: Apr-Oct:	33-39 in. 29-33 in. 4-6 in.

Plant Climate Zones

Central California



Plant Climate Zones

Southern California

Introduction

The climate of southern California includes some of the warmest and driest parts of the state; both Mediterranean and arid climate conditions occur. More plant climate zones exist in this area than any other comparable part of the entire west coast, as well as some of the finest coastal conditions for growing a remarkably large variety of plants from around the world. These zones reflect the complexity of conditions that occur between climate, topography and the presence of the Pacific Ocean.

Cold Climate Zones - Zones 2, 3

The cold climate of southern California zones occur at high elevations in mountains and interior areas of the Mojave Desert. Severe winters and short growing seasons restrict the choice of plants to hardy trees and shrubs and tough perennials and annuals. Microclimates that provide protection from cold, wind and intense summer sun are key to the success of ornamental plantings.

Mojave Desert - Zone 11

The Mojave Desert area of southern California is dominated by arid climate conditions that are much harsher and drier than Mediterranean conditions. The combination of cold winters, hot summers, wind, aridity and lack of precipitation greatly restrict both the native flora and survival of exotic plants in such communities as Palmdale, Lancaster and Victorville. Microclimates that buffer these conditions as well as regular supplemental water is critical for landscape success.

Sonoran Desert - Zone 13

The arid climate conditions of the Sonoran Desert produces high levels of heat, low rainfall, wind and aridity. However, winter frost is very infrequent and many plants from Mediterranean, subtropical and arid zones are successfully grown throughout such communities as Palm Springs, Palm Desert and Indio as long as there is generous use of supplemental water and some shelter provided from intense sun exposures.

Inland Valleys and Foothills - Zones 18 - 21

The Mediterranean climate conditions of the inland valleys and foothills of southern California are characterized by short mild winters and long dry summers. Winter rainfall can meet moisture needs of ornamental plants for a few months, but supplemental irrigation becomes necessary in ornamental landscapes and gardens for much of the rest of the year. Plants from temperate, Mediterranean and arid climate zones grow well throughout this part of the state; hardy subtropicals also grow well, particularly in microclimates that protect them from record cold cycles. These zones experience cooling maritime fog during spring and daily afternoon breezes much of the year.

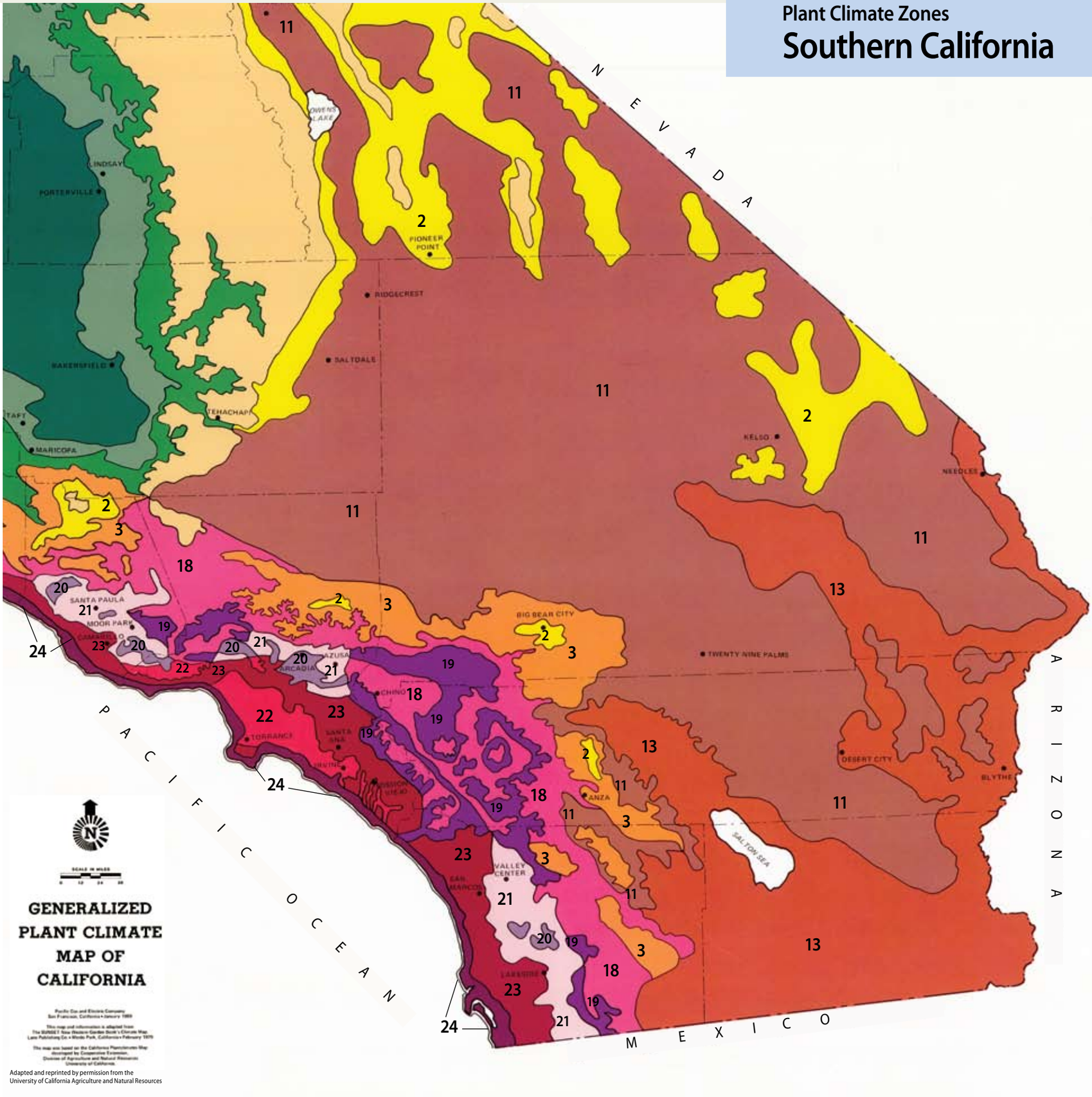
Coastal Edge and Valleys - Zones 22-24

Coastal zones in southern California stretch from Santa Barbara to San Diego under Mediterranean climates dominated by ocean influences most of the year. This results in modest winter precipitation and mild winter and warm summer temperatures. Some areas have growing seasons that last up to 12 months as long as supplemental water is available; only occasional frosts occur. These conditions are ideal for subtropical plants with many microclimates providing enough sun and warmth for plants from arid climates.

Cold Climate Zones		Average Temperatures		Average Rainfall		Reference ETo	
2 Growing Season 3-4 Months	Big Bear Lake	Winter Minimum:	17-20°F	Annual:	35-40 in.	Annual:	57-59 in.
		Summer Maximum:	72-78°F	Nov-Mar:	29-32 in.	Nov-Mar:	12-13 in.
		Days above 90°F:	0-1	Apr-Oct:	6-8 in.	Apr-Oct:	45-46 in.
		Days below 32°F:	200-215	Snow:	120-130 in.		
3 Growing Season 5-6 Months	Lake Arrowhead Wrightwood	Winter Minimum:	27-30°F	Annual:	39-41 in.	Annual:	57-59 in.
		Summer Maximum:	76-80°F	Nov-Mar:	33-34 in.	Nov-Mar:	12-13 in.
		Days above 90°F:	5-7	Apr-Oct:	6-7 in.	Apr-Oct:	45-46 in.
		Days below 32°F:	105-110	Snow:	38-42 in.		
Mojave Desert Zone		**Average Temperatures**		**Average Rainfall**		**Reference ETo**	
11 Growing Season 7-8 Months	Victorville Barstow Lancaster Palmdale	Winter Minimum:	30-36°F	Annual:	4-6 in.	Annual:	64-68 in.
		Summer Maximum:	95-104°F	Nov-Mar:	3-4 in.	Nov-Mar:	9-10 in.
		Days above 90°F:	110-150	Apr-Oct:	1-2 in.	Apr-Oct:	56-58 in.
		Days below 32°F:	35-80	Snow:	1-2 in.		
Sonoran Desert Zone		**Average Temperatures**		**Average Rainfall**		**Reference ETo**	
13 Growing Season 7-8 Months	Indio Palm Desert Palm Springs Rancho Mirage	Winter Minimum:	41-43°F	Annual:	3-5 in.	Annual:	69-72 in.
		Summer Maximum:	104-106°F	Nov-Mar:	3-4 in.	Nov-Mar:	17-18 in.
		Days above 90°F:	175-185	Apr-Oct:	1 in.	Apr-Oct:	52-54 in.
		Days below 32°F:	6-15	Snow:	0 in.		
Inland Valleys & Foothill Zones		**Average Temperatures**		**Average Rainfall**		**Reference ETo**	
18 Growing Season 7-8 Months	Chino Ontario Riverside San Fernando	Winter Minimum:	39-45°F	Annual:	11-16 in.	Annual:	48-53 in.
		Summer Maximum:	88-92°F	Nov-Mar:	9-13 in.	Nov-Mar:	11-13 in.
		Days above 90°F:	80-100	Apr-Oct:	2-3 in.	Apr-Oct:	37-40 in.
		Days below 32°F:	8-16	Snow:	0 in.		
19 Growing Season 7-8 Months	Chatsworth Hemet Pomona San Fernando	Winter Minimum:	38-40°F	Annual:	12-17 in.	Annual:	47-52 in.
		Summer Maximum:	87-94°F	Nov-Mar:	11-14 in.	Nov-Mar:	11-13 in.
		Days above 90°F:	70-100	Apr-Oct:	2-3 in.	Apr-Oct:	36-39 in.
		Days below 32°F:	13-23	Snow:	0 in.		
20 Growing Season 7-8 Months	Escondido Glendale Ojai Ramona	Winter Minimum:	36-42°F	Annual:	16-22 in.	Annual:	44-49 in.
		Summer Maximum:	84-88°F	Nov-Mar:	13-19 in.	Nov-Mar:	5-6 in.
		Days above 90°F:	40-70	Apr-Oct	2-3 in.	Apr-Oct:	38-43 in.
		Days below 32°F:	10-30	Snow:	0 in.		
21 Growing Season 8-9 Months	Altadena Pasadena Rancho Bernardo Thousand Oaks	Winter Minimum:	43-45°F	Annual:	15-21 in.	Annual:	48-52 in.
		Summer Maximum:	84-88°F	Nov-Mar:	13-17 in.	Nov-Mar:	5-6 in.
		Days above 90°F:	40-70	Apr-Oct:	2-4 in.	Apr-Oct:	43-46 in.
		Days below 32°F:	3-10	Snow:	0 in.		
Coastal Edge & Valley Zones		**Average Temperatures**		**Average Rainfall**		**Reference ETo**	
22 Growing Season 8-9 Months	Anaheim Downey Fullerton Los Angeles Santa Ana	Winter Minimum:	43-49°F	Annual:	13-18 in.	Annual:	44-46 in.
		Summer Maximum:	80-84°F	Nov-Mar:	11-15 in.	Nov-Mar:	5-6 in.
		Days above 90°F:	20-30	Apr-Oct:	2-3 in.	Apr-Oct:	39-41 in.
		Days below 32°F:	0-8	Snow:	0 in.		
23 Growing Season 10-11 Months	Camarillo Hollywood Mission Viejo Vista Whittier	Winter Minimum:	43-45°F	Annual:	13-15 in.	Annual:	48-50 in.
		Summer Maximum:	80-83°F	Nov-Mar:	11-12 in.	Nov-Mar:	5-6 in.
		Days above 90°F:	16-26	Apr-Oct:	2-3 in.	Apr-Oct:	43-46 in.
		Days below 32°F:	2-3	Snow:	0 in.		
24 Growing Season 12 Months	Long Beach Newport Beach Oxnard San Diego Santa Barbara	Winter Minimum:	43-45°F	Annual:	10-17 in.	Annual:	44-45 in.
		Summer Maximum:	65-71°F	Nov-Mar:	8-14 in.	Nov-Mar:	6-7 in.
		Days above 90°F:	2-5	Apr-Oct:	2-3 in.	Apr-Oct:	38-40 in.
		Days below 32°F:	0-2	Snow:	0 in.		

Plant Climate Zones

Southern California



GENERALIZED PLANT CLIMATE MAP OF CALIFORNIA

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Water Needs of Plants and Landscapes

Reference Evapotranspiration

Introduction

All plants and landscapes need water to function and grow. In natural landscapes this water comes from various forms of precipitation, principally rainfall and snow. Native plants adapt and grow in response to this moisture. In ornamental landscapes and gardens, precipitation does not provide all of the moisture plants require and supplemental water is needed. This is particularly true when landscapes and gardens are developed in dry climate zones and include plants that are adapted to cooler and moister habitats. From a horticultural perspective, too little water can lead to poor growth and death. Too much water can lead to excessive growth, increased pest and disease problems as well as death. Additionally, from the perspective of conservation, it is essential to design and manage landscapes with high levels of efficiency and understanding about the limits of regional and local water supplies and natural drought cycles.

In response to these issues, an approach has been developed to estimate the supplemental water needs of ornamental plants in landscapes and gardens. This approach was initially developed and tested in the production of agricultural crops and is now being applied to ornamental plantings. It is based upon an assessment of a number of factors involving weather, plants and irrigation efficiency. These factors are described in the next several pages along with charts, images and example calculations that are helpful in estimating the total applied water use in landscapes and working with water budgets. The goal of this effort is to help estimate water needs of existing and new landscapes and gardens in any location in California for conservation and horticultural purposes.

Reference Evapotranspiration (ETo)

Plants and landscapes lose water through evaporation and transpiration. Evaporation occurs from the surfaces of foliage and soil; transpiration occurs from plants during the processes of photosynthesis and respiration. The total amount of water lost in these two ways is referred to as evapotranspiration. Understanding evapotranspiration loss of water from plants and landscapes underlies the process of estimating how much water is needed for healthy growth and aesthetic character.

The principal weather factors that affect the amount and rate of evapotranspiration are solar radiation, air temperature, relative humidity and wind speed. Data collected by weather stations is used to estimate the amount of evapotranspiration loss that occurs as plants grow throughout the year. In this process, one plant has proven useful to serve as a reference crop for other plants due to its uniform response to the combined influence of these climate factors. This reference plant is four to seven-inch tall cool season grass that is well irrigated to avoid any moisture stress throughout the year. Evapotranspiration data for this grass is called **Reference Evapotranspiration (ETo)**.

Weather stations have been set up in many areas throughout California to collect local weather data and calculate reference evapotranspiration rates. The results of these measurements and calculations is often summarized in a chart such as the one seen to the right. The ETo of an average year is referred to as normal year ETo. This data is used in the estimation of water needs of plants and landscapes which will be described over the next several pages.

Reference Evapotranspiration (ETo)

The chart below shows examples of the ETo calculations obtained from different weather stations on a monthly and annual basis. These weather measurements and calculations serve as a reference value to estimate water needs of other plants described on pages 20-21. The annual reference evapotranspiration rates for four different cities are shown to the right.

Reference Evapotranspiration data for many cities across the state are available through the:

California Irrigation Management Information System (CIMIS) www.cimis.ca.gov

Reference Evapotranspiration (ETo)

Bakersfield ETo Plant Climate Zone: 8

J	F	M	A	M	J	J	A	S	O	N	D	Total
1.0	1.8	3.5	4.7	6.6	7.7	8.5	7.3	5.3	3.5	1.6	0.9	**52.4 in.**

Escondido ETo Plant Climate Zone: 20

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.5	2.7	3.9	5.3	6.1	6.9	7.3	7.0	5.5	4.2	3.0	2.5	**56.9 in.**

Fresno ETo Plant Climate Zone: 8

J	F	M	A	M	J	J	A	S	O	N	D	Total
0.9	1.6	3.3	5.2	6.7	7.8	8.0	7.6	5.4	3.6	1.7	0.9	**53.7 in.**

Long Beach ETo Plant Climate Zone: 24

J	F	M	A	M	J	J	A	S	O	N	D	Total
1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	**39.7 in.**

Los Angeles ETo Plant Climate Zone: 22

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	**50.1 in.**

Needles ETo Plant Climate Zone: 11

J	F	M	A	M	J	J	A	S	O	N	D	Total
3.2	4.2	6.6	8.9	11.0	12.4	12.8	11.0	8.9	6.6	4.0	2.7	**92.1 in.**

Palm Springs ETo Plant Climate Zone: 13

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.0	2.9	4.9	7.2	8.3	8.5	11.6	8.3	7.2	5.9	2.7	1.7	**71.2 in.**

Palo Alto ETo Plant Climate Zone: 15

J	F	M	A	M	J	J	A	S	O	N	D	Total
1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0	**43.0 in.**

Riverside ETo Plant Climate Zone: 18

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.5	2.9	4.2	5.3	5.9	6.6	7.2	6.9	5.4	4.1	2.9	2.6	**56.4 in.**

Sacramento ETo Plant Climate Zone: 14

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.1	2.9	4.0	4.1	6.1	7.1	7.9	7.6	6.1	4.2	2.6	2.0	**56.6 in.**

San Diego ETo Plant Climate Zone: 24

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.1	2.4	3.4	4.6	5.1	5.3	5.7	5.6	4.3	3.6	2.4	2.0	**46.5 in.**

San Francisco ETo Plant Climate Zone: 17

J	F	M	A	M	J	J	A	S	O	N	D	Total
1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	**35.1 in.**

Santa Barbara ETo Plant Climate Zone: 24

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.0	2.5	3.2	3.8	4.6	5.1	5.5	4.5	3.4	2.4	1.8	1.8	**40.6 in.**

Above: San Francisco, ETo 35.1 inches per year

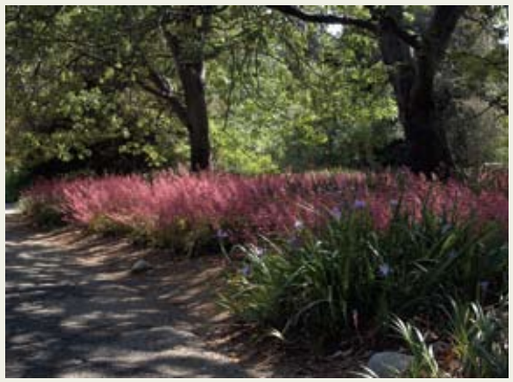
Above: Los Angeles, ETo 50.1 inches per year

Above: Palm Springs, ETo 71.2 inches per year

Below: Balboa Park San Diego, ETo 46.5 inches per year

Above: The moisture needs of landscapes and gardens in Los Angeles are often met by rainfall from December to February.

Above: The moisture needs of landscapes and gardens in San Francisco are often met by rainfall from November to March.



Above/Below: The moisture needs of understory plants in shady microclimates are often reduced while the moisture needs on south facing slopes are commonly increased.

Seasonal precipitation

The charts shown below provide a profile of average monthly reference evapotranspiration and precipitation values for Los Angeles and San Francisco. Precipitation in many climate zones is very helpful in offsetting evapotranspiration losses; supplemental irrigation can be reduced or may not be needed during several months of the year.

Los Angeles Monthly & Annual ETo Profile

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	**50.1 in.**

Los Angeles Historic Precipitation Profile

J	F	M	A	M	J	J	A	S	O	N	D	Total
3.3	3.4	2.5	1.0	.25	.07	.01	.05	.29	.45	1.3	2.3	**14.9 in.**

Above: Average precipitation in Los Angeles might meet the water needs of plants and landscapes from December to February.

Below: Average precipitation in San Francisco might meet the water needs of plants and landscapes from November to March.

San Francisco Monthly & Annual ETo Profile

J	F	M	A	M	J	J	A	S	O	N	D	Total
1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	**35.1 in.**

San Francisco Historic Precipitation Profile

J	F	M	A	M	J	J	A	S	O	N	D	Total
6.0	2.3	2.7	1.7	1.1	0.3	.03	0.2	0.1	0.6	2.5	6.5	**24.0 in.**

Reference Evapotranspiration Source:
California Irrigation Management Information System (CIMIS)
www.cimis.ca.gov

Historical Precipitation Source:
California Climate Data Archive
www.calclim.dri.edu/data.html

Above/Below: Low lying areas can collect rainfall and moisture that can reduce supplemental irrigation needs while slopes and ridges have more wind and sun exposure that increases needs.

Precipitation and Microclimates

Precipitation

Some of the monthly and annual water needs of ornamental plants can be met by natural precipitation. A comparison can be made between the historic monthly reference evapotranspiration rates and monthly precipitation during the growing season of a location to address this issue. It is possible to anticipate that little or no irrigation is needed during the growing season when precipitation exceeds reference evapotranspiration. This conclusion can work if rainfall occurs with consistency throughout the month. Even when rainfall does not exceed reference evapotranspiration, it can provide important supplemental water to landscapes and gardens when it occurs. A value of 25% (0.25) of annual rainfall is commonly accepted as the portion of total precipitation that is useful to plants and landscapes. Automatic irrigation systems should be equipped with rain sensor devices that automatically shut off irrigation when rainfall occurs to avoid wasting water.

The growing season for most plants occurs between the last days of frost in the spring and the first days of frost in the fall. In some climate zones across California, particularly at high elevations, the growing season can be as short as two to three months due to the regular occurrence of cold temperatures. Other climate zones closer to the coast experience little or no frost to restrict the growing season. The growing season is the principal time of year when supplemental water is beneficial to active plant growth.

Microclimates

Weather stations are commonly placed in relatively large and open spaces to collect data on solar radiation, air temperature, relative humidity and wind speed. This provides data that can be applied to other areas having similar conditions. However, many landscapes and gardens near these weather stations can have quite different conditions. A common example of a microclimate is the occurrence of shade on the north side of buildings and under mature trees that greatly reduces solar radiation. Another example is the shape of the topography that influences the drainage of moisture; low areas often collect and absorb more moisture for use by plants while ridges and south and west facing slopes absorb less moisture and dry out more quickly. Reflected light and heat from pavement can increase temperatures and moisture stress. These conditions result in microclimates that have different ETo values from the data provided by weather stations.

The key to successful plant growth, including supplemental moisture needs, is closely linked to microclimates. The best growth and character of plants occurs when they are placed in areas where they are naturally adapted to sunlight, temperature and moisture conditions within specific microclimates. This is particularly evident in warm and dry climate zones where the enclosure and shelter provided by courtyards and walls can create highly successful plantings that are buffered from drying weather conditions, thereby reducing the need for supplemental moisture. From another perspective, plants from subtropical and arid climate zones often require sufficient periods of warmth to grow well when they are planted in cooler climate zones. These plants will grow best in sunny locations and areas sheltered from winter frost.

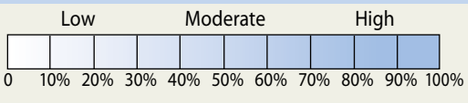
Water Needs of Plants and Landscapes

Plant Factors

Introduction

Reference evapotranspiration calculations derived from weather stations measurements (page 18) provide the necessary foundation for estimating the water needs of other types of plants grown in landscapes and gardens. This is done by assigning a **Plant Factor (PF)** to all other plants that represents the estimated percent or portion of supplemental water needed relative to the ETo value of a particular location.

Two types of plant factors are applied in order to reflect the different physiological and adaptive characteristics of plants in response to their water needs. Plants with a single plant factor (L, M, H) grow best with regular water throughout the year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors reflect both the total amount of moisture needed and the season of need (see page 21). As can be seen in the different plant images to the right, the plant factors vary between tall fescue, Japanese maple, crape myrtle and Allen Chickering sage. These plants have different foliage, stem and rooting characteristics that influence their need for moisture. The assignment of a plant factor to each plant is based mostly upon horticultural judgement, botanical research and experience to sustain healthy growth and positive aesthetic character. The graph shown below illustrates the range of supplemental water needs associated with each plant factor.



By multiplying the reference evapotranspiration value by the plant factor, the relative water need of a particular plant is estimated. The example below illustrates how many inches of supplemental moisture that is needed throughout the year in the landscape area where the plant is growing.

Individual Plant Water Needs = (ETo) x (PF)

Los Angeles ETo Plant Climate Zone: 22

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1 in.

Plants with regular water needs throughout the year:

Acer palmatum (H) 50.1 in. x (0.6-0.8) = 30-40 in.
Lagerstroemia indica (M) 50.1 in. x (0.4-0.6) = 20-30 in.

Plants with reduced summer water needs:

Abutilon palmeri (M/L) 50.1 in. x (0.3-0.5) = 15-25 in.
Acacia aneura (L/VL) 50.1 in. x (0.2-0.3) = 10-15 in.

This approach calculates the annual supplemental water needs of plants and landscapes in inches and can be used to schedule irrigation systems. Inches of water can also be converted into gallons of water; this is illustrated in the example calculations on pages 24-25.

It is important to note that plant factors provide a range of moisture needs for the average reference evapotranspiration levels that have occurred for many years. This range provides flexibility to adjust supplemental irrigation to fit microclimate conditions and variations in average weather conditions that can occur in any specific year.

Plant Factors (PF)

An example list of landscape plants and their plant factors is presented in the chart below. Plant factors indicate the percentage of supplemental water each species needs relative to ETo. Two types of plant factors are shown below. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. Depending upon the type of plant factor, each plant is assigned to an irrigation group explained on the opposite page. A comprehensive listing of plant species and their plant factors is provided on pages 26-41. Similar data on plant factors is also available in the Department of Water Resources 2000 publication:

Water Use Classification of Landscape Species (WUCOLS)
www.owue.water.ca.gov/docs/wucols00.pdf.

Plant Factors (PF)

Botanical Name	Common Name	PF	IG
Abelia 'Edward Goucher'	Edward Goucher Abelia	M	1
Abelia x grandiflora + cvs	Glossy Abelia	M	1
Abutilon megapotamicum	NCN	H	1
Abutilon palmeri	Indian Mallow	M/L	2
Acacia aneura	Mulga	L/VL	2
Acer negundo + ssp	Box Elder	H	1
Acer palmatum + ssp	Japanese Maple	H	1
Acer platanoides	Norway Maple	H	1
Acer saccharinum	Silver Maple	H	1
Chilopsis linearis + cvs	Desert Willow	M/L	2
Chionanthus retusus	Chinese Fringe Tree	M	1
Chionanthus virginicus	Fringe Tree	M	1
x Chitalpa tashkentensis + cvs	Chitalpa	M/L	2
Choisya ternata	Mexican Orange	M	1
Chorisia insignis	White Floss Silk Tree	M	1
Chorisia speciosa	Silk Floss Tree	M	1
Cinnamomum camphora	Camphor Tree	M	1
Cissus antarctica	Kangaroo Treebine	M	1
Cistus 'Blanche'	NCN	M/L	2
Juniperus x pfitzeriana + cvs	Pfitzer Juniper	M	1
Justicia brandegeana + cv	Shrimp Plant	M	1
Justicia californica	Chuparosa	M/L	2
Justicia spicigera	Mexican Honeysuckle	M	1
Kalanchoe beharensis	Felt Bush	L/VL	2
Keckiella cordifolia	Heartleaf Penstemon	M/L	2
Kniphofia thompsonii	NCN	M	1
Koelreuteria bipinnata	Chinese Flame Tree	M	1
Lagerstroemia indica + cvs	Crape Myrtle	M	1
Lagunaria patersonii	Primrose Tree	M/L	2
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Ruellia peninsularis	Desert Ruellia	M/L	2
Rumohra adiantiformis	Leather Fern	M	1
Ruscus aculeatus	Butcher's Broom	M/L	2
Russelia equisetiformis	Coral Fountain	M	1
Salix babylonica + cvs	Weeping Willow	H	1
Salix gooddingii	Black Willow	H	1
Salix laevigata	Red Willow	H	1
Salix lasiolepis	Arroyo Willow	H	1
Salix lucida	Spring Willow	H	1
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2

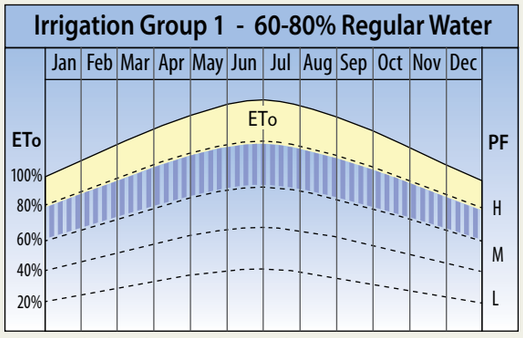
Above: *Festuca arundinacea*, Tall Fescue (H)

Above: *Acer palmatum*, Japanese Maple (H)

Above: *Lagerstroemia indica*, Crape Myrtle (M)

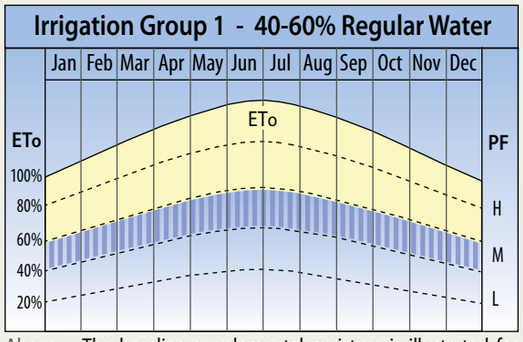
Below: *Salvia* 'Allen Chickering', Allen Chickering Sage (L/VL)

Above: An Asian garden containing plants with high (H) plant factors and that need regular moisture throughout the year.



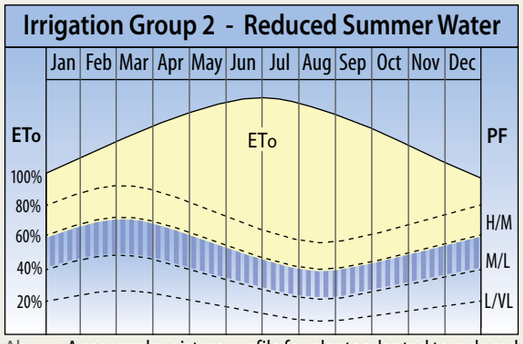
Above: The baseline supplemental moisture range is illustrated for plants with high plant factors (H), based on 60-80% of ETo every month of the year.

Above: A mixed planting of *Jacaranda* and *Agapanthus* with moderate (M) plant factors.

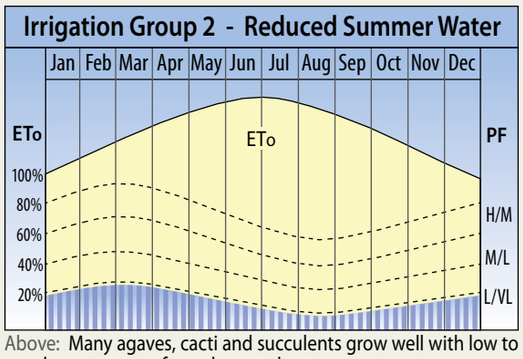


Above: The baseline supplemental moisture is illustrated for plants with moderate plant factors (M), based on 40-60% of ETo every month of the year.

Above/Below: A combination of *Cistus, Rosmarinus* and *Phlomis* that grow well with moderate to low (M/L) supplemental water. *Agave, Opuntia and Yucca* need low to very low (L/VL) water.



Above: A seasonal moisture profile for plants adapted to reduced summer moisture. Supplemental water for plants with moderate to low plant factors (M/L) ranges 40-60% of ETo through fall and winter and 20-40% during summer.



Above: Many agaves, cacti and succulents grow well with low to very low amounts of supplemental water.

Water Needs of Plants and Landscapes

Irrigation Groups

Introduction

The combination of reference evapotranspiration and plant factors helps estimate the amount of annual supplemental water ornamental plants need in landscapes and gardens. Two types of plant factors are used. These types indicate that different plants need different annual amounts of water as well as vary in their need for water at different times of the year. Studying both annual and seasonal moisture needs helps refine the basis to select and combine plants into compatible irrigation groups and hydrozones.

Irrigation Groups (IG)

Annual water needs of plants should be met as much as possible on a seasonal basis that reflects the adaptations and stages of growth, flowering, fruiting and dormancy of each species. For example, some plants need moderate amounts of water and grow best with regular moisture throughout the year, while others do better with regular water in winter and reduced amounts of water in summer. The basis for these differences in seasonal needs is often found by understanding the climate and habitat conditions of a plants origin. Two baseline **Irrigation Groups (IG)** can be identified to reflect basic differences in the seasonal moisture needs of plants. These groups are described below. Charts to the left illustrate conceptual seasonal moisture ranges and profiles for each group.

Irrigation Group 1 - Regular Water

Plants in this group commonly grow best with regular moisture throughout the year. In general, watering will be increased as reference evapotranspiration increases and watering will be decreased when reference evapotranspiration decreases. In essence, irrigation is scheduled to regularly provide water as moisture is lost. This avoids placing moisture stress on plants and enables them to be active during the full growing season. This approach to irrigation management is particularly helpful for cool season turf grasses and plants that come from cool and moist habitat conditions that quickly become stressed under warm and dry conditions.

It is important to note that regular moisture can limit the range and depth of a plant's root systems due to the ease of available moisture. Plants with limited root systems can suffer heavily if the irrigation system fails.

Irrigation Group 2 - Reduced Summer Water

The second irrigation group and set of charts shows the moisture distribution curves for plants adapted to Mediterranean climate conditions, including many California native plant species. Such plants have an active winter and spring growing cycle with the occurrence of seasonal rains and mild temperatures. By the end of spring and early summer, many of these plants enter their fruiting stages and become less active under moisture stress. Many species adapted to these moisture variations have evolved hard and leathery leaves to endure summer sun, heat and drought. Others have developed succulent foliage that enables them to store moisture and resist periods of drought.

Plants adapted to reduced summer moisture levels will continue to grow if provided with regular moisture in the summer. However, this commonly results in excessive and non-beneficial growth and increased risk of pest and disease problems.

Hydrozones

Hydrozones (H)

One of the best planting strategies from the perspective of managing water use and increasing efficiency is achieved by grouping plants together that have the same level of water needs in combination with similar seasonal water needs. This approach to planning and designing landscapes and gardens can avoid conflicts between plants such as overwatering some plants while underwatering others.

Organizing plantings into hydrozones and irrigation groups goes hand in hand with fitting plants into the microclimate conditions of a landscape or garden. Sun and shade patterns as well as topography alter the broader climate factors of solar radiation, temperature, humidity and wind that further define hydrozone areas. Additionally, slopes often reduce the infiltration of water while low drainage areas can become saturated as a result of moisture runoff that collects in these areas. After all of these factors are studied and weighed, plantings with similar water needs can be organized into spaces and be sustained with dedicated irrigation systems that can provide the appropriate amount of supplemental water.

It is also important to consider the flexibility and adaptability of different types of irrigation systems with regard to the planting design. For example, drip systems comprised of flexible tubing can placed where water is needed and be concentrated around larger trees and shrubs to provide increased amounts of water. This strategy can sustain plants with different water needs on the same irrigation system and in close proximity to each other. In another example, spray systems can be very helpful in washing dust and other pollution from plant leaves as well as provide uniform moisture coverage similar to rainfall. Often, the surface runoff and overspray from these systems can collect and infiltrate into surrounding planting areas for beneficial use. Sometimes two irrigation systems can overlap and complement each other. Trees can be irrigated by one system that provides deep watering cycles while shrubs, vines, ground covers and perennials can be irrigated by another.

From a conceptual perspective, it is often desirable to work with moderate to high water needy plants near entries, in courtyards and border plantings where landscape impact is most beneficial. Lawns should be mostly surrounded by shrub planting areas instead of pavement as a way to have overspray go into planting zones. Low water hydrozones are often best suited to perimeter spaces and edges where mulching and use of adapted trees and shrubs can grow with less supplemental water. An experienced and creative approach to working with hydrozones often saves water and enhances planting success. Good design and water use does not diminish or compromise the quality of landscapes and gardens.

Above/Below: Examples of two different landscapes, each comprised of several hydrozones. The design and layout of various plant species to match exposure conditions and topography produce hydrozones of similar water needs. Irrigation systems suited to each hydrozone can be designed and managed to provide supplemental water as efficiently as possible.

Above: Spray nozzles can achieve 60% irrigation efficiency.

Above: Microspray nozzles can achieve 70% efficiency.

Above: Rotating nozzles can achieve 75% irrigation efficiency.

Above: A close-up view of a rotating nozzle applying water.

Above: Rotors can achieve 75% irrigation efficiency.

Below: A drip system being tested before covering with mulch. These systems can achieve 90% irrigation efficiency.

Above: Bubblers can achieve 85% irrigation efficiency.

Below: The layout of a drip line with emitters providing water at 12 inch intervals along the length of the tubing.

Water Needs of Plants and Landscapes

Irrigation Efficiency

Introduction

The measurement of reference evapotranspiration and study of plant factors and microclimates can provide a sound estimate of the supplemental water needs of plants in a specific hydrozone. However, it is not possible to provide water at 100% efficiency to meet these needs. It is important to estimate the level of efficiency in order to know how much additional water is needed. Efficiency is defined as the amount of water beneficially used in comparison to the total amount of water applied by the irrigation system. The greater the inefficiency, whether from poor management or faulty equipment, the greater the amount of water that must be provided to meet plant needs.

Irrigation Efficiency (IE)

Every irrigation system is compromised by inefficiency to some degree. **Irrigation Efficiency (IE)** is dependent on both management actions as well as the type of equipment being used. Mismanagement contributes to inefficiency in several ways. Setting irrigation schedules to provide too much water can result in runoff, excessive saturation and infiltration beyond the root zone. Leaving systems on during rains or providing too much out of season water are also common problems. Even bubbler and drip systems that provide water in very efficient ways to the soil are vulnerable to these types of poor management practices. Excessive irrigation of any type is a highly common issue; too much water can result in excessive and non beneficial growth, and is a form of inefficiency. The regular use of reference evapotranspiration data to provide the correct amount of water to each hydrozone is very helpful in guiding management actions.

Irrigation equipment also influences irrigation efficiency and moisture distribution. Systems with spray and rotor nozzles are often the least efficient due to occurrences of overspray, fogging, runoff, blocked heads, evaporation and wind drift. These systems are designed to provide uniform moisture distribution throughout the planting area and are well suited to turf grass and uniform plantings. Bubbler and drip systems that apply water more directly to the ground can experience runoff and over saturation that can compromise efficiency. These systems are less uniform in moisture distribution compared to spray nozzles. However, they are highly adaptable to fit dispersed planting schemes and capable of achieving varying levels of moisture among trees and shrubs.

All irrigation systems need to be well designed with appropriate equipment as well as be regularly inspected and maintained to achieve their potential level of efficiency.

Guideline Irrigation Efficiency Values

Tests and assessment of different types of irrigation nozzles and emitters for efficiency have resulted in a list of baseline efficiency values. These include:

Spray Nozzles	0.60
Microspray Nozzles	0.70
Rotating Nozzles	0.75
Rotors	0.75
Bubblers	0.85
Drip	0.90

For example, a properly managed irrigation system with microspray nozzles can achieve 0.70 efficiency; it will require 30% more water to meet the estimated water needs of a landscape. A drip irrigation system with 0.90 efficiency will require 10% more water to offset water loss through the system.

Maximum Applied Water Allowance

Annual Water Budgets

Introduction to MAWA

The State of California as well as many county and local planning departments have embraced a water budget approach to conserve water in ornamental landscapes and gardens. This approach is incorporated into various landscape ordinances to guide the design and use of water in landscapes. Two formulas are commonly used. The first formula establishes the maximum water allowance for a year; the second formula is used to estimate the total annual landscape water use. These formulas combine a number of the factors described on pages 18-23, including reference evapotranspiration, plant factors, irrigation efficiency, rainfall and hydrozones.

Example calculations for a three acre community park are provided to show how such formulas can be applied. These calculations are completed for Los Angeles and San Francisco in order to illustrate the annual water allowance and estimated total water use in cities that have different weather conditions.

Maximum Applied Water Allowance

MAWA = (ETo) (0.62) (AF) (LA)

MAWA = Maximum Applied Water Allowance
ETo = Reference Evapotranspiration in inches per year
0.62 = Conversion factor to gallons
AF = ET Adjustment Factor
LA = Landscape Area

Maximum Applied Water Allowance (MAWA)

This allowance identifies the upper limit of annual applied water for a landscape project. This budget is based upon the the reference evapotranspiration of a location, a conservation adjustment factor and the size of the landscape area. A conversion factor of 0.62 is included to convert the units of measurement from inches into gallons.

Reference Evapotranspiration (ETo)

The loss of water through processes of evapotranspiration of a large field of four to seven-inch tall, cool season grass that is well watered. Values for reference evapotranspiration are measured in inches and can be summarized on a daily, monthly and annual basis (See page18).

Conversion Factor (0.62)

This factor is included in the maximum applied water allowance formula to convert the numeric values from inches of water to gallons of water.

ET Adjustment Factor (AF)

This factor makes an adjustment to the maximum applied water allowance by reducing the value of the annual evapotranspiration. The 2009 California State Model Water Efficient Landscape Ordinance sets this value at 0.70. This adjustment factor may be viewed as a conservation adjustment to limit water use in landscapes and gardens to 70% of ETo.

Landscape Area (LA)

The landscape area is a measurement of all planting areas within a project that are to be irrigated. This area is measured in square feet for use in the maximum applied water allowance calculation. The landscape area does not include the area occupied by buildings or structures, sidewalks, driveways, parking lots or patios.

Three Acre Community Park Case Study

Example Annual Calculations

Los Angeles ETo Plant Climate Zone: 22

J	F	M	A	M	J	J	A	S	O	N	D	Total
2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1 in.

Los Angeles Historic Rainfall Profile

J	F	M	A	M	J	J	A	S	O	N	D	Total
3.3	3.4	2.5	1.0	.25	.07	.01	.05	.29	.45	1.3	2.3	14.9 in.

Maximum Applied Water Allowance

MAWA = (ETo) (0.62) (AF) (LA)
(50.1) (0.62)(0.7) (130,680) = 2,841,428 Gallons

Estimated Total Water Use Formula

$$ETWU = \frac{(ETo)\ (0.62)\ (PF)\ (HA)}{(IE)}$$

Hydrozone Area 1 - 1 Acre
Tall Fescue Turf Grass Hydrozone - 1 Acre

Estimated Annual Water Need - Irrigation Group 1

$$\frac{(50.1\text{ in.})(0.62)(0.8)(43{,}560\text{ sq. ft.})}{.75} = 1{,}443{,}265\text{ Gallons}$$

Hydrozone Area 2 - 1 Acre
Community Garden Hydrozone

Estimated Annual Water Need - Irrigation Group 1

$$\frac{(50.1\text{ in.})(0.62)(0.7)(43{,}560\text{ sq. ft.})}{.90} = 1{,}052{,}381\text{ Gallons}$$

Hydrozone Area 3 - 1 Acre
Perimeter Planting Hydrozone

Estimated Annual Water Need - Irrigation Group 2

$$\frac{(50.1\text{ in.})(0.62)(0.3)(43{,}560\text{ sq. ft.})}{.90} = 451{,}020\text{ Gallons}$$

Gross Estimated Total Annual Water Use:

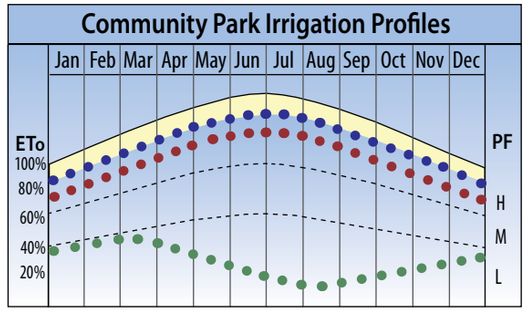
(1,443,265 + 1,052,381 + 451,020) = 2,946,666 Gallons

Rainfall Adjustment

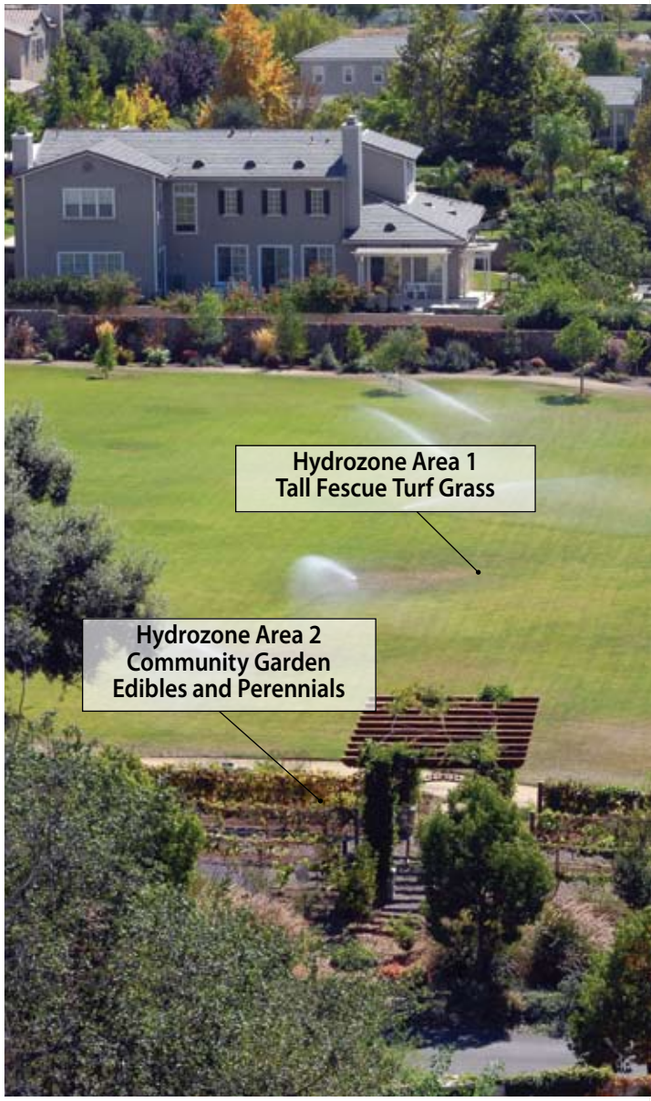
14.9 in. of annual rainfall x 0.25 = 3.7 in.
(3.7 in. x .62 x 130,680 sq. ft.) = -299,780 Gallons

Net Estimated Total Annual Water Use:

(2,946,666 - 299,780) = 2,646,886 Gallons



- Hydrozone 1 - Tall Fescue Turf Grass Hydrozone (H) provided water on a regular basis at 0.8 of ETo.
- Hydrozone 2 - Community Garden Hydrozone (M) provided water on a regular basis at 0.7 of ETo
- Hydrozone 3 - Perimeter Hydrozone (M/L) provided moderate amounts of water in fall and winter and low amounts in summer.



Plant Factors and Irrigation Efficiency*

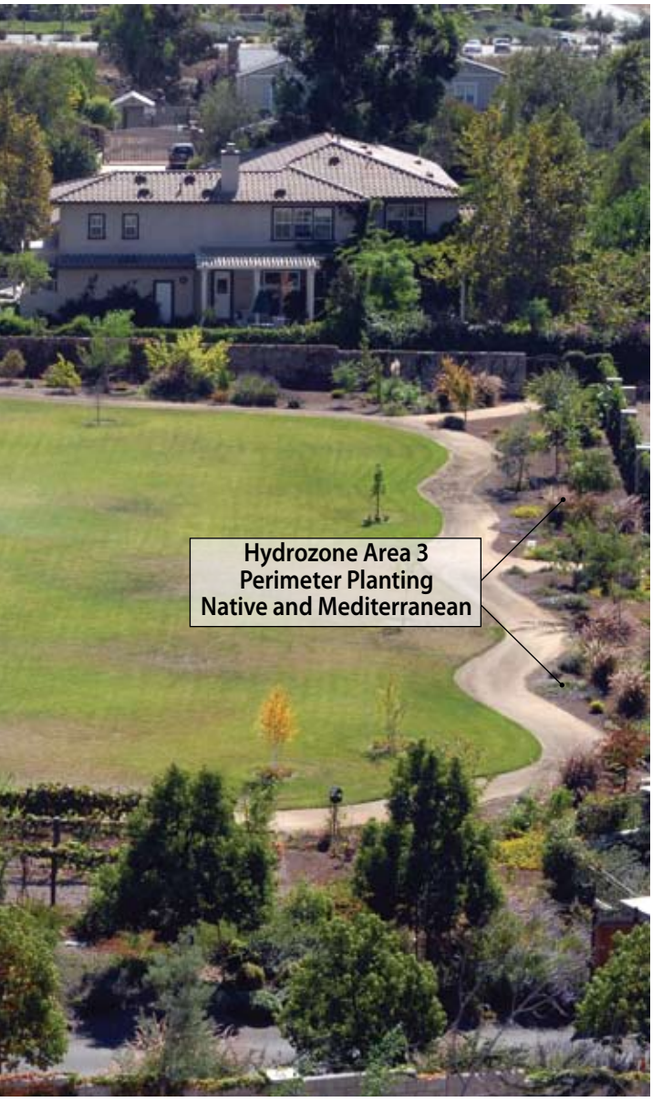
Plant Factors and Irrigation Groups used in these calculations include:

		PF	IG
Tall Fescue Turf Grass	=	0.8	1
Community Garden	=	0.7	1
Perimeter Planting	=	0.3	2

Irrigation Efficiency values used in these calculations include:

Turf Grass Rotor System	=	0.75
Community Drip System	=	0.9
Perimeter Drip System	=	0.9

*These values can vary; the appropriate plant factors and irrigation efficiency values for every project and local ordinances need to be reviewed and determined during the planning and design process.



Three Acre Community Park Case Study
Example Annual Calculations

San Francisco ETo Plant Climate Zone: 17

J	F	M	A	M	J	J	A	S	O	N	D	
1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	Total 35.1 in.

San Francisco Historic Rainfall Profile

J	F	M	A	M	J	J	A	S	O	N	D	
6.0	2.3	2.7	1.7	1.1	0.3	.03	0.2	0.1	0.6	2.5	6.5	Total 24.3 in.

Maximum Applied Water Allowance

MAWA = (ETo) (0.62) (AF) (LA)

(35.1)(0.62)(0.7)(130,680) = 1,990,701 Gallons

Estimated Total Water Use Formula

$$ETWU = \frac{(ETo)\ (0.62)\ (PF)\ (HA)}{(IE)}$$

Hydrozone Area 1 - 1 Acre
Tall Fescue Turf Grass Hydrozone - 1 Acre

Estimated Annual Water Need - Irrigation Group 1

$$\frac{(35.1\text{ in.})(0.62)(0.8)(43{,}560\text{ sq. ft.})}{.75} = 1{,}011{,}150\text{ Gallons}$$

Hydrozone Area 2 - 1 Acre
Community Garden Hydrozone

Estimated Annual Water Need - Irrigation Group 1

$$\frac{(35.1\text{ in.})(0.62)(0.7)(43{,}560\text{ sq. ft.})}{.90} = 737{,}297\text{ Gallons}$$

Hydrozone Area 3 - 1 Acre
Perimeter Planting Hydrozone

Estimated Annual Water Need - Irrigation Group 2

$$\frac{(35.1\text{ in.})(0.62)(0.3)(43{,}560\text{ sq. ft.})}{.90} = 315{,}984\text{ Gallons}$$

Gross Estimated Total Annual Water Use:

(315,984 + 1,011,150 + 737,297) = 2,064,431 Gallons

Rainfall Adjustment

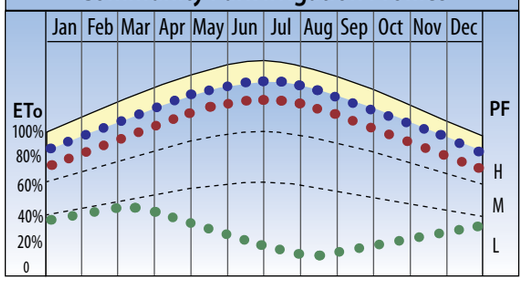
24.0 in. of annual rainfall x 0.25 = 6.0 in.

(6.0 in. x .62 x 130,680 sq. ft.) = -486,130 Gallons

Net Estimated Total Annual Water Use:

(2,064,431 - 486,130) = 1,578,301 Gallons

Community Park Irrigation Profiles



- Hydrozone 1 - Tall Fescue Turf Grass Hydrozone (H) provided water on a regular basis at 0.8 of ETo.
- Hydrozone 2 - Community Garden Hydrozone (M) provided water on a regular basis at 0.7 of ETo
- Hydrozone 3 - Perimeter Hydrozone (M/L) provided moderate amounts of water in fall and winter and low amounts in summer.

Conversion Factors and Units of Measurement

Measuring estimated water needs of landscapes uses a combination of inches, square feet and gallons. Common conversion factors and units of measurement include:

1 Acre = 43,560 square feet

1 Acre foot of water = 1 Acre covered by 12 inches of water

1 Acre foot of water = 43,560 cu. ft. of water

1 Cubic foot of water = 7.48 Gallons

1 Acre foot of water = 325,851 Gallons
(43,560 x 7.48 = 325,851 Gallons)

Inches per square foot x 0.62
= Gallons per square foot

Estimated Total Water Use
Annual Water Use

Introduction to ETWU

It is possible to estimate the total amount of water used in landscapes and gardens with the formula presented below. These estimates can be prepared on a monthly, quarterly or annual basis; calculations shown on these pages are for one year. Many landscape ordinances adopted by counties and cites throughout California work with these factors and versions of this formula.

Estimated Total Water Use Formula

$$ETWU = \frac{(ETo)\ (0.62)\ (PF)\ (HA)}{(IE)} - (\text{Rainfall Adjustment})$$

ETWU	=	Estimated Total Water Use in gallons
ETo	=	Reference Evapotranspiration in inches
0.62	=	Conversion factor to gallons
PF	=	Plant Factor of relative water needs
HA	=	Hydrozone Area measured in square feet
IE	=	Irrigation efficiency at a minimum of 0.75
0.25	=	Rainfall Adjustment

Estimated Total Water Use (ETWU)

The estimated total water use for landscapes and gardens is based upon the local reference evapotranspiration rate, the plant factor value, the area of each hydrozone, and the irrigation efficiency. A conversion factor of 0.62 is included to convert the units of measurement from inches into gallons.

Reference Evapotranspiration (ETo)

The loss of water through processes of evapotranspiration of a large field of four to seven-inch tall, cool season grass that is well watered. Values for reference evapotranspiration are expressed in inches and commonly measured on a daily, monthly and annual basis (See page18).

Conversion Factor (0.62)

This value is included in the estimated total water use formula to convert the numeric values from inches of water to gallons of water.

Plant Factor (PF)

Each plant species is assigned a plant factor that represents its estimated supplemental water needs as a percent of local **ETo** rates. These factors represent a range of water that is needed for healthy growth and aesthetic character (See page 20).

Rainfall Adjustment

Rainfall can supply some of the annual water needs of plants and landscapes. An adjustment value of 25% (0.25) of the total annual rainfall is most widely applied to reflect the amount of effective water provided by rainfall (See page 19).

Hydrozone Area (HA)

The hydrozone area is a planting area with plants having the same moisture needs. Each hydrozone area is measured in square feet. When there are several hydrozones in a landscape project, the estimated total water use calculation is completed for each hydrozone and added together for the overall estimated total water use (See page 22).

Irrigation Efficiency (IE)

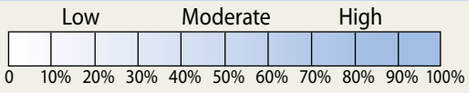
Irrigation efficiency means the measurement of the amount of water beneficially used by landscape plants divided by the amount of water applied. This value represents an assessment of the irrigation system design characteristics and management practices (See page 23).

Master Checklist

Plant Factors | Climate Zones

Plant Factors (PF)

Each plant species included in the master checklist is shown with a plant factor to represent its estimated supplemental water needs as a percent of local **ETo** rates. Two types of plant factors are used. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors provide a range for estimating water budgets and adjusting irrigation schedules to sustain healthy growth and positive aesthetic character.



Irrigation Groups (IG)

Water needs of plants vary throughout the year. This checklist includes a recommended irrigation group for each species listed to help organize plants into hydrozones, reflecting key seasonal moisture needs. Plants are not strictly confined to any one irrigation group, however, these groups indicate baseline preferences.

IG 1 = Regular Water Schedule
IG 2 = Reduced Summer Water Schedule

Plant factors and irrigation groups are intended to serve as a guide for addressing water needs of plants in California landscapes and gardens. Additional discussion on estimating water needs of plants can be found on pages 18-23.

Below: *Afrocarpus gracilior* grows well in Plant Climate Zones 8-9 and 13-24. It is placed in Irrigation Group 1 and does best with moderate (M) amounts of moisture throughout the year.

Botanical Name	Common Name	PF	IG	California Plant Climate Zones																			
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Abelia 'Edward Goucher'	Edward Goucher Abelia	M	1				+	+	+	●	●	+	+	+	+	+	+	+	+	+	+	+
Abelia x grandiflora + cvs	Glossy Abelia	M	1				+	+	+	●	●	+	+	+	+	+	+	+	+	+	+	+
Abutilon megapotamicum	NCN	H	1					●	●			+	+	+	+	●	●	+	+	+	+	+
Abutilon palmeri	Indian Mallow	M/L	2					+	+	●	●					+	+	+	+	+	+	+
Abutilon pictum 'Thompsonii'	NCN	H	1					●	●			+	+	+	+	●	●	+	+	+	+	+
Acacia aneura	Mulga	L/VL	2					+	+		+	o	o	o	o	+	+	o	o	o	o	o
Acacia baileyana + cv	Bailey Acacia	L/VL	2					+	+		●	+	+	+	+	+	+	+	+	+	+	+
Acacia covenyi	Blue Bush	M/L	2					+	+		●	+	+	+	+	+	+	+	+	+	+	+
Acacia cultriformis	Knife Acacia	L/VL	2								+	+	+	o	o	+	+	+	+	+	+	+
Acacia farnesiana	Sweet Acacia	L/VL	2								+	o	o	o	o	+	+	o	o	o	o	o
Acacia greggii	Catclaw Acacia	L/VL	2					o	o	+	+	o	o	o	o	+	+	o	o	o	o	o
Acacia longifolia	Sydney Golden Wattle	M/L	2					+	+		●	+	+	+	+	+	+	+	+	+	+	+
Acacia melanoxylon	Blackwood Acacia	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Acacia pendula	Weeping Myall	L/VL	2								+	+	+	+	+	+	+	+	+	+	+	+
Acacia podalyriifolia	Pearl Acacia	L/VL	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Acacia redolens	Prostrate Acacia	L/VL	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Acacia saligna	Golden Wreath Wattle	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Acacia stenophylla	Shoestring Acacia	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Acacia willardiana	Palo Blanco	L/VL	2								+	o	o	o	o	+	+	o	o	o	o	o
Acanthus mollis + cvs	Bear's Breech	M/L	2				+	●	●	●	●	+	+	+	●	●	+	+	+	+	+	+
Acca sellowiana	Pineapple Guava	M	1				+	+	+		●	+	+	+	o	+	+	+	+	+	+	+
Acer macrophyllum	Bigleaf Maple	H/M	2		+	+	+	●	●			+	+	+	+	●	●	●	●	●	●	●
Acer negundo + var	Box Elder	M	1	+	+	+	+	●	●			+	+	+	+	●	●	●	●	●	●	●
Acer palmatum + cvs	Japanese Maple	H	1		+	+	+	●	●			+	+	+	+	●	●	●	●	●	●	●
Acer platanoides	Norway Maple	M	1	+	+	+	+	●	●			+	+	+	+		●	●	●			
Acer saccharinum	Silver Maple	M	1	+	+	+	+	●	●			+	+	+	+	●	●	●				
Achillea species + cvs	Yarrow	M/L	2	+	+	+	+	+	+	●	●	+	+	+	+	+	+	+	+	+	+	+
Acoelorraphe wrightii	Everglade Palm	H	1								●							+	+	+	+	+
Adiantum species	Maidenhair Fern	H	1				●	●	●			●	+	+	+	●	●	●	●	●	●	●
Aeonium species + cvs	NCN	L/VL	2										+	+	+		+	+	+	+	+	+
Aesculus californica	California Buckeye	L/VL	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Aesculus x carnea + cv	Red Horse Chestnut	M	1	+	+	+	+	+	+			+	+	+	+	●	●	●				
Afrocarpus falcatus	Yellowwood	M	1					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Afrocarpus gracilior	Fern Pine	M	1					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Agapanthus species + cvs	Lily-of-the-Nile	M	1				+	+	+		●	+	+	+	+	+	+	+	+	+	+	+
Agastache species + cvs	Hummingbird Mint	M/L	2			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Agave americana + cvs	Century Plant	L/VL	2					o	o	+	+	o	o	o	o	+	+	+	o	o	o	o
Agave angustifolia	NCN	L/VL	2					o	o	+	+	o	o	o	o	+	+	+	o	o	o	o
Agave attenuata + cvs	Foxtail Agave	L/VL	2								●						+	+	+	+	+	+
Agave 'Blue Flame'	NCN	L/VL	2								●						+	+	+	+	+	+
Agave 'Blue Glow'	NCN	L/VL	2								●						+	+	+	+	+	+
Agave bracteosa	Spider Agave	L/VL	2								●	+	+	+	o	+	+	+	+	+	+	+
Agave colorata	Mescal	L/VL	2								+	+	+	+	o	+	+	+	+	+	+	+
Agave deserti	Desert Agave	L/VL	2							+	+	o	o	o	o	+	+	+	o	o	o	o
Agave desmettiana + cv	NCN	L/VL	2								+						+	+	+	+	+	+
Agave filifera	NCN	L/VL	2								+	+	+	+	o	+	+	+	+	+	+	+
Agave geminiflora	Twin-flowered Agave	L/VL	2								+						+	+	+	+	+	+
Agave guiengola	NCN	L/VL	2								●						+	+	+	+	+	+
Agave gypsophila	Gypsum Century Plant	L/VL	2								●						+	+	+	+	+	+
Agave ocahui	Ocahui	L/VL	2								●	+	+	+	o	+	+	+	+	+	+	+
Agave parryi + var	Artichoke Agave	L/VL	2				+	+	+	+	+	+	+	+	o	+	+	+	+	+	+	+
Agave potatorum	NCN	L/VL	2								●						+	+	+	+	+	+
Agave salmiana + var	NCN	L/VL	2								●	+	+	+	o	+	+	+	+	+	+	+
Agave shawii	Shaw's Agave	L/VL	2					o	o		●	+	+	+	o	+	+	+	+	+	+	+
Agave tequilana + cv	Tequila Agave	L/VL	2								+	+	+	+	o	+	+	+	+	+	+	+
Agave victoriae-reginae	Queen Victoria Agave	L/VL	2							●	●		+	+	o	+	+	+	+	+	+	+
Agave vilmoriniana	Octopus Agave	L/VL	2								●	+	+	+	+	+	+	+	+	+	+	
Agonis flexuosa + cvs	Peppermint Tree	M/L	2										+	+	+		+	+	+	+	+	+
Ajuga reptans + cvs	Carpet Bugle	M	1	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●
Albizia julibrissin + cv	Silk Tree	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Alnus cordata	Italian Alder	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Alnus rhombifolia	White Alder	H	1	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Alnus rubra	Red Alder	H	1			+	+	●	●			+	+	+	+	●	●	+	+			
Aloe arborescens + cv	Torch Aloe	L/VL	2					o	o		●	+	+	+	o	+	+	+	+	+	+	o
Aloe barberae	Tree Aloe	L/VL	2					o	o			+	+	+	+		+	+	+	+	+	+
Aloe 'Blue Elf'	NCN	L/VL	2					o	o		+	+	+	+	+	+	+	+	+	+	+	+
Aloe brevifolia	NCN	L/VL	2					o	o		●	+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Botanical Name	Common Name	PF	IG	California Plant Climate Zones																			
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Aloe ciliaris	NCN	L/VL	2					o	o		+	+	+	+	+	+	+	+	+	+	+	+
Aloe dichotoma	Quiver Tree	L/VL	2					o	o		•	+	+	+	+	+	+	+	+	+	+	+
Aloe ferox	Bitter Aloe	L/VL	2					o	o		•	+	+	+	+	+	+	+	+	+	+	+
Aloe 'Johnson's Hybrid'	NCN	L/VL	2					o	o			+	+	+	+	+	+	+	+	+	+	+
Aloe maculata	Soap Aloe	L/VL	2					o	o		•	+	+	+	+	+	+	+	+	+	+	+
Aloe marlothii	NCN	L/VL	2					o	o		•	+	+	+	+	+	+	+	+	+	+	+
Aloe x nobilis	NCN	L/VL	2					o	o		•	+	+	+	+	+	+	+	+	+	+	+
Aloe plicatilis	Fan Aloe	L/VL	2					o	o			+	+	+	+	+	+	+	+	+	+	+
Aloe speciosa	Tilt-head Aloe	L/VL	2								•	+	+	+	+	+	+	+	+	+	+	+
Aloe x spinosissima	NCN	L/VL	2					o	o		•	+	+	+	+	+	+	+	+	+	+	+
Aloe striata	Coral Aloe	L/VL	2					o	o			+	+	+	+	+	+	+	+	+	+	+
Aloe striatula	Hardy Aloe	L/VL	2					o	o		•	+	+	+	+	+	+	+	+	+	+	+
Aloe vera	Medicinal Aloe	L/VL	2					o	o		+	+	+	+	+	+	+	+	+	+	+	+
Alstroemeria hybrids	Alstroemeria	M	1				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Alyogyne huegelii + cvs	Blue Hibiscus	M/L	2								•	+	+	+	+	`	+	+	+	+	+	+
Anigozanthos species + cvs	Kangaroo Paw	M/L	2										+	+	o	+	+	+	+	+	+	+
Anisacanthus species + cvs	Mexican Honeysuckle	M/L	2					+	+	+	+					+	+	+	+	+	+	o
Anisodontea x hypomandarum + cvs	Cape Mallow	M	1									+	+	+	+	+	+	+	+	+	+	+
Antigonon leptopus + cvs	Coral Vine	M	1								+					+	+	+	+	+	+	+
Aptenia cordifolia	Red Apple	L/VL	2								•		+	+	+		+	+	+	+	+	+
Araucaria bidwillii	Bunya-bunya	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Araucaria columnaris	New Caledonian Pine	M	1												+		+	+	+	+	+	+
Araucaria heterophylla	Norfolk Island Pine	M	1												+		+	+	+	+	+	+
Arbutus 'Marina'	NCN	M/L	2					+	+			+	+	+	+	•	+	+	+	+	+	+
Arbutus menziesii	Madrone	M/L	2				+	+	+			+	+	+	+		•					
Arbutus unedo + cvs	Strawberry Tree	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Archontophoenix cunninghamiana	King Palm	M	1														+	+	+	+	+	+
Arctostaphylos bakeri 'Louis Edmunds'	Louis Edmunds Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+				
Arctostaphylos edmundsii + cvs	Little Sur Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos glauca	Bigberry Manzanita	M/L	2				+	+	+			+	+	+		+	+	+	+	+	+	+
Arctostaphylos hookeri + cvs	Monterey Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos 'Howard McMinn'	McMinn Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos 'John Dourley'	John Dourley Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos 'Lester Roundtree'	Lester Roundtree Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos manzanita + cvs	Parry Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos pumila	Dune Manzanita	M/L	2											+	+							
Arctostaphylos 'Sunset'	Sunset Manzanita	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Arctostaphylos uva-ursi + cvs	Kinnikinnick	M/L	2	+	+	+	+	+	+			+	+	+	+	•	•	+	+			
Arctotheca calendula	Cape Weed	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Arctotis aucaulis + cvs	African Daisy	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Argyranthemum frutescens + cvs	Marguerite Daisy	M	1									+	+	+	+	•	•	+	+	+	+	+
Argyranthemum gracile	NCN	M	1									+	+	+	+	•	•	+	+	+	+	+
Aristida purpurea	Purple Three-awn	M/L	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Armeria maritima + cvs	Common Thrift	M/L	2	+	+	+	+	+	+			+	+	+	+	•	•	+	+	+	+	+
Artemisia arborescens	Shrubby Wormwood	L/VL	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Artemisia californica + cvs	California Sagebrush	L/VL	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Artemisia 'Powis Castle'	NCN	M/L	2			+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Artemisia pycnocephala + cv	Sandhill Sage	M/L	2					+	•	•		+	+	+	+	•	•	+	+	+	+	+
Asclepias curassavica	Blood Flower	M/L	2						+	+	•	+	+	+	+	+	+	+	+	+	+	+
Asclepias speciosa	Showy Milkweed	M/L	2						+	+	•	+	+	+	+	+	+	+	+	+	+	+
Asclepias subulata	Desert Milkweed	M/L	2							+	+	+	+	o	o	+	+	+	+	+	+	+
Asclepias tuberosa	Butterfly Weed	M/L	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Asparagus densiflorus + cvs	Asparagus Fern	M	1								•	+	+	+	+	+	+	+	+	+	+	+
Asparagus setaceous	Fern Asparagus	M	1									+	+	+	+	+	+	+	+	+	+	+
Aspidistra elatior + cv	Cast-iron Plant	M	1				•	•	•		•	•	•	•	•	•	•	•	•	•	•	•
Asplenium bulbiferum	Mother Fern	H	1										•	•	•		•	•	•	•	•	•
Asplenium nidus	Bird's Nest Fern	H	1																•	•	•	•
Astelia chathamica 'Silver Spear'	Silver Spear	H	1					•	•			•	•	•	•	•	•	•	•	•	•	•
Asteriscus maritimus + cv	Gold Coin	M/L	2						•			•	+	+	+	•	•	+	+	+	+	+
Asteriscus sericeus	Canary Island Daisy	M/L	2											+	+		•	+	+	+	+	+
Atriplex canescens	Fourwing Saltbush	L/VL	2	+	+	+	+	+	+	+	+	+	o	o	o	+	+	+	+	+	+	+
Atriplex lentiformis ssp. lentiformis	Big Saltbush	L/VL	2			+	+	+	+	+	+					+	+					
Atriplex lentiformis ssp. breweri	Quailbush	L/VL	2												+	+	+	+	+	+	+	+
Aucuba japonica + cvs	Japanese Aucuba	M	1				•	•	•			•	•	•	•	•	•	•	•	•	•	•
Baccharis 'Centennial'	Centennial Desert Broom	M/L	2				+	+	+	+	+	+	o	o	o	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Master Checklist

Plant Factors | Climate Zones

Plant Climate Zone Summary

The California Plant Climate Zones chart indicates the approximate adaptability of plants to the average range of low and high temperatures that occur differently throughout California. Some plants can grow well in all zones, but often they grow best in zones that reflect their natural adaptation to cold and heat. As a result, some plants do better with cooler conditions while others show a clear preference for warmer conditions. Three symbols, as shown and defined below, provide additional insight regarding the relationship between plants and climate zones.

(+) Indicates a high degree of compatibility with the average range of cold and warm temperatures.
(•) Indicates a preference for cooler exposures and microclimate conditions with protection from hot sun.
(o) Indicates a preference for warmer exposures and microclimate conditions.

More information on adaptability of individual plants to California Climate Zones is provided in Section Four - Illustrated Plant Compendium, beginning on page 158. California Plant Climate Zone descriptions and maps can be found on pages 12-17.

Below: *Arbutus* 'Marina', as shown in the example below, is adapted to Plant Climate Zones 8-9 and 14-24 with moderate to low (M/L) amounts of supplemental water in Irrigation Group 2. Protection from hot sun is recommended when planted in southern California's Zone 18.

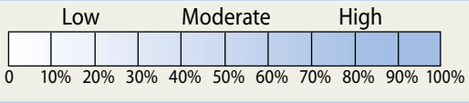
PF	IG	California Plant Climate Zones																					
		1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
M/L	2					+	+			+	+	+	+	•	+	+	+	+		+

Master Checklist

Plant Factors | Climate Zones

Plant Factors (PF)

Each plant species included in the master checklist is shown with a plant factor to represent its estimated supplemental water needs as a percent of local **ETo** rates. Two types of plant factors are used. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors provide a range for estimating water budgets and adjusting irrigation schedules to sustain healthy growth and positive aesthetic character.



Irrigation Groups (IG)

Water needs of plants vary throughout the year. This checklist includes a recommended irrigation group for each species listed to help organize plants into hydrozones, reflecting key seasonal moisture needs. Plants are not strictly confined to any one irrigation group, however, these groups indicate baseline preferences.

IG 1 = Regular Water Schedule
IG 2 = Reduced Summer Water Schedule

Plant factors and irrigation groups are intended to serve as a guide for addressing water needs of plants in California landscapes and gardens. Additional discussion on estimating water needs of plants can be found on pages 18-23.

Below: *Bougainvillea* 'San Diego Red' grows in Plant Climate Zones 13-24 where it does well with moderate to low (M/L) amounts of moisture. Reduced moisture during summer often intensifies its flowering cycle.

				California Plant Climate Zones																			
Botanical Name	**Common Name**	**PF**	**IG**	1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Baccharis pilularis + cvs	Coyote Brush	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Baccharis salicifolia	Mule Fat	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Baccharis sarothroides	Broom Baccharis	M/L	2				+	+	+	+	+	+	o	o	o	+	+	+	+	+	+	+
Baccharis 'Starn'	NCN	M/L	2				+	+	+	+	+	+	o	o	o	+	+	+	+	+	+	+
Baileya multiradiata	Desert Marigold	L/VL	2	+	+	+	+	+	+	+	+	+	o	o	o	+	+	+	+	+	+	+
Bambusa multiplex + cvs	Hedge Bamboo	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Bambusa oldhamii	Oldham Bamboo	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Bambusa textilis	Weaver's Bamboo	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Bambusa tuldoides 'Ventricosa'	Buddha's Belly Bamboo	M	1				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Bambusa vulgaris 'Vittata'	Painted Bamboo	M	1														+	+	+	+	+	+
Bauhinia x blakeana	Hong Kong Orchid Tree	M	1								+						+	+	+	+	+	+
Bauhinia forficata	Brazilian Butterfly Tree	M	1						+		•		o	o	+	+	+	+	+	+	+	+
Bauhinia galpinii	Red Orchid Tree	M	1								•		o	o			+	+	+	+	+	+
Bauhinia variegata + cv	Purple Orchid Tree	M	1								•					+	+	+	+	+	+	+
Beaucarnea recurvata	Bottle Tree	L/VL	2								+			o	o	+	+	+	+	+	+	+
Beaucarnea stricta	NCN	L/VL	2								+			o	o	+	+	+	+	+	+	+
Beaumontia grandiflora	Easter Lily Vine	M	1								•			o	o		•	+	+	+	+	+
Berberis aquifolium + cvs	Oregon Grape	M	1		+	+	+	+	+			+	+	+	+	•	•	•	•	•	•	•
Berberis darwinii	Darwin Barberry	M	1				+	+	+			+	+	+	+	•	•	•	•	•	•	•
Berberis 'Golden Abundance'	Golden Abundance Barberry	M/L	2			+	+	+	+			+	+	+	+	•	•	•	•	•	•	•
Berberis japonica var. bealei	Leatherleaf Mahonia	M	1			+	+	+	+			+	+	+	+	•	•	•	•	•	•	•
Berberis lomariifolia	Chinese Holly Grape	M	1				+	+	+			+	+	+	+	•	•	•	•	•	•	•
Berberis nevinii	Nevin's Barberry	M/L	2				+	+	+			o	o	o	o	+	+	+	+	+	+	+
Berberis repens	Creeping Barberry	M/L	2		+	+	+	+	+			+	+	+	+	•	•	•	•	•	•	•
Berberis thunbergii + cvs	Japanese Barberry	M	1	+	+	+	+	+	+	•	•	+	+	+	+	•	•	•	•	•	•	•
Bergenia cordifolia	Heartleaf Bergenia	M	1	+	+	+	+	+	+			+	+	+	+	•	•	•	•	•	•	•
Bergenia crassifolia	Winter-blooming Bergenia	M	1	+	+	+	+	+	+			+	+	+	+	•	•	•	•	•	•	•
Beschorneria yuccoides	NCN	M/L	2								•			o	o		+	+	+	+	+	+
Betula nigra	River Birch	H	1	+	+	+	+	•	•	•	•	+	+	+	+	•	•	•	•	•	•	•
Betula pendula	European White Birch	H	1	+	+	+	+	•	•	•		+	+	+	+	•	•	•	•	•	•	•
Bignonia capreolata	Crossvine	M	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Billbergia nutans	Queen's Tears	H	1								•	•	•	•	•	•	•	•	•	•	•	•
Blechnum brasiliense	NCN	H	1														•	•	•	•	•	•
Blechnum occidentale	Hammock Fern	H	1														•	•	•	•	•	•
Bougainvillea glabra	Bougainvillea	M/L	2								+	o	o	o	o		+	+	+	+	+	+
Bougainvillea spectabilis + cvs	Bougainvillea	M/L	2								+	o	o	o	o		+	+	+	+	+	+
Bouteloua curtipendula	Side-oats Grama	L/VL	2	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Bouteloua gracilis	Blue Grama Grass	L/VL	2	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Brachychiton acerifolius	Australian Flame Tree	M/L	2										+	+	+	+	+	+	+	+	+	+
Brachychiton discolor	Queensland Lacebark	M/L	2										+	+	+	+	+	+	+	+	+	+
Brachychiton populneus	Kurrajong Bottle Tree	M/L	2								+	+	+	+	+	+	+	+	+	+	+	+
Brachychiton rupestris	Bottle Tree	VL/L	2								+						+	+	+	+	+	+
Brahea armata	Blue Hesper Palm	M	1					o	o	+	+	o	o	o	o	+	+	+	+	+	+	+
Brahea brandegeei	San Jose Hesper Palm	M	1								+						+	+	+	+	+	+
Brahea edulis	Guadalupe Palm	M	1								+	o	o	o	o	+	+	+	+	+	+	+
Brugmansia species + cvs	Angel's Trumpet	M	1								+			o	o	+	+	+	+	+	+	+
Brunfelsia pauciflora + cvs	Yesterday-Today-Tomorrow	M	1								•	+	+	+	+	•	•	+	+	+	+	+
Buddleja davidii + cvs	Butterfly Bush	M	1		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Bulbine species + cv	NCN	M/L	2					o	o		•	o	o	+	+	•	+	+	+	+	+	+
Butia capitata	Pindo Palm	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Buxus microphylla + cvs	Japanese Boxwood	M	1			+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Buxus sempervirens + cvs	Common Boxwood	M	1					+	+	+	+	+	+	o	o	+	+	+	+	+	+	+
Caesalpinia cacalaco	Cascalote	M/L	2							+	+					+	+	+	+	+	+	+
Caesalpinia gilliesii	Yellow Bird of Paradise	M/L	2					+	+	+	+	+	+	+		+	+	+	+	+	+	+
Caesalpinia mexicana	Mexican Poinciana	M/L	2					+	+	+	+	+	+	+		+	+	+	+	+	+	+
Caesalpinia pulcherrima + cv	Red Bird of Paradise	M/L	2								+	o	o	o		+	+	+	+	+	+	+
Calamagrostis x acutiflora + cv	Feather Reed Grass	M/L	2		+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Calamagrostis foliosus	Mendocino Reed Grass	M/L	2		+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Calamagrostis nutkaensis	Pacific Reed Grass	M/L	2	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Calliandra californica	Baja Fairy Duster	M/L	2								+	o	o	o	o	+	+	+	+	+	+	+
Calliandra eriophylla	Fairy Duster	M/L	2								+	o	o	o	o	+	+	+	+	+	+	+
Calliandra haematocephala + cv	Pink Powder Puff	M	1								•	o	o	o	o	+	+	+	+	+	+	+
Calliandra peninsularis	NCN	M/L	2								+	o	o	o	o	+	+	+	+	+	+	+
Calliandra surinamensis	Surinam Powder Puff	M	1								•					+	+	+	+	+	+	+
Calliandra tweedii	Trinidad Flame Bush	M	1								•		o	o	o	+	+	+	+	+	+	+
Callistemon citrinus + cvs	Lemon Bottlebrush	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Callistemon 'Little John'	NCN	M/L	2				+	+	+		+	+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Callistemon viminalis + cvs	Weeping Bottlebrush	M/L	2				+	+	+		+	+	+	+	+	+	+	+	+	+	+	+
Calocedrus decurrens + cvs	Incense Cedar	M/L	2	+	+	+	+	+	+	•		+	+	+	+	•	•	+	+	+	+	+
Calodendrum capense	Cape Chestnut	M	1														+	+	+	+	+	+
Calothamnus quadrafidus	One-sided Bottlebrush	M/L	2												o		+	+	+	+	+	+
Calothamnus villosus	Silky netbush	M/L	2												o		+	+	+	+	+	+
Calycanthus occidentalis	Spice Bush	M/L	2				+	•	•			+	+	+	+	•	•	•	•	+	+	+
Camellia japonica	Japanese Camellia	M	1				+	•	•			+	+	+	+	•	•	•	•	•	•	•
Camellia reticulata	NCN	M	1				+	•	•			+	+	+	+	•	•	•	•	•	•	•
Camellia sasanqua	NCN	M	1				+	•	•			+	+	+	+	•	•	•	•	•	•	•
Campanula species + cvs	Bellflower	M	1	+	+	+	+	•	•			+	+	+	+	•	•	•	•	•	•	•
Campsis grandiflora	Chinese Trumpet Creeper	M	1				+	+	+	+	+	+	•	•	+	+	+	+	•	•	•	•
Campsis radicans + cv	Common Trumpet Creeper	M	1	+	+	+	+	+	+	•	•	+	+	+	+	•	•	•	•			
Campsis x tagliabuana + cv	NCN	M	1			+	+	+	+	•	•	+	+	+	+	•	•	•	•	•	•	•
Canna cultivars	Canna	H	1				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Capparis spinosa	Caper	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Carex buchananii	Leather Leaf Sedge	M	1		+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Carex divulsa	Berkeley Sedge	M	1		+	+	+	•	•	•		+	+	+	+	•	•	+	+	+	+	+
Carex flacca	Glaucous Sedge	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Carex pansa	California Meadow Sedge	M	1				+	•	•			•	+	+	+	•	•	+	+	+	+	+
Carex praegracilis	Western Meadow Sedge	M	1		+	+	+	•	•	•		+	+	+	+	•	•	+	+	+	+	+
Carex spissa	San Diego Sedge	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Carex testacea	Orange Sedge	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Carissa macrocarpa + cvs	Natal Plum	M	1								•			+	+	+	+	+	+	+	+	+
Carnegiea gigantea	Saguaro	L/VL	2								+						o	o	o			
Carpenteria californica + cv	Bush Anemone	M/L	2				+	•	•			+	+	+	+	•	•	•	•	+	+	+
Carpobrotus species	Ice Plant	L/VL	2								•	+	+	+	+	+	+	+	+	+	+	+
Carya illinoinensis	Pecan	M	1		+	+	+	+	+		•	+			+	+	+	+	+			
Caryopteris x clandonensis	Blue Mist	M/L	2		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Caryopteris incana	Common Bluebeard	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Caryota gigas	Giant Fishtail Palm	M	1															+	+	+	+	+
Caryota mitis	Clustered Fishtail Palm	M	1															+	+	+	+	+
Caryota urens	Jaggery Palm	M	1												+		+	+	+	+	+	+
Cassia leptophylla	Gold Medallion Tree	M	1										o	o			+	+	+	+	+	+
Casuarina cunninghamiana	River She-oak	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Casuarina equisetifolia	Horsetail Tree	M/L	2					+	+		+	+	+	+		+	+	+	+	+	+	+
Catalpa bignonioides + cv	Common Catalpa	M	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Catalpa speciosa	Western Catalpa	M	1		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Ceanothus arboreus + cvs	Island Ceanothus	M/L	2				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Ceanothus 'Centennial'	Centennial Ceanothus	M/L	2				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Ceanothus 'Concha'	Concha Ceanothus	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Ceanothus 'Dark Star'	Dark Star Ceanothus	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Ceanothus 'Frosty Blue'	Frosty Blue Ceanothus	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Ceanothus 'Gentian Plume'	Gentian Plume Ceanothus	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Ceanothus gloriosus + cvs	Point Reyes Ceanothus	M/L	2				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Ceanothus 'Joyce Coulter'	Joyce Coulter Ceanothus	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Ceanothus 'Julia Phelps'	Julia Phelps Ceanothus	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Ceanothus maritimus + cvs	Maritime Ceanothus	M/L	2				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Ceanothus 'Ray Hartman'	Ray Hartman Ceanothus	M/L	2				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Ceanothus thyrsiflorus v. griseus	Carmel Ceanothus	M/L	2				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Ceanothus thyrsiflorus v. thyrsiflorus	Blue Blossom Ceanothus	M/L	2				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Ceanothus 'Wheeler Canyon'	Wheeler Canyon Ceanothus	M/L	2				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Cedrus atlantica + cvs	Atlas Cedar	M/L	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cedrus deodara + cvs	Deodar Cedar	M/L	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cedrus libani	Cedar of Lebanon	M/L	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Celtis australis	European Hackberry	M	1					+	+	+	+	+	+	+			+	+	+			
Celtis occidentalis	Common Hackberry	M	1	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+
Celtis pallida	Desert Hackberry	M/L	2							+	+						+	+	+			
Celtis reticulata	Western Hackberry	M/L	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Centaurea cineraria	Dusty Miller	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Centaurea gymnocarpa	Velvet Centaurea	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Centranthus ruber + cv	Red Valerian	M/L	2		+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Cephalophyllum 'Red Spike'	Red Spike Ice Plant	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Cerastium tomentosum	Snow-in-Summer	M	1	+	+	+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Ceratonia siliqua	Carob Tree	M/L	2						+		+	+	+	+		+	+	+	+	+	+	+
Ceratostigma plumbaginoides	Dwarf Plumbago	M	1		+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Cercis canadensis + cvs	Eastern Redbud	M	1	+	+	+	+	•	•	•		+	+	+	+	•	•	+	+	+	+	+
Cercis occidentalis	Western Redbud	M/L	2		+	+	+	•	•	•		+	+	+	+	•	•	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Master Checklist

Plant Factors | Climate Zones

Plant Climate Zone Summary

The California Plant Climate Zones chart indicates the approximate adaptability of plants to the average range of low and high temperatures that occur differently throughout California. Some plants can grow well in all zones, but often they grow best in zones that reflect their natural adaptation to cold and heat. As a result, some plants do better with cooler conditions while others show a clear preference for warmer conditions. Three symbols, as shown and defined below, provide additional insight regarding the relationship between plants and climate zones.

(+) Indicates a high degree of compatibility with the average range of cold and warm temperatures.
(•) Indicates a preference for cooler exposures and microclimate conditions with protection from hot sun.
(o) Indicates a preference for warmer exposures and microclimate conditions.

More information on adaptability of individual plants to California Climate Zones is provided in Section Four - Illustrated Plant Compendium, beginning on page 158. California Plant Climate Zone descriptions and maps can be found on pages 12-17.

Below: In landscape and garden settings, *Carpenteria californica* grows well with moderate to low (M/L) amounts of supplemental water and is placed in Irrigation Group 2. It is adapted to Plant Climate Zones 7-9 and 14-24. Protection from hot sun is recommended when planted in Zones 8-9 and 18-21.

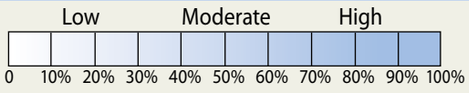
PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
M/L	2				+	•	•			+	+	+	+	•	•	•	•	+	+	+

Master Checklist

Plant Factors | Climate Zones

Plant Factors (PF)

Each plant species included in the master checklist is shown with a plant factor to represent its estimated supplemental water needs as a percent of local **ETo** rates. Two types of plant factors are used. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors provide a range for estimating water budgets and adjusting irrigation schedules to sustain healthy growth and positive aesthetic character.



Irrigation Groups (IG)

Water needs of plants vary throughout the year. This checklist includes a recommended irrigation group for each species listed to help organize plants into hydrozones, reflecting key seasonal moisture needs. Plants are not strictly confined to any one irrigation group, however, these groups indicate baseline preferences.

IG 1 = Regular Water Schedule
IG 2 = Reduced Summer Water Schedule

Plant factors and irrigation groups are intended to serve as a guide for addressing water needs of plants in California landscapes and gardens. Additional discussion on estimating water needs of plants can be found on pages 18-23.

Below: *Cistus purpurea* grows well in Plant Climate Zones 7-9 and 14-24 with moderate to low (M/L) amounts of moisture. It is placed in Irrigation Group 2 with moderate supplemental water from fall through early spring and low amounts of water during summer.

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Cercocarpus betuloides	Mountain Mahogany	L/VL	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cercocarpus ledifolius	Curl-leaf Mtn Mahogany	L/VL	2	+	+	+	+	•	•			+	+	+	+	+	+	+				
Cercocarpus minutiflorus	San Diego Mtn Mahogany	L/VL	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cereus peruvianus + cv	Apple Cactus	L/VL	2								•			o	o		+	+	+	+	+	+
Chaenomeles japonica	Japanese Flowering Quince	M	1		+	+	+	•	•	•	•	+	+	+	+	•	•	+	+	+	+	+
Chaenomeles speciosa	NCN	M	1		+	+	+	•	•	•	•	+	+	+	+	•	•	+	+	+	+	+
Chaenomeles x superba	NCN	M	1		+	+	+	•	•	•	•	+	+	+	+	•	•	+	+	+	+	+
Chamaecyparis lawsoniana + cvs	Port Orford Cedar	H/M	2			+							+	+	+		•	•	+	+	+	+
Chamaerops humilis	Mediterranean Fan Palm	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Chamelaucium uncinatum + cvs	Geraldton Wax Flower	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Chilopsis linearis + cvs	Desert Willow	M/L	2				o	+	+	+	+	+	+	+		+	+	+	+	+	+	o
Chionanthus retusus	Chinese Fringe Tree	M	1			+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Chionanthus virginicus	Fringe Tree	M	1		+	+	+	•	•				+	+	+	•	•	+	+	+	+	+
x Chitalpa tashkentensis + cvs	Chitalpa	M/L	2			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Choisya ternata	Mexican Orange	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Chondropetalum elephantinum	Large Cape Rush	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Chondropetalum tectorum	Small Cape Rush	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Chorisia insignis	White Floss Silk Tree	M	1								+		o	o	o	+	+	+	+	+	+	+
Chorisia speciosa	Silk Floss Tree	M	1								+	o	o	o	o	+	+	+	+	+	+	+
Cinnamomum camphora	Camphor Tree	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Cissus antarctica	Kangaroo Vine	M	1								•			+	+	•	•	+	+	+	+	+
Cissus hypoglauca	Water Vine	M	1								•			+	+	•	•	+	+	+	+	+
Cissus rhombifolia + cvs	Grape Ivy	M	1								•			+	+	•	•	+	+	+	+	+
Cistanthe grandiflora	Rock Purslane	M/L	2										+	+	+		•	+	+	+	+	+
Cistus 'Blanche'	NCN	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cistus ladanifer	Crimson-spot Rockrose	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cistus x pulverulenta 'Sunset'	NCN	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cistus x purpureus	Orchid Rockrose	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cistus salviifolius	Sageleaf Rockrose	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cistus x skanbergii	NCN	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cistus 'Victor Reiter'	NCN	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Citrus cultivars	Citrus	M	1					+	+		•	o	o	o	o	+	+	+	+	+	+	+
Clematis armandii	Evergreen Clematis	M	1				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Clematis cultivars	Clematis	M	1				+	+	+		•	+	+	+	+	•	•	+	+	+	+	+
Clematis lasiantha	Chaparral Clematis	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Clematis viticella + cvs	Italian Clematis	M	1			+	+	+	+	•		+	+	+	+	•	•	+	+	+	+	+
Clivia miniata + cvs	Kaffir Lily	M	1								•	•	•	•	•	•	•	•	•	•	•	•
Clytostoma callistegioides	Violet Trumpet Vine	M	1					+	+		•	+	+	+	+	•	•	+	+	+	+	+
Cocculus laurifolius	Laurel-leaf Snail Seed	M	1					•	•		•	+	+	+	+	•	•	+	+	+	+	+
Coleonema album	White Breath of Heaven	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Coleonema pulchellum + cv	Pink Breath of Heaven	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Comarostaphylis diversifolia	Summer Holly	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Combretum fruticosum	Orange Flame Vine	M	1								•	o	o	o	o		+	+	+	+	+	+
Convolvulus cneorum	Bush Morning Glory	M/L	2				+	+	+		•	o	o	o	o	+	+	+	+	+	+	+
Convolvulus sabatius	Ground Morning Glory	M/L	2				+	+	+		•	o	o	o	o	+	+	+	+	+	+	+
Coprosma 'Evening Glow'	NCN	M	1					•	•			+	+	+	+	•	•	+	+	+	+	+
Coprosma x kirkii + cv	NCN	M	1									+	+	+	+	+	+	+	+	+	+	+
Coprosma repens + cvs	Mirror Plant	M	1									+	+	+	+	+	+	+	+	+	+	+
Cordia boissieri	Wild Olive	M/L	2					+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Cordia parvifolia	Little-leaf Cordia	M/L	2					+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Cordyline australis + cvs	Giant Dracaena	M	1					+	+			+	+	+	+	•	•	+	+	+	+	+
Cordyline 'Festival Grass'	Red Fountain Cordyline	M	1					+	+			+	+	+	+	•	•	+	+	+	+	+
Coreopsis gigantea	Giant Coreopsis	M/L	2									+	+	+	+		•	+	+	+	+	+
Coreopsis grandiflora + cvs	NCN	M	1			+	+	+	+	•	•	+	+	+	+	+	•	+	+	+	+	+
Coreopsis lanceolata	NCN	M	1	+	+	+	+	+	+	•	•	+	+	+	+	+	•	+	+	+	+	+
Coreopsis verticillata + cvs	Thread-leaved Tickseed	M/L	2	+	+	+	+	+	+	•	•	+	+	+	+	+	•	+	+	+	+	+
Cornus florida	Flowering Dogwood	M	1			+	+	+	•			+	+	+			•	•				
Cornus nuttallii	Pacific Dogwood	H/M	2				+	+	•			+	+	+	+	•	•	•	•			
Cornus sericea	Redtwig Dogwood	H/M	2				+	+	•			+	+	+	+	•	•	•	•			
Correa alba + cvs	White Correa	M/L	2									+	+	+	+	•	•	+	+	+	+	+
Correa pulchella	NCN	M/L	2									+	+	+	+	•	•	+	+	+	+	+
Correa reflexa	Common Correa	M/L	2									+	+	+	+	•	•	+	+	+	+	+
Cotinus coggygria + cvs	Smoke Tree	M/L	2			+	+	+	+	•	•	+	+	+	+	•	•	•	+	+	+	+
Cotoneaster dammeri + cvs	Bearberry Cotoneaster	M	1		+	+	+	+	+	•	•	+	+	+	+	•	•	•	+	+	+	+
Cotoneaster franchetii	Franchet Cotoneaster	M	1			+	+	+	+			+	+	+	+	•	•	•	+	+	+	+
Cotoneaster glaucophyllus	NCN	M	1					+	+	•	•	+	+	+	+	•	•	•	+	+	+	+
Cotoneaster horizontalis	Rock Cotoneaster	M	1			+	+	+	+	•		+	+	+	+	•	•	•	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Cotoneaster lacteus	Red Clusterberry	M	1				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Cotoneaster salicifolius + cv	Willowleaf Cotoneaster	M	1			+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Cotyledon orbiculata + cvs	NCN	L/VL	2								•			o	o		+	+	+	+	+	+
Crassula arborescens	Silver Jade Plant	L/VL	2					+	+		•	o	o	o	o	+	+	+	+	+	+	+
Crassula capetella + cv	NCN	L/VL	2					+	+		•	o	o	o	o	+	+	+	+	+	+	+
Crassula multicava	Fairy Crassula	L/VL	2					+	+		•	o	o	o	o	+	+	+	+	+	+	+
Crassula ovata + cvs	Jade Plant	L/VL	2					+	+		•	o	o	o	o	+	+	+	+	+	+	+
Crassula perfoliata var. falcata	Sickle Plant	L/VL	2					+	+		•	o	o	o	o	+	+	+	+	+	+	+
Cryptomeria japonica + cvs	Japanese Cedar	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Cupaniopsis anacardioides	Carrot Wood	M	1											+	+	+	+	+	+	+	+	+
Cuphea hyssopifolia	False Heather	M	1											+	+	•	•	+	+	+	+	+
Cuphea ignea	Cigar Plant	M	1							•	•			+	+	•	•	+	+	+	+	+
Cuphea micropetala + cv	Candy Corn Plant	M	1											+	+	•	•	+	+	+	+	+
Cuphea x purpurea	Bat-faced Cuphea	M	1							•	•			+	+	•	•	+	+	+	+	+
x Cupressocyparis leylandii	Leyland Cypress	M	1			+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Cupressus arizonica	Arizona Cypress	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Cupressus cashmeriana	Kashmir Cypress	M	1					•	•			+	+	+	+	•	•	+	+	+	+	+
Cupressus forbesii	Tecate Cypress	L/VL	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cupressus macrocarpa + cvs	Monterey Cypress	M/L	2									+	+	+							+	+
Cupressus sempervirens + cvs	Italian Cypress	M/L	2				+	+	+	+	+	+	+	+	o	+	+	+	+	+	+	+
Cyathea cooperi	Australian Tree Fern	H	1										+	+	+	•	•	+	+	+	+	+
Cycas revoluta	Sago Palm	M	1					•	•		•	+	+	+	+	•	•	+	+	+	+	+
Cyperus alternifolius	Umbrella Plant	H	1					•	•		•	+	+	+	+	•	•	+	+	+	+	+
Cyperus papyrus	Papyrus	H	1								•			+	+	•	•	•	+	+	+	+
Cyrtomium falcatum	Japanese Holly Fern	M	1				+	•	•			+	+	+	+	•	•	•	+	+	+	+
Cyrtomium fortunei	NCN	M	1				+	•	•			+	+	+	+	•	•	•	+	+	+	+
Dalea capitata + cv	NCN	M/L	2							+	+					+	+	+				
Dalea frutescens + cv	Black Dalea	M/L	2							+	+					+	+	+				
Dalea greggii	Trailing Indigo Bush	M/L	2							+	+					+	+	+				
Dalea pulchra	Indigo Bush	M/L	2							+	+					+	+	+				
Dasylirion acrotriche	Green Desert Spoon	L/VL	2							+	+					+	+	+				
Dasylirion quadrangulatum	Mexican Grass Tree	L/VL	2							+	+	o	o	o	o	+	+	+	+	+	+	+
Dasylirion wheeleri	Desert Spoon	L/VL	2							+	+	o	o	o	o	+	+	+	+	+	+	+
Delosperma cooperi	Pink Hardy Ice Plant	L/VL	2								•	+	+	+	+	+	+	+	+	+	+	+
Delosperma litorale	White Trailing Iceplant	L/VL	2								•	+	+	+	+	+	+	+	+	+	+	+
Dendromecon harfordii	Island Bush Poppy	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Dendromecon rigida	Bush Poppy	L/VL	2				+	+	+	•		+	+	+	+	+	+	+	+	+	+	+
Dianella tasmanica + cvs	Tasman Flax Lily	M	1					•	•			+	+	+	+	•	•	+	+	+	+	+
Dicksonia antarctica	Tasmanian Tree Fern	H	1					•	•			+	+	+	+	•	•	+	+	+	+	+
Dicliptera suberecta	NCN	M/L	2								•	o	o	o	o		+	+	+	+	+	+
Dietes bicolor	NCN	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Dietes grandiflora + cvs	Fortnight Lily	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Dioon edule	Chestnut Dioon	M	1										•		+		•	+	+	+	+	+
Dioon spinulosum	Giant Dioon	M	1															+	+	+	+	+
Diospyros kaki	Chinese Persimmon	M	1				+	+	+		•	+	o	o	o	•	•	+	+	+	+	+
Distictis buccinatoria	Blood-red Trumpet Vine	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Distictis laxiflora	Vanilla Trumpet Vine	M	1											o					+	+	+	+
Distictis 'Rivers'	Royal Trumpet Vine	M	1											o				+	+	+	+	+
Dodonaea viscosa + cvs	Hopseed Bush	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Doryanthes palmeri	Palmer Spear Lily	M	1											+	+		•	+	+	+	+	+
Dracaena draco	Dragon Tree	L/VL	2											+	+			+	+	+	+	+
Drosanthemum floribundum	Rosea Ice Plant	L/VL	2									+	+	+	+	+	+	+	+	+	+	+
Drosanthemum hispidum	NCN	L/VL	2									+	+	+	+	+	+	+	+	+	+	+
Duchesnea indica	Indian Mock Strawberry	M	1	+	+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Dudleya species + cvs	Dudleya	L/VL	2						+			+	+	+	+		+	+	+	+	+	+
Duranta erecta	Sky Flower	M	1								•			+	+	•	•	+	+	+	+	+
Dymondia margaretae	Silver Carpet	M/L	2										+	+	+	+	+	+	+	+	+	+
Dypsis decaryi	Triangle Palm	M	1								•						+	+	+	+	+	+
Ebenopsis ebano	Texas Ebony	M/L	2							+	+					+	+					
Echeveria species + cvs	Hen and Chicks	L/VL	2					+	+		•	+	+	+	+	•	•	+	+	+	+	+
Echinocactus grusonii	Golden Barrel Cactus	L/VL	2								+	o	o	o	o	+	+	+	+	+	+	+
Echium candicans + cv	Pride of Madeira	M/L	2									+	+	+	+	+	+	+	+	+	+	+
Echium wildpretii	Tower of Jewels	M	1										+	+	+		+	+	+	+	+	+
Elaeagnus x ebbingei + cvs	NCN	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Elaeagnus pungens + cvs	Silverberry	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Encelia actoni	Acton Encelia	L/VL	2				+	+	+	+	+	+	o	o		+	+	+	+	+	+	+
Encelia californica + cv	Coastal Encelia	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Master Checklist

Plant Factors | Climate Zones

Plant Climate Zone Summary

The California Plant Climate Zones chart indicates the approximate adaptability of plants to the average range of low and high temperatures that occur differently throughout California. Some plants can grow well in all zones, but often they grow best in zones that reflect their natural adaptation to cold and heat. As a result, some plants do better with cooler conditions while others show a clear preference for warmer conditions. Three symbols, as shown and defined below, provide additional insight regarding the relationship between plants and climate zones.

(+) Indicates a high degree of compatibility with the average range of cold and warm temperatures.
(•) Indicates a preference for cooler exposures and microclimate conditions with protection from hot sun.
(o) Indicates a preference for warmer exposures and microclimate conditions.

More information on adaptability of individual plants to California Climate Zones is provided in Section Four - Illustrated Plant Compendium, beginning on page 158. California Plant Climate Zone descriptions and maps can be found on pages 12-17.

Below: *Agave salmiana* var. *ferox* and *Echinocactus grusonii* grow well with low to very low (L/VL) amounts of supplemental water and are placed in Irrigation Group 2. They perform best in Climate Zones 13-24 and are highly adapted to heat, aridity and drought. Warm exposures are recommended when planted in Zones 14-17.

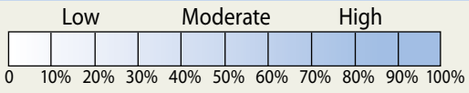
PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
L/VL	2									+	o	o	o	+	+	+	+	+	+	+

Master Checklist

Plant Factors | Climate Zones

Plant Factors (PF)

Each plant species included in the master checklist is shown with a plant factor to represent its estimated supplemental water needs as a percent of local **ETo** rates. Two types of plant factors are used. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors provide a range for estimating water budgets and adjusting irrigation schedules to sustain healthy growth and positive aesthetic character.



Irrigation Groups (IG)

Water needs of plants vary throughout the year. This checklist includes a recommended irrigation group for each species listed to help organize plants into hydrozones, reflecting key seasonal moisture needs. Plants are not strictly confined to any one irrigation group, however, these groups indicate baseline preferences.

IG 1 = Regular Water Schedule
IG 2 = Reduced Summer Water Schedule

Plant factors and irrigation groups are intended to serve as a guide for addressing water needs of plants in California landscapes and gardens. Additional discussion on estimating water needs of plants can be found on pages 18-23.

Below: *Erythrina caffra* grows best in Plant Climate Zones 20-24. It is placed in Irrigation Group 2 and is adapted to reduced amounts of summer water.

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Encelia farinosa	Incienso	L/VL	2					+	+	+	+	+	o	o		+	+	+	+	+	+	+
Ensete ventricosum + cv	Abyssinian Banana	H	1								•		+	+	+		•	+	+	+	+	+
Epilobium canum + cvs	California Fuchsia	L/VL	2	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Equisetum hyemale	Horsetail	H	1	+	+	+	+	•	•	•	•	+	+	+	+	•	•	+	+	+	+	+
Equisetum scirpoides	Dwarf Horsetail	H	1	+	+	+	+	•	•	•	•	+	+	+	+	•	•	+	+	+	+	+
Eremophila glabra	Emu Bush	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Eremophila maculata + cvs	Common Spotted Emu Bush	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Eremophila racemosa	Easter Egg Bush	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Ericameria laricifolia + cv	Turpentine Bush	L/VL	2							+	+					+	+					
Erigeron glaucus + cvs	Beach Aster	M/L	2									+	+	+	+	•	•	+	+	+	+	+
Erigeron karvinskianus	Mexican Daisy	M	1					+	+		•	+	+	+	+	•	•	+	+	+	+	+
Eriobotrya deflexa	Bronze Loquat	M	1					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Eriobotrya japonica	Loquat	M	1				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Eriogonum arborescens	Santa Cruz Island Buckwheat	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Eriogonum cinereum	Ashyleaf Buckwheat	L/VL	2									+	+	+	+	+	+	+	+	+	+	+
Eriogonum crocatum	Saffron Buckwheat	L/VL	2									+	+	+	+	+	+	+	+	+	+	+
Eriogonum fasciculatum + cvs	Common Buckwheat	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Eriogonum giganteum	St. Catherine's Lace	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Eriogonum grande + var	Island Buckwheat	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Eriogonum umbellatum + var	Sulfur Buckwheat	L/VL	2	+	+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Erythrina x bidwillii	Bidwill's Coral Tree	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Erythrina caffra	Coast Coral Tree	M/L	2															+	+	+	+	+
Erythrina coralloides	Naked Coral Tree	M/L	2								•						+	+	+	+	+	+
Erythrina crista-galli	Cockspur Coral Tree	M/L	2				o	o	o		•	o	o	o	o		+	+	+	+	+	+
Erythrina humeana	Natal Coral Tree	M	1								•							+	+	+	+	+
Erythrina x sykesii	Australian Coral Tree	M/L	2														+	+	+	+	+	+
Escallonia bifida	White Escallonia	M	1				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Escallonia x exoniensis 'Frades'	Pink Escallonia	M	1				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Escallonia 'Newport Dwarf'	NCN	M	1				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Escallonia 'Red Elf'	NCN	M	1				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Escallonia rubra	Red Escallonia	M	1				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Eucalyptus camaldulensis	River Red Gum	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Eucalyptus citriodora	Lemon-scented Gum	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Eucalyptus cladocalyx	Sugar Gum	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Eucalyptus conferruminata	Bushy Yate	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Eucalyptus deglupta	Rainbow Gum	M	1					+	+			+	+					+	+	+	+	+
Eucalyptus ficifolia	Red-flowering Gum	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Eucalyptus globulus + cv	Blue Gum	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Eucalyptus nicholii	Narrow-leafed Peppermint	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Eucalyptus polyanthemos	Silver Dollar Gum	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Eucalyptus sideroxylon + cv	Red Ironbark	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Eucalyptus torquata	Coral Gum	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Eucalyptus viminalis	Manna Gum	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Euonymus japonicus + cvs	Evergreen Euonymus	M	1				+	+	+	•	•	+	+	+	+	•	•	+				
Euphorbia characias + ssp	Large Mediterranean Spurge	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Euphorbia cotinifolia	Caribbean Copper Plant	M	1															o	o	o	o	+
Euphorbia ingens	Candelabra Tree	L/VL	2								•								+	+	+	+
Euphorbia milii + cvs	Crown of Thorns	M/L	2								•						+	+	+	+	+	+
Euphorbia myrsinites	Creeping Spurge	M/L	2		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Euphorbia rigida	Narrow-leaved Spurge	L/VL	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Euphorbia tirucalli + cv	Milkbush	L/VL	2								•						+	+	+	+	+	+
Euphorbia xantii	NCN	L/VL	2								•						+	+	+	+	+	+
Euryops pectinatus	Euryops	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
x Fatshedera lizei + cv	Botanical Wonder	M	1				+	+	+		•	+	+	+	+	•	•	+	+	+	+	+
Fatsia japonica + cv	Japanese Aralia	M	1				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Felicia amelloides	Blue Marguerite	M	1					+	+			+	+	+	+	•	•	+	+	+	+	+
Festuca californica	California Fescue	L/VL	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Festuca glauca + cvs	Blue Fescue	M	1	+	+	+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Festuca mairei	Atlas Fescue	M	1		+	+	+	+	+	•		+	+	+	+	•	•	+	+	+	+	+
Festuca rubra + cvs	Creeping Red Fescue	H	1	+	+	+	+	+	+			+	+	+	+	•	•	+	+	+	+	+
Ficus auriculata	Roxburgh Fig	M	1														+	+	+	+	+	+
Ficus benjamina + cv	Benjamin Fig	M	1								•						+	+	+	+	+	+
Ficus carica + cvs	Edible Fig	M	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Ficus elastica + cvs	Rubber Tree	M	1								•			+	+		+	+	+	+	+	+
Ficus lyrata	Fiddleleaf Fig	M	1														+	+	+	+	+	+
Ficus macrophylla	Moreton Bay Fig	M	1												+		+	+	+	+	+	+
Ficus microcarpa	Indian Laurel Fig	M	1						o		+			+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Ficus pumila + cv	Creeping Fig	M	1					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ficus religiosa	Bo-tree	M	1								+						+	+	+	+	+	+
Ficus rubiginosa	Rustyleaf Fig	M	1								+					+	+	+	+	+	+	+
Fouquieria splendens	Ocotillo	L/VL	2							+	+					+	+	+				+
Fragaria chiloensis	Beach Strawberry	M	1		+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Fraxinus angustifolia + cvs	Narrow-leaf Ash	M	1		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Fraxinus dipetala	Foothill Ash	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Fraxinus uhdei + cvs	Evergreen Ash	M	1						+		+	+	+	+	+	+	+	+	+	+	+	+
Fraxinus velutina + cvs	Arizona Ash	M	1			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Fremontodendron species + cvs	Flannel Bush	L/VL	2				+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Furcraea foetida + cv	Mauritius Hemp	M/L	2								•			+	+		+	+	+	+	+	+
Furcraea macdougalii	NCN	L/VL	2								•			o	o		+	+	+	+	+	+
Gaillardia x grandiflora	NCN	M/L	2	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Galvezia juncea + cv	Baja Bush Snapdragon	L/VL	2								•	+	+	+	+	+	+	+	+	+	+	+
Galvezia speciosa + cv	Island Bush Snapdragon	M/L	2									+	+	+	+	+	+	+	+	+	+	+
Gardenia augusta + cvs	Gardenia	H	1					•	•		•	+	+	+		•	•	+	+	+	+	+
Gardenia thunbergia	White Gardenia	M	1											+	+		•	+	+	+	+	+
Garrya elliptica + cvs	Coast Silktassel	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Gaura lindheimeri + cvs	Gaura	M/L	2		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gazania species + cvs	Gazania	M	1					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Geijera parviflora	Australian Willow	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Gelsemium sempervirens + cv	Carolina Jessamine	M	1				+	+	+		•	+	+	+	+	•	+	+	+	+	+	+
Ginkgo biloba + cvs	Maidenhair Tree	M	1	+	+	+	+	+	+	•		+	+	+	+	+	+	+	+	+	+	+
Gleditsia triacanthos + cvs	Honey Locust	M	1	+	+	+	+	+	+	•		+	+	+		+	+	+				
Globularia x indubia	Globe Daisy	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Graptopetalum paraguayense	Ghost Plant	L/VL	2								•			+	+		+	+	+	+	+	+
Graptoveria 'Fred Ives'	NCN	L/VL	2								•			+	+		+	+	+	+	+	+
Grevillea banksii	Red Silky Oak	M/L	2											+	+	+	+	+	+	+	+	+
Grevillea 'Canberra Gem'	NCN	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Grevillea juniperina + cv	Juniper Grevillea	M/L	2					+	+					+	+	+	+	+	+	+	+	+
Grevillea lanigera + cvs	Woolly Grevillea	M/L	2										+	+	+	+	+	+	+	+	+	+
Grevillea lavandulaceae + cvs	Lavender Grevillea	M/L	2										+	+	+	+	+	+	+	+	+	+
Grevillea 'Long John'	NCN	M/L	2										+	+	+	+	+	+	+	+	+	+
Grevillea 'Mason's Hybrid'	NCN	M/L	2										+	+		+	+	+	+	+	+	+
Grevillea 'Moonlight'	NCN	M/L	2										+	+	+	+	+	+	+	+	+	+
Grevillea 'Noelii'	NCN	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Grevillea 'Poorinda Constance'	NCN	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Grevillea 'Poorinda Queen'	NCN	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Grevillea 'Red Hooks'	NCN	M/L	2											+	+	+	+	+	+	+	+	+
Grevillea robusta	Silky Oak	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Grevillea 'Robyn Gordon'	NCN	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Grevillea thelemanniana + ssp	Hummingbird Bush	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Grevillea victoriae	Royal Grevillea	M/L	2					+	+		•	+	+	+	+		+	+	+	+	+	+
Grewia occidentalis	Lavender Starflower	M	1					+	+		•	+	+	+	+		+	+	+	+	+	+
Hakea laurina	Pincushion Hakea	M/L	2						+				+	+	+		+	+	+	+	+	+
Hakea suaveolens	Sweet-scented Hakea	M/L	2						+		•	+	+	+	+		+	+	+	+	+	+
Hardenbergia comptoniana	NCN	M/L	2										+	+	+		+	+	+	+	+	+
Hardenbergia violaceae + cvs	Lilac Vine	M/L	2					+	+		•	+	+	+	+	•	•	+	+	+	+	+
Harpephyllum caffrum	Kaffir Plum	M	1														•	+	+	+		
Hebe buxifolia	Boxleaf Hebe	M	1									+	+	+			•	•	+	+	+	+
Hebe cultivars	Hebe	M	1									+	+	+			•	•	+	+	+	+
Hebe speciosa + cv	Showy Hebe	M	1									+	+	+			•	•	+	+	+	+
Hedera canariensis	Algerian Ivy	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Hedera helix + cvs	English Ivy	M	1			+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Hedychium species + cvs	Ginger Lily	H	1					•	•			+	+	+	+		•	+	+	+	+	+
Helianthemum cultivars	Rock Rose	M/L	2		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Helichrysum italicum	Curry Plant	M/L	2								•	+	+	+	+	•	+	+	+	+	+	+
Helichrysum petiolare + cvs	Licorice Plant	M/L	2											+	+		•	•	+	+	+	+
Helictotrichon sempervirens + cvs	Blue Oat Grass	M	1	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Hemerocallis species + cvs	Daylily	M	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hesperaloe funifera	Giant Hesperaloe	L/VL	2							+	+					+	+					
Hesperaloe parviflora	Red Yucca	L/VL	2		+	+	+	+	+	+	+	o	o	o		+	+	+	+	+	+	+
Hesperoyucca whipplei	Our Lord's Candle	L/VL	2		+	+	+	+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Heteromeles arbutifolia + cvs	Toyon	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Heuchera species + cvs	Coral Bells	H/M	2	+	+	+	+	•	•			+	+	+		+	+	•	•	+	+	+
Hibiscus rosa-sinensis + cvs	Chinese Hibiscus	M	1						+		+	o	o	o			+	+	+	+	+	+
Hibiscus syriacus	Rose of Sharon	M	1		+	+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Master Checklist

Plant Factors | Climate Zones

Plant Climate Zone Summary

The California Plant Climate Zones chart indicates the approximate adaptability of plants to the average range of low and high temperatures that occur differently throughout California. Some plants can grow well in all zones, but often they grow best in zones that reflect their natural adaptation to cold and heat. As a result, some plants do better with cooler conditions while others show a clear preference for warmer conditions. Three symbols, as shown and defined below, provide additional insight regarding the relationship between plants and climate zones.

(+) Indicates a high degree of compatibility with the average range of cold and warm temperatures.
(•) Indicates a preference for cooler exposures and microclimate conditions with protection from hot sun.
(o) Indicates a preference for warmer exposures and microclimate conditions.

More information on adaptability of individual plants to California Climate Zones is provided in Section Four - Illustrated Plant Compendium, beginning on page 158. California Plant Climate Zone descriptions and maps can be found on pages 12-17.

Below: For best growth, *Ginkgo biloba* requires moderate (M) amounts of moisture throughout the year. It grows well in Plant Climate Zones 1-11 and 14-24. Protection from hot sun in Zone 11 is recommended.

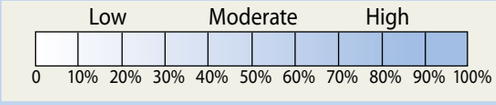
PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
M	1	+	+	+		+	+	•		+	+	+	+	+	+	+	+	+	+	+

Master Checklist

Plant Factors | Climate Zones

Plant Factors (PF)

Each plant species included in the master checklist is shown with a plant factor to represent its estimated supplemental water needs as a percent of local **ETo** rates. Two types of plant factors are used. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors provide a range for estimating water budgets and adjusting irrigation schedules to sustain healthy growth and positive aesthetic character.



Irrigation Groups (IG)

Water needs of plants vary throughout the year. This checklist includes a recommended irrigation group for each species listed to help organize plants into hydrozones, reflecting key seasonal moisture needs. Plants are not strictly confined to any one irrigation group, however, these groups indicate baseline preferences.

IG 1 = Regular Water Schedule
IG 2 = Reduced Summer Water Schedule

Plant factors and irrigation groups are intended to serve as a guide for addressing water needs of plants in California landscapes and gardens. Additional discussion on estimating water needs of plants can be found on pages 18-23.

Below: *Koelreuteria elegans* is adapted to Plant Climate Zones 14-24. It it placed in Irrigation Group 1 and grows well with moderate (M) amounts of moisture on a regular basis throughout the year.

				California Plant Climate Zones																			
Botanical Name	**Common Name**	**PF**	**IG**	1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Himalayacalamus hookerianus + cvs	Blue Himalayan Bamboo	M	1									+	+	+	+		•	+	+	+	+	+
Howea forsteriana	Paradise Palm	M	1												+			+	+	+	+	+
Hunnemannia fumariifolia	Mexican Tulip Poppy	M	1	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Hydrangea macrophylla + cvs	Bigleaf Hydrangea	H	1			+	+	•	•			+	+	+	+	•	•	•	•	+	+	+
Hydrangea quercifolia + cv	Oakleaf Hydrangea	M	1		+	+	+	•	•			+	+	+	+	•	•	•	•	+	+	
Hymenosporum flavum	Sweetshade	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Hypericum calycinum	Aaron's Beard	M	1		+	+	+	•	•			+	+	+	+	•	•	•	•	+	+	+
Hypericum 'Hidcote'	NCN	M	1			+	+	•	•			+	+	+	+	•	•	•	•	+	+	+
Hypericum 'Rowallane'	NCN	M	1				+	•	•			+	+	+	+	•	•	•	•	+	+	+
Iberis sempervirens + cvs	Evergreen Candytuft	M	1	+	+	+	+	•	•	•		+	+	+	+	•	•	•	•	+	+	+
Ilex x altaclerensis 'Wilsonii'	Wilson Holly	M	1				+	•	•	•		+	+	+	+	•	•	+	+	+	+	+
Ilex aquifolium + cvs	English Holly	M	1				+	•	•			+	+	+	+	•	•	•	•	•		
Ilex cornuta + cvs	Chinese Holly	M	1			+	+	•	•	•		+	+	+	+	•	•	+	+	+	+	+
Ilex vomitoria + cvs	Yaupon	M	1			+	+	•	•	•		+	+	+	+	•	•	+	+	+	+	+
Imperata cylindrica 'Red Baron'	Japanese Blood Grass	H	1		+	+	+	•	•	•		+	+	+	+	•	•	+	+	+	+	+
Iochroma cyaneum	NCN	M	1										+	+	+		•	+	+	+	+	+
Ipomoea indica	Blue Dawn Flower	M	1					+	+		•	+	+	+	+	•	•	+	+	+	+	+
Iris douglasiana + cvs	Douglas Iris	H/M	2				+	•	•			+	+	+	+	•	•	•	•	•	+	+
Isomeris arborea	Bladderpod	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Isoplexis canariensis	Canary Island Foxglove	M/L	2														+	+	+	+	+	+
Isopogon formosus	Rose Coneflower	M/L	2										+	+	+	+	+	+	+	+	+	+
Iva hayesiana	Hayes Iva	M/L	2									+	+	+	+	+	+	+	+	+	+	+
Jacaranda mimosifolia + cv	Jacaranda	M	1								+		+	+	+	+	+	+	+	+	+	+
Jasminum angulare	South African Jasmine	M	1											+	+	+	+	+	+	+	+	+
Jasminum humile	Italian Jasmine	M/L	2				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Jasminum laurifolium nitidum	Angelwing Jasmine	M	1											+			+	+	+	+	+	+
Jasminum mesnyi	Primrose Jasmine	M	1				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Jasminum officinale	Poet's Jasmine	M	1				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Jasminum polyanthum	Pink Jasmine	M	1				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Jasminum tortuosum	Twisted Jasmine	M	1				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Jubaea chilensis	Chilean Wine Palm	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Juglans californica var. californica	So. California Black Walnut	M/L	2													+	+	+	+	+	+	+
Juglans californica var. hindsii	No. California Black Walnut	M/L	2					+	+		+	+	+	+	+	+	+	+				
Juncus effusus + cvs	Common Rush	H	1	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Juncus pallidus	Giant Rush	H	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Juncus patens	California Gray Rush	H	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Juncus textilis	Basket Rush	H	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Juniperus californica	California Juniper	M/L	2			+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Juniperus chinensis + cvs	Chinese Juniper	M/L	2	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Juniperus horizontalis + cvs	Creeping Juniper	M	1	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Juniperus x pfitzeriana + cvs	Pfitzer Juniper	M/L	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Juniperus procumbens + cvs	Spreading Juniper	M	1	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Juniperus rigida conferta + cvs	Shore Juniper	M	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Juniperus sabina + cvs	Savin Juniper	M/L	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Juniperus scopulorum + cvs	Rocky Mountain Juniper	M/L	2	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Justicia brandegeana + cv	Shrimp Plant	M	1							•	+	+	+	+		+	+	+	+	+	+	+
Justicia californica	Chuparosa	M/L	2						+	+	+	+	+	+		+	+	+	+	+	+	+
Justicia spicigera	Mexican Honeysuckle	M/L	2								•	+	+	+	+	+	+	+	+	+	+	+
Kalanchoe beharensis	Felt Bush	L/VL	2								•				+		+	+	+	+	+	+
Kalanchoe luciae	Paddle Plant	L/VL	2								•				+		+	+	+	+	+	+
Kalanchoe pumila	Flower Dust Plant	L/VL	2								•				+		+	+	+	+	+	+
Keckiella antirrhinoides	Yellow Keckiella	M/L	2					+	+	•	•	+	+	+	+	•	+	+	+	+	+	+
Keckiella cordifolia	Heartleaf Penstemon	M/L	2				+	•	•			+	+	+	+	+	+	+	+	+	+	+
Kniphofia thompsonii	NCN	M	1				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Kniphofia triangularis + cv	NCN	M	1		+	+	+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Kniphofia uvaria + cvs	Red-hot Poker	M	1		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Koelreuteria bipinnata	Chinese Flame Tree	M	1					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Koelreuteria elegans	Flamegold	M	1									+	+	+	+	+	+	+	+	+	+	+
Koelreuteria paniculata	Goldenrain Tree	M	1		+	+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Lagerstroemia fauriei + cvs	Japanese Crape Myrtle	M	1				+	+	+	+	+	+				+	+	+	+			
Lagerstroemia indica + cvs	Crape Myrtle	M	1				+		+	+	+	+				+	+	+	+			
Lagunaria patersonii	Primrose Tree	M/L	2								•		+	+	+	+	+	+	+	+	+	+
Lampranthus aurantiacus	NCN	L/VL	2								•		+	+	+	+	+	+	+	+	+	+
Lampranthus deltoides	NCN	L/VL	2								•		+	+	+	+	+	+	+	+	+	+
Lampranthus productus	NCN	L/VL	2								•		+	+	+	+	+	+	+	+	+	+
Lampranthus spectabilis	NCN	L/VL	2								•		+	+	+	+	+	+	+	+	+	+
Lantana camara + cvs	Yellow Sage	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Lantana montevidensis + cv	Trailing Lantana	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Larrea tridentata	Creosote Bush	L/VL	2				+	+	+	+						+	+	+				+
Laurus nobilis	Sweet Bay	M/L	2				+	+	+	•	+	+	+	+	+	+	+	+	+	+	+	+
Lavandula angustifolia	English Lavender	M/L	2		+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Lavandula dentata	French lavender	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Lavandula 'Goodwin Creek Gray'	NCN	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Lavandula x intermedia + cvs	Lavadin	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Lavandula multifida	Fernleaf Lavender	M/L	2											+	+	+	+	+	+	+	+	+
Lavandula stoechas + cvs	Spanish Lavender	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Lavatera assurgentiflora + cv	Malva Rosa	M/L	2									+	+	+	+	•	•	+	+	+	+	+
Lavatera maritima	Sea Mallow	M/L	2				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Lavatera thuringiaca	NCN	M	1		+	+	+	+	+			+	+	+	+	•	•	+	+	+	+	+
Leonotis leonurus	Lion's Tail	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Leonotis menthifolia	NCN	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Leptospermum 'Dark Shadows'	NCN	M/L	2									+	+	+	+	+	+	+	+	+	+	+
Leptospermum laevigatum + cv	Australian Tea Tree	M/L	2									+	+	+	+	+	+	+	+	+	+	+
Leptospermum petersonii	Lemon-scented Tea Tree	M/L	2									+	+	+	+	+	+	+	+	+	+	+
Leptospermum scoparium + cvs	New Zealand Tea Tree	M/L	2									+	+	+	+	+	+	+	+	+	+	+
Leucadendron argenteum	Silver Tree	M	1											+	+			+	+	+	+	+
Leucadendron cultivars	NCN	M/L	2											+	+			+	+	+	+	+
Leucophyllum candidum + cvs	NCN	L/VL	2				+	+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Leucophyllum frutescens + cvs	Texas Ranger	L/VL	2				+	+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Leucophyllum laevigatum	Chihuahuan Sage	L/VL	2				+	+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Leucospermum catherinae	Catherine Wheel Pincushion	M/L	2										+	+	+		+	+	+	+	+	+
Leucospermum cordifolium + cvs	Nodding Pincushion	M/L	2										+	+	+		+	+	+	+	+	+
Leucospermum reflexum + cv	Skyrocket Pincushion	M/L	2										+	+	+		+	+	+	+	+	+
Leymus arenarius	Blue Lyme Grass	M	1	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Leymus cinereus	Gray Wild Rye	M/L	2	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Leymus condensatus + cvs	Giant Wild Rye	M/L	2				+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Leymus triticoides	Creeping Wild Rye	M	1				+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Ligustrum japonicum + cvs	Japanese Privet	M	1				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Ligustrum lucidum	Glossy Privet	M	1				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Ligustrum ovalifolium	California Privet	M	1			+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Limonium perezii	Sea Lavender	M/L	2								•		+	+	+		+	+	+	+	+	+
Liquidambar formosana	Chinese Sweet Gum	M	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Liquidambar styraciflua + cvs	American Sweet Gum	M	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Liriodendron tulipifera	Tulip Tree	H	1		+	+	+	+	+			+	+	+	+	•	•	+	+	+	+	+
Liriope muscari + cvs	Big Blue Lily Turf	M	1		+	+	+	•	•			+	+	+	+	•	•	•	•	•	•	+
Liriope spicata	Creeping Lily Turf	M	1			+	+	•	•			+	+	+	+	•	•	•	•	•	•	+
Lithodora diffusa	NCN	M	1				+					+	+	+								
Livistona australis	Cabbage Palm	M	1						+		+	+	+	+			+	+	+	+	+	+
Livistona chinensis	Chinese Fan Palm	M	1						+		+	+	+	+			+	+	+	+	+	+
Livistona decipiens	Ribbon Fan Palm	M	1						+		+	+	+	+			+	+	+	+	+	+
Lobelia laxiflora	Mexican Bush Lobelia	M/L	2				+	+	+		+	+	+	+	+	+	+	+	+	+	+	+
Lomandra longifolia + cv	Spiny-Headed Mat Rush	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Lonicera x heckrottii	Gold Flame Honeysuckle	M	1		+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Lonicera hildebrandiana	Giant Burmese Honeysuckle	M	1									+	+	+			+	+	+	+	+	+
Lonicera hispidula	Twin Berry	M/L	2				+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Lonicera japonica 'Halliana'	Hall's Honeysuckle	M	1	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Lonicera sempervirens	Trumpet Honeysuckle	M	1		+	+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Lonicera subspicata	Chaparral Honeysuckle	M/L	2				+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Lophostemon confertus + cv	Brisbane Box	M	1										+	+	+		+	+	+	+	+	+
Loropetalum chinense + cvs	Fringe Flower	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Lotus berthelotii	Parrot's beak	M	1						•				+	+	+	•	•	+	+	+	+	+
Lotus scoparius	Deer Weed	L/VL	2				+	+	+		+	+	+	+	+	+	+	+	+	+	+	+
Lupinus albifrons	Silver Bush Lupine	L/VL	2									+	+	+	+	+	+	+	+	+	+	+
Lupinus arboreus	Coastal Bush Lupine	L/VL	2										+	+	+			+	+	+	+	+
Lupinus excubitus	Grape Soda Lupine	L/VL	2									+	+	+	+	+	+	+	+	+	+	+
Lyonothamnus f. var. asplenifolius	Fernleaf Catalina Ironwood	M/L	2									+	+	+	+		+	+	+	+	+	+
Lysiloma watsonii var. thornberi	Feather Bush	M/L	2								+	+	+	+	+	+	+	+	+	+	+	+
Macadamia integrifolia	Smooth-shell Macadamia	M	1						+					+	+		+	+	+	+	+	+
Macadamia tetraphylla	Rough-shell Macadamia	M	1						+					+	+		+	+	+	+	+	+
Macfadyena unguis-cati	Cat's Claw	M	1					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Magnolia grandiflora + cvs	Southern Magnolia	M	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Magnolia stellata	Star Magnolia	M	1		+	+	+	•	•			+	+	+	+	•	•	•	•	•	•	+
Magnolia x soulangeana + cvs	Saucer Magnolia	M	1		+	+	+	•	•			+	+	+	+	•	•	•	•	•	•	+
Malephora crocea	Ice Plant	L/VL	2							•	•	+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Master Checklist

Plant Factors | Climate Zones

Plant Climate Zone Summary

The California Plant Climate Zones chart indicates the approximate adaptability of plants to the average range of low and high temperatures that occur differently throughout California. Some plants can grow well in all zones, but often they grow best in zones that reflect their natural adaptation to cold and heat. As a result, some plants do better with cooler conditions while others show a clear preference for warmer conditions. Three symbols, as shown and defined below, provide additional insight regarding the relationship between plants and climate zones.

- (+) Indicates a high degree of compatibility with the average range of cold and warm temperatures.
- (•) Indicates a preference for cooler exposures and microclimate conditions with protection from hot sun.
- (o) Indicates a preference for warmer exposures and microclimate conditions.

More information on adaptability of individual plants to California Climate Zones is provided in Section Four - Illustrated Plant Compendium, beginning on page 158. California Plant Climate Zone descriptions and maps can be found on pages 12-17.

Below: The ornamental character of *Magnolia grandiflora* is best when placed in Irrigation Group 1 where it receives moderate (M) amounts of supplemental water throughout the year. It is adapted to Plant Climate Zones 7-9 and 14-24.

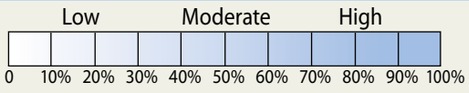
PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
M	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+

Master Checklist

Plant Factors | Climate Zones

Plant Factors (PF)

Each plant species included in the master checklist is shown with a plant factor to represent its estimated supplemental water needs as a percent of local **ETo** rates. Two types of plant factors are used. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors provide a range for estimating water budgets and adjusting irrigation schedules to sustain healthy growth and positive aesthetic character.



Irrigation Groups (IG)

Water needs of plants vary throughout the year. This checklist includes a recommended irrigation group for each species listed to help organize plants into hydrozones, reflecting key seasonal moisture needs. Plants are not strictly confined to any one irrigation group, however, these groups indicate baseline preferences.

IG 1 = Regular Water Schedule
IG 2 = Reduced Summer Water Schedule

Plant factors and irrigation groups are intended to serve as a guide for addressing water needs of plants in California landscapes and gardens. Additional discussion on estimating water needs of plants can be found on pages 18-23.

Below: *Muhlenbergia lindheimeri* grows well in Climate Zones 7-24 in Irrigation Group 2. It is adapted to moderate amounts of moisture through early spring and low amounts during summer.

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Malephora lutea	Rocky Point Ice Plant	L/VL	2								•	+	+	+	+	+	+	+	+	+	+	+
Malosma laurina	Laurel Sumac	L/VL	2									+	+	+	+		+	+	+	+	+	+
Mandevilla species + cvs	NCN	M	1														+	+	+	+	+	+
Maytenus boaria	Mayten Tree	M	1					•	•			+	+	+	+	•	+	+	+	+	+	+
Melaleuca armillaris	Drooping Melaleuca	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Melaleuca decussata	Totem Poles	M	1						+			+	+	+	+	+	+	+	+	+	+	+
Melaleuca elliptica	Granite Bottlebrush	M/L	2						+			+	+	+	+	+	+	+	+	+	+	+
Melaleuca incana	Gray Honey Myrtle	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Melaleuca linariifolia	Flaxleaf Paperbark	M	1						+		+	+	+	+	+	+	+	+	+	+	+	+
Melaleuca nesophila	Pink Melaleuca	M/L	2								+			+	+	+	+	+	+	+	+	+
Melaleuca quinquenervia	Cajeput Tree	M	1						+		+		+	+	+	+	+	+	+	+	+	+
Melaleuca styphelioides	Prickly Paperbark	M	1						+		+	+	+	+	+	+	+	+	+	+	+	+
Melampodium leucanthum	Blackfoot Daisy	L/VL	2		+	+				+	+					+	+					
Melia azedarach + cv	Chinaberry	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Melianthus species	Honey Bush	M/L	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Melinus nerviglumis	Ruby Grass	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Metasequoia glyptostroboides	Dawn Redwood	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Metrosideros collina + cv	Lehua	M	1											+	+			+	+	+	+	+
Metrosideros excelsus	New Zealand Christmas Tree	M/L	2											+	+			+	+	+	+	+
Metrosideros kermadecensis + cvs	Dwarf Pohutakawa	M	1											+	+			+	+	+	+	+
Michelia champaca	Champaca	M	1											+	+	•	•	+	+	+	+	+
Michelia doltsopa	NCN	M	1						•			+	+	+	+	•	•	+	+	+	+	+
Michelia figo	Banana Shrub	M	1						•			+	+	+	+	•	•	+	+	+	+	+
Michelia x foggii	NCN	M	1						•			+	+	+	+	•	•	+	+	+	+	+
Michelia yunnanensis	NCN	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Microlepia strigosa	Lace Fern	M	1												+		•	+	+	+	+	+
Mimulus aurantiacus + cvs	Sticky Monkey Flower	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Mimulus cardinalis	Scarlet Monkey Flower	M/L	2		+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Mimulus guttatus	Seep Monkey Flower	H/M	2		+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Miscanthus 'Giganteus'	Giant Silver Grass	H/M	2		+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Miscanthus sinensis + cvs	Eulalia	H/M	2		+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Miscanthus transmorrisonensis	Taiwanese Miscanthus	H/M	2		+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Monstera deliciosa	Split-leaf Philodendron	H	1											+	+		•	+	+	+	+	+
Montanoa grandiflora	Mexican Tree Daisy	M	1											+	+		•	+	+	+	+	+
Morus alba + cvs	White Mulberry	M	1		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Muehlenbeckia axillaris	Creeping Wire Vine	M	1			+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Muehlenbeckia complexa	Matress Vine	M	1					•	•			+	+	+	+	•	•	+	+	+	+	+
Muhlenbergia capillaris	Pink Muhly	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Muhlenbergia dubia	Mexican Muhly	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Muhlenbergia dumosa	Bamboo Muhly	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Muhlenbergia lindheimeri	Lindheimer's Muhly	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Muhlenbergia rigens	Deer Grass	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Musa acuminata	NCN	H	1					+	+			+	+	+	+		+	+	+	+	+	+
Musa x paradisiaca	Banana Palm	H	1						+			+	+	+			+	+	+	+	+	+
Myoporum laetum + cv	NCN	M	1					+	+			+	+	+	+		+	+	+	+	+	+
Myoporum x 'Pacifica'	NCN	M	1											+	+	+	+	+	+	+	+	+
Myoporum parvifolium + cvs	Prostrate Myoporum	M	1					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Myrica californica	Pacific Wax Myrtle	M/L	2				+	+	+			+	+	+	+	•	•	+	+	+	+	+
Myrsine africana	African Boxwood	M	1					+	+			+	+	+	+	•	•	+	+	+	+	+
Myrtus communis + cvs	True Myrtle	M	1					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nandina domestica + cvs	Heavenly Bamboo	M	1			+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Nassella cernua	Nodding Needle Grass	L/VL	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Nassella lepida	Foothill Needle Grass	L/VL	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Nassella pulchra	Purple Needle Grass	L/VL	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Nassella speciosa	Desert Needle Grass	L/VL	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Nassella tenuissima	Mexican Feather Grass	L/VL	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Nepeta x faassenii	Catmint	M	1	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Nephrolepis cordifolia	Southern Sword Fern	M	1					•	•		•	+	+	+	+	•	•	+	+	+	+	+
Nerium oleander + cvs	Oleander	M/L	2					+	+	+	+	+	+	+		+	+	+	+	+	+	+
Nolina matapensis	Tree Beargrass	L/VL	2							+	+					+	+					
Nolina microcarpa	Beargrass	L/VL	2							+	+					+	+					
Nolina nelsoni	Blue Nolina	L/VL	2							+	+					+	+					
Nolina parryi	Parry Beargrass	L/VL	2		+	+	+	+	+	+	+	+	o	o	o	+	+	+	+	+	+	+
Oenothera speciosa + cvs	Mexican Evening Primrose	M/L	2		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Olea europaea + cvs	Olive	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Olneya tesota	Desert Ironwood	M/L	2					+	+	+	+	+				+	+	+	o	o	o	o
Ophiopogon jaburan	White Lily Turf	M	1				+	•	•			+	+	+	+	•	•	•	•	•	•	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Ophiopogon japonicus + cvs	Mondo Grass	M	1				+	•	•			+	+	+	+	•	•	•	•	•	•	+
Ophiopogon planiscapus 'Nigrescens'	Black Mondo Grass	M	1				+	•	•			+	+	+	+	•	•	•	•	•	•	+
Opuntia basilaris	Beavertail Cactus	L/VL	2					+	+		+	+	o	o	o	+	+	+	+	+	+	+
Opuntia ficus-indica	Indian Fig	L/VL	2					+	+		+	+	o	o	o	+	+	+	+	+	+	+
Opuntia lindheimeri v. linguiformis	Cow's Tongue	L/VL	2					+	+		+	+	o	o	o	+	+	+	+	+	+	+
Opuntia microdasys	Bunny Ears	L/VL	2					+	+		+	+	o	o	o	+	+	+	+	+	+	+
Opuntia robusta	NCN	L/VL	2					+	+		+	+	o	o	o	+	+	+	+	+	+	+
Opuntia violaceae + var	Purple Prickly Pear	L/VL	2					+	+		+	+	o	o	o	+	+	+	+	+	+	+
Ornithostaphylos oppositifolia	Palo Blanco	L/VL	2													+	+	+	+	+	+	
Osmanthus fragrans	Sweet Olive	M	1				+	•	•			+	+	+	+	•	•	+	+	+	+	+
Osteospermum fruticosum	Trailing African Daisy	L	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Osteospermum jucundum	NCN	L	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Otatea acuminata	Mexican Weeping Bamboo	M	1								•	+	+	+	+	+	+	+	+	+	+	+
Pachycereus marginatus	Mexican Fence Post Cactus	L/VL	2								+						+	+	+	+	+	+
Pandorea jasminoides + cvs	Bower Vine	M	1											+	+	+	+	+	+	+	+	+
Pandorea pandorana + cv	Yellow Wonga Wonga Vine	M	1											+	+	+	+	+	+	+	+	+
Panicum virgatum + cvs	Switch Grass	M	1	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Parkinsonia aculeata	Mexican Palo Verde	M/L	2					+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Parkinsonia x 'Desert Museum'	NCN	M/L	2							+	+	o				+	+	+	+	+	+	+
Parkinsonia florida	Blue Palo Verde	M/L	2					+	+	+	+	o				+	+	+	+	+	+	+
Parkinsonia microphylla	Littleleaf Palo Verde	M/L	2					+	+	+	+	o				+	+	+	+	+	+	+
Parkinsonia praecox	Palo Brea	M/L	2							+	+	o				+	+	+	+	+	+	+
Parthenocissus henryana	Silvervein Creeper	M	1				+	+	+			+	+	+	+							
Parthenocissus quinquefolia	Virginia Creeper	M	1	+	+	+	+	+	+	•	•	+	o	+	+	+	+	+	+	+	+	+
Parthenocissus tricuspidata	Boston Ivy	M	1	+	+	+	+	+	+	•	•	+	o	+	+	+	+	+	+	+	+	+
Passiflora species + cvs	Passion Vine	M	1				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Paulownia kawakamii	Sapphire Dragon Tree	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Paulownia tomentosa	Empress Tree	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pedilanthus macrocarpus	Lady's Slipper	M/L	2							+	+					+	+					o
Pelargonium peltatum + cvs	Ivy Geranium	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Pelargonium x domesticum + cvs	Lady Washington Pelargonium	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Pelargonium x hortorum + cvs	Common Geranium	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Pennisetum x advena + cvs	Purple Fountain Grass	M	1								+			+	+	+	+	+	+	+	+	+
Pennisetum orientale	Oriental Fountain Grass	M	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Pennisetum setaceum	Tender Fountain Grass	L	1					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Penstemon centranthifolius	Scarlet Bugler	L/VL	2				+	+	+	+	+	+	o	o	o	+	+	+	+	+	+	o
Penstemon eatonii	Firecracker Penstemon	L/VL	2	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
Penstemon heterophyllus + cv	Foothill Penstemon	L/VL	2				+	+	+	+	+	+	o	o	o	+	+	+	+	+	+	o
Penstemon palmeri	Scented Penstemon	L/VL	2						+		+	+	+	+	+	+	+	+	+	+	+	+
Penstemon parryi	Parry's Penstemon	L/VL	2							+	+					+	+	+	+	+	+	o
Penstemon spectabilis	Showy Penstemon	L/VL	2									+	o	o	o	+	+	+	+	+	+	o
Perovskia atriplicifolia	Russian Sage	M/L	2			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Persicaria capitata	Pink Head	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Petrea volubilis	Queen's Wreath Vine	M	1														+	+	+	+	+	+
Phalaris arundinacea	Reed Canary Grass	M	1	+	+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Philadelphus lewisii + cv	Western Mock Orange	M/L	2	+	+	+	+	+	+			+	+	+	+	•	•	+	+	+	+	+
Philadelphus microphyllus	Littleleaf Mock Orange	M/L	2	+	+	+	+					+	+	+		+	+					
Philodendron bipinnatifidum + cvs	Tree Philodendron	M	1					o	o		•		+	+	+	+	•	+	+	+	+	+
Philodendron x evansii	NCN	M	1										+	+	+		•	+	+	+	+	+
Philodendron 'Xanadu'	NCN	M	1										+	+	+		•	+	+	+	+	+
Phlebodium aureum	Hare's Foot Fern	M	1										+	+	+		•	+	+	+	+	+
Phlomis fruticosa	Jerusalem Sage	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Phlomis lanata	NCN	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Phlomis purpurea	Purple Phlomis	M/L	2					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Phoenix canariensis	Canary Island Date Palm	M	1					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Phoenix dactylifera	Date Palm	M	1					+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Phoenix reclinata	Senegal Date Palm	M	1						+	+	+	o	o	o	o		+	+	+	+	+	+
Phoenix roebelenii	Pigmy Date Palm	M	1								•		o	o	o		+	+	+	+	+	+
Phormium tenax + cvs	New Zealand Flax	M	1					+	+	+		+	+	+	+	•	+	+	+	+	+	+
Photinia x fraseri	Fraser Photinia	M	1				+	+	+	•	•	+	+	+	+	•	+	+	+	+	+	+
Photinia glabra	Japanese Photinia	M	1				+	+	+			+	+	+	+	•	+	+	+	+	+	+
Photinia serratifolia	Chinese Photinia	M	1					+	+	•	•	+	+	+		•	+	+	+	+		
Phyllostachys aurea	Golden Bamboo	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Phyllostachys bambusoides + cvs	Japanese Timber Bamboo	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Phyllostachys nigra	Black Bamboo	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Phyllostachys vivax	Vivax Bamboo	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Pinus brutia var. eldarica	Afghan Pine	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Master Checklist

Plant Factors | Climate Zones

Plant Climate Zone Summary

The California Plant Climate Zones chart indicates the approximate adaptability of plants to the average range of low and high temperatures that occur differently throughout California. Some plants can grow well in all zones, but often they grow best in zones that reflect their natural adaptation to cold and heat. As a result, some plants do better with cooler conditions while others show a clear preference for warmer conditions. Three symbols, as shown and defined below, provide additional insight regarding the relationship between plants and climate zones.

(+) Indicates a high degree of compatibility with the average range of cold and warm temperatures.
(•) Indicates a preference for cooler exposures and microclimate conditions with protection from hot sun.
(o) Indicates a preference for warmer exposures and microclimate conditions.

More information on adaptability of individual plants to California Climate Zones is provided in Section Four - Illustrated Plant Compendium, beginning on page 158. California Plant Climate Zone descriptions and maps can be found on pages 12-17.

Below: *Parkinsonia* 'Desert Museum' has a Plant Factor of (M/L) and is placed in Irrigation Group 2, requiring moderate amounts of supplemental water during winter and spring, low amounts during summer. It grows best in Climate Zones 11-14 and 18-24.

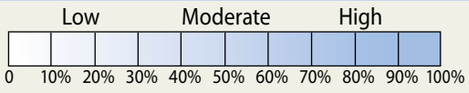
PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
M/L	2							+	+	o				+	+	+	+	+	+	+

Master Checklist

Plant Factors | Climate Zones

Plant Factors (PF)

Each plant species included in the master checklist is shown with a plant factor to represent its estimated supplemental water needs as a percent of local **ETo** rates. Two types of plant factors are used. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors provide a range for estimating water budgets and adjusting irrigation schedules to sustain healthy growth and positive aesthetic character.



Irrigation Groups (IG)

Water needs of plants vary throughout the year. This checklist includes a recommended irrigation group for each species listed to help organize plants into hydrozones, reflecting key seasonal moisture needs. Plants are not strictly confined to any one irrigation group, however, these groups indicate baseline preferences.

IG 1 = Regular Water Schedule
IG 2 = Reduced Summer Water Schedule

Plant factors and irrigation groups are intended to serve as a guide for addressing water needs of plants in California landscapes and gardens. Additional discussion on estimating water needs of plants can be found on pages 18-23.

Below: *Platanus racemosa* is adapted to Plant Climate Zones 7-24. It grows well with high amounts of moisture from winter through spring and moderate amounts during summer.

Botanical Name	Common Name	PF	IG	California Plant Climate Zones																				
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Pinus canariensis	Canary Island Pine	M/L	2					+	+	+	•	+	+	+	+	+	+	+	+	+	+	+
Pinus coulteri	Coulter Pine	L/VL	2				+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Pinus edulis	Pinon Pine	L/VL	2	+	+	+	+	+	+			+	+	+	+	+	+	+	+			
Pinus halepensis	Aleppo Pine	L/VL	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Pinus monophylla	Singleleaf Pinon	L/VL	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	
Pinus mugo	Mugo Pine	M/L	2	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+			
Pinus patula	Jelecote Pine	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pinus pinea	Italian Stone Pine	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pinus radiata	Monterey Pine	M/L	2	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Pinus sabiniana	Foothill Pine	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Pinus thunbergii	Japanese Black Pine	H/M	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pinus torreyana	Torrey Pine	L/VL	2									+	+	+	+	•	•	+	+	+	+	+
Pistacia chinensis	Chinese Pistache	M	1			+	+	+	+			+	+	+	+	+	+	+	+			
Pittosporum angustifolium	Weeping Pittosporum	M/L	2			+	+	+	•			+	+	+	+	+	+	+	+			
Pittosporum crassifolium + cv	Karo	M	1					+		+		+	+	+	+	+	+	+	+	+	+	+
Pittosporum eugenioides + cv	NCN	M	1					+		+		+	+	+	+	+	+	+	+	+	+	+
Pittosporum rhombifolium	Queensland Pittosporum	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Pittosporum tenuifolium + cvs	NCN	M	1						+	+	+	+	+	+	+		+	+	+	+	+	+
Pittosporum tobira + cvs	Tobira	M	1						+			+	+	+	+		+	+	+	+	+	+
Pittosporum undulatum	Victorian Box	M	1									+	+	+	+	•	+	+	+	+	+	+
Platanus x acerifolia + cvs	London Plane Tree	M	1						+		•	+	+	+	+		+	+	+	+	+	+
Platanus mexicana	Mexican Sycamore	M	1					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Platanus racemosa	Western Sycamore	H/M	2									+	+	+	+	+	+	+	+	+	+	+
Platycladus orientalis	Oriental Arborvitae	M	1			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Plecostachys serpyllifolia	NCN	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Pleioblastus auricomus	NCN	M	1			+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Pleioblastus pygmaeus	Pygmy Bamboo	M	1			+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Pleioblastus shibuyanus 'Tsuboi'	Dwarf Variegated Bamboo	M	1			+	+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Plumbago auriculata	Cape Plumbago	M/L	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Plumeria species + cvs	Frangipani	M	1								•						+	+	+	+	+	+
Podocarpus henkelii	Long-leafed Yellowwood	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Podocarpus latifolius	Yellowwood	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Podocarpus macrophyllus + cv	Yew Pine	M	1				+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Podranea ricasoliana	Pink Trumpet Vine	M	1						+		•	+	+	+	+	+	+	+	+	+	+	+
Polygala x dalmaisiana	Sweet-pea Shrub	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Polygala fruticosa 'Petite Butterflies'	NCN	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Polypodium californicum	California Polypody	M/L	2						•			•	•	•	•	•	•	•	•	•	•	•
Polystichum californicum	California Sword Fern	H/M	2		•	•	•					•	•	•	•	•	•	•	•	•	•	•
Polystichum munitum	Western Sword Fern	H/M	2		•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	•
Polystichum polyblepharum	Japanese Tassel Fern	H	1				•	•	•			•	•	•	•	•	•	•	•	•	•	•
Populus fremontii + cv	Western Cottonwood	H	1	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Populus nigra 'Italica'	Lombardy Poplar	H	1	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Portulacaria afra	Elephant's Food	L/VL	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Potentilla neumanniana	Spring Cinquefoil	M	1	+	+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Prosopis alba + cvs	Argentine Mesquite	M/L	2					+	+	+	+					+	+	+	+	+	+	+
Prosopis chilensis	Chilean Mesquite	M/L	2					+	+	+	+					+	+	+	+	+	+	+
Prosopis glandulosa + cvs	Texas Honey Mesquite	M/L	2					+	+	+	+					+	+	+	+	+	+	+
Prosopis 'Phoenix'	NCN	M/L	2					+	+	+	+					+	+	+	+	+	+	+
Prosopis pubescens	Screw Bean	M/L	2					+	+	+	+					+	+	+	+	+	+	+
Prosopis velutina	Arizona Mesquite	M/L	2					+	+	+	+					+	+	+	+	+	+	+
Prunus caroliniana + cvs	Carolina Laurel Cherry	M	1				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Prunus cerasifera + cvs	Purple-leaf Plum	M	1			+	+	+	+	+	•	+	+	+	+	+	+	+	+	+	+	+
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2				+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Prunus ilicifolia ssp. lyonii	Catalina Cherry	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Prunus laurocerasus + cvs	English Laurel	M	1				+	+	+			+	+	+	+							
Psidium cattleianum + cv	Strawberry Guava	M	1						+			+	+	+	+	+	+	+	+	+	+	+
Psidium guajava	Yellow Guava	M	1															+	+	+	+	+
Psorothamnus spinosus	Smoke Tree	M/L	2							+	+											
Punica granatum + cvs	Pomegranate	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pyracantha coccinea + cvs	Scarlet Firethorn	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pyracantha cultivars	Firethorn	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pyrostegia venusta	Flame Vine	M	1								•						+	+	+	+	+	+
Pyrus calleryana + cvs	Callery Pear	M	1		+	+	+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Pyrus kawakamii	Evergreen Pear	M	1		+	+	+	+	+		•	+	+	+	+	+	+	+	+	+	+	+
Quercus agrifolia	Coast Live Oak	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Quercus chrysolepis	Canyon Live Oak	H/M	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Quercus douglasii	Blue Oak	L/VL	2			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Quercus engelmannii	Mesa Oak	M/L	2				+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Quercus ilex	Holm Oak	M/L	2				+	+	+	+	•	+	+	+	+	+	+	+	+	+	+	+
Quercus kelloggii	California Black Oak	M/L	2				+		+			+	+	+	+	+	+	+	+			
Quercus lobata	Valley Oak	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Quercus palustris	Pin Oak	M	1		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Quercus suber	Cork Oak	M/L	2				+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
Quercus virginiana	Southern Live Oak	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ravenea rivularis	Majesty Palm	M	1														+	+	+	+	+	+
Rhamnus alaternus	Italian Buckthorn	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Rhamnus californica + cvs	California Coffeeberry	M/L	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Rhamnus crocea	Redberry	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Rhaphiolepis indica + cvs	India Hawthorn	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Rhaphiolepis x 'Majestic Beauty'	NCN	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Rhaphiolepis umbellata	Yedda Hawthorne	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Rhapis excelsa	Lady Palm	M	1							•	+	+	+	+	•	•	•	•	+	+	+	
Rhapis humilis	Slender Lady Palm	M	1											+	+		•	•	•	+	+	+
Rhodanthemum hosmariense	Moroccan Daisy	M/L	2									o	o	o	o	+	+	+	+	+	+	+
Rhodocoma capensis	NCN	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Rhodocoma fruticosa	NCN	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Rhodocoma gigantea	NCN	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Rhododendron cultivars	Southern Indica Hybrids	M	1					•	•			+	+	+	+	•	•	•	•	+	+	+
Rhoicissus capensis	Evergreen Grape	M	1										+	+	+	+			+	+	+	+
Rhus integrifolia	Lemonade Berry	L/VL	2					+	+			+	+	+	+		+	+	+	+	+	+
Rhus lancea	African Sumac	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rhus lentii	Pink Flowering Sumac	L/VL	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Rhus ovata	Sugar Bush	L/VL	2						+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ribes aureum	Golden Currant	M/L	2	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Ribes sanguineum + var	Red Flowering Currant	H/M	2	+	+	+	+	•	•	+		+	+	+	+	•	•	•	+	+	+	+
Ribes speciosum	Fuchsia-flowered Gooseberry	M/L	2				+	•	•	+		+	+	+	+	•	•	•	+	+	+	+
Ribes viburnifolium	Evergreen Currant	M/L	2				+	•	•	+		+	+	+	+	•	•	•	+	+	+	+
Robinia x ambigua + cvs	NCN	M/L	2		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Robinia pseudoacacia	Black Locust	M/L	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Roldana petasitis	Velvet Groundsel	M/L	2												+		+	+	+	+	+	+
Romneya coulteri + cv	Matilija Poppy	L/VL	2				+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Romneya trichocalyx	Hairy Matilija Poppy	L/VL	2				+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Rosa banksiae + cvs	Lady Bank's Rose	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rosa californica	California Rose	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Rosa 'Cécile Brünner'	Sweetheart rose	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rosa floribunda + cvs	Floribunda Rose	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rosa 'Joseph's Coat'	NCN	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rosa mutabilis	Butterfly Rose	M	1		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rosa rugosa	Rugosa Rose	M	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rosmarinus officinalis + cvs	Rosemary	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Rudbeckia species + cvs	NCN	M	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ruellia brittoniana + cvs	Compact Ruellia	M/L	2							+	+					+	+					
Ruellia californica	NCN	M/L	2							+	+						+	+	+	+	+	+
Ruellia peninsularis	Desert Ruellia	M/L	2								+	+	+	+	+		•	•	•	+	+	+
Rumohra adiantiformis	Leather Fern	M	1									+	+	+		•	•	•	+	+	+	
Ruscus aculeatus	Butcher's Broom	M/L	2				+	•	•			+	+	+	+	•	•	•	•	+	+	+
Ruscus hypoglossum	NCN	M/L	2				+	•	•			+	+	+	+	•	•	•	•	+	+	+
Russelia equisetiformis	Coral Plant	M	1								•	+					+	+	+	+	+	+
Salix babylonica + cvs	Weeping Willow	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salix exigua	Narrow-leaved Willow	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salix 'Golden Curls'	Golden Corkscrew Willow	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salix gooddingii	Black Willow	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salix laevigata	Red Willow	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salix lasiolepis	Arroyo Willow	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salix lucida	Spring Willow	H	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia africana-lutea	Golden Sage	L/VL	2									+	+	+	+	+	+	+	+	+	+	+
Salvia apiana	White Sage	L/VL	2				+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Salvia 'Bee's Bliss'	Bee's Bliss Sage	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia brandegeei	Santa Rosa Island Sage	L/VL	2										+	+	+		+	+	+	+	+	+
Salvia canariensis	Canary Island Sage	L/VL	2						+			+	+	+	+	+	+	+	+	+	+	+
Salvia chamaedryoides	Germander Sage	L/VL	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia chiapensis	Chiapas Sage	M	1												+		+	+	+	+	+	+
Salvia clevelandii + cvs	Cleveland Sage	L/VL	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Master Checklist

Plant Factors | Climate Zones

Plant Climate Zone Summary

The California Plant Climate Zones chart indicates the approximate adaptability of plants to the average range of low and high temperatures that occur differently throughout California. Some plants can grow well in all zones, but often they grow best in zones that reflect their natural adaptation to cold and heat. As a result, some plants do better with cooler conditions while others show a clear preference for warmer conditions. Three symbols, as shown and defined below, provide additional insight regarding the relationship between plants and climate zones.

(+) Indicates a high degree of compatibility with the average range of cold and warm temperatures.
(•) Indicates a preference for cooler exposures and microclimate conditions with protection from hot sun.
(o) Indicates a preference for warmer exposures and microclimate conditions.

More information on adaptability of individual plants to California Climate Zones is provided in Section Four - Illustrated Plant Compendium, beginning on page 158. California Plant Climate Zone descriptions and maps can be found on pages 12-17.

Below: *Rhapis humilis* is placed in Irrigation Group 1 and grows best with moderate (M) amounts of supplemental water throughout the year. It is adapted to Plant Climate Zones 13-24. Planting in partial shade with protection from hot sun in Zones 13 and 18-19 is recommended.

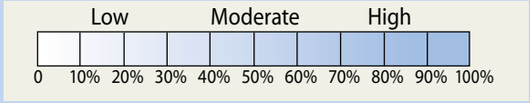
PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
M	1								•	+	+	+	+	•	•	+	+	+	+	+

Master Checklist

Plant Factors | Climate Zones

Plant Factors (PF)

Each plant species included in the master checklist is shown with a plant factor to represent its estimated supplemental water needs as a percent of local **ETo** rates. Two types of plant factors are used. Plants with a single plant factor (L, M, H) grow best with regular water all year; plants with two factors (L/VL, M/L, H/M) grow best with regular winter moisture and reduced summer moisture. These factors provide a range for estimating water budgets and adjusting irrigation schedules to sustain healthy growth and positive aesthetic character.



Irrigation Groups (IG)

Water needs of plants vary throughout the year. This checklist includes a recommended irrigation group for each species listed to help organize plants into hydrozones, reflecting key seasonal moisture needs. Plants are not strictly confined to any one irrigation group, however, these groups indicate baseline preferences.

IG 1 = Regular Water Schedule
IG 2 = Reduced Summer Water Schedule

Plant factors and irrigation groups are intended to serve as a guide for addressing water needs of plants in California landscapes and gardens. Additional discussion on estimating water needs of plants can be found on pages 18-23.

Below: *Schinus molle* is well adapted to Plant Climate Zones 8-9 and 13-24 where it grows with low to very low (L/VL) amounts of moisture. It is placed in Irrigation Group 2 to receive low amounts of supplemental water through early spring and very low amounts of water during summer.

Botanical Name	Common Name	PF	IG	California Plant Climate Zones																				
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Salvia greggii + cvs	Autumn Sage	L/VL	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salvia leucantha + cvs	Mexican Bush Sage	M/L	2								+	+	+	+	+	+	+	+	+	+	+	+
Salvia leucophylla + cvs	Purple Sage	L/VL	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia mellifera + cvs	Black Sage	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia microphylla	Cherry Sage	L/VL	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salvia 'Mrs. Beard'	Mrs. Beard Sage	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia officinalis + cvs	Garden Sage	M/L	2		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salvia sonomensis	Creeping Sage	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia spathacea	Hummingbird Sage	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Salvia uliginosa	Bog Sage	M	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Sambucus nigra ssp. mexicana	Blue Elderberry	M/L	2		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Santolina chamaecyparissus + cvs	Lavender Cotton	M/L	2		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Santolina pinnata + cv	NCN	M/L	2			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Santolina virens	NCN	M/L	2			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Sapien sebiferum	Chinese Tallow Tree	M	1					+	+			+	+	+		+	+	+	+	+	+	+
Schefflera actinophylla	Queensland Umbrella Tree	M	1														+	+	+	+	+	+
Schefflera arboricola	Hawaiian Elf Schefflera	H	1														+	+	+	+	+	+
Schefflera elegantissima	False Aralia	M	1											+	+		•	•	+	+	+	+
Schefflera pueckleri	Mallet Flower	M	1														+	+	+	+	+	+
Schinus molle	Pepper Tree	L/VL	2					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Schinus polygamus	Peruvian Pepper	L/VL	2								+	+	+	+	+	+	+	+	+	+	+	+
Schinus terebinthifolius	Brazilian Pepper Tree	M/L	2								+	+	+	+	+	+	+	+	+	+	+	+
Sedum album	White Stonecrop	L/VL	2	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Sedum 'Autumn Joy'	NCN	M	1	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Sedum burrito	Baby Burro's Tail	L/VL	2											o			•	+	+	+	+	+
Sedum morganianum	Donkey Tail	L/VL	2											o			•	+	+	+	+	+
Sedum nussbaumerianum	NCN	L/VL	2											o			•	+	+	+	+	+
Sedum pachyphyllum	Jelly-bean	L/VL	2				+	+		•	+	+	+	+	+	+	+	+	+	+	+	
Sedum praealtum	NCN	L/VL	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Sedum x rubrotinctum	Pork and Beans	L/VL	2					+	+		•	+	+	+	+	+	+	+	+	+	+	+
Sedum rupestre	Crooked Stonecrop	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Sedum spurium	NCN	L/VL	2	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Senecio cineraria	Dusty Miller	L	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Senecio serpens	Blue Chalksticks	L/VL	2											+	+		+	+	+	+	+	+
Senecio talinoides + var.	NCN	L/VL	2								+			+	+		+	+	+	+	+	+
Senecio viravira	Dusty Miller	L/VL	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Senna artemisioides	Feathery Cassia	L/VL	2								+	+	+	+		+	+	+	+	+	+	
Senna nemophila	Desert Cassia	L/VL	2								+						+	+	+	+	+	
Senna phyllodinea	Silvery Cassia	L/VL	2								+						+	+	+	+	+	
Senna wislizenii	Shrubby Senna	L/VL	2							+	+					+	+	+	+	+	+	
Sequoia sempervirens + cvs.	Coast Redwood	H	1				+	+	+			+	+	+	+	•	•	•	•	•	•	•
Sequoiadendron giganteum	Giant Sequoia	M	1	+	+	+	+	+	+			+	+	+	+	•	•	•	•	•	•	
Sesleria autumnalis	Autumn Moor Grass	M	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Sesleria caerulea	Blue Moor Grass	M	1			+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Simmondsia chinensis	Jojoba	L/VL	2				+	+	+			o	o	o	o	+	+	+	+	+	+	+
Sisyrinchium bellum + cvs.	Blue-eyed Grass	M/L	2		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
Sisyrinchium californicum	Golden-eyed Grass	H/M	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Solandra maxima	Cup-of-Gold Vine	M	1										+	+	+	+	+	+	+	+	+	+
Solanum laxum	Potato Vine	M	1					+	+		+	+	+	+	+	+	+	+	+	+	+	+
Solanum rantonnetii + cv.	Paraguay Nightshade	M	1								+	+	+	+	+	+	+	+	+	+	+	+
Solanum seaforthianum	Brazilian Nightshade	M	1											+			+	+	+	+	+	+
Solanum wendlandii	Costa Rican Nightshade	M	1											+			+	+	+	+	+	+
Soleirolia soleirolii	Baby's Tears	H	1				•	•	•	•			•	•	•	•	•	•	•	•	•	•
Sollya heterophylla + cv.	Australian Bluebell Creeper	M/L	2				+	+			•	•	+	+	+	+	+	+	+	+	+	
Sophora japonica	Japanese Pagoda Tree	M	1			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sophora secundiflora	Mescal Bean	M/L	2					+	+	+	+	+	+	+		+	+	+	+	+	+	+
Spathodea campanulata + cv.	African Tulip Tree	M	1														+	+	+	+	+	+
Sphaeralcea ambigua + cvs.	Apricot Mallow	L/VL	2			+	+	+	+	+	+	o	o	o	o	+	+	+	+	+	+	+
Sporobolus airoides	Alkalai Sacaton	M/L	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stachys byzantina	Lamb's Ear	M/L	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stenocarpus sinuatus	Firewheel Tree	M	1											+	+		•	+	+	+	+	+
Stipa gigantea	Giant Feather Grass	M	1				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Strelitzia juncea	Narrow-leaf Bird of Paradise	M	1								•	+	+	+	+			+	+	+	+	+
Strelitzia nicolai	Giant Bird of Paradise	M	1											o		o	o	+	+	+	+	
Strelitzia reginae	Bird of Paradise	M	1								•	+	+	+	+		+	+	+	+	+	+
Syagrus romanzoffianum	Queen Palm	M	1								•		+	+	+		+	+	+	+	+	+
Syringa species + cvs	Lilac	M	1	+	+	+	+	+	+	•			+	+		•	•	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Botanical Name	Common Name	PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
Syzygium paniculatum + cv	Australian Brush Cherry	M	1											+	+	+	+	+	+	+	+	+
Tabebuia chrysotricha	Golden Trumpet Tree	M	1								•			+	+		+	+	+	+	+	+
Tabebuia impetiginosa	Pink Trumpet Tree	M	1								•		+	+			+	+	+	+	+	+
Tagetes lemmonii	Mt. Lemon Marigold	M/L	2					+	+	+		+	+	+	+	+	+	+	+	+	+	+
Taxodium distichum	Bald Cypress	M	1		+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+
Taxodium mucronatum	Montezuma Cypress	M	1				+	+	+		+	+	+	+	+	+	+	+	+	+	+	+
Tecoma capensis + cvs	Cape Honeysuckle	M/L	2								+						+	+	+	+	+	+
Tecoma stans + cvs	Yellow Bells	M/L	2								+						+	+	+	+	+	+
Tecoma x 'Orange Jubilee'	NCN	M/L	2								+						+	+	+	+	+	+
Tecoma x 'Sunrise'	NCN	M/L	2								+						+	+	+	+	+	+
Tetrastigma voinierianum	Chestnut Vine	M	1								+				+		+	+	+	+	+	+
Teucrium cossonii majoricum	Majorcan Teucrium	M/L	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Teucrium fruticans	Bush Germander	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Teucrium x lucidrys + cv	Wall Germander	M/L	2		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thevetia peruviana	Yellow Oleander	M	1								+						+	+	+	+	+	+
Thevetia thevetioides	Giant Thevetia	M	1								•								+	+	+	+
Thunbergia alata + cv	Black-eyed Susan	M	1								•						+	+	+	+	+	+
Thunbergia grandiflora	Sky Flower	M	1								•			+			+	+	+	+	+	+
Thunbergia gregorii	Orange Clock Vine	M	1								•			+			+	+	+	+	+	+
Thymus species + cvs	Thyme	M	1	+	+	+	+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Tibouchina heteromalla	NCN	M	1											+	+		+	+	+	+	+	+
Tibouchina urvilleana	Princess Flower	M	1											+	+		+	+	+	+	+	+
Tipuana tipu	Tipu Tree	M	1									+	+	+		+	+	+	+	+	+	+
Trachelospermum asiaticum	Asiatic Jasmine	M	1									+	+	+		+	+	+	+	+	+	+
Trachelospermum jasminoides	Star Jasmine	M	1				+	+	+	•	•	+	+	+	+	•	•	+	+	+	+	+
Trachycarpus fortunei	Windmill Palm	M	1					+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Trichostema lanatum	Woolly Blue Curls	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Tulbaghia simmleri	Sweet Wild Garlic	M	1									+	+	+	+	+	+	+	+	+	+	+
Tulbaghia violacea + cvs	Society Garlic	M	1									+	+	+	+	+	+	+	+	+	+	+
Ulmus parvifolia + cvs	Chinese Evergreen Elm	M	1								•	+	+	+	+	+	+	+	+	+	+	+
Umbellularia californica	California Bay	H/M	2			+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Venegasia carpesioides	Canyon Sunflower	H/M	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Verbena bonariensis	NCN	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Verbena x hybrida	Garden Verbena	M	1					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Verbena lilacina + cv	Cedros Island Verbena	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Verbena rigida	NCN	M/L	2			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Viburnum awabuki	Sweet Viburnum	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Viburnum rhytidophyllum	Leatherleaf Viburnum	M	1					+	+			+	+	+	+	+	+	+	+	+	+	+
Viburnum suspensum	Sandankwa Viburnum	M	1								•	+	+	+	+	+	+	+	+	+	+	+
Viburnum tinus + cvs	Laurustinus	M/L	2				+	+	+	•	•	+	+	+	+	+	+	+	+	+	+	+
Vigna caracalla	Snail Vine	M	1								•	+	+	+	+	+	+	+	+	+	+	+
Viguiera laciniata	San Diego County viguiera	VL/L	2													+	+	+	+	+	+	+
Vinca major	Bigleaf Periwinkle	M	1				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Vinca minor	Dwarf Periwinkle	M	1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Vitex agnus-castus	Chaste Tree	M/L	2				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Vitis californica + cvs	California Wild Grape	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Vitis 'Roger's Red'	NCN	M	1				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Washingtonia filifera	California Fan Palm	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Washingtonia robusta	Mexican Fan Palm	M/L	2					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Westringia fruticosa + cvs	Coast Rosemary	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Westringia 'Wynyabbie Gem'	NCN	M/L	2					+	+			+	+	+	+	+	+	+	+	+	+	+
Wisteria floribunda + cvs	Japanese Wisteria	M	1		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Wisteria sinensis + cvs	Chinese Wisteria	M	1			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Woodwardia fimbriata	Giant Chain Fern	M/L	2		+	+	+	•	•			+	+	+	+	•	•	+	+	+	+	+
Xanthorrhoea species	Grass Tree	L/VL	2								+	+	+	+	+	+	+	+	+	+	+	+
Xylosma congestum + cv	Shiny Xylosma	M	1					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Yucca baccata	Banana Yucca	L/VL	2				o	o	o	+	+	o	o	o	+	+	+	o	o	o	o	o
Yucca brevifolia	Joshua Tree	L/VL	2				o		o	+	+	o	o	o		+	+	o	o	o	o	o
Yucca elata	Soaptree Yucca	L/VL	2				o	o	o	+	+	o	o	o	+	+	+	o	o	o	o	o
Yucca elephantipes	Spineless Yucca	L/VL	2				o	+	+	+	+	o	o	o	o	+	+	o	o	o	o	o
Yucca filamentosa + cvs	Adam's Needle	L/VL	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Yucca gloriosa	Spanish Dagger	L/VL	2				+	+	+			+	+	+	+	+	+	+	+	+	+	+
Yucca recurvifolia	Soft Leaf Yucca	L/VL	2				+	+	+		+	+	+	+	+	+	+	+	+	+	+	+
Yucca rostrata	Beaked Yucca	L/VL	2				o	o	o	+	+	o	o	o	o	+	+	o	o	o	o	o
Zamia furfuracea	Cardboard Palm	M	1														•	+	+	+	+	+
Zelkova serrata	Sawleaf Zelkova	M	1			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Zoysia tenuifolia	Korean Grass	M	1					+	+		•	+	+	+	+	+	+	+	+	+	+	+
				1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24

Master Checklist

Plant Factors | Climate Zones

Plant Climate Zone Summary

The California Plant Climate Zones chart indicates the approximate adaptability of plants to the average range of low and high temperatures that occur differently throughout California. Some plants can grow well in all zones, but often they grow best in zones that reflect their natural adaptation to cold and heat. As a result, some plants do better with cooler conditions while others show a clear preference for warmer conditions. Three symbols, as shown and defined below, provide additional insight regarding the relationship between plants and climate zones.

(+) Indicates a high degree of compatibility with the average range of cold and warm temperatures.
(•) Indicates a preference for cooler exposures and microclimate conditions with protection from hot sun.
(o) Indicates a preference for warmer exposures and microclimate conditions.

More information on adaptability of individual plants to California Climate Zones is provided in Section Four - Illustrated Plant Compendium, beginning on page 158. California Plant Climate Zone descriptions and maps can be found on pages 12-17.

Below: The ornamental character of *Wisteria sinensis* is best with moderate (M) amounts of moisture throughout the year. It is adapted to Plant Climate Zones 3-24. Vines can be efficiently irrigated using bubblers when planted in paved areas.

PF	IG	California Plant Climate Zones 1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
M	1			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Agave vilmoriniana

Section Two
Plant Lists

This section contains a number of special purpose lists of plants that are designed to provide a range of planting choices for specific needs and interests. Each list is organized into an alphabetical listing of plants and includes information regarding plant factor and irrigation group as described in Section One - Plant Climate Zones and Water Estimates.

Checklists are helpful in providing the names of plants that fit specific needs and situations. Several lists bring attention to plants that grow well together due to their geographic and climatic adaptations. Other lists cover a range of functional uses and aesthetic characteristics of plants. Each list contains a brief summary of comments that can help in plant selection and use.

Plant List Abbreviations

cv/cvs	=	cultivar/cultivars	Indicates a plant of horticultural origin that has been produced and propagated in cultivation. Many plants grown for ornamental used are cultivars. Single quotes is placed around its name. An example of a cultivar is: *Abutilon pictum* 'Thompsonii'
ssp	=	subspecies	Indicates a plant species with two or more naturally occurring forms that exist in distinctly different areas of geographic distribution. An example of two subspecies: *Lyonothamnus floribundus* ssp. *asplenifolius* *Lyonothamnus floribundus* ssp. *floribundus* These subspecies occur on different Channel Islands:
var/vars	=	variety/varieties	Indicates a plant species with one or more naturally occurring forms that are distinctly different in character, but occur in the same geographic area. The two varieties of wild lilac listed below share the same coastal area of California; the first is a low growing form and the second has an upright habit: *Ceanothus thyrsiflorus* var. *horizontalis* (Prostrate habit) *Ceanothus thyrsiflorus* var. *thyrsiflorus* (Upright habit)
NCN	=	No Common Name	
PF	=	Plant Factor	The relative percentage of moisture needs based upon reference evapotranspiration (See page 18).
IG	=	Irrigation Group	A value representing the seasonal water needs group for this plant (See page 21).

Contents

Echinocactus grusonii

Plant Lists

California Native Plants

California's native flora is widely celebrated and renowned for its abundance and diversity which is due to a variety of physiographic and climatic factors. California consists of more than 158,690 square miles of highly varied topographical land features, including mountains, valleys, plains and river courses. Elevations range from over 14,000 ft. to below sea level. The entire western boundary lies adjacent to the Pacific Ocean, resulting in more than 1,340 miles of coastline that is exposed to strong maritime influences. These conditions combine to create many climate zones, geographic units and habitat areas, resulting in a native flora that includes more than 6,400 species that are widely adapted and organized into many plant communities.

This list presented on the next several pages covers a wide range of California native species, subspecies, varieties and cultivars that are included in this book. It is organized to provide a quick overview and design reference. More than 350 native plants are described in Section Four - Illustrated Plant Compendium, which were selected to reflect the range and diversity of plants widely used in ornamental landscapes and gardens throughout the state. Additionally, a number of horticultural plant palettes that include plants from this list are found in Section Three - Plant Palettes which provides examples of compatible species for various design situations.

Below: Monumental scale and bold character of a mature *Quercus agrifolia,* Santa Barbara Botanic Garden

Trees		PF	IG
Acacia farnesiana	Sweet Acacia	L/VL	2
Acer macrophyllum	Bigleaf Maple	H/M	2
Acer negundo var. californicum	California Box Elder	H/M	2
Aesculus californica	California Buckeye	L/VL	2
Alnus rhombifolia	White Alder	H	1
Alnus rubra	Red Alder	H	1
Arbutus menziesii	Madrone	M/L	2
Calocedrus decurrens	Incense Cedar	M/L	2
Celtis reticulata	Western Hackberry	M/L	2
Cercis occidentalis	Western Redbud	M/L	2
Chamaecyparis lawsoniana	Port Orford Cedar	M/L	2
Chilopsis linearis + cvs	Desert Willow	M/L	2
Chitalpa tashkentensis + cvs	Chitalpa	M/L	2
Cornus nuttallii	Western Dogwood	H/M	2
Cupressus arizonica	Arizona Cypress	L/VL	2
Cupressus forbesii	Tecate Cypress	L/VL	2
Cupressus macrocarpa	Monterey Cypress	M/L	2
Fraxinus dipetala	Foothill Ash	M/L	2
Juglans californica + var	California Black Walnut	L/VL	2
Lyonothamnus f. var. asplenifolius	Fernleaf Catalina Ironwood	L/VL	2
Lysiloma watsonii var. thornberi	Feather Bush	L/VL	2
Myrica californica	Pacific Wax Myrtle	M/L	2
Parkinsonia floridum	Palo Verde	M/L	2
Parkinsonia 'Desert Museum'	Desert Museum Palo Verde	M/L	2
Pinus coulteri	Coulter Pine	L/VL	2
Pinus edulis	Pinon Pine	L/VL	2
Pinus monophylla	Singleleaf Pinon	L/VL	2
Pinus radiata	Monterey Pine	M/L	2
Pinus sabiniana	Foothill Pine	L/VL	2
Pinus torreyana	Torrey Pine	L/VL	2
Platanus racemosa	Western Sycamore	H/M	2
Populus fremontii	Western Cottonwood	H/M	2
Prosopis glandulosa + var	Honey Mesquite	M/L	2
Prunus ilicifolia ssp. lyonii	Catalina Cherry	M/L	2
Psorothamnus spinosus	Smoke Tree	L/VL	2
Quercus agrifolia	Coast Live Oak	M/L	2
Quercus chrysolepis	Canyon Live Oak	M/L	2
Quercus douglasii	Blue Oak	L/VL	2
Quercus engelmannii	Mesa Oak	L/VL	2
Quercus kelloggii	California Black Oak	M/L	2
Quercus lobata	Valley Oak	M/L	2
Salix exigua	Narrow-leaved Willow	H/M	2
Salvia gooddingii	Black Willow	H/M	2
Salix laevigata	Red Willow	H/M	2
Salix lasiolepis	Arroyo Willow	H/M	2
Salix lucida	Spring Willow	H/M	2
Sequoia sempervirens + cvs	Coast Redwood	H	1
Sequoiadendron gigantea	Giant Sequoia	M/L	2
Sambucus nigra ssp. mexicana	Western Elderberry	M/L	2
Umbellularia californica	California Bay Tree	H/M	2
Washingtonia filifera	California Fan Palm	M	1

Shrubs		PF	IG
Abutilon palmeri	Indian Mallow	M/L	2
Acacia greggii	Catclaw Acacia	L/VL	2
Arctostaphylos bakeri 'Louis Edmunds'	Louis Edmunds Manzanita	M/L	2
Arctostaphylos edmundsii + cvs	Little Sur Manzanita	M/L	2
Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	M/L	2
Arctostaphylos glauca	Big Berry Manzanita	M/L	2
Arctostaphylos hookeri + cvs	Monterey Manzanita	M/L	2
Arctostaphylos 'Howard McMinn'	McMinn Manzanita	M/L	2
Arctostaphylos 'John Dourley'	John Dourley Manzanita	M/L	2
Arctostaphylos 'Lester Roundtree'	Lester Roundtree Manzanita	M/L	2
Arctostaphylos manzanita + cvs	Parry Manzanita	M/L	2
Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	M/L	2
Arctostaphylos pumila	Dune Manzanita	M/L	2
Arctostaphylos 'Sunset'	Sunset Manzanita	M/L	2
Arctostaphylos uva-ursi + cvs	Kinnikinnick	M/L	2
Artemisia californica + cvs	California Sagebrush	L/VL	2

Above: *Sequoia sempervirens*

Below: *Washingtonia filifera*

Above: *Arctostaphylos* 'Howard McMinn'

Above: *Berberis repens*

Below: *Ceanothus* 'Ray Hartman'

Shrubs continued		PF	IG
Atriplex lentiformis + ssp	Big Saltbush	L/VL	2
Baccharis 'Centennial'	NCN	L/VL	2
Baccharis pilularis + cvs	Prostrate Coyote Brush	L/VL	2
Baccharis salicifolia	Mulefat	L/VL	2
Baccharis sarothroides	Broom Baccharis	L/VL	2
Baccharis 'Starn'	NCN	L/VL	2
Berberis aquifolium + cvs	Oregon Grape	H/M	2
Berberis 'Golden Abundance'	Golden Abundance Barberry	M/L	2
Berberis nevinii	Nevin's Barberry	M/L	2
Berberis repens	Creeping Barberry	M/L	2
Calycanthus occidentalis	Spice Bush	M/L	2
Carpenteria californica + cv	Bush Anemone	M/L	2
Ceanothus arboreus	Island Ceanothus	M/L	2
Ceanothus 'Centennial'	Centennial Ceanothus	M/L	2
Ceanothus 'Concha'	Concha Ceanothus	M/L	2
Ceanothus 'Dark Star'	Dark Star Ceanothus	M/L	2
Ceanothus 'Frosty Blue'	Frosty Blue Ceanothus	M/L	2
Ceanothus 'Gentian Plume'	Gentian Plume Ceanothus	M/L	2
Ceanothus gloriosus + cvs	Point Reyes Ceanothus	M/L	2
Ceanothus 'Joyce Coulter'	Joyce Coulter Ceanothus	M/L	2
Ceanothus 'Julia Phelps'	Julia Phelps Ceanothus	M/L	2
Ceanothus maritimus + cvs	Maritime Ceanothus	M/L	2
Ceanothus 'Ray Hartman'	Ray Hartman Ceanothus	M/L	2
Ceanothus thyrsiflorus + cvs	Blue Blossom Ceanothus	M/L	2
Ceanothus 'Wheeler Canyon'	Wheeler Canyon Ceanothus	M/L	2
Celtis pallida	Desert Hackberry	M/L	2
Cercis occidentalis	Western Redbud	H/M	2
Cercocarpus betuloides	Mountain Mahogany	L/VL	2
Cercocarpus ledifolius	Curl-leaf Mountain Mahogany	L/VL	2
Cercocarpus minutiflorus	San Diego Mountain Mahogany	L/VL	2
Comarostaphylis diversifolia	Summer Holly	M/L	2
Cornus sericea	Creek Dogwood	H/M	2
Dendromecon harfordii	Island Bush Poppy	L/VL	2
Dendromecon rigida	Bush Poppy	L/VL	2
Encelia actoni	Acton Encelia	L/VL	2
Encelia californica + cv	Coastal Encelia	M/L	2
Encelia farinosa	Brittlebush	L/VL	2
Ericameria laricifolia	Turpentine Bush	L/VL	2
Eriogonum arborescens	Santa Cruz Island Buckwheat	L/VL	2
Eriogonum cinereum	Ashyleaf Buckwheat	L/VL	2
Eriogonum fasciculatum + cvs	California Buckwheat	L/VL	2
Eriogonum giganteum	St. Catherine's Lace	L/VL	2
Fouquieria splendens	Ocotillo	L/VL	2
Fremontodendron californicum + cvs	California Flannel Bush	L/VL	2
Fremontodendron mexicanum	Southern Flannel Bush	L/VL	2
Galvezia juncea + cv	Baja Bush Snapdragon	L/VL	2
Galvezia speciosa + cv	Island Bush-Snapdragon	M/L	2
Garrya elliptica + cvs	Coast Silktassel	M/L	2
Heteromeles arbutifolia + cvs	Toyon	M/L	2
Isomeris arborea	Bladderpod	L/VL	2
Iva hayesiana	Poverty Weed	M/L	2
Juniperus californica	California Juniper	L/VL	2
Justicia californica		L/VL	2
Keckiella antirrhinoides	Yellow Keckiella	M/L	2
Keckiella cordifolia	Heartleaf Penstemon	M/L	2
Larrea tridentata	Creosote Bush	L/VL	2
Lavatera assurgentiflora + cv	Tree Mallow	M/L	2
Lotus scoparius	Deer Weed	L/VL	2
Lupinus albifrons	Silver Bush Lupine	L/VL	2
Lupinus arboreus	Coastal Bush Lupine	L/VL	2
Malosma laurina	Laurel Sumac	L/VL	2
Myrica californica	Pacific Wax Myrtle	M/L	2
Ornithostaphylos oppositifolia	Palo Blanco	L/VL	2
Philadelphus lewisii + cv	Western Mock Orange	H/M	2
Philadelphus microphyllus	Littleleaf Mock Orange	M/L	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Prunus ilicifolia ssp. lyonii	Catalina Cherry	M/L	2
Rhamnus californica + cvs	California Coffeeberry	M/L	2
Rhamnus crocea + ssp	Hollyleaf Redberry	L/VL	2

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California Native Plants

Upon review of the California Native Plants list it is important to keep some thoughts in mind.

- It is a common misconception that all native plants are drought tolerant and need little care once established. Many species are adapted to areas with regular moisture and become highly stressed under dry conditions.
- Native plants come from across the state and are adapted to varying habitat conditions, such as coastal, inland, valley and desert. It is desirable to learn about these habitat conditions and associated species during the process of selecting and combining natives into ornamental plantings.
- Emphasize the use of species and cultivars of local origin and organize them into associations to define outdoor spaces, frame pathways, mitigate climate and enhance views.
- Select a diverse plant palette to fit soil and microclimate conditions, attract wildlife and encourage biological balance between beneficial insects and pests.
- Arrange plants into hydrozones and irrigation groups that reflect their moisture needs to avoid excessive and unseasonal irrigation; summer is often a period of reduced moisture availability and inactivity for many natives in cultivation.
- Study and shape the topography to capture and infiltrate rainfall and minimize irrigation runoff.
- Work with organic to help retain moisture, reduce weeds and release nutrients through decomposition.
- Schedule planting to occur from late fall through early winter to benefit from seasonal rains and start the establishment stages without heat and moisture stress.

Below: *Philadelphus lewisii*, Rancho Santa Ana Botanic Garden

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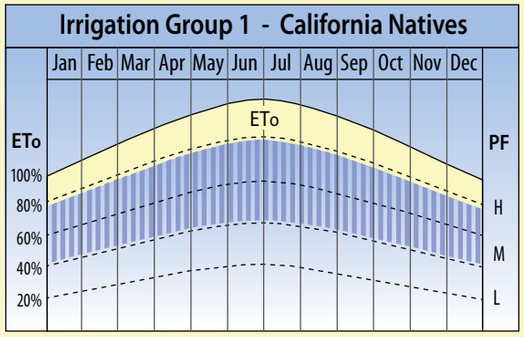
California Native Plants

A number of California native plants grown in ornamental landscapes and gardens do best with regular moisture throughout the year. These plants often come from riparian habitats or microclimate areas that have ground moisture rising to the surface month after month. Species such as alders, ferns and willows are among these plants.

The graph shown below illustrates the baseline irrigation profile for native plants that have plant moderate to high plant factors and fit into irrigation group one that follows the ETo curve throughout the year. It is possible to combine these more water needy species into plantings with other natives that have lower moisture needs. This involves organizing plants into hydrozones with different irrigation systems to fit the needs of each group of plants. Often, it is possible to place plants with higher water needs in swales and low areas where rainfall and irrigation runoff will collect for additional moisture.



Below: *Romneya coulteri* 'White Cloud', UC Davis

Shrubs continued		PF	IG
Rhus integrifolia	Lemonade Berry	L/VL	2
Rhus ovata	Sugar Bush	L/VL	2
Ribes aureum var. gracillimum	Golden Currant	M/L	2
Ribes sanguineum var. glutinosum	Pink Flowering Currant	M/L	2
Ribes speciosum	Fuchsia-flowered Gooseberry	M/L	2
Rosa californica	California Rose	M/L	2
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2
Salvia apiana	White Sage	L/VL	2
Salvia brandegei	Santa Rosa Island Sage	L/VL	2
Salvia clevelandii + cvs	Cleveland Sage	L/VL	2
Salvia leucophylla + cvs	Purple Sage	L/VL	2
Simmondsia chinensis	Jojoba	L/VL	2
Trichostema lanatum	Woolly Blue Curls	L/VL	2
Venegasia carpesioides	Canyon Sunflower	L/VL	2
Viguiera laciniata	San Diego County Viguiera	L/VL	2

Vines		PF	IG
Clematis lasiantha	Chaparral Clematis	M/L	2
Lonicera hispidula	Twin Berry	M/L	2
Lonicera subspicata	Chaparral Honeysuckle	M/L	2
Vitis californica	California Wild Grape	H/M	2

Ferns		PF	IG
Adiantum aleuticum	Western Five-fingered Fern	H	1
Adiantum capillus-veneris	Southern Maidenhair	H	1
Adiantum jordanii	California Maidenhair	H	1
Polypodium californicum	California Polypody	H/M	2
Polystichum californicum	California Sword Fern	H/M	2
Polystichum munitum	Western Sword Fern	H/M	2
Woodwardia fimbriata	Giant Chain Fern	H/M	2

Perennials		PF	IG
Achillea millefolium	Yarrow	M/L	2
Armeria maritima + cvs	Common Thrift	M/L	2
Artemisia pycnocephala + cv	Sandhill Sage	M/L	2
Asclepias speciosa	Showy Butterfly Bush	L/VL	2
Asclepias subulata	Desert Milkweed	L/VL	2
Coreopsis gigantea	Giant Coreopsis	M/L	2
Epilobium canum + cvs	California Fuchsia	L/VL	2
Ericameria laricifolia	Turpentine Bush	L/VL	2
Erigeron glaucus + cvs	Beach Aster	M/L	2
Eriogonum crocatum	Saffron Buckwheat	L/VL	2
Eriogonum grande var. rubescens	Red Buckwheat	L/VL	2
Eriogonum umbellatum	Sulfur Flower Buckwheat	M/L	2
Heuchera species + cvs	Coral Bells	H/M	2
Iris douglasiana + cvs	Pacific Coast Iris	H/M	2
Lupinus excubitus	Grape Soda Lupine	L/VL	2
Mimulus aurantiacus + cvs	Sticky Monkey Flower	L/VL	2
Mimulus cardinalis	Scarlet Monkey Flower	M/L	2
Mimulus guttatus	Seep Monkey Flower	H/M	2
Penstemon centranthifolius	Scarlet Bugler	L/VL	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon heterophyllus + cv	Foothill Penstemon	L/VL	2
Penstemon palmeri	Scented Penstemon	L/VL	2
Penstemon spectabilis	Showy Penstemon	L/VL	2
Romneya coulteri + cv	Matilija Poppy	L/VL	2
Romneya trichocalyx	Hairy Matilija Poppy	L/VL	2
Salvia spathacea	Hummingbird Sage	M/L	2
Sisyrinchium bellum + cvs	Blue-Eyed Grass	M/L	2
Sisyrinchium californicum	Golden-eyed Grass	H/M	2
Sphaeralcea ambigua + cvs	Apricot Mallow	M/L	2

Grasses, Rushes and Sedges		PF	IG
Aristida purpurea	Purple Three-awn	L/VL	2
Bouteloua curtipendula	Side-oats Grama	M/L	2
Bouteloua gracilis	Blue Grama	M/L	2
Calamagrostis foliosus	Mendocino Reed Grass	M	1
Calamagrostis nutkaensis	Pacific Reed Grass	M	1
Carex pansa	California Meadow Sedge	M	1

Above: *Fremontodendron* 'California Glory'

Above: *Saliva* 'Allen Chickering'

Below: *Agave shawii*

Above: *Heuchera* 'Santa Ana Cardinal'

Above: *Penstemon spectabilis*

Below: *Iris douglasiana* 'Canyon Snow'

Grasses, Rushes and Sedges continued		IG	PF
Carex praegracilis	Western Meadow Sedge	M	1
Carex spissa	San Diego Sedge	M/L	2
Festuca californica	California Fescue	M/L	2
Festuca rubra + cvs	Red Fescue	H/M	2
Juncus effusus	Common Rush	H/M	2
Juncus patens + cvs	California Gray Rush	H/M	2
Juncus textilis	Indian Rush	H/M	2
Leymus cinereus	Gray Wild Rye	M/L	2
Leymus condensatus + cvs	Giant Wild Rye	M/L	2
Leymus triticoides	Creeping Wildrye	H/M	2
Muhlenbergia rigens	Deer Grass	M/L	2
Nassella cernua	Nodding Needle Grass	L/VL	2
Nassella lepida	Foothill Needle Grass	L/VL	2
Nassella pulchra	Purple Needle Grass	L/VL	2
Sporobolus airoides	Alkalai Sacaton	L/VL	2

Agaves, Cacti, Dudleyas and Yuccas		PF	IG
Agave desertii	Desert Agave	L/VL	2
Agave shawii	Shaw's Agave	L/VL	2
Carnegiea gigantea	Saguaro	L/VL	2
Dudleya species + cvs	Dudleya	L/VL	2
Hesperoyucca whipplei	Our Lord's Candle	L/VL	2
Nolina parryi	Parry Beargrass	L/VL	2
Yucca baccata	Banana Yucca	L/VL	2
Yucca brevifolia	Joshua Tree	L/VL	2

Ground Covers		PF	IG
Achillea millefolium	Fernleaf Yarrow	M/L	2
Arctostaphylos edmundsii 'Carmel Sur'	Little Sur Manzanita	M/L	2
Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	M/L	2
Arctostaphylos hookeri 'Monterey Carpet'	Monterey Manzanita	M/L	2
Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	M/L	2
Arctostaphylos uva-ursi + cvs	Anchor Bay Manzanita	M/L	2
Arctostaphylos uva-ursi 'Point Reyes'	Point Reyes Manzanita	M/L	2
Arctostaphylos uva-ursi 'Green Supreme'	Green Supreme Manzanita	M/L	2
Artemisia californica 'Canyon Gray'	Canyon Gray Sagebrush	L/VL	2
Artemisia californica 'Montara'	Montara Sagebrush	L/VL	2
Artemisia pycnocephala 'David's Choice'	David's Choice Mugwort	M/L	2
Baccharis 'Starn'	NCN	M/L	2
Baccharis 'Centennial'	NCN	M/L	2
Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	M/L	2
Baccharis pilularis 'Twin Peaks #2'	Prostrate Coyote Brush	M/L	2
Berberis aquifolium 'Compacta'	Creeping Barberry	M/L	2
Berberis repens	Creeping Barberry	M/L	2
Ceanothus 'Centennial'	Centennial Ceanothus	M/L	2
Ceanothus gloriosus	Point Reyes Ceanothus	M/L	2
Ceanothus gloriosus 'Anchor Bay'	Anchor Bay Ceanothus	M/L	2
Ceanothus gloriosus 'Heart's Desire'	Heart's Desire Ceanothus	M/L	2
Ceanothus maritimus	Maritime Ceanothus	M/L	2
Ceanothus maritimus 'Frosty Dawn'	Frosty Dawn Ceanothus	M/L	2
Ceanothus t. griseus 'Diamond Heights'	Carmel Creeper	M/L	2
Ceanothus t. griseus 'Hurricane Point'	Carmel Creeper	M/L	2
Ceanothus t. griseus 'Yankee Point'	Carmel Creeper	M/L	2
Eriogonum fasciculatum 'Dana Point'	Dana Point Buckwheat	L/VL	2
Eriogonum fasciculatum 'Theodore Payne'	Theodore Payne Buckwheat	L/VL	2
Eriogonum fasciculatum 'Warriner Lytle'	Warriner Lytle Buckwheat	L/VL	2
Fragaria chiloensis	Wild Strawberry	H/M	2
Iva hayesiana	San Diego Marsh Elder	L/VL	2
Leymus triticoides	Creeping Wildrye	M/L	2
Ribes viburnifolium	Evergreen Currant	M/L	2
Salvia 'Bee's Bliss'	Bee's Bliss Sage	L/VL	2
Salvia leucophylla 'Point Sal Spreader'	Point Sal Spreader Sage	L/VL	2
Salvia mellifera 'Terra Seca'	Terra Seca Sage	L/VL	2
Salvia 'Mrs. Beard'	Mrs. Beard Sage	L/VL	2
Salvia sonomensis	Creeping Sage	L/VL	2

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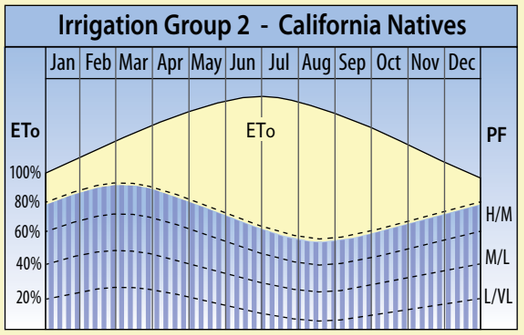
California Native Plants

Many California native plants grown in ornamental landscapes and gardens are well adapted to Mediterranean climate patterns with winter moisture and summer drought. Most plants on this list are well suited to reduced levels of summer moisture similar to cycles in their natural habitat.

The graph shown below illustrates the full range of supplemental moisture for native plants that have reduced summer water needs. Species such as western sycamore do best with high amounts of water in winter and spring; others such as toyon and coffeeberry grow with moderate to low amounts of moisture during this time. Native grasses and agaves can survive on natural rainfall and may not require supplemental water once established.

Natives with similar moisture needs can be combined into hydrozones with dedicated irrigation systems. This approach can accommodate a planting layout that integrates a variety of species in both creative and water efficient ways.



Below: *Hesperoyucca whipplei,* San Gabriel Mountains

Plant Lists

Mediterranean Garden Plants

Gardening in Europe's Mediterranean region has been practiced for more than 2,000 years. Over this time, many plants from the native flora were incorporated into ornamental plantings. Many of these plants are still highly popular today, including the olive tree, Italian stone pine, Italian cypress, sweet bay, rockrose, lavender and the common myrtle.

These classical Mediterranean gardens reflect a rich history of botanical trade and exchange with other areas around the world. Citrus trees were introduced from Asia, pines and palms from the Canary Islands, bougainvilleas from South America and roses from Arabia. Gardening was a serious and much celebrated pursuit. There are many excellent examples of beautiful Mediterranean gardens throughout California that possess an abundant diversity of plants and that require low water use.

Coastal cities in California, including Carmel, Monterey, Santa Barbara, Los Angeles and San Diego have embraced Mediterranean style architecture and gardens from the earliest days of statehood. While the majority of the plants on this list come from Europe, others are native to California, Australia, South America and Asia. These additional plants are well adapted to the horticultural requirements and the aesthetic character of Mediterranean landscapes and gardens. A number of horticultural palettes that include plants from this list are found in Section Three - Plant Palettes, which provides examples of compatible species for various design situations.

Below: Olive alee at Lotus Land, Montecito

Trees		**PF**	**IG**
Arbutus 'Marina'	NCN	M/L	2
Arbutus unedo + cvs	Strawberry Tree	M/L	2
Ceratonia siliqua	Carob	M/L	2
Citrus cultivars	Citrus	M	1
Cupressus sempervirens + cvs	Italian Cypress	M/L	2
Dracaena draco	Dragon Tree	L/VL	2
Ficus carica + cvs	Edible Fig	M	1
Laurus nobilis	Sweet Bay	M/L	2
Nerium oleander + cvs	Oleander	M/L	2
Olea europaea + cvs	Olive	M/L	2
Pinus brutia ssp. eldarica	Afghan Pine	L/VL	2
Pinus canariensis	Canary Island Pine	M/L	2
Pinus halepensis	Aleppo Pine	L/VL	2
Pinus pinea	Italian Stone Pine	M/L	2
Punica granatum + cvs	Pomegranate	M	1
Quercus agrifolia	Coast Live Oak	M/L	2
Quercus engelmannii	Mesa Oak	M/L	2
Quercus ilex	Holm Oak	M/L	2
Quercus suber	Cork Oak	M/L	2
Vitex agnus-castus	Chaste Tree	M/L	2

Palms		**PF**	**IG**
Brahea armata	Mexican Blue Palm	M	1
Brahea edulis	Guadalupe Palm	M	1
Butia capitata	Pindo Palm	M	1
Chamaerops humilis	Mediterranean Fan Palm	M/L	2
Jubaea chilensis	Chilean Wine Palm	M	1
Phoenix canariensis	Canary Island Date Palm	M	1
Phoenix dactylifera	Date Palm	M	1

Shrubs		**PF**	**IG**
Alyogyne huegelii + cvs	Blue Hibiscus	M/L	2
Arbutus unedo 'Compacta'	Compact Strawberry Tree	M/L	2
Arctostaphylos bakeri 'Louis Edmunds'	Louis Edmunds Manzanita	M/L	2
Arctostaphylos 'Howard McMinn'	McMinn Manzanita	M/L	2
Arctostaphylos 'John Dourley'	John Dourley Manzanita	M/L	2
Arctostaphylos manzanita 'Dr. Hurd'	Manzanita	M/L	2
Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	M/L	2
Arctostaphylos 'Sunset'	Sunset Manzanita	M/L	2
Artemisia 'Powis Castle'	NCN	M/L	2
Bougainvillea species + cvs	Bougainvillea	M/L	2
Callistemon 'Little John'	NCN	M/L	2
Capparis spinosa	Caper	M/L	2
Caryopteris x clandonensis	Blue Mist	M/L	2
Citrus cultivars	Citrus	M	1
Cistus x pulverulentus 'Sunset'	NCN	L/VL	2
Cistus ladanifer	Crimson Spot Rockrose	L/VL	2
Cistus x purpureus	Orchid Rockrose	L/VL	2
Cistus salviifolius	Sageleaf Rockrose	L/VL	2
Cistus 'Victor Reiter'	NCN	L/VL	2
Echium candicans + cv	Pride of Madeira	L/VL	2
Lavandula angustifolia	English Lavender	L/VL	2
Lavandula dentata	French lavender	L/VL	2
Lavandula 'Goodwin Creek Grey'	NCN	L/VL	2
Lavandula multifida	Fernleaf Lavender	L/VL	2
Lavandula stoechas + cvs	Spanish Lavender	L/VL	2
Lavandula x intermedia + cvs	Lavadin	L/VL	2
Leonotis leonurus	Lion's Tail	L/VL	2
Leptospermum laevigatum	Australian Tea Tree	L/VL	2
Nerium oleander + cvs	Oleander	M/L	2
Phlomis fruticosa	Jerusalem Sage	M/L	2
Punica granatum + cvs	Pomegranate	M	1
Rhamnus alaternus	Italian Buckthorn	M/L	2
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Ruscus aculeatus	Butcher's Broom	M/L	2
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2
Salvia clevelandii + cvs	Cleveland Sage	L/VL	2
Salvia greggii + cvs	Autumn Sage	L/VL	2

Above: *Chamaerops humilis*

Below: *Cupressus sempervirens*

Above: *Myrtus communis* 'Compacta'

Above: *Lavandula angustifolia* 'Hidcote'

Below: *Teucrium* x *lucidrys* 'Prostratum'

Shrubs continued		PF	IG
Salvia leucantha + cv	Mexican Bush Sage	M/L	2
Santolina chamaecyparissus	Lavender Cotton	M/L	2
Teucrium fruticans	Bush Germander	M/L	2
Viburnum tinus + cvs	Laurustinus	M/L	2
Vitex agnus-castus	Chaste Tree	M/L	2

Hedge Plants		PF	IG
Myrtus communis + cvs	True Myrtle	M	1
Nerium oleander + cvs	Oleander	M/L	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Rhamnus alaternus	Italian Buckthorn	M/L	2
Syzygium paniculatum + cv	Australian Brush Cherry	M	1
Teucrium fruticans	Bush Germander	M/L	2

Vines		PF	IG
Beaumontia grandiflora	Easter Lily Vine	M	1
Bougainvillea spectabilis + cvs	Bougainvillea	M/L	2
Distictis buccinatoria	Blood-red Trumpet Vine	M	1
Jasminum humile	Italian Jasmine	M/L	2
Pyrostegia venusta	Flame Vine	M	1
Solandra maxima	Cup-of-Gold Vine	M	1

Perennials		PF	IG
Acanthus mollis + cvs	Bear's Breech	M/L	2
Achillea filipendulina + cv	Fernleaf Yarrow	M/L	2
Achillea 'Moonshine'	Yellow Yarrow	M/L	2
Agastache species + cvs	Hummingbird Mint	M/L	2
Centaurea cineraria	Dusty Miller	M/L	2
Centaurea gymnocarpa	Velvet Centaurea	M/L	2
Dietes species + cvs	Fortnight Lily	M	1
Euphorbia characias + ssp	Large Mediterranean Spurge	M/L	2
Helianthemum cultivars	Rock Rose	M/L	2
Helichrysum italicum	Curry Plant	M/L	2
Leonotis menthifolia	NCN	M/L	2
Nepeta x faassenii	Catmint	M	1
Pelargonium x hortorum	Common Geranium	M	1
Penstemon species + cvs	Penstemon	L/VL	2
Perovskia atriplicifolia	Russian Sage	M/L	2
Romneya coulteri + cv	Matilija Poppy	L/VL	2
Salvia officinalis + cvs	Garden Sage	M/L	1
Stachys byzantina	Lamb's Ear	M/L	2
Teucrium cossonii majoricum	NCN	M/L	2
Teucrium x lucidrys + cv	Wall Germander	M/L	2
Thymus species + cvs	Thyme	M	1

Grasses		PF	IG
Festuca glauca + cvs	Blue Fescue	M	1
Helictotrichon sempervirens + cvs	Blue Oat Grass	M	1
Leymus condensatus + cvs	Giant Wild Rye	M/L	2
Muhlenbergia lindheimeri	Lindheimer's Muhly	M/L	2
Muhlenbergia rigens	Deer Grass	M/L	2
Stipa gigantea	Giant Feather Grass	M	1

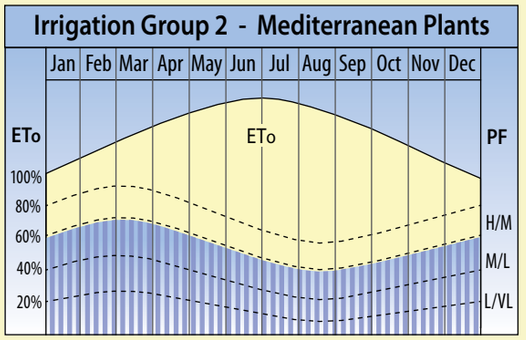
Aeoniums, Agaves, Aloes, Cacti, Succulents and Yuccas		PF	IG
Aeonium species + cvs	NCN	L/VL	2
Agave americana + cvs	NCN	L/VL	2
Agave attenuata + cvs	Foxtail Agave	L/VL	2
Agave salmiana var. ferox	NCN	L/VL	2
Agave vilmoriniana	Octopus Agave	L/VL	2
Aloe barberae	Tree Aloe	L/VL	2
Aloe marlothii	NCN	L/VL	2
Dasylirion quadrangulatum	Mexican Grass Tree	L/VL	2
Dracaena draco	Dragon Tree	L/VL	2
Echeveria species + cvs	Hen and Chicks	L/VL	2
Furcraea macdougalii	NCN	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Opuntia species + cvs	Prickly Pear	L/VL	2
Sedum species + cvs	Stonecrop	L/VL	2
Yucca elephantipes	Spineless Yucca	L/VL	2

Plant Lists

Mediterranean Garden Plants

This list is comprised of plants that are widely adapted to California's Mediterranean climate conditions, particularly Plant Climate Zones 8-9 and 14-24. Moisture needs of these plants range from moderate to very low. Most species are well adapted to reduced moisture levels during summer, but a few grow best with regular moisture throughout the year. Grouping plants into hydrozones with compatible needs and in microclimates with separate irrigation systems should be recognized when combining these plants in landscapes and gardens.

The chart shown below illustrates the seasonal range of supplemental moisture for plants included in this list. The upper end of the range applies to many trees and shrubs while the lower part of the range applies to agaves, aloes, cacti and succulents.



Below: *Nerium oleander*

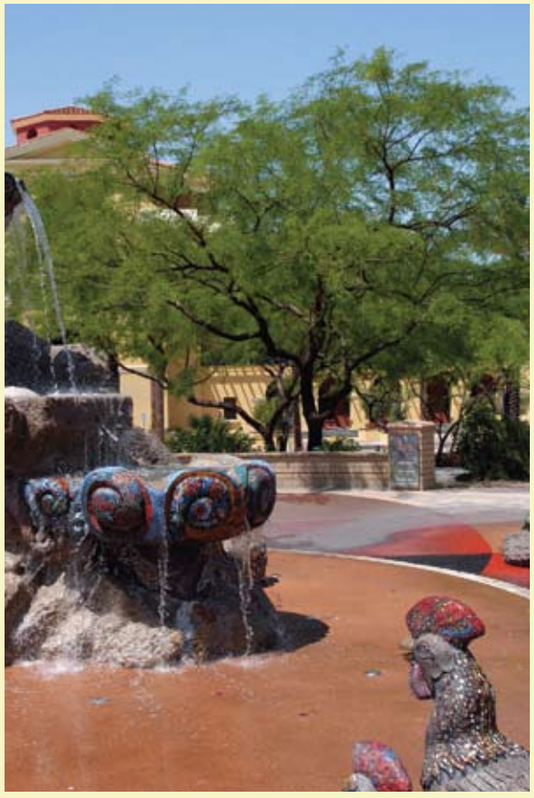
Plant Lists

Southwestern Garden Plants

The southwestern garden plants list presents a broad range of species that have become widely used in arid climate zones of the southwestern United States, particularly within the Coachella Valley of southern California. In recent years, efforts have been made to embrace a landscape palette that reflects the natural character of the southwest and is well adapted to the high levels of aridity, summer heat and water conservation goals. Many of these species are native to the southwestern United States, Mexico, Baja California and arid climate zones of South America and Australia. Not only have these plants proven to be highly adaptable to landscape and garden uses in low desert communities, but many are popular and successful choices for warm coastal, inland and valley zones of southern and central California.

This list contains a number of signature species such as agaves, cacti and date palms. There are also many colorful flowering shrubs and perennials that provide interest at different times of the year. However, ground cover choices are quite limited. As a result, it is common to incorporate a dry wash feature, strategically place large boulders and to use various mixes of gravel, sand and decomposed granite to serve as a ground cover and as an inorganic 'mulch' around plants. Several horticultural plant palettes that include plants from this list are found in Section Three - Plant Palettes, which provides examples of compatible species for various design situations.

Below: *Prosopis alba*, Cathedral City



Trees		**PF**	**IG**
Acacia aneura	Mulga	L/VL	2
Acacia farnesiana	Sweet Acacia	L/VL	2
Acacia stenophylla	Shoestring Acacia	L/VL	2
Acacia willardiana	Palo Blanco	L/VL	2
Caesalpinia cacalaco	Cascalote	M/L	2
Chilopsis linearis + cvs	Desert Willow	M/L	2
Ebenopsis ebano	Texas Ebony	M/L	2
Lysiloma watsonii var. thornberi	Feather Bush	M/L	2
Olea europaea + cvs	Olive	M/L	2
Olneya tesota	Desert Ironwood	M/L	2
Parkinsonia aculeata	Mexican Palo Verde	M/L	2
Parkinsonia 'Desert Museum'	NCN	M/L	2
Parkinsonia floridum	Palo Verde	M/L	2
Parkinsonia microphyllum	Littleleaf Palo Verde	M/L	2
Parkinsonia praecox	Palo Brea	M/L	2
Populus fremontii + cv	Western Cottonwood	H	1
Prosopis alba + cvs	Argentine Mesquite	M/L	2
Prosopis chilensis	Chilean Mesquite	M/L	2
Prosopis glandulosa + cvs	Texas Honey Mesquite	M/L	2
Prosopis 'Phoenix'	NCN	M/L	2
Prosopis pubescens	Screw Bean	M/L	2
Prosopis velutina	Arizona Mesquite	M/L	2
Psorothamnus spinosus	Smoke Tree	M/L	2

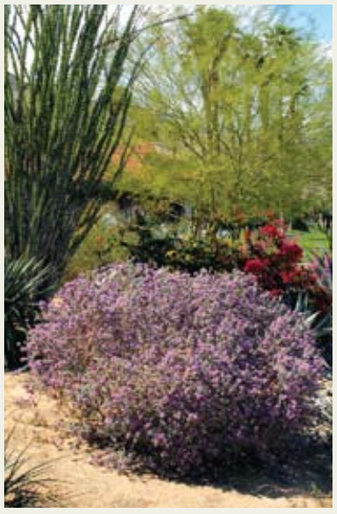
Palms		**PF**	**IG**
Brahea armata	Mexican Blue Palm	M	1
Chamaerops humilis	Mediterranean Fan Palm	M/L	2
Phoenix dactylifera	Date Palm	M	1
Washingtonia filifera	California Fan Palm	M	1
Washingtonia robusta	Mexican Fan Palm	M	1

Shrubs		**PF**	**IG**
Abutilon palmeri	Indian Mallow	M/L	2
Acacia greggii	Catclaw Acacia	L/VL	2
Anisacanthus quadrafidus	Desert Honeysuckle	M/L	2
Anisacanthus wrightii		M/L	2
Atriplex canescens	Fourwing Saltbush	L/VL	2
Atriplex lentiformis ssp. lentiformis	Big Saltbush	L/VL	2
Baccharis sarothroides	Broom Baccharis	M/L	2
Caesalpinia gilliesii	Bird of Paradise Bush	M/L	2
Caesalpinia mexicana	Mexican Bird of Paradise Bush	M/L	2
Caesalpinia pulcherrima + cv	Red Bird of Paradise Bush	M/L	2
Calliandra californica	Baja Fairy Duster	M/L	2
Calliandra eriophylla	Pink Fairy Duster	M/L	2
Calliandra peninsularis	NCN	M/L	2
Celtis pallida	Desert Hackberry	M/L	2
Cordia boissieri	Texas Olive	M/L	2
Cordia parvifolia	Little-leaf Cordia	M/L	2
Dalea capitata + cv	NCN	M/L	2
Dalea frutescens + cv	Black Dalea	M/L	2
Dalea greggii	Trailing Indigo Bush	M/L	2
Dalea pulchra	Indigo Bush	M/L	2
Encelia actoni	Acton Encelia	L/VL	2
Encelia farinosa	Incienso	L/VL	2
Euphorbia xantii	NCN	L/VL	2
Justicia californica	Chuparosa	M/L	2
Justicia spicigera	Mexican Honeysuckle	M/L	2
Larrea tridentata	Creosote Bush	L/VL	2
Leucophyllum candidum + cvs	NCN	L/VL	2
Leucophyllum frutescens + cvs	Texas Ranger	L/VL	2
Leucophyllum laevigatum	Chihuahuan Sage	L/VL	2
Pedilanthus macrocarpus	Lady's Slipper	M/L	2
Ruellia californica	NCN	M/L	2
Ruellia peninsularis	Desert Ruellia	M/L	2
Salvia greggii + cvs	Autumn Sage	L/VL	2
Senna artemisioides	Feathery Cassia	L/VL	2
Senna nemophila	Desert Cassia	L/VL	2
Senna phyllodinea	Silvery Cassia	L/VL	2
Senna wislizenii	Shrubby Senna	L/VL	2

Above: *Acacia willardiana*

Below: *Phoenix dactylifera*

Above: *Caesalpinia pulcherrima*



Above: Dalea frutescens

Below: *Agave desmettiana* 'Variegata'

Shrubs continued		PF	IG
Simmondsia chinensis	Jojoba	L/VL	2
Sophora secundiflora	Mescal Bean	M/L	2
Tecoma stans + cvs	Yellow Bells	M/L	2
Tecoma x 'Orange Jubilee'	NCN	M/L	2
Tecoma x 'Sunrise'	NCN	M/L	2
Tecoma x 'Orange Jubilee'	NCN	M/L	2
Tecoma x 'Sunrise'	NCN	M/L	2

Ground Covers		PF	IG
Baccharis 'Centennial'	Centennial Desert Broom	M/L	2
Baccharis 'Starn'	NCN	M/L	2
Dalea greggii	Trailing Indigo Bush	M/L	2

Perennials		PF	IG
Asclepias subulata	Desert Milkweed	M/L	2
Baileya multiradiata	Desert Marigold	L/VL	2
Ericameria laricifolia + cv	Turpentine Bush	L/VL	2
Euphorbia milii + cvs	Crown of Thorns	M/L	2
Melampodium leucanthum	Blackfoot Daisy	M/L	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon palmeri	Scented Penstemon	L/VL	2
Penstemon parryi	Parry's Penstemon	L/VL	2
Ruellia brittoniana + cvs	Mexican Petunia	M/L	2
Sphaeralcea ambigua + cvs	Apricot Mallow	L/VL	2
Verbena rigida	NCN	M/L	2

Grasses		PF	IG
Muhlenbergia capillaris	Pink Muhly	M/L	2
Muhlenbergia dubia	Mexican Muhly	M/L	2
Muhlenbergia dumosa	Bamboo Muhly	M/L	2
Muhlenbergia rigens	Deer Grass	M/L	2
Sporobolus airoides	Alkalai Sacaton	M/L	2

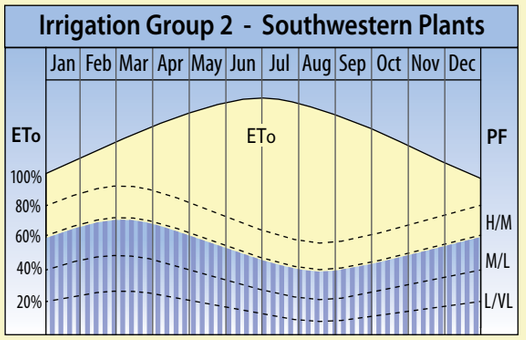
Agaves, Aloes, Cacti, Nolina, Succulents and Yuccas		PF	IG
Agave americana + cvs	NCN	L/VL	2
Agave angustifolia	NCN	L/VL	2
Agave bracteosa	Spider Agave	L/VL	2
Agave colorata	Mescal	L/VL	2
Agave deserti	Desert Agave	L/VL	2
Agave desmettiana + cv	NCN	L/VL	2
Agave filifera	NCN	L/VL	2
Agave geminiflora	Twin-flowered Agave	L/VL	2
Agave ocahui	Ocahui	L/VL	2
Agave parryi + var	Artichoke Agave	L/VL	2
Agave potatorum	NCN	L/VL	2
Agave tequilana + cv	Tequila Agave	L/VL	2
Agave victoriae-reginae	Queen Victoria Agave	L/VL	2
Agave vilmoriniana	Octopus Agave	L/VL	2
Aloe 'Blue Elf'	NCN	L/VL	2
Aloe vera	Medicinal Aloe	L/VL	2
Beaucarnea species	Bottle Palm	L/VL	2
Carnegiea gigantea	Saguaro	L/VL	2
Cereus peruvianus + cv	Apple Cactus	L/VL	2
Dasylirion acrotriche	Green Desert Spoon	L/VL	2
Dasylirion quadrangulatum	Mexican Grass Tree	L/VL	2
Dasylirion wheeleri	Desert Spoon	L/VL	2
Echinocactus grusonii	Golden Barrel Cactus	L/VL	2
Fouquieria splendens	Ocotillo	L/VL	2
Hesperaloe funifera	Giant Hesperaloe	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Nolina microcarpa	Beargrass	L/VL	2
Nolina parryi	Parry Beargrass	L/VL	2
Opuntia species + var	Beavertail Cactus	L/VL	2
Pachycereus marginatus	Mexican Fence Post Cactus	L/VL	2
Pedilanthus macrocarpus	Lady's Slipper	M/L	2
Yucca baccata	Banana Yucca	L/VL	2
Yucca brevifolia	Joshua Tree	L/VL	2
Yucca elata	Soaptree Yucca	L/VL	2
Yucca rostrata	Beaked Yucca	L/VL	2

Plant Lists

Southwestern Garden Plants

This list is comprised of plants that are adapted to high levels of heat, aridity and drought. Many are native to the southwestern United States and Mexico and are among the best choices for landscapes and gardens in low and intermediate desert climate zones. They are also well suited for planting in dry inland and valley zones throughout southern California.

The chart below illustrates the range of supplemental moisture needed by plants in this palette. This range varies from moderate to very low and indicates reduced amounts of moisture during the summer months. Tree species on this list naturally grow near washes and grow better with moderate to low amounts of moisture when grown in ornamental landscapes and gardens. Agaves, cacti and yuccas store moisture that helps endure long periods of drought. These plants can be organized into hydrozones and be sustained with separate irrigation systems for many successful planting combinations.



Below: *Parkinsonia* 'Desert Museum'

Plant Lists

Subtropical Garden Plants

This list contains plants from many regions of the world. In spite of this large geographic range, most are adapted to mild climate zones where there is little winter frost and often many months of warm and sunny summer conditions. They are commonly referred to as subtropical plants to indicate their sensitivity to cold.

This list includes many brightly flowering trees, shrubs and vines that are recognized as some of the most colorful landscape plants available for ornamental gardens. A closer review, reveals a diverse range of foliage size and color that often produces a lush impression. Such plants are commonly grouped into tight planting arrangements to produce multiple layers of color and shade.

Subtropical plants are well suited to central and southern California's coastal zones where warm summer temperatures are common. They do best with protection from salt spray and wind, and thrive in rich soils with regular moisture. They are also highly successful in mild inland and valley zones when planted in microclimates that receive shelter them from cold winter temperatures. Some are tough enough to grow in low desert zones that experience high levels of heat and aridity when provided with good protection from the hot sun and regular water. Several horticultural palettes that include plants from this list are found in Section Three - Plant Palettes, which provides examples of compatible species for various design situations.

Below: *Erythrina* x *sykesii*, San Diego

Trees		**PF**	**IG**
Bauhinia x blakeana	Hong Kong Orchid Tree	M	1
Bauhinia forficata	Brazilian Butterfly Tree	M	1
Bauhinia variegata + cv	Purple Orchid Tree	M	1
Calodendrum capense	Cape Chestnut	M	1
Cassia leptophylla	Gold Medallion Tree	M	1
Chorisia insignis	White Floss Silk Tree	M	1
Chorisia speciosa	Silk Floss Tree	M	1
Erythrina x bidwillii	Bidwill's Coral Tree	M	1
Erythrina caffra	Coast Coral Tree	M	1
Erythrina coralloides	Naked Coral Tree	M	1
Erythrina crista-galli	Cockspur Coral Tree	M	1
Erythrina humeana	Natal Coral Tree	M	1
Erythrina x sykesii	Australian Coral Tree	M	1
Euphorbia cotinifolia	Caribbean Copper Plant	M	1
Ficus auriculata	Roxburgh Fig	M	1
Ficus benjamina + cv	Benjamin Fig	M	1
Ficus elastica + cvs	Rubber Tree	M	1
Ficus macrophylla	Moreton Bay Fig	M	1
Ficus microcarpa	Indian Laurel Fig	M	1
Ficus religiosa	Bo-tree	M	1
Ficus rubiginosa	Rustyleaf Fig	M	1
Harpephyllum caffrum	Kaffir Plum	M	1
Hymenosporum flavum	Sweetshade	H	1
Jacaranda mimosifolia + cv	Jacaranda	M	1
Leucadendron argenteum	Silver Tree	M	1
Michelia champaca	Champaca	M	1
Michelia doltsopa	NCN	M	1
Psidium species + cvs	Guava	M	1
Schefflera actinophylla	Queensland Umbrella Tree	M	1
Spathodea campanulata + cv	African Tulip Tree	M	1
Stenocarpus sinuatus	Firewheel Tree	M	1
Tabebuia chrysotricha	Golden Trumpet Tree	M	1
Tabebuia impetiginosa	Pink Trumpet Tree	M	1
Thevetia peruviana	Yellow Oleander	M	1
Thevetia thevetioides	Giant Thevetia	M	1

Palms and Cycads		**PF**	**IG**
Acoelorraphe wrightii	Everglade Palm	H	1
Archontophoenix cunninghamiana	King Palm	M	1
Caryota gigas	Giant Fishtail Palm	M	1
Caryota mitis	Clustered Fishtail Palm	M	1
Caryota urens	Jggery Palm	M	1
Dioon edule	Chestnut Dioon	M	1
Dioon spinulosum	Giant Dioon	M	1
Howea forsteriana	Paradise Palm	M	1
Phoenix roebelenii	Pigmy Date Palm	M	1
Ravenea rivularis	Majesty Palm	M	1
Syagrus romanzoffianum	Queen Palm	M	1

Shrubs		**PF**	**IG**
Bauhinia galpinii	Red Bauhinia	M	1
Brugmansia species + cvs	Angel's Trumpet	M	1
Brunfelsia pauciflora + cvs	Yesterday-Today-Tomorrow	M	1
Calliandra haematocephala + cv	Pink Powder Puff	M	1
Calliandra surinamensis	Surinam Powder Puff	M	1
Carissa macrocarpa + cvs	Natal Plum	M	1
Euphorbia cotinifolia	Caribbean Copper Plant	M	1
Ficus lyrata	Fiddleleaf Fig	M	1
Gardenia thunbergia	White Gardenia	M	1
Hibiscus rosa-sinensis + cvs	Chinese Hibiscus	M	1
Iochroma cyaneum	NCN	M	1
Jasminum angulare	South African Jasmine	M	1
Jasminum laurifolium nitidum	Angelwing Jasmine	M	1
Justicia brandegeana + cv	Shrimp Plant	M	1
Lantana camara + cvs	Yellow Sage	M/L	2
Lantana montevidensis + cv	Trailing Lantana	M/L	2
Michelia species + cvs	NCN	M	1
Monstera deliciosa	Split-leaf Philodendron	H	1
Philodendron species + cvs	Philodendron	M	1

Above: *Chorisia speciosa*, LA County Arboretum

Below: *Syagrus romanzoffianum* with *Phoenix roebelenii*

Above: *Hedychium* species

Above: *Asplenium bulbiferum*

Below: *Petrea volubilis*

Shrubs continued		PF	IG
Plumeria species + cvs	Frangipani	M	2
Psidium species + cvs	Guava	M	1
Roldana petasitis	Velvet Groundsel	M/L	2
Schefflera arboricola	Hawaiian Elf Schefflera	H	1
Schefflera elegantissima	NCN	M	1
Schefflera pueckleri	NCN	M	1
Solanum rantonnetii + cv	Nightshade	M	1
Thevetia peruviana	Yellow Oleander	M	1
Thevetia thevetioides	Giant Thevetia	M	1
Tibouchina heteromalla	NCN	M	1
Tibouchina urvilleana	Princess Flower	M	1

Vines		PF	IG
Antigonon leptopus + cvs	Coral Vine	M	1
Beaumontia grandiflora	Easter Lily Vine	M	1
Bougainvillea glabra	Bougainvillea	M/L	2
Bougainvillea spectabilis + cvs	Bougainvillea	M/L	2
Cissus antarctica	Kangaroo Treebine	M	1
Cissus hypoglauca	Water Vine	M	1
Cissus rhombifolia + cvs	Grape Ivy	M	1
Combretum fruticosum	Orange Flame Vine	M	1
Distictis species + cvs	Trumpet Vine	M	1
Ipomoea indica	Blue Dawn Flower	M	1
Lonicera hildebrandiana	Giant Burmese Honeysuckle	M	1
Mandevilla species + cvs	NCN	M	1
Pandorea jasminoides + cvs	Bower Vine	M	1
Pandorea pandorana + cv	Wonga Wonga Vine	M	1
Petrea volubilis	Queen's Wreath Vine	M	1
Podranea ricasoliana	Pink Trumpet Vine	M	1
Pyrostegia venusta	Flame Vine	M	1
Rhoicissus capensis	Evergreen Grape	M	1
Solandra maxima	Cup-of-Gold Vine	M	1
Solanum seaforthianum	Brazilian Nightshade	M	1
Solanum wendlandii	Costa Rican Nightshade	M	1
Tetrastigma voinierianum	NCN	M	1
Thunbergia alata + cv	Black-eyed Susan	M	1
Thunbergia grandiflora	Sky Flower	M	1
Thunbergia gregorii	Orange Clock Vine	M	1
Vigna caracalla	Snail Vine	M	1

Perennials		PF	IG
Agapanthus species + cvs	Lily-of-the-Nile	M	1
Astelia chathamica 'Silver Spear'	Silver Spear	H	1
Billbergia nutans	Queen's Tears	H	1
Canna cultivars	Canna	H	1
Cuphea hyssopifolia	False Heather	M	1
Cuphea ignea	Cigar Plant	M	1
Cuphea micropetala + cv	Candy Corn Plant	M	1
Cuphea x purpurea	Bat-faced Cuphea	M	1
Ensete ventricosum + cv	Abyssinian Banana	H	1
Felicia amelloides	Blue Marguerite	M	1
Hedychium species + cvs	Ginger Lily	H	1
Helichrysum petiolare + cvs	Licorice Plant	M	1
Musa x paradisiaca	Banana Palm	H	1
Pelargonium species + cvs	Geranium	M	1
Russelia equisetiformis	Coral Fountain	M	1
Strelitzia juncea	NCN	M	1
Strelitzia nicolai	Giant Bird of Paradise	M	1
Strelitzia reginae	Bird of Paradise	M	1

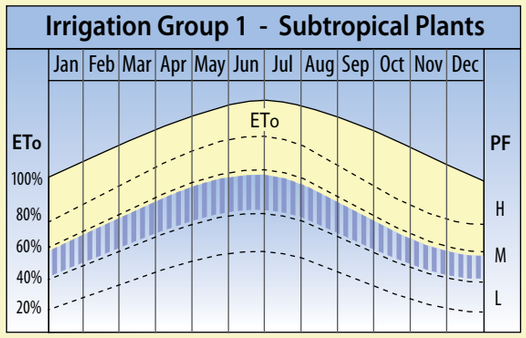
Ferns		PF	IG
Asplenium bulbiferum	Mother Fern	H	1
Asplenium nidus	Bird's Nest Fern	H	1
Blechnum brasiliense	NCN	M	1
Blechnum occidentale	Hammock Fern	M	1
Cyathea cooperi	Australian Tree Fern	H	1
Microlepia strigosa	Lace Fern	M	1
Phlebodium aureum	Hare's Foot Fern	M	1
Rumohra adiantiformis	Leather Fern	M	1

Plant Lists

Subtropical Garden Plants

Many subtropical plants in ornamental landscapes and gardens maintain good year round character and grow best with regular moisture. This moisture is critical for sustaining the most active spring through summer growing stages. Flowering often begins when daylight hours are long and warm temperatures are consistent.

Irrigation for these plants should be reduced by mid to late summer to avoid encouraging late season growth that can be sensitive to frost. This is particularly desirable for plants grown in cooler climate zones. Additionally, some species with late flowering seasons such as the silk floss tree, bougainvillea and lantana will produce more intensive floral displays with less water from mid to late summer while warm daytime temperatures are still common. The majority of plants in this list have a moderate plant factor, indicating supplemental moisture requirements from 40-60% of ETo. Seasonal distribution of moisture is shown in the chart below.



Below: *Howea forsteriana*

Plant Lists

Woodland Garden Plants

A large number of ornamental plants commonly grown in California are native to cooler and wetter climate zones and habitat conditions. Not only are winters cooler and have greater precipitation, but summers are shorter and the growing season is ended by cool temperatures in early fall. A number of plants included on this list are among the best known for fall foliage color; others have colorful berries and early spring flowering. Many popular trees including sweet gum, Southern magnolia and sawleaf zelkova are widely planted for their stately character. All of these plants can be combined to achieve woodland style plantings with tall overstory trees, abundant shade and distinctive seasonal character.

Plants on this list are highly adapted to inland and valley climate zones across California. They thrive in deep soils and with regular moisture. Many species that are grown in southern California show signs of leaf burn after a long, dry and warm summer season that often extends into fall. The use of organic mulch works well on top of the soil around plants to retain moisture, reduce surface soil temperatures and release nutrients. A number of horticultural palettes that include plants from this list are found in Section Three - Plant Palettes, which provides examples of compatible species for various design situations.

Trees		**PF**	**IG**
Acer negundo + ssp	Box Elder	H	1
Acer palmatum + cvs	Japanese Maple	H	1
Acer platanoides	Norway Maple	H	1
Acer saccharinum	Silver Maple	H	1
Aesculus x carnea	Red Horsechestnut	M	1
Carya illinoinensis	Pecan	M	1
Cercis canadensis + cvs	Eastern Redbud	M	1
Cornus florida	Flowering Dogwood	M	1
Cryptomeria japonica + cvs	Japanese Cedar	M	1
Ginkgo biloba + cvs	Maidenhair Tree	M	1
Gleditsia triacanthos + cvs	Honey Locust	M	1
Ilex x altaclerensis 'Wilsonii'	Wilson Holly	M	1
Koelreuteria paniculata	Goldenrain Tree	M	1
Liquidambar formosana	Chinese Sweet Gum	M	1
Liquidambar styraciflua + cvs	American Sweet Gum	M	1
Liriodendron tulipifera	Tulip Tree	H	1
Magnolia grandiflora + cvs	Southern Magnolia	M	1
Magnolia x soulangeana + cvs	Saucer Magnolia	M	1
Metasequoia glyptostroboides	Dawn Redwood	M	1
Pistacia chinensis	Chinese Pistache	M	1
Podocarpus macrophyllus + cv	Yew Pine	M	1
Prunus x blireiana + cvs	Flowering Plum	M	1
Prunus cerasifera + cvs	Purple-leaf Plum	M	1
Pyrus calleryana + cvs	Callery Pear	M	1
Pyrus kawakamii	Evergreen Pear	M	1
Quercus palustris	Pin Oak	M	1
Robinia x ambigua + cvs	NCN	M	1
Robinia pseudoacacia	Black Locust	M	1
Sequoia sempervirens + cvs	Coast Redwood	H	1
Taxodium distichum	Bald Cypress	M	1
Taxodium mucronatum	Montezuma Cypress	M	1
Zelkova serrata	Sawleaf Zelkova	M	1

Above: *Liquidambar styraciflua*

Shrubs		**PF**	**IG**
Abelia 'Edward Goucher'	Edward Goucher Abelia	M	1
Abelia x grandiflora + cvs	Glossy Abelia	M	1
Abutilon species + cvs	Flowering Maple	M	1
Berberis aquifolium + cvs	Oregon Grape	M	1
Berberis darwinii	Darwin Barberry	M	1
Berberis japonica var. bealei	Leatherleaf Mahonia	M	1
Berberis lomariifolia	NCN	M	1
Berberis thunbergii + cvs	Japanese Barberry	M	1
Camellia japonica	Japanese Camellia	M	1
Camellia reticulata	Reticulata Camellia	M	1
Camellia sasanqua	Sasanqua Camellia	M	1
Chaenomeles japonica	Japanese Flowering Quince	M	1
Chaenomeles speciosa	NCN	M	1
Chaenomeles x superba	NCN	M	1
Cotinus coggygria + cvs	Smoke Tree	M	1
Cotoneaster horizontalis	Rock Cotoneaster	M	1
Cotoneaster lacteus	Red Clusterberry	M	1
Cotoneaster salicifolius + cv	Willowleaf Cotoneaster	M	1
Elaeagnus x ebbingei + cvs	NCN	M	1
Elaeagnus pungens + cvs	Silverberry	M	1
Hydrangea macrophylla + cvs	Bigleaf Hydrangea	H	1
Hypericum 'Hidcote'	NCN	M	1
Hypericum 'Rowallane'	NCN	M	1
Iberis sempervirens + cvs	Evergreen Candytuft	M	1
Ilex x altaclerensis 'Wilsonii'	Wilson Holly	M	1
Ilex aquifolium + cvs	English Holly	M	1
Ilex cornuta + cvs	Chinese Holly	M	1
Ilex vomitoria + cvs	Yaupon	M	1
Juniperus species + cvs	Chinese Juniper	M	1
Magnolia stellata	Star Magnolia	M	1
Magnolia x soulangeana + cvs	Saucer Magnolia	M	1
Nandina domestica + cvs	Heavenly Bamboo	M	1
Osmanthus fragrans	Sweet Olive	M	1
Photinia x fraseri	Fraser's Photinia	M	1
Photinia glabra	Japanese Photinia	M	1

Below: *Zelkova serrata*

Below: *Gleditsia triacanthos* 'Sunburst'

Above: *Magnolia stellata*

Above: *Rhododendron* cultivar

Below: *Polystichum polyblepharum*

Shrubs continued		PF	IG
Photinia serratifolia	Chinese Photinia	M	1
Pittosporum eugenioides + cv	NCN	M	1
Pittosporum tenuifolium + cvs	NCN	M	1
Pittosporum tobira + cvs	Tobira	M	1
Prunus caroliniana + cvs	Carolina Laurel Cherry	M	1
Prunus laurocerasus + cvs	English Laurel	M	1
Rhododendron species + cvs	Azalea	M	1
Syringa x hyacinthiflora	Early Flowering Lilac	M	1
Syringa x chinensis	Chinese Lilac	M	1
Syringa x laciniata	NCN	M	1
Syringa vulgaris + cvs	Common Lilac	M	1
Viburnum awabuki	Sweet Viburnum	M	1
Viburnum rhytidophyllum	Leatherleaf Viburnum	M	1
Viburnum suspensum	Sandankwa Viburnum	M	1
Xylosma congestum + cv	Shiny Xylosma	M	1

Vines		PF	IG
Bignonia capreolata	Crossvine	M	1
Campsis species + cvs	Trumpet Creeper	M	1
Clematis armandii	Evergreen Clematis	M	1
Clematis hybrids	Clematis	M	1
Clytostoma callistegioides	Violet Trumpet Vine	M	1
Gelsemium sempervirens	Carolina Jessamine	M	1
Parthenocissus quinquefolia	Virginia Creeper	M	1
Parthenocissus tricuspidata	Boston Ivy	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Wisteria floribunda + cvs	Japanese Wisteria	M	1
Wisteria sinensis + cvs	Chinese Wisteria	M	1

Perennials		PF	IG
Bergenia cordifolia	Heartleaf Bergenia	M	1
Bergenia crassifolia	Winter-blooming Bergenia	M	1
Campanula species + cvs	Bellflower	M	1
Clivia miniata	Kaffir Lily	M	1
Liriope muscari + cvs	Big Blue Lily Turf	M	1
Ophiopogon species + cvs	Mondo Grass	M	1

Ground Covers		PF	IG
Cotoneaster dammeri 'Lowfast'	Bearberry Cotoneaster	M	1
Cotoneaster salicifolius 'Repens'	NCN	M	1
Duchesnea indica	Mock Strawberry	M	1
Hypericum calycinum	Aaron's Beard	M	1
Fragaria chiloensis	Wild Strawberry	M	1
Liriope spicata	Creeping Lily Turf	M	1
Juniperus procumbens + cvs	Japanese Garden Juniper	M	1
Juniperus rigida conferta	Shore Juniper	M	1
Trachelospermum asiaticum	NCN	M	1
Trachelospermum japonicum	Star Jasmine	M	1
Vinca minor	NCN	M	1

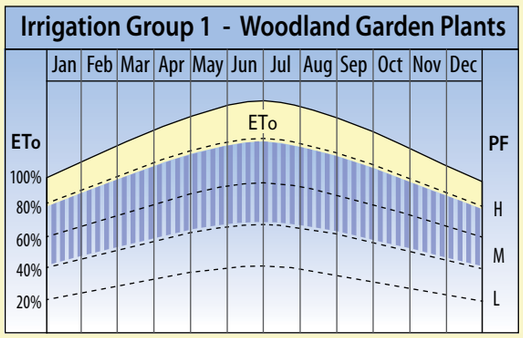
Ferns		PF	IG
Adiantum species	Maidenhair Fern	M	1
Nephrolepis cordifolia	Southern Sword Fern	M	1
Polystichum polyblepharum	Japanese Tassel Fern	H	1
Rumohra adiantiformis	Leather Fern	M	1

Grasses and Sedges		PF	IG
Calamagrostis x acutiflora + cv	Feather Reed Grass	M	1
Calamagrostis foliosus	Mendocino Reed Grass	M	1
Calamagrostis nutkaensis	Pacific Reed Grass	M	1
Festuca mairei	Atlas Fescue	M	1
Festuca rubra + cvs	Creeping Red Fescue	H	1
Miscanthus 'Giganteus'	Giant Silver Grass	H	1
Miscanthus sinensis + cvs	Eulalia	H	1
Miscanthus transmorrisonensis	Taiwanese Miscanthus	H	1
Sesleria autumnalis	Autumn Moor Grass	M	1
Sesleria caerulea	Blue Moor Grass	M	1

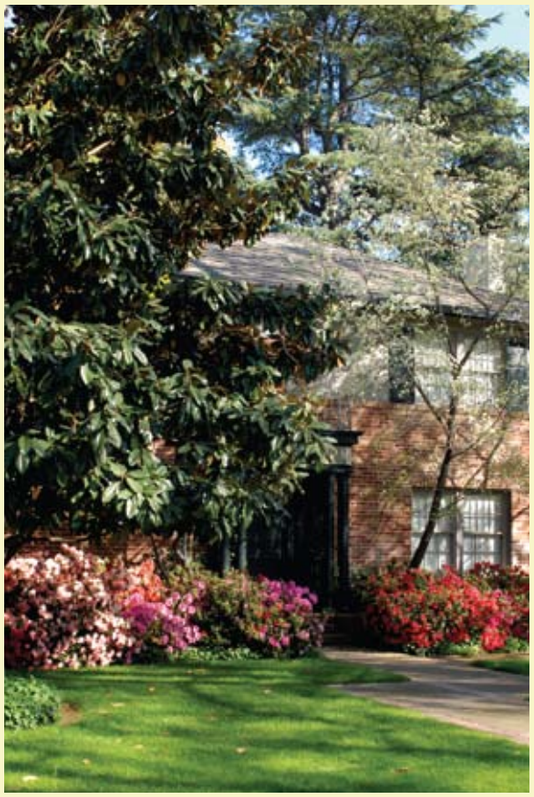
Woodland Garden Plants

Woodland garden plants included in this list grow best with regular moisture throughout the year. This results in an irrigation schedule that closely follows the monthly reference evapotranspiration in order to replace soil moisture as it is depleted. Most species have a moderate plant factor, indicating supplemental moisture needs ranging from 40-60% of ETo; a few do best with high amounts of moisture. This moisture range is illustrated in the chart shown below.

Plants adapted to cooler climate zones with higher levels of precipitation often benefit from soils with higher organic content to facilitate moisture retention and nutrient exchange. Additionally, surface mulches can help retain soil moisture and decompose to release nutrients into the soil.



Below: A woodland planting, including *Magnolia grandiflora*, *Cornus florida* and *Rhododendron* Southern Indica cultivars



Plant Lists

Asian Garden Plants

The Asian garden plants list brings attention to the abundance of garden plants that come from various regions throughout Asia. Like any large geographic area, there are several different climate zones; plants included in this list are adapted to temperate climate conditions with cool and moist winters and warm, but short summer seasons. These plants have been used in Asian style gardens around the world and are highly popular in California. There is a pleasing balance of evergreen and deciduous plants on this list, as well as many choices providing flowers, berries and fall color. This can be seen by the presence of such plants as camellias, barberries and maidenhair trees. Some of the finest shade tolerant plants such as liriope, mondo grass and bamboo are found among these plants. Additionally, sweet olive and *Michelia* species add unforgettable fragrance to many plantings.

Asian garden plants are adaptable to a number of climate zones throughout California. They are naturally adapted to zones with clearly defined seasons, particularly in the central and northern parts of the state. However, these plants grow remarkably well in warmer and dryer zones when they are planted in shady microclimates with regular moisture. As in many landscape plantings, trees are essential in bringing scale and structure to the design, and in providing shade for understory plants.

Several horticultural plant palettes that include plants from this list are found in Section Three - Plant Palettes, which provide examples of compatible species for various design situations.

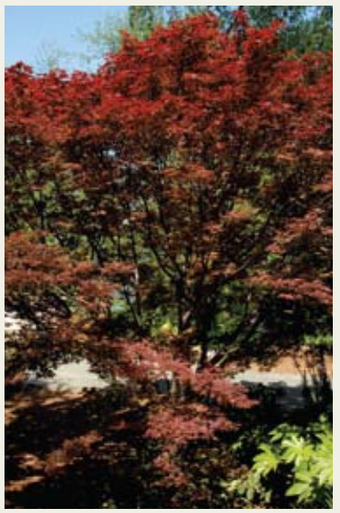
Below: *Bambusa oldhamii*

Trees		**PF**	**IG**
Acer palmatum + cvs	Japanese Maple	H	1
Cryptomeria japonica + cvs	Japanese Cedar	M	1
Ginkgo biloba + cvs	Maidenhair Tree	M	1
Liquidambar formosana	Chinese Sweet Gum	M	1
Metasequoia glyptostroboides	Dawn Redwood	M	1
Michelia champaca	Champaca	M	1
Michelia doltsopa	NCN	M	1
Pinus thunbergii	Japanese Black Pine	M	1
Pistacia chinensis	Chinese Pistache	M	1
Podocarpus henkelii	Long-leafed Yellowwood	M	1
Podocarpus macrophyllus + cv	Yew Pine	M	1
Prunus species + cvs	Flowering Cherry & Plum	M	1
Pyrus calleryana + cvs	Callery Pear	M	1
Pyrus kawakamii	Evergreen Pear	M	1
Salix babylonica + cvs	Weeping Willow	H	1
Sophora japonica	Japanese Pagoda Tree	M	1
Zelkova serrata	Sawleaf Zelkova	M	1

Palms and Cycads		**PF**	**IG**
Cycas revoluta	Sago Palm	M	1
Rhapis excelsa	Lady Palm	M	1
Rhapis humilis	Slender Lady Palm	M	1

Shrubs		**PF**	**IG**
Abelia species + cvs	Abelia	M	1
Abutilon cultivars	Flowering Maple	H	1
Aucuba japonica + cvs	Japanese Aucuba	M	1
Berberis japonica var. bealei	Leatherleaf Mahonia	M	1
Berberis lomariifolia	NCN	M	1
Berberis thunbergii + cvs	Japanese Barberry	M	1
Camellia japonica + cvs	Japanese Camellia	M	1
Camellia reticulata + cvs	Reticulata Camellia	M	1
Camellia sasanqua + cvs	Sasanqua Camellia	M	1
Chaenomeles japonica	Japanese Flowering Quince	M	1
Cotoneaster horizontalis	Rock Cotoneaster	M	1
Cotoneaster lacteus	Red Clusterberry	M	1
Fatsia japonica	Japanese Aralia	M	1
Gardenia augusta + cvs	Gardenia	H	1
Hydrangea macrophylla + cvs	Bigleaf Hydrangea	M	1
Juniperus species + cvs	Juniper	M	1
Ilex cornuta + cvs	Chinese Holly	M	1
Loropetalum chinense + cvs	NCN	M	1
Magnolia stellata	Star Magnolia	M	1
Magnolia x soulangeana + cvs	Saucer Magnolia	M	1
Michelia x foggii	NCN	M	1
Michelia yunnanensis	NCN	M	1
Nandina domestica + cvs	Heavenly Bamboo	M	1
Osmanthus fragrans	Sweet Olive	M	1
Photinia glabra	Japanese Photinia	M	1
Pinus mugo	Mugo Pine	M	1
Pittosporum tenuifolium + cvs	NCN	M	1
Pittosporum tobira + cvs	Mock Orange	M	1
Rhaphiolepis indica + cvs	India Hawthorn	M	1
Rhododendron species + cvs	Rhododendron	M	1

Bamboo and Grasses		**PF**	**IG**
Bambusa multiplex 'Alphonse Karr'	Alphonse Karr Bamboo	M	1
Bambusa multiplex 'Golden Goddess'	Golden Goddess Bamboo	M	1
Bambusa multiplex 'Riviereorum'	Chinese Goddess Bamboo	M	1
Bambusa oldhamii	Oldham Bamboo	M	1
Bambusa textilis	Weaver's Bamboo	M	1
Bambusa ventricosa	Buddha's Belly Bamboo	M	1
Bambusa vulgaris 'Vittata'	NCN	M	1
Phyllostachys aurea	Golden Bamboo	M	1
Phyllostachys bambusoides + cvs	Giant Timber Bamboo	M	1
Phyllostachys nigra	Black Bamboo	M	1
Pleioblastus auricomus	NCN	M	1
Pleioblastus pygmaeus + cvs	Pygmy Bamboo	M	1
Pleioblastus shibuyanus 'Tsuboi'	Dwarf Variegated Bamboo	M	1



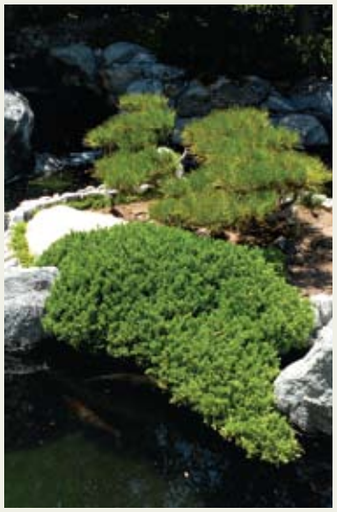
Above: *Acer palmatum* 'Burgundy Lace'

Below: *Aucuba japonica* 'Crotonifolia'

Below: *Gardenia augusta* 'Mystery'

Above: *Wisteria sinensis* 'Rosea'

Below: *Juniperus communis* 'Nana'



Perennials, Ferns and Grasses		PF	IG
Aspidistra elatior + cv	Cast-Iron Plant	M	1
Cyrtomium falcatum	Japanese Holly Fern	M	1
Cyrtomium fortunei	NCN	M	1
Duchesnea indica	Indian Mock Strawberry	M	1
Imperata cylindrica 'Red Baron'	Japanese Blood Grass	M	1
Juncus effusus + cvs	Common Rush	H	1
Liriope muscari + cvs	Big Blue Lily Turf	M	1
Miscanthus sinensis + cvs	Eulalia	H	1
Ophiopogon jaburan	Giant Lily Turf	M	1
Ophiopogon japonicus + cvs	Mondo Grass	M	1
Ophiopogon planiscapus 'Nigrescens'	Black Mondo Grass	M	1
Pennisetum orientale	Chinese Fountain Grass	M	1
Polystichum polyblepharum	Japanese Tassel Fern	H	1
Rumohra adiantiformis	Leather Fern	M	1
Sesleria autumnalis	Autumn Moor Grass	M	1

Ground Covers		PF	IG
Ajuga reptans + cvs	Carpet Bugle	H	1
Campanula species + cvs	Bellflower	M	1
Duchesnea indica	Indian Mock Strawberry	M	1
Liriope spicata	Creeping Lily Turf	M	1
Juniperus procumbens + cvs	Japanese Garden Juniper	M	1
Juniperus rigida conferta	Shore Juniper	M	1
Ophiopogon japonicus + cvs	Mondo Grass	M	1
Ophiopogon planiscapus 'Nigrescens'	Black Mondo Grass	M	1
Pleioblastus auricomus	NCN	M	1
Pleioblastus pygmaeus + cvs	Pygmy Bamboo	M	1
Pleioblastus shibuyanus 'Tsuboi'	Dwarf Variegated Bamboo	M	1
Soleirolia soleirolii	Baby's Tears	H	1
Trachelospermum asiaticum	NCN	M	1
Trachelospermum japonicum	Star Jasmine	M	1
Vinca minor	NCN	M	1

Vines		PF	IG
Fatshedera lizei	NCN	M	1
Jasminum polyanthum	NCN	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Wisteria floribunda + cvs	Japanese Wisteria	M	1
Wisteria sinensis + cvs	Chinese Wisteria	M	1

Below: *Trachelospermum asiaticum*

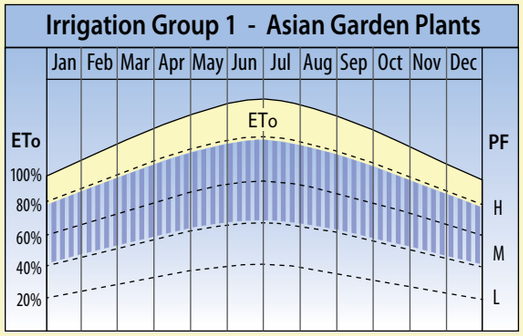
Below: *Trachelospermum asiaticum* ground cover with *Pinus mugo* lower left

Plant Lists

Asian Garden Plants

Asian garden plants included in this list grow best with regular soil moisture throughout the year. This results in an irrigation schedule that closely follows monthly climate conditions and replaces soil moisture as it becomes depleted. Most species have a moderate plant factor, indicating supplemental moisture needs ranging from 40-60% of ETo; a few do best with high amounts of moisture from 60-80% and should be grouped into hydrozones with appropriate irrigation. The moisture range for this group of plants is illustrated in the chart shown below.

Asian garden plants benefit from soils with higher organic content to enhance moisture retention, achieve lightly acid conditions and increase levels of nutrient exchange and biological activity. They also grow well with organic mulches that reduce evaporation and release nutrients into the soil through decomposition.



Below: *Cycas revoluta* with *Soleirolia soleirolii* ground cover

Plant Lists

Coastal Garden Plants

Landscapes and gardens in coastal zones are exposed to a combination of climate conditions that deserve special attention. On one hand, seasonal temperatures are moderated by the influence of the Pacific Ocean; winter temperatures are milder and summer heat is lower. Frost in Plant Climate Zones 17 and 24 is infrequent, averaging two to five days per year. Areas in southern California have a potential year round growing season. ETo levels in these zones are the lowest in the state. This reflects the combined influence of reduced temperatures with increased humidity and summer fog. Seasonal precipitation is more frequent and highest in northern coastal areas and can often meet the moisture needs of plants throughout winter months. Southern latitudes are drier; some supplemental moisture during winter is desirable, particularly during extended dry spells and drought cycles.

Plants in coastal zones are exposed to salt and sand laden air and winds that can damage foliage and impact soil conditions. Plants along the immediate coastal edge are often shaped into lower growing forms and inundated with layers of sand. These extreme conditions are quickly mitigated by the presence of buildings, walls and large trees which produce sheltered microclimates that greatly improve growing conditions. This list brings attention to plants that are well adapted to coastal zones. Some of these plants can tolerate extreme coastal edge conditions while most are well adapted to coastal humidity, moderated temperatures and little frost.

Coastal Exposure Legend

1 = Coastal Edge with salt spray and sand
2 = Sheltered from salt spray and sand

Below: *Baccharis pilularis*

Trees		1	2	PF	IG
Agonis flexuosa + cvs	Peppermint Tree		•	M/L	2
Araucaria heterophylla	Norfolk Island Pine		•	M	1
Casuarina equisetifolia	Horsetail Tree	•	•	M/L	2
Dracaena draco	Dragon Tree		•	L/VL	2
Cupressus macrocarpa + cvs	Monterey Cypress	•	•	M/L	2
Eucalyptus conferruminata	Bushy Yate		•	M/L	2
Eucalyptus ficifolia	Red-flowering Gum		•	M/L	2
Ficus elastica + cvs	Rubber Tree		•	M	1
Ficus microcarpa	Indian Laurel Fig		•	M	1
Ficus rubiginosa	Rustyleaf Fig		•	M	1
Melaleuca nesophila	Pink Melaleuca	•	•	M/L	2
Melaleuca quinquenervia	Cajeput Tree	•	•	M	1
Metrosideros excelsus	N Z Christmas Tree	•	•	M/L	2
Myoporum laetum + cv	NCN	•	•	M	1
Pinus radiata	Monterey Pine		•	M/L	2
Pinus torreyana	Torrey Pine		•	L/VL	2

Shrubs		1	2	PF	IG
Acacia podalyriifolia	Pearl Acacia		•	L/VL	2
Acca sellowiana	Pineapple Guava		•	M	1
Arctostaphylos edmundsii + cvs	Little Sur Manzanita	•	•	M/L	2
Arctostaphylos hookeri + cvs	Monterey Manzanita		•	M/L	2
Arctostaphylos 'Howard McMinn'	McMinn Manzanita		•	M/L	2
Arctostaphylos pumila	Dune Manzanita	•	•	M/L	2
Arctostaphylos uva-ursi + cvs	Kinnikinnick	•	•	M/L	2
Artemisia arborescens	NCN	•	•	L/VL	2
Artemisia californica + cvs	California Sagebrush	•	•	L/VL	2
Artemisia 'Powis Castle'	NCN		•	M/L	2
Atriplex lentiformis ssp. breweri	Brewer Saltbush	•	•	L/VL	2
Baccharis pilularis + cvs	Coyote Brush	•	•	M/L	2
Carissa macrocarpa + cvs	Natal Plum	•	•	M	1
Ceanothus gloriosus + cvs	Point Reyes Ceanothus		•	M/L	2
Ceanothus maritimus	NCN	•	•	M/L	2
Ceanothus thyrsiflorus var. griseus	Carmel Creeper	•	•	M/L	2
Cistus species + cvs	Rockrose		•	M/L	2
Coprosma repens + cvs	Mirror Plant		•	M	1
Coreopsis gigantea	Giant Coreopsis	•	•	M/L	2
Echium candicans + cv	Pride of Madeira	•	•	M/L	2
Elaeagnus pungens + cvs	Silverberry		•	M	1
Encelia californica + cv	Coastal Encelia	•	•	M/L	2
Eriogonum arborescens	St Cruz Island Buckwheat	•	•	L/VL	2
Eriogonum cinereum	Ashyleaf Buckwheat		•	L/VL	2
Eriogonum fasciculatum + cvs	Common Buckwheat	•	•	L/VL	2
Eriogonum giganteum	St. Catherine's Lace	•	•	L/VL	2
Eriogonum grande + var	Island Buckwheat		•	L/VL	2
Escallonia species + cvs	Escallonia		•	M	1
Galvezia speciosa + cv	Island Bush Snapdragon		•	M/L	2
Hakea suaveolens	Sweet-scented Hakea		•	M/L	2
Isomeris arborea	Bladderpod	•	•	M/L	2
Juniperus procumbens + cvs	Japanese Garden Juniper	•	•	M	1
Juniperus rigida conferta + cvs	Shore Juniper	•	•	M	1
Lavatera assurgentiflora + cv	Tree Mallow	•	•	M/L	2
Lavatera maritima	Sea Mallow	•	•	M/L	2
Leptospermum laevigatum + cv	Australian Tea Tree	•	•	M/L	2
Leptospermum scoparium + cvs	New Zealand Tea Tree		•	M/L	2
Leucadendron species + cvs	NCN		•	M/L	2
Leucospermum species + cvs	NCN		•	M/L	2
Lupinus arboreus	Coastal Bush Lupine	•	•	L/VL	2
Melaleuca armillaris	Drooping Melaleuca	•	•	M/L	2
Melaleuca nesophila	Pink Melaleuca	•	•	M/L	2
Metrosideros collina + cv	Lehua		•	M	1
Myoporum laetum + cv	NCN	•	•	M	1
Myoporum x 'Pacifica'	NCN		•	M	1
Myrica californica	Pacific Wax Myrtle		•	M/L	2
Pittosporum crassifolium + cv	Karo		•	M	1
Polygala fruticosa 'Petite Butterflies'	NCN		•	M	1
Rhus integrifolia	Lemonade Berry	•	•	L/VL	2
Rhus lentii	Pink Flowering Sumac		•	L/VL	2
Rosmarinus officinalis + cvs	Rosemary		•	M/L	2

Above: *Melaleuca nesophila*

Above: *Asteriscus maritimus* with *Leucospermum cordifolium* 'Flame Spike'

Below: *Aloe plicatilis*

Above: *Agave americana* var. *marginata*

Above: *Senecio talinoides* ssp. *mandraliscae*

Below: *Aeonium* 'Sunburst'

Shrubs continued		1	2	PF	IG
Salvia brandegeei	Santa Rosa Island Sage		•	L/VL	2
Salvia leucophylla + cvs	Purple Sage		•	L/VL	2
Salvia mellifera + cvs	Black Sage		•	L/VL	2
Santolina chamaecyparissus + cvs	Lavender Cotton		•	M/L	2
Thevetia peruviana	Yellow Oleander	•	•	M	1
Westringia fruticosa + cvs	Coast Rosemary	•	•	M/L	2
Westringia 'Wynyabbie Gem'	NCN	•	•	M/L	2

Palms		1	2	PF	IG
Chamaerops humilis	Mediterranean Fan Palm	•	•	M/L	2
Phoenix canariensis	Canary Island Date Palm		•	M	1
Phoenix roebilinii	Pygmy Date Palm		•	M	L
Syagrus romanzoffianum	Queen Palm	•	•	M	1
Washingtonia robusta	Mexican Fan Palm	•	•	M	1

Carex, Grasses, Perennials and Rushes		1	2	PF	IG
Achillea millefolium + cvs	Common Yarrow		•	M/L	2
Armeria maritima + cvs	Common Thrift	•	•	M/L	2
Artemisia pycnocephala + cv	Sandhill Sage	•	•	M/L	2
Asteriscus maritimus + cv	Gold Coin	•	•	M/L	2
Asteriscus sericeus	Canary Island Daisy		•	M/L	2
Bulbine frutescens + cv	NCN		•	M/L	2
Carex glauca	Blue Sedge		•	M	1
Carex pansa	Pacific Dune Sedge	•	•	M	1
Carex praegracilis	Western Meadow Sedge		•	M	1
Chondropetalum elephantinum	Large Cape Rush	•	•	M	1
Chondropetalum tectorum	Small Cape Rush	•	•	M	1
Erigeron glaucus + cvs	Beach Aster	•	•	M/L	2
Eriogonum grande + var	Island Buckwheat		•	L/VL	2
Fragaria chiloensis	Beach Strawberry	•	•	M	1
Gazania species + cvs	Gazania		•	M	1
Juncus patens	Common Rush	•	•	H	1
Leymus condensatus + cvs	Giant Wild Rye	•	•	M/L	2
Leymus triticoides	Creeping Wild Rye		•	M	1
Limonium perezii	Sea Lavender	•	•	M/L	2
Osteospermum species + cvs	Trailing African Daisy		•	M/L	2
Pelargonium peltatum	Ivy Geranium		•	M	1
Phormium tenax + cvs	New Zealand Flax	•	•	M	1
Plecostachys serpyllifolia	NCN			•M/L	2
Rhodocoma capensis	NCN	•	•	M	1
Rhodocoma fruticosa	NCN	•	•	M	1
Rhodocoma gigantea	NCN		•	M	1
Senecio cineraria	Dusty Miller		•	L	1
Strelitzia nicolai	Giant Bird of Paradise		•	M	1
Strelitzia regina	Bird of Pardise		•	M	1

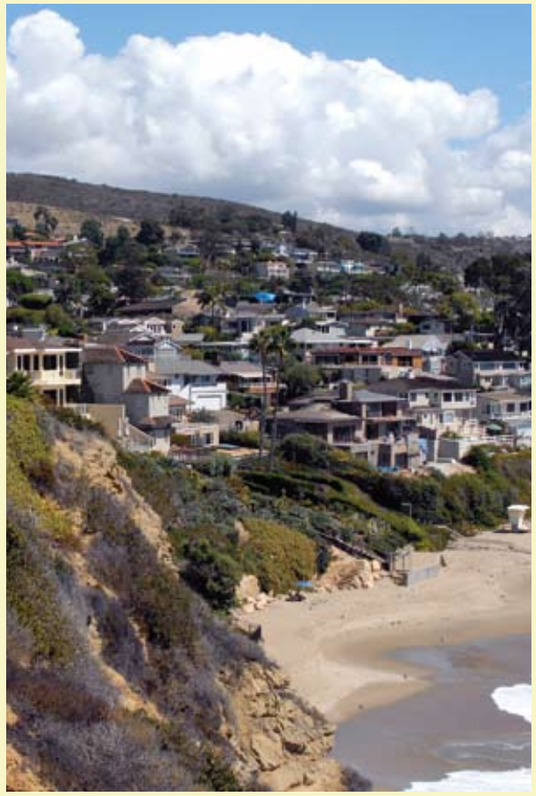
Agaves, Aloes, Succulents		1	2	PF	IG
Aeonium species + cvs	NCN	•	•	L/VL	2
Agave americana + cvs	NCN	•	•	L/VL	2
Agave attenuata + cvs	Foxtail Agave	•	•	L/VL	2
Agave shawii	Shaw's Agave	•	•	L/VL	2
Aloe species + cvs	Aloe	•	•	L/VL	2
Delosperma litorale	White Trailing Iceplant	•	•	L/VL	2
Dudleya virens + cvs	Dudleya	•	•	L/VL	2
Echeveria species + cvs	Hen and Chicks	•	•	L/VL	2
Euphorbia species + cvs	Euphorbia		•	L/VL	2
Kalanchoe species + cvs	NCN	•		L/VL	2
Malephora crocea	Ice Plant	•	•	L/VL	2
Malephora lutea	Rocky Point Ice Plant	•	•	L/VL	2
Senecio serpens	Blue Chalksticks		•	L/VL	2
Senecio talinoides + ssp	NCN		•	L/VL	2
Yucca gloriosa	Spanish Dagger	•	•	L/VL	2

Vines					
Bougainvillea spectabilis + cvs	Bougainvillea		•	M/L	2
Muehlenbeckia complexa	Matress Vine	•	•	M	1
Thunbergia alata + cv	Black-eyed Susan		•	M	1
Thunbergia gregorii	Orange Clock Vine		•	M	1

Coastal Garden Plants

Above: *Phormium tenax,* Morro Bay

Below: The coastline near Laguna Beach



Plant Lists

Invasive Plants

The challenge of invasive plants should be of concern to all people who work with landscapes and gardens. The widespread growth of exotic plants contribute significantly to the loss of species diversity and natural habitats on a worldwide basis. This issue is particularly important in California where many endemic and rare native species that are vulnerable to invasive plants. And, the challenge is not simply limited to plants. Habitats for native wildlife are also impacted by the loss of native plants as well as the introduction of exotic wildlife species. A review of the plants on these pages brings attention to a number of popular ornamental plants that have escaped cultivation and have become invasive in different regions of the state. More species will be added in the future as better information is gathered on other plants.

Several organizations and publications currently exist to provide information and education regarding invasive plants on national and statewide scale. Organizations and sources of information include:

California Native Plant Council (Cal-IPC)
http://www.cal-ipc.org/

Invasive Species Council of California (ISCC)
http://www.iscc.ca.gov/

United States Department of Agriculture
http://www.invasivespeciesinfo.gov/plants/main.shtml

Invasive Plants of California's Wildlands
Carla C. Bossard, John M. Randall, Marc C. Hoshovsky, editors
U.C. Pess, 2000

Below: *Delairea odorata*

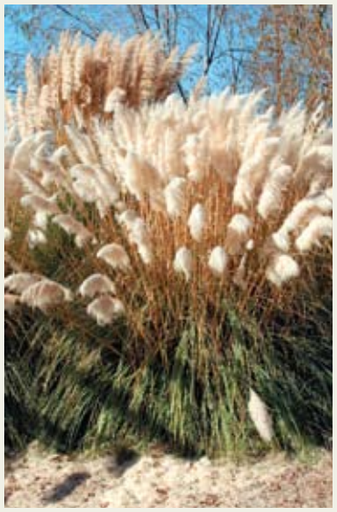
Trees		Distribution
Acacia melanoxylon	Blackwood Acacia	Northern to southern coastal and inland zones
Ailanthus altissima	Tree of Heaven	Statewide urban, rural and natural areas
Cupressus macrocarpa	Monterey Cypress	Central to northern coastal zones
Eucalyptus camaldulensis	River Red Gum	Southern coastal canyons
Eucalyptus globulus	Blue Gum	Northern to southern coastal and inland canyons
Ficus carica	Edible Fig	Statewide rban and riparian areas
Olea europaea	Olive	Southern coastal and inland foothills
Robinia pseudoacacia	Black Locust	Statewide foothills and valleys
Sapium sebiferum	Chinese Tallow Tree	Northern and central riparian
Schinus molle	California Pepper	Northern to southern coastal and inland foothills, valleys
Schinus terebinthifolius	Brazilian Pepper	San Francisco Bay area, Southern coastal lowlands
Schinus polygamus	Peruvian Pepper	Southern inland
Washintonia robusta	Mexican Fan Palm	Southern desert washes
Tamarix species	Tamarix	Coastal to desert riparian zones statewide
Shrubs		
Atriplex semibaccata	Australian Saltbush	Statewide waste places, scrublands and woodlands
Cistus ladanifer	Crimson-spot Rockrose	Sage scrub and Chaparral statewide
Coprosma repens	Mirror plant	Northern to southern coastal
Cotoneaster species	Cotoneaster	Northern to southern coastal
Cytisus scoparius	Scotch Broom	Northern to central coastal sage scrub and chaparral
Echium candicans	Pride of Madiera	Central to southern coastal
Genista monspessulanus	French Broom	Statewide coastal scrub and oak woodland
Myoporum laetum	NCN	Northern to southern coastal
Nerium oleander	Oleander	Northern to southern riparian zones
Ilex aquifolium	English Holly	Northern to central coastal forests
Lupinus arboreus	Yellow Bush Lupine	Northern coastal
Pyracantha species	Pyracantha	Central coastal
Ricinis communis	Castor Bean	Northern to southern coastal to inland
Spartium junceum	Spanish Broom	Statewide sage scrub, chaparral and woodland
Vines		
Delairea odorata	Cape Ivy	Northern to southern coastal
Hedera canariensis	Algerian Ivy	Northern to southern riparian and woodland
Hedera helix	English Ivy	Northern to southern riparian and woodland

Below: *Ailanthus altissima*

Below: *Ailanthus altissima*

Grasses and Perennials		Distribution
Arctotheca callendula	Capeweek	Northern to central coastal
Arundo donax	Giant Reed	Central to southern riparian
Centranthus ruber		
Cordyline australis		
Cortaderia jubata	Jubata Grass	Northern to southern coastal
Cortaderia selloana	Pampas Grass	Northern to southern coastal
Foeniculum vulgare	Fennel	Statewide disturbed areas
Helichrysum petiolare	Licorice Plant	Northern to central coastal
Limonium perezei		Southern coastal beaches and bluffs
Pennisetum setaceum	Fountain Grass	Central to southern coastal, inland and desert
Vinca major	Periwinkle	Statewide riparian and woodland
Succulents		
Aptenia cordifolia 'Red Apple'	Red Apple	Central to southern coastal and inland disturbed areas
Carpobrotus chilense	Hottentot Fig	Statewide coastal dunes and bluffs
Carpobrotus edulis	Sea Fig	Statewide coastal dunes and bluffs
Mesembryanthemum crystallinum	Crystalline Iceplant	Central to southern coastal

Above: *Cortaderia sellowana*



Above: *Cortaderia sellowana*

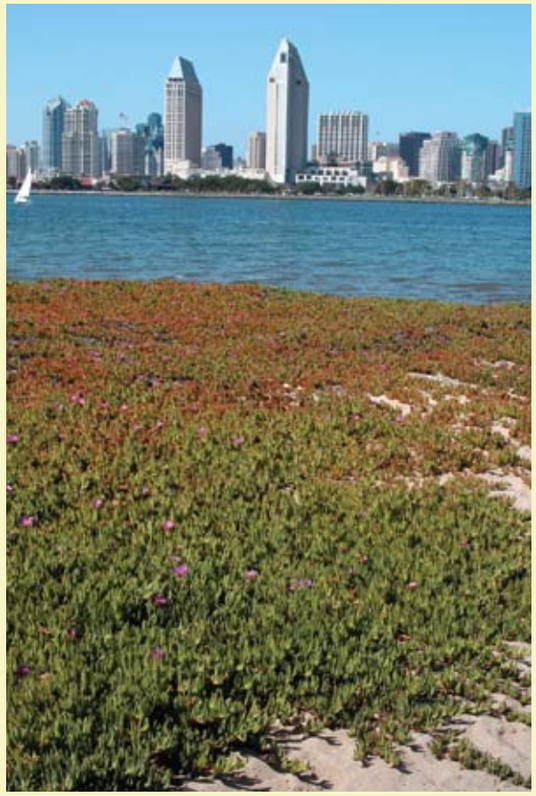
Above: *Pennisetum setaceum*

Below: *Cortaderia jubata*, Highway 1, central California coast

Below: *Carpobrotus edulis*

Above: *Pennisetum setaceum*, Palm Desert

Below: *Carpobrotus edulis*, Mission Bay, San Diego



Plant Lists

Flowering Trees

A colorful variety of flowering trees are available for use in California where they are valued in public and private spaces alike. Trees are commonly the largest and most visible features in landscapes and gardens, and their seasonal display of flowers can be highly prominent. This list contains species that grow well in many climate zones and plant palettes. Trees from cool and moist climate zones bring springtime color into woodland and Asian style gardens. Redbuds, dogwoods and magnolias are among the most notable. Species such African tulip, coral, floss silk, jacaranda and trumpet trees are adapted to subtropical conditions in coastal and mild inland zones. California buckeye, madrone, palo verde and red-flowering gum trees grow well in Mediterranean and arid climate zones.

A number of trees commonly grown for smaller areas, such as in patios and large containers are included in this list. Good soils and careful watering are highly important to their success when planted in confined areas with limited root space and extensive paving.

Flower Color Legend

O = Orange
R = Red
Pi = Pink
W = White
Y = Yellow
B = Blue
L = Lavender
P = Purple

Below: *Spathodea campanulata*

Deciduous Flowering Trees		O	R	Pi	W	Y	B	L	P	PF	IG
Acacia farnesiana	Sweet Acacia					•				L/VL	2
Aesculus californica	California Buckeye			•	•					L/VL	2
Aesculus x carnea + cvs	Red Horsechestnut		•	•						M	1
Albizia julibrissin + cv	Silk Tree			•						M	1
Bauhinia species + cvs	Orchid Tree			•				•	•	M	1
Brachychiton acerifolius	Australian Flame Tree		•							M/L	2
Brachychiton discolor	Queensland Lacebark			•						M/L	2
Caesalpinia cacalaco	Cascalote					•				M/L	2
Calodendrum capense	Cape Chestnut			•						M	1
Catalpa species	Catalpa				•					M	1
Cercis canadensis + cvs	Eastern Redbud							•		M	1
Cercis occidentalis	Western Redbud			•						M/L	2
Chilopsis linearis + cvs	Desert Willow			•	•			•	•	M/L	2
Chionanthus retusus	Chinese Fringe Tree			•						M	1
Chitalpa tashkentensis + cvs	Chitalpa			•	•					M/L	2
Chorisia insignis	White Floss Silk Tree			•						M	1
Chorisia speciosa + cvs	Floss Silk Tree			•						M	1
Cornus florida + cvs	Flowering Dogwood			•	•					M	1
Cornus nuttallii	Western Dogwood			•						H/M	2
Erythrina species	Coral Tree	•	•							M/L	2
Grevillea robusta	Silky Oak	•								M/L	2
Jacaranda mimosifolia + cv	Jacaranda								•	M	1
Koelreuteria species	Flame Tree					•				M	1
Lagerstroemia indica + cvs	Crape Myrtle		•	•	•			•		M	1
Magnolia soulangeana + cvs	Saucer Magnolia			•	•					M	1
Melia azedarach	Chinaberry							•		M/L	2
Parkinsonia species + cvs	Palo Verde					•				M/L	2
Paulownia kawakamii	Sapphire Dragon Tree							•		M	1
Paulownia tomentosa	Empress Tree							•		M	1
Plumeria species + cvs	Frangipani		•	•	•	•				M	1
Prunus x blireiana	Purple-leaf Plum			•						M	1
Prunus cerasifera + cvs	Purple-leaf Plum			•						M	1
Punica granatum + cvs	Pomegranate	•	•							M	1
Pyrus calleryana + cvs	Callery Pear				•					M	1
Pyrus kawakamii	Evergreen Pear				•					M	1
Robinia x ambigua + cvs	NCN							•		M	1
Robinia pseudoacacia	Black Locust				•					M	1
Sambucus nigra ssp. mexicana	Blue Elderberry					•				M/L	2
Sophora japonica	Japanese Pagoda Tree				•					M	1
Spathodea campanulata + cv	African Tulip Tree	•	•							M	1
Stenocarpus sinuatus	Firewheel Tree		•							M	1
Tabebuia chrysotricha	Golden Trumpet Tree					•				M	1
Tabebuia impetiginosa	Pink Trumpet Tree			•						M	1
Tipuana tipu	Tipu Tree					•				M	1
Vitex agnus-castus	Chaste Tree						•		•	M/L	2

Below: *Spathodea campanulata*

Below: *Tabebuia chrysotricha*

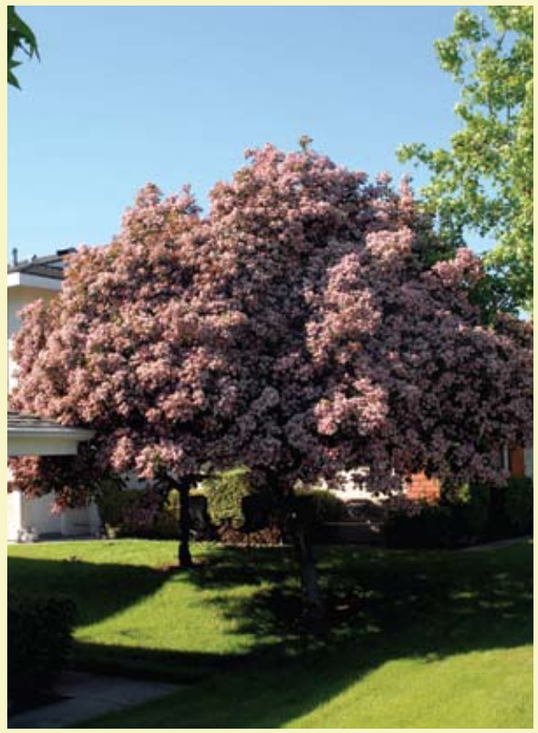
Below: *Magnolia soulangeana*

Flowering Trees

Evergreen Flowering Trees		O	R	Pi	W	Y	B	L	P	PF	IG
Acacia baileyana + cv	Bailey Acacia					•				L/VL	2
Acacia podalyriifolia	Pearl Acacia					•				L/VL	2
Arbutus 'Marina'	NCN			•						M/L	2
Arbutus menziesii	Madrone			•						M/L	2
Callistemon citrinus + cvs	Lemon Bottlebrush		•							M/L	2
Callistemon viminalis + cvs	Weeping Bottlebrush		•							M/L	2
Citrus cultivars	Citrus			•						M	1
Eucalyptus ficifolia	Red-Flowering Gum		•	•						M/L	2
Hymenosporum flavum	Sweetshade Tree					•				M	1
Leptospermum 'Dark Shadows'	NCN			•						M/L	2
Magnolia grandiflora + cvs	Southern Magnolia			•						M	1
Melaleuca linariifolia	Flaxleaf Paperbark			•						M	1
Metrosideros excelsus	N.Z. Christmas Tree	•								M/L	2
Michelia doltsopa	NCN			•						M	1
Nerium oleander	Oleander		•	•	•	•				M/L	2
Photinia x fraseri	NCN			•						M	1
Photinia serratifolia	Chinese Photinia			•						M	1
Pittosporum rhombifolium	Queensland Pittosporum			•						M	1
Rhaphiolepis x 'Majestic Beauty'	NCN			•						M	1
Thevetia peruviana	Yellow Oleander					•				M	1
Thevetia thevetioides	Giant Thevetia					•				M	1

Aloes - Yuccas		O	R	Pi	W	Y	B	L	P	PF	IG
Aloe barberae	Tree Aloe	•								L/VL	2
Beaucarnea recurvata	Bottle Palm					•				L/VL	2
Cordyline australis + cvs	Dracaena Palm					•				M	1
Dracaena draco	Dragon Tree					•				L/VL	2
Yucca species	Yucca					•				L/VL	2

Patio Trees		O	R	Pi	W	Y	B	L	P	PF	IG
Abutilon cultivars	NCN	•	•	•		•				H	1
Alyogyne huegelii + cvs	Blue Hibiscus						•	•	•	M/L	2
Anisodontea x hypomandarum	Cape Mallow			•						M	1
Bougainvillea cultivars	Bougainvillea	•		•	•			•	•	M/L	2
Brugmansia species + cvs.	Angel's Trumpet	•		•		•	•			M	1
Caesalpinia gilliesii	Bird of Paradise Bush		•				•			M/L	2
Citrus cultivars	Citrus				•					M	1
Hibiscus rosa-sinensis + cvs	Tropical Hibiscus	•	•	•	•	•	•	•		M	1
Lavatera maritima	Sea Mallow			•	•					M/L	2
Lavatera thuringiaca	NCN			•					•	M	1
Nerium oleander	Oleander		•	•	•	•				M/L	2
Rhaphiolepis x 'Majestic Beauty'	NCN			•						M	1
Solanum rantonnetii + cv	Nightshade								•	M	1
Tibouchina urvilleana	Princess Flower								•	M	1
Wisteria species + cvs	Wisteria			•	•			•		M	1



Above: *Rhaphiolepis* x 'Majestic Beauty'

Below: *Hymenosporum flavum*

Below: *Magnolia grandiflora* 'Russet'

Below: *Citrus* cultivar

Below: *Hymenosporum flavum*

Plant Lists

Flowering Shrubs

Shrubs have many important uses in landscapes and gardens. They are commonly planted to define and enclose spaces by providing perimeter screening and background layers. They are also essential in complementing the choice of trees and in providing accent and color value in small and large spaces alike. This list of colorful flowering shrubs brings attention to the dominance of evergreen species that can be selected for a variety of situations. These evergreen plants offer colorful choices for every climate zone and habitat condition, from temperate to subtropical, and moist to dry. They range in habit from low and spreading to mounding and upright, and include species that can grow into trees as they mature.

A review of the deciduous flowering shrubs reveals traditional choices such as lilacs, rhododendrons and roses. Each of these groups alone contain many species and cultivars that have made them among the most popular and widely planted of all shrubs in California.

Flower Color Legend

O = Orange
R = Red
Pi = Pink
W = White
Y = Yellow
B = Blue
L = Lavender
P = Purple

Below: *Hydrangea quercifolia*

Deciduous Flowering Shrubs		O	R	Pi	W	Y	B	L	P	PF	IG
Aesculus californica	California Buckeye			•	•					L/VL	2
Berberis darwinii	Darwin Barberry	•								M	1
Berberis thunbergii + cvs	Japanese Barberry					•				M	1
Caesalpinia species + cvs	Bird of Paradise Bush		•			•				M/L	2
Cotinus coggygria + cvs	Smoke Tree								•	M	1
Hibiscus syriacus + cvs	Rose of Sharon			•	•	•	•	•		M	1
Hydrangea species + cvs	Hydrangea			•			•		•	H	1
Lagerstroemia indica + cvs	Crape Myrtle		•	•	•			•	•	M	1
Magnolia x soulangeana + cvs	Saucer Magnolia			•	•					M	1
Magnolia stellata + cvs	Star Magnolia				•					M	1
Punica granatum + cvs	Pomegranate		•	•						M	1
Rhododendron species + cvs	Rhododendron		•	•	•	•		•	•	M	1
Ribes species + cvs	Currant		•	•	•					M/L	2
Rosa species + cvs	NCN		•	•	•	•				M	1
Syringa species + cvs	Lilac			•	•			•	•	M	1
Vitex agnus-castus	Chaste Tree			•	•			•	•	M/L	2

Evergreen Flowering Shrubs		O	R	Pi	W	Y	B	L	P	PF	IG
Abelia species + cvs	Abelia				•	•				M	1
Abutilon species + cvs	Flowering Maple	•	•	•	•	•				M	1
Acacia cultriformis	Knife Acacia					•				L/VL	2
Acca sellowiana	Pineapple Guava		•		•					M/L	2
Alyogyne huegelii + cvs	Blue Hibiscus						•		•	M/L	2
Arctostaphylos species + cvs	Manzanita			•	•					M/L	2
Bauhinia galpinii	Red Bauhinia	•								M	1
Berberis species + cvs	Barberry	•				•				M	1
Bougainvillea species + cvs	Bougainvillea	•	•	•	•			•	•	M/L	2
Brugmansia species + cvs	Angel's Trumpet			•	•	•				M	1
Brunfelsia pauciflora + cvs	Brunfelsia				•		•		•	M	1
Buddleja davidii + cvs	Butterfly Bush			•	•		•	•	•	M	1
Calliandra species + cvs	Fairy Duster		•	•						M	1
Callistemon citrinus	Lemon Bottlebrush		•							M/L	2
Callistemon 'Little John'	NCN		•							M/L	2
Calothamnus quadrafidus	One-sided Bottlebrush		•							M/L	2
Camellia species + cvs	Camellia		•	•	•					M	1
Carissa macrocarpa + cvs	Natal Plum				•					M	1
Caryopteris species + cvs	Bluebeard						•	•	•	M/L	2
Ceanothus species + cvs	Wild Lilac				•		•	•	•	M/L	2
Chaenomeles species + cvs	Flowering Quince		•	•						M	1
Chamelaucium uncinatum + cvs	Geraldton Wax Flower		•	•					•	M/L	2
Choisya ternata	Mexican Orange				•					M	1
Cistus species + cvs	Rockrose			•	•				•	M/L	2
Citrus cultivars	Citrus				•					M	1
Comarostaphylis diversifolia	Summer Holly				•					M/L	2
Correa species + cvs	Correa				•					M/L	2
Dalea species + cvs	Indigo Bush					•			•	M/L	2
Dendromecon species	Bush Poppy					•				L/VL	2
Duranta erecta	Sky Flower						•		•	M	1
Echium candicans + cv	Pride of Madeira						•		•	M/L	2
Encelia species + cvs	Encelia					•				M/L	2
Eremophila species + cvs	Emu Bush		•	•		•				M/L	2
Eriogonum species + cvs	Buckwheat			•	•					L/VL	2
Escallonia species + cvs	Escallonia		•	•	•					M	1
Euphorbia species + cvs	Euphorbia		•	•		•				L/VL	2
Euryops pectinatus + var	Euryops					•				M	1
Fremontodendron species + cvs	Flannel Bush					•				L/VL	2
Galvezia species + cvs	Bush-Snapdragon		•							M/L	2
Gardenia species + cvs	Gardenia				•					M	1
Globularia x indubia	Globe Daisy				•	•				M/L	2
Grevillea species + cvs	Grevillea	•	•	•						M/L	2
Hebe species + cvs	Hebe						•		•	M	1
Helianthemum cultivars	Sunrose		•	•		•				M	1
Heteromeles arbutifolia + cvs	Toyon				•					M/L	2
Hibiscus rosa-sinensis + cvs	Tropical Hibiscus	•	•	•	•	•				M	1
Hypericum species + cvs	Hypericum			•						M	1
Iberis sempervirens + cvs	Evergreen Candytuft			•						M	1
Iochroma cyaneum	NCN								•	M	1
Isoplexis canariensis	Canary Island Foxglove	•								M/L	2
Isopogon formosus	Rose Coneflower			•						M/L	2

Evergreen Flowering Shrubs continued		O	R	Pi	W	Y	B	L	P	PF	IG
Justicia species + cvs	Justicia		•	•						M/L	2
Keckiella species + cvs	Keckiella	•	•							M/L	2
Lantana species + cvs	Yellow Sage	•	•	•	•	•			•	M/L	2
Lavandula species + cvs	Lavender			•	•		•	•	•	M/L	2
Lavatera species + cvs	Mallow			•	•					M/L	2
Leonotis species + cvs	Lion's Tail	•								M/L	2
Leptospermum 'Dark Shadows'	NCN			•						M/L	2
Leptospermum scoparium + cvs	New Zealand Tea Tree		•	•	•					M/L	2
Leucophyllum species + cvs	Texas Ranger			•	•		•	•	•	L/VL	2
Leucospermum species + cvs	Pincushion	•	•			•				M/L	2
Loropetalum chinense + cvs	NCN			•	•					M	1
Lupinus species	Lupine						•		•	L/VL	2
Melaleuca nesophila	Pink Melaleuca		•	•	•	•				M/L	2
Melianthus major	Honey Bush		•							M/L	2
Metrosideros species + cvs	NCN			•						M	1
Michelia species + cvs	NCN				•					M	1
Montanoa grandiflora	Tree Daisy				•					M	1
Nerium oleander + cvs	Oleander		•	•	•	•				M/L	2
Philadelphus species + cvs	Mock Orange				•					M	1
Phlomis species + cvs	Jerusalem Sage					•				M/L	2
Pittosporum tobira + cvs	Mock Orange				•					M	1
Plumbago auriculata + cvs	Cape Plumbago						•			M/L	2
Plumeria species + cvs	Frangipani		•	•	•	•				M	1
Polygala species + cvs	Sweet-pea Shrub								•	M	1
Prunus laurocerasus + cvs	English Laurel				•					M	1
Rhaphiolepis species + cvs	India Hawthorn		•	•	•					M	1
Rhododendron species + cvs	Rhododendron		•	•	•				•	M	1
Rhus species + cvs	Sumac			•	•					L/VL	2
Roldana petasitis	Velvet Groundsel					•				M/L	2
Rosmarinus officinalis + cvs	Rosemary						•	•	•	M/L	2
Ruellia species + cvs	Ruellia						•		•	M/L	2
Salvia species + cvs	Sage			•	•		•	•	•	L/VL	2
Santolina species + cvs	Lavender Cotton					•				M/L	2
Senna species + cvs	Cassia					•				M/L	2
Solanum species + cvs	Nightshade								•	M	1
Sollya heterophylla + cv	Australian Bluebell Creeper							•		M/L	2
Sophora secundiflora	Mescal Bean								•	M/L	2
Tecoma species + cvs	Cape Honeysuckle	•				•				M/L	2
Teucrium fruticans	Bush Germander						•		•	M/L	2
Thevetia species + cvs	Yellow Oleander					•				M	1
Tibouchina species + cvs	Princess Flower								•	M	1
Trichostema lanatum	Woolly Blue Curls								•	M/L	2
Venegasia carpesioides	Canyon Sunflower					•				H/M	2
Viburnum species + cvs	Viburnum				•					M	1
Westringia species + cvs	Coast Rosemary				•					M/L	2

Above: *Rhaphiolepis indica* 'Pink Lady', San Diego

Below: *Phlomis lanata*, Descanso Gardens, La Cañada

Below: *Leptospermum scoparium* 'Burgundy Queen'

Below: *Montanoa grandiflora*

Below: *Tecoma* x 'Sunrise'

Plant Lists

Vines

Vines are among the most versatile and adaptable of all landscape and garden plants. They grow to many sizes, cover a variety of surfaces and offer many flower types and colors. A few vines such as Boston ivy and creeping fig are recognized for their capacity to cover very large surfaces. However, both vines attach permanently to these surfaces and cause damage when removed. Other vines provide pleasing fragrances, including jasmine, star jasmine and wisteria. Stems become quite large and bold on some species such as bougainvillea, wisteria and Easter lily vine, adding additional ornamental value.

Regardless of their character, all vines do best with attention to pruning to manage size and coverage. It is also notable that these plants can be irrigated in highly efficient ways and be used to produce abundant shade and microclimate benefits.

Flower Color Legend

O = Orange
R = Red
Pi = Pink
W = White
Y = Yellow
B = Blue
L = Lavender
P = Purple
Ins = Insignificant

Below: *Clematis viticella* 'Alba Luxurians', LA Arboretum

Deciduous Vines		**O**	**R**	**Pi**	**W**	**Y**	**B**	**L**	**P**	**Ins**	**PF**	**IG**
Campsis grandiflora + cvs	Chinese Trumpet Creeper	•	•			•					M	1
Campsis radicans + cvs	Trumpet Creeper	•	•			•					M	1
Campsis x tagliabuana + cv	NCN	•	•								M	1
Ipomoea indica	Blue Dawn Flower						•		•		M	1
Clematis species + cvs	Clematis		•	•	•	•	•	•	•		M	1
Macfadyena unguis-cati	Cat's Claw					•					M	1
Parthenocissus henryana	Silvervein Creeper										M	1
Parthenocissus quinquefolia	Virginia Creeper									•	M	1
Parthenocissus tricuspidata	Boston Ivy									•	M	1
Solanum wendlandii	Costa Rican Nightshade						•				M	1
Vitis species + cvs	Grape									•	M	1
Wisteria floribunda + cvs	Japanese Wisteria				•			•	•		M	1
Wisteria sinensis + cvs	Chinese Wisteria				•			•	•		M	1

Evergreen Vines		**O**	**R**	**Pi**	**W**	**Y**	**B**	**L**	**P**	**Ins**	**PF**	**IG**
Antigonon leptopus + cvs	Coral Vine			•							M	1
Beaumontia grandiflora	Easter Lily Vine				•						M	1
Bignonia capreolata	Crossvine		•			•					M	1
Bougainvillea glabra	Bougainvillea								•		M	1
Bougainvillea spectabilis + cvs	Bougainvillea	•	•	•	•	•		•	•		M/L	2
Cissus antarctica	Kangaroo Vine									•	M	1
Cissus hypoglauca	Water Vine									•	M	1
Cissus rhombifolia	Grape Ivy									•	M	1
Clematis armandii	Evergreen Clematis				•						M	1
Clytostoma callistegioides	Violet Trumpet Vine							•	•		M	1
Combretum fruticosum	Orange Flame Vine	•									M	1
Distictis 'Rivers'	Royal Trumpet Vine						•				M	1
Distictis buccinatoria	Blood-Red Trumpet Vine		•								M	1
Distictis laxiflora	Vanilla Trumpet Vine				•	•					M	1
Fatshedera lizei	NCN									•	M	1
Ficus pumila	Creeping Fig									•	M	1
Gelsemium sempervirens	Carolina Jessamine					•					M	1
Hardenbergia comptoniana	NCN								•		M/L	2
Hardenbergia violaceae + cv	Lilac Vine							•	•		M/L	2
Jasminum angulare	South African Jasmine				•						M	1
Jasminum humile	Italian Jasmine					•					M/L	2
Jasminum laurifolium nitidum	Angelwing Jasmine				•						M	1
Jasminum mesnyi	Primrose Jasmine					•					M	1
Jasminum officinale	Poet's Jasmine				•						M	1
Jasminum polyanthum	NCN			•	•						M	1
Jasminum tortuosum	Twisted Jasmine				•						M	1
Lonicera x heckrottii	Gold Flame Honeysuckle			•							M	1
Lonicera hildebrandiana	Giant Burmese Honeysuckle			•	•						M	1
Lonicera hispidula	Twin Berry										M/L	2

Below: *Clematis viticella* 'Alba Luxurians'

Below: *Parthenocissus tricuspidata*

Below: *Vitis* 'Roger's Red'

Evergreen Vines continued		O	R	Pi	W	Y	B	L	P	Ins	PF	IG
Lonicera japonica 'Halliana'	Hall's Honeysuckle				•	•					M	1
Lonicera sempervirens	Trumpet Honeysuckle	•	•								M	1
Lonicera subspicata	Chaparral Honeysuckle										M/L	2
Mandevilla species + cvs	NCN			•	•						M	1
Muehlenbeckia axillaris	Creeping Wire Vine									•	M	1
Muehlenbeckia complexa	Wire Vine									•	M	1
Pandorea jasminoides + cvs	Bower Vine			•	•						M	1
Pandorea pandorana	Wonga Wonga Vine										M	1
Passiflora species + cvs	Passion Vine	•				•	•	•			M	1
Petrea volubilis	Queen's Wreath Vine							•			M	1
Podranea ricasoliana	Pink Trumpet Vine		•								M	1
Pyrostegia venusta	Flame Vine	•									M	1
Rhoicissus capensis	Evergreen Grape									•	M	1
Solandra maxima	Cup-of-Gold Vine					•					M	1
Solanum jasminoides	Potato Vine				•						M	1
Tetrastigma voinlerianum	NCN									•	M	1
Thunbergia alata	Black-eyed Susan					•					M	1
Thunbergia grandiflora	Sky Flower						•				M	1
Thunbergia gregorii	Orange Clock Vine	•									M	1
Trachelospermum jasminoides	Star Jasmine				•						M	1
Vigna caracalla	Snail Vine						•	•			M	1

Above: *Beaumontia grandiflora*

Above: *Distictis* 'Rivers'

Above: *Gelsemium sempervirens*

Below: *Pandorea pandorana*

Below: *Solandra maxima*

Below: *Thunbergia gregorii*

Above/Below: Photographs of the Glendora Bougainvillea. This planting of *Bougainvillea glabra* and *Bougainvillea spectabilis* is a state historic landmark in recognition of the largest planting of bougainvillea in the United States. Some 25 vines were planted around 1900 at the base of 10 year old *Washingtonia robusta* palms. Together they continue to grow today.

Plant Lists

Ground Covers

Many plants can be grown as ground covers. They range from spreading shrubs and sprawling vines to mass plantings of clumping species such as mondo grass and day lilies. This list organizes plants into different categories to help see the choices that can be made for ground cover uses.

Some ground covers grow best when irrigated with rotor type nozzles that provides uniform moisture distribution throughout the planting area. Plants such as Hall's honeysuckle, snow-in-summer and trailing African daisy do best with such coverage and can root along the ground as they grow. Other plants are ideally suited to drip and bubbler irrigation systems where moisture patterns can be targeted to a more dispersed and natural planting pattern. Large spreading shrubs such as Carmel creeper and sprawling vines, including bougainvillea and primrose jasmine can be irrigated efficiently with this type of irrigation.

As shown in the photograph below, it is desirable to think about organic mulches for use as an interim or long term cover. Many types of organic mulches are available that provide the added advantage of decomposing and releasing nutrients into the soil. Also, decomposed granite, decorative gravel and river stone provide long lasting ground cover value and are particularly useful in arid climate zones.

Scale of Planting Area

S = Small Planters: 1 ft. - 5 ft.
M = Medium Size: 5 ft. - 15 ft.
L = Large Size: 15 ft. and larger

Below: Organic mulch used as a ground cover during the establishment stages of a new landscape.

Shrub Ground Covers		S	M	L	PF	IG
Acacia redolens + cv	NCN		•	•	L/VL	2
Abelia x grandiflora 'Prostrata'	Prostrate Glossy Abelia		•		M	1
Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	•	•		M/L	2
Arctostaphylos edmundsii + cvs	Little Sur Manzanita	•	•		M/L	2
Arctostaphylos hookeri cultivars	Monterey Manzanita	•	•		M/L	2
Arctostaphylos uva-ursi + cvs	Kinnikinnick	•	•		M/L	2
Artemisia californica cultivars	California Sagebrush		•		L/VL	2
Baccharis 'Centennial'	NCN		•	•	M/L	2
Baccharis pilularis cultivars	Prostrate Coyote Brush		•	•	M/L	2
Baccharis 'Starn'	NCN		•	•	M/L	2
Berberis aquifolium 'Compacta'	Oregon Grape	•	•		M	1
Berberis repens	Creeping Barberry	•	•		M/L	2
Camellia sasanqua cultivars	Sasanqua Camellia		•		M	1
Carissa macrocarpa cultivars	Natal Plum		•		M	1
Ceanothus 'Centennial'	NCN		•		M/L	2
Ceanothus gloriosus + cvs	Point Reyes Ceanothus	•	•		M/L	2
Ceanothus maritimus + cvs	Maritime Ceanothus	•	•		M/L	2
Ceanothus t. var. horizontalis	Carmel Creeper		•	•	M/L	2
Cistus 'Sunset'	NCN	•	•		M/L	2
Cistus salviifolius	Sageleaf Rockrose	•	•		M/L	2
Cistus x skanbergii	NCN		•		M/L	2
Coprosma x kirkii	NCN		•		M	1
Cotoneaster dammeri + cvs	Bearberry Cotoneaster	•	•		M	1
Cotoneaster salicifolius 'Repens'	NCN	•	•		M	1
Dalea greggii	Trailing Indigo Bush		•		M/L	2
Eriogonum fasciculatum cultivars	California Buckwheat		•		L/VL	2
Grevillea juniperina 'Molonglo'	NCN		•		M/L	2
Helianthemum cultivars	Sunrose	•			M/L	2
Hypericum calycinum	Aaron's Beard	•	•	•	M	1
Iva hayesiana	San Diego Marsh Elder		•	•	M/L	2
Juniperus cultivars	Juniper	•	•	•	M/L	2
Lantana species + cvs	Lantana		•	•	M/L	2
Myoporum parvifolium + cvs	Prostrate Myoporum		•	•	M	1
Myoporum x 'Pacifica'	NCN		•	•	M	1
Pyracantha cultivars	Firethorn		•		M	1
Ribes viburnifolium	Evergreen Currant	•	•		M/L	2
Rosmarinus officinalis cultivars	Rosemary		•	•	M/L	2
Rosa 'Floral Carpet'	NCN		•	•	M	1
Ruscus aculeatus	Butcher's Broom		•		M/L	2
Salvia cultivars	Sage	•	•		L/VL	2
Santolina species	Lavender Cotton	•	•		L/VL	2

Perennial Ground Covers		S	M	L	PF	IG
Achillea millefolium + cvs	Common Yarrow	•	•	•	M	1
Ajuga reptans + cvs	Carpet Bugle	•			H	1
Arctotheca calendula	Cape Weed		•		M/L	2
Arctotis aucaulis + cvs	African Daisy	•			M/L	2
Armeria maritima	Common Thrift	•			M	1
Artemisia pycnocephala + cv	Sandhill Sage	•			M/L	2
Campanula species + cvs	Bellflower	•	•		M	1
Cerastium tomentosum	Snow-in-Summer•	•	•		M	1
Ceratostigma plumbaginoides	Dwarf Plumbago	•	•		M	1
Duchesnea indica	Indian Mock Strawberry	•	•		M	1
Dymondia margaretae	NCN	•	•		M/L	2
Erigeron karvinskianus	Mexican Daisy	•	•		M	1
Fragaria chiloensis	Wild Strawberry	•	•		M	1
Gazania species + cvs	Gazania	•	•	•	M	1
Iris douglasiana + cvs	Pacific Coast Iris	•	•		M	1
Iberis sempervirens	Evergreen Candytuff	•			M	1
Liriope spicata + cv	Creeping Lily Turf		•		M	1
Osteospermum fruticosum + cvs	Trailing African Daisy		•	•	M/L	2
Pelargonium peltatum + cvs	Ivy Geranium	•	•		M	1
Persicaria capitata	Pink Head	•	•		M	1
Potentilla neumanniana	Spring Cinquefoil	•	•		M	1
Teucrium cossonii majoricum	NCN	•			M/L	2
Thymus species + cvs	Thyme	•			M	1
Verbena species + cvs	Verbena	•			M/L	2
Vinca species + cvs	Periwinkle	•	•	•	M	1

Above: *Hypericum calycinum*

Above: *Myoporum parvifolium*

Below: *Gazania rigens leucolaena*

Above: *Hemerocallis* cultivar

Above: *Aptenia cordifolia*

Below: *Sedum rubrotinctum*

Clumping Plants Used as Ground Covers		S	M	L	PF	G
Agapanthus cultivars	Lily-of-the-Nile	•	•		M	1
Aspidistra elatior	Cast-iron Plant		•	•	M	1
Bergenia species + cvs	Bergenia	•	•		M	1
Bulbine frutescens + cv	NCN	•			M/L	2
Clivia miniata + cvs	Kaffir Lily	•	•		M	1
Hemerocallis species + cvs	Daylily	•	•	•	M	1
Heuchera species + cvs	Coral Bells	•			M	1
Liriope muscari + cvs	Big Blue Lily Turf	•	•		M	1
Nandina domestica cultivars	Heavenly Bamboo	•	•		M	1
Ophiopogon jaburan	Giant Lily Turf	•	•		M	1
Ophiopogon japonicus + cvs	Mondo Grass	•	•		M	1
Ophiopogon planiscapus 'Nigrescens'	Black Mondo Grass	•			M	1
Tulbaghia violacea + cvs	Society Garlic		•	•	M	1

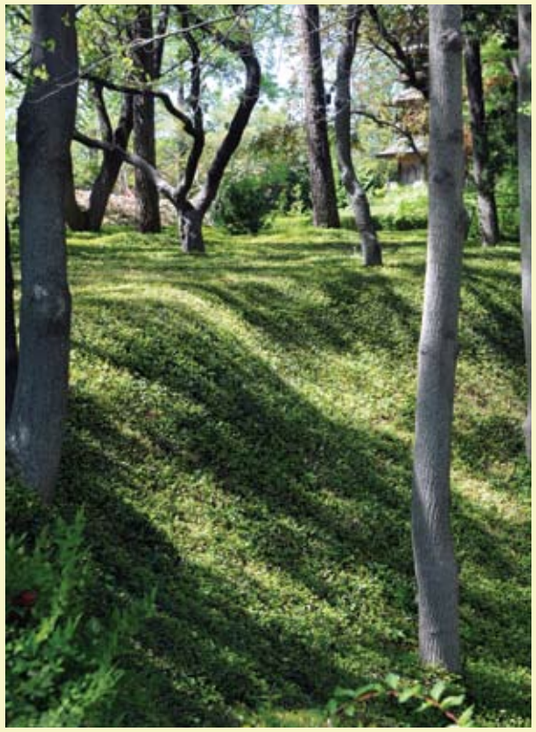
Succulent Ground Covers		S	M	L	PF	IG
Aptenia cordifolia 'Red Apple'	Red Apple	•	•	•	L/VL	2
Carpobrotus edulis	Hottentot Fig		•	•	L/VL	2
Cephalophyllum 'Red Spike'	Red Spike Ice Plant	•			L/VL	2
Crassula multicava	NCN	•	•		L/VL	2
Delosperma litorale	White Trailing Iceplant	•	•	•	L/VL	2
Delosperma cooperi	NCN	•	•		L/VL	2
Echeveria species + cvs	Hen & Chicks	•			L/VL	2
Lampranthus species	NCN	•	•		L/VL	2
Malephora crocea	Ice Plant	•	•		L/VL	2
Malephora lutea	Rocky Point Ice Plant	•	•		L/VL	2
Sedum species	Stonecrop	•			L/VL	2
Senecio serpens	Blue Chalksticks	•	•		L/VL	2
Senecio talinoides ssp. mandraliscae	NCN	•	•		L/VL	2

Bamboo, Grasses, Rushes and Sedges		S	M	L	PF	IG
Bouteloua gracilis	Blue Grama Grass		•	•	M/L	2
Carex divulsa	Berkeley Sedge		•	•	M	1
Carex glauca	Blue Sedge	•	•		M	1
Carex pansa	Pacific Dune Sedge		•	•	M	1
Carex praegracilis	Western Meadow Sedge		•	•	M	1
Festuca glauca + cvs	Blue Fescue	•	•		M	1
Festuca mairei	Maire's Fescue		•	•	M	1
Festuca rubra + cvs	Red Fescue		•	•	H	1
Juncus effusus + cvs	Common Rush	•	•		H	1
Juncus patens	California Gray Rush	•	•		H	1
Leymus arenarius + cvs	Lyme Grass		•	•	M	1
Leymus condensatus 'Canyon Prince'	Canyon Prince Wild Rye		•		M/L	2
Leymus triticoides	Creeping Wildrye		•	•	M	1
Nassella species	Needle Grass		•	•	L/VL	2
Pleioblastus species + cvs	Dwarf Bamboo	•	•		M	1
Sesleria autumnalis	Autumn Moor Grass	•	•		M	1
Zoysia tenuifolia	Korean Grass	•	•		M	1

Ferns		S	M	L	PF	IG
Blechnum occidentale	Hammock Fern	•			M	1
Cyrtomium falcatum	Japanese Holly Fern	•	•		M	1
Nephrolepis cordifolia	Southern Sword Fern	•	•	•	M	1
Polypodium californicum	California Polypody		•		M/L	2
Polystichum munitum	Western Sword Fern		•	•	H/M	2
Rumohra adiantiformis	Leather Fern		•		M	1
Woodwardia fimbriata	Giant Chain Fern			•	M/L	2

Vines for Ground Covers		S	M	L	PF	IG
Bougainvillea spectabilis + cvs	Bougainvillea		•	•	M/L	2
Cissus antarctica	Kangaroo Treebine		•	•	M	1
Cissus rhombifolia	Grape Ivy	•			M	1
Hedera canariensis + cvs	Algerian Ivy		•	•	M	1
Hedera helix + cultivars	English Ivy	•	•	•	M	1
Jasminum mesnyi	Primrose Jasmine			•	M	1
Lonicera japonica + cvs	Hall's Honeysuckle		•	•	M	1
Tetrastigma voinierianum	NCN		•	•	M	1
Trachelospermum asiaticum	NCN	•	•		M	1
Trachelospermum jasminoides	Star Jasmine	•	•	•	M	1

Ground Covers



Above: *Trachelospermum asiaticum*

Below: *Festuca mairei*

Plant Lists

Flowering Perennials

This list of plants brings attention to a wide range of species that are highly popular for their fast growth and high impact flowering value. These plants demonstrate the quick results and performance needed during the first months after a new landscape or garden has been planted. They provide important visual impact while shrubs and trees are establishing themselves and beginning to grow. Importantly, many are attractive to butterflies and hummingbirds.

Some perennials are small shrub-like plants that combine herbaceous foliage with woody stems. Species such as hummingbird mint, penstemon and Russian sage possess such characteristics. These plants benefit from attentive pruning during and following their flowering cycle. Pruning prolongs the flowering season in many instances and helps to manage the plant's size and shape. These perennials grow quickly, provide intensive flowering and perform well for three to four years before it is best to remove and replant. They are among the most dynamic garden plants and serve as a reminder of how fast gardens grow and change.

Other perennials have mostly herbaceous foliage such as day lilies, fortnight lilies and lily-of-the-Nile. These are long-lived plants that grow for many years and provide garden stability through their consistent growth and enduring nature. They perform well along borders, in mass planting situations and add structure to the ground plane.

Below: *Agapanthus* 'Albiflorus'

Flowering Perennials		PF	IG
Acanthus mollis + cvs	Bear's Breech	M/L	2
Achillea filipendulina + cv	Fernleaf Yarrow	M	1
Achillea millefolium + cvs	Common Yarrow	M	1
Achillea 'Moonshine'	NCN	M	1
Agapanthus species + cvs	Lily-of-the-Nile	M	1
Agastache species + cvs	Hummingbird Mint	M/L	2
Alstroemeria hybrids	Alstroemeria	M	1
Anigozanthos species + cvs	Kangaroo Paw	M/L	2
Arctotheca calendula	Cape Weed	M/L	2
Arctotis aucaulis + cvs	African Daisy	M/L	2
Argyranthemum frutescens + cvs	Marguerite Daisy	M	1
Argyranthemum gracile	NCN	M	1
Armeria maritima + cvs	Common Thrift	M/L	2
Asclepias species + cvs	Butterfly Bush	M/L	2
Asteriscus maritimus + cv	Gold Coin	M/L	2
Asteriscus sericeus	Canary Island Daisy	M/L	2
Baileya multiradiata	Desert Marigold	L/VL	2
Bergenia cordifolia	Heartleaf Bergenia	M	1
Bergenia crassifolia	Winter-blooming Bergenia	M	1
Billbergia nutans	Queen's Tears	H	1
Campanula species + cvs	Bellflower	M	1
Canna cultivars	Canna	H	1
Centaurea cineraria	Dusty Miller	M/L	2
Centaurea gymnocarpa	Velvet Centaurea	M/L	2
Centranthus ruber + cv	Red Valerian	M/L	2
Cerastium tomentosum	Snow-in-Summer	M	1
Ceratostigma plumbaginoides	Dwarf Plumbago	M	1
Clivia miniata + cvs	Kaffir Lily	M	1
Convolvulus cneorum	Bush Morning Glory	M	1
Convolvulus sabatius	Ground Morning Glory	M	1
Coreopsis grandiflora + cvs	NCN	M	1
Coreopsis lanceolata	NCN	M	1
Coreopsis verticillata + cvs	Thread-leaved Tickseed	M/L	2
Cuphea ignea	Cigar Plant	M	1
Cuphea x purpurea	Bat-faced Cuphea	M	1
Dianella tasmanica + cvs	Tasman Flax Lily	M	1
Dicliptera suberecta	NCN	M	1
Dietes bicolor	NCN	M	1
Dietes grandiflora + cvs	Fortnight Lily	M	1
Epilobium canum + cvs	California Fuchsia	L/VL	2
Ericameria laricifolia + cv	Turpentine Bush	L/VL	2
Erigeron glaucus + cvs	Beach Aster	M/L	2
Erigeron karvinskianus	Mexican Daisy	M	1
Eriogonum crocatum	Saffron Buckwheat	L/VL	2
Eriogonum grande + var	Island Buckwheat	L/VL	2
Eriogonum umbellatum + var	Sulfur Buckwheat	L/VL	2
Felicia amelloides	Blue Marguerite	M	1
Gaillardia x grandiflora	NCN	M/L	2
Gaura lindheimeri + cvs	Gaura	M/L	2
Gazania species + cvs	Gazania	M	1
Hedychium species + cvs	Ginger Lily	H	1
Helichrysum italicum	Curry Plant	M/L	2
Hemerocallis species + cvs	Daylily	M	1
Heuchera species + cvs	Coral Bells	H/M	2
Hunnemannia fumariifolia	Mexican Tulip Poppy	M	1
Iris douglasiana + cvs	Pacific Coast Iris	H/M	2
Kniphofia thompsonii	NCN	M	1
Kniphofia triangularis + cv	NCN	M	1
Kniphofia uvaria + cvs	Red-hot Poker	M	1
Leonotis menthifolia	NCN	M/L	2
Limonium perezii	Sea Lavender	M/L	2
Liriope muscari + cvs	Big Blue Lily Turf	M	1
Lithodora diffusa	NCN	M	1
Lobelia laxiflora	NCN	M/L	2
Lotus berthelotii	Parrot's beak	M	1
Lupinus excubitus	Grape Soda Lupine	L/VL	2
Melampodium leucanthum	Blackfoot Daisy	L/VL	2
Mimulus aurantiacus + cvs	Sticky Monkey Flower	L/VL	2
Mimulus cardinalis	Scarlet Monkey Flower	M/L	2

Above: *Coreopsis lanceolata*

Above: *Erigeron glaucus* 'Arthur Menzies'

Below: *Gaillardia* x *grandiflora* (foreground), *Nasela tenuissima* and *Achillea* 'Moonshine' (background)

Above: *Hemerocallis* 'Green Dragon'

Above: *Limonium perezii*

Flowering Perennials continued		PF	IG
Mimulus guttatus	Seep Monkey Flower	H/M	2
Oenothera speciosa + cvs	Mexican Evening Primrose	M/L	2
Osteospermum species + cvs	African Daisy	M/L	2
Pelargonium peltatum + cvs	Ivy Geranium	M	1
Pelargonium x domesticum + cvs	Lady Washington Pelargonium	M	1
Pelargonium x hortorum + cvs	Common Geranium	M	1
Penstemon centranthifolius	Scarlet Bugler	L/VL	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon heterophyllus + cv	Foothill Penstemon	L/VL	2
Penstemon palmeri	Scented Penstemon	L/VL	2
Penstemon parryi	Parry's Penstemon	L/VL	2
Penstemon spectabilis	Showy Penstemon	L/VL	2
Perovskia atriplicifolia + cv	Russian Sage	M/L	2
Rhodanthemum hosmariense	Moroccan Daisy	M/L	2
Romneya coulteri + cv	Matilija Poppy	L/VL	2
Romneya trichocalyx	Hairy Matilija Poppy	L/VL	2
Rudbeckia species + cvs	NCN	M/L	2
Ruellia brittoniana + cvs	Compact Ruellia	M/L	2
Russelia equisetiformis	Coral Fountain	M	1
Salvia chamaedryoides	Germander Sage	M/L	2
Salvia chiapensis	Chiapas Sage	M	1
Salvia officinalis + cvs	Garden Sage	M	1
Salvia sonomensis	Creeping Sage	L/VL	2
Salvia spathacea	Hummingbird Sage	L/VL	2
Salvia uliginosa	Bog Sage	M	1
Senecio cineraria	Dusty Miller	M/L	2
Senecio viravira	Dusty Miller	L/VL	2
Sisyrinchium bellum + cvs	Blue-Eyed Grass	M/L	2
Sisyrinchium californicum	Golden-eyed Grass	H/M	2
Sphaeralcea ambigua + cvs	Apricot Mallow	L/VL	2
Stachys byzantina	Lamb's Ear	M/L	2
Strelitzia juncea	NCN	M	1
Strelitzia nicolai	Giant Bird of Paradise	M	1
Strelitzia reginae	Bird of Paradise	M	1
Tagetes lemmonii	Mt. Lemon Marigold	M/L	2
Teucrium cossonii majoricum	NCN	M/L	2
Teucrium x lucidrys + cv	Wall Germander	M/L	2
Thymus species + cvs	Thyme	M	1
Tulbaghia simmleri	Sweet Wild Garlic	M	1
Tulbaghia violacea + cvs	Society Garlic	M	1
Verbena bonariensis	NCN	M/L	2
Verbena x hybrida	Garden Verbena	M	1
Verbena rigida	NCN	M/L	2

Below: *Penstemon eatonii*

Below: *Senecio cineraria*

Below: *Stachys byzantina*

Flowering Perennials

Above: *Lupinus excubitus* with *Dendromecon harfordii*

Below: *Verbena bonariensis* with *Stachys byzantina*

Plant Lists

Palms, Cycads and Ferns

This group of plants includes a number of species commonly associated with lush and exotic plantings. Species such as lady palm, pigmy date palm, sago palm and maidenhair fern bring to mind shady spaces comprised of refined, delicate and moist plantings. These images fit into woodland, Asian and subtropical planting themes and add a dimension of richness and diversity that many people enjoy. On a larger scale, palms often provide visible and striking silhouette value against the skyline and background areas of a garden or landscape. They are among the most popular for planting around swimming pools due to their relatively low litter production.

A second look at this list leads to the discovery of many palms and ferns that are native to Mediterranean climates. The Mediterranean fan palm and Canary Island date palm are signature species of this botanical group. Interestingly, a number of ferns native to California are adapted to moist winters and reduced moisture during summer. The western sword fern and giant chain fern, both California natives, will become dormant and die back when conditions become too dry; other native species only occur in microclimates and habitats that have moisture throughout the year. Ferns are often appreciated for their fine texture and light green foliage colors.

Below: *Syagrus romanzoffianum*

Palms		**PF**	**IG**
Acoelorraphe wrightii	Everglade Palm	H	1
Archontophoenix cunninghamiana	King Palm	M	1
Brahea armata	Mexican Blue Palm	M	1
Brahea brandegeei	San Jose Hesper Palm	M	1
Brahea edulis	Guadalupe Palm	M	1
Butia capitata	Pindo Palm	M	1
Caryota gigas	Giant Fishtail Palm	M	1
Caryota mitis	Clustered Fishtail Palm	M	1
Caryota urens	Jaggery Palm	M	1
Chamaerops humilis	Mediterranean Fan Palm	M/L	2
Dypsis decaryi	Triangle Palm	M	1
Howea forsteriana	Paradise Palm	M	1
Jubaea chilensis	Chilean Wine Palm	M	1
Livistona australis	Cabbage Palm	M	1
Livistona chinensis	Chinese Fan Palm	M	1
Livistona decipiens	Ribbon Fan Palm	M	1
Phoenix canariensis	Canary Island Date Palm	M	1
Phoenix dactylifera	Date Palm	M	1
Phoenix reclinata	Senegal Date Palm	M	1
Phoenix roebelenii	Pigmy Date Palm	M	1
Ravenea rivularis	Majesty Palm	M	1
Rhapis excelsa	Lady Palm	M	1
Rhapis humilis	Slender Lady Palm	M	1
Syagrus romanzoffianum	Queen Palm	M	1
Trachycarpus fortunei	Windmill Palm	M	1
Washingtonia filifera	California Fan Palm	M	1
Washingtonia robusta	Mexican Fan Palm	M	1

Cycads		**PF**	**IG**
Cycas revoluta	Sago Palm	M	1
Dioon edule	Chestnut Dioon	M	1
Dioon spinulosum	Giant Dioon	M	1
Zamia furfuracea	Cardboard Palm	M	1

Ferns		**PF**	**IG**
Adiantum aleuticum	Western Five-fingered Fern	H	1
Adiantum capillus-veneris	Southern Maidenhair	H	1
Adiantum jordanii	California Maidenhair	H	1
Asplenium bulbiferum	Mother Fern	H	1
Asplenium nidus	Bird's Nest Fern	H	1
Blechnum brasiliense	NCN	M	1
Blechnum occidentale	Hammock Fern	M	1
Cyathea cooperi	Australian Tree Fern	H	1
Cyrtomium falcatum	Japanese Holly Fern	M	1
Cyrtomium fortunei	NCN	M	1
Dicksonia antarctica	Tasmanian Tree Fern	H	1
Microlepia strigosa	Lace Fern	M	1
Nephrolepis cordifolia	Southern Sword Fern	M	1
Phlebodium aureum	Hare's Foot Fern	M	1
Polypodium californicum	California Polypody	H/M	2
Polystichum munitum	Western Sword Fern	H/M	2
Polystichum californicum	California Sword Fern	H/M	2
Polystichum polyblepharum	Japanese Tassel Fern	H	1
Rumohra adiantiformis	Leather Fern	M	1
Woodwardia fimbriata	Giant Chain Fern	H/M	2

Above: *Zamia furfuracea*

Above: *Cyrtomium falcatum*

Below: *Woodwardia fimbriata*

Above: *Bambusa multiplex* 'Alphonse Karr'

Above: *Calamagrostis* x *acutiflora* 'Karl Foerster'

Below: *Juncus textilis*

Bamboo		PF	IG
Bambusa multiplex + cvs	Hedge Bamboo	M	1
Bambusa oldhamii	Oldham Bamboo	M	1
Bambusa textilis	Weaver's Bamboo	M	1
Bambusa tuldoides 'Ventricosa'	Buddha's Belly Bamboo	M	1
Bambusa vulgaris 'Vittata'	Painted Bamboo	M	1
Himalayacalamus hookerianus + cvs	Blue Himalayan Bamboo	M	1
Otatea acuminata	Mexican Weeping Bamboo	M	1
Phyllostachys aurea	Golden Bamboo	M	1
Phyllostachys bambusoides + cvs	Giant Timber Bamboo	M	1
Phyllostachys nigra	Black Bamboo	M	1
Phyllostachys vivax	Vivax Bamboo	M	1
Pleioblastus auricomus	NCN	M	1
Pleioblastus pygmaeus	Pygmy Bamboo	M	1
Pleioblastus shibuyanus 'Tsuboi'	Dwarf Variegated Bamboo	M	1

Grasses		PF	IG
Aristida purpurea	Purple Three-awn	M/L	2
Bouteloua curtipendula	Side-oats Grama	M/L	2
Bouteloua gracilis	Blue Grama Grass	M/L	2
Calamagrostis x acutiflora + cv	Feather Reed Grass	M	1
Calamagrostis foliosus	Mendocino Reed Grass	M	1
Calamagrostis nutkaensis	Pacific Reed Grass	M	1
Festuca californica	California Fescue	M/L	2
Festuca glauca + cvs	Blue Fescue	M	1
Festuca mairei	Atlas Fescue	M	1
Festuca rubra + cvs	Creeping Red Fescue	H	1
Helictotrichon sempervirens + cvs	Blue Oat Grass	M	1
Imperata cylindrica 'Red Baron'	Japanese Blood Grass	M	1
Leymus arenarius	Blue Lyme Grass	M	1
Leymus cinereus	Gray Wild Rye	M/L	2
Leymus condensatus + cvs	Giant Wild Rye	M/L	2
Leymus triticoides	Creeping Wild Rye	M	1
Melinus nerviglumis	Ruby Grass	M	1
Miscanthus 'Giganteus'	Giant Silver Grass	H	1
Miscanthus sinensis + cvs	Eulalia	H	1
Miscanthus transmorrisonensis	Taiwanese Miscanthus	H	1
Muhlenbergia capillaris	Pink Muhly	M/L	2
Muhlenbergia dubia	Mexican Muhly	M/L	2
Muhlenbergia lindheimeri	Lindheimer's Muhly	M/L	2
Muhlenbergia rigens	Deer Grass	M/L	2
Nassella cernua	Nodding Needle Grass	L/VL	2
Nassella lepida	Foothill Needle Grass	L/VL	2
Nassella pulchra	Purple Needle Grass	L/VL	2
Nassella tenuissima	Mexican Feather Grass	L/VL	2
Pennisetum x advena + cvs	Fountain Grass	M	1
Pennisetum orientale	Chinese Fountain Grass	M	1
Pennisetum setaceum	Fountain Grass	L	1
Sesleria autumnalis	Autumn Moor Grass	M	1
Sesleria caerulea	Blue Moor Grass	M	1
Stipa gigantea	Giant Feather Grass	M	1
Zoysia tenuifolia	Korean Grass	M	1

Sedges, Restios and Rushes		PF	IG
Carex buchananii	Leather Leaf Sedge	M	1
Carex divulsa	Berkeley Sedge	M	1
Carex glauca	Blue Sedge	M	1
Carex pansa	California Meadow Sedge	M	1
Carex praegracilis	Western Meadow Sedge	M	1
Carex spissa	San Diego Sedge	M	1
Carex testacea	Orange Sedge	M	1
Juncus effusus + cvs	Common Rush	H	1
Juncus pallidus	Giant Rush	H	1
Juncus patens	Common Rush	H	1
Juncus textilis	Indian Rush	H	1
Chondropetalum elephantinum	Large Cape Rush	M	1
Chondropetalum tectorum	Small Cape Rush	M	1
Rhodocoma capensis	NCN	M	1
Rhodocoma fruticosa	NCN	M	1
Rhodocoma gigantea	NCN	M	1

Bamboos, Grasses, Sedges, Restios and Rushes

This list of plants includes species from several highly complex families of plants, including *Poaceae, Cyperaceae, Juncaceae* and *Restionaceae.* The most familiar species belong to the *Poaceae* family, including grasses such as the ground hugging Korean grass to the giant timber bamboo. A number of sedges and rushes are popular accent and ground cover plants that belong to the *Cyperaceae and Juncaceae* family respectively. Less well known are the restios and rushes that include the genera of *Chondropetalum* and *Rhodocoma*.

Bamboos are among the most widely recognized plant species on this list. They are commonly used among Asian and subtropical plantings, and are appreciated for their range of size, texture and growth habit. In contrast, many grasses, rushes and sedges are unfamiliar. However, these plants are becoming increasingly popular as accent plants and for use in meadows, bioswales and along seasonal streambeds. Some sedges are even planted and maintained as lawns. Interest in these plants is increasing as a result of a number of recent publications and interest among specialty growers.

Below: *Chondropetalum tectorum*

Plant Lists

Agave, Cacti and Yucca

A wide variety of agaves, aloes, cacti and yuccas are commonly found in California gardens and landscapes where they are valued in many roles. Older gardens sometimes have the good fortune to feature a mature dragon tree, candelabra tree, or specimen yucca. These succulent-type plants often mature into stately specimens with striking character. They can also be effectively displayed as younger specimens in pots and raised planters where they add sculptural and artistic interest in courtyards and specialty plantings.

Many of these plants are members of the *Agavaceae* and *Cactaceae* family and are well adapted to heat, aridity and drought. They are among the best choices for use in low and intermediate desert climate zones where they can withstand intense exposure to sunlight and grow with low to very low amounts of supplemental water throughout the year.

This list of species does not contain plants suitable for use as traditional ground covers. Decomposed granite and various combinations of boulders stone and gravel is often used to cover the soil and to complement the character of these plants.

Below: Two young *Dracaena draco* trees with *Agave americana* 'Mediopicta Alba' and *Senecio talinoides* ssp. *mandraliscae*

Agave, Dasylirion, Nolina and Yuccas		PF	IG
Agave americana + cvs	NCN	L/VL	2
Agave angustifolia	NCN	L/VL	2
Agave attenuata + cvs	Foxtail Agave	L/VL	2
Agave 'Blue Flame'	NCN	L/VL	2
Agave 'Blue Glow'	NCN	L/VL	2
Agave bracteosa	Spider Agave	L/VL	2
Agave colorata	Mescal	L/VL	2
Agave deserti	Desert Agave	L/VL	2
Agave desmettiana	NCN	L/VL	2
Agave filifera	NCN	L/VL	2
Agave geminiflora	Twin-flowered Agave	L/VL	2
Agave guiengola	NCN	L/VL	2
Agave gypsophila	Gypsum Century Plant	L/VL	2
Agave ocahui	Ocahui	L/VL	2
Agave parryi + var	Artichoke Agave	L/VL	2
Agave potatorum	NCN	L/VL	2
Agave salmiana + var	NCN	L/VL	2
Agave shawii	Shaw's Agave	L/VL	2
Agave tequilana + cv	Tequila Agave	L/VL	2
Agave victoriae-reginae	Queen Victoria Agave	L/VL	2
Agave vilmoriniana	Octopus Agave	L/VL	2
Beaucarnea recurvata	Bottle Palm	L/VL	2
Beaucarnea stricta	Texas Ponytail	L/VL	2
Beschorneria yuccoides	NCN	M/L	2
Dasylirion acrotriche	Green Desert Spoon	L/VL	2
Dasylirion quadrangulatum	Mexican Grass Tree	L/VL	2
Dasylirion wheeleri	Desert Spoon	L/VL	2
Dracaena draco	Dragon Tree	L/VL	2
Fouquieria splendens	Ocotillo	L/VL	2
Furcraea foetida + cv	Mauritius Hemp	M/L	2
Furcraea macdougalii	NCN	L/VL	2
Hesperaloe funifera	Giant Hesperaloe	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Hesperoyucca whipplei	Our Lord's Candle	L/VL	2
Nolina matapensis	Tree Beargrass	L/VL	2
Nolina microcarpa	Beargrass	L/VL	2
Nolina parryi	Parry Beargrass	L/VL	2
Nolina nelsoni	Blue Nolina	L/VL	2
Yucca baccata	Banana Yucca	L/VL	2
Yucca brevifolia	Joshua Tree	L/VL	2
Yucca elata	Soaptree Yucca	L/VL	2
Yucca elephantipes	Spineless Yucca	L/VL	2
Yucca filamentosa + cvs	Adam's Needle	L/VL	2
Yucca flaccida	NCN	L/VL	2
Yucca gloriosa	Spanish Dagger	M/L	2
Yucca recurvifolia	NCN	M/L	2
Yucca rostrata	NCN	VL/L	2

Cacti		PF	IG
Carnegiea gigantea	Saguaro	L/VL	2
Cereus peruvianus + cv	Apple Cactus	L/VL	2
Echinocactus grusonii	Golden Barrel Cactus	L/VL	2
Opuntia basilaris	Beavertail Cactus	L/VL	2
Opuntia ficus-indica	Indian Fig	L/VL	2
Opuntia lindheimeri v. linguiformis	Cow's Tongue	L/VL	2
Opuntia microdasys	Bunny Ears	L/VL	2
Opuntia robusta	NCN	L/VL	2
Opuntia violaceae + var	Prickly Pear	L/VL	2
Pachycereus marginatus	Mexican Fence Post Cactus	L/VL	2

Above: *Carnegiea gigantea* with *Dasylirion wheeleri*

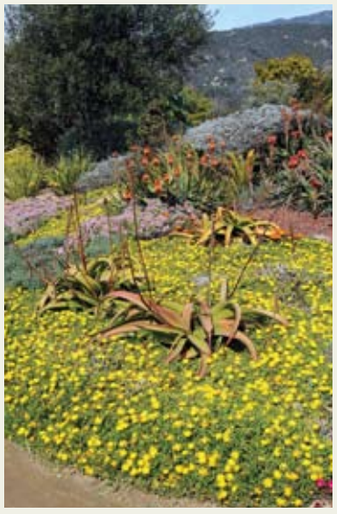
Above: *Yucca filamentosa*

Below: *Opuntia violacea*

Above: *Aloe striata*

Above: *Aeonium arboreum* 'Zwartkop'

Below: *Malephora lutea*



Aloes		PF	IG
Aloe arborescens + cv	Torch Aloe	L/VL	2
Aloe barberae	Tree Aloe	L/VL	2
Aloe 'Blue Elf'	NCN	L/VL	2
Aloe brevifolia	NCN	L/VL	2
Aloe ciliaris	NCN	L/VL	2
Aloe dichotoma	Quiver Tree	L/VL	2
Aloe ferox	Bitter Aloe	L/VL	2
Aloe 'Johnson's Hybrid'	NCN	L/VL	2
Aloe maculata	Soap Aloe	L/VL	2
Aloe marlothii	NCN	L/VL	2
Aloe x nobilis	NCN	L/VL	2
Aloe plicatilis	Fan Aloe	L/VL	2
Aloe speciosa	Tilt-head Aloe	L/VL	2
Aloe x spinosissima	NCN	L/VL	2
Aloe striata	Coral Aloe	L/VL	2
Aloe striatula	Hardy Aloe	L/VL	2
Aloe vera	Medicinal Aloe	L/VL	2

Succulents		PF	IG
Aeonium arboreum + cvs	Aeonium	L/VL	2
Aeonium haworthii	NCN	L/VL	2
Aeonium 'Kiwi'	NCN	L/VL	2
Aeonium 'Sunburst'	NCN	L/VL	2
Aeonium undulatum + cvs	NCN	L/VL	2
Cistanthe grandiflora	NCN	M/L	2
Cotyledon orbiculata	NCN	L/VL	2
Crassula arborescens + cvs	Silver Jade Plant	L/VL	2
Crassula capetella 'Campfire'	NCN	L/VL	2
Crassula multicava	NCN	L/VL	2
Crassula ovata	Jade Plant	L/VL	2
Crassula perfoliata var. falcata	Sickle Plant	L/VL	2
Dudleya brittonii	Britton's Chalk Dudleya	L/VL	2
Dudleya edulis	San Diego Dudleya	L/VL	2
Dudleya lanceolata	Lance leaved Dudleya	L/VL	2
Dudleya pulverulenta	Chalk Dudleya	L/VL	2
Dudleya virens	Catalina Island Dudleya	L/VL	2
Echeveria species + cvs	Hen & Chicks	L/VL	2
Euphorbia ingens	Common Tree Euphorbia	L/VL	2
Euphorbia milii	Crown of Thorns	M/L	2
Euphorbia myrsinites	Creeping Spurge	M/L	2
Euphorbia rigida	Narrow-leaved Spurge	L/VL	2
Euphorbia tirucalli + cv	Milkbush	L/VL	2
Euphorbia xantii	Baja Spurge	L/VL	2
Graptopetalum paraguayense	Mother-of-Pearl Plant	L/VL	2
Graptoveria 'Fred Ives'	NCN	L/VL	2
Kalanchoe species + cvs	Kalanchoe	L/VL	2
Pedilanthus macrocarpus	Lady's Slipper	M/L	2
Portulacaria afra	Elephant's Food	L/VL	2
Sedum species	Stonecrop	L/VL	2
Senecio serpens	Blue Chalksticks	L/VL	2
Senecio talinoides + ssp	NCN	L/VL	2

Ice Plants		PF	IG
Aptenia cordifolia	Red Apple	L/VL	2
Carpobrotus species	Sea Fig	L/VL	2
Cephalophyllum 'Red Spike'	Red Spike Ice Plant	M/L	2
Delosperma cooperi	Pink Hardy Ice Plant	L/VL	2
Delosperma litorale	White Trailing Iceplant	L/VL	2
Drosanthemum floribundum	Rosea Ice Plant	L/VL	2
Drosanthemum hispidum	NCN	L/VL	2
Lampranthus aurantiacus	NCN	L/VL	2
Lampranthus deltoides	NCN	L/VL	2
Lampranthus productus	NCN	L/VL	2
Lampranthus spectabilis	NCN	L/VL	2
Malephora crocea	Ice Plant	L/VL	2
Malephora lutea	Rocky Point Ice Plant	L/VL	2

Aloes and Succulents

Aloes and other succulent-type plants included on this list are almost universally adapted to coastal zone climates where the sun and mild winter temperatures seldom damage their foliage. Contrary to popular opinion, many of these varieties can be damaged if they are not sheltered from hot sun in inland and desert climate zones. Otherwise, they all have the ability to retain moisture in their foliage and stems, making them highly suited to container plantings where warm days and infrequent watering can easily result in dry soil conditions.

These plants do best in loose, fast draining soils. Planting on mounds, slopes and in raised planters are helpful ways to achieve good drainage. Low amounts of supplemental water is recommended during spring through summer; frost-sensitive succulents are prone to greater cold damage if they are watered too much during late fall and enter winter with moisture filled stems and leaves.

Below: Euphorbia ingens

Plant Lists

Street Trees

Street trees provide much value in urban and suburban environments. They provide a refreshing contrast to streets and buildings, and add identity and character to communities. They provide shade and reduce temperatures during summer and seasonal color at different times of the year.

Although street trees have become an integral part of communities throughout California, the fundamental planting requirements that are needed to achieve long term success have been widely underestimated. From a horticultural perspective, many street trees have been planted in paved areas that are far too small for good root and trunk development. Additionally, these areas are often difficult to irrigate and there are many problems associated with litter, roots, damaged pavement and branches that grow into vehicular lanes. Ironically, when these issues and difficulties arise, the tree is viewed as the source of the problem.

While it is important to continue the practice of planting street trees, better planning and adequate space is necessary. The lists of suggested street trees include the minimum size planting area recommended for each species.

Street Tree Legend

S = Small - Minimum 5 ft. x 5 ft.
M = Medium - Minimum 10 ft. x 10 ft.
L = Large - Minimum 12 ft. and more

Below: *Koelreuteria paniculata*

Deciduous Street Trees		S	M	L	PF	IG
Albizia julibrissin + cv	Silk Tree		•	•	M	1
Bauhinia x blakeana	Hong Kong Orchid Tree		•	•	M	1
Bauhinia variegata + cv	Purple Orchid Tree	•	•		M	1
Calodendrum capense	Cape Chestnut		•		M	1
Cassia leptophylla	Gold Medallion Tree	•	•		M	1
Catalpa species	Catalpa		•	•	M	1
Celtis species	Hackberry		•	•	M	1
Cercis canadensis + cvs	Eastern Redbud		•		M	1
Chionanthus retusus	Chinese Fringe Tree		•		M	1
x Chitalpa tashkentensis + cvs	Chitalpa		•		M/L	2
Fraxinus angustifolia + cvs	NCN		•	•	M	1
Fraxinus velutina + cvs	Arizona Ash		•	•	M	1
Ginkgo biloba + cvs	Maidenhair Tree		•	•	M	1
Gleditsia triacanthos + cvs	Honey Locust		•		M	1
Jacaranda mimosifolia + cv	Jacaranda		•	•	M	1
Koelreuteria bipinnata	Chinese Flame Tree		•	•	M	1
Koelreuteria elegans	NCN		•		M	1
Koelreuteria paniculata	Goldenrain Tree		•		M	1
Lagerstroemia fauriei x indica + cvs	Crape Myrtle	•	•		M	1
Lagerstroemia indica + cvs	Crape Myrtle	•	•		M	1
Liquidambar formosana	Chinese Sweet Gum		•	•	M	1
Liquidambar styraciflua + cvs	American Sweet Gum		•	•	M	1
Liriodendron tulipifera	Tulip Tree		•	•	H	1
Lysiloma watsonii var. thornberi	Feather Bush	•	•		M/L	2
Parkinsonia species + cvs	Palo Verde		•	•	M/L	2
Pistacia chinensis	Chinese Pistache		•		M	1
Platanus x acerifolia + cvs	London Plane Tree		•	•	M	1
Prosopis glandulosa	Texas Honey Mesquite		•	•	M/L	2
Prunus cerasifera + cvs	Purple-leaf Plum		•		M	1
Pyrus calleryana + cvs	Callery Pear		•		M	1
Quercus palustris	Pin Oak		•	•	M	1
Quercus virginiana	Southern Live Oak		•	•	M	1
Robinia x ambigua + cvs	Locust		•		M	1
Robinia pseudoacacia	Black Locust		•		M	1
Sapien sebiferum	Chinese Tallow Tree		•		M	1
Sophora japonica	Japanese Pagoda Tree		•		M	1
Tabebuia chrysotricha	Golden Trumpet Tree		•		M	1
Tabebuia impetiginosa	Pink Trumpet Tree		•		M	1
Ulmus parvifolia + cvs	Chinese Evergreen Elm		•	•	M	1
Zelkova serrata	Sawleaf Zelkova		•	•	M	1

Above: *Lagerstroemia indica*

Above: *Tabebuia chrysotricha*

Below: *Platanus* x *acerifolia*, Cal Poly Pomona

Above: *Afrocarpus gracilior*

Above: *Brahea edulis*

Evergreen Street Trees		S	M	L	PF	IG
Afrocarpus gracilior	Fern Pine		•	•	M	1
Agonis flexuosa + cvs	Peppermint Tree		•		M/L	2
Brachychiton populneus	Kurrajong Bottle Tree		•		M/L	2
Callistemon citrinus	Lemon Bottlebrush	•	•		M/L	2
Callistemon viminalis + var.	Weeping Bottlebrush		•		M/L	2
Casuarina cunninghamiana	River She-Oak		•		M/L	2
Cinnamomum camphora	Camphor Tree		•	•	M	1
Cupaniopsis anacardioides	Carrot Wood		•		M	1
Eriobotrya deflexa	Bronze Loquat		•		M	1
Eucalyptus ficifolia	Red-Flowering Gum		•		M/L	2
Eucalyptus torquata	Red Cap Gum	•	•		M/L	2
Geijera parviflora	Australian Willow		•		M/L	2
Hymenosporum flavum	Sweetshade Tree		•		M	1
Laurus nobilis	Sweet Bay	•	•		M/L	2
Lophostemon confertus	Brisbane Box		•	•	M/L	2
Magnolia grandiflora + cvs	Southern Magnolia		•	•	M	1
Maytenus boaria	Mayten Tree		•		M	1
Melaleuca linariifolia	Flaxleaf Paperbark		•		M	1
Melaleuca quinquenervia	Cajeput Tree		•		M	1
Melaleuca styphelioides	Prickly Paperbark		•		M	1
Metrosideros excelsus	N. Z. Christmas Tree		•	•	M/L	2
Photinia x fraseri	NCN	•	•		M	1
Pinus brutia var. eldarica	Afghan Pine		•	•	L/VL	2
Pinus canariensis	Canary Island Pine		•	•	M/L	2
Pittosporum rhombifolium	Queensland Pittosporum		•		M	1
Quercus agrifolia	Coast Live Oak		•	•	M/L	2
Quercus ilex	Holly Oak		•	•	M/L	2
Quercus suber	Cork Oak		•	•	M/L	2
Rhus lancea	African Sumac		•		M/L	2
Schinus terebinthifolius	Brazilian Pepper Tree		•		M/L	2
Stenocarpus sinuatus	Firewheel Tree		•		M	1

Palms		S	M	L	PF	IG
Archontophoenix cunninghamiana	King Palm	•	•		M	1
Brahea armata	Mexican Blue Palm	•	•		M	1
Brahea edulis	Guadalupe Palm	•	•		M	1
Butia capitata	Pindo Palm	•	•		M	1
Livistona australis	Cabbage Palm	•	•		M	1
Livistona chinensis	Chinese Fan Palm	•	•		M	1
Phoenix canariensis	Canary Island Date Palm		•	•	M	1
Phoenix dactylifera	Date Palm		•		M	1
Syagrus romanzoffianum	Queen Palm	•	•		M	1
Washingtonia filifera	California Fan Palm	•	•		M	1
Washingtonia robusta	Mexican Fan Palm	•	•		M	1

Below: *Washingtonia filifera*, Palm Springs

Street Trees

Like all plants, trees depend upon their roots to obtain moisture, nutrients and oxygen to sustain growth. Trees become diminished in size and are more vulnerable to drought and pollution when root growth is restricted by compacted soils and limited space.

Roots develop best in soils that have a balance of moisture, nutrients and oxygen; they do not grow in areas where any one of these conditions are lacking. Roots will grow under paving or adjacent to structures when poor conditions are present. Over time such roots can become quite large and cause damage to paving or structures.

The use of root barriers to help prevent root damage by street trees can be successful under some conditions. Barriers placed continuously along the edge of a sidewalk in a linear parkway can be a deterrent to root growth of smaller trees by redirecting the direction of the roots away from the pavement. Encircling trees with root barriers is not recommended; trees become rootbound and even lead to the failure of the root barrier itself.

The use of structural soils holds promise for trees planted in many urban and suburban areas to reduce damage by tree roots and increase the health and vigor of the trees. Structural soils consist mostly of crushed gravel with some topsoil. These soils enable sufficient compaction to support sidewalks and pavement, while providing increased space and structure to hold moisture, oxygen and room for root development. Even with structural soils, it is necessary to excavate the largest area possible for each street tree to have the greatest soil volume to sustain healthy growth.

Below: *Quercus agrifolia*

Plant Lists

Parkway and Median Trees

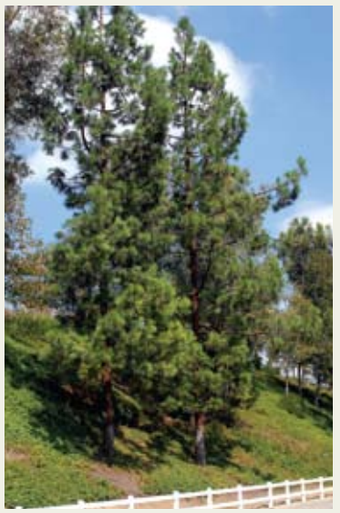
Parkways and medians often provide an opportunity to establish some of the most significant plantings throughout urban communities. These areas can be planned to have more space where the use of larger sized trees can achieve dense visual screening and a forested landscape quality. Importantly, these landscapes offer some of the best opportunities to function as carbon banks and to capture airborne pollutants. Areas that are richly planted with large growing trees will sequester more carbon from the atmosphere than sparsely planted ground covers and shrubs. Additionally, more particulate matter carried in the air can become collected on leaf surfaces of such abundantly planted landscapes. Additionally, these environmental benefits will be optimized when such trees are selected according to their natural adaptability to the local climate conditions. Once established, these trees can often survive and grow without reliance on high amounts of supplemental water.

Below: *Platanus racemosa*

Deciduous Trees		**PF**	**IG**
Acer negundo + ssp	Box Elder	H	1
Acer saccharinum	Silver Maple	H	1
Albizia julibrissin + cv	Silk Tree	M	1
Alnus species	Alder	H	1
Brachychiton acerifolius	Australian Flame Tree	M/L	2
Brachychiton discolor	Queensland Lacebark	M/L	2
Calodendrum capense	Cape Chestnut	M	1
Carya illinoinensis	Pecan	M	1
Catalpa species + cv	Catalpa	M	1
Celtis species	Hackberry	M	1
Chorisia speciosa	Silk Floss Tree	M	1
Cryptomeria japonica + cvs	Japanese Cedar	M	1
Erythrina species	Coral Tree	M	1
Fraxinus species + cvs	Ash	M	1
Ginkgo biloba + cvs	Maidenhair Tree	M	1
Grevillea robusta	Silky Oak	M/L	2
Jacaranda mimosifolia + cv	Jacaranda	M	1
Koelreuteria species	Flame Tree	M	1
Liquidambar species + cvs	Sweet Gum	M	1
Liriodendron tulipifera	Tulip Tree	H	1
Metasequoia glyptostroboides	Dawn Redwood	M	1
Parkinsonia species + cvs	Palo Verde	M/L	2
Paulownia tomentosa	Empress Tree	M	1
Platanus x acerifolia + cvs	London Plane Tree	M	1
Platanus mexicana	NCN	M	1
Platanus racemosa	Western Sycamore	H/M	1
Prosopis species + cvs	Mesquite	M/L	2
Quercus lobata	Valley Oak	M/L	2
Quercus palustris	Pin Oak	M	1
Quercus virginiana	Southern Live Oak	M	1
Taxodium species	Cypress	M	1
Tipuana tipu	Tipu Tree	M	1
Ulmus parvifolia + cvs	Chinese Evergreen Elm	M	1

Evergreen Trees		**PF**	**IG**
Acacia melanoxylon	Blackwood Acacia	M/L	2
Afrocarpus gracilior	Fern Pine	M	1
Araucaria bidwillii	Bunya-bunya	M	1
Casuarina cunninghamiana	River She-oak	M/L	2
Cedrus atlantica + cvs	Atlas Cedar	M/L	2
Cedrus deodara + cvs	Deodar Cedar	M/L	2
Chamaecyparis lawsoniana + cvs	Port Orford Cedar	H/M	2
Cinnamomum camphora	Camphor Tree	M	1
Cupressus macrocarpa + cvs	Monterey Cypress	M/L	2
Eucalyptus species	Eucalyptus	M/L	2
Ficus species	Evergreen Fig	M	1
Hymenosporum flavum	Sweetshade	H	1
Lagunaria patersonii	Primrose Tree	M/L	2
Lophostemon confertus + cv	Brisbane Box	M/H	2
Magnolia grandiflora + cvs	Southern Magnolia	M	1
Melaleuca quinquenervia	Cajeput Tree	M	1
Melaleuca styphelioides	Prickly Paperbark	M	1
Pinus species	Pine	M/L	2
Pittosporum undulatum	Victorian Box	M	1
Podocarpus macrophyllus + cv	Yew Pine	M	1
Quercus agrifolia	Coast Live Oak	M/L	2
Quercus engelmannii	Mesa Oak	M/L	2
Quercus ilex	Holm Oak	M/L	2
Quercus suber	Cork Oak	M/L	2
Schinus molle	Pepper Tree	L/VL	2
Sequoia sempervirens + cvs	Coast Redwood	H	1
Sequoiadendron giganteum	Giant Sequoia	M	1

Palms		**PF**	**IG**
Jubaea chilensis	Chilean Wine Palm	M	1
Phoenix canariensis	Canary Island Date Palm	M	1
Phoenix dactylifera	Date Palm	M	1
Phoenix reclinata	Senegal Date Palm	M	1



Above: *Pinus canariensis*

Above: *Eucalyptus viminalis*

Below: *Magnolia grandiflora*

Above: *Araucaria bidwillii*

Evergreen Trees		PF	IG
Araucaria bidwillii	Bunya-bunya	M	1
Cedrus atlantica + cvs	Atlas Cedar	M/L	2
Cedrus deodara + cvs	Deodar Cedar	M/L	2
Cinnamomum camphora	Camphor Tree	M	1
Cupressus macrocarpa + cvs	Monterey Cypress	M/L	2
Eucalyptus camaldulensis	River Red Gum	M/L	2
Eucalyptus citriodora	Lemon-scented Gum	M/L	2
Eucalyptus cladocalyx	Sugar Gum	M/L	2
Eucalyptus globulus + cv	Blue Gum	M/L	2
Eucalyptus viminalis	Manna Gum	M/L	2
Ficus macrophylla	Moreton Bay Fig	M	1
Ficus microcarpa	Indian Laurel Fig	M	1
Ficus rubiginosa	Rustyleaf Fig	M	1
Magnolia grandiflora + cvs	Southern Magnolia	M	1
Pinus canariensis	Canary Island Pine	M/L	2
Pinus halepensis	Aleppo Pine	L/VL	2
Pinus pinea	Italian Stone Pine	M/L	2
Pinus radiata	Monterey Pine	M/L	2
Pinus torreyana	Torrey Pine	L/VL	2
Quercus agrifolia	Coast Live Oak	M/L	2
Quercus engelmannii	Mesa Oak	M/L	2
Quercus suber	Cork Oak	M/L	2
Sequoia sempervirens + cvs	Coast Redwood	H	1
Sequoiadendron giganteum	Giant Sequoia	M	1

Deciduous Trees		PF	IG
Erythrina caffra	Coral Tree	L	1
Erythrina coralloides	Naked Coral Tree	L	1
Fraxinus uhdei + cvs	Evergreen Ash	M	1
Ginkgo biloba + cvs	Maidenhair Tree	M	1
Grevillea robusta	Silky Oak	M/L	2
Platanus racemosa	Western Sycamore	H/M	1
Quercus lobata	Valley Oak	M/L	2
Quercus virginiana	Southern Live Oak	M	1
Salix babylonica + cvs	Weeping Willow	H	1
Taxodium distichum	Bald Cypress	M	1
Taxodium mucronatum	Montezuma Cypress	M	1
Ulmus parvifolia + cvs	Chinese Evergreen Elm	M	1

Palms		PF	IG
Jubaea chilensis	Chilean Wine Palm	M	1
Phoenix canariensis	Canary Island Date Palm	M	1
Washingtonia filifera	California Fan Palm	M	1
Washingtonia robusta	Mexican Fan Palm	M	1

Below: *Phoenix canariensis*, Elysian Park, Los Angeles

Monumental Scale Trees

Monumental scale trees often become the most distinguishing feature of both natural and ornamental landscapes. They can mature into landmarks and become celebrated as heritage elements that several generations of people can enjoy. Perhaps more than any other landscape choice, the selection of monument trees challenges the sense of vision and desire to create a lasting landscape legacy. Some of the best opportunities to use these trees includes government, institutional and public space settings. Such trees can often become the cornerstone of a sacred space as well as become a symbol of community values to celebrate the lives of people and historic events.

Most communities in California have monumental scale ornamental trees. Some are highly recognized, such as the Moreton Bay figs in Santa Barbara and San Diego, or the dawn redwood in Palo Alto. A walk in the capital mall in Sacramento reveals an array of large and mature stone pines, deodar cedars, oaks and palms; each of these trees is a testament to the wonderful growing conditions in these valley regions.

Below: *Ficus macrophylla*, Santa Paula

Plant Lists

Courtyard and Patio Trees

Trees are commonly used to provide shade and special character in courtyards and patios. Since these spaces vary in size and specific microclimate conditions, it is important to assess the scale and sun exposure when selecting a particular species of tree. Some trees can be grown with multiple trunks, while others develop canopy branch structures that can be pruned to reveal handsome branching character. Deciduous trees provide summer shade and let in winter sun. Many deciduous trees also offer striking flowering character and fall color.

Care should be taken to provide a large enough planter area within paved courtyards and patios to accommodate the eventual size and root systems. Larger planter areas make it easier to encourage good root development and to provide supplemental water without working with root barriers.

Anyone who has taken care of trees in a paved area can describe the challenge of leaf, fruit and pod cleanup. Maintenance will vary from daily to weekly throughout most of the year; Evergreen trees are not necessarily cleaner than deciduous varieties; in general, the larger the tree, the greater the total amount of organic material produced.

Patio Size Legend

S = Small - 25 ft. x 25 ft.
M = Medium - 50 ft. x 50 ft.
L = Large - 100 ft. x 100 ft.

Below: *Olea europaea*

Evergreen Trees		**S**	**M**	**L**	**PF**	**IG**
Acacia aneura	Mulga	•	•		L/VL	2
Acacia podalyriifolia	Pearl Acacia	•			L/VL	2
Acca sellowiana	Pineapple Guava	•			M	1
Afrocarpus gracilior	Fern Pine		•	•	M	1
Agonis flexuosa + cvs	Peppermint Tree	•	•		M/L	2
Arbutus 'Marina'	NCN		•		H/M	2
Arbutus unedo	Strawberry Tree	•	•		M/L	2
Callistemon citrinus	Lemon Bottlebrush	•	•		M/L	2
Citrus cultivars	Citrus	•	•		M	1
Ficus species	Evergreen Fig		•	•	M	1
Geijera parviflora	Australian Willow		•		M/L	2
Hymenosporum flavum	Sweetshade Tree		•		M	1
Laurus nobilis	Sweet Bay	•	•		M/L	2
Leptospermum 'Dark Shadows'	NCN	•			M/L	2
Leptospermum petersonii	Lemon-scented Tea Tree	•			M/L	2
Melaleuca quinquenervia	Cajeput Tree		•		M	1
Metrosideros excelsus	N.Z. Christmas Tree	•	•		M/L	2
Michelia champaca	Champaca	•	•		M	1
Michelia doltsopa	NCN	•	•		M	1
Olea europaea + cvs	Olive		•	•	M/L	2
Olneya tesota	Desert Ironwood	•	•		M/L	2
Photinia x fraseri	NCN	•			M	1
Pinus pinea	Italian Stone Pine			•	M/L	2
Quercus agrifolia	Coast Live Oak		•	•	M/L	2
Quercus engelmannii	Mesa Oak		•	•	M/L	2
Quercus suber	Cork Oak		•	•	M/L	2
Schefflera actinophylla	Queensland Umbrella Tree	•	•		M	1
Schinus molle	Pepper Tree		•	•	L/VL	2
Schinus terebinthifolius	Brazilian Pepper Tree		•		M/L	2

Deciduous Trees		**S**	**M**	**L**	**PF**	**IG**
Acacia farnesiana	Sweet Acacia	•	•		L/VL	2
Acacia willardiana	Palo Blanco	•			L/VL	2
Acer palmatum + cvs	Japanese Maple	•	•		H	1
Bauhinia forficata	Brazilian Butterfly Tree	•			M	1
Bauhinia x blakeana	Hong Kong Orchid Tree	•	•		M	1
Betula species + cvs	Birch	•	•		H	1
Caesalpinia cacalaco	Cascalote	•	•		M/L	2
Calodendrum capense	Cape Chestnut		•		M	1
Cassia leptophylla	Gold Medallion Tree	•	•		M	1
Cercis canadensis + cvs	Eastern Redbud	•	•		M	1
Chilopsis linearis + cvs	Desert Willow	•	•		M/L	2
Chionanthus retusus	Chinese Fringe Tree		•		M	1
X Chitalpa tashkentensis + cvs	Chitalpa	•	•		M/L	2
Cornus florida	Flowering Dogwood	•	•		H	1
Erythrina species	Coral Tree		•	•	M	1
Ginkgo biloba + cvs	Maidenhair Tree		•	•	M	1
Gleditsia triacanthos + cvs	Honey Locust		•	•	M	1
Jacaranda mimosifolia + cv	Jacaranda		•	•	M	1
Koelreuteria species	Flame Tree		•	•	M	1
Lagerstroemia indica + cvs	Crape Myrtle	•	•		M	1
Lysiloma watsonii var. thornberi	Feather Bush	•			M/L	2
Maytenus boaria	Mayten Tree	•	•		M	1
Parkinsonia species + cvs'	Palo Verde		•		M/L	2
Pistacia chinensis	Chinese Pistache	•	•		M	1
Platanus racemosa	Western Sycamore		•	•	H/M	2
Prosopis species + cvs	Mesquite		•	•	M/L	2
Prunus cerasifera + cvs	Purple-leaf Plum	•	•		M	1
Pyrus species + cvs	Callery Pear	•	•		M	1
Quercus lobata	Valley Oak			•	M/L	2
Quercus virginiana	Southern Live Oak		•	•	M	1
Robinia x ambigua + cvs	Locust	•	•		M	1
Salix babylonica + cvs	Weeping Willow		•	•	H	1
Sophora japonica	Japanese Pagoda Tree		•		M	1
Spathodea campanulata	African Tulip Tree	•	•		M	1
Tabebuia species	Trumpet Tree		•		M	1
Tipuana tipu	Tipu Tree		•	•	M	1
Ulmus parvifolia + cvs	Chinese Evergreen Elm		•	•	M	1
Zelkova serrata	Sawleaf Zelkova		•	•	M	1

Above: *Schinus molle*

Above: *Lagerstroemia indica*

Below: *Pistacia chinensis*

Above: *Brachychiton rupestris*

Above: *Arctostaphylos manzanita*

Below: *Chorisia speciosa*

Trees		Character
Acacia willardiana	Palo Blanco	Bark/Texture
Acer japonica + cvs	Japanese Maple	Foliage/Texture
Araucaria bidwillii	Bunya Bunya	Silhouette
Brachychiton rupestris	Queensland Bottle Tree	Trunk
Chorisia speciosa	Floss Silk Tree	Trunk/Flowers
Dracaena draco	Dragon Tree	Trunk/Shape
Erythrina caffra	Coast Coral Tree	Flowers/Scale
Eucalyptus citriodora	Lemon Scented Gum	Bark, Shape
Ginkgo biloba + cvs	Maidenhair Tree	Foliage
Melaleuca quinquenervia	Cajeput Tree	Bark
Parkinsonia species + cvs	Palo Verde	Trunk/Flowers
Pinus thunbergii	Japanese Black Pine	Branching
Spathodea campanulata	African Tulip Tree	Flowering
Shrubs		
Arctostaphylos species	Manzanita	Branching/Bark
Brugmansia species + cvs	Angel's Trumpet	Flowers/Texture
Fremontodendron cultivars	Flannel Bush	Flowers
Leptospermum laevigatum	Australian Tea Tree	Branching/Bark
Magnolia x soulangeana + cvs	Saucer Magnolia	Flowers
Mahonia lomariifolia	NCN	Foliage/Flowers
Melaleuca nesophila	Pink Melaleuca	Branching/Bark
Strelitzia juncea	NCN	Shape
Vines		
Beaumontia grandiflora	Easter Lily Vine	Texture/Flowers
Passiflora cultivars	Passion Vine	Flowers/Fruit
Pyrostegia venusta	Flame Vine	Flowers
Tetrastigma voinierianum	NCN	Texture
Thunbergia gregorii	Orange Clock Vine	Flowers
Agaves, Aloes, Cacti, and Succulents		
Aeonium arboreum 'Zwartkop'	NCN	Foliage Color
Agave americana 'Mediopicta'	NCN	Shape/Color
Agave attenuata 'Variegata'	Variegated Foxtail Agave	Shape/Color
Agave salmiana var. Ferox	NCN	Shape/Mass
Agave victoria-reginae	Queen Victoria Agave	Shape
Agave vilmoriniana	Octopus Agave	Shape
Aloe barberae	NCN	Shape
Beaucarnea recurvata	Bottle Palm	Shape/Texture
Carnegiea gigantea	Saguaro	Shape/Mass
Dasylirion quadrangulatum	Mexican Grass Tree	Texture
Dracaena draco	Dragon Tree	Shape
Echinocactus grusonii	Golden Barrel Cactus	Shape
Euphorbia ingens	Common Tree Euphorbia	Shape/Mass
Fouquieria splendens	Ocotillo	Texture/Shape
Furcraea macdougalii	NCN	Shape/Mass
Kalanchoe beharensis	Felt Bush	Shape/Texture
Opuntia robusta	NCN	Shape
Bamboos and Grasses		
Bambusa vulgaris 'Vittata'	NCN	Stem Markings
Otatea acuminata	Mexican Weeping Bamboo	Fine Texture
Phyllostachys nigra	Black Bamboo	Stem Color
Xanthorrhoea preissii	Grass Tree	Shape/Flowers
Zoysia tenuifolia	Korean Grass	Fine Texture
Ferns, Cycads and Palms		
Brahea armata	Mexican Blue Palm	Color/Texture
Caryota gigas	Giant Fishtail Palm	Coarse Texture
Chamaerops humilis	Mediterranean Fan Palm	Shape
Cyathea cooperi	Australian Tree Fern	Shape/Texture
Cycas revoluta	Sago Palm	Shape
Dioon edule	Chestnut Dioon	Shape
Rhapis humilis	Slender Lady Palm	Texture/Canes

Special Interest Plants

Many landscapes and gardens achieve special quality and interest when they have plants with unique character. Often, this unique character comes from older trees and shrubs that have developed twisting branches, swollen trunks and interesting bark as they age. In contrast, some plants have interesting foliage, flowering and growth habits at earlier ages that draw special attention. This list brings attention to a variety of species that can provide such interest.

It is also common to see a variety of plants that were planted as foundation shrubs close to the base of walls and buildings that have grown large and been pruned to become unique specimens. These plants are often found in historic or institutional settings where they have been part of the landscape for many years. Older parks and gardens are among the best places to observe the value of mature plants that have attained specialty size and character. Many people come to respect these plants as a valued part of the landscape heritage of a community.

Very often plants that provide specialty character are slower growing, or are shrubs and vines that grow into unique forms and sizes. It can take a special commitment to use these plants or even preserve them when the priority is often placed upon attaining an instant landscape or garden. On the other hand, any plant can provide special interest and character when planted in the right location or pruned and fitted to become a unique specimen.

Below: *Leptospermum laevigatum*

Plant Lists

Hedges and Screens

One of the basic uses of plants is to enclose and define the boundaries of outdoor spaces. This is achieved by planting hedges and screens to divide areas into rooms. Often, plants are placed side by side and clipped into geometric shapes to fit narrow planters. Many times the first idea is to achieve dense and total screening treatments. However, another strategy can also be effective. Plants are arranged in layers and left to grow natural and to varying heights until a separation is achieved. This separation does not have to be total; sometimes a partial view through a screen is more effective and enjoyable.

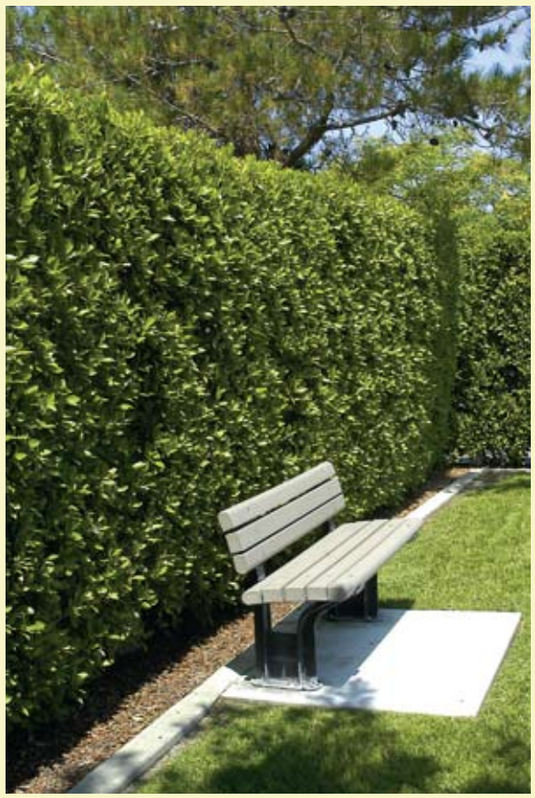
Screen planting is also done to improve the character of a space. The creation of privacy and blocking poor views are important improvements. From another perspective, hedges and screens can be strategically placed to frame and emphasize views as well as provide low boundaries to further define interior garden areas and circulation.

Hedge and screen planting can often be efficiently watered with drip irrigation systems. Tubing can be placed along the sides of the plants to reduce runoff and provide moisture close to the roots. This approach is particularly useful for hedges that need regular water that are planted in Mediterranean gardens.

Hedges and Screens Legend

S = Small Size: 1 ft. - 5 ft. Tall
M = Medium Size: 5 ft. - 10 ft. Tall
L = Large Size: 10 ft. and Taller

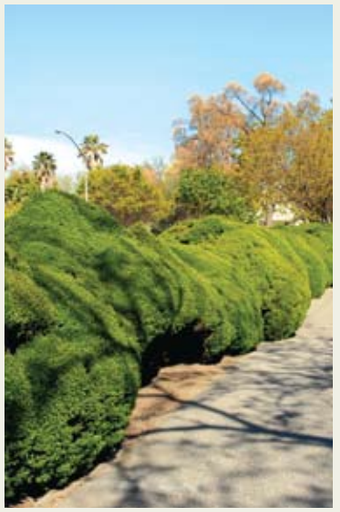
Below: *Ficus microcarpa*



Trees		S	M	L	PF	IG
Afrocarpus gracilior	Fern Pine		•	•	M	1
Callistemon viminalis	Weeping Bottlebrush		•		M/L	2
Calocedrus decurrens	Incense Cedar			•	M/L	2
Chamaecyparis lawsoniana + cvs	Port Orford Cedar			•	H/M	2
Citrus cultivars	Citrus		•	•	M	1
x Cupressocyparis leylandii	Leland Cypress			•	M	1
Cupressus macrocarpa	Monterey Cypress		•	•	M/L	2
Cupressus sempervirens + cvs	Italian Cypress		•	•	M/L	2
Ficus benjamina	Weeping Chinese Fig		•	•	M	1
Ficus microcarpa	Indian Laurel Fig		•	•	M	1
Ilex vomitoria	Yaupon		•	•	M	1
Ligustrum lucidum	Glossy Privet		•	•	M	1
Myrica californica	Pacific Wax Myrtle		•		H/M	2
Pittosporum undulatum	Victorian Box		•	•	M	1
Populus nigra 'Italica'	Lombardy Poplar			•	H	1
Prunus ilicifolia ssp. lyonii	Catalina Cherry		•	•	M/L	2
Syzygium paniculatum	Australian Brush Cherry		•		M	1

Shrubs		S	M	L	PF	IG
Abelia species + cvs	Abelia		•		M	1
Acacia longifolia	Sydney Golden Wattle			•	M/L	2
Acca sellowiana	Pineapple Guava		•	•	M	1
Agonis flexuosa 'Nana'	NCN		•		M/L	2
Arbutus unedo 'Compacta'	NCN		•		M/L	2
Baccharis 'Starn'	NCN		•		M/L	2
Bambusa species + cvs	Bamboo		•	•	M	1
Berberis species + cvs	Barberry	•	•		M	1
Bougainvillea species + cvs	Bougainvillea		•	•	M/L	2
Buxus microphylla japonica + cvs	Japanese Boxwood	•	•		M	1
Buxus sempervirens + cvs	Common Boxwood	•	•		M	1
Callistemon citrinus	Lemon Bottlebrush		•		M/L	2
Carissa macrocarpa + cvs	Natal Plum	•	•		M	1
Choisya ternata	Mexican Orange		•		M	1
Cistus x purpureus	Orchid Rockrose		•		M/L	2
Citrus cultivars	Citrus		•	•	M	1
Coprosma repens + cvs	Mirror Plant	•	•		M	1
Dodonaea viscosa + cv	Hopseed Bush		•		L	1
Elaeagnus pungens + cvs	Silverberry		•		M	1
Elaeagnus x ebbingei + cvs	NCN	•	•		M	1
Equisetum hyemale	Horsetail	•	•		H	1
Escallonia species + cvs	Escallonia	•	•		M	1
Euonymus japonicus + cvs	Euonymus	•	•		M	1
Ficus benjamina	Weeping Chinese Fig		•	•	M	1
Ficus microcarpa	Indian Laurel Fig		•	•	M	1
Grevillea species + cvs	Grevillea		•	•	M/L	2
Grewia occidentalis	Lavender Starflower		•		M	1
Hakea suaveolens	Sweet Hakea		•	•	M/L	2
Hebe species + cv	Hebe	•	•		M	1
Heteromeles arbutifolia	Toyon		•	•	M/L	2
Hibiscus rosa-sinensis + cvs	Tropical Hibiscus		•		M	1
Hibiscus syriacus	Rose of Sharon		•		M	1
Hypericum 'Hidcote'	NCN		•		M	1
Ilex aquifolium + cvs	English Holly		•		M	1
Ilex cornuta + cvs	Chinese Holly		•		M	1
Ilex vomitoria + cvs	Yaupon	•	•	•	M	1
Ilex x altaclerensis 'Wilsonii'	Wilson Holly		•	•	M	1
Juniperus species + cvs	Juniper		•	•	M/L	2
Lantana camara + cvs	Lantana		•		M/L	2
Lavandula dentata	French lavender	•			M/L	2
Leptospermum l. 'Compactum'	NCN	•			M/L	2
Leptospermum scoparium + cvs	New Zealand Tea Tree	•	•		M/L	2
Leucophyllum species + cvs	NCN	•	•		M/L	2
Ligustrum japonicum + cvs	Japanese Privet		•	•	M	1
Ligustrum lucidum	Glossy Privet		•	•	M	1
Ligustrum ovalifolium	California Privet		•		M	1
Metrosideros kermadecensis + cvs	Dwarf Pohutakawa		•		M	1
Myoporum laetum	NCN			•	M/L	2
Myrica californica	Pacific Wax Myrtle		•		M/L	2
Myrsine africana	African Boxwood	•	•		M	1

Above: *Pittosporum tenuifolium*



Above: *Myrtus communis* 'Compacta'

Below: *Syzygium paniculatum* 'Compacta'

Above: *Lavandula dentata*

Above: *Abelia* 'Edward Goucher'

Below: *Lantana* 'Feston Rose'

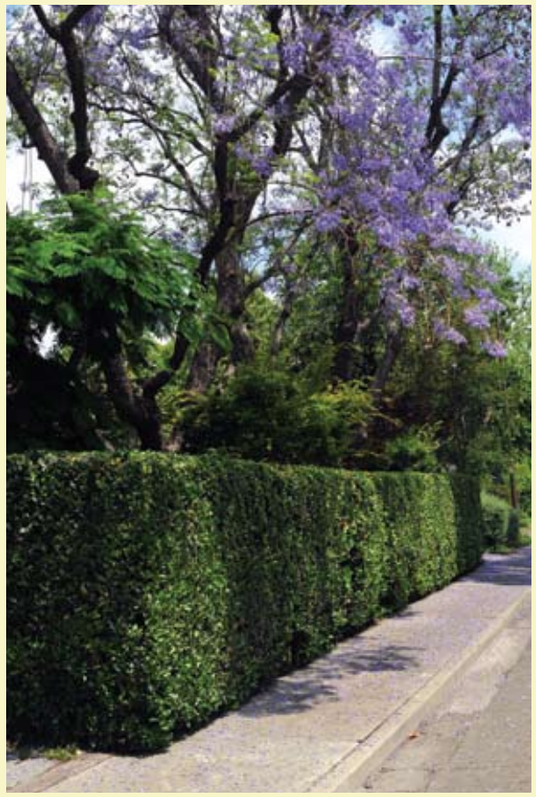
Shrubs continued		S	M	L	PF	IG
Myrtus communis + cvs	True Myrtle	•	•		M	1
Nandina domestica + cvs	Heavenly Bamboo	•	•		M	1
Nerium oleander + cvs	Oleander		•	•	M/L	2
Olea europaea 'Little Ollie'	Dwarf Olive		•		M/L	2
Osmanthus fragrans	Sweet Olive		•		M	1
Photinia x fraseri	NCN		•	•	M	1
Photinia glabra	Japanese Photinia		•	•	M	1
Photinia serratifolia	Chinese Photinia		•	•	M	1
Phyllostachys aurea	Golden Bamboo		•	•	M	1
Phyllostachys bambusoides + cvs	Golden Bamboo		•	•	M	1
Phyllostachys nigra	Black Bamboo		•	•	M	1
Pittosporum eugenioides	NCN		•		M	1
Pittosporum tenuifolium + cvs	NCN		•		M	1
Pittosporum tobira + cvs	Mock Orange	•	•	•	M	1
Pittosporum undulatum	Victorian Box		•	•	M	1
Plumbago auriculata	Cape Plumbago		•		M/L	2
Prunus caroliniana + cvs	Carolina Laurel Cherry		•		M	1
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry		•		M/L	2
Prunus ilicifolia ssp. lyonii	Catalina Cherry		•	•	M/L	2
Prunus laurocerasus + cvs	English Laurel		•	•	M	1
Punica granatum + cvs	Pomegranate	•	•		M	1
Pyracantha species + cvs	Firethorn	•	•		M	1
Rhamnus alaternus	Italian Buckthorn		•		M/L	2
Rhamnus californica + cvs	California Coffeeberry	•	•		M/L	2
Rhamnus crocea + ssp.	Hollyleaf Redberry		•		L/VL	2
Rhaphiolepis indica + cvs	India Hawthorn	•	•		M	1
Rhaphiolepis umbellata	NCN	•	•		M	1
Rhus integrifolia	Lemonade Berry		•		L/VL	2
Rhus ovata	Sugar Bush		•		L/VL	2
Rosa floribunda cultivars	Floribunda Rose		•		M	1
Rosa mutabilis	China Rose		•		M	1
Rosa rugosa	Rugosa Rose		•		M	1
Rosmarinus officinalis + cvs	Rosemary	•	•		M/L	2
Syzygium paniculatum 'Compacta'	Australian Brush Cherry	•	•		M	1
Teucrium fruticans	Bush Germander		•		M/L	2
Thevetia peruviana	Yellow Oleander		•	•	M	1
Viburnum awabuki	Sweet Viburnum		•	•	M	1
Viburnum suspensum	Sandankwa Viburnum		•	•	M	1
Viburnum tinus + cvs	Laurustinus	•	•		M/L	2
Westringia 'Wynyabbie Gem'	NCN		•		M/L	2
Westringia fruticosa + cvs	Coast Rosemary		•		M/L	2
Xylosma congestum + cv	Shiny Xylosma		•	•	M	1

Below: *Buxus microphylla*

Hedges and Screens

Above: *Bambusa oldhamii*

Below: *Ligustrum japonicum* 'Texanum'



Plant Lists

Fragrant Flowers and Foliage

Flower fragrance is commonly associated as part of the essential character and experience in many landscapes and gardens. Roses offer many sweet fragrances that are both light and heavy. Mediterranean gardens combine sweet and spicy fragrances of lavender and sage. Flowers of wild lilacs in the California flora often fill the air with a musky fragrance. Some of the most popular and widely recognized fragrances are associated with citrus flowers and the sweet olive.

Flower fragrances are often highly ephemeral and of limited range as well as elusive and challenging to predict. This often makes them more appreciated. They are strong reminders of the seasons of the year and stages of growth among plants in gardens. Overall, flower fragrances add a dimension of experience that transcend the basics of colors, textures and shapes.

A number of plants also have distinctive foliage fragrance. Many of these species are listed on the opposite page and include a wide variety of trees, shrubs and perennials. Some well known plants such as lavender have both flower and foliage fragrance.

Not all plant fragrances are pleasant. The society garlic has strongly pungent foliage and is not well suited to entries or small scale spaces. Flowers of carob trees and crushed fruit of maidenhair trees are objectionable to many people. The foliage of colorful plants such as lantana and lion's tail have leaves that emit strong odors that can be disagreeable.

Below: *Plumeria rubra*

Trees		PF	IG
Citrus cultivars	Citrus	M	1
Hymenosporum flavum	Sweetshade Tree	M	1
Magnolia grandiflora + cvs	Southern Magnolia	M	1
Michelia champaca	Champaca	M	1
Michelia doltsopa	NCN	M	1
Michelia x foggii	NCN	M	1
Osmanthus fragrans	Sweet Olive	M	1
Plumeria species + cvs	Frangipani	M	1
Pittosporum undulatum	Victorian Box	M	1

Shrubs and Perennials		PF	IG
Brugmansia species + cvs	Angel's Trumpet	M	1
Brunfelsia pauciflora + cvs	NCN	M	1
Buddleja davidii + cvs	Butterfly Bush	M	1
Calycanthus occidentalis	Spice Bush	M	1
Carissa macrocarpa + cvs	Natal Plum	M	1
Citrus cultivars	Citrus	M	1
Elaeagnus pungens + cvs	Silverberry	M	1
Gardenia augusta + cvs	Gardenia	H	1
Gardenia thunbergia	NCN	M	1
Hedychium species + cvs	Ginger Lily	H	1
Lavandula species + cvs	Lavender	M/L	2
Ligustrum japonicum + cvs	Japanese Privet	M	1
Jasminum angulare	South African Jasmine	M	1
Jasminum humile	Italian Jasmine	M/L	2
Jasminum laurifolium nitidum	Angelwing Jasmine	M	1
Jasminum officinale	Poet's Jasmine	M	1
Lupinus excubitus	Grape Soda Lupine	L/VL	2
Michelia figo	Banana Shrub	M	1
Michelia x foggii	NCN	M	1
Michelia yunnanensis	NCN	M	1
Montanoa grandiflora	Tree Daisy	M	1
Osmanthus fragrans	Sweet Olive	M	1
Penstemon palmeri	Scented Penstemon	L/VL	2
Philadelphus species + cvs	Mock Orange	M	1
Pittosporum tobira + cvs	Mock Orange	M	1
Pittosporum undulatum	Victorian Box	M	1
Plumeria species + cvs	Frangipani	M	1
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2
Salvia clevelandii + cvs	Cleveland Sage	L/VL	2
Syringa x hyacinthiflora + cvs	Early Flowering Lilac	M	1
Syringa x chinensis + cvs	Chinese Lilac	M	1
Syringa x laciniata	Cutleaf Lilac	M	1
Syringa vulgaris + cvs	Common Lilac	M	1
Viburnum awabuki	Sweet Viburnum	M	1
Viburnum suspensum	Sandankwa Viburnum	M	1

Vines		PF	IG
Clematis armandii	Evergreen Clematis	M	1
Jasminum humile	Italian Jasmine	M/L	2
Jasminum laurifolium nitidum	Angelwing Jasmine	M	1
Jasminum officinale	Common White Jasmine	M	1
Jasminum polyanthum	NCN	M	1
Lonicera hildebrandiana	Giant Burmese Honeysuckle	M	1
Pandorea jasminoides cultivars	Bower Vine	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Wisteria floribunda + cvs	Japanese Wisteria	M	1
Wisteria sinensis	Chinese Wisteria	M	1

Above: *Michelia champaca*

Above: *Osmanthus fragrans*

Below: *Jasminum polyanthum*

Above: *Eucalyptus citriodora*

Above: *Lavandula* 'Goodwin Creek Gray'

Trees with Foliage Fragrance		PF	IG
Agonis flexuosa + cvs	Peppermint Tree	M/L	2
Calocedrus decurrens + cvs	Incense Cedar	M/L	2
Cupressus species	Cypress	M/L	2
Eucalyptus species	Eucalyptus	M/L	2
Laurus nobilis	Sweet Bay	M/L	2
Pinus species	Pine	M/L	2
Schinus molle	Pepper Tree	L/VL	2
Sequoia sempervirens + cvs	Coast Redwood	H	1
Umbellularia californica	California Bay Laurel	H/M	2

Shrubs and Perennials with Fragrant Foliage		PF	IG
Artemisia californica + cvs	California Sagebrush	L/VL	2
Calycanthus occidentalis	Spice Bush	M	1
Helichrysum italicum	Curry Plant	M	1
Juniperus species + cvs	Juniper	M	1
Laurus nobilis	Sweet Bay	M/L	2
Lavandula species + cvs	Lavender	M/L	2
Myrica californica	Pacific Wax Myrtle	M/L	2
Myrtus communis + cvs	True Myrtle	M	1
Ribes sanguineum + var	Red Flowering Currant	H/M	2
Ribes viburnifolium	Evergreen Currant	M/L	2
Rosmarinus officinalis + cvs	Rosemary	L/VL	2
Salvia apiana	White Sage	L/VL	2
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2
Salvia clevelandii + cvs	Cleveland Sage	L/VL	2
Salvia brandegei	Santa Rosa Island Sage	L/VL	2
Salvia leucophylla + cvs	Purple Sage	L/VL	2
Salvia mellifera + cvs	Black Sage	L/VL	2
Salvia officinalis + cvs	Garden Sage	M/L	2
Salvia 'Mrs. Beard'	Mrs. Beard Sage	L/VL	2
Thymus species + cvs	Thyme	M	1
Trichostema lanatum	Woolly Blue Curls	M/L	2

Plants with Pungent Foliage, Flowers and Fruit		PF	IG
Ceratonia siliqua	Carob	M/L	2
Ginkgo biloba + cvs	Maidenhair Tree	M	1
Isomeris arborea	Bladderpod	M/L	2
Lantana camara + cvs	Yellow Sage	M/L	2
Lantana montevidensis + cv	Trailing Lantana	M/L	2
Leonotis leonurus	Lion's Tail	M/L	2
Tulbaghia violacea + cvs	Society Garlic	M	1

Below: *Lantana* 'Miss Huff'

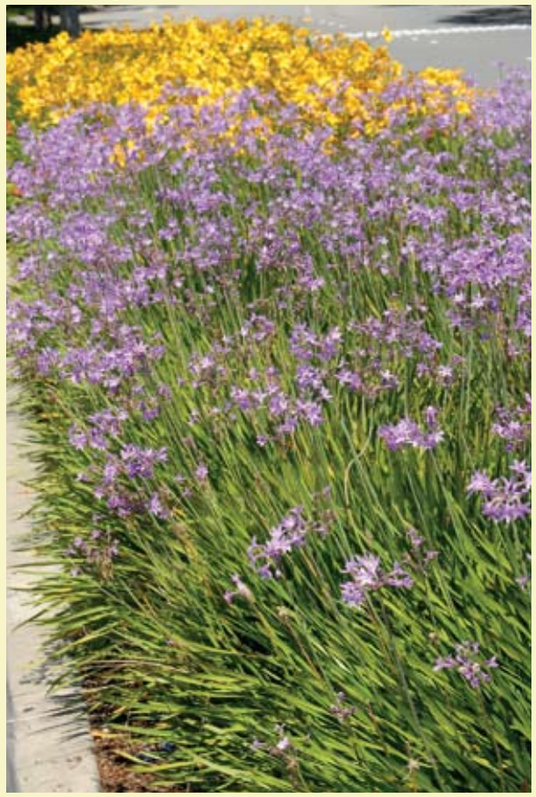
Below: *Ceratonia siliqua*

Below: *Ginkgo biloba* fruit

Fragrant Flowers and Foliage

Above: *Lavandula provence*

Below: *Tulbaghia violacea*



Plant Lists

Foliage Color: Olive to Silver

It is a popular design practice to punctuate landscapes and gardens at any scale with plants that have light foliage color. Such plants can provide colorful contrast and variety to the various shades of greens that all too easily dominate the color scheme of many designs. Plants with contrasting foliage color can also provide year round value and outlast the short-term impact of flowers.

Plants included on this list have light foliage colors that range from olive and gray to silver and blue-green. Not all of the colors combine well together and it is often best to avoid mixing too many of these colors in the same composition. Many of these plants are commonly used as solitary accent or specimen features. From a horticultural perspective, many of these plants grow best in sunny exposures and are adapted to less moisture during the summer months. This is in contrast to plants with variegated foliage that are often best adapted to shady conditions and do best with regular water throughout the year.

Foliage Color Legend

Ol = Olive
G = Gray
S = Silver-White
Bg = Blue-Green

Below: *Olea europaea*

Trees		Ol	G	S	Bg	PF	IG
Acacia aneura	Mulga		•			L/VL	2
Acacia baileyana	Bailey Acacia				•	L/VL	2
Acacia pendula	Weeping Myall				•	L/VL	2
Acacia podalyriifolia	Pearl Acacia			•	•	L/VL	2
Acca sellowiana	Pineapple Guava	•				M	1
Afrocarpus gracilior	Fern Pine				•	M	1
Cedrus atlantica 'Glauca'	Blue Atlas Cedar		•			M/L	2
Cupressus arizonica + cvs	Arizona Cypress		•	•		L/VL	2
Dracaena draco	Dragon Tree				•	L/VL	2
Eucalyptus polyanthemos	Silver Dollar Gum			•	•	M/L	2
Leptospermum laevigatum	Australian Tea Tree	•				M/L	2
Leucadendron argenteum	Silver Tree			•	•	M/L	2
Olea europaea + cvs	Olive	•				M/L	2
Pinus coulteri	Coulter Pine	•				L/VL	2
Pinus torreyana	Torrey Pine	•	•			L/VL	2
Psorothamnus spinosus	Smoke Tree		•	•		M/L	2
Quercus douglasii	Blue Oak				•	L/VL	2
Quercus engelmannii	Mesa Oak				•	M/L	2

Shrubs		Ol	G	S	Bg	PF	IG
Abutilon palmeri	Indian Mallow			•	•	M/L	2
Acacia covenyi	Blue Bush				•	M/L	2
Acacia cultriformis	Knife Acacia			•	•	L/VL	2
Acacia podalyriifolia	Pearl Acacia			•	•	L/VL	2
Acacia redolens	NCN				•	L/VL	2
Artemisia 'Powis Castle'	NCN			•		M/L	2
Artemisia arborescens	NCN			•		L/VL	2
Artemisia californica + cvs	California Sagebrush	•				L/VL	2
Atriplex canescens	Quail Bush			•		L/VL	2
Atriplex lentiformis ssp. breweri	Brewers Saltbush			•		L/VL	2
Buddleja davidii + cvs	Butterfly Bush	•				M	1
Cistus skanbergii	NCN	•				M/L	2
Correa alba + cvs	Australian Fuchsia	•				M/L	2
Correa 'Ivory Bells'	NCN	•				M/L	2
Cotoneaster glaucophyllus	NCN		•		•	M	1
Dalea greggii	Trailing Indigo Bush		•		•	M/L	2
Dendromecon harfordii	Island Bush Poppy				•	L/VL	2
Dendromecon rigida	Bush Poppy				•	L/VL	2
Elaeagnus pungens + cvs	Silverberry			•	•	M	1
Encelia farinosa	Brittlebush			•		L/VL	2
Eriogonum cinereum	Ashyleaf Buckwheat		•		•	L/VL	2
Grevillea lanigera + cvs	Woolly Grevillea	•				M/L	2
Iva hayesiana	San Diego Marsh Elder	•				M/L	2
Juniperus x pfitzeriana + cvs	Pitzer Juniper				•	M	1
Lavandula angustifolia	English Lavender	•				M/L	2
Lavandula dentata	French lavender	•				M/L	2
Lavandula 'Goodwin Creek Gray'	NCN	•				M/L	2
Lavandula multifida	Fernleaf Yarrow	•				M/L	2
Lavandula stoechas + cvs	Spanish Lavender	•				M/L	2
Lavandula x intermedia + cvs	Lavadin	•				M/L	2
Leptospermum laevigatum + cvs	Australian Tea Tree	•				M/L	2
Leucadendron cultivars	NCN	•				M/L	2
Leucophyllum candidum + cvs	NCN			•		L/VL	2
Leucophyllum frutescens + cvs	Texas Ranger				•	L/VL	2
Leucophyllum laevigatum	Chihuahuan Sage	•				L/VL	2
Melianthus species	Honey Bush				•	M/L	2
Olea europaea 'Little Ollie'	NCN	•				M/L	2
Phlomis fruticosa	Jerusalem Sage	•				M/L	2
Pittosporum crassifolium	Karo	•				M	1
Salvia 'Allen Chickering'	Allen Chickering Sage	•				L/VL	2
Salvia apiana	White Sage			•		L/VL	2
Salvia clevelandii + cvs	Cleveland Sage	•				L/VL	2
Salvia leucophylla + cvs	Purple sage	•		•		L/VL	2
Santolina chamaecyparissus + cvs	Lavender Cotton			•	•	M/L	2
Santolina pinnata ssp. neapolitana	NCN		•			M/L	2
Senna artemisioides	Feathery Cassia			•	•	L/VL	2
Senna phyllodinea	Silvery Cassia			•	•	L/VL	2
Teucrium fruticans	Bush Germander			•		M/L	2
Westringia species + cvs	Coast Rosemary	•				M/L	2

Above: *Acacia podalyriifolia*

Above: *Artemisia arborescens*

Below: *Leucophyllum candidum* 'Silver Cloud'

Above: *Leymus condensatus* 'Canyon Prince'

Above: *Dudleya pulverulenta*

Below: *Cerastium tomentosum*

Perennials and Grasses		Ol	G	S	Bg	PF	IG
Achillea 'Moonshine'	Yellow Yarrow	•				M/L	2
Artemisia pycnocephala + cv	Sandhill Sage			•	•	M/L	2
Centaurea cineraria	Dusty Miller			•		M/L	2
Centaurea gymnocarpa	Velvet Centaurea			•		M/L	2
Cerastium tomentosum	Snow-in-Summer			•	•	M	1
Convolvulus cneorum	Bush Morning Glory			•	•	M	1
Epilobium canum + cvs	California Fuchsia	•			•	L/VL	2
Eriogonum crocatum	Saffron Buckwheat			•		L/VL	2
Festuca glauca + cvs	Blue Fescue				•	M	1
Festuca rubra 'Molate Blue'	NCN	•				M/L	2
Helichrysum italicum	Curry Plant				•	M/L	2
Helichrysum petiolare	Licorice Plant			•		M	1
Leymus arenarius	Blue Lyme Grass				•	M	1
Leymus cinereus	Gray Wild Rye				•	M/L	2
Leymus condensatus 'Canyon Prince'	Giant Wild Rye				•	M/L	2
Leymus triticoides 'Gray Dawn'	Creeping Wild Rye				•	M/L	2
Lotus berthelotii	Parrot's beak			•	•	M	1
Lupinus excubitus	Grape Soda Lupine			•	•	L/VL	2
Penstemon heterophyllus + cv	Foothill Penstemon				•	L/VL	2
Penstemon palmeri	Scented Penstemon	•				L/VL	2
Penstemon parryi	Parry's Penstemon	•				L/VL	2
Perovskia atriplicifolia	Russian Sage	•				M/L	2
Plecostachys serpyllifolia	NCN			•		M/L	2
Romneya coulteri + cv	Matilija Poppy				•	L/VL	2
Romneya trichocalyx	Hairy Matilija Poppy				•	L/VL	2
Salvia chamaedryoides	Germander Sage				•	M/L	2
Salvia officinalis	Garden Sage	•				M/L	2
Salvia 'Mrs. Beard'	Mrs. Beard Sage	•				L/VL	2
Senecio viravira	Dusty Miller			•		L/VL	2
Stachys byzantina	Lamb's Ear			•	•	M/L	2
Teucrium cossonii majoricum	NCN				•	M/L	2

Palms		Ol	G	S	Bg	PF	IG
Brahea armata	Mexican Blue Palm			•	•	M	1
Butia capitata	Pindo Palm	•			•	M	1
Dypsis decaryi	Triangle Palm				•	M	1

Agaves, Aloes, Cacti and Succulents		Ol	G	S	Bg	PF	IG
Agave americana + cvs	Century Plant	•	•		•	L/VL	2
Agave attenuata + cvs	Foxtail Agave	•			•	L/VL	2
Agave 'Blue Flame'	NCN				•	L/VL	2
Agave colorata	Mescal Ceniza				•	L/VL	2
Agave desertii	Desert Century Plant				•	L/VL	2
Agave parryi + var	Artichoke Agave				•	L/VL	2
Cotyledon orbiculata	NCN			•		L/VL	2
Crassula arborescens + cvs	Jade Plant			•		L/VL	2
Dasylirion wheeleri	Desert Spoon	•				L/VL	2
Dudleya brittonii	Britton's Chalk Dudleya			•	•	L/VL	2
Dudleya virens	Catalina Island Dudleya				•	L/VL	2
Dudleya pulverulenta	Chalk Dudleya			•	•	L/VL	2
Echeveria species + cvs	Hen & Chicks	•	•		•	L/VL	2
Euphorbia myrsinites	Creeping Spurge				•	L/VL	2
Euphorbia rigida	Narrow-leaved Spurge				•	L/VL	2
Nolina microcarpa	Beargrass				•	L/VL	2
Nolina parryi	Parry Beargrass				•	L/VL	2
Opuntia basilaris	Beavertail Cactus				•	L/VL	2
Opuntia ficus-indica	Indian Fig	•				L/VL	2
Opuntia robusta	NCN	•				L/VL	2

Ground Covers		Ol	G	S	Bg	PF	IG
Artemisia californica 'Canyon Gray'	NCN			•	•	L/VL	2
Cerastium tomentosum	Snow-in-Summer			•	•	M	1
Dymondia margaretae	NCN	•			•	M/L	2
Gazania rigens leucolaena	Trailing Gazania			•	•	M/L	2
Juniperus horizontalis + cvs	Bar Harbor Juniper				•	M	1
Salvia 'Bee's Bliss'	Bee's Bliss Sage	•				L/VL	2
Salvia 'Mrs. Beard'	Mrs. Beard Sage	•				L/VL	2
Senecio serpens	Blue Chalksticks				•	L/VL	2
Senecio talinoides ssp. mandraliscae	NCN				•	L/VL	2

Foliage Color: Olive to Silver

Above: *Brahea armata*

Below: *Leucadendron argenteum*

Plant Lists

Foliage Color: Red to Purple

A wide range of plants with red to purple foliage color are available for use in landscapes and gardens. These colors are often deeply saturated and stand out in striking contrast in many settings. As a result, plants with these colors are widely used as specimen and accent features.

In contrast to plants with olive to silver foliage, many plants with red to purple color are best suited to partial shade and regular moisture throughout the years. This horticultural preference is helpful when searching for plants that grow well in shady microclimates and can enhanced color value. In small spaces, these foliage colors can be layered and grouped among plants with dark green foliage to create at stronger sense of depth.

Foliage Color Legend

Br = Bronze
R = Red
Bu = Burgundy
P = Purple

Below: *Acer palmatum* 'Burgundy'

Trees		Br	R	Bu	P	PF	IG
Acer palmatum cultivars	Japanese Maple		•	•	•	H	1
Agonis flexuosa 'Jervis Bay Afterdark'	NCN				•	M/L	2
Betula pendula cultivars	Birch	•				H	1
Cercis canadensis 'Forest Pansy'	Eastern Redbud				•	M	1
Cordyline australis 'Atropurpurea'	Bronze Dracaena				•	M	1
Cotinus coggygria cultivars	Smoke Tree			•	•	M	1
Ensete ventricosum 'Maurelii'	Abyssinian Banana			•		H	1
Eriobotrya deflexa	Bronze Loquat	•	•			M	1
Euphorbia cotinifolia	C. Copper Plant		•		•	M	1
Leptospermum 'Dark Shadows'	NCN			•		M/L	2
Prunus x blireiana	NCN			•	•	M	1
Prunus cerasifera + cvs	Purple-leaf Plum			•	•	M	1
Robinia x ambigua 'Purple Robe'	NCN	•				M	1

Shrubs		Br	R	Bu	P	PF	IG
Berberis thunbergii cultivars	Japanese Barberry		•	•	•	M	1
Cotinus coggygria cultivars	Smoke Tree			•	•	M	1
Dodonaea viscosa 'Purpurea'	Purple Hopseed Bush	•			•	M/L	2
Hebe cultivars	Hebe				•	M	1
Leptospermum 'Dark Shadows'	NCN			•		M	1
Loropetalum chinense cultivars	NCN		•	•		M	1
Nandina domestica cultivars	Heavenly Bamboo		•		•	M	1

Perennials and Grasses		Br	R	Bu	P	PF	IG
Ajuga reptans cultivars	Carpet Bugle	•		•	•	H	1
Aristida purpurea	Purple Three-awn				•	M/L	2
Canna cultivars	Canna		•	•		H	1
Cordyline australis cultivars	Dracaena Palm		•	•	•	M	1
Cordyline 'Festival Grass'	Red Fountain Cordyline		•			M	1
Heuchera cultivars	Coral Bells				•	M	1
Imperata cylindrica 'Red Baron'	Japanese Blood Grass		•			M	1
Pennisetum x advena 'Eaton Canyon'	Fountain Grass		•			M	1
Pennisetum x advena 'Rubrum'	Red Fountain Grass			•	•	M	1
Phormium tenax cultivars	New Zealand Flax		•	•	•	M	1
Salvia officinalis 'Purpurascens'	Red Sage				•	M	1

Cacti and Succulents		Br	R	Bu	P	PF	IG
Aeonium arboreum 'Atropurpureum'	NCN				•	L/VL	2
Aeonium arboreum 'Zwartkop'	NCN			•		L/VL	2
Echeveria 'Afterglow'	NCN		•			L/VL	2
Euphorbia tirucalli 'Sticks on Fire'	NCN		•			L/VL	2
Opuntia violaceae var. 'Santa Rita'	Purple Prickly Pear		•			L/VL	2

Above: *Cercis canadensis* 'Forest Pansy'

Above: *Phormium tenax* 'Dark Delight'

Below: *Cordyline* 'Festival Grass'

Below: *Aeonium arboreum* 'Zwartkop'

Below: *Pennisetum* x *advena* 'Rubrum'

Above: *Acer palmatum*

Trees with fall foliage color		Y	O	R	Bu	PF	IG
Acer species + cvs	Maple	•		•		H	1
Betula species + cvs	Birch	•				H	1
Carya illinoinensis	Pecan	•				M	1
Cercis species + cvs	Redbud	•				M	1
Cornus species + cvs	Dogwood	•		•		H	1
Diospyros kaki	Persimmon	•		•		M	1
Fraxinus species + cvs	NCN	•			•	M	1
Ginkgo biloba + cvs	Maidenhair Tree	•				M	1
Gleditsia triacanthos + cvs	Honey Locust	•				M	1
Koelreuteria bipinnata	Chinese Flame Tree	•				M	1
Lagerstroemia species + cvs	NCN	•	•	•		M	1
Liquidambar species + cvs	Sweet Gum	•	•	•	•	M	1
Liriodendron tulipifera	Tulip Tree	•				H	1
Metasequoia glyptostroboides	Dawn Redwood			•		M	1
Morus alba	Mulberry	•				M	1
Pistacia chinensis	Chinese Pistache	•	•	•		M	1
Populus species + cvs	Cottonwood	•				H	1
Punica granatum + cvs	Pomegranate	•				M	1
Pyrus species + cvs	Ornamental Pear			•		M	1
Salix species + cvs	Willow	•				H	1
Sapien sebiferum	Chinese Tallow Tree			•		M	1
Zelkova serrata + cvs	Sawleaf Zelkova			•		M	1

Above: *Ginkgo biloba*

Shrubs and Vines with fall foliage color		Y	O	R	Bu	PF	IG
Berberis species + cvs	Barberry			•		M	1
Cercis occidentalis	Western Redbud	•				M/L	2
Cornus stolonifera	Redtwig Dogwood	•		•		H/M	2
Nandina domestica + cvs	Heavenly Bamboo		•	•	•	M	1
Parthenocissus species	Boston Ivy	•		•		M	1
Punica granatum + cvs	Pomegranate	•				M	1
Vitis species + cvs	Grape	•		•		H/M	2
Wisteria species + cvs	Wisteria	•				M	1

Plants with attractive spring foliage color		Color	PF	IG
Acer palmatum + cvs	Japanese Maple	Red	H	1
Cercis canadensis 'Forest Pansy'	NCN	Purple	M	1
Eriobotrya deflexa	Bronze Loquat	Bronze	M	1
Gleditsia triacanthos 'Sunburst'	Honey Locust	Yellow	M	1
Gleditsia triacanthos 'Ruby Lace'	Honey Locust	Bergundy	M	1
Photinia x fraseri	Fraser Photinia	Red	M	1
Xylosma congestum	Shiny Xylosma	Bronze	M	1

Below: *Punica granatum*

Below: *Vitis* 'Roger's Red'

Below: *Liquidambar styraciflua* 'Rotundiloba'

Plant Lists

Foliage Color: Fall and Spring

Seasonal color in landscapes can be one of its most striking features. The strongest impressions of foliage color are commonly associated with forests and trees such as aspen or maples that are signature plants of fall color. Ironically, there are few plants native to Mediterranean climates that are noted for fall color character. However, we do grow a wide variety of exotic plants that come from cooler climate zones of the Midwest and southeast USA, and from Asia that provide us with generous displays of fall color in the cool winter areas of our vast Mediterranean region. Many of these trees have proven to be well adapted to the mild winters and long season of summer heat and sun, particularly when provided with supplemental irrigation.

While fall foliage color is most often our first thought, do not overlook the value of new spring growth that helps mark the coming of spring. Listed to the left are the signature plants that provide fall and spring color for landscapes and gardens.

Foliage Color Legend

Y = Yellow
O = Orange
R = Red
Bu = Burgundy

Below: *Liquidambar styraciflua* 'Rotundiloba'

Plant Lists

Foliage Color: Variegated

This list of plants recognizes two groups of variegated foliage based upon yellow and white. Like other plants with distinctive foliage color, these plants are seldom used to dominate a planting scheme, rather they are used to provide relief and interest that can last year round. Both yellow and white colors lighten the overall foliage color of plants. The impact of this variegation is often enhanced when plants have backlighting to intensify the contrast between light and dark colors.

With the exception of the agaves, the majority of plants with variegated foliage do well with regular moisture and relief from hot sun exposures. Larger plants can provide important color contrast when placed in background areas; smaller ones can help define borders. All can be useful for accent and focal plantings.

Variegated Foliage Color Key

Y = Yellow Foliage Variegation
W = White Foliage Variegation

Below: *Pittosporum tenuifolium* 'Variegata'

Trees		Y	W	PF	IG
Acer negundo 'Variegatum'	NCN		•	H	1
Ficus benjamina 'Variegata'	Weeping Chinese Fig	•		M	1
Lophostemon confertus 'Variegata'	Brisbane Box	•		M	1

Shrubs		Y	W	PF	IG
Abelia x grandiflora cultivars	Glossy Abelia	•	•	M	1
Abutilon cultivars	Flowering Maple	•	•	H	1
Abutilon megapotamicum 'Variegata'	NCN	•		H	1
Abutilon pictum 'Thompsonii'	NCN	•		H	1
Aucuba japonica 'Crotonifolia'	Japanese Aucuba		•	M	1
Aucuba japonica 'Gold Dust'	Japanese Aucuba		•	M	1
Aucuba japonica 'Mr. Goldstrike'	Japanese Aucuba		•	M	1
Aucuba japonica 'Picturata'	Japanese Aucuba		•	M	1
Bougainvillea 'Raspberry Ice'	Bougainvillea		•	M/L	2
Buddleja davidii 'Harlequin'	Butterfly Bush		•	M	1
Caryopteris c. 'Worcester Gold'	Blue Mist	•		M/L	2
Ceanothus t. 'Diamond Heights'	Carmel Creeper	•		M/L	2
Ceanothus thyrsiflorus 'El Dorado'	Blue Blossom Ceanothus	•		M/L	2
Coprosma 'Evening Glow'	NCN	•	•	M	1
Coprosma x kirkii 'Variegata'	NCN		•	M	1
Coprosma repens 'Marble King'	Mirror Plant	•	•	M	1
Coprosma repens 'Marble Queen'	Mirror Plant	•	•	M	1
Coprosma repens 'Marginata'	Mirror Plant	•	•	M	1
Coprosma repens 'Picturata'	Mirror Plant	•	•	M	1
Coprosma repens 'Pink Splendor'	Mirror Plant		•	M	1
Echium candicans 'Variegata'	Pride of Madeira		•	M/L	2
Elaeagnus x ebbingei cultivars	NCN	•		M	1
Fatsia japonica 'Variegata'	Japanese Aralia	•		M	1
Ficus elastica 'Variegata'	Rubber Plant	•	•	M	1
Hebe x andersonii 'Variegata'	NCN	•		M	1
Hydrangea macrophylla 'Tricolor'	Bigleaf Hydrangea	•		H	1
Ilex aquifolium cultivars	English Holly	•	•	M	1
Juniperus chinensis cultivars	Juniper	•		M	1
Lantana 'Lemon Swirl'	Lantana	•		M/L	2
Myrtus communis 'Variegata'	True Myrtle		•	M	1
Pittosporum eugenioides 'Variegata'	NCN		•	M	1
Pittosporum t. 'Marjorie Channon'	NCN		•	M	1
Pittosporum tobira 'Variegata'	Mock Orange		•	M	1
Schefflera arboricola cultivars	Hawaiian Elf Schefflera	•	•	M	1
Westringia fruticosa 'Morning Light'	Coast Rosemary	•		M/L	2
Westringia fruticosa 'Smokey'	Coast Rosemary		•	M/L	2

Above: *Buddleja davidii* 'Harlequin'

Above: *Coprosma repens* 'Marginata'

Below: *Pittosporum tenuifolium* 'Variegata'

Below: *Schefflera arboricola* 'Variegata'

Below: *Elaeagnus* x *ebbingei* 'Gilt Edge'

Above: *Liriope muscari* 'Silvery Sunproof'

Above: *Bambusa vulgaris* 'Vittata'

Below: *Aeonium* 'Starburst'

Vines		Y	W	PF	IG
Bougainvillea 'Raspberry Ice'	Bougainvillea		•	M/L	2
x Fatshedera lizei 'Variegata'	Botanical Wonder	•	•	M	1
Hedera canariensis 'Variegata'	Algerian Ivy		•	M	1
Hedera helix cultivars	English Ivy	•	•	M	1
Pandorea jasminoides 'Variegata'	Bower Vine	•	•	M	1

Perennials		Y	W	PF	IG
Agapanthus praecox 'Silver Streak'	Variegated Agapanthus		•	M	1
Canna cultivars	Canna	•	•	H	1
Clivia miniata cultivars	Kaffir Lily		•	M	1
Dietes grandiflora 'Variegata'	Fortnight Lily		•	M	1
Liriope muscari 'Silvery Sunproof'	Big Blue Lily Turf		•	M	1
Liriope muscari 'Variegata'	Big Blue Lily Turf		•	M	1
Liriope spicata 'Silver Dragon'	Creeping Lily Turf		•	M	1
Ophiopogon jaburan 'Vittatus'	Giant Lily Turf		•	M	1
Pelargonium x hortorum cultivars	Common Geranium	•	•	M	1
Phormium tenax 'Variegata'	New Zealand Flax	•	•	M	1
Tulbaghia violacea cultivars	Society Garlic		•	M	1

Bamboo and Grasses		Y	W	PF	IG
Bambusa multiplex 'Alphonse Karr'	Alphonse Karr Bamboo	•		M	1
Bambusa vulgaris 'Vittata'	NCN	•		M	1
Miscanthus sinensis cultivars	Eulalia	•	•	H	1
Pleioblastus auricomus	NCN		•	M	1
Pleioblastus shibuyanuus 'Tsuboi'	Dwarf Variegated Bamboo	•		M	1

Agaves, Cacti and Succulents		Y	W	PF	IG
Aeonium 'Kiwi'	NCN	•		L/VL	2
Aeonium 'Sunburst'	NCN	•	•	L/VL	2
Agave americana 'Marginata'	NCN	•		L/VL	2
Agave americana 'Mediopicta Alba'	NCN		•	L/VL	2
Agave americana 'Mediopicta'	NCN	•		L/VL	2
Agave americana 'Variegata'	NCN	•		L/VL	2
Agave angustifolia var. marginata	NCN		•	L/VL	2
Agave attenuata 'Variegata'	Variegated Foxtail Agave	•		L/VL	2
Agave desmettiana 'Variegata'	Variegated Smooth Agave	•		L/VL	2
Crassula ovata 'Variegata'	Jade Plant		•	L/VL	2
Furcraea foetida 'Mediopicta'	Mauritius Hemp	•	•	M/L	2

Ground Covers		Y	W	PF	IG
Coprosma x kirkii 'Variegata'	NCN		•	M	1
Vinca major 'Variegata'	Periwinkle		•	M	1
Vinca minor 'Illumination'	Dwarf Periwinkle		•	M	1
Vinca minor 'Ralph Shugert'	Dwarf Periwinkle	•		M	1
Vinca minor 'Sterling Silver'	Dwarf Periwinkle	•		M	1

Below: *Bougainvillea* 'Hawaii'

Below: *Agave americana* 'Mediopicta Alba'

Foliage Color: Variegated

Above: *Phormium cookianum* 'Cream Delight'

Below: *Furcraea foetida* 'Mediopicta'

Plant Lists

Foliage Texture: Bold and Fine

The aesthetics of planting design is often a study in contrast and harmony. This concept can be illustrated by looking at plants that have remarkably different foliage texture. One list brings attention to plants with bold and dramatic foliage texture, the other includes plants with fine texture. Many of these plants have similar horticultural needs and can easily grow together. However, the random mixing of plants with such diverse characteristics can lead to visual chaos and confusion.

In order to avoid visual confusion, it is important to purposely select some plants with similar textures to establish continuity and repetition. This establishes harmony among texture. Other plants are then selected to provide strategic contrast for visual impact. These choices form a visual rhythm among the textures between plants. Designs that emphasize harmony more than contrast often provide a quiet and stable experience; higher levels of contrast add diversity and a more dynamic experience.

The concept of contrast and harmony applies to all visual characteristics of plants. Color, shape and texture are among the most significant characteristics to study. The final composition of a landscape or garden can be seen as a rhythm between these attributes and is a major area of planting design aesthetics. It is important for a designer to understand and orchestrate plants into coherent visual compositions.

Trees and Palms with bold texture		**PF**	**IG**
Archontophoenix cunninghamiana	King Palm	M	1
Brahea armata	Mexican Blue Palm	M/L	2
Caryota gigas	Giant Fishtail Palm	M	1
Cordyline australis + cvs	Giant Dracaena	M	1
Ficus auriculata	Roxburgh Fig	M	1
Ficus carica + cvs	Edible Fig	M	1
Ficus elastica + cvs	Rubber Tree	M	1
Ficus lyrata	Fiddleleaf Fig	M	1
Phoenix canariensis	Canary Island Date Palm	M	1
Phoenix dactylifera	Date Palm	M	1
Phoenix reclinata	Senegal Date Palm	M	1
Plumeria species + cvs	Frangipani	M	1
Yucca baccata	Banana Yucca	L/VL	2
Yucca elephantipes	Spineless Yucca	L/VL	2

Shrubs and Vines with bold texture		**PF**	**IG**
Aucuba japonica + cvs	Japanese Aucuba	M	1
Beaumontia grandiflora	Easter Lily Vine	M	1
Berberis lomariifolia	NCN	M	1
Brugmansia species + cvs	Angel's Trumpet	M	1
Fatshedera lizei	NCN	M	1
x Fatshedera lizei + cv	Botanical Wonder	M	1
Hydrangea macrophylla + cvs	Bigleaf Hydrangea	H	1
Melianthus major	Honey Bush	M/L	2
Monstera deliciosa	Split-Leaf Philodendron	H	1
Philodendron bipinnatifidum + cvs	Tree Philodendron	M	1
Philodendron x evansii	NCN	M	1
Plumeria species + cvs	Frangipani	M	1
Schefflera actinophylla	Queensland Umbrella Tree	M	1
Schefflera pueckleri	NCN	M	1
Tetrastigma voinierianum	NCN	M	1

Perennials with bold texture		**PF**	**IG**
Acanthus mollis + cvs	Bear's Breech	M/L	2
Aspidistra elatior + cv	Cast-iron Plant	M	1
Asplenium nidus	Bird's Nest Fern	H	1
Bergenia species + cvs	Bergenia	M	1
Canna cultivars	Canna	H	1
Ensete ventricosum + cv	Abyssinian Banana	H	1
Hedychium species + cvs	Ginger Lily	H	1
Musa x paradisiaca	Banana Palm	H	1
Phormium tenax + cvs	New Zealand Flax	M	1
Strelitzia juncea	NCN	M	1
Strelitzia nicolai	Giant Bird of Paradise	M	1
Strelitzia reginae	Bird of Paradise	M	1

Above: *Strelitzia nicolai*

Above: *Monstera deliciosa*

Below: *Melianthus major* in front of *Phoenix canariensis*

Below: *Melianthus major*

Below: *Tetrastigma voinierianum*

Below: *Canna* 'Tropicana'

Above: *Albizia julibrissin* 'Rosea'

Above: *Melaleuca incana*

Below: *Asparagus densiflorus 'Sprengeri'*

Trees and Palms with fine texture		PF	IG
Acacia baileyana + cv	Bailey Acacia	L/VL	2
Acacia stenophylla	Shoestring Acacia	L/VL	2
Acacia podalyriifolia	Pearl Acacia	L/VL	2
Acacia willardiana	Palo Blanco	L/VL	2
Acer palmatum + cvs	Japanese Maple	H	1
Afrocarpus gracilior	Fern Pine	M	1
Albizia julibrissin + cv	Silk Tree	M	1
Casuarina cunninghamiana	River She-oak	M/L	2
Casuarina equisetifolia	Horsetail Tree	M/L	2
Cryptomeria japonica + cvs	Japanese Cedar	M	1
Jacaranda mimosifolia + cv	Jacaranda	M	1
Lysiloma watsonii var. thornberi	Feather Bush	M/L	2
Maytenus boaria	Mayten Tree	M	1
Metasequoia glyptostroboides	Dawn Redwood	M	1
Parkinsonia species + cvs	Palo Verde	M/L	2
Phoenix roebelenii	Pigmy Date Palm	M	1
Prosopis species + cvs	Mesquite	M/L	2
Psorothamnus spinosus	Smoke Tree	M/L	2
Schinus molle	Pepper Tree	L/VL	2
Syagrus romanzoffianum	Queen Palm	M	1
Taxodium distichum	Bald Cypress	M	1
Taxodium mucronatum	Montezuma Cypress	M	1

Shrubs with fine texture		PF	IG
Artemisia arborescens	NCN	L/VL	2
Artemisia californica + cvs	California Sagebrush	L/VL	2
Artemisia 'Powis Castle'	NCN	M/L	2
Caesalpinia gilliesii	Bird of Paradise Bush	M/L	2
Caesalpinia pulcherrima + cv	Red Bird of Paradise Bush	M/L	2
Calliandra species + cvs	Fairy Duster	M/L	2
Calothamnus species	Netbush	M/L	2
Chamelaucium uncinatum + cvs	Geraldton Wax Flower	M/L	2
Coleonema species + cv	Breath of Heaven	M	1
Cuphea hyssopifolia	False Heather	M	1
Grevillea 'Long John'	NCN	M/L	2
Hakea suaveolens	Sweet-scented Hakea	M/L	2
Melaleuca armillaris	Drooping Melaleuca	M/L	2
Melaleuca incana	Gray Honey Myrtle	M/L	2
Senna artemisioides	Feathery Cassia	L/VL	2
Senna nemophila	Desert Cassia	L/VL	2
Senna phyllodinea	Silvery Cassia	L/VL	2

Perennials and Ferns with fine texture		PF	IG
Achillea millefolium + cvs	Fernleaf Yarrow	M/L	2
Adiantum capillus-veneris	Southern Maidenhair	H	
Asplenium bulbiferum	Mother Fern	H	1
Armeria maritima + cvs	Common Thrift	M/L	2
Artemisia pycnocephala + cv	Sandhill Sage	M/L	2
Asparagus species + cvs	Asparagus Fern	M	1
Carex pansa	Pacific Dune Sedge	M	1
Carex praegracilis	Western Meadow Sedge	M	1
Cerastium tomentosum	Snow-in-Summer	M	1
Cyathea cooperi	Australian Tree Fern	H	1
Cyperus papyrus	Papyrus	H	1
Dasylirion quadrangulatum	Mexican Grass Tree	L/VL	2
Dicksonia antarctica	Tasmanian Tree Fern	H	1
Lotus berthelotii	Parrot's beak	M	1
Soleirolia soleirolii	Baby's Tears	H	1
Xanthorrhoea preissii	Grass Tree	L/VL	2

Bamboo and Grasses with fine texture		PF	IG
Otatea acuminata	Mexican Weeping Bamboo	M	1
Festuca rubra + cvs	Creeping Red Fescue	H	1
Helianthemum cultivars	Rock Rose	M/L	2
Helictotrichon sempervirens + cvs	Blue Oat Grass	M	1
Miscanthus transmorrisonensis	Taiwanese Miscanthus	H/M	2
Muhlenbergia species + cvs	Muhly	M/L	2
Nassella tenuissima	Mexican Feather Grass	L/VL	2
Zoysia tenuifolia	Korean Grass	M	1

Foliage Texture: Bold and Fine

Above: *Furcraea foetida* 'Mediopicta' with *Phoenix roebelenii*

Below: *Otatea acuminata*

Plant Lists

Butterfly Plants

Attracting butterflies to landscapes and gardens can be one of the most fulfilling experiences, and one that embraces the concept of diversity. This list of plants provides nectar and larval value to butterflies. It has been compiled from a number of sources and shows a broad range of plants from trees and shrubs to vines and perennials that are of benefit to butterflies. Not all of the associations between plants and butterflies are perfectly understood, and this list suggests that many other species can be added.

The objective of attracting butterflies and sustaining their larvae not only encourages planting diversity, but the avoidance of chemicals and excessive deadheading and cutting of perennials. These practices are consistent with naturalized gardens and the combination of California native and recognized butterfly plants. These plants have different moisture needs and are adapted to many climate zones across the state, but can be successfully combined into appropriate hydrozones and microclimates.

Butterfly Plant Legend

N = Nectar Plant
L = Larval Host Plant

Below: *Lantana* 'Miss Huff'

Trees		N	L	PF	IG
Aesculus californica	California Buckeye	•	•	L/VL	2
Alnus rhombifolia	White Alder		•	H/M	2
Arbutus menziesii	Madrone		•	M/L	2
Celtis reticulata	Western Hackberry		•	M/L	2
Cercis canadensis	Eastern Redbud	•		M	1
Chilopsis linearis + cvs	Desert Willow	•		M/L	2
Chorisia speciosa	Floss Silk Tree		•	M	1
Citrus cultivars	Citrus		•	M	1
Cordyline australis + cvs	Dracaena Palm	•		M	1
Cornus nuttallii	Western Dogwood	•		H/M	2
Platanus racemosa	Western Sycamore		•	H/M	2
Populus species	Cottonwood		•	H	1
Prosopis glandulosa	Texas Honey Mesquite	•	•	M/L	2
Quercus species	Oak		•	M/L	2
Salix species + cvs	Willow	•	•	H	1

Shrubs		N	L	PF	IG
Abelia x grandiflora + cvs	Glossy Abelia	•		M	1
Acacia greggii	Catclaw Acacia	•	•	L/VL	2
Atriplex canescens	Quail Bush		•	L/VL	2
Atriplex lentiformis + ssp.	Big Saltbush		•	L/VL	2
Baccharis salicifolia	Mulefat	•	•	M/L	2
Berberis species + cvs	Barberry	•		M	1
Buddleja species + cvs	Butterfly Bush	•		M	1
Caesalpinia pulcherrima	Red Bird of Paradise Bush	•		M/L	2
Calliandra species + cvs	Fairy Duster	•	•	M/L	2
Caryopteris species + cvs	Bluebeard	•		M/L	2
Ceanothus species + cvs	Ceanothus	•	•	M/L	2
Celtis pallida	Desert Hackberry		•	M/L	2
Cercis occidentalis	Western Redbud	•		M/L	2
Cercocarpus betuloides	Mountain Mahogany	•	•	L/VL	2
Dalea greggii	Trailing Indigo Bush	•	•	M/L	2
Dalea pulchra	Indigo Bush	•	•	M/L	2
Duranta erecta	Sky Flower	•		M	1
Echium candicans + cv	Pride of Madeira	•		M/L	2
Encelia species + cvs	Encelia	•	•	M/L	2
Eriogonum species +cvs	Buckwheat	•	•	L/VL	2
Fremontodendron species + cvs	Flannel Bush	•		L/VL	2
Heteromeles arbutifolia	Toyon		•	M/L	2
Hibiscus rosa-sinensis + cvs	Tropical Hibiscus		•	M	1
Hibiscus syriacus	Rose of Sharon		•	M	1
Isomeris arborea	Bladderpod		•	M/L	2
Juniperus californica	California Juniper		•	M/L	2
Justicia spicigera	Mexican Honeysuckle	•	•	M	1
Lantana camara + cvs	Yellow Sage	•	•	M/L	2

Above: *Buddleja davidii* cultivar

Above: *Caryopteris clandonensis*

Below: *Encelia farinosa*

Below: *Eriogonum umbellatum*

Below: *Passiflora edulis*

Above: *Syringa vulgaris* cultivar

Above: *Asclepias curassavica*

Below: *Verbena bonariensis*

Below: *Verbena lilacina* 'De La Mina'

Below: *Verbena* x *hybrida*

Shrubs continued		N	L	PF	IG
Lavandula species + cvs	English Lavender	•		M/L	2
Leucophyllum species + cvs	Texas Ranger	•		L/VL	2
Philadelphus lewisii + cv	Western Mock Orange	•		M/L	2
Plumbago auriculata + cvs	Cape Plumbago	•	•	M/L	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	•	•	M/L	2
Rhamnus californica + cvs	California Coffeeberry		•	M/L	2
Rhamnus crocea + ssp.	Hollyleaf Redberry		•	L/VL	2
Rhus integrifolia	Lemonade Berry	•		L/VL	2
Rhus lentii	Pink Flowering Sumac	•		L/VL	2
Rhus ovata	Sugar Bush	•		L/VL	2
Ribes species + cvs	Currant	•	•	M/L	2
Rosmarinus officinalis + cvs	Rosemary	•		M/L	2
Ruellia species + cvs	Ruellia	•		M/L	2
Salvia species + cvs	Sage	•		M/L	2
Syringa species + cvs	Common Lilac	•	•	M	1
Vitex agnus-castus	Chaste Tree	•		M/L	2
Yucca species	Yucca	•	•	L/VL	2

Vines		N	L	PF	IG
Lonicera species + cvs	Honeysuckle	•		M	1
Passiflora species + cvs	Passion Vine		•	M	1

Perennials		N	L	PF	IG
Achillea millefolium + cvs	Common Yarrow	•		M/L	2
Agastache species + cvs	Hummingbird Mint	•		M/L	2
Asclepias species + cvs	Butterfly Bush	•	•	M/L	2
Baileya multiradiata	Desert Marigold	•		L/VL	2
Bouteloua gracilis	Blue Grama Grass		•	M/L	2
Centaurea cineraria	Dusty Miller		•	M/L	2
Coreopsis species	Coreopsis	•		M	1
Ericameria laricifolia	Turpentine Bush	•		L/VL	2
Erigeron glaucus + cvs	Beach Aster		•	M/L	2
Gaillardia x grandiflora	NCN	•		M/L	2
Gaura lindheimeri + cvs	Gaura	•		M/L	2
Hemerocallis species + cvs	Daylily	•		M	1
Leymus species + cvs	Wild Rye		•	M/L	2
Lupinus species	Lupine	•	•	L/VL	2
Melampodium leucanthum	Blackfoot Daisy	•		L/VL	2
Mimulus aurantiacus + cvs	Monkey Flower		•	L/VL	2
Oenothera speciosa + cvs	Mexican Evening Primrose	•		M/L	2
Penstemon species	Penstemon		•	L/VL	2
Sphaeralcea ambigua + cvs	Apricot Mallow	•	•	L/VL	2
Tagetes lemmonii	Mt. Lemon Marigold	•		M/L	2
Verbena species	Verbena	•	•	M/L	2

Butterfly Plants

Above: *Asclepias curassavica*

Below: *Echium candicans*

Plant Lists

Hummingbird Plants

Hummingbirds bring the greatest attention to plants with red and orange tubular flowers with nectar. In warm climate zones, these birds can be found in landscapes and gardens many months of the year when these flowers occur. An initial review of this list confirms these basic observations. Plants such as hummingbird mint, penstemon and honeysuckles are traditional favorites. Aloes produce a remarkably rich supply of nectar for both hummingbirds and song birds during the winter months.

On second review, many other flower colors and shapes are included in this list and indicate the availability of nectar for these birds. It is interesting to note how some flowers are mostly comprised of stamens such as bottlebrush, eucalyptus and grevilleas. Plants in the *Ericaceae* family including manzanitas, strawberry trees and summer holly with small urn-shaped flowers are included. And, the bright yellow flowers of palo verde trees in desert regions are noted for their attraction to hummingbirds. These plants grow in a variety of habitats and climate zones and provide are range of choices for use in many planting situations.

Below: *Ribes speciosum* (Photograph by Peggy S. Perry)

Trees		**PF**	**IG**
Aesculus californica	California Buckeye	L/VL	2
Aesculus x carnea + cv	Red Horse Chestnut	M	1
Albizia julibrissin + cv	Silk Tree	M	1
Arbutus species + cvs	NCN	M/L	2
Bauhinia x blakeana	Hong Kong Orchid Tree	M	1
Caesalpinia cacalaco	Cascalote	M/L	2
Callistemon citrinus + cvs	Lemon Bottlebrush	M/L	2
Callistemon viminalis + cvs	Weeping Bottlebrush	M/L	2
Chilopsis linearis + cvs	Desert Willow	M/L	2
x Chitalpa tashkentensis + cvs	Chitalpa	M/L	2
Eucalyptus species + cvs	Red Ironbark	M/L	2
Parkinsonia species + cvs	Palo Verde	M/L	2

Shrubs		**PF**	**IG**
Arctostaphylos species + cvs	Parry Manzanita	M/L	2
Buddleja davidii + cvs	Butterfly Bush	M	1
Caesalpinia species	Bird of Paradise Bush	M/L	2
Calliandra eriophylla	Pink Fairy Duster	M/L	2
Caryopteris species + cvs	Bluebeard	M/L	2
Chaenomeles speciosa	NCN	M	1
Comarostaphylis diversifolia	Summer Holly	M/L	2
Correa species + cvs	Australian Fuchsia	M/L	2
Eremophila species + cvs	Emu Bush	M/L	2
Galvezia species + cv s	Bush Snapdragon	M/L	2
Grevillea species + cvs	Grevillea	M/L	2
Iochroma cyaneum	NCN	M	1
Justicia species + cvs	Chuparosa	M/L	2
Keckiella species + cvs	Keckiella	M/L	2
Ornithostaphylos oppositifolia	Palo Blanco	L/VL	2
Ribes species + cvs	Currant	M/L	2
Ruellia peninsularis	Desert Ruellia	M/L	2
Salvia species + cvs	Sage	L/VL	2
Syringa species + cvs	Lilac	M	1
Tecoma species + cvs	Cape Honeysuckle	M/L	2
Trichostema lanatum	Woolly Blue Curls	M/L	2

Vines		**PG**	**IG**
Bignonia capreolata	Crossvine	M	1
Campsis species + cvs	Trumpet Creeper	M	1
Distictis buccinatoria	Blood-red Trumpet Vine	M	1
Lonicera species + cvs	Honeysuckle	M	1
Podranea ricasoliana	Pink Trumpet Vine	M	1
Pyrostegia venusta	Flame Vine	M	1

Perennials		**PF**	**IG**
Agapanthus species + cvs	Lily-of-the-Nile	M	1
Agastache species + cvs	Hummingbird Mint	M/L	2
Anigozanthos species + cvs	Kangaroo Paw	M/L	2
Asclepias curassavica	Blood Flower	M/L	2
Cuphea species + cvs	Cigar Plant	M	1
Epilobium species + cvs	California Fuchsia	L/VL	2
Heuchera species + cvs	Coral Bells	H/M	2
Kniphofia species + cvs	Red-hot Poker	M	1
Lobelia laxiflora	NCN	M/L	2
Mimulus aurantiacus + cvs	Sticky Monkey Flower	L/VL	2
Mimulus cardinalis	Scarlet Monkey Flower	M/L	2
Penstemon species + cvs	Penstemon	L/VL	2
Sphaeralcea ambigua + cvs	Apricot Mallow	L/VL	2
Verbena species + cvs	Verbena	M/L	2

Agave, Aloes and Yuccas		**PF**	**IG**
Agave species + cvs	Century Plant	L/VL	2
Aloe species and cvs	Aloe	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Dudleya species + cvs	Dudleya	L/VL	2
Nolina species	Beargrass	L/VL	2
Yucca species	Yucca	L/VL	2

Above: *Galvezia speciosa*

Above: *Cuphea ignea*

Below: *Aloe striata*

Grasses, Sedges, Restios and Rushes		PF	IG
Carex buchananii	Leather Leaf Sedge	M	1
Carex divulsa	Berkeley Sedge	M	1
Carex flacca	Blue Sedge	M	1
Carex pansa	California Meadow Sedge	M	1
Carex praegracilis	Western Meadow Sedge	M	1
Carex spissa	San Diego Sedge	M	1
Carex testacea	Orange Sedge	M	1
Juncus effusus + cvs	Common Rush	H	1
Juncus pallidus	Giant Rush	H	1
Juncus patens	Common Rush	H	1
Juncus textilis	Indian Rush	H	1
Chondropetalum elephantinum	Large Cape Rush	M	1
Chondropetalum tectorum	Small Cape Rush	M	1
Rhodocoma capensis	NCN	M	1
Rhodocoma fruticosa	NCN	M	1
Rhodocoma gigantea	NCN	M	1
Calamagrostis x acutiflora + cv	Feather Reed Grass	M	1
Calamagrostis foliosus	Mendocino Reed Grass	M	1
Calamagrostis nutkaensis	Pacific Reed Grass	M	1
Festuca mairei	Atlas Fescue	M	1
Festuca rubra + cvs	Creeping Red Fescue	H	1
Helictotrichon sempervirens + cvs	Blue Oat Grass	M	1
Leymus arenarius	Blue Lyme Grass	M	1
Leymus cinereus	Gray Wild Rye	M/L	2
Leymus condensatus + cvs	Giant Wild Rye	M/L	2
Leymus triticoides	Creeping Wild Rye	M	1
Miscanthus 'Giganteus'	Giant Silver Grass	H/M	2
Miscanthus sinensis + cvs	Eulalia	H/M	2
Miscanthus transmorrisonensis	Taiwanese Miscanthus	H/M	2
Muhlenbergia dubia	Mexican Muhly	M/L	2
Muhlenbergia lindheimeri	Lindheimer's Muhly	M/L	2
Muhlenbergia rigens	Deer Grass	M/L	2
Pennisetum x advena + cvs	Fountain Grass	M	1
Sesleria autumnalis	Autumn Moor Grass	M	1

Perimeter Trees and Shrubs		PF	IG
Baccharis salicifolia	Mule Fat	M/L	2
Sambucus nigra ssp. mexicana	Blue Elderberry	M/L	2
Salix exigua	Narrow-leaved Willow	H	1
Salix gooddingii	Black Willow	H	1
Salix laevigata	Red Willow	H	1
Salix lasiolepis	Arroyo Willow	H	1
Salix lucida	Spring Willow	H	1

Above: *Helictotrichon sempervirens*

Below: *Juncus patens* with *Carex divulsa*

Below: *Sambucus nigra* ssp. mexicana

Below: *Carex pansa*

Plant Lists

Bioswale Plants

The design of catchment basins and retention ponds to capture and infiltrate surface runoff can be enhanced with plants. Additionally, surface runoff can be directed to bioswales where it is directed through a surface drainage channel lined with plants. In these situations, plants can help reduce the velocity of water flow as well as filter particulates and absorb some of the dissolved elements in the water. These benefits contribute to the cleanup and reuse of water close to the source. This also leads to improved quality and reduced volume of water that flows off site.

Runoff commonly contains both particulate matter and dissolved elements that have been deposited on surfaces of the catchment or watershed area. The greatest concentration of contaminants usually exists following the first rain of the season. It is usually desirable to capture runoff in catch basins with a filtering system from urban pavement areas before it flows into a catchment basin or bioswale to begin the process of cleanup. Currently, the extent of remediation of pollution by plants is not completely known, particularly in terms of biological assimilation of heavy metals and toxic chemicals. This is an emerging area of study and learning.

This list of plants includes species that are widely used in retention ponds and bioswales. Most species are adapted to short periods of inundation and saturated soils. Sedges and rushes are commonly placed in low areas and where the highest moisture conditions are anticipated. Grasses are often placed in an intermediate zone that is seldom under water. A few trees and shrubs are listed for use in perimeter areas that are adapted to both wet and dry conditions.

Below: *Carex pansa*

Plant Lists

Plants for Shade

Shade of some type is a common occurrence in most landscapes and gardens. It can range from deep and virtually year round as in the case of spaces confined by tall buildings, or ephemeral on a daily basis as the angle of the sun changes throughout the day. Shade often increases as trees mature, impacting the understory plants that were adapted to greater levels of sun.

This list includes plants that show moderate to high adaptation to shade and often do best with regular moisture throughout the year. Not too many species grow in deep shade with only indirect light to sustain their growth. Instead, most plants on this list do well in partial shade during the day and throughout the year. While direct sunlight may be absent, brightly lit spaces from reflected and filtered light is needed by such plants. These plants often adapt well to sun when grown in cooler climate zones and in coastal zones with higher levels of humidity. Virtually all of these plants will suffer sun burn in warm climate zones when exposed to intense summer sun and heat after months without such exposure.

Shade Plant Legend

M = Moderate Shade
H = Heavy Shade

Trees and Palms		M	H	PF	IG
Acer palmatum + cvs	Japanese Maple	•		H	1
Cornus florida	Flowering Dogwood	•		M	1
Cornus nuttallii	Pacific Dogwood	•		H/M	2
Howea forsteriana	Paradise Palm	•	•	M	1
Laurus nobilis	Sweet Bay	•		M/L	2
Osmanthus fragrans	Sweet Olive	•		M	1
Podocarpus henkelii	Long-leafed Yellowwood	•		M	1
Rhapis excelsa	Lady Palm	•	•	M	1
Rhapis humilis	Slender Lady Palm	•	•	M	1
Phoenix roebelenii	Pigmy Date Palm	•		M	1
Schefflera actinophylla	Queensland Umbrella Tree	•	•	M	1
Salix exigua	Narrow-leaved Willow	•		H	1
Salix lasiolepis	Arroyo Willow	•		H	1
Salix lucida	Spring Willow	•		H	1
Umbellularia californica	California Bay		•	H/M	2

Shrubs		M	H	PF	IG
Abutilon species + cvs	Flowering Maple	•		H	1
Aucuba japonica + cvs	Japanese Aucuba	•	•	M	1
Berberis aquifolium + cvs	Oregon Grape	•	•	M	1
Berberis darwinii	Darwin Barberry	•		M	1
Berberis japonica var. bealei	Leatherleaf Mahonia	•	•	M	1
Berberis lomariifolia	Chinese Holly Grape	•	•	M	1
Berberis repens	Creeping Barberry	•		M/L	2
Berberis thunbergii + cvs	Japanese Barberry	•		M	1
Brunfelsia pauciflora + cvs	Yesterday-Today-Tomorrow	•		M	1
Buxus microphylla + cvs	Japanese Boxwood	•		M	1
Buxus sempervirens + cvs	Common Boxwood	•		M	1
Calycanthus occidentalis	Spice Bush	•		M/L	2
Camellia japonica	Japanese Camellia	•		M	1
Camellia reticulata	NCN	•		M	1
Camellia sasanqua	NCN	•		M	1
Carpenteria californica + cv	Bush Anemone	•		M/L	2
Cocculus laurifolius	Laurel-leaf Snail Seed	•		M	1
Cornus nuttallii	Pacific Dogwood	•		H/M	2
Cornus sericea	Redtwig Dogwood	•		H/M	2
Coprosma repens + cvs	Mirror Plant	•		M	1
Cotoneaster franchetii	Franchet Cotoneaster	•		M	1
Cotoneaster salicifolius + cv	Willowleaf Cotoneaster	•		M	1
Fatsia japonica + cv	Japanese Aralia	•	•	M	1
Ficus lyrata	Fiddleleaf Fig	•	•	M	1
Gardenia thunbergia	White Gardenia	•		M	1
Hydrangea macrophylla + cvs	Bigleaf Hydrangea	•	•	H	1
Hydrangea quercifolia + cv	Oakleaf Hydrangea	•	•	M	1
Iberis sempervirens + cvs	Evergreen Candytuft	•		M	1
Ilex aquifolium + cvs	English Holly	•		M	1
Ilex cornuta + cvs	Chinese Holly	•		M	1
Ilex vomitoria + cvs	Yaupon	•		M	1
Keckiella cordifolia	Heartleaf Penstemon	•		M/L	2
Loropetalum chinense + cvs	Fringe Flower	•		M	1
Michelia figo	Banana Shrub	•		M	1
Myrica californica	Pacific Wax Myrtle	•		M/L	2
Nandina domestica + cvs	Heavenly Bamboo	•		M	1
Osmanthus fragrans	Sweet Olive	•		M	1
Philadelphus lewisii + cv	Western Mock Orange	•		M/L	2
Pittosporum crassifolium + cv	Karo	•		M	1
Pittosporum eugenioides + cv	NCN	•		M	1
Pittosporum tenuifolium + cvs	NCN	•		M	1
Pittosporum tobira + cvs	Tobira	•		M	1
Podocarpus henkelii	Long-leafed Yellowwood	•		M	1
Prunus laurocerasus + cvs	English Laurel	•		M	1
Rhododendron cultivars	Rhododendron, Azalea	•		M	1
Ribes sanguineum + var	Red Flowering Currant	•		H/M	2
Ribes viburnifolium	Evergreen Currant	•		M/L	2
Ruscus hypoglossum	NCN	•		M/L	2
Schefflera actinophylla	Queensland Umbrella Tree	•	•	M	1
Schefflera arboricola	Hawaiian Elf Schefflera	•	•	H	1
Schefflera elegantissima	False Aralia	•	•	M	1
Schefflera pueckleri	Mallet Flower	•		M	1

Above: *Liriope muscari* 'Variegata'

Above: *Nephrolepis cordifolia*

Below: *Aspidistra elatior*

Perennials, Ferns, Bamboo		M	H	PF	IG
Acanthus mollis + cvs	Bear's Breech	•	•	M/L	2
Adiantum species	Maidenhair Fern	•	•	H	1
Asparagus densiflorus + cvs	Asparagus Fern	•		M	1
Asparagus setaceous	Fern Asparagus	•		M	1
Aspidistra elatior + cv	Cast-iron Plant		•	M	1
Asplenium bulbiferum	Mother Fern	•	•	H	1
Asplenium nidus	Bird's Nest Fern	•	•	H	1
Astelia chathamica 'Silver Spear'	Silver Spear	•		H	1
Bambusa multiplex + cvs	Bamboo	•		M	1
Bergenia cordifolia	Heartleaf Bergenia	•		M	1
Bergenia crassifolia	Winter-blooming Bergenia	•		M	1
Billbergia nutans	Queen's Tears	•		H	1
Blechnum brasiliense	NCN	•		H	1
Campanula species + cvs	Bellflower	•		M	1
Carex divulsa	Berkeley Sedge	•		M	1
Cyathea cooperi	Australian Tree Fern	•		H	1
Cycas revoluta	Sago Palm	•		M	1
Cyperus alternifolius	Umbrella Plant	•		H	1
Cyperus papyrus	Papyrus	•		H	1
Cyrtomium falcatum	Japanese Holly Fern	•		M	1
Cyrtomium fortunei	NCN	•		M	1
Dianella tasmanica + cvs	Tasman Flax Lily	•		M	1
Dicksonia antarctica	Tasmanian Tree Fern	•		H	1
Dioon edule	Chestnut Dioon	•		M	1
Dioon spinulosum	Giant Dioon	•		M	1
Doryanthes palmeri	Palmer Spear Lily	•		M	1
Heuchera species + cvs	Coral Bells	•		H/M	2
Imperata cylindrica 'Red Baron'	Japanese Blood Grass	•		H	1
Iris douglasiana + cvs	Douglas Iris	•		H/M	2
Liriope muscari + cvs	Big Blue Lily Turf	•	•	M	1
Liriope spicata	Creeping Lily Turf	•		M	1
Microlepia strigosa	Lace Fern	•		M	1
Nephrolepis cordifolia	Southern Sword Fern	•		M	1
Ophiopogon jaburan	White Lily Turf	•		M	1
Ophiopogon japonicus + cvs	Mondo Grass	•		M	1
Ophiopogon planiscapus 'Nigrescens'	Black Mondo Grass	•		M	1
Phyllostachys species + cvs	Bamboo	•		M	1
Pleioblastus species + cvs	Pygmy Bamboo	•		M	1
Polypodium californicum	California Polypody	•		M/L	2
Polystichum californicum	California Sword Fern	•		H/M	2
Polystichum munitum	Western Sword Fern	•		H/M	2
Polystichum polyblepharum	Japanese Tassel Fern	•		H	1

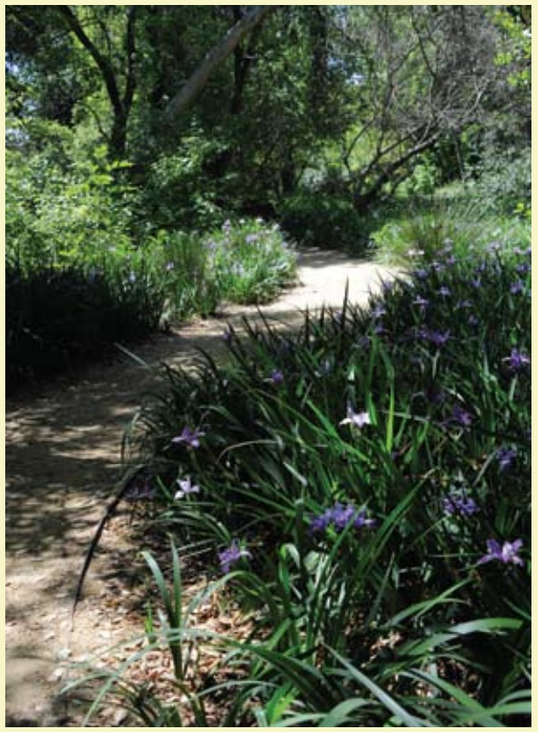
Ground Covers and Vines		M	H	PF	IG
Ajuga reptans + cvs	Carpet Bugle	•		M	1
Bignonia capreolata	Crossvine	•		M	1
Campanula species + cvs	Bellflower	•		M	1
Cissus antarctica	Kangaroo Vine	•		M	1
Cissus rhombifolia + cvs	Grape Ivy	•		M	1
Duchesnea indica	Indian Mock Strawberry	•		M	1
x Fatshedera lizei + cv	Botanical Wonder	•		M	1
Fragaria chiloensis	Beach Strawberry	•		M	1
Hedera canariensis	Algerian Ivy	•		M	1
Hedera helix + cvs	English Ivy	•		M	1
Parthenocissus henryana	Silvervein Creeper	•		M	1
Parthenocissus quinquefolia	Virginia Creeper	•		M	1
Parthenocissus tricuspidata	Boston Ivy	•		M	1
Pleioblastus auricomus	NCN	•		M	1
Pleioblastus pygmaeus	Pygmy Bamboo	•		M	1
Pleioblastus shibuyanus 'Tsuboi'	Dwarf Variegated Bamboo	•		M	1
Polypodium californicum	California Polypody	•		M/L	2
Ruscus aculeatus	Butcher's Broom	•		M/L	2
Soleirolia soleirolii	Baby's Tears	•	•	H	1
Tetrastigma voinierianum	Chestnut Vine	•		M	1
Trachelospermum asiaticum	Asiatic Jasmine	•		M	1
Trachelospermum jasminoides	Star Jasmine	•		M	1
Vinca major	Bigleaf Periwinkle	•		M	1
Vinca minor	Dwarf Periwinkle	•		M	1

Above: *Asplenium bulbiferum*

Above: *Liriope*

Below: *Campanula poscharskyana*

Plants for Shade



Above: *Iris douglasiana*, Rancho Santa Ana Botanic Garden

Below: *Rhapis humilis*

Plant Lists

Container Plants

Virtually any plant can be grown in a container. However, there are many considerations that often lead to practical choices for landscapes and gardens. Perhaps the principal condition to address is limited volume of soil to sustain plants. This limitation impacts the absorption and retention of moisture and nutrients, and profoundly restricts many plants from achieving their potential size. Good drainage and effective watering techniques are also essential to the growth and success of container plants.

Succulent plants that can store moisture and need less organic matter in the soil often do best in containers. This is particularly true during warm weather conditions that easily leads to the depletion of soil moisture on a daily basis. Such plants are better adapted to endure moisture stress and can grow with unique character with the limitations of soil and space. Many of the small species of *Aloe, Agave, Dudleya, Echeveria* and *Sedum* also have good potential for use on green roofs. These plants provide many interesting colors, shapes and textures, as well as grow slowly enough to last for several years before needing replacement.

In comparison, non-succulent plants are more susceptible to wilting, loss of foliage and stem dieback when acute moisture stress occurs in containers. These plants require diligent attention to watering throughout the year, as well as fertilizing to sustain flowering or fruit production. Often it is desirable to select smaller growing cultivars that do not mature at large sizes.

Below: Containers with *Bambusa multiplex* 'Golden Goddess', *Chondropetalum tectorum* and *Asparagus sprengeri* 'Myeri'

Trees		**PF**	**IG**
Acer palmatum + cvs	Japanese Maple	H	1
Ficus benjamina + cv	Benjamin Fig	M	1
Ficus elastica + cvs	Rubber Tree	M	1
Ficus lyrata	Fiddleleaf Fig	M	1
Pinus mugo	Mugo Pine	M/L	2
Pinus thunbergii + cv	Japanese Black Pine	H/M	2
Palms and Cycads		**PF**	**IG**
Chamaerops humilis	Mediterranean Fan Palm	M/L	2
Cycas revoluta	Sago Palm	M	1
Phoenix roebelenii	Pigmy Date Palm	M	1
Rhapis excelsa	Lady Palm	M	1
Rhapis humilis	Slender Lady Palm	M	1
Syagrus romanzoffianum	Queen Palm	M	1
Trachycarpus fortunei	Windmill Palm	M	1
Shrubs and Vines		**PF**	**IG**
Abutilon cultivars	NCN	H	1
Armeria maritima + cvs	Common Thrift	M/L	2
Camellia species + cvs		M	1
Cissus rhombifolia + cvs	Grape Ivy	M	1
Euryops pectinatus + cv	Euryops	M	1
Fatsia japonica + cv	Japanese Aralia	M	1
Gardenia thunbergia	White Gardenia	M	1
Hibiscus rosa-sinensis + cvs	Chinese Hibiscus	M	1
Lavandula species + cvs	English Lavender	M/L	2
Nandina domestica + cvs	Heavenly Bamboo	M	1
Philodendron bipinnatifidum + cvs	Tree Philodendron	M	1
Schefflera arboricola	Hawaiian Elf Schefflera	H	1
Schefflera elegantissima	False Aralia	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Perennials, Bamboo and Grasses		**PF**	**IG**
Anigozanthos cultivars	Kangaroo Paw		
Argyranthemum species + cvs	Marguerite Daisy	M	1
Aspidistra elatior + cv	Cast-iron Plant	M	1
Asplenium bulbiferum	Mother Fern	H	1
Asplenium nidus	Bird's Nest Fern	H	1
Astelia chathamica 'Silver Spear'	Silver Spear	H	1
Bambusa species + cvs	Bamboo	M	1
Carex testacea	Orange Sedge	M	1
Centaurea cineraria	Dusty Miller	M/L	2
Chondropetalum species	Cape Rush	M	1
Clivia miniata + cvs	Kaffir Lily	M	1
Cordyline australis + cvs	Giant Dracaena	M	1
Cordyline 'Festival Grass'	Red Fountain Cordyline	M	1
Coreopsis species + cvs	NCN	M	1
Cuphea hyssopifolia	False Heather	M	1
Cyperus species	Umbrella Plant	H	1
Cuphea ignea	Cigar Plant	M	1
Dietes species + cvs	NCN	M	1
Equisetum hyemale	Horsetail	H	1
Erigeron karvinskianus	Mexican Daisy	M	1
Felicia amelloides	Blue Marguerite	M	1
Festuca glauca + cvs	Blue Fescue	M	1
Limonium perezii	Sea Lavender	M/L	2
Liriope muscari + cvs	Big Blue Lily Turf	M	1
Loropetalum chinense + cvs	Fringe Flower	M	1
Muhlenbergia species	NCN	M/L	2
Nephrolepis cordifolia	Southern Sword Fern	M	1
Ophiopogon jaburan	White Lily Turf	M	1
Otatea acuminata	Mexican Weeping Bamboo	M	1
Pelargonium species + cvs	Geranium	M	1
Phyllostachys species _ cvs	Bamboo	M	1
Plumeria species + cvs	Frangipani	M	1
Russelia equisetiformis	Coral Plant	M	1
Salvia officinalis + cvs	Garden Sage	M/L	2
Strelitzia juncea	Narrow-leaf Bird of Paradise	M	1
Strelitzia reginae	Bird of Paradise	M	1

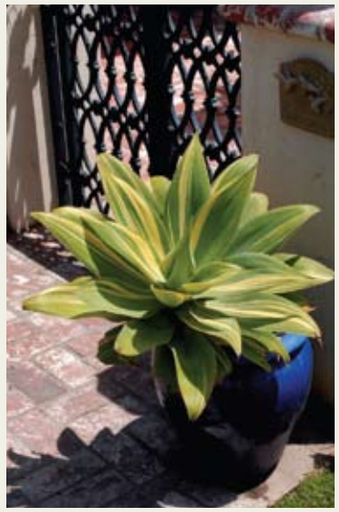
Above: *Acer palmatum* 'Tamukeyama'

Above: *Nephrolepis cordifolia*

Below: *Cyperus alternifolius*

Agave, Aloe, Cacti and Succulents		PF	IG
Aeonium arboreum + cvs	Aeonium	L/VL	2
Aeonium 'Kiwi'	NCN	L/VL	2
Aeonium 'Sunburst'	NCN	L/VL	2
Aeonium undulatum + cvs	NCN	L/VL	2
Cistanthe grandiflora	NCN	M/L	2
Cotyledon orbiculata	NCN	L/VL	2
Agave americana + cvs	NCN	L/VL	2
Agave attenuata + cvs	Foxtail Agave	L/VL	2
Agave vilmoriniana	Octopus Agave	L/VL	2
Aloe 'Blue Elf'	NCN	L/VL	2
Aloe brevifolia	NCN	L/VL	2
Aloe ciliaris	NCN	L/VL	2
Aloe marlothii	NCN	L/VL	2
Aloe x nobilis	NCN	L/VL	2
Aloe plicatilis	Fan Aloe	L/VL	2
Aloe striata	Coral Aloe	L/VL	2
Aloe vera	Medicinal Aloe	L/VL	2
Beaucarnea recurvata	Bottle Palm	L/VL	2
Crassula arborescens	Silver Jade Plant	L/VL	2
Crassula ovata + cvs	Jade Plant	L/VL	2
Crassula perfoliata var. falcata	Sickle Plant	L/VL	2
Dasylirion quadrangulatum	Mexican Grass Tree	L/VL	2
Dudleya edulis	San Diego Dudleya	L/VL	2
Dudleya lanceolata	Lance leaved Dudleya	L/VL	2
Dudleya pulverulenta	Chalk Dudleya	L/VL	2
Dudleya virens	Catalina Island Dudleya	L/VL	2
Echeveria species + cvs	Hen and Chicks	L/VL	2
Echinocactus grusonii	Golden Barrel Cactus	L/VL	2
Euphorbia ingens	Common Tree Euphorbia	L/VL	2
Euphorbia milii	Crown of Thorns	M/L	2
Euphorbia tirucalli 'Sticks of Fire'	Milkbush	L/VL	2
Graptopetalum paraguayense	Ghost Plant	L/VL	2
Graptoveria 'Fred Ives'	NCN	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Kalanchoe beharensis	Felt Bush	L/VL	2
Kalanchoe luciae	Paddle Plant	L/VL	2
Opuntia ficus-indica	Indian Fig	L/VL	2
Opuntia microdasys	Bunny Ears	L/VL	2
Opuntia robusta	NCN	L/VL	2
Portulacaria afra	Elephant's Food	L/VL	2
Sedum 'Autumn Joy'	NCN	M	1
Sedum burrito	Baby Burro's Tail	L/VL	2
Sedum morganianum	Donkey Tail	L/VL	2
Sedum pachyphyllum	Jelly-bean	L/VL	2
Sedum x rubrotinctum	Pork and Beans	L/VL	2
Senecio serpens	Blue Chalksticks	L/VL	2

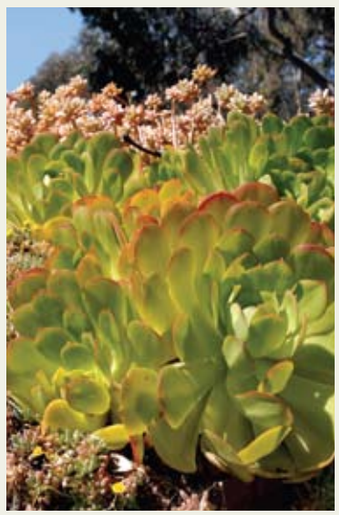
Above: *Echeveria agavoides*



Above: *Agave attenuata* 'Variegata'

Below: *Equisetum hyemale*

Below: *Aeonium undulatum*



Container Plants

Above: A mixed container planting of *Opuntia, Agave and Echinocactus.*

Below: A green roof planted with *Aeonium undulatum* in front of *Graptopetalum paraguayense*

Tupidanthus calyptratus

Section Three
Plant Palettes

There are many steps and considerations to be taken when selecting and combining plants for landscapes and gardens. Horticultural steps involve careful evaluation of climate zone conditions, microclimate influences, soil, sun, moisture and wind. Design steps involve the evaluation and selection of plants to perform environmental, functional and aesthetic roles regarding the organization and human use of outdoor spaces and built environments. With these steps and considerations in mind, a plant palette is developed for landscape or garden use.

Observations made in nature provide a rich foundation for developing horticultural and design based planting palettes. Plants in nature naturally evolve and establish self-sustaining associations as they adapt to different climate and habitat conditions, particularly temperature and moisture. These associations contain a high level of species diversity and have rich symbiotic relationships between plant roots and mycorrhizal fungi, bacteria, oxygen, moisture and soil nutrients. These observations suggest that plant palettes for ornamental landscapes and gardens will be more successful when they are comprised of a diverse range of species having similar habitat adaptations.

This section presents a series of horticultural palettes for different landscape and garden situations. These palettes are organized into basic climate categories, including woodland, subtropical, Mediterranean and southwestern to emphasize plants with compatible adaptations and characteristics. Each palette is briefly described in terms of its design purpose, climate zone suitability, aesthetic character, and moisture needs. The objective is to provide examples that work with different combinations of climate zones, plant factors, irrigation groups and plant lists that are presented in Sections One and Two. A total of 27 palettes are presented. Each palette includes plants with a range of moisture needs that can be organized into hydrozones and successfully combined into landscapes and gardens. The Mediterranean and southwestern palettes provide many examples that particularly suited to conserving water. Each palette is also intended to be flexible and adaptable tor other design needs and climate zones reflecting an individual's horticultural knowledge, design skill and understanding of varying project situations.

Contents

Cycas revoluta

Plant Palette

Crape Myrtle

The crape myrtle palette is designed to include a selection of plants that add bright colors and traditional planting character to landscapes and gardens with an emphasis on the summer season. A wide range of crape myrtle cultivars are available that offer a variety of sizes, shapes and flower colors. These are useful in courtyards, entry ways and garden spaces, and easily grow with a single or multiple trunks. They grow with a high degree of uniformity and are suited as individual focal elements as well as for use in large numbers to frame streets and plaza areas. Increasingly, petite and shrub sized cultivars are integrated into understory and background plantings to add flowering impact and winter deciduous character.

Two groups of companion plants can be seen in this palette. The first group includes attractive foliage plants ranging from the carrot wood, fern pine, mayten trees to pittosporum and shiny xylosma. These plants provide handsome texture and quiet leaf colors to function in background, foundation and framework areas. The second group of plants adds more more choices for detail and variety. Lily-of-the-Nile, coreopsis and common geranium provide intense flower colors; grasses provide contrasting texture and attractive inflorescences from mid summer to late fall. Palms bring strong accent and focal impact to plantings throughout the year. All plants are widely grown and form a cosmopolitan palette that is common to both commercial and residential landscapes. For other plants compatible with this palette, see the Woodland Garden Plants list on pages 54-55.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
			+	+	+			+				+	+	+				

PF	IG
M	1

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Prunus caroliniana*

Above: *Lagerstroemia indica*

Above: *Lagerstroemia indica*

Horticultural Preferences

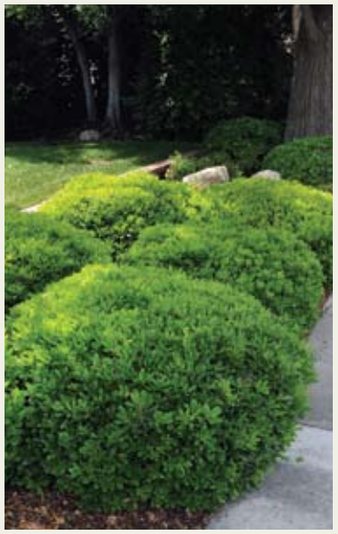
Plants in the crape myrtle palette prefer sunny exposures, loam soils and regular moisture throughout the year. The greatest limitation is posed by powdery mildew fungus that damages crape myrtles when planted in coastal zones and areas with high levels of humidity. The occurrence of powdery mildew restricts the planting of this palette to inland, foothill and valley zones, where the air is drier. As a result, this palette is suited for Plant Climate Zones 7-9, 14 and 18-20.

These plants tolerate average soil conditions, routine maintenance and have moderate moisture needs. They are considered among the easiest and most reliable plants to grow.

Trees		PF	IG
Lagerstroemia indica + cvs	Crape Myrtle	M	1
Prunus cerasifera + cvs	Purple-leaf Plum	M	1
Prunus caroliniana + cvs	Carolina Laurel Cherry	M	1
Pyrus calleryana + cvs	Callery Pear	M	1
Sophora japonica	Japanese Pagoda Tree	M	1

Shrubs		PF	IG
Abelia 'Edward Goucher'	Edward Goucher Abelia	M	1
Abelia x grandiflora + cvs	Glossy Abelia	M	1
Berberis thunbergii + cvs	Japanese Barberry	M	1
Buddleja davidii + cvs	Butterfly Bush	M	1
Choisya ternata	Mexican Orange	M	1
Coleonema pulchellum + cv	Pink Breath of Heaven	M	1
Cotoneaster horizontalis	Rock Cotoneaster	M	1
Elaeagnus x ebbingei + cvs	NCN	M	1
Escallonia x exoniensis 'Frades'	Pink Escallonia	M	1
Hypericum 'Hidcote'	NCN	M	1
Ilex cornuta + cvs	Chinese Holly	M	1
Ligustrum japonicum 'Texanum'	Texas Privet	M	1
Michelia yunnanensis	NCN	M	1

Below: *Pittosporum tobira* 'Wheeleri'



Above: *Buddleia davidii*

Aesthetic Character

Plants included in this palette provide a diverse range of colors and textures with many flowers occurring during late spring and summer. Many of the popular ornamental grasses are included to provide fine texture and attractive inflorescences. Shrubs include floribunda roses, butterfly bush and sweet olive that add fragrance as well as color. Colorful perennials such as day lilies, coreopsis and rudbeckias can be planted in large masses and focal areas for bold impact.

This palette is well suited to achieve cottage style and traditional garden plantings with many colorful trees, shrubs, perennials and grasses.

Shrubs continued		PF	IG
Nandina domestica + cvs	Heavenly Bamboo	M	1
Osmanthus fragrans	Sweet Olive	M	1
Photinia x fraseri	Fraser's Photinia	M	1
Pittosporum tobira + cvs	Tobira	M	1
Prunus laurocerasus + cvs	English Laurel	M	1
Rosa 'Iceberg'	Iceberg Rose	M	1
Rosa 'Joseph's Coat'	Joseph's Coat Rose	M	1
Rosa mutabilis	Butterfly Rose	M	1
Syringa species + cvs	Lilac	M	1
Xylosma congestum + cv	Shiny Xylosma	M	1

Perennials		PG	IG
Alstroemeria hybrids	Alstroemeria	M	1
Ceratostigma plumbaginoides	Dwarf Plumbago	M	1
Convolvulus sabatius	Ground Morning Glory	M	1
Coreopsis grandiflora + cvs	NCN	M	1
Coreopsis lanceolata	NCN	M	1
Hemerocallis species + cvs	Daylily	M	1
Hunnemannia fumariifolia	Mexican Tulip Poppy	M	1
Liriope muscari + cvs	Big Blue Lily Turf	M	1
Kniphofia uvaria + cvs	Red-hot Poker	M	1
Phormium tenax + cvs	New Zealand Flax	M	1
Rudbeckia species + cvs	NCN	M	1

Grasses and Sedges		PG	IG
Calamagrostis x acutiflora + cv	Feather Reed Grass	M	1
Calamagrostis foliosus	Mendocino Reed Grass	M	1
Calamagrostis nutkaensis	Pacific Reed Grass	M	1
Festuca glauca + cvs	Blue Fescue	M	1
Festuca mairei	Atlas Fescue	M	1
Helictotrichon sempervirens + cvs	Blue Oat Grass	M	1
Miscanthus sinensis + cvs	Eulalia	H	1
Miscanthus transmorrisonensis	Taiwanese Miscanthus	H	1

Ground Covers		PF	IG
Cerastium tomentosum	Snow-in-Summer	M	1
Hypericum calycinum	Aaron's Beard	M	1
Rosa 'Floral Carpet' + cvs	Floral Carpet Rose	M	1
Thymus species + cvs	Thyme	M	1

Below: *Rudbeckia fulgida* 'Goldsturn'

Below: *Calamagrostis* x *acutiflora* 'Karl Foerster'

Below: *Rosa* 'Mutabilis'

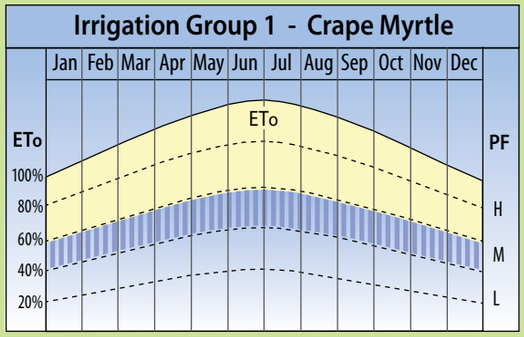
Plant Palette

Crape Myrtle

Seasonal Moisture and Irrigation Schedules

The crape myrtle palette grows well in inland and valley areas of California in Plant Climate Zones 7-9, 14 and 18-20 where reference evapotranspiration ranges from 44-57 in. each year. Winter rainfall can often meet the moisture needs of this palette from December to February in these zones. However, some wintertime irrigation may be desirable during winter dry spells and drought years. The susceptibility of powdery mildew to crape myrtles prevents this palette from being used along the coast.

The chart below illustrates a supplemental moisture range based on moderate plant factors of 40-60% of ETo as a baseline for setting irrigation schedules. The upper part of this range can be used to meet moisture needs for newer landscape plantings and for those grown in warmer climate zones or in full sun exposures. The lower part of this range is often appropriate for established plants and during the shorter and cooler days in fall.



Below: *Prunus cerasifera* 'Krauter Vesuvius'

Plant Palette

Eastern Redbud

The eastern redbud palette brings attention to plants that are commonly grown for woodland character and suitability for use in and around lawns. This style of planting often includes dense groupings of evergreen and deciduous trees with shade adapted shrubs and ground covers growing below. The signature species selected for this palette is the eastern redbud. It grows to medium sizes, 25-35 ft. tall, produces deep magenta flowers in spring, has rich yellow fall color and displays an intricate branching character during winter. One distinctive cultivar, ***C. c.* 'Forest Pansy'** has deep purple new foliage each spring that provides striking garden color.

This palette includes several other deciduous trees that have canopy growth habits and provide attractive fall color. All can be planted in lawns as well as mixed shrub plantings where they receive regular moisture. Their deciduous habit provides generous summer shade and winter sunlight.

This palette is balanced by the presence of evergreen trees and shrubs that are also compatible with the character and needs of woodland garden plantings. These plants are needed to enclose spaces, add garden structure and support the special interest value of the trees. For other plants compatible with this palette, see the Woodland Garden Plants list on pages 54-55.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				+	+			+	+	+	+	+	+	+	+	+	+	+

PF	IG
M	1

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Chionanthus retusus*

Above: *Cercis occidentalis*

Above: *Cercis canadensis*, fall color

Horticultural Preferences

This palette is adapted to Plant Climate Zones 8-9 and 14-21. Most species do best in areas with moist winters and where cool temperatures begin in early fall and establish a clear end to the growing season. All tolerate regular frost.

Plants are well adapted to sun and partial shade exposures, loamy soils and regular moisture throughout the year. Prolonged summer heat with intense sun and aridity in southern California can lead to foliage damage. Deciduous trees are well suited for planting in turf grass areas that receive regular irrigation. Organic mulch can be used to cover the soil in shrub beds to help retain moisture and add nutrients.

Trees		PF	IG
Betula nigra	River Birch	H	1
Chionanthus retusus	Chinese Fringe Tree	M	1
Gleditsia triacanthos + cvs	Honey Locust	M	1
Magnolia grandiflora + cvs	Southern Magnolia	M	1
Maytenus boaria	Mayten Tree	M	1
Pistacia chinensis	Chinese Pistache	M	1
Podocarpus henkelii	Long-leafed Yellowwood	M	1
Pyrus calleryana + cvs	Callery Pear	M	1
Sapien sebiferum	Chinese Tallow Tree	M	1
Sophora japonica	Japanese Pagoda Tree	M	1

Shrubs		PF	IG
Abelia x grandiflora + cvs	Glossy Abelia	M	1
Berberis aquifolium + cvs	Oregon Grape	M	1
Berberis darwinii	Darwin Barberry	M	1
Berberis thunbergii + cvs	Japanese Barberry	M	1
Camellia japonica	Japanese Camellia	M	1
Camellia reticulata	NCN	M	1
Camellia sasanqua	NCN	M	1
Chaenomeles japonica	Japanese Flowering Quince	M	1
Choisya ternata	Mexican Orange	M	1

Below: *Maytenus boaria*

Above: *Hypericum* 'Hidcote'

Aesthetic Character

A natural landscape character is often achieved with the use of this palette that includes an abundance of spring flowers, distinctive fall foliage color and wintertime berries on cotoneasters, hollies and heavenly bamboo. Understory shrubs can be arranged in masses and layers in areas of partial shade to define outdoor spaces for pathways and seating and add to a sense of discovery and natural character. This type of planting character is very refreshing during the warm months of summer.

Shrubs continued		PF	IG
Cotoneaster dammeri + cvs	Bearberry Cotoneaster	M	1
Cotoneaster horizontalis	Rock Cotoneaster	M	1
Cotoneaster lacteus	Red Clusterberry	M	1
Cotoneaster salicifolius + cv	Willowleaf Cotoneaster	M	1
Hypericum 'Hidcote'	NCN	M	1
Hypericum 'Rowallane'	NCN	M	1
Ilex aquifolium + cvs	English Holly	M	1
Juniperus chinensis + cvs	Chinese Juniper	M	1
Juniperus sabina + cvs	Savin Juniper	M	1
Juniperus scopulorum + cvs	Rocky Mountain Juniper	M	1
Loropetalum chinense + cvs	Fringe Flower	M	1
Nandina domestica + cvs	Heavenly Bamboo	M	1
Pittosporum tobira + cvs	Tobira	M	1
Prunus caroliniana + cvs	Carolina Laurel Cherry	M	1
Prunus laurocerasus + cvs	English Laurel	M	1
Rhaphiolepis indica + cvs	India Hawthorn	M	1
Rhododendron cultivars	Southern Indica Hybrids	M	1
Syringa species + cvs	Lilac	M	1
Xylosma congestum + cv	Shiny Xylosma	M	1

Grasses and Perennials		PF	IG
Calamagrostis x acutiflora + cv	Feather Reed Grass	M/L	2
Calamagrostis nutkaensis	Pacific Reed Grass	M/L	2
Festuca mairei	Atlas Fescue	M	1
Liriope muscari + cvs	Big Blue Lily Turf	M	1
Muhlenbergia rigens	Deer Grass	M/L	2
Ophiopogon jaburan	White Lily Turf	M	1
Panicum virgatum + cvs	Switch Grass	M	1
Sesleria autumnalis	Autumn Moor Grass	M	1

Vines		PF	IG
Bignonia capreolata	Crossvine	M	1
Lonicera x heckrottii	Gold Flame Honeysuckle	M	1
Parthenocissus tricuspidata	Boston Ivy	M	1
Wisteria floribunda + cvs	Japanese Wisteria	M	1

Ground Covers		PF	IG
Ajuga reptans + cvs	Carpet Bugle	H	1
Liriope spicata	Creeping Lily Turf	M	1
Trachelospermum asiaticum	Asiatic Jasmine	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Vinca minor	Dwarf Periwinkle	M	1

Below: *Choisya ternata*

Below: *Choisya ternata*

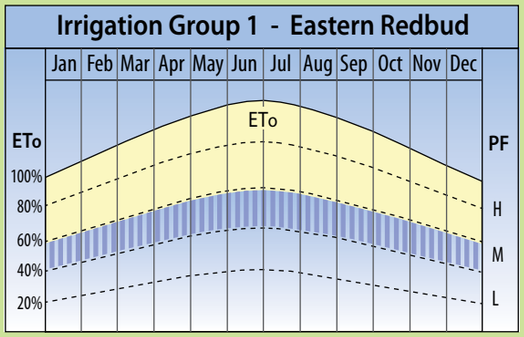
Plant Palette

Eastern Redbud

Seasonal Moisture and Irrigation Schedules

The eastern redbud palette is highly adapted to climate zones with cool and moist winters in combination with warm summers. These conditions are common in many parts of northern and central California where precipitation can often meet the moisture needs from December to February. Protection from extreme sun exposures is desirable when this palette is used in southern California.

Reference evapotranspiration in Plant Climate Zones 8-9 and 14-21 ranges from 44-57 in. each year. Most plants on this list grow well with moderate amounts of moisture on a regular basis throughout the year. The upper part of this range can be followed to accommodate moisture needs for plantings in warmer climate zones with sunny exposures. Scheduling irrigation towards the lower part of this range is often appropriate for established plants and climate zones with shorter summers and reduced periods of heat.



Below: *Betula nigra*

Plant Palette

Japanese Black Pine

Japanese black pine is a highly adaptable conifer that combines well with a wide range of plants for use in climate zones with cool and moist winters and short and warm summers. This palette is designed to include plants that are often used in Asian and woodland style gardens. The role of the pine is to add dark green needle-type foliage which provides stability and contrast to deciduous trees and broad-leafed foliage plants. Its dark and dense foliage character and rigid branching habit creates a classic pine tree image. It can become a tall tree with a strong central leader and pyramidal shape, or be pruned to grow as a medium to large size specimen and banzai plant.

This palette includes a large number of the most popular species coming from Asia's cool and moist climate zones. Deciduous trees such as Chinese pistache, maidenhair tree and sawleaf zelkova provide striking fall color. Cycads, palms and bamboo are stable choices in Asian gardens. Plants such as sweet olive, star jasmine and wisteria provide sweet fragrances. Colorful berries are produced on cotoneasters, heavenly bamboos and hollies for winter display. For other plants compatible with this palette, see the Asian Garden Plants list on pages 56-57.

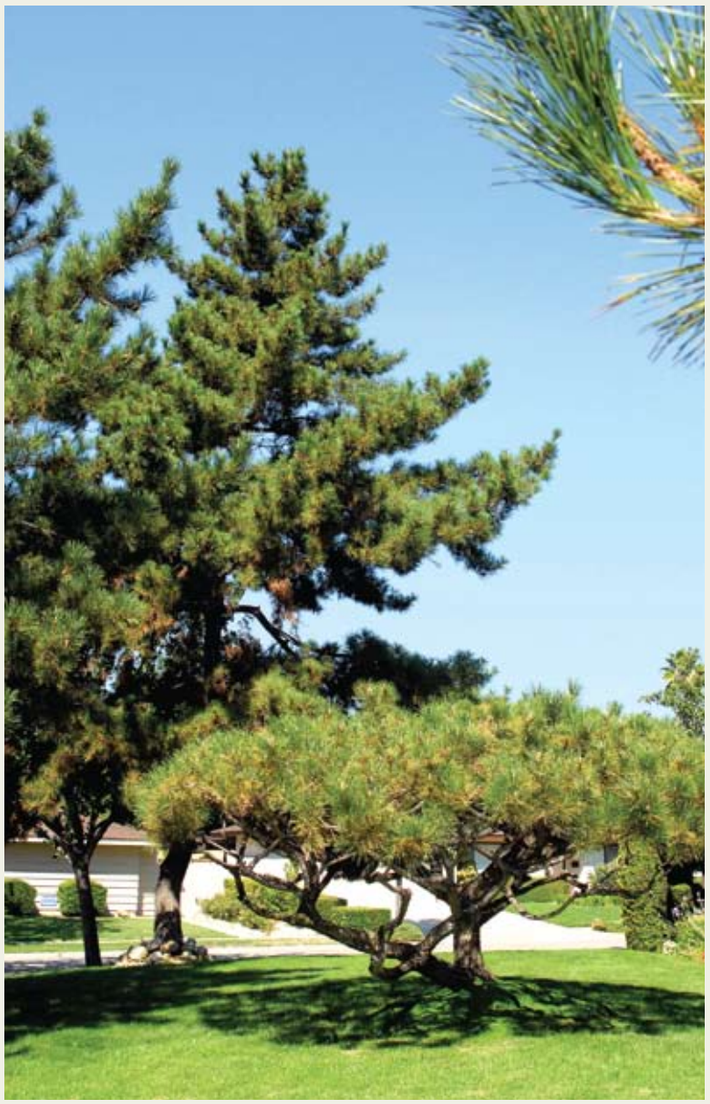
California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				+	+			+	+	+	+	+	+	+	+	+	+	+

PF	IG
M	1

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Bambusa oldhamii*



Above: *Pinus thunbergii* pruned in the foreground and left natural in the background

Trees		PF	IG
Chionanthus retusus	Chinese Fringe Tree	M	1
Ginkgo biloba + cvs	Maidenhair Tree	M	1
Liquidambar formosana	Chinese Sweet Gum	M	1
Pinus thunbergii	Japanese Black Pine	M	1
Pistacia chinensis	Chinese Pistache	M	1
Ulmus parvifolia + cvs	Chinese Evergreen Elm	M	1
Zelkova serrata	Sawleaf Zelkova	M	1

Shrubs		PF	IG
Abelia x grandiflora + cvs	Glossy Abelia	M	1
Cotoneaster lacteus	Red Clusterberry	M	1
Elaeagnus x ebbingei + cvs	NCN	M	1
Ilex aquifolium + cvs	English Holly	M	1
Ilex cornuta + cvs	Chinese Holly	M	1
Juniperus species + cvs	Juniper	M	1
Loropetalum chinense + cvs	NCN	M	1
Magnolia stellata	Star Magnolia	M	1
Nandina domestica + cvs	Heavenly Bamboo	M	1
Osmanthus fragrans	Sweet Olive	M	1
Photinia x fraseri	NCN	M	1

Above: *Ilex aquifolium*

Horticultural Preferences

The Japanese black pine palette does best in areas with cool winter temperatures, regular rainfall and warm, not hot, summers. However, all can be grown in Plant Climate Zones 8-9 and 14-24 where they tolerate warmer and drier conditions, particularly when provided with regular moisture and shelter from hot sun exposures.

Trees are essential in providing filtered light and reducing intense sun conditions for understory shrubs and ground covers. Concentrations of bamboos, grasses, rushes and sedges do best in areas with the highest moisture, particularly in low areas and microclimates where moisture can collect.

Below: *Osmanthus fragrans*

Above: *Camellia japonica* 'Elizabeth'

Aesthetic Character

This palette contains many of the classic woodland garden plants such as camellias, hollies and jasmine. Camellias are prized for their flowers, hollies have notable berries and jasmine provides strong garden fragrance. All are well liked for their glossy dark green foliage.

A strong woodland character can be achieved when pines are combined with deciduous trees and evergreen shrubs. The addition of bamboos, cycads and palms brings about a clearer Asian garden emphasis.

These plants combine well in informal and natural type plantings. A deep sense of peace and quietness filled with shade, fragrance and dark green foliage colors can be achieved.

Shrubs continued		**PF**	**IG**
Pittosporum tenuifolium + cvs	NCN	M	1
Pittosporum tobira + cvs	Tobira	M	1
Rhaphiolepis umbellata	NCN	M	1
Viburnum suspensum	Sandankwa Viburnum	M	1
Xylosma congestum + cv	Shiny Xylosma	M	1
Vines		**PF**	**IG**
Bignonia capreolata	Crossvine	M	1
Parthenocissus henryana	Silvervein Creeper	M	1
Parthenocissus quinquefolia	Virginia Creeper	M	1
Parthenocissus tricuspidata	Boston Ivy	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Wisteria floribunda + cvs	Japanese Wisteria	M	1
Wisteria sinensis + cvs	Chinese Wisteria	M	1
Cycads and Palms		**PF**	**IG**
Cycas revoluta	Sago Palm	M	1
Rhapis excelsa	Lady Palm	M	1
Rhapis humilis	Slender Lady Palm	M	1
Bamboo, Grasses, Rushes and Sedges		**PF**	**IG**
Bambusa oldhamii	Oldham Bamboo	M	1
Bambusa multiplex 'Alphonse Karr'	Alphonse Karr Bamboo	M	1
Bambusa multiplex 'Golden Goddess'	Golden Goddess Bamboo	M	1
Carex buchananii	Leather Leaf Sedge	M	1
Carex divulsa	Berkeley Sedge	M	1
Carex praegracilis	Clustered Field Sedge	M	1
Juncus effusus + cvs	Common Rush	H	1
Miscanthus sinensis + cvs	Eulalia	M	1
Phyllostachys nigra	Black Bamboo	M	1
Perennials		**PF**	**IG**
Liriope muscari + cvs	Big Blue Lilyturf	M	1
Liriope muscari 'Silvery Sunproof'	Variegated Lilyturf	M	1
Ophiopogon jaburan	White Lilyturf	M	1
Ophiopogon japonicum	Mondo Grass	M	1
Ophiopogon planiscapus 'Nigrescens'	Black Mondo Grass	M	1
Ground Covers		**PF**	**IG**
Hypericum calycinum	Aaron's Beard	M	1
Liriope spicata	Creeping Lily Turf	M	1
Trachelospermum asiaticum	NCN	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Vinca minor	Dwarf Periwinkle	M	1

Below: *Liriope muscari* 'Variegata'

Below: *Trachelospermum jasminoides*

Below: *Wisteria sinensis*

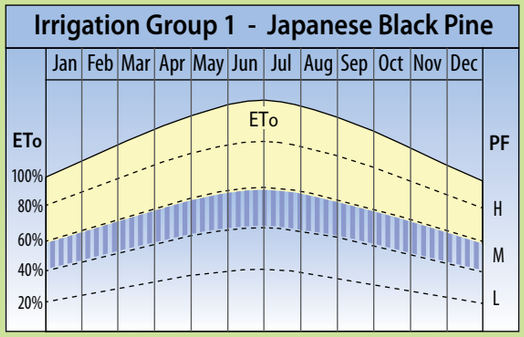
Plant Palette

Japanese Black Pine

Seasonal Moisture and Irrigation Schedules

The Japanese black pine plant palette does best with regular moisture throughout the year. Plants are naturally adapted to climate zones with cool and moist winters in combination with warm summers. These conditions are common in many parts of northern and central California where precipitation can often meet the moisture needs from December to February. Relief from extreme sun exposures and heat is desirable when this palette is used in southern California.

The majority of plants on this list need moderate amounts of supplemental moisture. The chart below illustrates 40-60% of ETo as a baseline for setting irrigation schedules. The upper part of this range can be used to accommodate moisture needs for plantings in warmer climate zones with sunny exposures. The lower part of this range is often appropriate for established plants and climate zones with shorter summers and reduced periods of heat.



Below: *Pinus thunbergii* 'Thundercloud'

Plant Palette

Japanese Maple

The Japanese maple plant palette can be used to achieve one of the most refreshing and refined garden plantings of all. This tree and its many cultivars are widely noted for their foliage color, fine texture and intricate branching character. It is also identified as the signature plant of Asian style gardens and is greatly appreciated when it matures into specimen sizes.

Many other plants work well with the Japanese maple that provide a diversity of textures, flower colors and fragrances. Most are native to Asia and have similar horticultural preferences for organic soils, regular moisture and shelter from hot and drying conditions. This planting palette is typically combined with large boulders, water features comprised of pools and streams and container plants. This palette is characterized by plants with delicate branching, fine and soft textures and subtile detail that combine well in small and quiet spaces.

The Japanese maple and its companion plants have become so popular in California, that extreme efforts are often made to improve soils and provide supplemental moisture to achieve survival and success in difficult areas. When this is done, it becomes a test of microclimate design and diligent gardening skills, as well as a challenge to use water resources wisely. For other plants compatible with this palette, see the Asian Garden Plants list on pages 56-57.

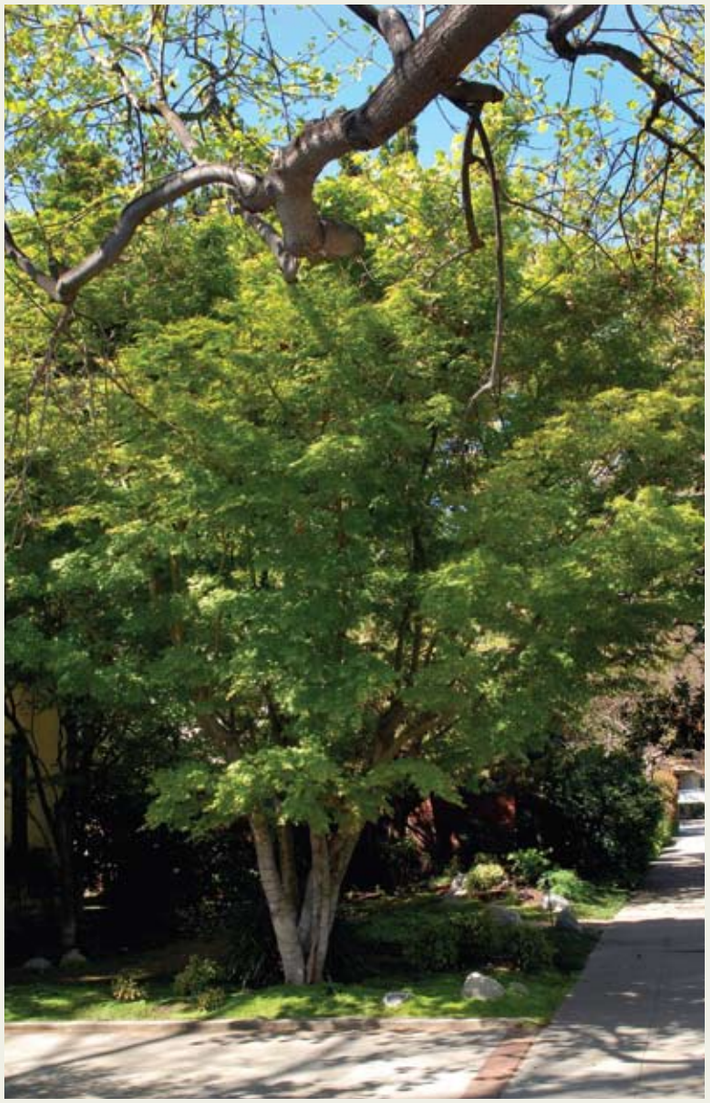
California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				•	•			•	+	+	+	•	•	•	•	•	•	•

PF	IG
M	1

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Liriope muscari*



Above: *Acer palmatum*

Above: *Acer palmatum*

Horticultural Preferences

Most of the plants within this palette come from cool and moist climate zones with a long fall through spring dormant season. The can be ground in many Plant Climate Zones, including 8-9 and 14-24, but they are not well adapted to extended periods of heat and aridity, or hot sun exposures. They are therefore best adapted to northern California climate zones and areas with coastal influences. When planted in warmer valley areas and in southern California, plants need more microclimate protection from overstory trees or should be planted in sheltered spaces such as courtyards for optimal performance. Regular year round moisture is critical to success.

Trees		PF	IG
Acer palmatum + cvs	Japanese Maple	M	1
Pinus mugo	Mugo Pine	M	1
Pinus thunbergii	Japanese Black Pine	M	1

Shrubs		PF	IG
Aucuba japonica + cvs	Japanese Aucuba	M	1
Berberis japonica var. bealei	Leatherleaf Mahonia	M	1
Berberis thunbergii + cvs	Japanese Barberry	M	1
Camellia species + cvs	Camellia	M	1
Chaenomeles japonica	Japanese Flowering Quince	M	1
Fatsia japonica	Japanese Aralia	M	1
Gardenia augusta + cvs	Gardenia	H	1
Iberis sempervirens + cvs	Evergreen Candytuft	M	1
Loropetalum chinense + cvs	Fringe Flower	M	1
Magnolia stellata	Star Magnolia	M	1
Nandina domestica + cvs	Heavenly Bamboo	M	1
Osmanthus fragrans	Sweet Olive	M	1
Pittosporum tenuifolium + cvs	NCN	M	1
Pittosporum tobira + cvs	Tobira	M	1
Rhododendron species + cvs	Rhododendron	M	1

Below: *Gardenia jasminoides*

Above: *Juniperus procumbens* 'Nana'

Aesthetic Character

The Japanese maple palette includes many plants having a combination of fine texture, fresh foliage colors and pleasing small scale detail. These plantings often include the use of water in basins, pools and streams that add humidity and natural sounds to small spaces. Shade with dappled light is frequently dominant. Bright springtime flowers are complemented by fall color, bright berries and deciduous branching. These many qualities provide year round interest.

Cycads and Palms		PF	IG
Cycas revoluta	Sago Palm	M	1
Rhapis excelsa	Lady Palm	M	1
Rhapis humilis	Rattan Palm	M	1

Perennials		PF	IG
Bergenia cordifolia	Heartleaf Bergenia	H	1
Carex praegracilis	Clustered Field Sedge	M	1
Clivia miniata	Kaffir Lily	M	1
Cuphea hyssopifolia	False Heather	M	1
Heuchera species + cvs	Coral Bells	M	1
Liriope muscari + cvs	Big Blue Lily Turf	M	1
Ophiopogon jaburan	Giant Lily Turf	M	1
Sesleria autumnalis	Autumn Moor Grass	M	1
Sesleria caerulea	Blue Moor Grass	M	1

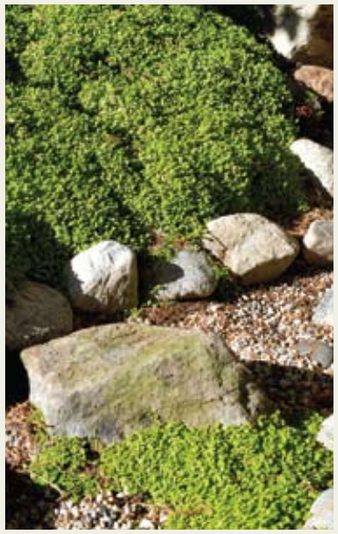
Bamboo		PF	IG
Bambusa multiplex 'Alphonse Karr'	Alphonse Karr Bamboo	M	1
Bambusa multiplex 'Golden Goddess'	Golden Goddess Bamboo	M	1
Phyllostachys nigra	Black Bamboo	M	1

Ferns		PF	IG
Adiantum capillus-veneris	Southern Maidenhair	H	1
Asplenium bulbiferum	Mother Fern	H	1
Cyrtomium falcatum	Japanese Holly Fern	M	1
Microlepia strigosa	Lace Fern	M	1
Polystichum polyblepharum	Japanese Tassel Fern	H	1

Ground Covers		PF	IG
Ajuga reptans + cvs	Carpet Bugle	H	1
Duchesnea indica	Indian Mock Strawberry	M	1
Juniperus procumbens 'Nana'	Japanese Garden Juniper	M	1
Liriope spicata	Creeping Lily Turf	M	1
Ophiopogon japonicus + cvs	Mondo Grass	M	1
Ophiopogon planiscapus 'Nigrescens'	Black Mondo Grass	M	1
Solierolia solierolii	Baby's Tears	H	1
Trachelospermum asiaticum	NCN	M	1
Vinca minor	Dwarf Periwinkle	M	1

Vines		PF	IG
Fatshedera lizei	NCN	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Wisteria floribunda + cvs	Japanese Wisteria	M	1
Wisteria sinensis + cvs	Chinese Wisteria	M	1

Below: *Solierolia solierolii*



Below: *Polystichum polyblepharum*

Below: *Ophiopogon japonicus* 'Nana' with *Ajuga reptans*

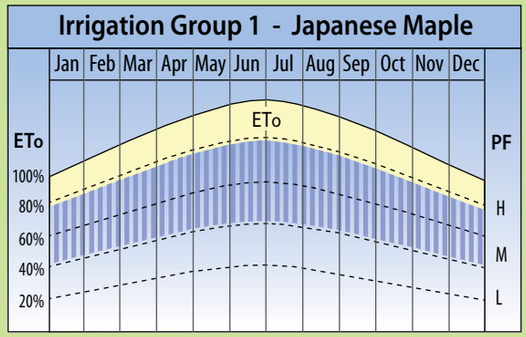
Plant Palette

Japanese Maple

Seasonal Moisture and Irrigation Schedules

The Japanese maple plant palette does best with regular moisture throughout the year. This moisture sustains optimal growth during spring and helps to avoid drying and tip-burning of leaves during summer. Plants with high water needs can be used around pools and streams, and in low lying areas where runoff from precipitation and irrigation collects.

Plants on this list show a range of moisture needs from moderate to high. These differences can be addressed by organizing plants into hydrozones and microclimates. The chart below illustrates a supplemental moisture range of 40-80% of ETo as a baseline for setting irrigation schedules. The upper part of this range can be used to accommodate moisture needs for plants with high plant factors and landscapes and gardens in warmer climate zones of southern California. The lower part of this range is often appropriate for plants with moderate plant factors, established plants and those grown in climate zones with shorter summers and reduced periods of heat.



Below: *Acer palmatum* 'Bloodgood'

Plant Palette

Southern Magnolia

The southern magnolia is one of the principal woodland tree species of the southeastern United States. It is recognized throughout its natural range for its handsome evergreen foliage and remarkably large and fragrant white flowers. It is highly popular as a shade and lawn tree, and is the state tree of Mississippi, as well as the state flower of Louisiana.

Introduced into California in the 1860s, southern magnolia has been planted across the state in parks, along streets and in commercial landscapes and residential plantings alike. Mature trees are often some of the most notable and monumental scale plants in California landscapes. It is noted for its extensive root system and almost continual production of leaf, flower and seed pod litter.

This plant palette includes many of the well known tree species native to the southeastern United States, including sweet gum, tulip tree and pecan, and from similar Asian climates, including maidenhair tree, Chinese pistache and sawleaf zelkova. These trees can be combined together in large landscapes to establish attractive woodland and forest-type plantings. A rich palette of understory shrubs, ground covers and vines grow well with these trees. Regular water is the key to success, particularly when grown in warmer and drier valley zones and throughout southern California. For other plants compatible with this palette, see the Woodland Garden Plants list on pages 54-55.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
			+	+	+			+	+	+	+	+	+	+	+	+	+	+

PF	IG
M	1

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Liriodendron tulipifera*

Above: *Magnolia grandiflora*

Above: *Magnolia grandiflora*

Horticultural Preferences

This palette is adapted to Plant Climate Zones 7-9 and 14-24. Most species do best in areas with moist winters and where cool temperatures begin in early fall, establishing a clear end to the growing season. All tolerate regular frost.

Plants on this list are adapted to sun and partial shade exposures, loamy soils and regular moisture throughout the year. Prolonged summer heat with intense sun and aridity in southern California can lead to foliage damage. Deciduous trees are well suited for planting in turf grass areas that receive regular irrigation. Organic mulch can be used to cover the soil in shrub beds to help retain moisture and add nutrients.

Trees		PF	IG
Aesculus x carnea	Red Horse Chestnut	M	1
Carya illinoinensis	Pecan	M	1
Ginkgo biloba + cvs	Maidenhair Tree	M	1
Liquidambar species + cvs	Sweet Gum	M	1
Liriodendron tulipifera	Tulip Tree	H	1
Magnolia grandiflora + cvs	Southern Magnolia	M	1
Metasequoia glyptostroboides	Dawn Redwood	M	1
Pinus thunbergii	Japanese Black Pine	M	1
Pistacia chinensis	Chinese Pistache	M	1
Prunus cerasifera + cvs	Purpleleaf Plum	M	1
Zelkova serrata	Sawleaf Zelkova	M	1

Shrubs		PF	IG
Abelia x grandiflora + cvs	Glossy Abelia	M	1
Aucuba japonica + cvs	Japanese Aucuba	M	1
Berberis japonica var bealei	Leatherleaf Mahonia	M	1
Camellia japonica + cvs	Japanese Camellia	M	1
Chaenomeles japonica	Japanese Flowering Quince	M	1
Cotoneaster lacteus + cvs	Red Clusterberry	M	1
Fatsia japonica	Japanese Aralia	M	1

Below: *Prunus cerasifera* 'Krauter Vesuvius'

Above: *Photinia x fraseri*

Aesthetic Character

This southern magnolia plant palette can be combined in ways to produce rich and abundant woodland-type landscapes. Mature trees have the scale to fill large spaces and produce generous shade. Many plants have deep green foliage that adds a cooling touch that can be highly enjoyable in warm climate areas.

Deciduous trees and vines in this palette offer bright fall foliage color; a number of understory shrubs provide colorful springtime flowering. Plantings can be organized into formal and informal patterns to achieve more traditional or natural style plantings.

Shrubs continued		PF	IG
Gardenia augusta	Gardenia	H	1
Hydrangea macrophylla + cvs	Bigleaf Hydrangea	H	1
Hypericum 'Hidcote' + cvs	NCN	M	1
Ilex cornuta + cvs	Chinese Holly	M	1
Loropetalum chinense + cvs	Fringe Flower	M	1
Magnolia x soulangeana + cvs	Saucer Magnolia	M	1
Magnolia stellata	Star Magnolia	M	1
Nandina domestica + cvs	Heavenly Bamboo	M	1
Osmanthus fragrans	Sweet Olive	M	1
Photinia x fraseri	Fraser Photinia	M	1
Pittosporum tobira + cvs	Tobira	M	1
Prunus laurocerasus + cvs	English Laurel	M	1
Rhaphiolepis indica + cvs	India Hawthorn	M	1
Rhododendron species + cvs	Rhododendron	M	1
Syringa species + cvs	Lilac	M	1
Viburnum rhytidophyllum	Leatherleaf Viburnum	M	1
Xylosma congestum	Shiny Xylosma	M	1

Vines		PG	IG
Clematis armandii	Evergreen Clematis	M	1
Bignonia capreolata	Crossvine	M	1
Gelsemium sempervirens	Carolina Jessamine	M	1
Lonicera x heckrottii	Gold Flame Honeysuckle	M	1
Lonicera sempervirens	Trumpet Honeysuckle	M	1
Parthenocissus quinquefolia	Virginia Creeper	M	1
Parthenocissus tricuspidata	Boston Ivy	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Wisteria sinensis + cvs	Chinese Wisteria	M	1

Perennials		PF	IG
Bergenia species + cvs	Bergenia	M	1
Cyrtomium falcatum	Japanese Holly Fern	M	1
Cyrtomium fortunei	NCN	M	1
Dianella tasmanica + cvs	Flax Lily	M	1
Liriope muscari + cvs	Big Blue Lily Turf	M	1
Ophiopogon jaburan	Giant Lily Turf	M	1
Ophiopogon japonicus + cvs	Mondo Grass	M	1

Ground Covers		PF	IG
Duchesnea indica	Indian Mock Strawberry	M	1
Hypericum calycinum	Aaron's Beard	M	1
Liriope spicata	Creeping Lily Turf	M	1
Trachelospermum asiaticum	NCN	M	1
Trachelospermum jasminoides	Star Jasmine	M	1
Vinca minor	Dwarf Periwinkle	M	1

Below: *Prunus cerasifera* 'Krauter Vesuvius'

Below: *Abelia* 'Edward Goucher'

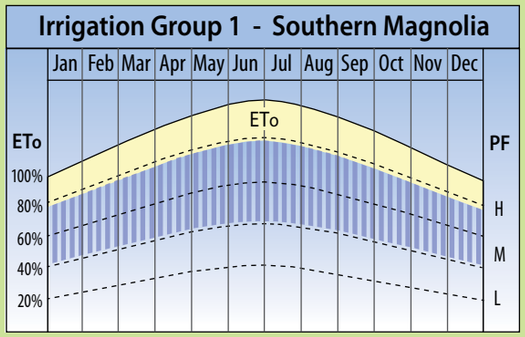
Below: *Viburnum rhytidophyllum*

Plant Palette
Southern Magnolia

Seasonal Moisture and Irrigation Schedules

The southern magnolia plant palette will grow best with regular moisture throughout the year. These plants are naturally adapted to climate zones with cool and moist winters in combination with warm summers. These conditions are common in many parts of northern and central California where precipitation can often meet the moisture needs from December to February.

Reference evapotranspiration in Plant Climate Zones 7-9 and 14-24 ranges from 44-57 in. each year. Plants on this list show a range of moisture needs from moderate to high. These differences can be addressed by organizing plants into hydrozones and microclimates. The chart below illustrates a supplemental moisture range of 40-80% of ETo as a baseline for setting irrigation schedules. The upper part of this range can be used to meet moisture needs when this palette is used in southern California. The lower part of this range is often appropriate for established plants and climate zones with shorter summers and higher levels of precipitation.



Below: *Pistacia chinensis*

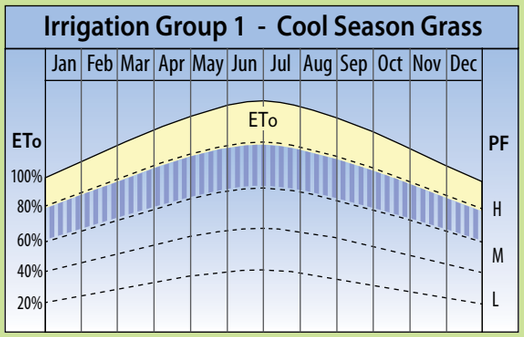
Plant Palette

Cool Season Turfgrass

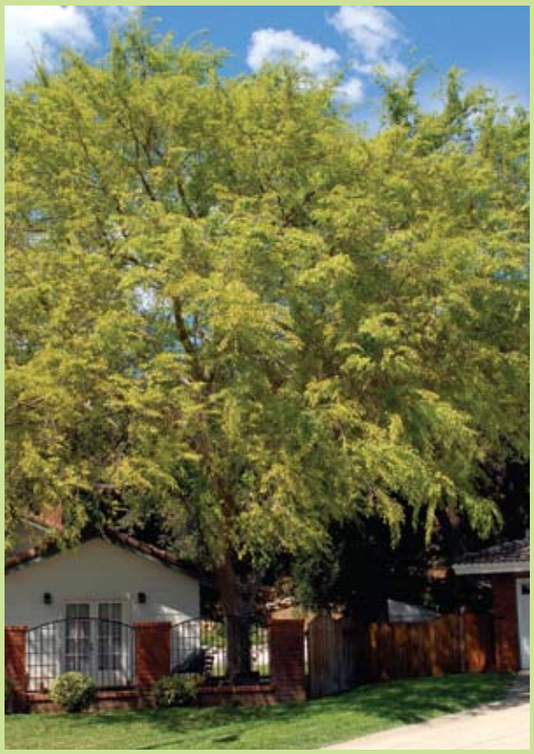
One of the most common and long standing landscape practices in California is the planting of turf grass and trees. This practice is coming under increased scrutiny with the lasting need to conserve water and energy.

These pages provide a listing of commonly used grass species that are grown as turf grasses for commercial and residential uses. They are organized into cool season and warm season species, and combined with lists of compatible tree species. Moisture compatibility is the primary basis for these groupings; however, issues regarding heat, shade, roots and durability also require careful consideration.

The chart below illustrates the baseline supplemental moisture range for cool season turf grass throughout the year. The actual irrigation schedule should be adjusted through field observation and in consideration of seasonal climate and microclimate conditions.



Below: *Ulmus parvifolia*



Cool Season Turf Grasses		PF	IG
Poa annua	Annual Bluegrass	H	1
Agrostis palustris	Creeping bentgrass	H	1
Poa pratensis	Kentucky bluegrass	H	1
Festuca elatior	Meadow Fescue	H	1
Lolium perenne	Perennial Ryegrass	H	1
Festuca rubra	Creeping Red fescue	H	1
Festuca arundinacea + cvs	Tall fescue	H	1

Cool Season Turf Grass alternative			
Carex pansa	California Meadow Sedge	M	1
Carex praegracilis	Western Meadow Sedge	M	1

Compatible trees		PF	IG
Aesculus x carnea	Red Horse Chestnut	M	1
Alnus species	Alder	H	1
Acer platanoides	Norway Maple	H	1
Carya illinoinensis	Pecan	M	1
Cercis canadensis + cvs	Eastern Redbud	M	1
Cinnamomum camphora	Camphor	M	1
Cryptomeria japonica + cvs	Japanese Cedar	M	1
Ginkgo biloba + cvs	Maidenhair Tree	M	1
Gleditsia triacanthos + cvs	Honey Locust	M	1
Hymenosporum flavum	Sweetshade Tree	M	1
Koelreuteria paniculata	Goldenrain Tree	M	1
Lagerstroemia indica + cvs	Crape Myrtle	M	1
Liquidambar species + cvs	Sweet Gum	M	1
Liriodendron tulipifera	Tulip Tree	H	1
Magnolia grandiflora + cvs	Southern Magnolia	M	1
Metasequoia glyptostroboides	Dawn Redwood	M	1
Platanus x acerifolia + cvs	London Plane Tree	M	1
Pistacia chinensis	Chinese Pistache	M	1
Prunus cerasifera + cvs	Purple-leaf Plum	M	1
Sequoia sempervirens + cvs	Coast Redwood	H	1
Taxodium distichum	Bald Cypress	M	1
Ulmus parvifolia	Evergreen Elm	M	1
Zelkova serrata	Sawleaf Zelkova	M	1

Horticultural Preferences

Cool season turf grasses are highly adapted to regular moisture and temperatures that range between 60-75°F. Their seasonal growth cycle begins in late winter, and many species will continue to grow actively through summer as long as moisture is available. This is particularly true of tall fescue grass. Growth will diminish during the shorter and cooler days of fall, however regular moisture helps sustain good appearance and root systems during this season. Irrigation is scheduled to follow the reference evapotranspiration curve throughout the year. Established cool season grasses can grow well with 80-90% of ETo. Most species are clumping plants with dense, fibrous roots that are highly efficient in absorbing moisture from the upper zones of soil.

Trees that grow well in cool season turf grasses come from cool and moist climate zone. Most are adapted to moderate amounts of moisture on a regular basis. They will grow faster and to larger sizes with the extra moisture that comes from turf grass irrigation. The regularity of irrigation encourages tree roots to remain shallow where moisture, oxygen and nutrients exist in the best combination. Different cool season grasses have different tolerances of shade.

Below: *Cinnamomum camphora*

Horticultural Preferences

Warm season turf grasses are adapted to warm air and soil temperatures, ranging between 70-90°F. Their seasonal growth begins in late spring and becomes most active during long summer months of sunlight and heat. This growth will continue into fall as long as temperatures remain warm and soil moisture is available. When cool temperatures and short days of fall coincide, warm season grasses become dormant and are inactive through winter. Established plantings of warm season turf grasses can grow well with 50-60% of ETo. These species grow from undergound rhizomes that enables them to have a spreading growth habit and to help resist moisture stress.

Warm season grasses strongly prefer full sun exposure conditions and regular moisture during the summer. Shade from trees often leads to sparse coverage and reduced growth. Roots from trees will also develop near the surface in response to the regular summer irrigation provided to the turf grass. Trees included on this will adapt to additional summer moisture. They will continue to grow during the summer and to larger sizes as a result of receiving more moisture.

Warm Season Turf Grasses		**PF**	**IG**
Bouteloua curtipendula	Side Oats Grama	M	1
Buchloe dactyloides	Buffalo Grass	M	1
Cynodon dactylon + cvs	Bermudagrass	M	1
Pennisetum clandestinum	Kikuyugrass	M	1
Paspalum vaginagum	Seashore paspalum	M	1
Stenostaphrum secundatum	St. Augustinegrass	M	1
Zoysia tenuifolia	Zoysiagrass	M	1
Turf grass substitutes			
Achillea millefolium	Fernleaf Yarrow	M	1
Compatible trees			
Afrocarpus gracilior	Fern Pine	M	1
Calodendrum capense	Cape Chestnut	M	1
Cassia leptophylla	Gold Medallion Tree	M	1
Cupaniopsis anacardioides	Carrot Wood	M	1
Erythrina humeana	Natal Coral Tree	M	1
Ficus benjamina + cv	Benjamin Fig	M	1
Ficus macrophylla	Moreton Bay Fig	M	1
Ficus rubiginosa	Rustyleaf Fig	M	1
Hymenosporum flavum	Sweetshade	M	1
Jacaranda mimosifolia + cv	Jacaranda	M	1
Harpephyllum caffrum	Kaffir Plum	M	1
Melaleuca linariifolia	Flaxleaf Paperbark	M	1
Melaleuca quinquenervia	Cajeput Tree	M	1
Melaleuca styphelioides	Prickly Paperbark	M	1
Stenocarpus sinuatus	Firewheel Tree	M	1

Below: *Bouteloua curtipendula* maintained as a lawn at Santa Barbara Botanic Garden

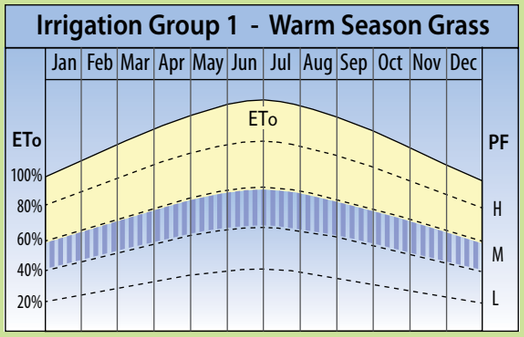
Plant Palette

Warm Season Turf Grass

Warm season grasses look their best during their active summer growing season. They are dormant in the winter and become pale in color. They are tough in dry climate zones and need less moisture than cool season turf grasses.

Both warm and cool season grasses provide the most uniform and durable planting surface for foot traffic and recreation uses. None of the turf grass substitutes can endure the same level of heavy use without becoming bare. Many innovative plantings combine the use of grasses, annuals, wildflowers and sedges to achieve an alternative to turf grass that requires low maintenance and low water. However, when it comes to density and durability, turf grass species are the best. Choosing the best size of turf grass planting when it is needed is a key strategy in conserving water and energy.

The chart below illustrates the baseline supplemental moisture range for warm season turf grass throughout the year. The actual irrigation schedule should be adjusted through field observation and in consideration of seasonal climate and microclimate conditions.



Below: *Ficus rubiginosa* with surface roots

Plant Palette

Giant Bird of Paradise

Giant bird of paradise is one of the largest perennial plants grown in California landscapes and gardens. It exhibits all of the key characteristics and adaptations associated with subtropical plants. It has very large and herbaceous foliage, grows quickly with regular moisture and is damaged by cold temperatures below 28°F. Its size and bold character along with its horticultural adaptations make it well suited as a feature plant for use in coastal zones in central and southern parts of the state. It can also grow well in sheltered inland zones where it adapts to full sun and high levels of heat, but requires a warm winter microclimate for survival.

This palette is designed for the purpose of achieving lush and tropical character in residential gardens and commercial plantings. Many of the plants produce very large leaves to add to this character; all should be protected from wind to avoid damage. These plants are often used in courtyard and entry spaces to feature bold foliage plants in combination with understory plants of small scale, bright color and simple detail. Several species of palms and cycads also complement the aesthetic and horticultural range of this palette.

For additional plants compatible with the giant bird of paradise palette, see the Subtropical Garden Plants list on pages 52-53.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24	PF	IG
											o		o	o	+	+	+	+	M	1

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Schefflera arboricola* 'Gold Capella'

Above: *Strelitzia nicolai*

Above: *Strelitzia nicolai*

Horticultural Preferences

This planting palette is best adapted to southern California's warm coastal areas in Plant Climate Zones 22-24 where winter temperature fall below 32°F for only two to three days each year. Most plants can also grow in areas with cooler coastal conditions and milder inland Plant Climate Zones including 17, 19-20, when placed in warm microclimates and provided with shelter from frosts. Large leaved plants need protection from wind.

Most plants grow well in loamy soils with regular moisture. These conditions help produce lush growth almost year round.

Trees		PF	IG
Bauhinia x blakeana	Hong Kong Orchid Tree	M	1
Calodendrum capense	Cape Chestnut	M	1
Cassia leptophylla	Gold Medallion Tree	M	1
Chorisia speciosa	Silk Floss Tree	M	1
Euphorbia cotinifolia	Caribbean Copper Plant	M	1
Ficus benjamina + cv	Benjamin Fig	M	1
Harpephyllum caffrum	Kaffir Plum	M	1
Psidium guajava	Yellow Guava	M	1
Schefflera actinophylla	Queensland Umbrella Tree	M	1
Stenocarpus sinuatus	Firewheel Tree	M	1
Thevetia peruviana	Yellow Oleander	M	1

Palms and Cycads		PF	IG
Archontophoenix cunninghamiana	King Palm	M	1
Dioon edule	Chestnut Dioon	M	1
Dioon spinulosum	Giant Dioon	M	1
Howea forsteriana	Paradise Palm	M	1
Phoenix roebelenii	Pigmy Date Palm	M	1
Syagrus romanzoffianum	Queen Palm	M	1

Below: *Schefflera arboricola* 'Gold Capella'

Above: *Brugmansia* x *cubensis* 'Charles Grimaldi'

Aesthetic Character

The giant bird of paradise palette emphasizes the use of plants with bold foliage character and warm tropical flower colors. These plants can be combined into an abundant and crowded planting scheme that produces a sense of the South Pacific Islands or resort-style gardens, having a remarkably dense and vibrant character. This aesthetic character is made possible through the combination of an abundant range of flowering shrubs, vines and perennials.

Shrubs		PF	IG
Brugmansia species + cvs	Angel's Trumpet	M	1
Brunfelsia pauciflora + cvs	Yesterday-Today-Tomorrow	M	1
Calliandra haematocephala + cv	Pink Powder Puff	M	1
Carissa macrocarpa + cvs	Natal Plum	M	1
Euphorbia cotinifolia	Caribbean Copper Plant	M	1
Ficus lyrata	Fiddleleaf Fig	M	1
Gardenia thunbergia	White Gardenia	M	1
Hibiscus rosa-sinensis + cvs	Chinese Hibiscus	M	1
Iochroma cyaneum	NCN	M	1
Jasminum angulare	South African Jasmine	M	1
Jasminum laurifolium nitidum	Angelwing Jasmine	M	1
Justicia brandegeana + cv	Shrimp Plant	M	1
Michelia figo	Banana Shrub	M	1
Monstera deliciosa	Split-leaf Philodendron	H	1
Philodendron bipinnatifidum + cvs	Tree Philodendron	M	1
Plumeria species + cvs	Frangipani	M	1
Psidium guajava	Yellow Guava	M	1
Schefflera arboricola	Hawaiian Elf Schefflera	H	1
Solanum rantonnetii + cv.	Paraguay Nightshade	M	1
Thevetia peruviana	Yellow Oleander	M	1
Tibouchina heteromalla	NCN	M	1
Tibouchina urvilleana	Princess Flower	M	1

Vines		PF	IG
Beaumontia grandiflora	Easter Lily Vine	M	1
Bougainvillea spectabilis + cvs	Bougainvillea	M/L	2
Petrea volubilis	Queen's Wreath Vine	M	1
Rhoicissus capensis	Evergreen Grape	M	1
Solandra maxima	Cup-of-Gold Vine	M	1
Solanum seaforthianum	Brazilian Nightshade	M	1
Solanum wendlandii	Costa Rican Nightshade	M	1
Thunbergia gregorii	Orange Clock Vine	M	1

Perennials		PF	IG
Agapanthus species + cvs	Lily-of-the-Nile	M	1
Canna cultivars	Canna	H	1
Cuphea species + cvs	Cuphea	M	1
Ensete ventricosum + cv	Abyssinian Banana	H	1
Felicia amelloides	Blue Marguerite	M	1
Hedychium species + cvs	Ginger Lily	H	1
Pelargonium species + cvs	Geranium	M	1
Strelitzia nicolai	Giant Bird of Paradise	M	1
Strelitzia reginae	Bird of Paradise	M	1

Below: *Hedychium* cultivar

Below: *Hibiscus* 'White Wings'

Below: *Tibouchina heteromalloa*

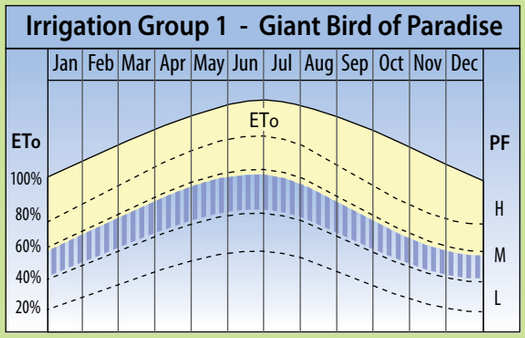
Plant Palette

Giant Bird of Paradise

Seasonal Moisture and Irrigation Schedules

Reference evapotranspiration for Plant Climate Zones 22-24 ranges from 44-52 in. each year. Normal winter rainfall can often meet most of the moisture needs of this palette from December to February. However, some wintertime irrigation can be desirable to provide moisture during winter dry spells and drought years. Regular supplemental irrigation is recommended throughout spring and summer to sustain seasonal growth and flowering, but can be reduced by mid to late summer to avoid late season growth that can be sensitive to frost.

The chart below illustrates a supplemental moisture range of 40-60% of ETo as a baseline for setting irrigation schedules for this palette. The moisture curve follows the profile of reference evapotranspiration until late summer and then it is reduced to bring an end to active growth for most plants before the occurrence of seasonal frosts.



Below: *Tibouchina heteromalla*

Plant Palette

Jacaranda

The jacaranda tree is native to South America and is a highly colorful flowering tree with many uses in California landscapes and gardens. It is well suited to parks, greenbelts and urban medians. Additionally, it is widely planted in residential yards and school grounds where its late spring floral display is greatly admired. However, in contrast to its much valued flowers, regular maintenance is needed to contend with the shower of fine twigs, leaflets and spent flowers. A balance between virtues and dilemmas is often achieved by planting this tree in lawns where it receive regular moisture and mowing activities pick up fallen litter.

The jacaranda palette brings attention to plants that are well suited for large landscape spaces. Many trees are listed that provide flowering, shade and stately character as they mature. Shrubs, vines, perennials and ground covers have also been selected for their reliable nature, basic care requirements and contribution of flower color or attractive foliage. These plants are well adapted to inland and valley zones where they respond to summer heat and tolerate occasional winter frosts. All of these plants have been selected from the Subtropical Garden Plants list located on pages 52-53. They represent species that can be damaged by frost, but are hardy enough to recover the following growing season.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
									+	+	+	+	+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Hymenosporum flavum*

Above: *Jacaranda mimosifolia*

Above: *Jacaranda mimosifolia*

Horticultural Preferences

Plants included in this palette are all adapted to Plant Climate Zones 15-24. These zones fall within the heartland of Mediterranean climate conditions, with moist winters and long and dry summers. Throughout this range, winter temperatures fall below 25°F for 10-30 days each year.

Moderate levels of moisture are needed throughout the year; seasonal rains often meet moisture needs during winter months. Supplemental water is essential during spring and summer to sustain healthy and attractive growth.

Trees		PF	IG
Afrocarpus gracilior	Fern Pine	M	1
Bauhinia forficata	Brazilian Butterfly Tree	M	1
Bauhinia variegata + cv	Purple Orchid Tree	M	1
Cassia leptophylla	Gold Medallion Tree	M	1
Ficus macrophylla	Moreton Bay Fig	M	1
Ficus rubiginosa	Rustyleaf Fig	M	1
Harpephyllum caffrum	Kaffir Plum	M	1
Hymenosporum flavum	Sweetshade	M	1
Jacaranda mimosifolia + cv	Jacaranda	M	1
Michelia champaca	Champaca	M	1
Thevetia peruviana	Yellow Oleander	M	1

Palms and Cycads		PF	IG
Archontophoenix cunninghamiana	King Palm	M	1
Dioon edule	Chestnut Dioon	M	1
Dioon spinulosum	Giant Dioon	M	1
Howea forsteriana	Paradise Palm	M	1
Phoenix roebelenii	Pigmy Date Palm	M	1
Ravenea rivularis	Majesty Palm	M	1
Syagrus romanzoffianum	Queen Palm	M	1

Below: *Hymenosporum flavum*

Above: *Iochroma cyaneum*

Aesthetic Character

The jacaranda palette is characterized by a full array of flowering trees, shrubs, perennials and vines. Virtually all plants on this list are noted for their bright flower colors and are widely planted in large and small landscapes and gardens alike. This range and diversity of flowering plants are often used in mixed plantings where variety and flower interest are combined in casual masses, layers and borders.

It is important to establish control and continuity with foliage plants and to balance colors among flowers in order to avoid an overly eclectic design composition.

Shrubs		PF	IG
Bauhinia galpinii	Red Bauhinia	M	1
Brunfelsia pauciflora + cvs	Yesterday-Today-Tomorrow	M	1
Calliandra haematocephala + cv	Pink Powder Puff	M	1
Carissa macrocarpa + cvs	Natal Plum	M	1
Hibiscus rosa-sinensis + cvs	Chinese Hibiscus	M	1
Iochroma cyaneum	NCN	M	1
Jasminum angulare	South African Jasmine	M	1
Justicia brandegeana + cv	Shrimp Plant	M	1
Psidium species + cvs	Guava	M	1
Roldana petasitis	Velvet Groundsel	M/L	2
Schefflera elegantissima	NCN	M	1
Schefflera pueckleri	NCN	M	1
Solanum rantonnetii + cv	Nightshade	M	1
Thevetia peruviana	Yellow Oleander	M	1
Tibouchina urvilleana	Princess Flower	M	1

Perennials		PF	IG
Agapanthus species + cvs	Lily-of-the-Nile	M	1
Cuphea hyssopifolia	False Heather	M	1
Cuphea ignea	Cigar Plant	M	1
Cuphea x purpurea	Bat-faced Cuphea	M	1
Felicia amelloides	Blue Marguerite	M	1
Helichrysum petiolare + cvs	Licorice Plant	M	1
Pelargonium species + cvs	Geranium	M	1
Russelia equisetiformis	Coral Fountain	M	1
Strelitzia reginae	Bird of Paradise	M	1

Vines		PF	IG
Antigonon leptopus + cvs	Coral Vine	M	1
Beaumontia grandiflora	Easter Lily Vine	M	1
Bougainvillea spectabilis + cvs	Bougainvillea	M/L	2
Cissus rhombifolia + cvs	Grape Ivy	M	1
Distictis species + cvs	Trumpet Vine	M	1
Lonicera hildebrandiana	Giant Burmese Honeysuckle	M	1
Pandorea jasminoides + cvs	Bower Vine	M	1
Podranea ricasoliana	Pink Trumpet Vine	M	1
Solandra maxima	Cup-of-Gold Vine	M	1
Solanum seaforthianum	Brazilian Nightshade	M	1
Solanum wendlandii	Costa Rican Nightshade	M	1
Thunbergia alata + cv	Black-eyed Susan	M	1
Thunbergia grandiflora	Sky Flower	M	1
Vigna caracalla	Snail Vine	M	1

Below: *Solandra maxima*

Below: *Distictis buccinatoria*

Below: *Distictis buccinatoria*

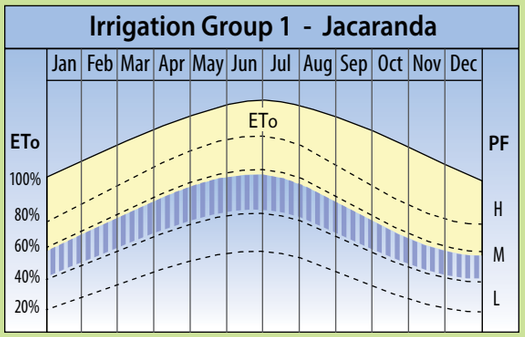
Plant Palette

Jacaranda

Seasonal Moisture and Irrigation Schedules

Reference evapotranspiration for Plant Climate Zones 15-24 ranges from 44-52 in. each year. Normal winter rainfall often meets most moisture needs of this palette from December to February. However, wintertime irrigation is desirable to provide moisture during winter dry spells and drought years. Regular supplemental irrigation is recommended through spring and summer to sustain seasonal growth and flowering. Irrigation should be reduced by mid to late summer to avoid late season growth that can be sensitive to frost.

The chart below illustrates a supplemental moisture range of 40-60% of ETo as a baseline for setting irrigation schedules for this palette. The moisture curve follows the profile of reference evapotranspiration until late summer and then it is reduced to bring an end to active growth for most plants before entering fall.



Below: *Agapanthus* cultivar below *Jacaranda mimosifolia*

Plant Palette

Natal Coral Tree

The natal coral tree palette is designed to bring attention to plants that thrive in warm coastal climate zones of southern California. This coral tree is native to South Africa and it provides dramatic flower color in late spring and summer. All other plants included in this palette come from parts of South Africa to acknowledge the diverse and abundant botanical contributions from this region of the world to California landscapes and gardens. Many of these plants are highly popular and widely planted. New species are being discovered and evaluated for future landscape use. Impressively, there is enough diversity and depth to this palette to work with landscapes and gardens of many sizes.

The flora of South Africa not only enjoys an abundance of flowering foliage plants, but includes other well know species of *Aloe, Crassula, Kalanchoe, Euphorbia* and *Kalanchoe.* These plants are widely used in California's coastal areas to create special interest gardens, serve as focal elements and to be planted in containers. Most species in these genera flower during winter and provide nectar for birds.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
																+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Calodendrum capense*

Above: *Erythrina humeana*

Above: *Erythrina humeana*

Horticultural Preferences

The natal coral tree palette is suited to Plant Climate Zones 22-24 where winter temperatures seldom fall below 32°F. These mild conditions enable a remarkably long growing season when adequate moisture is provided. Regular irrigation is most helpful during spring and summer to sustain seasonal growth and flowering. Watering can be reduced by mid to late summer to avoid late season growth that can be sensitive to frost. These plants are well adapted to loamy soils, sunny exposures and humid conditions.

Trees		**PF**	**IG**
Calodendrum capense	Cape Chestnut	M	1
Erythrina humeana	Natal Coral Tree	M	1
Leucadendron argenteum	Silver Tree	M	1
Podocarpus henkelii	Long-leafed Yellowwood	M	1
Podocarpus latifolius	Yellowwood	M	1

Shrubs		**PF**	**IG**
Anisodontea x hypomandarum + cvs	Cape Mallow	M	1
Carissa macrocarpa + cvs	Natal Plum	M	1
Coleonema species + cv	Breath of Heaven	M	1
Euryops pectinatus + cv	Euryops	M	1
Gardenia thunbergia	White Gardenia	M	1
Leucadendron cultivars	NCN	M/L	2
Leucospermum species + cvs	Pincushion	M/L	2
Myrsine africana	African Boxwood	M	1
Plecostachys serpyllifolia	NCN	M/L	2
Plumbago auriculata	Cape Plumbago	M/L	2
Polygala x dalmaisiana	Sweet-pea Shrub	M	1
Polygala fruticosa 'Petite Butterflies'	NCN	M	1
Tecoma capensis + cvs	Cape Honeysuckle	M/L	2

Below: *Carissa grandiflora*

Above: *Tecomaria capensis* 'Aurea'

Aesthetic Character

Plants from South Africa are highly varied in character. Many species offer bright flower colors and can be grown in large masses as well as small groups. A number of species are adapted to wet environments and provide unique grass-like foliage.

The aloes combine succulent foliage into attractive rosette patterns and are widely used as sculptural plants to stand out in high contrast to other plantings. This range and diversity can lead to many interesting plantings with both botanical and aesthetic interest.

Vines		PF	IG
Jasminum angulare	South African Jasmine	M	1
Jasminum tortuosum	Twisted Jasmine	M	1
Rhoicissus capensis			

Perennials		PF	IG
Agapanthus species + cvs	Agapanthus	M	1
Bulbine frutescens + cv	NCN	M/L	2
Chondropetalum elephantinum	Large Cape Rush	M	1
Chondropetalum tectorum	Small Cape Rush	M	1
Dietes grandiflora + cvs	Fortnight Lily	M	1
Kniphofia uvaria + cvs	Red-hot Poker	M	1
Osteospermum jucundum	NCN	L	1
Rhodocoma species	NCN	M	1
Strelitzia nicolai	Giant Bird of Paradise	M	1
Strelitzia reginae	Bird of Paradise	M	1
Tulbaghia simmleri	Sweet Wild Garlic	M	1
Tulbaghia violacea + cvs	Society Garlic	M	1

Aloes and Succulents		PF	IG
Aloe arborescens + cv	Torch Aloe	L/VL	2
Aloe barberae	Tree Aloe	L/VL	2
Aloe ciliaris	NCN	L/VL	2
Aloe dichotoma	Quiver Tree	L/VL	2
Aloe ferox	Bitter Aloe	L/VL	2
Aloe marlothii	NCN	L/VL	2
Aloe plicatilis	Fan Aloe	L/VL	2
Aloe striata	Coral Aloe	L/VL	2
Aloe striatula	Hardy Aloe	L/VL	2
Crassula arborescens	Silver Jade Plant	L/VL	2
Crassula capetella + cv	NCN	L/VL	2
Crassula ovata + cvs	Jade Plant	L/VL	2
Euphorbia tirucalli + cv	Milkbush	L/VL	2
Kalanchoe beharensis	Felt Bush	L/VL	2
Kalanchoe pumila	Flower Dust Plant	L/VL	2
Portulacaria afra	Elephant's Food	L/VL	2
Senecio talinoides var. mandraliscae	NCN	L/VL	2

Ground Covers		PF	IG
Arctotis aucaulis + cvs	African Daisy	M/L	2
Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	M	1
Dymondia margaretae	Silver Carpet	M/L	2
Gazania species + cvs	Gazania	M/L	2
Osteospermum fruticosum	Trailing African Daisy	M/L	2

Below: *Agapanthus africanus*

Below: *Osteospermum fruticosum*

Below: *Aloe arborescens*

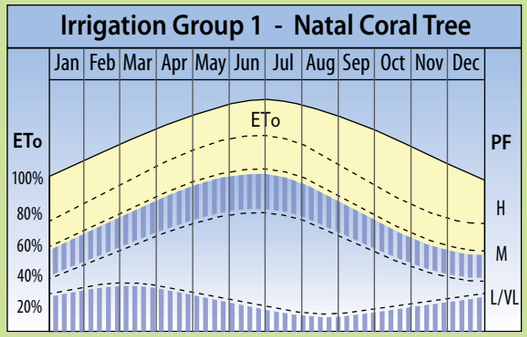
Plant Palette

Natal Coral Tree

Seasonal Moisture and Irrigation Schedules

The natal coral tree palette is comprised of two different groups of plants. The first group is comprised of trees, shrubs and perennials that do best with regular moisture throughout the year. The second group includes aloes, jade plants and other succulents that are adapted to lower levels of moisture particularly during summer. The chart below illustrates two moisture profiles. The upper profile illustrates a supplemental moisture range of 40-60% of ETo as a baseline for setting irrigation schedules for trees, shrubs and perennials. This moisture curve follows the profile of reference evapotranspiration to late summer before being reduced to bring an end to active growth for most plants. The lower moisture curve addresses the needs of aloes, jade plants and other succulents. It shows a reduction in supplemental water to very low levels during summer.

These plants can be incorporated into landscapes and gardens by grouping them into different hydrozones with separate irrigation systems.



Below: *Aloe barberae* (above), *Aloe plicatilis* (below)

Plant Palette

Queen Palm

The queen palm is native to Brazil and has become a staple choice for landscapes and gardens of all types and sizes throughout central and southern California, from coastal, adjacent inland and valley areas. While it is a hardy subtropical species, it reaches its limit of tolerability in zones where temperatures consistently drop below 25°F each year. It has proven quite easy to grow, is robust and attractive in character and can fit large and tight spaces alike. All of these qualities have contributed to its popularity and widespread use.

The queen palm is an ideal tree for subtropical plantings. The combination of soft deep green foliage and picturesque form produces a lush and distinctive character. Many other plants adapted to mild climate conditions can be combined with this palm to enhance the subtropical theme as well as add color and detail in understory and small planter spaces.

This palette has been designed to use the queen palm as a focal element in landscapes and gardens. It is suited to large scale and residential spaces alike. Its upright habit, clean solitary trunks and 30-40 ft. height range makes it useful for group plantings as well as for sentry and solitary accent uses. All of these plants have been selected from the Subtropical Garden Plants list located on pages 52-53.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
													+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Phoenix roebelenii* (front), *Strelitzia nicolai* (behind)

Above: *Syagrus romanzoffianum* (above), *Phoenix roebelenii* (below)

Above: *Syagrus romanzoffianum*

Horticultural Preferences

The queen palm plant palette is naturally adapted to mild temperatures and warm conditions found throughout Plant Climate Zones 19-24. Cold temperatures seldom fall below 32°F and there is sufficient summer heat to produce strong flowering. Shrubs and perennials need protection from hot sun exposures in inland locations. All plants respond well to humidity when planted near the ocean. The best growth occurs with regular moisture and in loamy, well-drained soils. The queen palm is also well adapted to lawns.

Below: *Dioon edule*

Palms and Cycads		**PF**	**IG**
Dioon edule	Chestnut Dioon	M	1
Phoenix roebelenii	Pigmy Date Palm	M	1
Syagrus romanzoffianum	Queen Palm	M	1
Trees		**PF**	**IG**
Chorisia speciosa	Silk Floss Tree	M	1
Ficus benjamina + cv	Benjamin Fig	M	1
Ficus macrophylla	Moreton Bay Fig	M	1
Ficus microcarpa	Indian Laurel Fig	M	1
Ficus rubiginosa	Rustyleaf Fig	M	1
Schefflera actinophylla	Queensland Umbrella Tree	M	1
Stenocarpus sinuatus	Firewheel Tree	M	1
Tabebuia chrysotricha	Golden Trumpet Tree	M	1
Tabebuia impetiginosa	Pink Trumpet Tree	M	1
Thevetia peruviana	Yellow Oleander	M	1
Shrubs		**PF**	**IG**
Bauhinia galpinii	Red Bauhinia	M	1
Brugmansia species + cvs	Angel's Trumpet	M	1
Brunfelsia pauciflora + cvs	Yesterday-Today-Tomorrow	M	1

Below: *Schefflera elegantissima*

Aesthetic Character

The plants assembled in this palette bring a combination of soft and bold textures into landscapes and gardens. The feathery-type fronds of the queen palm dominates these plantings and stands out in bold contrast to the giant bird of paradise, philodendrons and cup-of-gold vines. Their tall and clean trunks provide distinctive and refined character to plantings as well.

Many companion plants are available to combine with the queen palm that bring rich flower colors, dark green foliage and dense growth habits. These characteristics contribute to a subtropical planting theme that appears abundant and lush.

Shrubs continued		**PF**	**IG**
Calliandra haematocephala + cv	Pink Powder Puff	M	1
Hibiscus rosa-sinensis + cvs	Chinese Hibiscus	M	1
Jasminum laurifolium nitidum	Angelwing Jasmine	M	1
Justicia brandegeana + cv	Shrimp Plant	M	1
Philodendron species + cvs	Philodendron	M	1
Plumeria species + cvs	Frangipani	M	2
Psidium species + cvs	Guava	M	1
Schefflera arboricola	Hawaiian Elf Schefflera	H	1
Schefflera elegantissima	NCN	M	1
Schefflera pueckleri	NCN	M	1
Solanum rantonnetii + cv	Nightshade	M	1
Thevetia peruviana	Yellow Oleander	M	1
Thevetia thevetioides	Giant Thevetia	M	1
Tibouchina heteromalla	NCN	M	1
Tibouchina urvilleana	Princess Flower	M	1

Vines		**PF**	**IG**
Beaumontia grandiflora	Easter Lily Vine	M	1
Bougainvillea species + cvs	Bougainvillea	M/L	2
Cissus antarctica	Kangaroo Treebine	M	1
Distictis 'Rivers'	Royal Trumpet Vine	M	1
Lonicera hildebrandiana	Giant Burmese Honeysuckle	M	1
Monstera deliciosa	Split-leaf Philodendron	H	1
Pandorea jasminoides	Bower Vine	M	1
Petrea volubilis	Queen's Wreath Vine	M	1
Podranea ricasoliana	Pink Trumpet Vine	M	1
Rhoicissus capensis	Evergreen Grape	M	1
Solandra maxima	Cup-of-Gold Vine	M	1
Solanum wendlandii	Costa Rican Nightshade	M	1
Thunbergia grandiflora	Sky Flower	M	1

Perennials		**PF**	**IG**
Agapanthus africanus + cvs	Lily-of-the-Nile	M	1
Billbergia nutans	Queen's Tears	H	1
Canna cultivars	Canna	H	1
Cuphea hyssopifolia	False Heather	M	1
Cuphea ignea	Cigar Plant	M	1
Felicia amelloides	Blue Marguerite	M	1
Hedychium species + cvs	Ginger Lily	H	1
Hemerocallis species + cvs	Daylily	M	1
Pelargonium species + cvs	Geranium	M	1
Strelitzia nicolai	Giant Bird of Paradise	M	1
Strelitzia reginae	Bird of Paradise	M	1

Below: *Philodendron bipinnatifidum*

Below: *Thunbergia grandiflora*

Below: *Calliandra haematocephala*

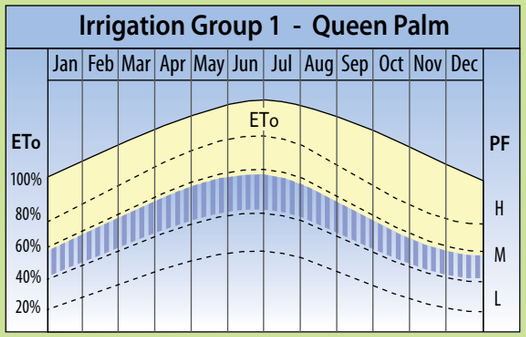
Plant Palette

Queen Palm

Seasonal Moisture and Irrigation Schedules

The annual ETo range for Plant Climate Zones 19-24 varies from 44-52 in. each year. Normal winter rainfall can often meet most moisture needs of this palette from December to February. However, wintertime irrigation is often desirable to provide moisture during winter dry spells and drought years. Regular supplemental irrigation is recommended through spring and summer to sustain seasonal growth and flowering. Irrigation can be reduced by mid to late summer to avoid late season growth that can be sensitive to frost.

The chart below illustrates a supplemental moisture range of 40-60% of ETo as a baseline for setting irrigation schedules for this palette. The moisture curve follows the profile of reference evapotranspiration until late summer and then it is reduced to bring an end to active growth for most plants before late fall.



Below: *Syagrus romanzoffianum*

Plant Palette

Trumpet Tree

The trumpet tree palette is designed to explore ideas regarding the influence of flower color in selecting plants for landscapes and gardens. Flowers are often a dominant reason for selecting plants. They can easily have a disproportionate influence in planting design, sometimes resulting in horticultural and aesthetic conflicts. Horticultural issues can be addressed by reviewing lists of native, Mediterranean, subtropical and southwestern plants to observe the range of flower colors and to check for climate zone and moisture compatibility. From an aesthetic perspective, it is desirable to select a hue that provides continuity and harmony. Other complementary colors can be added to provide variety and contrast without being incongruent and chaotic.

The trumpet tree palette comes from the Subtropical Garden Plants list located on pages 54-55 to choose plants with similar temperature and moisture requirements. Two species of trumpet tree have been selected; one offers deep pink flowers and the other lemon-yellow. These colors are not congruent and species should be planted in separate areas where each can provide a basis for selecting companion plants. Pink trumpet tree can be combined with plants having blended and pastel flower colors, while golden trumpet tree can be complemented by pure, primary colors, including white, blue and red. Many of the companion shrubs and perennials in this palette such as bougainvillea, kangaroo paw, lantana and lily-of-the-Nile have cultivars with flower colors that work with either color theme.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
													+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: Both the red flowering bougainvillea and red curb are incongruent with the pink flowering trumpet tree.

Above: *Tabebuia impetiginosa*, LA County Arboretum

Below: *Tabebuia impetiginosa*

Horticultural Preferences

Plants included in this palette are all adapted to Plant Climate Zones 19-24. Winter temperatures occasionally fall below 25°F and summers bring long periods of warmth to sustain robust flowering.

Most species do well with moderate amounts of supplemental water into summer and then can adapt to less water during fall and early winter. This enables new foliage growth to harden off and tolerate cool winter temperatures.

The best growth occurs in loamy soils with good drainage. Organic mulches can be used throughout the understory to cover soils and help retain moisture.

Trees		**PF**	**IG**
Jacaranda mimosifolia + cv	Jacaranda	M	1
Podocarpus henkelii	Long-leafed Yellowwood	M	1
Schefflera actinophylla	Queensland Umbrella Tree	M	1
Tabebuia chrysotricha	Golden Trumpet Tree	M	1
Tabebuia impetiginosa	Pink Trumpet Tree	M	1

Shrubs		**PF**	**IG**
Bauhinia galpinii	Red Bauhinia	M	1
Bougainvillea species + cvs	Bougainvillea	M/L	2
Brugmansia species + cvs	Angel's Trumpet	M	1
Calliandra haematocephala + cv	Pink Powder Puff	M	1
Gardenia thunbergia	White Gardenia	M	1
Iochroma cyaneum	NCN	M	1
Jasminum angulare	South African Jasmine	M	1
Polygala x dalmaisiana	Sweet-pea Shrub	M	1
Polygala fruticosa 'Petite Butterflies'	NCN	M	1
Solanum rantonnetii + cv	Nightshade	M	1
Thevetia peruviana	Yellow Oleander	M	1
Tibouchina heteromalla	NCN	M	1
Tibouchina urvilleana	Princess Flower	M	1

Below: *Lantana* 'Miss Huff'

Above: *Agapanthus* 'Storm Cloud'

Aesthetic Character

This palette is filled with many plants that are widely appreciated for their flower color. Not all of these colors are compatible and should not be used in the same planting area. Harmony and continuity is needed when selecting various hues, values and seasons of flower color.

The pink trumpet tree flower color combines best with blended and pastel colors. Golden trumpet tree can bring additional emphasis to primary flower colors that are richly saturated. Some colors work well in both schemes and the final combination is often a matter of personal choice and experience. Color theory and ideas have unclear boundaries and are not absolute.

Perennials		PF	IG
Agapanthus species + cvs	Lily-of-the-Nile	M	1
Argyranthemum frutescens + cvs	Marguerite Daisy	M	1
Convolvulus cneorum	Bush Morning Glory	M	1
Convolvulus sabatius	Ground Morning Glory	M	1
Coreopsis grandiflora + cvs	NCN	M	1
Coreopsis lanceolata	NCN	M	1
Cuphea ignea	Cigar Plant	M	1
Cuphea x purpurea	Bat-faced Cuphea	M	1
Dietes grandiflora + cvs	Fortnight Lily	M	1
Felicia amelloides	Blue Marguerite	M	1
Hemerocallis species + cvs	Daylily	M	1
Kniphofia uvaria + cvs	Red-hot Poker	M	1
Osteospermum species + cvs	African Daisy	M/L	1
Pelargonium species + cvs	Geranium	M	1
Thymus species + cvs	Thyme	M	1
Tulbaghia simmleri	Sweet Wild Garlic	M	1
Tulbaghia violacea + cvs	Society Garlic	M	1
Verbena x hybrida	Garden Verbena	M	1

Ground Covers		PF	IG
Bougainvillea cultivars	Bougainvillea	M/L	2
Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	M	1
Festuca glauca + cvs	Blue Fescue	M	1
Gazania species + cvs	Gazania	M	1
Lantana montevidensis + cv	Trailing Lantana	M/L	2
Rosa 'Floral Carpet' + cvs	Floral Carpet Rose	M	1

Vines		PF	IG
Antigonon leptopus + cvs	Coral Vine	M	1
Beaumontia grandiflora	Easter Lily Vine	M	1
Bougainvillea cultivars	Bougainvillea	M/L	2
Distictis 'Rivers'	Royal Trumpet Vine	M	1
Lonicera hildebrandiana	Giant Burmese Honeysuckle	M	1
Pandorea jasminoides	Bower Vine	M	1
Petrea volubilis	Queen's Wreath Vine	M	1
Podranea ricasoliana	Pink Trumpet Vine	M	1
Solandra maxima	Cup-of-Gold Vine	M	1
Solanum wendlandii	Costa Rican Nightshade	M	1
Thunbergia grandiflora	Sky Flower	M	1

Below: *Felicia amelloides*

Below: *Hemerocallis* 'Big Doc'

Below: *Tabebuia chrysotricha*

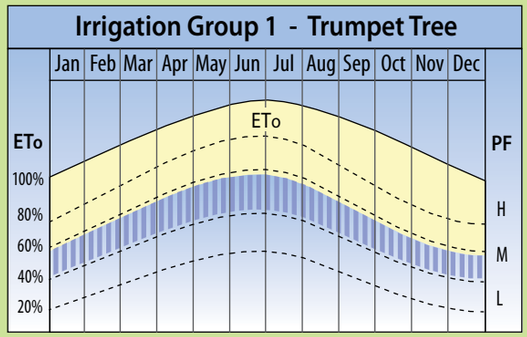
Plant Palette

Trumpet Tree

Seasonal Moisture and Irrigation Schedules

Reference evapotranspiration for Plant Climate Zones 19-24 ranges from 44-52 in. each year. Normal winter rainfall in these zones can often meet most of the moisture needs of this palette from December to February. However, wintertime irrigation is often desirable during winter dry spells and drought years. Regular supplemental irrigation is recommended through spring and summer to sustain seasonal growth and flowering. Irrigation can be reduced by mid to late summer to avoid late season growth that can be sensitive to frost.

The chart below illustrates a supplemental moisture range of 40-60% of ETo as a baseline for setting irrigation schedules for this palette. The moisture curve follows the profile of reference evapotranspiration until late summer and then it is reduced to bring an end to active growth for most plants before fall. Species with long flowering seasons such as bougainvillea and lantana produce more intensive floral displays with less water in mid to late summer.



Below: *Tabebuia chrysotricha*

Plant Palette

Canary Island Palm

Canary Island palms grow into tall and massive trees that easily establish a towering presence upon maturity. Introduced into California by 1800, many of these palms have matured into well-known specimens among Mediterranean style plantings and for use in plazas and along streets and promenades throughout the state. Their large trunks and heavy fronds serve as the foundation of a planting scheme that emphasizes the use of bold and coarse textured plants with striking shapes and distinctive silhouette character.

This palette includes three different groups of plants. The first group consists of palms, aloes, agaves and yuccas, which have strong architectural character and rosette leaf patterns. The second group includes subtropical plants such as bougainvilleas and lantanas, which provide bright and warm seasonal color. The third group consists of Mediterranean plants such as lavenders, rockroses and rosemary, which bring additional fragrance and color.

All three groups are well adapted to mild coastal climates of southern California in Zones 19-24. Architectural plants are used as focal elements and in special interest plantings, flowering vines add bold color impact and flowering shrubs and perennials provide finer texture and detail in smaller spaces. This is a very rich plant palette that shows a good crossover between Mediterranean, California native and subtropical plants.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
													+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Furcraea Macdougalii* with *Agave attenuata*, *Rosmarinus officinalis* 'Prostrata'. *Phoenix canariensis* fills the background.

Above: *Phoenix canariensis*

Above: *Agave attenuata*

Horticultural Preferences

The Canary Island palm palette is well adapted to Mediterranean climate conditions that commonly occur along California's coastline and adjacent inland and valley areas that experience occasional frost. These conditions are commonly found within Plant Climate Zones 19-24. Plants thrive in sunny locations with warm summer temperatures and are adapted to reduced moisture by the end of summer. All plants do best in well-drained soils, lacking high levels of organic matter.

While this palette includes a number of ground covers, the surface area around plants can be covered with inorganic materials such as decomposed granite, gravel and stone.

Below: *Agave americana* behind *Agave attenuata* and *Aeonium arboreum*

Trees		**PF**	**IG**
Arbutus unedo	Strawberry Tree	M/L	2
Cupressus sempervirens	Italian Cypress	M/L	2
Dracaena draco	Dragon Tree	L/VL	2
Phoenix canariensis	Canary Island Palm	M	1
Pinus pinea	Italian Stone Pine	M/L	2
Quercus engelmannii	Engelmann Oak	M/L	2
Quercus suber	Cork Oak	M/L	2

Shrubs		**PF**	**IG**
Arctostaphylos manzanita 'Dr. Hurd'	Dr. Hurd Manzanita	M/L	2
Artemisia 'Powis Castle'	NCN	M/L	2
Bougainvillea 'Rosenka'	Rosenka Bougainvillea	M/L	2
Caryopteris x clandonensis	Blue Mist	M/L	2
Citrus cultivars	Kumquat, Lemon, Orange	M	2
Cistus 'Sunset'	NCN	M/L	2
Cistus x purpureus	Orchid Rockrose	M/L	2
Cistus 'Victor Reiter'	NCN	M/L	2
Echium candicans + cv	Pride of Madeira	M/L	2
Lavandula angustifolia	English Lavender	M/L	2
Lavandula stoechas + cvs	Spanish Lavender	M/L	2

Above: *Salvia leucantha*

Aesthetic Character

The aesthetic success of this palette relies on working with contrast and repetition. Many plants have bold shape and large scale. Others have soft foliage color and texture. There is a range of warm and bright flower colors to use. All of these elements can be organized into formal and informal compositions that achieve year round interest and striking visual character.

Bold plants with rosette leaf patterns can be massed and layered as well as highlighted through the strategic placement of bright, flowering shrubs. The use of clipped myrtle and rosemary hedges and low walls can provide a geometric frame around pathways and planting areas, adding structure to informal plant groupings.

Shrubs continued		**PF**	**IG**
Leonotis leonurus	Lion's Tail	L/VL	2
Myrtus communis + cvs	True Myrtle	M	1
Nerium oleander + cvs	Oleander	M/L	2
Phlomis fruticosa	Jerusalem Sage	M/L	2
Rhamnus alaternus	Italian Buckthorn	M/L	2
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Salvia leucantha + cv	Mexican Bush Sage	M/L	2
Santolina chamaecyparissus	Lavender Cotton	M/L	2
Teucrium fruticans	Bush Germander	M/L	2

Agaves, Aloes, Cacti and Succulents		**PF**	**IG**
Aeonium arboreum + cvs	NCN	L/VL	2
Agave americana + cvs	NCN	L/VL	2
Agave attenuata + cvs	Foxtail Agave	L/VL	2
Agave vilmoriniana	Octopus Agave	L/VL	2
Aloe marlothii	NCN	L/VL	2
Dasylirion quadrangulatum	Mexican Grass Tree	L/VL	2
Furcraea macdougalii	NCN	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Opuntia robusta	NCN	L/VL	2
Xanthorrhoea preissii	Grass Tree	L/VL	2
Yucca elephantipes	Spineless Yucca	L/VL	2

Perennials		**PF**	**IG**
Achillea 'Moonshine'	Yellow Yarrow	M/L	2
Cordyline australis 'Red Sensation'	Red Sensation Dracaena	M	1
Dietes species + cvs	Fortnight Lily	M	1
Euphorbia characias + ssp	Large Mediterranean Spurge	M/L	2
Nepeta x faassenii	Catmint	M	1
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Romneya coulteri 'White Cloud'	White Cloud Matilija Poppy	L/VL	2
Salvia officinalis + cvs	Garden Sage	M/L	2
Stachys byzantina	Lamb's Ear	M/L	2
Strelitzia reginae	Bird of Paradise	M	1

Ground Covers		**PF**	**IG**
Arctotis acaulis 'Big Magenta'	NCN	M/L	2
Drosanthemum floribundum	Rosea Ice Plant	L/VL	2
Gazania species + cvs	Gazania	M/L	2
Lantana montevidensis + cvs	Trailing Lantana	M/L	2
Senecio talinoides ssp. mandraliscae	NCN	L/VL	2
Stachys byzantina	Lamb's Ear	M/L	2
Rosmarinus officinalis 'Prostratus'	Prostrate Rosemary	M/L	2

Below: *Santolina chamaecyparissus*

Below: *Bougainvillea* 'Rosenka'

Below: *Bougainvillea* 'Rosenka' with Salvia leucantha 'Midnight'

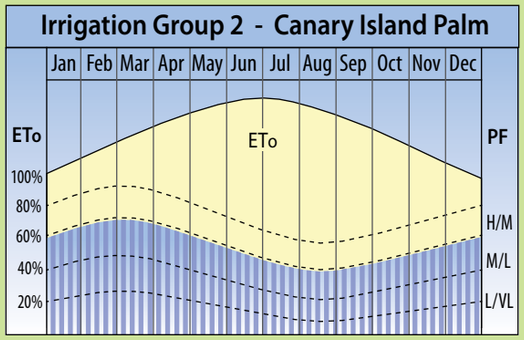
Plant Palette

Canary Island Palm

Seasonal Moisture and Irrigation Schedules

The annual ETo for Plant Climate Zones 19-24 ranges from 44-52 in. each year. Winter rainfall can often meet the moisture needs of this palette from December to February. However, some wintertime irrigation may be desirable to provide moisture during winter dry spells and drought years.

Plants on this list have a range of moisture needs from moderate to very low that can be addressed by organizing them into hydrozones and microclimates. The chart below illustrates the full range of supplemental moisture needs for this palette. The higher end of the range applies mostly to trees and shrubs, as well as for newer plantings. The lower part of the range represents the needs of agaves, aloes, cacti and yuccas as well as for plantings in coastal areas with lower summer temperatures. Reduced irrigation is recommended during the summer months to enable plants in ornamental landscapes and gardens to retain good character without stimulating excessive levels of growth.



Below: *Agave americana* and *Cordyline australis* 'Red Sensation' in pots with *Senecio talinoides* ssp. *mandraliscae* ground cover

Plant Palette

Coast Live Oak

The coast live oak is a widely recognized and valued native tree that can be found growing in large numbers from north to south throughout California's coastal ranges. In recent years, cities and counties have established ordinances to prevent the widespread loss of native oaks due to urban development. This palette is designed to work with existing coast live oaks that occur in developed areas and when additional landscape plantings are needed. Some plants are adapted to understory conditions within the dripline where they grow with limited summer water and adapt to shade. Others are best suited for perimeter locations. Many of these plants naturally occur in association with coast live oaks.

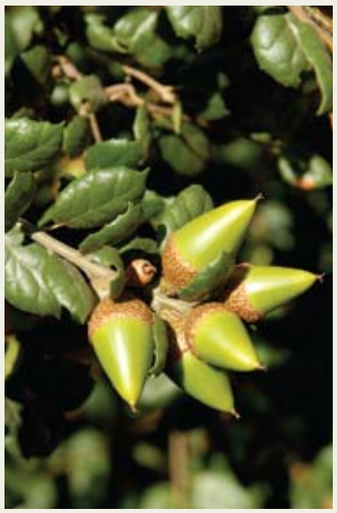
While there are many plant types that grow well around established oaks, new planting should always be approached with care. In many instances planting within the canopy is not recommended in order to avoid disturbance to roots and the introduction of supplemental water during summer months. This zone can be covered with fallen oak leaves and be left alone. Perimeter plantings outside the dripline can often provide a good balance of design character around existing trees to reduce the need for understory plants. When new plants are placed within the dripline they should be adapted to low amounts of summer water and be placed in areas of sun and shade according to their adaptation.

Again, this palette addresses existing coast live oaks and compatible native species. The Oak Palette on pages 136-137 presents other combinations of oak trees and associated plants.

Below: *Ribes viburnifolium* is one of the best understory ground covers for use inside the dripline of existing coast live oak

Above: A mature coast live oak grouping growing without understory plants or supplemental irrigation within their canopies. These trees have been preserved in place without attempting to landscape around them.

Shrubs and Ground Covers		PF	IG
Arctostaphylos edmundsii	Little Sur Manzanita	M/L	2
Arctostaphylos edmundsii 'Carmel Sur'	Carmel Sur Manzanita	M/L	2
Arctostaphylos 'John Dourley'	John Dourley Manzanita	M/L	2
Arctostaphylos hookeri	Monterey Manzanita	M/L	2
Arctostaphylos hookeri 'Monterey Carpet'	Monterey Carpet Manzanita	M/L	2
Arctostaphylos 'Howard McMinn'	McMinn Manzanita	M/L	2
Arctostaphylos 'Lester Roundtree'	Lester Roundtree Manzanita	M/L	2
Berberis 'Golden Abundance'	Golden Abundance Barberry	M/L	2
Berberis repens	Creeping Barberry	M/L	2
Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	M/L	2
Arctostaphylos uva-ursi 'Point Reyes'	Point Reyes Manzanita	M/L	2
Arctostaphylos uva-ursi 'Green Supreme'	Green Supreme Manzanita	M/L	2
Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	M/L	2
Berberis repens	Creeping Barberry	M/L	2
Ceanothus 'Concha'	Concha Ceanothus	M/L	2
Ceanothus 'Dark Star'	Dark Star Ceanothus	M/L	2
Ceanothus 'Ray Hartman'	Ray Hartman Ceanothus	M/L	2
Ceanothus 'Wheeler Canyon'	Wheeler Canyon Ceanothus	M/L	2
Carpenteria californica + cv	Bush Anemone	M/L	2
Comarostaphylis diversifolia	Summer Holly	M/L	2



Above: *Quercus agrifolia* acorns

Management Practices

Often the best management practice for existing oaks is to leave the understory area within their dripline undisturbed. Altering the natural soil level and adding new plantings that need supplemental irrigation during summer months can pose significant threats to a tree's health. Fallen leaf litter can be used as a surface mulch, seasonal rains can provide the best balance of moisture and for nutrient exchange with reduced risk from harmful fungus and diseases. Grading and compactions should not occur within the dripline.

Below: *Ribes viburnifolium*

Above: *Rhamnus californica*

Grading Practices

Changing drainage patterns or existing grades near mature oaks, particularly within the canopy area where roots obtain essential nutrients and moisture, is not advised. Additionally, avoid soil compaction during construction. Decomposed granite and pea gravel are recommended for walkways. Permeable pavements and raised decks are encouraged for larger areas. Avoid trenching for drainage, irrigation lines or lighting conduits throughout the dripline of trees. Roots over 2 in. in dia. should not be cut and surface feeder roots should be protected.

Shrubs and Ground Covers continued		PF	IG
Ceanothus t. griseus 'Hurricane Point'	Carmel Creeper	M/L	2
Ceanothus t. griseus 'Yankee Point'	Carmel Creeper	M/L	2
Eriogonum arborescens	Santa Cruz Island Buckwheat	L/VL	2
Eriogonum cinereum	Ashyleaf Buckwheat	L/VL	2
Eriogonum fasciculatum + cvs	California Buckwheat	L/VL	2
Eriogonum giganteum	St. Catherine's Lace	L/VL	2
Galvezia juncea + cv	Baja Bush Snapdragon	L/VL	2
Galvezia speciosa + cv	Island Bush-Snapdragon	M/L	2
Garrya elliptica + cvs	Coast Silktassel	M/L	2
Keckiella cordifolia	Heartleaf Penstemon	M/L	2
Ribes speciosum	Fuchsia-flowered Gooseberry	M/L	2
Ribes viburnifolium	Evergreen Currant	M/L	2
Rosa californica	California Rose	M/L	2
Heteromeles arbutifolia + cvs	Toyon	M/L	2
Iva hayesiana	Poverty Weed	M/L	2
Philadelphus lewisii + cv	Western Mock Orange	M/L	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Rhamnus californica + cvs	California Coffeeberry	M/L	2
Rhus ovata	Sugar Bush	L/VL	2
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2
Salvia apiana	White Sage	L/VL	2
Salvia brandegei	Santa Rosa Island Sage	L/VL	2
Salvia clevelandii + cvs	Cleveland Sage	L/VL	2
Salvia 'Bee's Bliss'	Bee's Bliss Sage	L/VL	2
Salvia leucophylla 'Point Sal Spreader'	Point Sal Spreader Sage	L/VL	2
Salvia 'Mrs. Beard'	Mrs. Beard Sage	L/VL	2
Salvia sonomensis	Creeping Sage	L/VL	2
Trichostema lanatum	Woolly Blue Curls	M/L	2
Verbena lilacina 'De La Mina'	Lilac Verbena	M/L	2

Perennials		PF	IG
Lupinus excubitus	Grape Soda Lupine	L/VL	2
Mimulus aurantiacus + cvs	Sticky Monkey Flower	L/VL	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon heterophyllus + cv	Foothill Penstemon	L/VL	2
Penstemon spectabilis	Showy Penstemon	L/VL	2
Romneya coulteri + cv	Matilija Poppy	L/VL	2
Salvia sonomensis	Creeping Sage	L/VL	2
Salvia spathacea	Hummingbird Sage	L/VL	2
Sisyrinchium bellum	Blue-eyed Grass	M/L	2

Below: *Carpenteria californica*

Below: *Ceanothus* 'Concha'

Below: *Berberis* 'Golden Abundance''

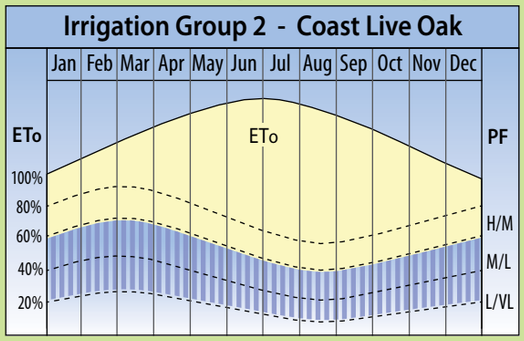
Plant Palette

Coast Live Oak

Seasonal Moisture and Irrigation Schedules

Existing oaks have often grown and adapted to climate and soil conditions of their site without the influence of supplemental irrigation. However, when development occurs, historic moisture patterns above and below ground are likely to change. Additionally, there is often a desire to add new plantings within the understory and surrounding area of these trees. This palette contains native plants with two sets of plant factors; moderate to low, and low to very low. Plants in each set should be organized into separate hydrozones with dedicated irrigation systems.

Supplemental watering should be scheduled mostly for fall and winter months with the goal of subsidizing the natural rainfall season during dry spells and drought cycles. Spring and summer irrigation should be minimal; mostly in support of newer ground cover and shrub plantings until they are established. A baseline irrigation schedule is shown below that illustrates seasonal irrigation around existing oaks.



Below: *Vinca major,* a member of Irrigation Group 1 is planted within the dripline of established coast live oaks, resulting in conflicting water requirements.

Plant Palette

Italian Cypress and Stone Pine

The Italian cypress and stone pine rank as two of the most visible signature trees of Mediterranean style gardens around the world. This observation holds true in California where these trees are grown in landscapes and gardens in coastal, valley and foothill climate zones across the state.

The Italian cypress typically grown in ornamental gardens and landscapes is an upright and narrow columnar selection that has a long history of being used for colonnades and sentry features in both formal and informal settings. It starts out ramrod straight in shape and eventually matures with relaxed edges and tips. The Italian stone pine matures with one of the tallest and broadest evergreen canopy forms among all ornamental trees. It easily reaches monumental scale with proportions that often dominate the landscape.

The Italian cypress and stone pine palette incorporates a combination of Mediterranean and California native species that are highly compatible together. This list also includes a number of well known flowering subtropical plants such as bougainvillea and lantana, which offer bright flower colors. These frost sensitive species cannot grow in inland and valley zones like many of the other plants in this palette. As a result, this combination of plants is mostly suited to coastal and low frost inland Plant Climate Zones 19-24 of southern California. Additional Mediterranean plants are listed on pages 48-49.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
													+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Pinus pinea*

Above: A classic Mediterranean planting with mature *Nerium oleander, Dracaena draco* and *Cupressus sempervirens,* Santa Barbara.

Trees		PF	IG
Arbutus unedo	Strawberry Tree	M/L	2
Cupressus sempervirens + cvs	Italian Cypress	M/L	2
Dracaena draco	Dragon Tree	L/VL	2
Laurus nobilis	Sweet Bay	M/L	2
Nerium oleander + cvs	Oleander	M/L	2
Pinus pinea	Italian Stone Pine	M/L	2

Palms		PF	IG
Chamaerops humilis	Mediterranean Fan Palm	M/L	2
Jubaea chilensis	Chilean Wine Palm	M/L	2
Phoenix canariensis	Canary Island Date Palm	M/L	2
Phoenix dactylifera	Date Palm	M/L	2

Shrubs		PF	IG
Arbutus unedo 'Compacta'	Compact Strawberry Tree	M/L	2
Arctostaphylos 'Howard McMinn'	McMinn Manzanita	M/L	2
Arctostaphylos 'John Dourley'	John Dourley Manzanita	M/L	2
Arctostaphylos manzanita 'Dr. Hurd'	Manzanita	M/L	2
Cistus 'Sunset'	NCN	L/VL	2
Cistus x purpureus	Orchid Rockrose	L/VL	2
Cistus 'Victor Reiter'	NCN	L/VL	2

Above: *Dracaena draco*

Horticultural Preferences

The plants that comprise this palette are best suited to climate zones that have mild, frost-free winters and long, warm summers. These conditions are typically found within Plant Climate Zones 19-24 of southern California, from the coast to adjacent inland and valley areas. The majority of species are adapted to summer heat with reduced amounts of moisture.

Most plants prefer soils that range from sandy loams to loams with fast draining conditions. They can adapt to heavier clayey loam soils, but overwatering and saturated conditions need to be avoided.

Below: *Nerium oleander* 'Sister Agnes'

Above: *Bougainvillea* 'Barbara Karst'

Aesthetic Character

The Italian cypress and stone pine set the stage for plantings that combine large scale and bold character with diverse understory plantings comprised of colorful and fragrant shrubs, perennials and grasses. Agaves, aloes, cacti and other succulents are commonly used for accent character and in containers.

Designs often incorporate formal planting areas and pathways with clipped hedges. This provides a framework for trees to be used as sentry elements, or to be organized into rows and or orchard patterns. Smaller plants can reinforce this formality or be grouped in mixed plantings with less order.

Shrubs continued		**PF**	**IG**
Lavandula dentata	French lavender	L/VL	2
Lavandula stoechas + cvs	Spanish Lavender	L/VL	2
Nerium oleander + cvs	Oleander	M/L	2
Phlomis fruticosa	Jerusalem Sage	M/L	2
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Salvia clevelandii + cvs	Cleveland Sage	L/VL	2
Salvia greggii + cvs	Autumn Sage	L/VL	2
Santolina chamaecyparissus	Lavender Cotton	M/L	2
Teucrium fruticans	Bush Germander	M/L	2
Viburnum tinus + cvs	Laurustinus	M/L	2
Vines		**PF**	**IG**
Bougainvillea spectabilis + cvs	Bougainvillea	M/L	2
Jasminum humile	Italian Jasmine	M/L	2
Hedge Plants		**PF**	**IG**
Myrtus communis + cvs	True Myrtle	M	1
Nerium oleander + cvs	Oleander	M/L	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Rhamnus alaternus	Italian Buckthorn	M/L	2
Perennials		**PF**	**IG**
Centaurea cineraria	Dusty Miller	M/L	2
Dietes vegeta 'Variegata'	Varegated Fortnight Lily	M	1
Euphorbia characias + ssp	Large Mediterranean Spurge	M/L	2
Helianthemum cultivars	Rock Rose	M/L	2
Helichrysum italicum	Curry Plant	M/L	2
Stachys byzantina	Lamb's Ear	M/L	2
Teucrium cossonii majoricum	NCN	M/L	2
Teucrium x lucidrys 'Prostrata'	NCN	M/L	2
Thymus species + cvs	Thyme	M	1
Grasses		**PF**	**IG**
Festuca glauca + cvs	Blue Fescue	M	1
Helictotrichon sempervirens + cvs	Blue Oat Grass	M	1
Muhlenbergia rigens	Deer Grass	M/L	2
Stipa gigantea	Giant Feather Grass	M	1
Agaves, Aloes, Cacti and Succulents		**PF**	**IG**
Agave attenuata + cvs	Foxtail Agave	L/VL	2
Agave salmiana var. ferox	NCN	L/VL	2
Aloe marlothii	NCN	L/VL	2
Dasylirion quadrangulatum	Mexican Grass Tree	L/VL	2
Echeveria species + cvs	Hen and Chicks	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2

Below: *Stipa gigantea*

Below: *Teucrium* x *lucidrys* 'Prostrata'

Below: *Thymus praecox* ssp. *arcticus*

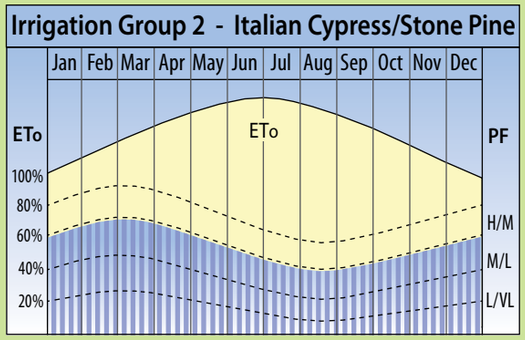
Plant Palette

Italian Cypress and Stone Pine

Seasonal Moisture and Irrigation Schedules

Reference evapotranspiration for Plant Climate Zones 19-24 ranges from 44-52 in. each year. Winter rainfall can often meet the moisture needs of this palette from December to February. However, some wintertime irrigation may be desirable during winter dry spells and drought years.

The chart below illustrates the full range of supplemental moisture needs for this palette. The higher end of the range applies mostly to trees and shrubs, as well as for newer plantings. The lower part of the range represents the needs of agaves, aloes, cacti and yuccas as well as for plantings in coastal areas with lower summer temperatures. Reduced irrigation is recommended during the summer months to enable plants in ornamental landscapes and gardens to retain good character without stimulating excessive levels of growth. These plants can grow together when they are organized into hydrozones with separate irrigation systems.



Below: *Cupressus sempervirens*, San Diego

Plant Palette

Lemon-scented Gum

Lemon-scented gum is considered by many people to be the most elegant evergreen tree grown in California. This is due to its tall and elegant trunk and slender branches that are covered with smooth cream colored bark. Mature trees provide good skyline character with an open canopy of foliage that allows both the branching and background to be visible. Its common name comes from the distinctive fragrance exuded by crushed leaves.

Like other species of eucalyptus native to Australia, the lemon-scented gum is widely adapted to Mediterranean climate conditions found in many parts of California. It grows best with regular moisture during winter and spring, and easily adapts to reduced summer moisture. It becomes a large tree over time, requiring ample space.

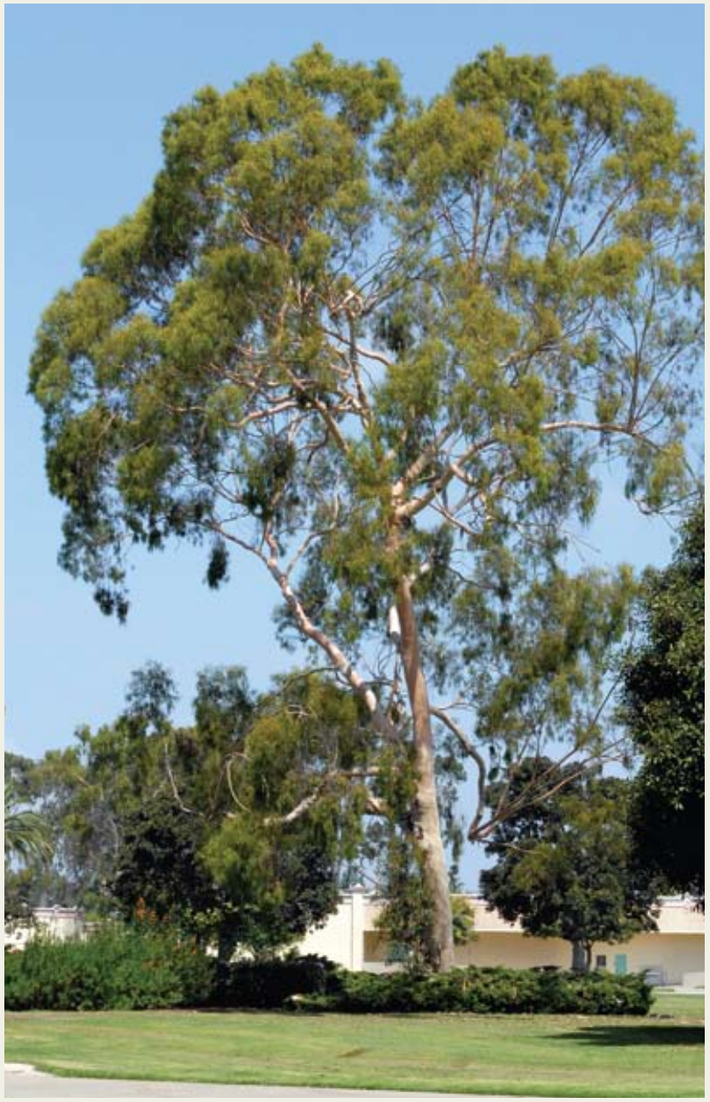
This plant palette is comprised of plants suited to large scale spaces in parks, greenbelts and on slopes. Many of the trees become prominent skyline features when they mature and are very effective in creating a strong landscape presence throughout most communities. Associated shrubs and understory plants are selected for their usefulness in large masses to cover expansive spaces and tolerate the abundance of leaves, bark and needles that fall from the trees.

California Plant Climate Zones

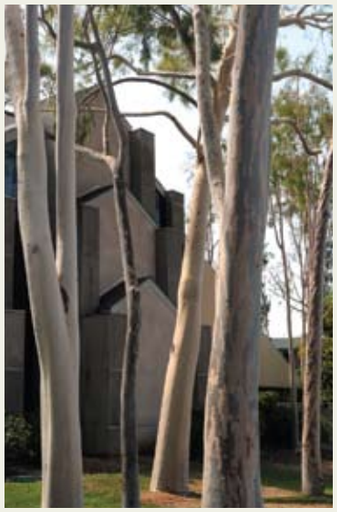
1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
									+	+	+	+	+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Pinus canariensis* with *Lonicera japonica* 'Halliana'



Above: *Eucalyptus citriodora*



Above: *Eucalyptus citriodora*

Horticultural Preferences

This plant palette is well adapted to Mediterranean climate conditions that are found in Plant Climate Zones 15-24, including areas with temperatures to 25°F during winter. All do best in well-drained soils, sunny exposures and with reduced amounts of summer moisture.

Most plants need ample space to grow and seasonal pruning to maintain appropriate shapes and sizes. Shrubs and ground covers are well adapted to large slope plantings in green belts and along highways where they receive little care or attention.

Trees		**PF**	**IG**
Brachychiton discolor	Queensland Lacebark	M/L	2
Cedrus deodara + cvs	Deodar Cedar	M/L	2
Eucalyptus citriodora	Lemon-scented Gum	M/L	2
Eucalyptus cladocalyx	Sugar Gum	M/L	2
Eucalyptus sideroxylon + cv	Red Ironbark	M/L	2
Grevillea robusta	Silky Oak	M/L	2
Melaleuca quinquenervia	Cajeput Tree	M	1
Melaleuca styphelioides	Prickly Paperbark	M	1
Pinus canariensis	Canary Island Pine	M/L	2
Quercus ilex	Holm Oak	M/L	2

Shrubs		**PF**	**IG**
Acacia redolens + cv	Prostrate Acacia	L/VL	2
Acacia cultriformis	Knife Acacia	L/VL	2
Cocculus laurifolius	Laurel-leaf Snail Seed	M	1
Cotoneaster lacteus	Red Clusterberry	M	1
Dodonaea viscosa + cvs	Hopseed Bush	M/L	2
Elaeagnus pungens + cvs	Silverberry	M/L	2
Eucalyptus conferruminata	Bushy Yate	M/L	2
Galvezia speciosa + cv	Island Bush Snapdragon	M/L	2

Below: *Acacia cultriformis*

Above: *Acacia redolens*

Aesthetic Character

The primary design purpose of this palette is to fit large scale spaces with bold and simple plantings. Trees such as lemon-scented gum, Canary Island pine and silky oak can achieve imposing size and help give enclosure and definition to big areas while providing distinctive skyline character. Understory and background areas on slopes and perimeters are to be treated with large scale mass plantings. Ground covers are selected for their capacity to cover large areas and further add to the functional simplicity of this palette.

Shrubs continued		PF	IG
Grevillea 'Canberra Gem'	NCN	M/L	2
Grevillea 'Noelii'	NCN	M/L	2
Grevillea 'Poorinda Constance'	NCN	M/L	2
Grevillea victoriae	Royal Grevillea	M/L	2
Jasminum mesnyi	Primrose Jasmine	M/L	2
Juniperus chinensis 'Sea Green'	NCN	M/L	2
Juniperus chinensis var sargentii	Sargent Juniper	M/L	2
Juniperus x pfitzeriana 'Aurea'	NCN	M/L	2
Juniperus x pfitzeriana 'Glauca'	NCN	M/L	2
Juniperus sabina 'Broadmoor'	NCN	M/L	2
Juniperus sabina 'Tamariscifolia'	Tamarix Juniper	M/L	2
Lantana camara + cvs	Yellow Sage	M/L	2
Leptospermum laevigatum + cv	Australian Tea Tree	M/L	2
Melaleuca armillaris	Drooping Melaleuca	M/L	2
Photinia x fraseri	Fraser Photinia	M	1
Pittosporum undulatum	Victorian Box	M	1
Plumbago auriculata	Cape Plumbago	M/L	2
Rhamnus alaternus	Italian Buckthorn	M/L	2
Rhamnus californica + cvs	California Coffeeberry	M/L	2
Rhus ovata	Sugar Bush	L/VL	2
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Tecoma capensis + cvs	Cape Honeysuckle	M/L	2
Xylosma congestum + cv	Shiny Xylosma	M	1

Ground Covers		PF	IG
Baccharis pilularis + cvs	Coyote Brush	M/L	2
Bougainvillea spectabilis + cvs	Bougainvillea	M/L	2
Lantana montevidensis + cv	Trailing Lantana	M/L	2
Lonicera japonica 'Halliana'	Hall's Honeysuckle	M	1
Myoporum x 'Pacifica'	NCN	M	1
Rosmarinus officinalis 'Prostratus'	Prostrate Rosemary	M/L	2

Below: *Cotoneaster lacteus*

Below: *Grevillea* 'Canberra Gem'

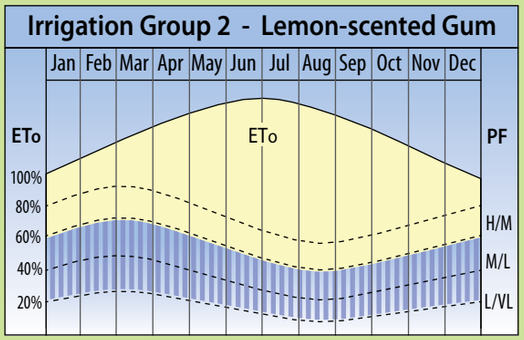
Plant Palette

Lemon-scented Gum

Seasonal Moisture and Irrigation Schedules

The average ETo for Plant Climate Zones 15-24 ranges from 44-52 in. each year. Winter rainfall can often meet moisture needs of this palette from December to February, particularly in Zones 15-17. However, some wintertime irrigation may be desirable during winter dry spells and drought years.

Plants listed in the lemon-scented gum palette have a range of moisture needs from moderate to low that can be addressed by organizing them into hydrozones and microclimates. As shown by this chart, reduced irrigation is recommended during summer months; this will enable plants in ornamental landscapes and gardens to retain good character without stimulating excessive levels of growth.



Below: *Grevillea robusta*

Plant Palette

New Zealand Christmas Tree

This palette is designed to bring attention to plants that are highly suited for use in landscapes and gardens in Plant Climate Zones 17 and 24. The New Zealand Christmas tree is endemic to New Zealand where it often grows on cliffs and along shorelines adjacent to ocean waters where it is fully exposed to salt spray, sand and wind. Under these conditions it shows good adaptability to moist winters and cool summers with frequent fog.

There are a variety of plants that are well adapted to such immediate coastal conditions including many succulents. This palette provides choices for virtually every need. Trees can be used for color, shade and screening. Many shrubs are noted for their flowers, while others are used to direct views or to be clipped into hedges. Perennial and succulent plants are highly suited to add detailed interest in small spaces and containers.

When viewed as a whole, this palette fits coastline areas ranging from central to southern California, where humidity and summer fog helps plants retain a fresh and lush character. Most species grow in warmer and drier inland areas, however, such conditions cause these plants to have shorter flowering cycles and drier foliage character. Additional plants for coastline gardens can be seen within the Coastal Garden Plants list on pages 58-59.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
											+							+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Melaleuca nesophila*

Above: *Metrosideros excelsus*

Above: *Metrosideros excelsus*

Horticultural Preferences

This planting palette is well adapted to coastline conditions in Plant Climate Zones 17 and 24, including moist winters, summertime fog and mild year round temperatures. Most trees and large shrubs adapt to daily wind and salt air and are helpful in creating microclimates that offer shelter to smaller plantings.

The best growth occurs in well-drained soils. Raised planters and elevated beds can be used to provide better soils and good drainage in areas that have clayey or compacted soils. Coastal zones have relatively low evapotranspiration conditions; most plants in this palette will do well with reduced levels of summer water.

Trees		**PF**	**IG**
Eucalyptus ficifolia	Red-flowering Gum	M/L	2
Dracaena draco	Dragon Tree	L/VL	2
Melaleuca quinquenervia	Cajeput Tree	M	1
Metrosideros excelsus	New Zealand Christmas Tree	M/L	2

Shrubs		**PF**	**IG**
Artemisia 'Powis Castle'	NCN	M/L	2
Arctostaphylos edmundsii + cvs	Little Sur Manzanita	M/L	2
Arctostaphylos hookeri + cvs	Monterey Manzanita	M/L	2
Ceanothus gloriosus + cvs	Point Reyes Ceanothus	M/L	2
Ceanothus thyrsiflorus var. griseus	Carmel Creeper	M/L	2
Echium candicans + cv	Pride of Madeira	M/L	2
Encelia californica + cv	Coastal Encelia	M/L	2
Galvezia speciosa + cv	Island Bush Snapdragon	M/L	2
Hakea suaveolens	Sweet-scented Hakea	M/L	2
Leucadendron 'Cloudbank Ginny'	NCN	M/L	2
Leucadendron 'Safari Sunset'	NCN	M/L	2
Leucospermum catherinae	Catherine Wheel Pincushion	M/L	2
Leucospermum cordifolium + cvs	Nodding Pincushion	M/L	2
Lavatera assurgentiflora + cv	Tree Mallow	M/L	2

Below: *Melaleuca nesophila*

Above: *Armeria maritima*

Aesthetic Character

Plants listed for use along with the New Zealand Christmas tree include a diverse range of species that offer year round color and interest. This palette is well suited to cottage style plantings with the strong use of shrubs, perennials and ornamental grasses. These plantings flourish during spring and summer and provide a diverse and informal character.

Trees and shrubs exposed to daily winds can take on a windswept profile that adds a unique quality to their character. Succulents exposed to salt spray take on richer shades of color and spotted foliage.

Shrubs continued		PF	IG
Lavatera maritima	Sea Mallow	M/L	2
Melaleuca armillaris	Drooping Melaleuca	M/L	1
Melaleuca nesophila	Pink Melaleuca	M/L	2
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Santolina chamaecyparissus + cvs	Lavender Cotton	M/L	2
Westringia fruticosa + cvs	Coast Rosemary	M/L	2
Westringia 'Wynyabbie Gem'	NCN	M/L	2

Carex, Grasses, Perennials and Rushes		PF	IG
Achillea millefolium + cvs	Common Yarrow	M/L	2
Armeria maritima + cvs	Common Thrift	M/L	2
Artemisia pycnocephala + cv	Sandhill Sage	M/L	2
Asteriscus maritimus + cv	Gold Coin	M/L	2
Bulbine frutescens + cv	NCN	M/L	2
Erigeron glaucus + cvs	Beach Aster	M/L	2
Leymus condensatus 'Canyon Prince'	Giant Wild Rye	M/L	2
Limonium perezii	Sea Lavender	M/L	2
Osteospermum jucundum	NCN	M/L	2
Plecostachys serpyllifolia	NCN	M/L	2

Agaves, Aloes, Succulents		PF	IG
Aeonium arboreum 'Zwartkop'	NCN	L/VL	2
Aeonium 'Sunburst'	NCN	L/VL	2
Agave americana 'Mediopicta'	Variegated Century Plant	L/VL	2
Agave victoria-reginae	Queen Victoria Agave	L/VL	2
Agave shawii	Shaw's Agave	L/VL	2
Aloe arborescens	Candelabra Aloe	L/VL	2
Aloe x nobilis	NCN	L/VL	2
Aloe plicatilis	Fan Aloe	L/VL	2
Aloe striatula	Hardy Aloe	L/VL	2
Dudleya pulverulenta	Chalk Dudleya	L/VL	2
Dudleya virens + cvs	Dudleya	L/VL	2
Echeveria crenulata + cvs	NCN	L/VL	2
Echeveria 'Afterglow'	NCN	L/VL	2
Euphorbia tirucalli 'Sticks of Fire'	NCN	L/VL	2
Kalanchoe luciae	Paddle Plant	L/VL	2
Kalanchoe pumila	Flower Dust Plant	L/VL	2
Senecio talinoides ssp. mandraliscae	NCN	L/VL	2

Below: *Dietes grandiflora* 'Variegata'

Below: *Echeveria* 'Afterglow'

Below: *Kalanchoe luciae*

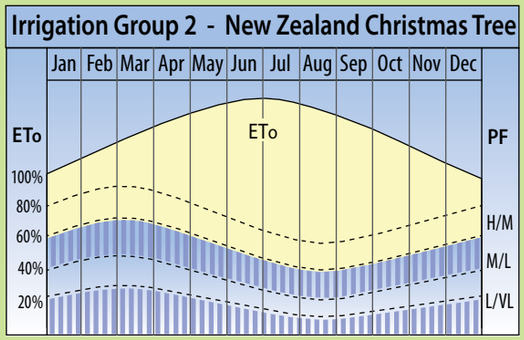
Plant Palette

New Zealand Christmas Tree

Seasonal Moisture and Irrigation Schedules

The average ETo for Plant Climate Zones 17 and 24 are the lowest in California, ranging from 33-44 in. each year. Moisture needs for plantings along the coastal edge, particularly in Zone 17, can easily be met by rainfall during winter months and can experience a very long growing season, ranging from 10-12 months. Some wintertime irrigation may be desirable during winter dry spells and drought years, particularly in southern California. Irrigation should be reduced through spring to enable plants to harden off and adapt to drier soils and summer temperatures.

The chart below contains two baseline irrigation schedules. The top curve shows a range of supplemental moisture from moderate to low that reflects the needs of trees and shrubs. The lower curve shows a moisture range from low to very low which represents the needs of agaves, aloes and succulents. These plants can grow together when they are organized into hydrozones with separate irrigation systems.



Below: A combination of *Aeonium, Agave, Aloe* and *Kalanchoe*

Plant Palette

Oak Tree

The oak tree palette has been designed to recognize a number of California and Mediterranean oak species that have been widely used in ornamental landscapes and gardens over the years. It also brings attention to the great compatibility between California native and Mediterranean shrubs and ground covers that can be planted around oaks.

Oaks are among the most celebrated trees in California. Many monumental scale specimens have become heritage trees in communities across the state to acknowledge their age and connection to the regional history and ecology. New oaks are often planted with the intention of giving something to the future, knowing these trees take many years to reach maturity.

The goal of this palette is to present planting suggestions that work for mature and young oaks alike. Many established trees such as the valley oak seen in the picture to the right, provide a bold landscape presence. And, it is possible to add new plantings grouped in hydrozones that add diversity and interest without placing older trees at risk. Landscapes that do not have mature trees often take many years to evolve and go through several stages of composition. The earlier stages are often filled with sun tolerant plants and the greatest diversity; trees assert increasing influence in older stages by dominating more space, adding shade and becoming visually prominent.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				+	+				+	+	+	+	+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Quercus suber*

Below: An existing *Quercus lobata* in the background of a mixed perennial and entryway planting at the Turtle Bay Exploration Park, Redding

Trees		PF	IG
Quercus agrifolia	Coast Live Oak	M/L	2
Quercus engelmannii	Mesa Oak	M/L	2
Quercus ilex	Holm Oak	M/L	2
Quercus lobata	Valley Oak	M/L	2
Quercus suber	Cork Oak	M/L	2

Shrubs		PF	IG
Arbutus unedo 'Compacta'	Compact Strawberry Tree	M/L	2
Arctostaphylos bakeri 'Louis Edmunds'	Louis Edmunds Manzanita	M/L	2
Arctostaphylos edmundsii + cvs	Little Sur Manzanita	M/L	2
Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	M/L	2
Arctostaphylos hookeri + cvs	Monterey Manzanita	M/L	2
Arctostaphylos 'Howard McMinn'	McMinn Manzanita	M/L	2
Arctostaphylos 'John Dourley'	John Dourley Manzanita	M/L	2
Arctostaphylos 'Lester Roundtree'	Lester Roundtree Manzanita	M/L	2
Arctostaphylos manzanita + cvs	Parry Manzanita	M/L	2
Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	M/L	2
Arctostaphylos pumila	Dune Manzanita	M/L	2
Arctostaphylos 'Sunset'	Sunset Manzanita	M/L	2
Artemisia californica + cvs	California Sagebrush	L/VL	2

Above: Arctostaphylos 'Howard McMinn'

Horticultural Preferences

Good drainage is perhaps the most essential soil preference for species listed in the oak tree palette. When clayey soils are encountered, it is advisable to work with elevated topography or to position trees and shrubs on slopes to improve drainage. Low amounts of organic amendments can be added to the backfill mix at the time of planting for additional nutrients.

Plants included in this list tolerate periodic winter frosts and temperatures to 25° F. They are well adapted to Plant Climate Zones 8-9, and 15-24 where they grow with sun, heat and reduced amounts of summer moisture.

Below: *Eriogonum fasciculatum* 'Dana Point'

Above: *Arbutus unedo* 'Compacta'

Aesthetic Character

These images of landscape plantings around oaks show great diversity and a natural landscape appearance. When mature trees are present they provide dominance and establish a point of focus within the landscape or garden.

Young trees in new plantings take many years to mature and establish their visual dominance. Until this occurs, the associated shrubs and ground covers grow in bright and sunny exposures and provide many colors and textures. These plantings often show more diversity than order and need the help of pathways, walls and topography to define spaces and organization.

Shrubs continued		PF	IG
Ceanothus 'Concha'	Concha Ceanothus	M/L	2
Ceanothus 'Dark Star'	Dark Star Ceanothus	M/L	2
Ceanothus 'Frosty Blue'	Frosty Blue Ceanothus	M/L	2
Ceanothus 'Joyce Coulter'	Joyce Coulter Ceanothus	M/L	2
Ceanothus 'Julia Phelps'	Julia Phelps Ceanothus	M/L	2
Ceanothus 'Ray Hartman'	Ray Hartman Ceanothus	M/L	2
Ceanothus thyrsiflorus v. griseus	Carmel Ceanothus	M/L	2
Ceanothus 'Wheeler Canyon'	Wheeler Canyon Ceanothus	M/L	2
Cistus 'Blanche'	NCN	M/L	2
Cistus x pulverulenta 'Sunset'	NCN	M/L	2
Cistus x purpureus	Orchid Rockrose	M/L	2
Cistus x skanbergii	NCN	M/L	2
Cistus 'Victor Reiter'	NCN	M/L	2
Dendromecon harfordii	Island Bush Poppy	L/VL	2
Eriogonum arborescens	Santa Cruz Island Buckwheat	L/VL	2
Eriogonum giganteum	St. Catherine's Lace	L/VL	2
Eriogonum fasciculatum + cvs	Common Buckwheat	L/VL	2
Heteromeles arbutifolia + cvs	Toyon	M/L	2
Lavandula angustifolia	English Lavender	M/L	2
Lavandula dentata	French lavender	M/L	2
Lavandula 'Goodwin Creek Gray'	NCN	M/L	2
Lavandula x intermedia + cvs	Lavadin	M/L	2
Lavandula stoechas + cvs	Spanish Lavender	M/L	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Rhamnus alaternus	Italian Buckthorn	M/L	2
Rhamnus californica + cvs	California Coffeeberry	M/L	2
Rhus lentii	Pink Flowering Sumac	L/VL	2
Rhus ovata	Sugar Bush	L/VL	2
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2
Salvia clevelandii + cvs	Cleveland Sage	L/VL	2
Salvia greggii + cvs	Autumn Sage	L/VL	2

Ground Covers		PF	IG
Baccharis pilularis 'Pigeon Point'	Pigeon Point Coyote Brush	M/L	2
Baccharis pilularis 'Twin Peaks #2'	Twin Peaks #2 Coyote Brush	M/L	2
Cistus salviifolius	Sageleaf Rockrose	M/L	2
Iva hayesiana	Hayes Iva	M/L	2
Rosmarinus officinalis 'Prostrata'	Prostrate Rosemary	M/L	2
Salvia 'Bee's Bliss'	Bee's Bliss Sage	L/VL	2
Salvia 'Mrs. Beard'	Mrs. Beard Sage	L/VL	2

Below: *Baccharis pilularis* 'Pigeon Point'

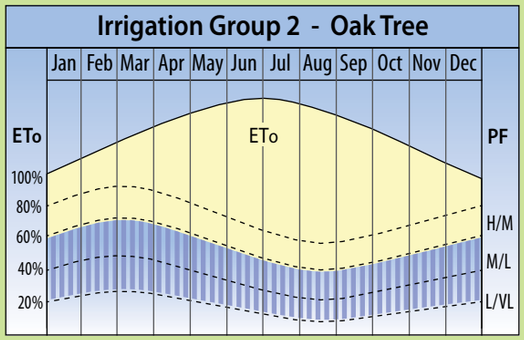
Below: *Cistus skanbergii*

Plant Palette
Oak Tree

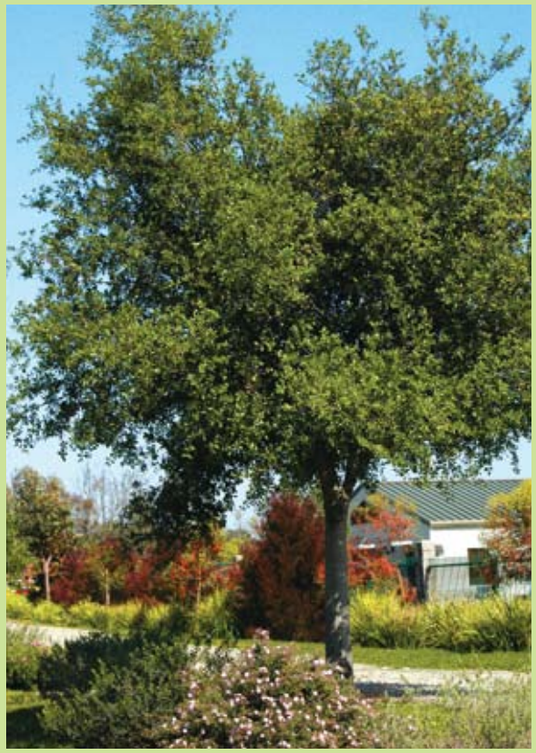
Seasonal Moisture and Irrigation Schedules

Reference evapotranspiration for Plant Climate Zones 8-9 ranges from 56-58 in. each year, and 44-52 in. in Zones 15-24. Average winter rainfall can meet most the moisture needs of this palette in all of these zones from December to February. However, some wintertime irrigation may be desirable during winter dry spells and drought years.

The chart below illustrates a supplemental moisture range from moderate to low relative to ETo. Reduced irrigation is recommended during the summer months; this will enable plants in ornamental landscapes and gardens to retain good character without stimulating excessive levels of growth. These plants can grow together when they are organized into hydrozones with separate irrigation systems. The higher end of this range is suggested for newer plantings and warmer zones; the lower end is suggested for established plantings and areas with lower summer temperatures.



Below: *Quercus agrifolia* with *Cistus skanbergii*



Plant Palette

Olive

The olive is one of the most widely recognized trees around the world. It has a rich and varied history since the earliest days of civilization and continues to be one of the most symbolic and enduring plants in Mediterranean regions where it has been cultivated for centuries to obtain oils from its fruit.

The olive is grown extensively in California's coastal, inland, valley and desert zones, where it is used as a specimen plant in courtyards, entry planters and along edges of drives and fields. It is widely adapted to a variety of soil types, including calcareous, as well as sun, heat, cold and drought. Established plants require low amounts of supplemental water; young plants grow more quickly if watered regularly.

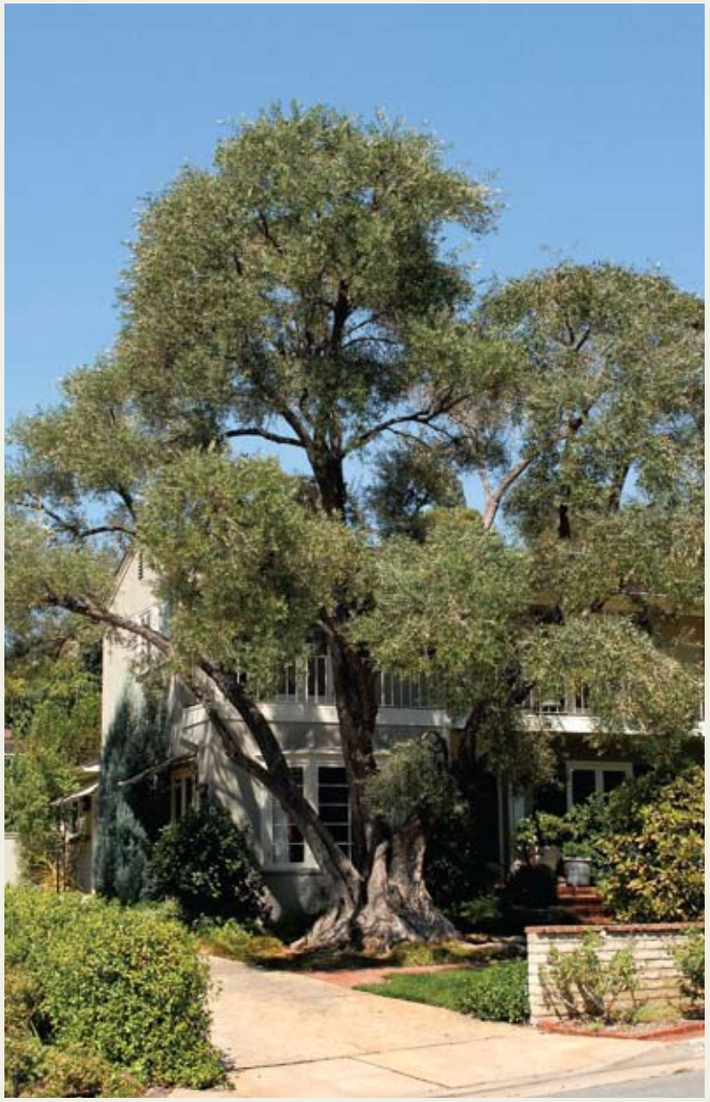
Olive trees exhibit a number of characteristics of plants having evolved in Mediterranean climates with warm summers and long periods of drought. Leaves are thick and leathery and do not wilt under moisture stress. The pale color and dense covering of hairs on the undersides helps leaves absorb less heat and reduce moisture loss. It can develop extensive root systems and swollen trunks that can capture and store moisture, and sprout new growth if it is burned in a fire. A combination of California native and Mediterranean trees, shrubs and succulents are listed with the olive that share many of the same adaptations and characteristics. Additional Mediterranean plants are listed on pages 48-49.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				+	+								+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Olea europaea*



Above: *Olea europaea*

Above: *Cistus purpureus*

Horticultural Preferences

This plant palette is well suited for Plant Climate Zones 8-9 and 19-24. Plants are adapted to frost that can occur over 40 times each year in Zone 8. The average annual ETo for Zones 8-9 ranges from 56-58 in., and 44-52 in. in Zones 19-24, which results in different annual water budgets. Plants in this list fit into two hydrozones and are adapted to reduced amounts of summer moisture.

Plant growth is best in well-drained soils. Most species thrive in warm and sunny exposures. Established plants can endure periods of drought and recover when moisture becomes available.

Trees		**PF**	**IG**
Arbutus unedo + cvs	Strawberry Tree	M/L	2
Cupressus sempervirens + cvs	Italian Cypress	M/L	2
Laurus nobilis	Sweet Bay	M/L	2
Olea europaea + cvs	Olive	M/L	2
Pinus pinea	Italian Stone Pine	M/L	2
Quercus engelmannii	Mesa Oak	M/L	2
Quercus suber	Cork Oak	M/L	2

Palms		**PF**	**IG**
Chamaerops humilis	Mediterranean Fan Palm	M	1
Phoenix canariensis	Canary Island Date Palm	M	1
Phoenix dactylifera	Date Palm	M	1

Shrubs		**PF**	**IG**
Arbutus unedo 'Compacta'	Compact Strawberry Tree	M/L	2
Arctostaphylos 'Howard McMinn'	McMinn Manzanita	M/L	2
Arctostaphylos 'John Dourley'	John Dourley Manzanita	M/L	2
Arctostaphylos manzanita 'Dr. Hurd'	Manzanita	M/L	2
Arctostaphylos 'Sunset'	Sunset Manzanita	M/L	2
Cistus x pulverulentus 'Sunset'	NCN	L/VL	2
Cistus x purpureus	Orchid Rockrose	L/VL	2

Below: *Lavandula* 'Goodwin Creek Grey'

Above: *Achillea* 'Moonshine'

Aesthetic Character

The olive tree commonly provides the foundation of color and composition in Mediterranean gardens. The pale green foliage provides an opportunity to plant sage, rosemary, rockroses and yarrow to harmonize and reinforce a subdued foliage aesthetic. This soft color combines well with the bright springtime flower colors these plants offer, which also offer distinctive flower and foliage fragrances.

Olives are placed where they can provide visual dominance and a point of focus within landscapes or gardens. Mature trees have bold trunks and low branching habits that can be pruned to reveal striking year round character.

Shrubs continued		PF	IG
Cistus 'Victor Reiter'	NCN	L/VL	2
Echium candicans + cv	Pride of Madeira	L/VL	2
Lavandula 'Goodwin Creek Grey'	NCN	L/VL	2
Lavandula stoechas + cvs	Spanish Lavender	L/VL	2
Leptospermum laevigatum	Australian Tea Tree	L/VL	2
Nerium oleander + cvs	Oleander	M/L	2
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Ruscus aculeatus	Butcher's Broom	M/L	2
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2
Salvia leucantha + cv	Mexican Bush Sage	M/L	2
Santolina chamaecyparissus	Lavender Cotton	M/L	2
Teucrium fruticans	Bush Germander	M/L	2
Viburnum tinus + cvs	Laurustinus	M/L	2

Hedge Plants		PF	IG
Myrtus communis + cvs	True Myrtle	M	1
Nerium oleander + cvs	Oleander	M/L	2
Rhamnus alaternus	Italian Buckthorn	M/L	2

Perennials		PF	IG
Achillea 'Moonshine'	Yellow Yarrow	M/L	2
Centaurea gymnocarpa	Velvet Centaurea	M/L	2
Euphorbia characias wulfenii	NCN	M/L	2
Helichrysum italicum	Curry Plant	M/L	2
Perovskia atriplicifolia	Russian Sage	M/L	2
Romneya coulteri + cv	Matilija Poppy	L/VL	2
Stachys byzantina	Lamb's Ear	M/L	2
Teucrium x lucidrys + cv	Wall Germander	M/L	2

Agaves, Aloes, Cacti and Succulents		PF	IG
Agave americana + cvs	Century Plant	L/VL	2
Agave americana 'Mediopicta Alba'	NCN	L/VL	2
Agave parryi	NCN	L/VL	2
Agave salmiana ferox	NCN	L/VL	2
Aloe brevifolia	NCN	L/VL	2
Aloe marlothii	NCN	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Opuntia ficus-indica	Indian Fig	L/VL	2
Opuntia robusta	NCN	L/VL	2
Sedum pachyphyllum	Jelly-bean	L/VL	2
Sedum x rubrotinctum	Pork and Beans	L/VL	2

Below: *Perovskia atriplicifolia*

Below: *Stachys byzantina*

Below: *Opuntia robusta*

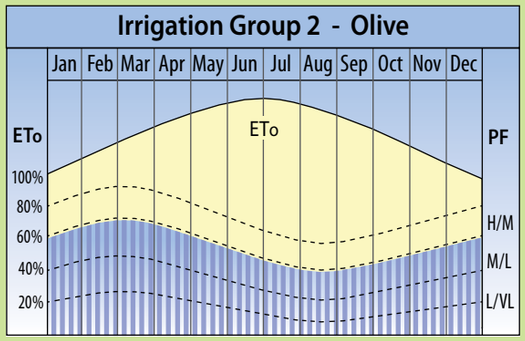
Plant Palette

Olive

Seasonal Moisture and Irrigation Schedules

The average annual ETo for Plant Climate Zones 8-9 ranges from 56-58 in. and 44-52 in. in Zones 19-24, resulting in different water budgets for these zones. Winter rainfall can often meet the moisture needs of this palette from December to February. However, some wintertime irrigation may be desirable during winter dry spells and drought years.

The chart below illustrates the full range of supplemental moisture needs for this palette. Reduced irrigation is recommended during summer months to enable plants in ornamental landscapes and gardens to retain good character without stimulating excessive levels of growth. These plants can grow together when they are organized into hydrozones with separate irrigation systems. The higher end of the range applies mostly to trees and shrubs, as well as for newer plantings. The lower part of the range represents the needs of agaves, aloes, cacti and succulents as well as for plantings in coastal areas with lower summer temperatures.



Below: *Rosmarinus officinalis* 'Prostratus' (foreground), *Agave salmiana* 'Ferox' (background)

Plant Palette

Prickly Paperbark

This palette brings attention to plants that are highly adapted to warm climate conditions found throughout Plant Climate Zones 19-24 in southern California. The emphasis is placed on paperbark and bottle brush tees from Australia that are naturally adapted to coastal habitats and both wet and dry conditions. This range of temperature and moisture tolerance makes them well suited for areas around warm season turf grasses in traditional landscape and garden plantings. At the same time, the combination of shade, litter and surface root growth makes these trees best suited to perimeter areas and among shrubs and ground covers.

The list of trees is complemented with a variety of shrubs, ground covers, perennials and vines that are also adapted to planter areas around turf grass. These plants provide good foliage and seasonal color variations that can be grouped in layers and foundation type plantings.

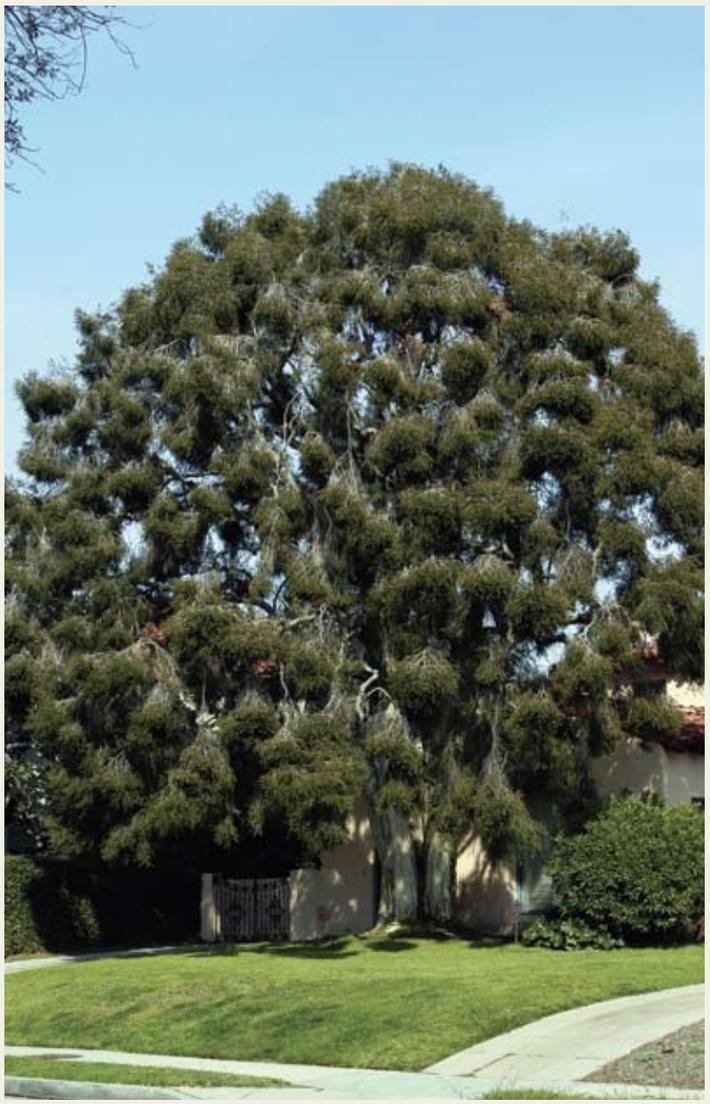
A review of the plant factors indicates variations in moisture needs among the plants in this palette. These plants can grow together when they are organized into hydrozones and microclimates, and sustained with separate irrigation systems. The charts on the opposite page show the baseline supplemental moisture profile for these groups of plants that can be used as a guide to set irrigation schedules.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
													+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Callistemon viminalis*



Above: *Melaleuca styphelioides*

Above: *Melaleuca styphelioides*

Horticultural Preferences

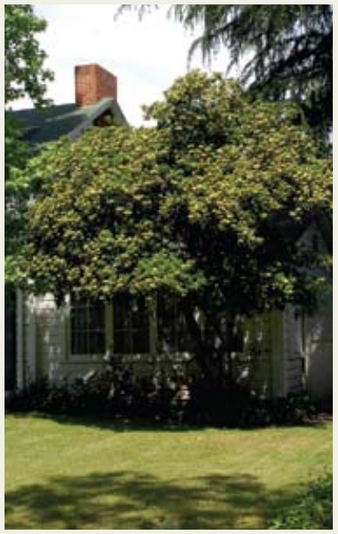
This group of plants is adapted to Plant Climate Zones 19-24. The harshest conditions occur in Zone 24 with more than 20 days of frost each year, and 70-100 days when temperatures exceed 90°F. Conditions near the coast are not as cold or warm, and the air is more humid.

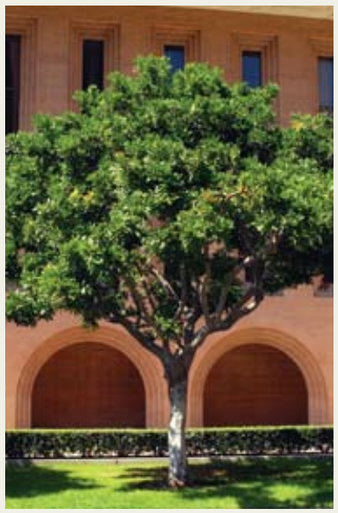
Most species can tolerate heavy soils and short periods of both wet and dry conditions. Summer moisture varies among plants and they should be grouped into microclimates and hydrozones to reflect their seasonal needs.

Trees		**PF**	**IG**
Callistemon citrinus + cvs	Lemon Bottlebrush	M/L	2
Callistemon viminalis + cvs	Weeping Bottlebrush	M/L	2
Cupaniopsis anacardioides	Carrot Wood	M	1
Melaleuca decussata	Totem Poles	M	1
Melaleuca linariifolia	Flaxleaf Paperbark	M	1
Melaleuca quinquenervia	Cajeput Tree	M	1
Melaleuca styphelioides	Prickly Paperbark	M	1

Shrubs		**PF**	**IG**
Alyogyne huegelii + cvs	Blue Hibiscus	M/L	2
Carissa macrocarpa + cvs	Natal Plum	M	1
Escallonia bifida	White Escallonia	M	1
Escallonia x exoniensis 'Frades'	Pink Escallonia	M	1
Escallonia 'Newport Dwarf'	NCN	M	1
Escallonia 'Red Elf'	NCN	M	1
Escallonia rubra	Red Escallonia	M	1
Grevillea lavandulaceae + cvs	Lavender Grevillea	M/L	2
Grevillea 'Noelii'	NCN	M/L	2
Grevillea 'Poorinda Constance'	NCN	M/L	2
Grevillea 'Robyn Gordon'	NCN	M/L	2

Below: *Pittosporum tobira*





Above: *Cupaniopsis anacardioides*

Aesthetic Character

The prickly paperbark palette reflects traditional landscape aesthetics based upon turf grass and perimeter planters. This combination of fresh green lawn and colorful trees and shrubs represents a highly popular landscape style for many suburban communities. There is a strong sense of order, purpose and regularity to this planting approach.

Foundation planters placed along buildings and walls are commonly seen in this style of landscape. Today, there are many examples where shrubs have grown into trees and provide striking character when they are well pruned.

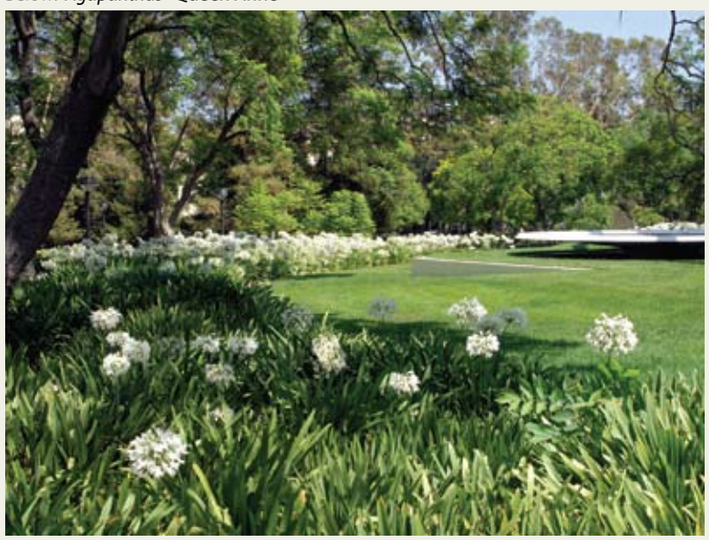
Shrubs continued		**PF**	**IG**
Grevillea thelemanniana + ssp	Hummingbird Bush	M/L	2
Grevillea victoriae	Royal Grevillea	M/L	2
Grewia occidentalis	Lavender Starflower	M	1
Hakea laurina	Pincushion Hakea	M/L	2
Hakea suaveolens	Sweet-scented Hakea	M/L	2
Isopogon formosus	Rose Coneflower	M/L	2
Lantana camara + cvs	Yellow Sage	M/L	2
Leptospermum laevigatum + cv	Australian Tea Tree	M/L	2
Leptospermum petersonii	Lemon-scented Tea Tree	M/L	2
Leptospermum scoparium + cvs	New Zealand Tea Tree	M/L	2
Melaleuca nesophila	Pink Melaleuca	M/L	2
Metrosideros kermadecensis + cvs	Dwarf Pohutakawa	M	1
Pittosporum crassifolium + cv	Karo	M	1
Pittosporum eugenioides + cv	NCN	M	1
Pittosporum tenuifolium + cvs	NCN	M	1
Pittosporum tobira + cvs	Tobira	M	1
Polygala x dalmaisiana	Sweet-pea Shrub	M	1
Polygala fruticosa 'Petite Butterflies'	NCN	M	1

Perennials		**PF**	**IG**
Agapanthus species + cvs	Lily-of-the-Nile	M	1
Anisodontea x hypomandarum + cvs	Cape Mallow	M	1
Dietes bicolor	NCN	M	1
Dietes grandiflora + cvs	Fortnight Lily	M	1
Hebe species + cvs	Hebe	M	1
Hemerocallis species + cvs	Daylily	M	1
Osteospermum jucundum	NCN	M/L	2
Phormium tenax + cvs	New Zealand Flax	M	1
Russelia equisetiformis	Coral Fountain		

Ground Covers		**PF**	**IG**
Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	M	1
Myoporum x 'Pacifica'	NCN	M	1
Myoporum parvifolium + cvs	Prostrate Myoporum	M	1
Pelargonium peltatum + cvs	Ivy Geranium	M	1

Vines:			
Clytostoma callistegioides	Violet Trumpet Vine	M	1
Distictis buccinatoria	Blood-Red Trumpet Vine	M	1
Jasminum officinale	Poet's Jasmine	M	1
Pandorea jasminoides + cvs	Bower Vine	M	1
Solanum jasminoides	Potato Vine	M	1

Below: *Agapanthus* 'Queen Anne'

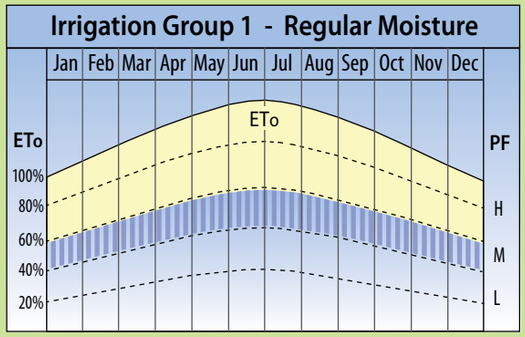


Below: *Phormium tenax* 'Variegata'

Plant Palette

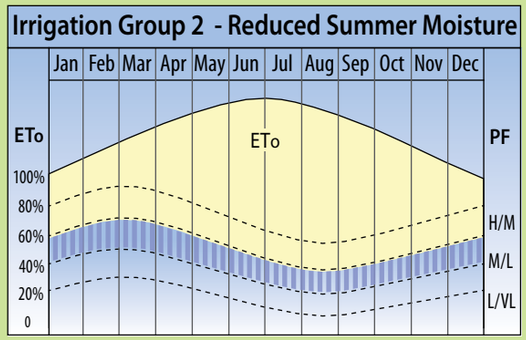
Prickly Paperbark

Seasonal Moisture and Irrigation Schedules



Above: Seasonal moisture curve for warm season grass and plants with moderate water needs throughout the year.

Below: Seasonal moisture curve for plants adapted to moderate moisture in winter and low moisture in summer.



Below: *Callistemon citrinus*

Plant Palette

Pomegranate

The pomegranate can become the perfect focal plant for a mixed garden planting. It commonly grows as a dense shrub for many years, but eventually can be pruned into a very handsome multi-trunk tree. Red to orange flowers provide attractive accent value in the spring and large red fruit provides colorful contrast to the leaves that are turning yellow in the fall. This fruit itself is edible or can be processed into jellies, jams and drinks.

This palette is designed to bring attention to a number of plants grown in Mediterranean climates for their fruit, fragrance and culinary value, such as rosemary, sage and thyme. Many of these plants attract birds and butterflies. Trees such as the pomegranate, olive and edible fig can all be pruned as they mature into very sculptural specimens with interesting bark and branching character.

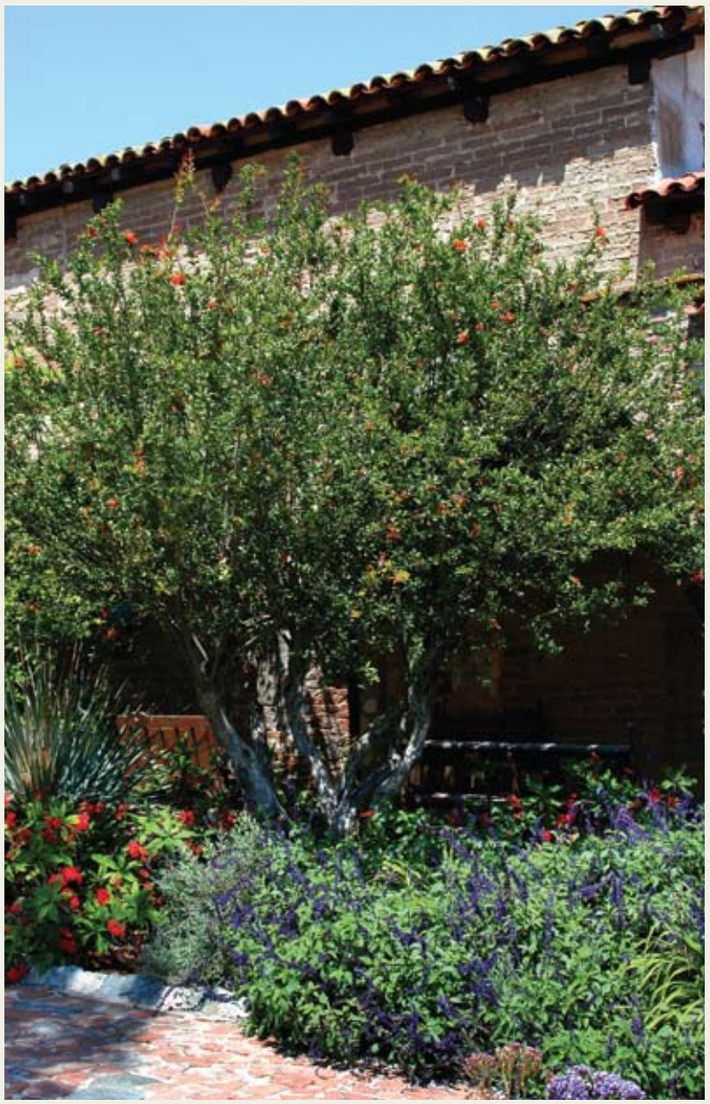
A review of the plant factors indicates differences among moisture needs of plants in this palette. These plants can grow together when they are organized into hydrozones and microclimates, and sustained with separate irrigation systems. Clipped hedges and border plants can be efficiently irrigated with drip lines. Bubbler irrigation can also be used to provide moisture to fruit bearing trees to meet their needs. The charts on the opposite page show the baseline supplemental moisture profile for these groups of plants that can be used as a guide to set irrigation schedules.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				+	+								+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Laurus nobilis* in a formal garden, LA County Arboretum



Above: *Punica granatum,* Mission San Juan Capistrano

Above: *Punica granatum* 'Wonderful'

Horticultural Preferences

This plant palette is suited for Plant Climate Zones 8-9 and 19-24. Frost can occur over 40 times each year in Zone 8. The average annual ETo for Zones 8-9 ranges from 56-58 in., and 44-52 in. in Zones 19-24, which results in different annual water budgets. Plants in this list fit into three hydrozones; some plants need regular moisture throughout the year, others adapt to reduced summer moisture, and succulents have the lowest annual and seasonal need of all.

Plant growth is best in loamy and well-drained soils. Warm summer temperatures and sunny exposures help fruit bearing trees achieve best productivity. Herbs and perennials do well with a mixture of sun and shade.

Trees		**PF**	**IG**
Acca sellowiana + cvs	Pineapple Guava	M	1
Ficus carica 'Black Mission'	Black Mission Fig	M	1
Ficus carica 'Brown Turkey Improved'	Brown Turkey Fig	M	1
Ficus carica 'Kadota'	Kadota Fig	M	1
Ficus carica 'White Genoa'	White Genoa Fig	M	1
Laurus nobilis	Sweet Bay	M/L	2
Olea europaea 'Manzanillo'	Olive	M/L	2
Psidium cattleianum + cvs	Strawberry Guava	M	1
Punica granatum 'Wonderful'	Wonderful Pomegranate	M	1

Shrubs		**PF**	**IG**
Arbutus unedo 'Compacta'	Compact Strawberry Tree	M/L	2
Capparis spinosa	Caper	M/L	2
Citrus cultivars	Orange, Lemon, Kumquat	M	1
Cistus x pulverulenta 'Sunset'	NCN	M/L	2
Helianthemum cultivars	Rock Rose	M/L	2
Lavandula angustifolia + cvs	English Lavender	M/L	2
Lavandula dentata	French lavender	M/L	2
Lavandula 'Goodwin Creek Gray'	NCN	M/L	2
Lavandula x intermedia + cvs	Lavadin	M/L	2

Below: *Punica granatum* 'Nana'

Above: *Ficus carica* 'Black Mission'

Aesthetic Character

The pomegranate palette can lead to a carefully organizes and crafted garden design with formal walkways and planting areas. This design aesthetic reflects a long standing tradition to grow culinary and fruit bearing plants in beds that can have improved soils and regular moisture for optimum productivity. Trees are often a focal element within these planters; smaller shrubs and clipped hedges help define borders and perimeter screening.

In contrast to a formal design approach, many plants are easy to grow along meandering pathways, to cascade over low walls and be interspersed among other plants.

Shrubs continued		PF	IG
Lavandula multifida	Fernleaf Lavender	M/L	2
Lavandula stoechas + cvs	Spanish Lavender	M/L	2
Punica granatum 'Nana'	Dwarf Pomegranate	M	1
Rosa mutabilis	Butterfly Rose	M	1
Rosmarinus officinalis + cvs	Rosemary	M/L	2
Santolina chamaecyparissus + cvs	Lavender Cotton	M/L	2
Santolina pinnata + cv	NCN	M/L	2
Santolina virens	NCN	M/L	2
Teucrium fruticans	Bush Germander	M/L	2

Perennials and Grasses		PF	IG
Achillea 'Moonshine'	Yarrow	M/L	2
Agastache species + cvs	Hummingbird Mint	M/L	2
Centaurea cineraria	Dusty Miller	M/L	2
Festuca glauca + cvs	Blue Fescue	M	1
Helichrysum italicum	Curry Plant	M/L	2
Helictotrichon sempervirens + cvs	Blue Oat Grass	M	1
Nepeta x faassenii	Catmint	M	1
Salvia officinalis + cvs	Garden Sage	M/L	2
Stachys byzantina	Lamb's Ear	M/L	2
Teucrium cossonii	Majorcan Teucrium	M/L	2
Teucrium x lucidrys + cv	Wall Germander	M/L	2
Thymus species + cvs	Thyme	M	1

Potted Plants		PF	IG
Agave americana 'Mediopicta Alba'	Variegated Century Plant	L/VL	2
Agave parryi + var	Artichoke Agave	L/VL	2
Agave victoriae-reginae	Queen Victoria Agave	L/VL	2
Aloe vera	Medicinal Aloe	L/VL	2
Crassula arborescens	Silver Jade Plant	L/VL	2
Crassula ovata + cvs	Jade Plant	L/VL	2
Echeveria species + cvs	Hen and Chicks	L/VL	2
Opuntia ficus-indica	Indian Fig	L/VL	2
Sedum morganianum	Donkey Tail	L/VL	2
Senecio serpens	Blue Chalksticks	L/VL	2

Hedge Plants		PF	IG
Myrtus communis + cvs	True Myrtle	M	1
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Rhamnus alaternus	Italian Buckthorn	M/L	2
Viburnum tinus + cvs	Laurustinus	M/L	2

Below: *Capparis spinosa*

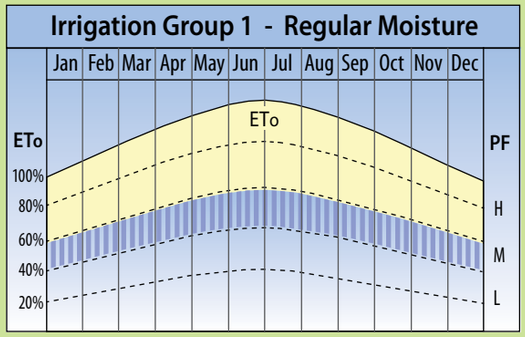
Below: *Helichrysum italicum*

Below: *Salvia officinalis*

Plant Palette

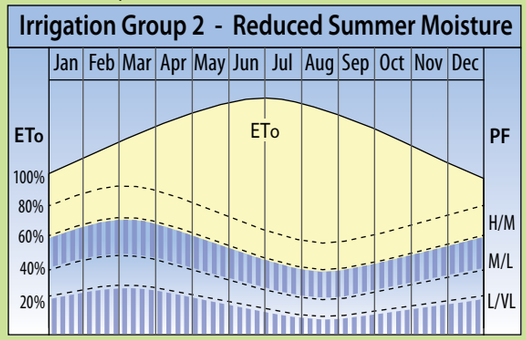
Pomegranate

Seasonal Moisture and Irrigation Schedules



Above: Seasonal moisture curve for fruit bearing trees and various culinary plants.

Below: Seasonal moisture curve for shrubs and perennials with moderate moisture needs is shown above the moisture curve for succulent plants in containers.



Below: An informal garden with *Lavandula angustifolia* 'Hidcote'

Plant Palette

Sugar Gum

The sugar gum eucalyptus native to Australia has been one of the most commonly planted and enjoyed eucalyptus species for use in coastal and inland zones from central to southern California since its introduction into the state before 1900. One of the greatest concentration of this species occurs at the University of San Diego campus near La Jolla where extensive forests have been planted. Ironically, it naturally occurs in just three relatively limited and disjunct areas in South Australia, yet, it has become widely popular as a landscape species in other parts of Australia and California.

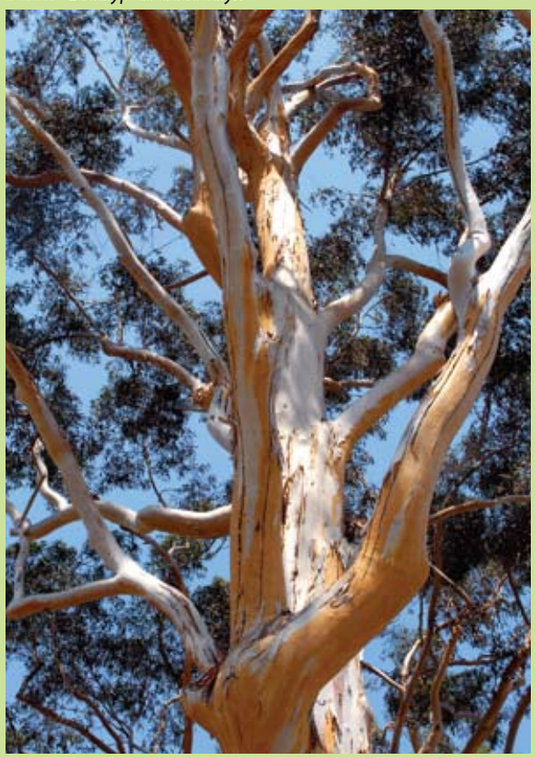
This palette has been designed to fit large scale planting areas and includes only species and cultivars of plants native to Australia. Many of these are widely grown in California, particularly in warm and dry climate zones. The intent of this list is to bring attention to plants such as acacias and grevilleas that are particularly well suited for understory locations around eucalyptus trees where they are adapted to filtered sunlight, eucalyptus leaf litter and dry summer conditions. All are useful for park, highway and greenbelt plantings, and can grow for many years with relatively low maintenance. Understory plantings grow best in combination with widely spaced trees to obtain sun, moisture and soil nutrients. Dense stands of these trees mature and produce heavy shade and extensive roots, resulting in a bare understory covered mostly by leaf litter.

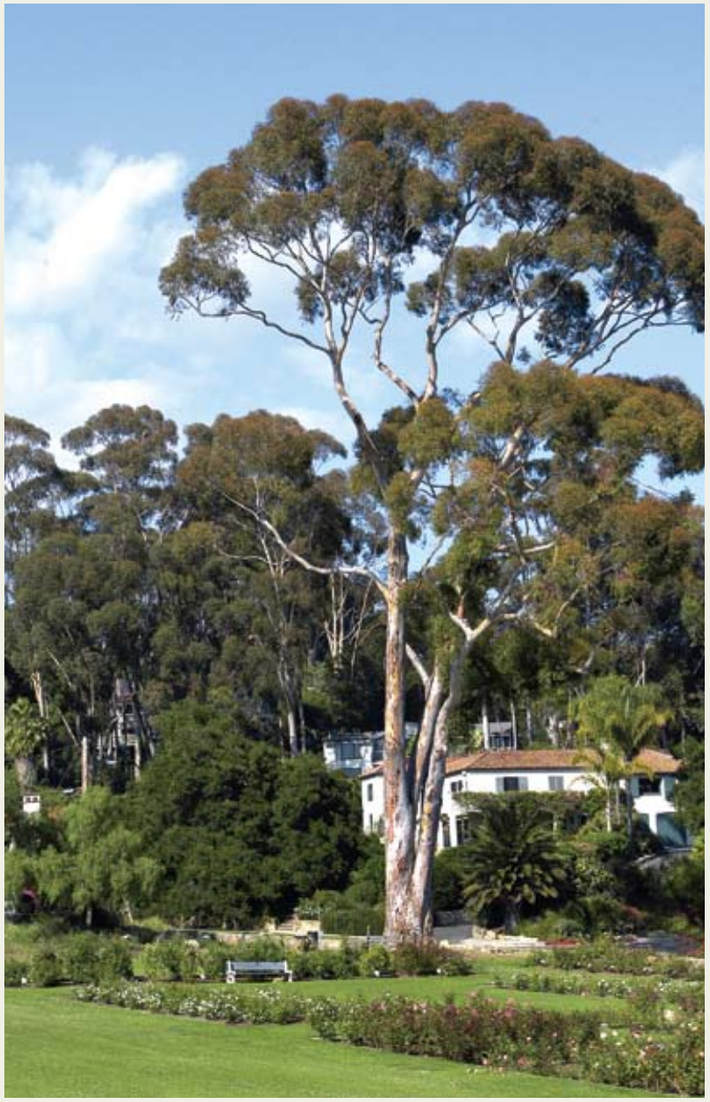
California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				+	+			+	+	+	+	+	+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Eucalyptus cladocalyx*





Above: *Eucalyptus cladocalyx,* Santa Barbara

Above: *Eucalyptus cladocalyx*

Horticultural Preferences

Plants within this palette are adapted to Mediterranean climate conditions that are found in Plant Climate Zones 8-9 and 14-24. Most species are adapted to average soils that are low in nutrients and organic matter and have a 6.5-7.5 pH range. Phosphorous in fertilizers harms plants in the *Proteaceae* family such as grevilleas, banksias and net bushes and should not be used for this palette.

Most species grow to large sizes and do best with generous space. Moderate amounts of supplemental moisture is recommended during the winter; established plants easily adapt to reduced moisture during the summer months.

Trees		PF	IG
Acacia aneura	Mulga	L/VL	2
Acacia baileyana + cv	Bailey Acacia	L/VL	2
Acacia melanoxylon	Blackwood Acacia	M/L	2
Acacia pendula	Weeping Myall	L/VL	2
Acacia podalyriifolia	Pearl Acacia	L/VL	2
Acacia stenophylla	Shoestring Acacia	M/L	2
Brachychiton acerifolius	Australian Flame Tree	M/L	2
Brachychiton discolor	Queensland Lacebark	M/L	2
Brachychiton populneus	Kurrajong Bottle Tree	M/L	2
Brachychiton rupestris	Bottle Tree	VL/L	2
Callistemon citrinus + cvs	Lemon Bottlebrush	M/L	2
Callistemon viminalis + cvs	Weeping Bottlebrush	M/L	2
Eucalyptus camaldulensis	River Red Gum	M/L	2
Eucalyptus citriodora	Lemon-scented Gum	M/L	2
Eucalyptus cladocalyx	Sugar Gum	M/L	2
Eucalyptus ficifolia	Red-flowering Gum	M/L	2
Eucalyptus globulus + cv	Blue Gum	M/L	2
Eucalyptus nicholii	Narrow-leafed Peppermint	M/L	2
Eucalyptus polyanthemos	Silver Dollar Gum	M/L	2
Eucalyptus sideroxylon + cv	Red Ironbark	M/L	2

Below: *Brachychiton populneus*

Aesthetic Character

Sugar gum is one of the finest trees for background and silhouette uses in large scale spaces. This character and value is enhanced when groves of trees are planted in locations that can be visible over long distances. Mature stands of sugar gum produce dense shade and abundant bark and leaf litter. Pathways through large stands provide a powerful woodland experience comprised of enclosed spaces, filtered views, shafts of light and pungent fragrance from eucalyptus oils.

Among widely spaced trees, a wide range of colorful shrubs, ranging from grevilleas, coast rosemary and grass trees can fill large spaces and thrive for years. This is a palette that works best to achieve natural landscape character.

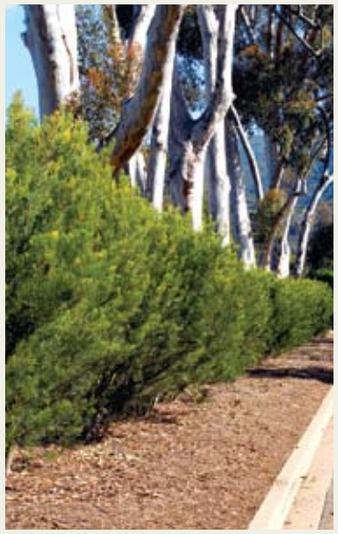
Trees continued		PF	IG
Eucalyptus viminalis	Manna Gum	M/L	2
Geijera parviflora	Australian Willow	M/L	2
Melaleuca linariifolia	Flaxleaf Paperbark	M	1
Melaleuca quinquenervia	Cajeput Tree	M	1
Melaleuca styphelioides	Prickly Paperbark	M	1

Shrubs		PF	IG
Acacia covenyi	Blue Bush	M/L	2
Acacia cultriformis	Knife Acacia	L/VL	2
Acacia longifolia	Sydney Golden Wattle	M/L	2
Acacia redolens	Prostrate Acacia	L/VL	2
Acacia saligna	Golden Wreath Wattle	M/L	2
Alyogyne huegelii + cvs	Blue Hibiscus	M/L	2
Callistemon 'Little John'	NCN	M/L	2
Eremophila maculata + cvs	Common Spotted Emu Bush	M/L	2
Eucalyptus conferruminata	Bushy Yate	M/L	2
Grevillea 'Canberra Gem'	NCN	M/L	2
Grevillea 'Noelii'	NCN	M/L	2
Grevillea 'Poorinda Constance'	NCN	M/L	2
Grevillea 'Robyn Gordon'	NCN	M/L	2
Hakea suaveolens	Sweet-scented Hakea	M/L	2
Leptospermum laevigatum + cv	Australian Tea Tree	M/L	2
Melaleuca armillaris	Drooping Melaleuca	M/L	2
Melaleuca elliptica	Granite Bottlebrush	M/L	2
Melaleuca incana	Gray Honey Myrtle	M/L	2
Melaleuca nesophila	Pink Melaleuca	M/L	2
Senna artemisioides	Feathery Cassia	L/VL	2
Senna nemophila	Desert Cassia	L/VL	2
Senna phyllodinea	Silvery Cassia	L/VL	2
Westringia species + cvs	Coast Rosemary	M/L	2

Perennials		PF	IG
Anigozanthos species + cvs	Kangaroo Paw	M/L	2
Dianella tasmanica + cvs	Tasman Flax Lily	M	1
Doryanthes palmeri	Palmer Spear Lily	M	1
Xanthorrhoea preissii	Grass Tree	L/VL	2
Xanthorrhoea quadrangulata	NCN	L/VL	2

Vines		PF	IG
Cissus antarctica	Kangaroo Vine	M	1
Hardenbergia comptoniana	NCN	M/L	2
Hardenbergia violaceae + cvs	Lilac Vine	M/L	2
Pandorea pandorana + cv	Yellow Wonga Wonga Vine	M	1

Below: *Hakea suaveolens*



Below: *Eremophila maculata*

Below: *Grevillea* 'Robyn Gordon'

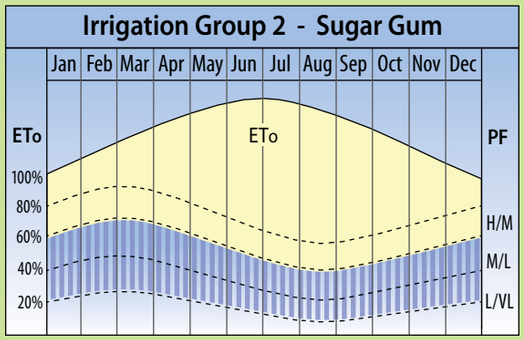
Plant Palette

Sugar Gum

Seasonal Moisture and Irrigation Schedules

Reference evapotranspiration for Plant Climate Zones 7-9 ranges from 49-58 in. each year, and 44-52 in. in Zones 19-24. Average winter rainfall can meet most moisture needs of this palette from December to February; some wintertime irrigation may be desirable during winter dry spells and drought years. Irrigation should be reduced through spring to enable plants to harden off and adapt to drier soils and warmer summer temperatures. However, low amounts of summer moisture can enable plants retain good character without stimulating high levels of growth.

The chart below illustrates a supplemental moisture range from moderate to low. This addresses the majority of plants listed in this palette. All of the plants can be used in the same landscape area when they are organized into hydrozones with separate irrigation systems. The higher end of this range is suggested for newer plantings and warmer zones; the lower end is suggested for established plantings and areas with cooler summer temperatures.



Below: *Grevillea* 'Robyn Gordon'

Plant Palette

Torrey Pine

Torrey pine is an attractive California native conifer with a limited range of distribution. Its greatest concentration occurs on sandstone slopes and bluffs along the coast near La Jolla. Some trees occur further from the coast and others occur on Santa Rosa Island. In contrast to its natural range, this pine has been widely planted in ornamental landscapes in many parts of California and has proven to be highly adaptable to Mediterranean climates and varying amounts of moisture.

This palette brings attention to plants that are members of the sage scrub and chaparral plant communities of southern California. It is a native plant palette highly suited for open space and green belt plantings for the southern coastal region. The intent is to achieve landscapes of locally adapted species that can become self sustaining within 2-3 years after they are planted. This will result in a landscape that has habitat value for wildlife and requires lower amounts of maintenance and water.

Plant palettes comprised of local native species is a key basis for many open space and revegetation projects. This approach to establishing landscapes often involves greater care in seeking out appropriate species, nursery sources and planting practices, but it is an important alternative to traditional planting projects that require more care and resources for survival and growth.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
												+	+				+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Agave shawii*

Above: *Pinus torreyana*

Above: *Pinus torreyana*

Horticultural Preferences

This planting palette is best suited to Plant Climate Zones 23-24 of southern California. Many of these plants are native to these zones in the coastal sage scrub and chaparral plant communities. They grow with seasonal rains that average of 8-14 in. each year; annual reference evapotranspiration ranges from 44-50 in. per year. Once established, this palette can grow without supplemental irrigation.

Most species grow best in well-drained soils, sunny exposures and adjacent to the Pacific Ocean that brings fog and humidity to these zones. These plants are also adapted to warmer and drier inland Zones 18-19 and require low to very low amounts of summer moisture.

Trees		**PF**	**IG**
Cupressus forbesii	Tecate Cypress	L/VL	2
Pinus torreyana	Torrey Pine	L/VL	2
Quercus engelmannii	Mesa Oak	L	3
Sambucus nigra ssp. mexicana	Blue Elderberry	M/L	2
Shrubs		**PF**	**G**
Artemisia californica + cvs	California Sagebrush	L/VL	2
Atriplex lentiformis ssp. breweri	Quailbush	L/VL	2
Baccharis pilularis + cvs	Coyote Brush	M/L	2
Cercocarpus minutiflorus	San Diego Mtn Mahogany	L/VL	2
Dendromecon rigida	Bush Poppy	L/VL	2
Encelia californica + cv	Coastal Encelia	M/L	2
Eriogonum fasciculatum + cvs	Common Buckwheat	L/VL	2
Eriogonum giganteum	St. Catherine's Lace	L/VL	2
Fremontodendron mexicanum	Southern Flannel Bush	L/VL	2
Galvezia juncea + cv	Baja Bush Snapdragon	L/VL	2
Isomeris arborea	Bladderpod	M/L	2
Iva hayesiana	Hayes Iva	M/L	2
Justicia californica	Chuparosa	M/L	2
Lotus scoparius	Deer Weed	L/VL	2
Malosma laurina	Laurel Sumac	L/VL	2

Below: *Eriogonum arborescens*

Above: *Isomeris arborea*

Aesthetic Character

This group of plants takes on the appearance of the southern coastal sage scrub and chaparral plant communities. Trees can be placed in stands to help define areas of focus and to frame views. Otherwise, there is a random mixture of colors, textures, shapes and patterns among the understory shrubs, perennials and grasses. A variety of flowers occur during spring; muted foliage colors dominate most of the year. Plantings of Shaw's agave, our Lord's candle and bear grass can be planted on rocky outcroppings for additional visual interest and diversity.

Shrubs continued		PF	G
Mimulus aurantiacus + cvs	Sticky Monkey Flower	L/VL	2
Ornithostaphylos oppositifolia	Palo Blanco	L/VL	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Rhamnus crocea	Redberry	L/VL	2
Rhus integrifolia	Lemonade Berry	L/VL	2
Rhus lentii	Pink Flowering Sumac	L/VL	2
Ruellia californica	NCN	M/L	2
Salvia apiana	White Sage	L/VL	2
Salvia clevelandii	Cleveland Sage	L/VL	2
Salvia leucophylla	Purple Sage	L/VL	2
Salvia mellifera	Black Sage	L/VL	2
Simmondsia chinensis	Jojoba	L/VL	2
Trichostema lanatum	Woolly Blue Curls	M/L	2
Verbena lilacina	Cedros Island Verbena	M/L	2
Viguiera laciniata	San Diego County viguiera	VL/L	2

Perennials and Grasses		PF	IG
Aristida purpurea	Purple Three-awn	M/L	2
Bouteloua curtipendula	Side-oats Grama	L/VL	2
Epilobium canum + cvs	California Fuchsia	L/VL	2
Leymus condensatus	Giant Wild Rye	M/L	2
Lupinus excubitus	Grape Soda Lupine	L/VL	2
Muhlenbergia rigens	Deer Grass	M/L	2
Nassella lepida	Foothill Needle Grass	L/VL	2
Nassella pulchra	Purple Needle Grass	L/VL	2
Penstemon centranthifolius	Scarlet Bugler	L/VL	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon heterophyllus + cv	Foothill Penstemon	L/VL	2
Penstemon spectabilis	Showy Penstemon	L/VL	2
Romneya coulteri + cv	Matilija Poppy	L/VL	2
Sporobolus airoides	Alkalai Sacaton	M/L	2

Agaves, Cacti, Dudleyas and Yuccas		PF	IG
Agave shawii	Shaw's Agave	L/VL	2
Dudleya pulverulenta	Chalk Dudleya	L/VL	2
Dudleya virens + cvs	Dudleya	L/VL	2
Hesperoyucca whipplei	Our Lord's Candle	L/VL	2
Nolina parryi	Parry Beargrass	L/VL	2
Yucca baccata	Banana Yucca	L/VL	2

Below: *Bouteloua curtipendula*

Below: *Epilobium canum*

Below: *Rhus lentii*

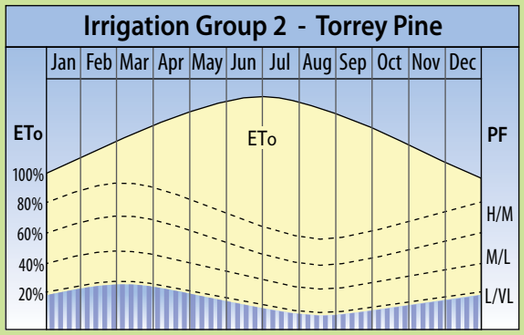
Plant Palette

Torrey Pine

Seasonal Moisture and Irrigation Schedules

Annual ETo for Plant Climate Zones 23-24 ranges from 49-58 in. each year. Average winter rainfall can meet most the moisture needs of this palette from December to February; some wintertime irrigation may be desirable during winter dry spells and drought years. Landscapes comprised of exotic plants commonly need supplemental irrigation to offset this potential moisture loss. Native species are highly adapted to survive and grow within the limits of seasonal rainfall, and over time can mature into stable associations with many large trees and shrubs.

The chart below illustrates a supplemental moisture range up to 20% of ETo. The higher end of this range is suggested for newer plantings for the first 1-2 years. Once established, plants in this palette can survive without additional irrigation.



Below: *Galvezia juncea*

Plant Palette

Western Sycamore

Western sycamore is one of the most widely recognized California native plants that is found growing near seasonal and perennial streams in coastal, inland and valley areas across most of the state. Like other species adapted to riparian conditions in Mediterranean climate zones, western sycamore survives on winter rains as well as moisture obtained from streams during the dry summer months common to its natural range. It often grows into a highly sculptural and picturesque tree in both native and ornamental landscapes with its twisting trunk and branches. Bark flakes off in patches to produce a mottled pattern of colors; fall foliage takes on a golden hue when backlit by low angle sunlight. Large trees can drop an abundant amount of leaves during fall that overwhelm garden spaces and necessitate several weeks of diligent removal.

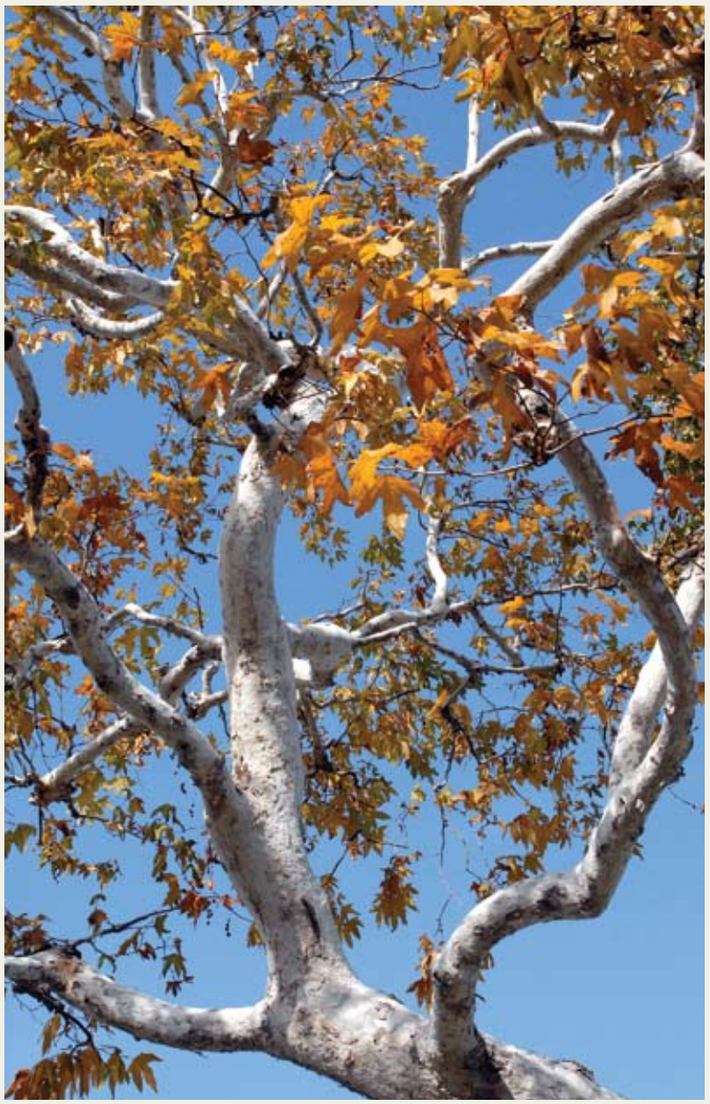
The Western Sycamore Plant Palette is well suited for riparian and woodland-type plantings. The shady understory area can be filled with a diverse selection of flowering evergreen and deciduous shrubs, perennials, ferns and grasses. Many of the most popular and easy to grow California native plants are included in this palette, including western redbud, spice bush, bush anemone, coral bells and Douglas iris.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				+	+			+	+	+	+	+	+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Cercis occidentalis*



Above: The branching of *Platanus racemosa* often develops with a lot of twisting character and mottled bark as it matures.

Above: *Platanus racemosa*, fall color

Horticultural Preferences

The western sycamore plant palette includes plants that are well adapted to Plant Climate Zones 8-9 and 14-24. Some of these zones experience regular winter frost as well as high levels of summer heat. The best growth occurs in well-drained soils with a layer of organic mulch covering the soil to reduce surface evaporation, retain moisture and add organics to the soil.

Many understory plants and perimeter plants are adapted to microclimate conditions created by trees, preferring a combination of moisture and intermittent shade. Plants adapted to less water can be grouped into a perimeter hydrozone that is drier and has increased sun exposure.

Trees		**PF**	**IG**
Acer macrophyllum	Bigleaf Maple	H/M	2
Acer negundo var. californicum	California Box Elder	H/M	2
Platanus racemosa	Western Sycamore	H/M	2
Prunus ilicifolia ssp. lyonii	Catalina Cherry	M/L	2
Salix laevigata	Red Willow	H/M	2
Salix lasiolepis	Arroyo Willow	H/M	2
Umbellularia californica	California Bay Tree	H/M	2

Shrubs		**PF**	**IG**
Berberis aquifolium + cvs	Oregon Grape	H/M	2
Berberis 'Golden Abundance'	Golden Abundance Barberry	M/L	2
Berberis repens	Creeping Barberry	M/L	2
Calycanthus occidentalis	Spice Bush	H/M	2
Carpenteria californica + cv	Bush Anemone	M/L	2
Cercis occidentalis	Western Redbud	M/L	2
Cornus sericea	Creek Dogwood	H/M	2
Heteromeles arbutifolia	Toyon	M/L	2
Keckiella antirrhinoides	Yellow Keckiella	M/L	2
Keckiella cordifolia	Heartleaf Penstemon	M/L	2
Myrica californica	Pacific Wax Myrtle	M/L	2

Below: *Umbellularia californica*

Above: *Ribes speciosum*

Aesthetic Character

This palette is ideal for achieving landscape and garden plantings that have a natural character. Western sycamores provide abundant shade and help reduce warm summer temperatures. At maturity they have a bold and rugged character. Understory shrubs provide colorful flowers during spring and become inactive from summer through fall.

Plantings are enhanced by creating stream-like topography with boulders and places for surface water to collect and create moist pockets. Meandering pathways and quiet spaces for sitting under trees are recommended design elements.

Shrubs continued		PF	IG
Philadelphus lewisii	Western Mock Orange	M/L	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Rhamnus californica + cvs	California Coffeeberry	M/L	2
Ribes sanguineum var. glutinosum	Pink Flowering Currant	M/L	2
Ribes speciosum	Fuchsia-flowered Gooseberry	M/L	2
Ribes viburnifolium	Evergreen Currant	M/L	2
Rosa californica	California Rose	M/L	2
Venegasia carpesioides	Canyon Sunflower	M/L	2

Vines		PF	IG
Vitis californica	California Wild Grape	H/M	2

Perennials		PF	IG
Heuchera species + cvs	Coral Bells	H/M	2
Iris douglasiana + cvs	Douglas Iris	H/M	2
Mimulus cardinalis	Scarlet Monkey Flower	H/M	2
Mimulus guttatus	Seep Monkey Flower	H/M	2
Sisyrinchium bellum	Blue-eyed Grass	M/L	2

Ferns		PF	IG
Adiantum aleuticum	Western Five-fingered Fern	H	1
Adiantum capillus-veneris	Southern Maidenhair	H	1
Adiantum jordanii	California Maidenhair	H	1
Polypodium californicum	California Polypody	M/L	2
Polystichum californicum	California Sword Fern	H/M	2
Polystichum munitum	Western Sword Fern	H/M	2
Woodwardia fimbriata	Giant Chain Fern	M/L	2

Grasses, Rushes and Sedges		PF	IG
Carex pansa	California Meadow Sedge	M	1
Carex praegracilis	Western Meadow Sedge	M	1
Festuca rubra + cvs	Red Fescue	H	1
Juncus effusus + cvs	Common Rush	H	1
Juncus textilis	Indian Rush	H	1

Below: *Calycanthus occidentalis*

Below: *Keckiella cordifolia*

Below: *Mimulus guttatus*

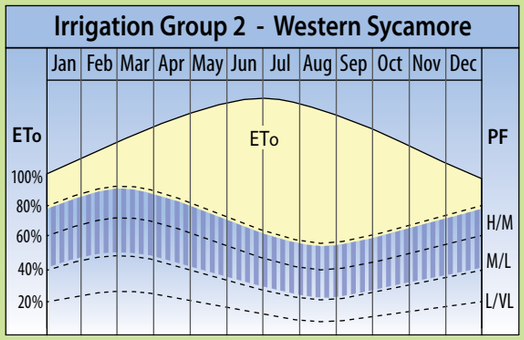
Plant Palette

Western Sycamore

Seasonal Moisture and Irrigation Schedules

The western sycamore is naturally adapted to habitats where moisture is often available year round. Young trees planted in ornamental landscape and gardens grow best with regular water during winter and spring, and can adapt to less during summer. Two groups of companion plants are included in this palette; one group grows best with some shade and more moisture, the second group grows well in perimeter areas with more sun and drier conditions. These groups should be organized into two hydrozones with separate irrigation systems. Additionally, plants with the greater moisture needs can be placed in low lying areas where surface runoff from rainfall and irrigation collects.

The chart below illustrates a supplemental moisture range from 80-40% of ETo. The higher end of this range is suggested for trees and plants with higher plant factors; the lower end can fit established plantings and plants adapted to less summer moisture.



Below: A western sycamore provides partial shade to *Iris douglasiana* and *Heuchera* species, as required by these plants. *Sisyrinchium bellum* is placed in a sunnier part of the planter.

Plant Palette

California Fan Palm

California fan palm is one of the signature trees for desert and southwestern style landscapes. It is a robust species that can develop a massive crown of fronds and a stout trunk. This palm naturally grows along seeps, springs and streams that occur across the Sonoran Desert in southern California, southeast Arizona and northern Baja California. Annual reference evapotranspiration can reach 69-72 in., leading palms to the naturally grow near water in order to survive prolonged heat, aridity and wind.

The objective of this palette is to focus on plants that use different strategies to survive in hot and dry climates, but can be combined and successfully grown together. For example, the palms in this palette do best with a regular supply of moisture to thrive in the desert. Deciduous trees such as the desert willow, palo verde and mesquite need good winter and spring moisture, and adapt to drier conditions by loosing their foliage and becoming inactive. Perennials such as penstemon and desert marigold also grow during winter and spring, and complete their growth, flowering and seed production cycles as moisture declines. Evergreen shrubs such as desert encelia and creosote endure high levels of moisture stress by shedding some leaves and becoming inactive.

It is possible to work with topography, hydrozones, microclimates and low volume irrigation systems to bring these plants together. Irrigation systems in particular can vary the quantity and location of moisture of the many plants.

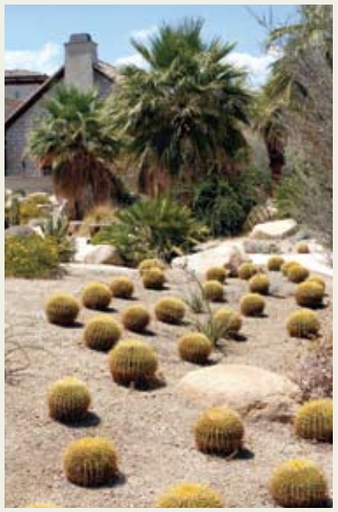
California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
							+					+	+					

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: Early spring in a desert wash with verbena, penstemon, desert encelia and smoke trees in the background.

Above: *Washingtonia filifera* in the Eric Johnson garden, Palm Desert



Above: *Echinocactus grusonii*

Horticultural Preferences

Plants that comprise the California fan palms palette are highly adapted to warm and arid climate zones of the low deserts in Plant Climate Zone 13. Most species are tolerant of full sun, intense winds and high summer temperatures, however, they do need water. Annuals and perennials grow and bloom after winter rains, then dieback. Palms need continual access to soil moisture; they survive in desert areas only where there is shallow ground water to sustain them. Deciduous trees will loose foliage under drought stress and become inactive.

Such adaptations enable this palette to successfully grow in southern California's inland Climate Zones 18-19.

Trees		**PF**	**IG**
Acacia aneura	Mulga	L/VL	2
Acacia willardiana	Palo Blanco	L/VL	2
Chilopsis linearis + cvs	Desert Willow	M/L	2
Parkinsonia praecox	Palo Brea	M/L	2
Psorothamnus spinosus	Smoke Tree	M/L	2
Palms		**PF**	**IG**
Brahea armata	Mexican Blue Palm	M	1
Washingtonia filifera	California Fan Palm	M	1
Shrubs		**PF**	**IG**
Abutilon palmeri	Indian Mallow	M/L	2
Baccharis sarothroides	Broom Baccharis	M/L	2
Caesalpinia mexicana	Mexican Bird of Paradise Bush	M/L	2
Caesalpinia pulcherrima + cv	Red Bird of Paradise Bush	M/L	2
Calliandra californica	Baja Fairy Duster	M/L	2
Calliandra eriophylla	Pink Fairy Duster	M/L	2
Calliandra peninsularis	NCN	M/L	2
Celtis pallida	Desert Hackberry	M/L	2
Cordia boissieri	Texas Olive	M/L	2

Below: *Penstemon palmeri*

Above: *Muhlenbergia rigens*

Aesthetic Character

This palette combines many bold and sculptural plants with large boulders, mounding topography and artistic pathways to achieve the structure of the garden. These features are visible year round and are essential for defining spaces and microclimates to accommodate people and plants.

The use of perennials, grasses and flowering shrubs increases diversity and natural character. These plants add springtime color and interest, but loose their impact during summer. Palms are commonly associated with water features; perennials and deciduous trees easily combine to work along a desert wash. Cacti and succulents can be grouped in geometric patterns and used as specialty accent elements.

Shrubs continued		PF	IG
Cordia parvifolia	Little-leaf Cordia	M/L	2
Dalea frutescens + cv	Black Dalea	M/L	2
Dalea pulchra	Indigo Bush	M/L	2
Encelia farinosa	Incienso	L/VL	2
Justicia californica	Chuparosa	M/L	2
Leucophyllum candidum + cvs	NCN	L-VL	2
Leucophyllum frutescens + cvs	Texas Ranger	L-VL	2
Ruellia peninsularis	Desert Ruellia	M/L	2
Senna phyllodinea	Silvery Cassia	L/VL	2
Tecoma stans + cvs	Yellow Bells	M/L	2
Tecoma x 'Orange Jubilee'	NCN	M/L	2
Tecoma x 'Sunrise'	NCN	M/L	2

Perennials and Grasses		PF	IG
Asclepias subulata	Desert Milkweed	M/L	2
Baileya multiradiata	Desert Marigold	L/VL	2
Ericameria laricifolia + cv	Turpentine Bush	L/VL	2
Euphorbia milii + cvs	Crown of Thorns	M/L	2
Melampodium leucanthum	Blackfoot Daisy	M/L	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon palmeri	Scented Penstemon	L/VL	2
Penstemon parryi	Parry's Penstemon	L/VL	2
Ruellia brittoniana + cvs	Mexican Petunia	M/L	2
Sphaeralcea ambigua + cvs	Apricot Mallow	L/VL	2
Verbena rigida	NCN	M/L	2

Agaves, Cacti, Nolina, Succulents and Yuccas		PF	IG
Agave deserti	Desert Agave	L/VL	2
Agave desmettiana + cv	NCN	L/VL	2
Agave geminiflora	Twin-flowered Agave	L/VL	2
Agave ocahui	Ocahui	L/VL	2
Agave parryi + var	Artichoke Agave	L/VL	2
Dasylirion wheeleri	Desert Spoon	L/VL	2
Echinocactus grusonii	Golden Barrel Cactus	L/VL	2
Hesperaloe funifera	Giant Hesperaloe	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Pachycereus marginatus	Mexican Fence Post Cactus	L/VL	2
Pedilanthus macrocarpus	Lady's Slipper	M/L	2

Below: *Penstemon eatonii*

Below: *Baileya multiradiata*

Below: *Encelia farinosa*

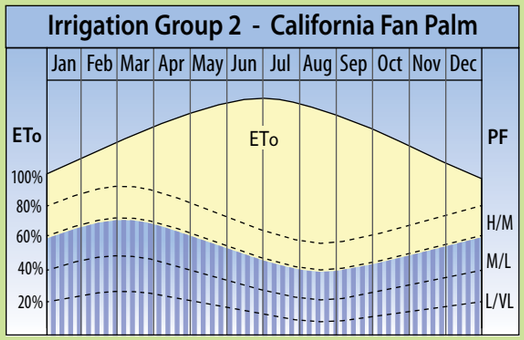
Plant Palette

California Fan Palm

Seasonal Moisture and Irrigation Schedules

The annual ETo for Plant Climate Zone 13 is the highest in California, ranging from 69-72 in. each year. Winter rainfall averages 3-4 in. and both winter and summer irrigation is needed to sustain plants in this palette.

The chart below contains the supplemental moisture curve in comparison to reference evapotranspiration. Some plants need low to moderate amounts of water and others require low to very low supplemental moisture. These plants can grow together when they are organized into hydrozones and microclimates with separate irrigation systems. Low volume irrigation systems can be designed to vary the location and amount of water to meet the annual and seasonal needs of this palette. Careful field observation is needed to adjust the irrigation schedule to respond to harsh heat spells and drying winds. It is also very easy to provide too much water that often results in the overgrowth of desert plants, adding maintenance and branch failure.



Below: *Brahea armata,* Palm Desert

Plant Palette

Palo Verde

The palo verde is one of the signature plants for landscapes and gardens in low desert regions throughout California and Arizona. This is due to its many aesthetic qualities and widespread adaptability to such dry, hot and wind-prone regions.

Many of the desert trees included in this palette such as acacia, mesquite and other palo verdes are naturally low branching and shrub-like in habit. This growth habit helps trees resist strong winds, cool the root zone and contribute modest amounts of mulch within the drip line of the canopy. Additionally, in nature, these trees typically grow along washes and adjacent to rock outcroppings where scant rainfall collects and is concentrated for plants to use. Such trees will develop deep or extensive root systems, or both, as they harvest water within reach. Larger trees are a good indication of more moisture availability. Leaves are often dropped under moisture stress, but quickly regrow when available. Flowering is most common in early spring following winter rains.

The palo verde plant palette illustrates a combination of colorful foliage type plants that can be used for aesthetic value and water conservation in warmer and drier climate zones of southern California. There are also many agaves, cacti, palms and perennials in this palette. Since many of the species included on this list are native to the southwest, they are well adapted to native soils and extreme climate conditions.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				o	o		+					o	o					

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Tecoma stans*

Above: *Parkinsonia* 'Desert Museum'

Above: *Parkinsonia* 'Desert Museum'

Horticultural Preferences

The palo verde palette consists of plants that are highly adapted to low desert conditions in Plant Climate Zone 13. Summer heat in this zone reaches well over 100°F throughout summer, with very little frost during winter. The lack of cold enables many plants from arid and subtropical climates to grow throughout this zone as long as supplemental water is provided year round and where there is shelter from hot sun exposures. High temperatures during the summer months limits the annual growing season to 8-9 months. Soils are low in organic content and have a pH of 7.0 and higher.

Trees			
Acacia farnesiana	Sweet Acacia	L/VL	2
Acacia stenophylla	Shoestring Acacia	L/VL	2
Caesalpinia cacalaco	Cascalote	M/L	2
Chilopsis linearis + cvs	Desert Willow	M/L	2
Parkinsonia 'Desert Museum'	NCN	M/L	2
Parkinsonia floridum	Palo Verde	M/L	2
Parkinsonia praecox	Palo Brea	M/L	2
Prosopis alba + cvs	Argentine Mesquite	M/L	2
Prosopis glandulosa + cvs	Texas Honey Mesquite	M/L	2
Prosopis 'Phoenix'	NCN	M/L	2

Palms		**PF**	**IG**
Brahea armata	Mexican Blue Palm	M	1
Phoenix dactylifera	Date Palm	M	1
Washingtonia filifera	California Fan Palm	M	1
Washingtonia robusta	Mexican Fan Palm	M	1

Shrubs		**PF**	**IG**
Anisacanthus quadrafidus	Desert Honeysuckle	M/L	2
Caesalpinia pulcherrima + cv	Red Bird of Paradise Bush	M/L	2
Calliandra peninsularis	NCN	M/L	2
Cordia boissieri	Texas Olive	M/L	2

Below: *Parkinsonia* with bubbler irrigation

Above: *Cordia boissieri*

Aesthetic Character

This palette brings attention to plants of the southwest that have many attractive ornamental characteristics. A number of the trees and shrubs produce colorful flowers; some have attractive bark. An abundant list of agaves, cacti, yuccas and succulents provide accent character and sculptural interest.

Late winter to early spring is the season of color and new growth. High summertime temperatures cause most plants to become inactive; many trees and shrubs shed leaves during this time of year and are sparse in character. Plants are often arranged in natural patterns with walls, decomposed granite and boulders adding to the aesthetic feeling.

Shrubs continued		PF	IG
Dalea pulchra	Indigo Bush	M/L	2
Encelia farinosa	Incienso	L/VL	2
Euphorbia xantii	NCN	L/VL	2
Justicia californica	Chuparosa	M/L	2
Leucophyllum species + cvs	Texas Ranger	L/VL	2
Ruellia peninsularis	Desert Ruellia	M/L	2
Salvia greggii + cvs	Autumn Sage	L/VL	2
Senna artemisioides	Feathery Cassia	L/VL	2
Senna phyllodinea	Silvery Cassia	L/VL	2
Simmondsia chinensis	Jojoba	L/VL	2
Tecoma stans + cvs	Yellow Bells	M/L	2
Tecoma x 'Orange Jubilee'	NCN	M/L	2
Tecoma x 'Sunrise'	NCN	M/L	2

Grasses and Perennials		PF	IG
Asclepias subulata	Desert Milkweed	M/L	2
Baileya multiradiata	Desert Marigold	L/VL	2
Ericameria laricifolia + cv	Turpentine Bush	L/VL	2
Melampodium leucanthum	Blackfoot Daisy	M/L	2
Muhlenbergia capillaris	Pink Muhly	M/L	2
Muhlenbergia dubia	Mexican Muhly	M/L	2
Muhlenbergia rigens	Deer Grass	M/L	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon palmeri	Scented Penstemon	L/VL	2
Sphaeralcea ambigua + cvs	Apricot Mallow	L/VL	2
Sporobolus airoides	Alkalai Sacaton	M/L	2
Verbena rigida	NCN	M/L	2

Agaves, Cacti, Nolina, Succulents and Yuccas		PF	IG
Agave americana + cvs	NCN	L/VL	2
Agave angustifolia	NCN	L/VL	2
Agave colorata	Mescal	L/VL	2
Agave deserti	Desert Agave	L/VL	2
Agave desmettiana + cv	NCN	L/VL	2
Agave geminiflora	Twin-flowered Agave	L/VL	2
Agave victoriae-reginae	Queen Victoria Agave	L/VL	2
Dasylirion wheeleri	Desert Spoon	L/VL	2
Echinocactus grusonii	Golden Barrel Cactus	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Opuntia robusta	NCN	L/VL	2
Opuntia violaceae + var.	Prickly Pear	L/VL	2
Pachycereus marginatus	Mexican Fence Post Cactus	L/VL	2
Pedilanthus macrocarpus	Lady's Slipper	M/L	2
Yucca rostrata	Beaked Yucca	L/VL	2

Below: *Caesalpinia pulcherrima*

Below: *Echinocactus grusonii* with *Baileya multiradiata*

Below: *Agave victoria-reginae*

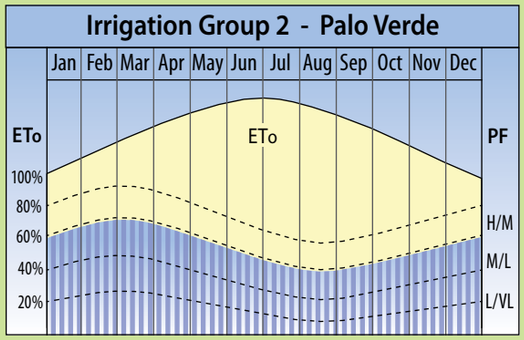
Plant Palette

Palo Verde

Seasonal Moisture and Irrigation Schedules

The annual ETo for Plant Climate Zone 13 is the highest in California, ranging from 69-72 in. each year. Winter rainfall averages 3-4 in. and both winter and summer irrigation is needed to sustain ornamental plantings.

The chart below contains baseline irrigation schedules for this plant palette. Reduced irrigation is recommended during summer months to enable plants in ornamental landscapes and gardens to retain good character without stimulating excessive levels of growth. These plants can grow together when they are organized into hydrozones with separate irrigation systems. The higher end of each range is suggested for newer plantings; for established plants and in protected microclimate areas. Plants with similar moisture needs should be grouped together in the same hydrozone. Drip and low volume irrigation systems can be selectively located to provide moisture to different areas as well as provide more moisture to trees in this type of mixed planting.



Below: *Dasylirion wheeleri*

Plant Palette

Southwestern Chaparral

This palette combines a diverse mixture of plants that are native to the dry climates and habitats found in many parts of southern California and the southwestern United States. The result is a list of drought tolerant plants that are rich in character, attractive to wildlife and suggestive of the chaparral, sage scrub and low desert plant communities.

The effort to identify and select plants from dry climate zones for use in ornamental landscapes and gardens has been a long standing goal of many people and organizations. This reflects a full range of values associated with sustainable landscapes. These include the protection and conservation of natural habitats and species, efficient and appropriate use of water, celebration of species diversity and desire to use plants from the region.

This landscape example reflects these values and illustrates one of many planting possibilities for use in southern California. It features several spectacular flowering species such as the flannel bush, our Lord's candle and bush poppy. It also relies on the use of boulders, stone walls, decomposed granite and topography for additional interest and spatial definition. Rainfall provides all moisture during winter; drip irrigation is used to provide low amounts of supplemental moisture to selected plants during summer. A wide variety of birds, butterflies, native honeybees and lizards are seen in this landscape.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
												+	+	+	+	+	+	+

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Hesperoyucca whipplei*

Above: *Trichostema lanatum* (front) *Fremontodendron* 'California Glory' (behind)

Above: *Fremontodendron* 'California Glory'

Horticultural Preferences

This palette is adapted to Plant Climate Zones 18-24 with plants showing a high tolerance to sun and heat. The best growth occurs in well-drained soils with little organic matter. Most plants need very little summer moisture; plants with moderate water needs can be grouped into microclimates and hydrozones, and be sustained with drip irrigation. Surfaces can be covered with decomposed granite and gravel to help control weeds.

Below: *Arctostaphylos* 'Lester Roundtree'

Trees		**PF**	**IG**
Acacia farnesiana	Sweet Acacia	L/VL	2
Ornithostaphylos oppositifolia	Palo Blanco	L/VL	2
Parkinsonia species + cvs	Palo Verde	M/L	2

Shrubs		**PF**	**IG**
Arctostaphylos glauca	Bigberry Manzanita	M/L	2
Arctostaphylos 'Howard McMinn'	McMinn Manzanita	M/L	2
Arctostaphylos 'John Dourley'	John Dourley Manzanita	M/L	2
Arctostaphylos 'Lester Roundtree'	Lester Roundtree Manzanita	M/L	2
Arctostaphylos manzanita 'Dr. Hurd'	Parry Manzanita	M/L	2
Arctostaphylos 'Sunset'	Sunset Manzanita	M/L	2
Artemisia californica + cvs	California Sagebrush	L/VL	2
Artemisia californica 'Montara'	Montara California Sagebrush	L/VL	2
Baccharis pilularis + cvs	Coyote Brush	M/L	2
Ceanothus 'Concha'	Concha Ceanothus	M/L	2
Ceanothus 'Dark Star'	Dark Star Ceanothus	M/L	2
Ceanothus 'Frosty Blue'	Frosty Blue Ceanothus	M/L	2
Ceanothus 'Gentian Plume'	Gentian Plume Ceanothus	M/L	2
Ceanothus 'Joyce Coulter'	Joyce Coulter Ceanothus	M/L	2
Ceanothus 'Julia Phelps'	Julia Phelps Ceanothus	M/L	2

Above: *Dudleya pulverulenta*

Aesthetic Character

The southwestern chaparral palette is dominated by winter and summer conditions. Plants come to life during winter and spring in response to seasonal rains. New growth and fresh foliage fragrances are prominent in January and February. Flowers occur from March to mid summer. Springtime in this garden is full of activity and color.

The garden becomes inactive and subdued during summer and fall months. Heat and reduced soil moisture brings about a stage of dormancy for many plants. Few flowers occur, except for dudleya and California fuchsias.

This annual cycle is part of the inherent aesthetic rhythm for many plants of the chaparral, sage scrub and low desert habitats.

Shrubs continued		**PF**	**IG**
Ceanothus 'Ray Hartman'	Ray Hartman Ceanothus	M/L	2
Cercocarpus minutiflorus	San Diego Mtn Mahogany	L/VL	2
Dendromecon harfordii	Island Bush Poppy	L/VL	2
Encelia actoni	Acton Encelia	L/VL	2
Encelia farinosa	Incienso	L/VL	2
Eriogonum arborescens	Santa Cruz Island Buckwheat	L/VL	2
Eriogonum cinereum	Ashyleaf Buckwheat	L/VL	2
Eriogonum fasciculatum + cvs	Common Buckwheat	L/VL	2
Eriogonum giganteum	St. Catherine's Lace	L/VL	2
Fremontodendron 'California Glory'	California Glory Flannel Bush	L/VL	2
Galvezia juncea 'Punta Banda'	Baja Bush Snapdragon	L/VL	2
Heteromeles arbutifolia + cvs	Toyon	M/L	2
Isomeris arborea	Bladderpod	M/L	2
Lotus scoparius	Deer Weed	L/VL	2
Prunus ilicifolia ssp. ilicifolia	Hollyleaf Cherry	M/L	2
Rhamnus crocea	Redberry	L/VL	2
Salvia 'Allen Chickering'	Allen Chickering Sage	L/VL	2
Salvia apiana	White Sage	L/VL	2
Salvia clevelandii 'Winifred Gilman'	Cleveland Sage	L/VL	2
Salvia leucophylla 'Point Sal Spreader'	Prostrate Purple Sage	L/VL	2
Trichostema lanatum	Woolly Blue Curls	M/L	2
Viguiera laciniata	San Diego County viguiera	L/VL	2

Vines		**PF**	**IG**
Clematis lasiantha	Chaparral Clematis	M/L	2
Lonicera subspicata	Chaparral Honeysuckle	M/L	2

Perennials		**PF**	**IG**
Epilobium canum + cvs	California Fuchsia	L/VL	2
Eriogonum grande + var	Island Buckwheat	L/VL	2
Lupinus excubitus	Grape Soda Lupine	L/VL	2
Mimulus aurantiacus + cvs	Sticky Monkey Flower	L/VL	2
Penstemon centranthifolius	Scarlet Bugler	L/VL	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon heterophyllus + cv	Foothill Penstemon	L/VL	2
Penstemon spectabilis	Showy Penstemon	L/VL	2
Romneya coulteri 'White Cloud'	Matilija Poppy	L/VL	2

Agave, Dudleya, Hesperoyucca and Nolina		**PF**	**IG**
Agave deserti	Desert Agave	L/VL	2
Agave shawii	Shaw's Agave	L/VL	2
Dudleya pulverulenta	Dudleya	L/VL	2
Hesperaloe parviflora	Red Yucca	L/VL	2
Hesperoyucca whipplei	Our Lord's Candle	L/VL	2
Nolina parryi	Parry Beargrass	L/VL	2

Below: *Lupinus excubitus* with *Encelia farinosa, Artemisia* 'Montara', *Dendromecon harfordii* and *Parkinsonia praecox*

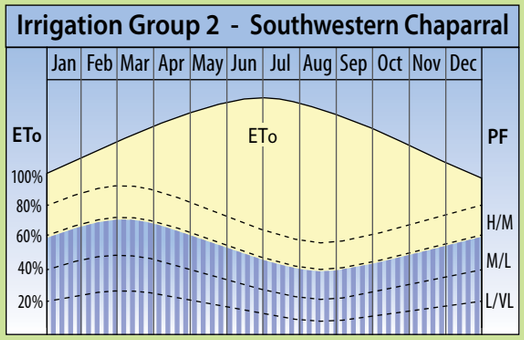
Plant Palette

Southwestern Chaparral

Seasonal Moisture and Irrigation Schedules

The ETo for Plant Climate Zones 18-24 ranges from 49-58 in. per year. Average winter rainfall can meet the moisture needs of this palette from December to February.

The chart below illustrates a supplemental moisture range from medium to very low. Reduced irrigation is recommended for all plants during summer months. This moisture will enable plants in ornamental landscapes and gardens to retain good character without stimulating excessive levels of growth. A few plants in this palette will grow better with more moisture. These can be grouped together in the same hydrozone and in microclimate areas with a separate irrigation system. Drip irrigation can be selectively located to provide moisture to different areas in this type of mixed planting. Species of agaves, dudleya, hesperoyucca and nolina can do well with very little or no summer water once established, particularly along the coast.



Below: A seasonal streambed to collect and infiltrate rain water

Plant Palette

Thornless Mesquite

The intermediate deserts of California represented by Plant Climate Zone 11 is one of the most challenging for landscapes and gardens. It is even more challenging when the goal is to work with native and southwestern plants that fit the regional character. With these thoughts in mind, mesquite has been selected to anchor a palette of plants that come from arid climate zones and intermediate deserts with heat, aridity and cold.

Mesquite trees are widely distributed throughout the southwestern United States, Mexico and dry climate zones of South America. Several species occur across this vast range and several have been selected for ornamental use in desert climate zones where they are valued for their endurance of harsh climate conditions.

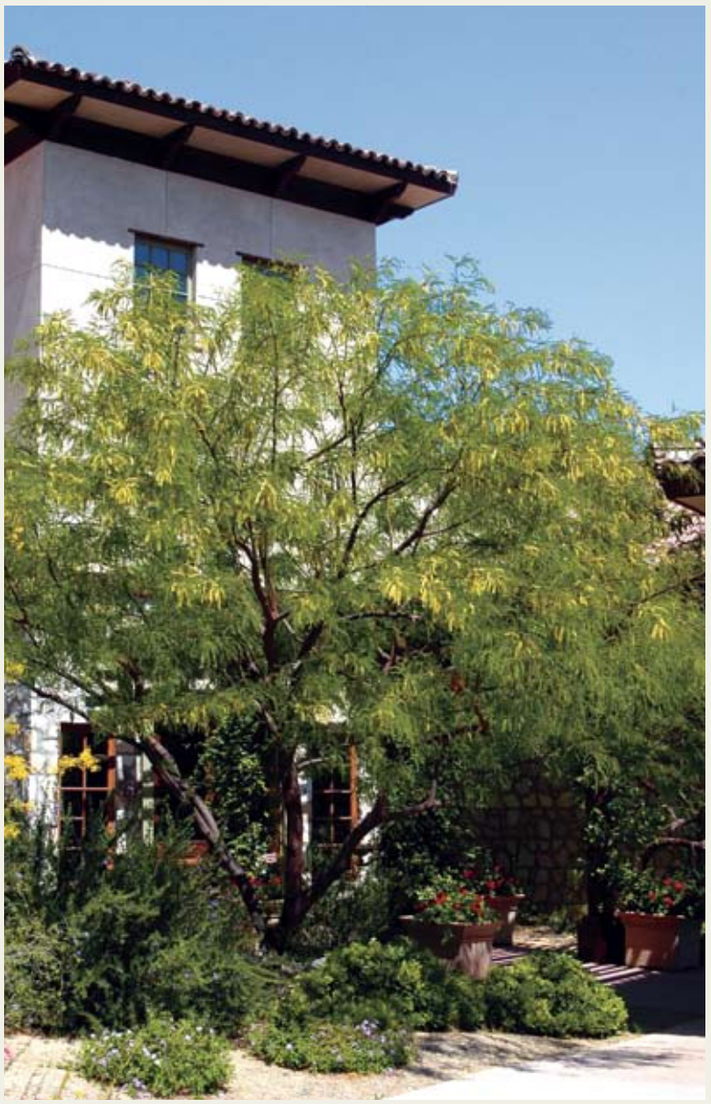
Many of these plants also grow in the low deserts of Climate Zone 13, and in sunny and warm climate areas of Zones 8-9, 18-19. This range is explained by their preference for heat and tolerance of cold. Even with these adaptations and tolerances, a diverse and colorful palette of plants is available for spaces of many sizes.

California Plant Climate Zones

1	2	3	7	8	9	11	13	14	15	16	17	18	19	20	21	22	23	24
				o	o	+	+					o	o					

This chart shows the common plant climate zones for this palette; individual plants may grow in other zones.

Below: *Chilopsis linearis*



Above: *Prosopis alba*

Above: *Prosopis alba*

Horticultural Preferences

This plant palette is well adapted to intermediate desert conditions in Plant Climate Zone 11. Winter frost occurs with regularity. Plants in this palette have been selected due to their cold tolerance as well as for heat and aridity.

Evapotranspiration is very high in the summer, however, most plants will experience excessive growth and weakened trunks and branches. The best growth occurs in well-drained soils with careful summer irrigation. Many of these plant are adapted to low desert climates as well as warm foothill and valley areas of central and southern California.

Trees		**PF**	**IG**
Chilopsis linearis + cvs	Desert Willow	M/L	2
Chilopsis linearis + cvs	Desert Willow	M/L	2
Ebenopsis ebano	Texas Ebony	M/L	2
Olneya tesota	Desert Ironwood	M/L	2
Prosopis alba + cvs	Argentine Mesquite	M/L	2
Prosopis chilensis	Chilean Mesquite	M/L	2
Prosopis glandulosa + cvs	Texas Honey Mesquite	M/L	2
Prosopis 'Phoenix'	NCN	M/L	2

Shrubs		**PF**	**IG**
Anisacanthus quadrafidus + cvs	Desert Honeysuckle	M/L	2
Baccharis sarothroides	Broom Baccharis	M/L	2
Caesalpinia gilliesii	Yellow Bird of Paradise	M/L	2
Caesalpinia mexicana	Mexican Poinciana	M/L	2
Calliandra californica	Baja Fairy Duster	M/L	2
Calliandra eriophylla	Fairy Duster	M/L	2
Cordia boissieri	Wild Olive	M/L	2
Cordia parvifolia	Little-leaf Cordia	M/L	2
Encelia actoni	Acton Encelia	L/VL	2
Encelia farinosa	Incienso	L/VL	2

Below: *Encelia californica*

Above: *Justicia californica*

Aesthetic Character

This palette produces alternating cycles of fresh and colorful character contrasted with periods of inactivity and survival. Color and character is dominant from winter to mid spring. This reflects the combination of cooler temperatures, seasonal precipitation and longer days.

Once summer heat starts to peak and last day after day, flowers disappear and foliage becomes hardened and sparse. Plants such as fairy duster and Texas ranger can also have a second flowering cycle in late summer when moisture is provided. The use of agaves and yuccas provide year round visual interest when foliage plants are struggling.

Shrubs continued		**PF**	**IG**
Justicia californica	Chuparosa	M/L	2
Leucophyllum candidum + cvs	NCN	L/VL	2
Leucophyllum frutescens + cvs	Texas Ranger	L/VL	2
Leucophyllum laevigatum	Chihuahuan Sage	L/VL	2
Simmondsia chinensis	Jojoba	L/VL	2
Sophora secundiflora	Mescal Bean	M/L	2
Ground Covers		**PF**	**IG**
Baccharis 'Centennial'	Centennial Desert Broom	M/L	2
Baccharis 'Starn'	NCN	M/L	2
Dalea greggii	Trailing Indigo Bush	M/L	2
Perennials		**PF**	**IG**
Baileya multiradiata	Desert Marigold	L/VL	2
Melampodium leucanthum	Blackfoot Daisy	L/VL	2
Penstemon eatonii	Firecracker Penstemon	L/VL	2
Penstemon heterophyllus + cv	Foothill Penstemon	L/VL	2
Penstemon palmeri	Scented Penstemon	L/VL	2
Penstemon parryi	Parry's Penstemon	L/VL	2
Verbena rigida	NCN	M/L	2
Grasses		**PF**	**IG**
Muhlenbergia capillaris	Pink Muhly	M/L	2
Muhlenbergia lindheimeri	Lindheimer's Muhly	M/L	2
Muhlenbergia rigens	Deer Grass	M/L	2
Sporobolus airoides	Alkalai Sacaton	M/L	2
Agaves, Dasylirion and Yuccas		**PF**	**IG**
Agave americana + cvs	Century Plant	L/VL	2
Agave victoriae-reginae	Queen Victoria Agave	L/VL	2
Dasylirion wheeleri	Desert Spoon	L/VL	2
Fouquieria splendens	Ocotillo	L/VL	2
Nolina parryi	Parry Beargrass	L/VL	2
Yucca brevifolia	Joshua Tree	L/VL	2
Yucca elata	Soaptree Yucca	L/VL	2
Yucca gloriosa	Spanish Dagger	L/VL	2
Yucca recurvifolia	Soft Leaf Yucca	L/VL	2
Yucca rostrata	Beaked Yucca	L/VL	2

Below: *Simmondsia chinensis*

Below: *Sophora secundiflora*

Below: *Yucca elata*

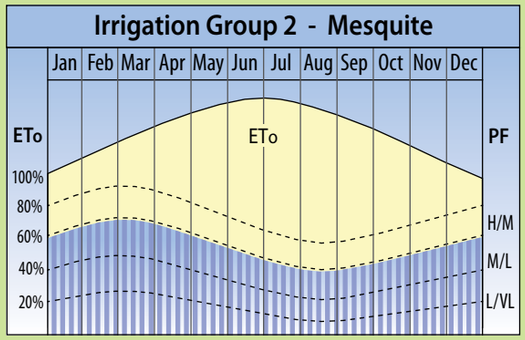
Plant Palette

Thornless Mesquite

Seasonal Moisture and Irrigation Schedules

Reference evapotranspiration in Plant Climate Zone 11 averages 64-68 in. per year. Winter rainfall averages 3-4 in. and does not provide reliable moisture to meet the needs of ornamental landscapes and gardens. The thornless mesquite palette is comprised of plants that are adapted to high levels of heat, aridity and wind with moderate to low amounts supplemental moisture throughout the year. Both winter and summer irrigation is needed

The chart below illustrates a supplemental moisture range from moderate to very low. Reduced irrigation is recommended during summer months to enable plants in ornamental landscapes and gardens to retain good character without stimulating excessive levels of growth. These plants can grow together when they are organized into hydrozones with separate irrigation systems.



Below: *Yucca brevifolia*