University of California
Agriculture and Natural Resources

Beautify your Yard and Save Water, Money, and Time

Janet Hartin
UC Area Environmental Horticulturist

Sustainability

“meeting the needs of today’s population without diminishing the ability of future populations to meet their needs.”

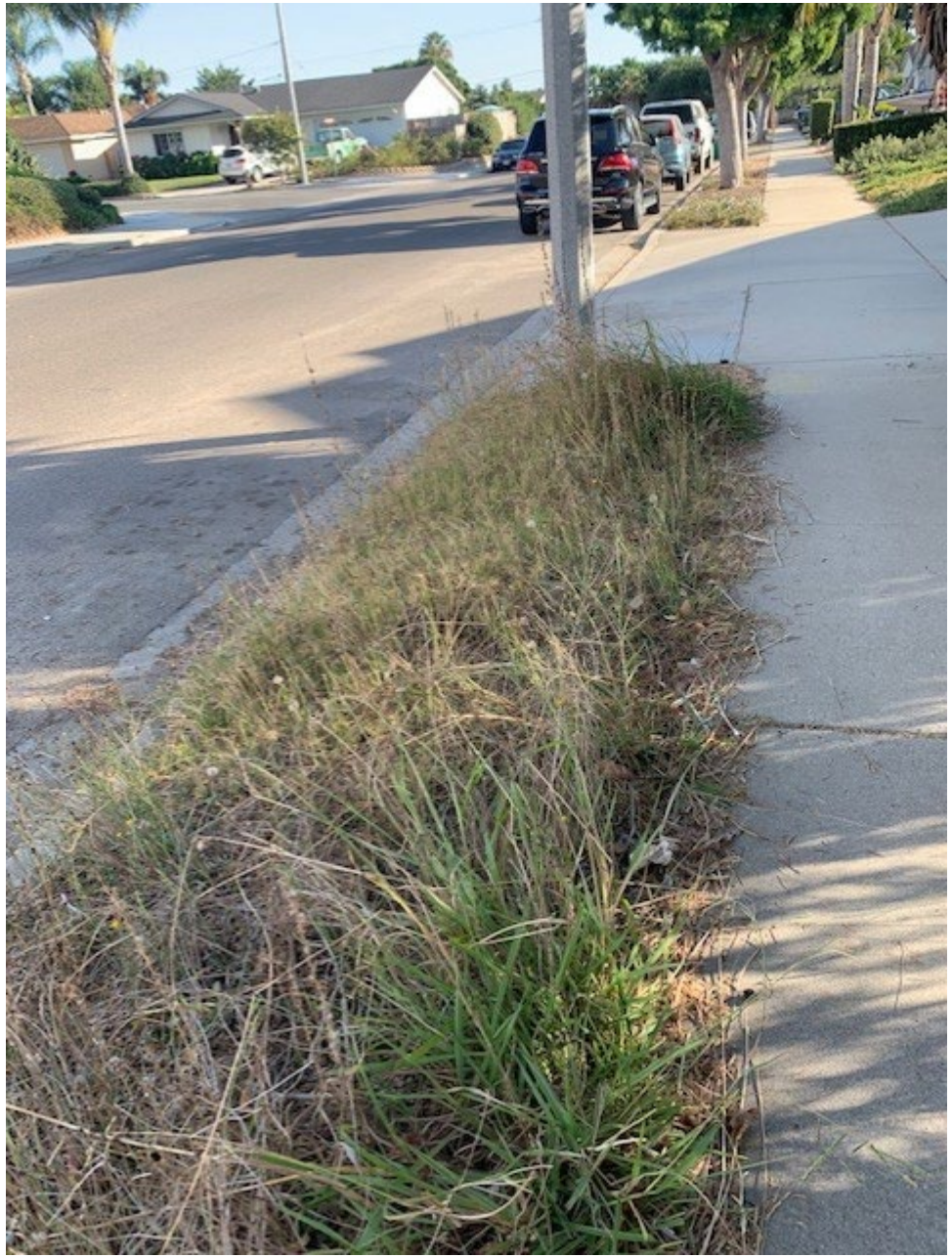
Sustainable Landscapes

- Incorporate plants suitable for climate/location
- Conserve water
- Nurture and protect soil
- Prevent/reduce pest problems
- Conserve energy/Reduce pollution
- Encourage wildlife

Sustainable Landscaping

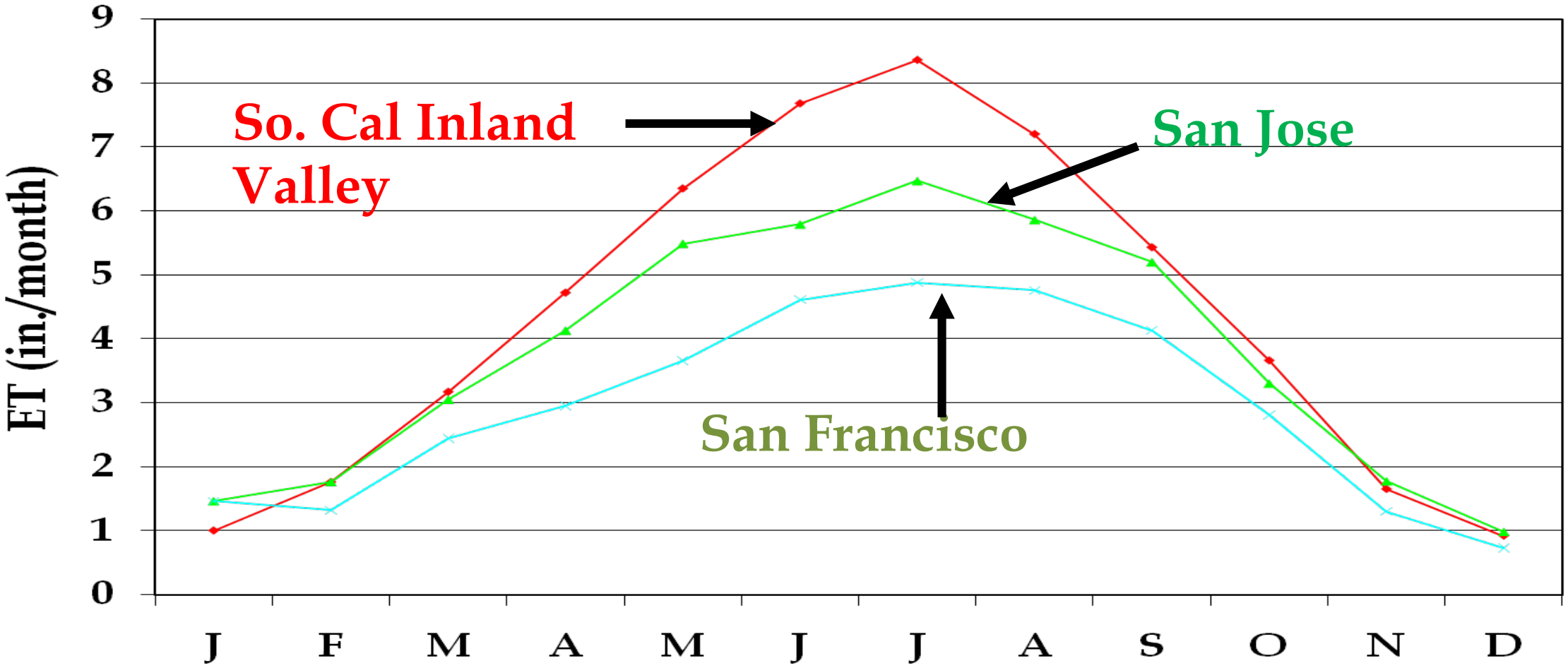
Leaves a greener footprint for our children’s children

Can you Identify the Problems and Opportunities?



Repair Leaks, Low Heads, Broken Sprinklers, Unmatched Sprinklers And Pressure And Spacing Problems To Increase Distribution Uniformity

Water Needs Are Highest in the Summer



Water Savings Potential in Professionally Managed Landscapes Study

- **Implementing ‘best practices’ improves plant health and saves more water than drought-resistant plants**

https://doi.org/10.21273/HORTTECH04037-18

https://escholarship.org/uc/item/5335s6jg

Water Requirements of Landscape Plants Studies Conducted by the University of California Researchers

Janet S. Hartin[1,7], David W. Fujino[2], Lorence R. Oki[3], S. Karrie Reid[4], Charles A. Ingels[5], and Darren Haver[6]

Additional index words. landscape water use, evapotranspiration, landscape irrigation, CIMIS, plant factor, ETAF, WUCOLS

Summary. University of California (UC) researchers have been involved in research and extension pertaining to measuring evapotranspiration (ET) rates and determining the minimum irrigation requirements of landscape plants for more than 30 years. Early work included the design and implementation of the California Irrigation Management Information System (CIMIS) weather station network and determining crop coefficients for warm and cool season turfgrasses based on historical ET and CIMIS data. Other researchers determined the minimum irrigation requirements for several species of established landscape trees, shrubs, and groundcovers in diverse climate zones throughout the state. In addition, the Water Use Classification of Landscape Species (WUCOLS) system was developed by UC personnel in the early 1990s which, to date, has classified more than 3500 landscape species into very low, low, moderate, and high water-use categories based on observation and personal experience by industry experts and UC personnel. Future work in the area of landscape water use and conservation will include updating WUCOLS as more data from replicated trials become available. New research at UC Riverside aims to improve irrigation efficiency (IE) through precision irrigation using smart controllers, remote sensing, and geospatial analysis under controlled conditions. Irrigation training and certification for public and private landscape managers must remain a priority because, even with advanced smart controller technologies, water savings will not occur with poorly designed and functioning irrigation systems.

Between 40% and 70% of water used in urban settings in the United States is applied to landscape plantings (Cabrera et al., 2013; Haley et al., 2007; Kjelgren et al., 2000; St. Hilaire et al., 2008). Water conservation in urban landscapes in California is especially important because of a limited water supply, cyclical droughts, population increases, and a water distribution problem requiring transporting large volumes of water from Northern to Southern California. The population of California is expected to increase from 39 to 60 million by 2050 (Dieter and Maupin, 2017). Since 2005, nearly half of the population growth in the state has occurred in inland Southern California and the Central Valley because of less expensive and more plentiful land than along the coast (Hanak and Davis, 2006). In addition, because inland landscapes tend to be larger and ET rates higher than those in coastal areas, more water is required for their irrigation.

Climate change poses additional challenges to urban landscapes as rising temperatures coupled with limited water exacerbates the need to increase and diversify the palette of trees and other ornamentals adaptable to harsh urban conditions (Bohn et al., 2018; Hanak and Lund, 2008). Furthermore, Fall 2011 through Fall 2015 was the driest 4-year period in recorded history in California since the beginning of weather tracking in 1895, exacerbated with record high temperatures in 2014 and 2015 (Hanak et al., 2015). Although precipitation in 2016 and 2017 rose to near-average levels in much of northern California, all of central and southern California continue to experience moderate or severe drought as of 10 Mar. 2018 (Fenimore, 2018).

An increase in California's population coupled with a multiyear drought in the 1980s requiring greater landscape water conservation led to the enactment of the California Assembly Bill 325 (Water Conservation in Landscaping Act), which became effective in 1993. The act required the California Department of Water Resources (CDWR) to develop a Model Water Efficient Landscape Ordinance (MWELO), intended to increase water conservation in urban landscapes. This included reducing water waste in landscape plantings and listing landscape plants within WUCOLS water-use categories to supplement the small number of actual plants whose water use had been measured in field studies, a lengthy and resource-intensive process.

The assumed a leadership role in WUCOLS, bringing together 36 experts from the landscape industry who categorized thousands of plants in six climate zones (north central valley, central valley, south coastal, south inland valley, high and intermediate desert, and low desert) as very low, low, moderate, or high water users. Since the inception of WUCOLS, additional species were

This article results from the workshop "Maintaining Healthy Landscapes Under Drought and/or Permanent Water Restrictions" held on 20 Sept. 2017, at the ASHS Annual Conference, Waikoloa, HI and sponsored by the Ornamentals/Landscape and Turf (O/LT) Professional Interest Group.

Appreciation is extended to Workshop fellow presenters Raul Cabrera, Michael Dukes, and Ursula Schuch, session attenders, and the O/LT Professional Interest Group.

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Units

To convert U.S. to SI, multiply by	U.S. unit	SI unit	To convert SI to U.S., multiply by
0.0929	ft^2	m^2	10.7639
3.7854	gal	L	0.2642
2.54	inch(es)	cm	0.3937

RESEARCH ARTICLE

UC ANR research and education influences landscape water conservation and public policy

For more than 30 years, UC has tackled the obstacles that inhibit widespread landscape water conservation, with new science, trainings and contributions to state policy.

by Janet S. Hartin, Lorence R. Oki, David W. Fujino, Karrie Reid, Charles A. Ingels, Darren L. Haver and William N. Baker

For nearly three decades, California has mandated practices to improve landscape water use efficiency and conservation. The goal of state policies has been to ensure a steady and reliable water source while maintaining healthy sustainable landscapes. Strategies have included the adoption of landscape irrigation standards, water budgets and tiered water rates favoring conservation, and also increased education to the landscape industry and the public.

UC has been influential in developing and providing credible science-backed information to inform legislative actions. It has also reduced the obstacles that were inhibiting widespread landscape water conservation: a lack of credible information regarding landscape water requirements, inadequate training across a large segment of the landscape industry, lagging irrigation system technology, and an inadequate supply of locally available drought-resistant landscape plants.

Abstract

UC has been heavily involved in research and extension efforts impacting landscape water conservation legislation for over 30 years. In 1981, UC implemented the California Irrigation Management Information System, a network of weather stations that provides data for local estimates of plant water needs. Those estimates led to UC being able to advise the California Legislature on policies for maximum applied water allowances for residential and large landscaping projects. The allowances have been reduced significantly with UC guidance, and UC has helped landscapers to meet the increasingly restrictive requirements. Best practices that reduce water losses have been developed in collaboration with equipment manufacturers and landscaping specialists, and explained to end users. In addition, UC has developed the WUCOLS database, which classifies over 3,500 plants by their water needs. UC's involvement in landscape water conservation continues on many fronts, developing science and contributing to policy.

Online: https://doi.org/10.3733/ucanr.2018a0041

UCCE Advisor Chuck Ingels speaks to the press in Sacramento about water conservation. UC has developed a database that categorizes 3,500 plants by their water needs.

Lawn Watering Guide
(Inland Southern California)

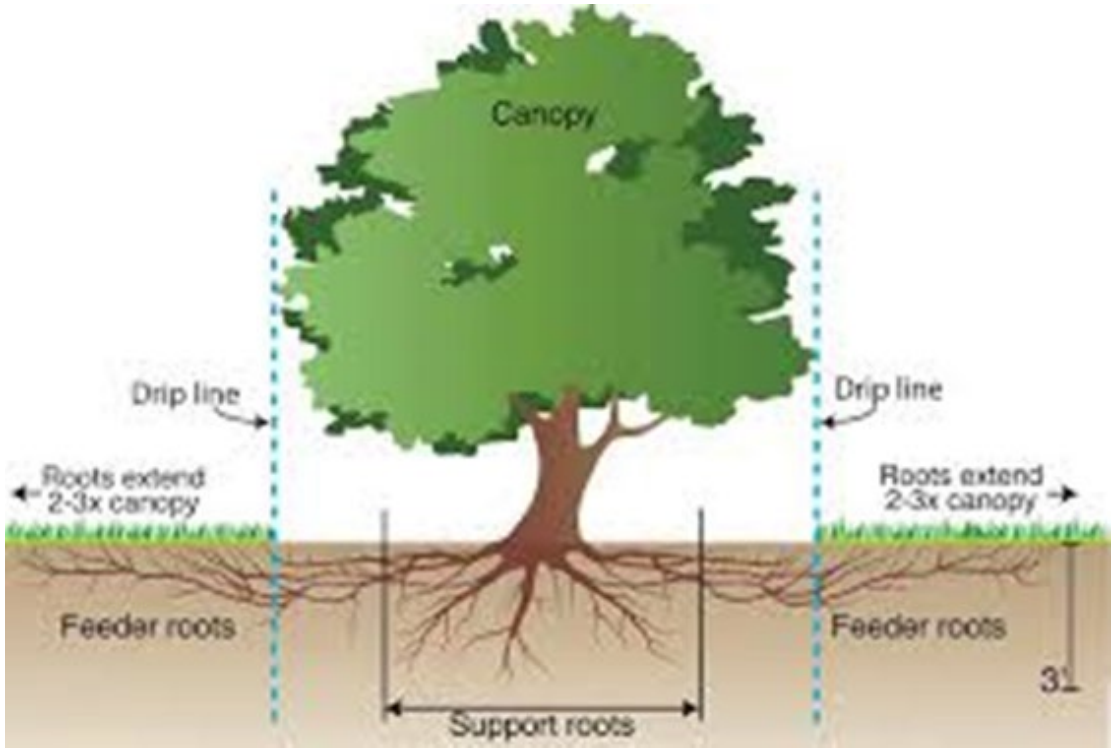
https://ucanr.edu/files/47995.pdf

	Warm-Season Turfgrasses				Cool-Season Turfgrasses				
	Minutes per week to irrigate if your hourly sprinkler output is:				Minutes per week to irrigate if your hourly sprinkler output is:				
	0.5 in	1.0 in	1.5 in	2.0 in		0.5 in	1.0 in	1.5 in	2.0 in
JAN	42	21	14	10	JAN	56	28	19	14
FEB	57	28	19	14	FEB	75	38	25	19
MAR	80	40	27	20	MAR	106	53	35	27
APR	96	48	32	24	APR	128	64	43	32
MAY	119	60	40	29	MAY	159	80	53	40
JUN	144	72	48	36	JUN	193	96	64	48
JUL	165	83	55	41	JUL	221	110	74	55
AUG	155	77	52	39	AUG	207	103	69	52
SEP	124	62	41	31	SEP	165	82	55	41
OCT	88	44	29	22	OCT	117	59	39	29
NOV	54	27	18	14	NOV	73	36	24	18
DEC	42	21	14	10	DEC	55	28	19	14

Practices that Conserve Water and Keep Your Plants Healthy

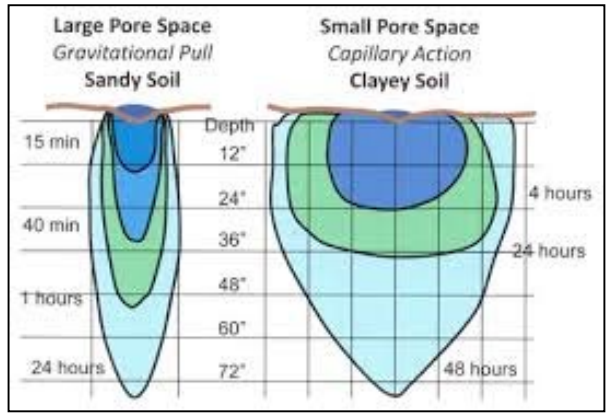
- **Water Trees and Lawns Separately**
  - **Trees Prefer Less Frequent Deeper Watering Once Established**
  - **If you Remove Turf, Remember to Water Trees! (a hose works well)**
- **Keep Irrigation Systems Working Properly**
- **Hydrozone**
- **Mulch**
- **Irrigate in the Morning**

Drip Irrigate Trees Outward To The Drip Line And Beyond



Water Your Plants Based on Your Soil Type

Soil Water Holding Capacity/Drainage



A ‘Jar Test’ Can Save You Water and $75-$100 on a Soil Test!

Clay layer – water clears

Silt layer – 2 hours

Sand layers – 1 minute

Or…….Use the ‘Feel’ Test

Preferred Rooting/Watering Depths:

Small Garden Plants/Groundcovers:
6-9 inches

Shrubs: 9 inches - 1 foot

Trees: 1 foot or deeper

Plant Water Use

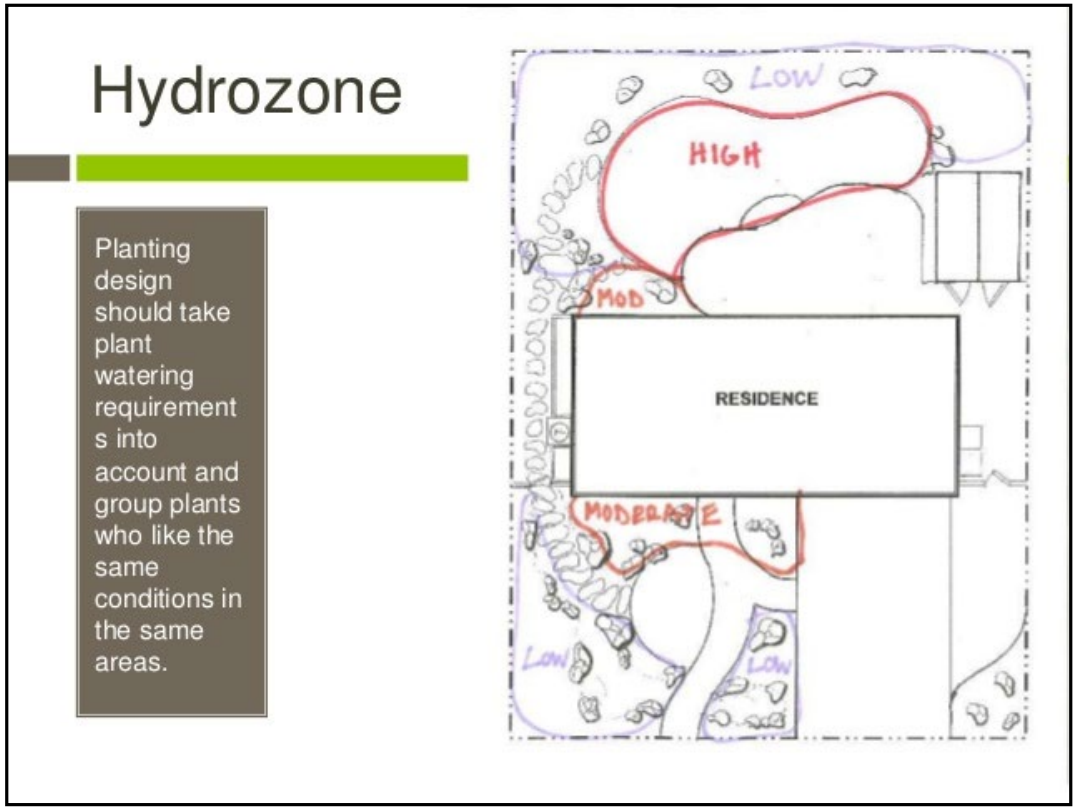
- Varies Among Species
- Influenced By Microclimate
- Varies By Density

Water Needs of the Same Species Vary Depending on Microclimate

- Landscape Plants in Heat Islands Require up to 50% More Water Than the Same Species in a Park Setting
- Trees Cool Urban Heat Islands 20 Degrees or More!

Low Density Planting

Hydrozone: Plant Species With Similar Water Needs Together




Low
Moderate
Low
Low
Low
Low
Moderate
Moderate
Low
Moderate
Low


2.6 gal / wk
4.2 gal / wk
2.6 gal / wk
1.7 gal / wk
.95 gal / wk
.95 gal / wk
1.0 gal / wk
4.2 gal / wk
.95 gal / wk
2.4 gal / wk
2.4 gal / wk
.4 gal / wk

What Else Can You Do Right Now To Save Water Without Starting Over?

Mulch

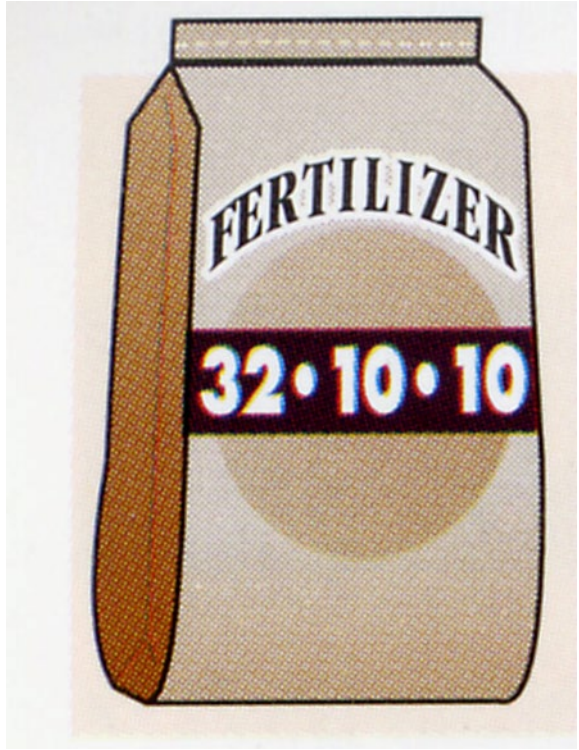
- Apply 2-3” of mulch around garden plants and trees to hold water in and reduce soil evaporation.
- Keep it several inches away from tree trunks!
- Make sure to water beneath the mulch

Mulch Keeps Weeds Out And Water In (wood chips, compost, rock/pebbles)

Keep Mulch Away From Trunks

Avoid Overfertilizing

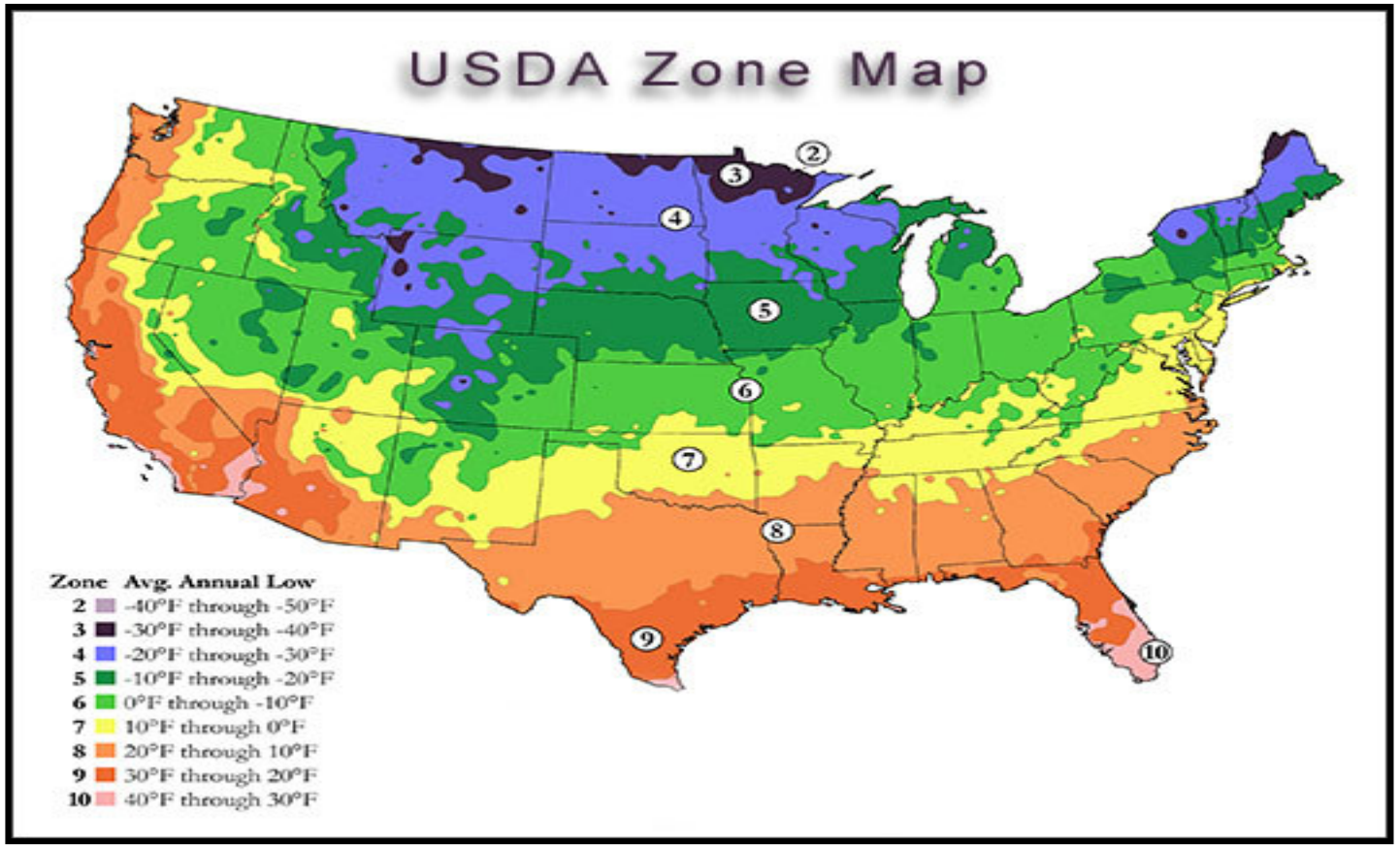
- Too much nitrogen results in lush, weak new growth, and increases the need for even more water.
- Too much fertilizer can lead to pollution of waterways.



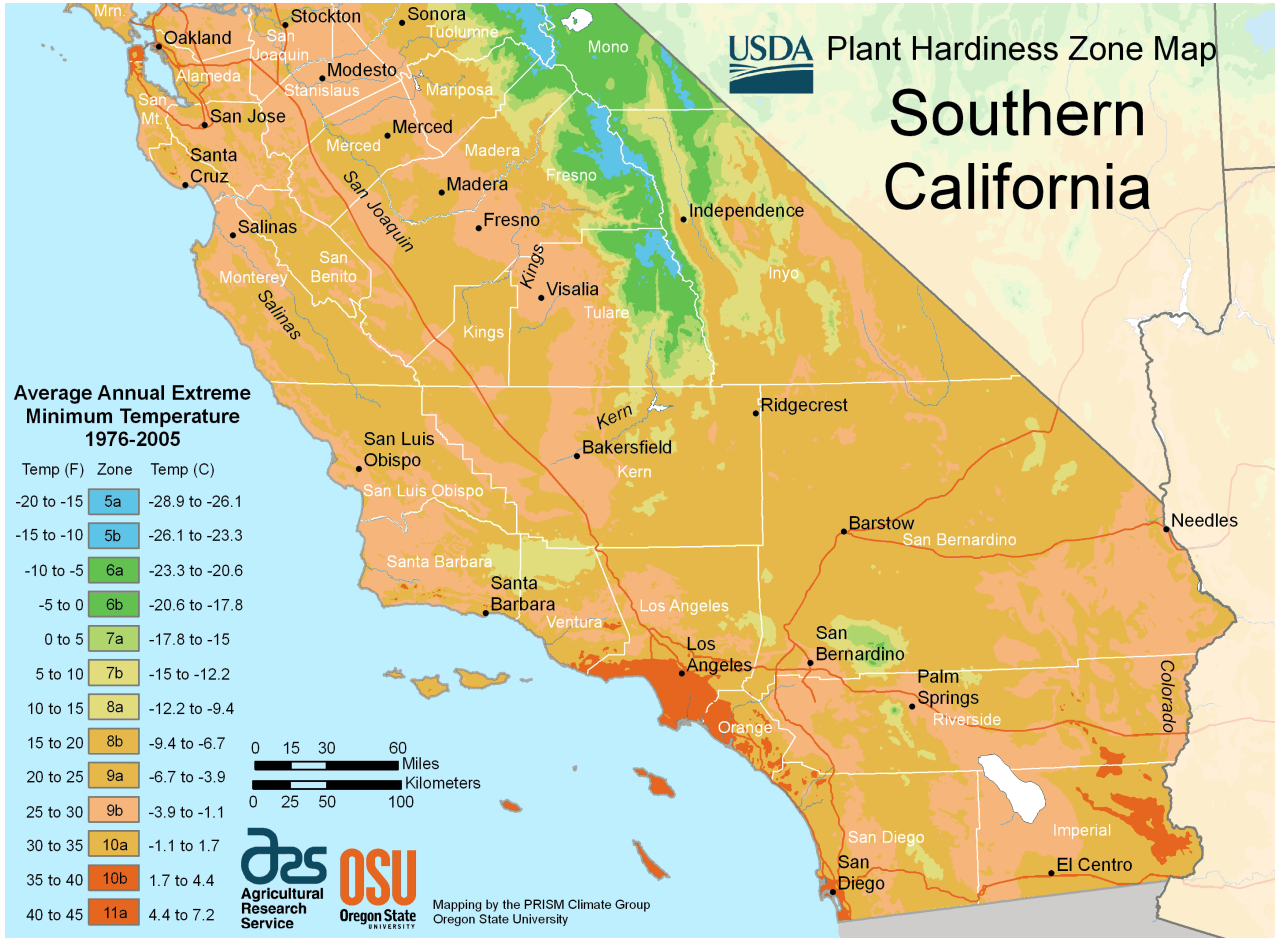
Ready to Plant Something New?

Select Plants Recommended For Your *Sunset Zone*

USDA Zone 9
(Not As Precise as Sunset Zones)




USDA Plant Hardiness Zone Map
California
Average Annual Extreme Minimum Temperature 1976-2005
Temp (F) Zone Temp (C)
-20 to -15 5a -28.9 to -26.1
-15 to -10 5b -26.1 to -23.3
-10 to -5 6a -23.3 to -20.6
-5 to 0 6b -20.6 to -17.8
0 to 5 7a -17.8 to -15
5 to 10 7b -15 to -12.2
10 to 15 8a -12.2 to -9.4
15 to 20 8b -9.4 to -6.7
20 to 25 9a -6.7 to -3.9
25 to 30 9b -3.9 to -1.1
30 to 35 10a -1.1 to 1.7
35 to 40 10b 1.7 to 4.4
0 15 30 60 Miles
0 25 50 100 Kilometers
Agricultural Research Service
OSU Oregon State University
Mapping by the PRISM Climate Group Oregon State University
CARSON CITY
SACRAMENTO


USDA Plant Hardiness Zone Map
Southern California
Average Annual Extreme Minimum Temperature 1976-2005
Temp (F) Zone Temp (C)
-20 to -15 5a -28.9 to -26.1
-15 to -10 5b -26.1 to -23.3
-10 to -5 6a -23.3 to -20.6
-5 to 0 6b -20.6 to -17.8
0 to 5 7a -17.8 to -15
5 to 10 7b -15 to -12.2
10 to 15 8a -12.2 to -9.4
15 to 20 8b -9.4 to -6.7
20 to 25 9a -6.7 to -3.9
25 to 30 9b -3.9 to -1.1
30 to 35 10a -1.1 to 1.7
35 to 40 10b 1.7 to 4.4
40 to 45 11a 4.4 to 7.2
0 15 30 60 Miles
0 25 50 100 Kilometers
Agricultural Research Service
OSU Oregon State University
Mapping by the PRISM Climate Group Oregon State University

Sunset Zones Are Smaller and More Accurate

18/19: Inland San Bernardino County

Trees Need Space

CLIMATE READY TREES TRIAL SPECIES

INLAND AND COASTAL SOUTHERN CALIFORNIA

ISLAND OAK
Inland & Coastal
Native to the CA Channel Islands and Guadalupe Island.

BRAZILIAN CEDARWOOD
Coastal
Native to Central and South America

GHOST GUM
Inland & Coastal
Native to Australia

ESCARPMENT LIVE OAK
Inland & Coastal
Native to West Texas

RED PUSH PISTACHE
Inland & Coastal
Hybrid of trees native to the Middle East and Asia.

ROSEWOOD
Inland & Coastal
Native to Northern India

NETLEAF HACKBERRY
Inland & Coastal
Native to the Southwest

MAVERICK MESQUITE
Inland & Coastal
Native to the Southwest

TECATE CYPRESS
Inland & Coastal
Native to Southern California

DESERT MUSEUM PALO VERDE
Inland Empire
Hybrid of natives to the Southwest.

MULGA
Inland & Coastal
Native to Western Australia

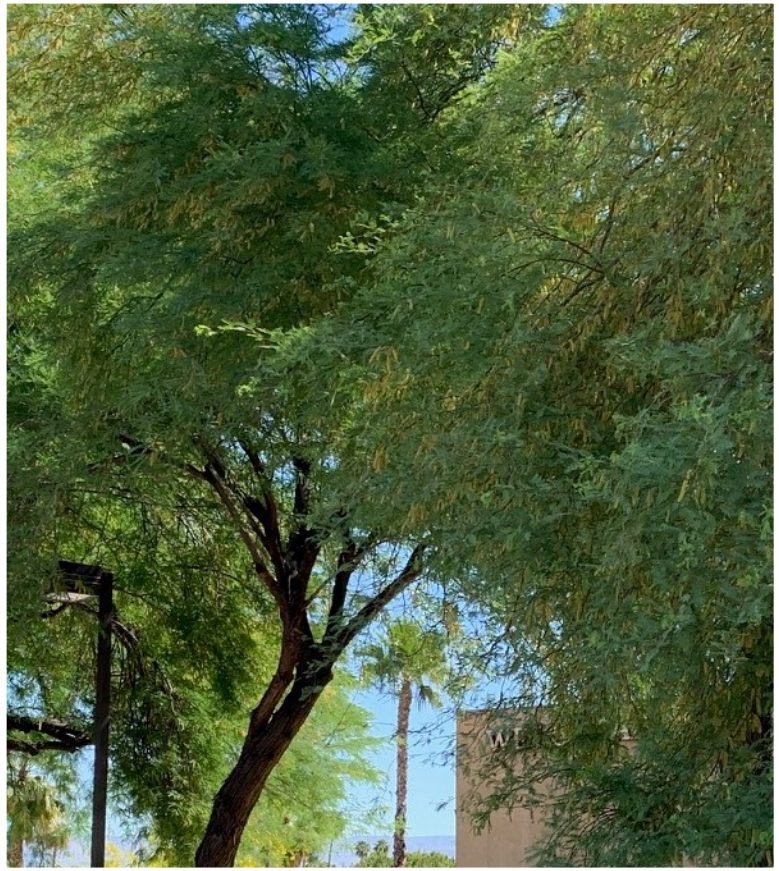
CATALINA CHERRY
Coastal
Native to the CA Channel Islands.

PALO BLANCO
Inland & Coastal
Native to Sonora, Mexico

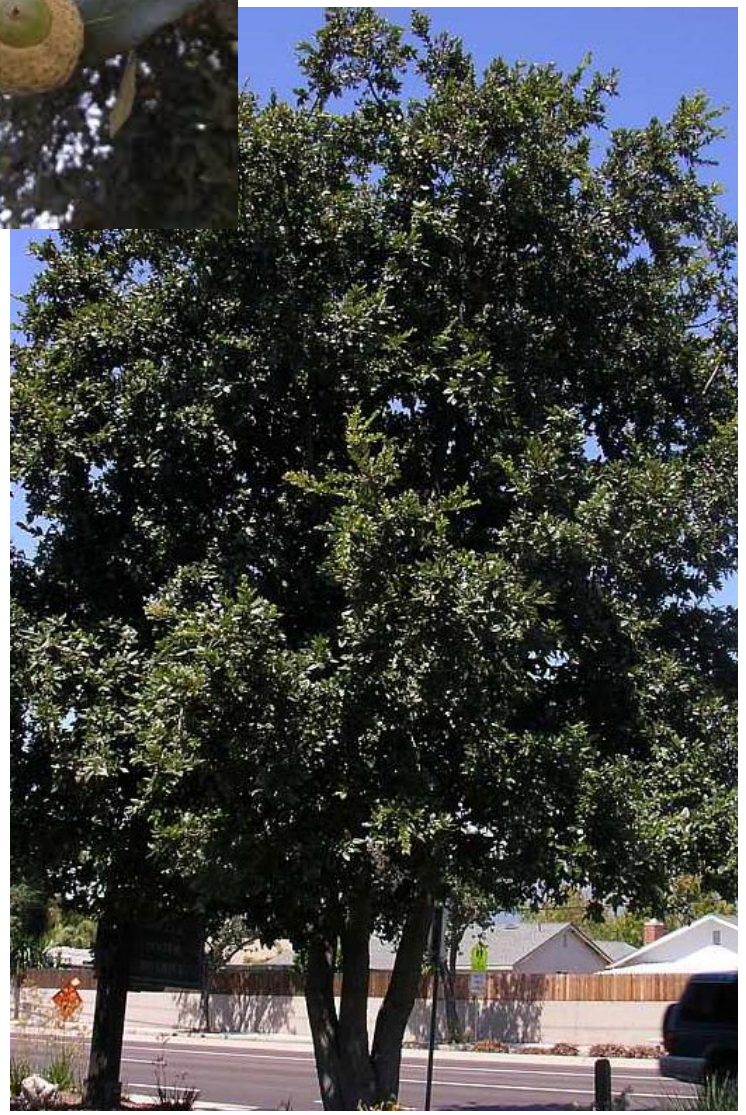
DESERT WILLOW
Inland Empire
Native to CA and the Southwest

Strong Performers to Date

(No irrigation since winter 2020 and below normal rainfall)



Island Oak (*Quercus tomentella*)



- CA Native
- Sunset Zones 7 - 9, 14 - 17 and 19 - 24
- Evergreen
- Grows 50’ x 40’
- Wide soil range
- Resistant to Verticillium
- Susceptible to Armillaria

selectree.calpoly.edu/tree-detail/quercus-tomentella

Urban Forest Ecosystems Institute

Skip to content

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Search Trees by Characteristics

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About SelecTree

Right Tree Right Place

Utility Precautions

Pacific Island Trees

SelecTree: Tree Detail

ISLAND OAK

Quercus tomentella

Photo Locations: Cal Poly State University - San Luis Obispo, CA, Santa Babara Botanic Garden - Santa Babara, CA and Quail Botanical Gardens - Encinitas, CA

General Notes

This evergreen Oak is a desirable landscape tree in southern California. Smooth gray bark when young becomes brown and blocky with age. Found natively on the Channel Islands. Prefers deep, moist soils but can tolerate a wide range of soil conditions. Slightly toothed, glossy green leaves are covered with tan hairs below.

Native to California and Mexico.

A *Quercus tomentella* in Santa Barbara Botanic Garden is registered as a California Big Tree. It measures 53 feet high, with a trunk circumference of 91 inches and a crown spread of 60 feet.

Family: *Fagaceae*

Tree Characteristics

Erect or Spreading and requires ample growing space.

Rounded Shape.

Has Evergreen foliage.

Height: 20 - 50 feet.

Width: 25 - 40 feet.

Growth Rate: 24 Inches per Year.

Leaves Ovate, Dark Green, No Change, Evergreen.

Flowers Inconspicuous. . Has separate male and female reproductive parts on the same tree (monoecious).

Brown Acorn, Medium (0.50 - 1.50 inches).

Bark Dark Gray / Brown, Blocky or Smooth.

Tree Site Conditions & Constraints

Sunset Zones 7 - 9, 14 - 17 and 19 - 24.

Exposure Full Sun to Partial Shade.

Moist to Dry Soil.

Drought tolerant.

Clay, Loam or Sand Texture.

Pests & Disease Information

Resistant to Verticillium. Susceptible to Armillaria.

Health, Safety & Environmental Concerns

Desirable Wildlife Plant.

Attracts Birds and Squirrels.

Netleaf Hackberry (*Celtis reticulata*)

- CA Native
- Deciduous
- Grows 35’ x 30’
- Attracts many species of birds
- Inconspicuous flowers

NETLEAF HACKBERRY

Celtis laevigata var. *reticulata*















General Notes

Deciduous tree with small red berries. Found in riparian areas of the Southwest. Attracts birds.

Native to California.

Family: *Cannabaceae*
Previously listed in the *Ulmaceae* family.

Synonyms

Celtis laevigata subsp. *reticulata*
Celtis reticulata

Additional Common Names

NETLEAF HACKBERRY, WESTERN HACKBERRY

Tree Characteristics

Spreading or Weeping with a Low Canopy.

Rounded or Spreading Shape.

Has Deciduous foliage.

Height: 25 - 35 feet.

Width: 25 - 30 feet.

Growth Rate: 24 Inches per Year.

Longevity 50 to 150 years.

Leaves Ovate, Green, Golden or Yellow or Orange, Deciduous.

Flowers Inconspicuous. Flowers in Spring.

Brown, Orange or Red Drupe, Very Small (Under 0.25 inches), fruiting in Summer or Fall Edible.

Bark Mottled, Light Gray or Red Brown, Smooth.

Shading Capacity Rated as Moderate in Leaf.

Shading Capacity Rated as Moderate out of Leaf.

Litter Issue is Dry Fruit.

Tree Site Conditions & Constraints

Sunset Zones 1 - 3 and 10 - 13.

USDA Hardiness Zones 3 - 9.

Exposure Full Sun to Partial Shade.

Moist to Dry Soil.

Drought tolerant.

Loam or Sand Texture.

Neutral to Highly Alkaline Soil pH.

Seaside Tolerance is Not Suited.

Pests & Disease Information

Susceptible to Aphids and Insect Galls.

Health, Safety & Environmental Concerns

Branch Strength Rated as Medium.

Root Damage Potential Rated as Low.

Allergy Health Hazard.

Desirable Wildlife Plant.

Attracts Birds.

Deer Palatable.

Special Uses & Values

Screen.

‘Maverick’ Mesquite
Prosopis glandulosa

- Native to Southwestern United States
- Thornless
- Drought/heat/cold tolerant
- Deciduous
- Grows to 35’ x 35’
- Small yellow flowers in spring/summer
- Large pods

General Notes

Branches droop but resist breakage. This cultivar is known for being thornless and having foliage visually similar to the Peruvian Pepper Tree (*Schinus molle*).

Has fragrant Flower.

Native to Southwestern United States.

Family: *Fabaceae*

Additional Common Names

TEXAS MESQUITE, MAVERICK HONEY MESQUITE

Tree Characteristics

Spreading and requires ample growing space.

Rounded Shape.

Has Deciduous foliage.

Height: 25 - 35 feet.

Width: 25 - 35 feet.

Growth Rate: 12 to 36 Inches per Year.

Leaves Bipinnately Compound, Green, No Change, Deciduous.

Flowers Inconspicuous. Fragrant Yellow. Flowers in Spring or Summer. Has perfect flowers (male and female parts in each flower).

Brown Legume, Very Large (Over 3.00 inches), fruiting in Spring, Summer or Fall Edible and Wildlife use it.

Tree Site Conditions & Constraints

Sunset Zones 10 - 13 and 18 - 24.

USDA Hardiness Zones 6 - 10.

Exposure Full Sun.

Wet to Dry Soil.

Drought tolerant.

Clay, Loam or Sand Texture.

Acidic to Alkaline Soil pH.

Health, Safety & Environmental Concerns

Root Damage Potential Rated as Low.

Attracts Birds and Mammals.

Wildlife use Fruit.

Special Uses & Values

Specimen or Shade Tree.

Bonsai.

Pistacia ‘Red Push’

General Notes

A hybrid between *Pistacia atlantica* × *Pistacia integerrima*.

Hybrid developed in Arizona. Drought and cold tolerant. New leaves have distinctive red color when emerging.

Trees may be referred to as male or female.

Family: *Anacardiaceae*

Tree Characteristics

Erect or Spreading with a High Canopy.

Rounded or Spreading Shape.

Has Deciduous foliage.

Height: 25 - 40 feet.

Width: 20 - 40 feet.

Growth Rate: 12 to 24 Inches per Year.

Longevity Greater than 150 years.

Leaves Pinnately Compound Odd with Lanceolate Leaflets, Green, Red or Orange, Deciduous.

Flowers Inconspicuous. Flowers in Spring. Has either male or female reproductive parts (dioecious). Trees may be sold as male or female.

Fruitless.

Bark Dark Brown, Light Gray or Light Green, Furrowed or Scaly.

Tree Site Conditions & Constraints

Sunset Zones 8 - 24.

USDA Hardiness Zones 7 - 9.

Exposure Full Sun.

Moist to Dry Soil.

Drought tolerant.

Clay, Loam or Sand Texture.

Slightly Acidic to Highly Alkaline Soil pH.

Seaside Tolerance is Not Suited.

Pests & Disease Information

Resistant to Verticillium.

Health, Safety & Environmental Concerns

Branch Strength Rated as Strong.

Root Damage Potential Rated as Low.

Special Uses & Values

Street Tree, Park Tree, Screen.

Other Good Choices are Acacia (*Acacia* spp.) and Thornless Honey Locust (*Gleditsia triacanthos* 'Sunburst‘)

Western Redbud (*Cercis occidentalis*) and Golden Rain Tree (*Koelreuteria paniculata* are Good Choices Under Power Lines

Thornless Palo Verde (*Cercidium* hybrid 'Desert Museum‘) and Crape Myrtle (*Lagerstroemia indica* ‘Seminole’)

Chilopsis linearis
Art's Seedless Desert Willow™

- **Low water use**
- **Pink flowers in summer**
- **25 ft high x 25 ft wide**
- **Podless**

Avoid Invasives

http://www.cal-ipc.org/paf/

Very Invasive!

Scotch Broom (*Cytisus scoparius*)

Alternative to Scotch Broom: Cleveland Sage (*Salvia clevelandii*)

Plant to Avoid:
Pampas Grass (*Cortaderia selloana*)

Alternative to Pampas Grass:
Deer Grass *(Muhlenbergia rigens)*

Plant to Avoid:
Green Fountain Grass
(*Pennisetum setaceum*)

Alternative to Green Fountain Grass:

Oriental Fountain Grass

(*Pennisetum orientale)*

Plant to Avoid:
Tree of Heaven (*Ailanthus altissima*)

- Also known as stinking sumac, Chinese sumac, varnish, tree and stinktree

- Withstands harsh urban environments better than most plants and was used as a street tree in many cities.

Lots of alternatives to this tree

Searchable Websites to find the Right Plant

- Inland Valley Plant Finder: https://inlandvalleygardenplanner.org/

- Cal Poly, Pomona: https://selectree.calpoly.edu

- California Native Plant Society: http://www.cnps.org/cnps/grownative/lists.php

- WUCOLS IV (Water Use Classification of Landscape Species): http://ucanr.edu/sites/WUCOLS

INLAND VALLEY GARDEN PLANNER

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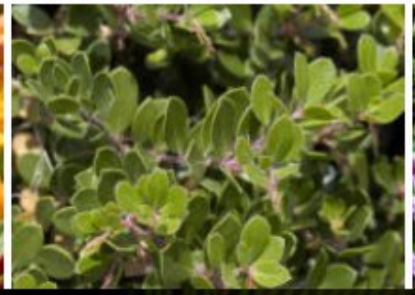
- Visit our garden

The Chino Basin Water Conservation District works to sustain our regional water supply through public stewardship, stormwater percolation, demonstration, and education. Visit our public demonstration garden and website to learn more.



How do I access clipboard i | Plant Finder - Inland Val

inlandvalleygardenplanner.org/plant-finder

INLAND VALLEY GARDEN PLANNER

Search | Log In | Sign Up

Home | Plant Finder | Garden Styles | Helpful Lists | My Plants | About Us | Visit Our Garden

Search Criteria

Search by plant name | Clear Search

Plant Type

- [ ] Tree
- [ ] Palm
- [ ] Shrub
- [ ] Vine
- [ ] Perennial
- [ ] Ground Cover
- [ ] Grass
- [ ] Succulent
- [ ] **California Native**

Water Needs

- [ ] Low Water Needs
- [ ] Moderate Water Needs

Character

- [ ] Evergreen
- [ ] Deciduous

Sun Exposure

- [ ] Full Sun
- [ ] Partial Sun
- [ ] Shade

Aesthetics

Type here to search

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10/9/2017

- [ ] Low Water Needs
- [ ] Moderate Water Needs

Character

- [ ] Evergreen
- [ ] Deciduous

Sun Exposure

- [ ] Full Sun
- [ ] Partial Sun
- [ ] Shade

Aesthetics

- [ ] Colorful Flowers
- [ ] Pleasing Fragrance
- [ ] Fall Color

Functions

- [ ] Hedges or Screens
- [ ] Butterfly Plants
- [ ] Bird, Wildlife Plants
- [ ] Container Plants
- [ ] Lawn Alternatives
- [ ] Plants for Small Spaces
- [ ] Plants for Slopes

Search by plant name | Clear Search

Plant Type
- [x] Tree
- [ ] Palm
- [ ] Shrub
- [ ] Vine
- [ ] Perennial
- [ ] Ground Cover
- [ ] Grass
- [ ] Succulent
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- [ ] Deciduous

Sun Exposure
- [x] Full Sun
- [ ] Partial Sun
- [ ] Shade

Aesthetics
- [ ] Colorful Flowers
- [ ] Pleasing Fragrance

28 plants found

Trees

WUCOLS IV

Water Use Classification of Landscape Species

Home Page

GETTING STARTED

If you are using the WUCOLS list for the first time, it is essential that you read the *User Manual*. The manual contains very important information regarding the evaluation process, categories of water needs, plant types, and climatic regions. It is necessary to know this information to use WUCOLS evaluations and the plant search tool appropriately. To access the *User Manual*, click on the tab (on left) and view specific topics.

Water conservation is an essential consideration in the design and management of California landscapes. Effective strategies that increase water use efficiency must be identified and implemented. One key strategy to increase efficiency is matching water supply to plant needs. By supplying only the amount of water needed to maintain landscape health and appearance, unnecessary applications that exceed plant needs can be avoided. Doing so, however, requires some knowledge of plant water needs.

WUCOLS IV provides evaluations of the irrigation water needs for over 3,500 taxa (taxonomic plant groups) used in California

ucanr.edu/sites/WUCOLS/Plant_Search/?CFID=520799628&CFTOKEN=80698482

SHARE EMAIL PRINT SITE MAP Enter Search Terms

WUCOLS IV

fication of Landscape Species

- South Inland Valley -
Alhambra
Arcadia
Azusa
Baldwin Park
Chino
Chino Hills
Claremont
Colton
Corona
Covina
Diamond Bar
Duarte
El Monte
Escondido
Fontana
Glendora
Hemet
La Canada-Flintridge
Lake Elsinore
Loma Linda
Menifee
Monrovia
Montclair
Monterey Park
Moreno Valley
Murrieta
Norco
Ontario
Pasadena

Submit

Submit

Submit

Submit

Submit

Submit

Type here to search

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WUCOLS IV

fication of Landscape Species

Duarte
El Monte
Escondido
Fontana
Glendora
Hemet
La Canada-Flintridge
Lake Elsinore
Loma Linda
Menifee
Monrovia
Montclair
Monterey Park
Moreno Valley
Murrieta
Norco
Ontario
Pasadena
Perris
Pomona
Ramona
Rancho Cucamonga
Rancho Santa Fe
Redlands
Rialto
Riverside
Rosemead
Rubidoux
San Bernardino
San Dimas
San Fernando

Submit
Submit
Submit
Submit
Submit
Submit

WUCOLS IV
Water Use Classification of Landscape Species

Plant Search Database

If you know exactly which plant you are interested in, you may search for it by name (partial names are OK, too). Otherwise, consider searching by plant type and/or water use.

See WUCOLS List for All Regions

City

Search for a city: San Bernardino — or — Find a city on the map

Plant Name

Common Name or Botanical Name

Water Use

- [x] Very Low
- [x] Low
- [ ] Moderate / Medium
- [ ] High
- [ ] Unknown
- [ ] Not Appropriate for this Region

Plant Type

- [ ] **Gc** (Ground Cover)
- [ ] **P** (Perennial)
- [ ] **S** (Shrub)
- [x] **T** (Tree)
- [ ] **V** (Vine)
- [ ] **Ba** (Bamboo)
- [ ] **Bu** (Bulb)
- [ ] **G** (Ornamental Grass)
- [ ] **Pm** (Palm and Cycad)
- [ ] **Su** (Succulent)
- [ ] **N** (California Native)
- [ ] **A** (Arboretum All-star)

Looking for Turf Grass?

WUCOLS IV
Water Use Classification of Landscape Species

Plant Search Database

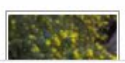
City	San Bernardino
Region	South Inland Valley

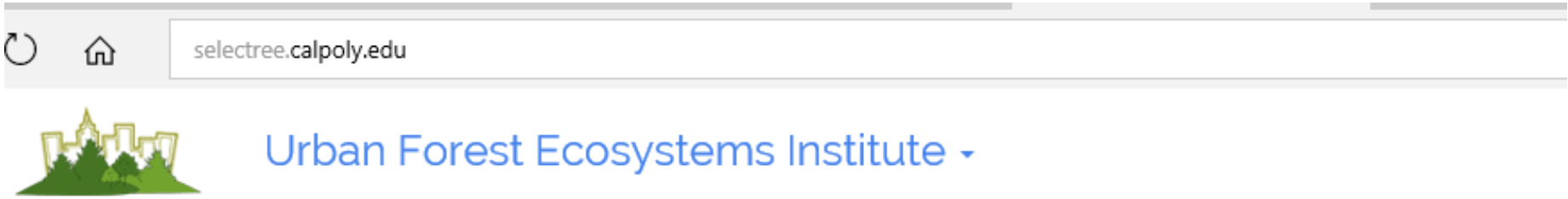
Start Over | Search Again | Export List

▼ **Legend: Plant Types**

▼ **Legend: Categories of Water Needs**

Search Results: 163

Type	Photo	Botanical Name	Common Name	Water Use	Export
T		Acacia baileyana	Bailey acacia	Low	☐
S T	N/A	Acacia constricta	whitethorn acacia	Low	☐
T		Acacia dealbata	silver wattle	Low	☐


selectree.calpoly.edu
Urban Forest Ecosystems Institute
Search by Name
Search Trees by Characteristics
Search Help
About SelecTree
Right Tree Right Place
Utility Precautions
Browse securely
SelecTree: A Tree Selection Guide
Search for trees
Enter a tree name
Search
Tree Characteristics Glossary
Search Help
It is good to know the truth, but it is better to speak of palm trees.
— Arab Proverb

Urban Forest Ecosystems Institute

Skip to content

Place

Utility Precautions

Browse securely

Tree Characteristics

Max Height (ft)

Growth Rate

Tree Shape

Habit

Bark Color

Bark Texture

Armament

Branch Strength

Litter Type

Leaf, Flower & Fruit Characteristics

Foliage Type

Cleyera japonica

Utility friendly tree. New leaves are brownish-red. Var. wallichiana is common in the Himalayas and...

Photo by J. Reimer

Urban Forest Ecosystems Institute

Skip to content

Site Conditions & Constraints

Sunset Climate Zone

USDA Hardiness Zone

☐ California Native

Exposure

Seaside Tolerance

Salinity Tolerance

Soil Moisture

Soil Texture

Soil pH

Pest & Disease Information

Deer Palatable

Urban Forest Ecosystems Institute

Skip to content

Pest & Disease Information

Deer Palatable

Disease Resistant

Pest Resistant

Disease Susceptibility

Pest Susceptibility

Health, Safety & Environmental Concerns

Fire Resistance

Root Damage Potential

Health Hazard

California Invasive

Biogenic Emmissions

Urban Forest Ecosystems Institute

Skip to content

Special Uses & Values

Attracts Wildlife

☐ Desirable Wildlife Plant

Landscape Application

Common Landscape Use

Fruit Value

Search

Note: We recommend selecting three or four attributes for an initial search.

- Tree Characteristics Glossary
- Search Help

Search by Name

Search Trees by Characteristics

Search Help

About SelecTree

Right Tree Right Place

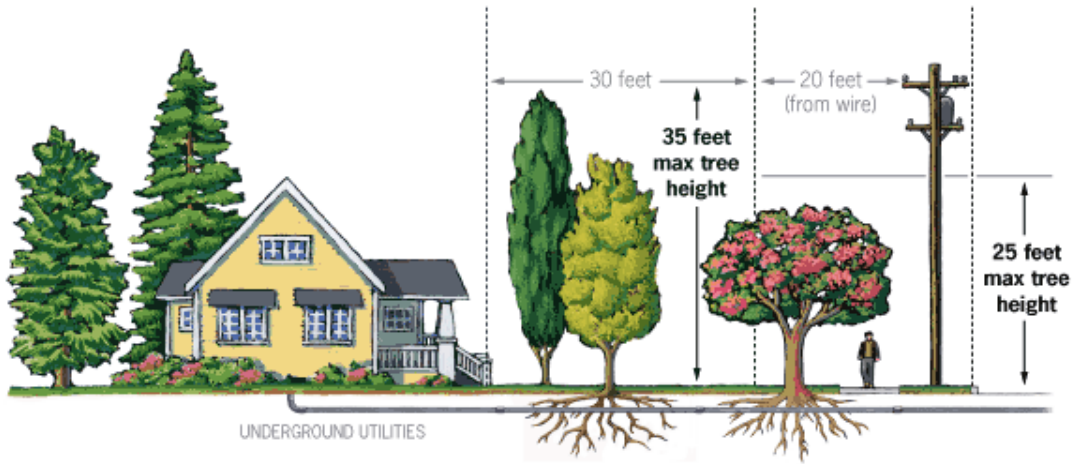
Utility Precautions

Browse securely

SelecTree: Utility Precautions

Select the Tree Zone (distance from electrical wire) that represents your planting site.

Tall Zone | Medium Zone | Low Zone



ROOT DAMAGE ZONE

Customer Information for Overhead Utility Services

See more information on electrical equipment identification and important customer precautions please follow the link below. Extreme care should be taken before

State Clearance Regulations

Trees and other vegetation growing in proximity to overhead utility facilities must adhere to federal and state regulations. These laws address potential vegetation conflicts with public safety,

Quercus buckleyi

Branches droop but resist breakage. A spectacular cold hardy landscape tree...

Photo by J. Reimer and R. Thompson

Password Reset | sunset zones southern cali | wucols - Yahoo Search Re | Calscape - Restore Nature | Tomato Growing Zone Ma

calscape.org/loc-34.1083,-117.2898(san%20bernardino)/?&poploc=1

Paused

ABOUT CALSCAPE CONTACT CALSCAPE PLANTING GUIDE NURSERIES MY PLANT LISTS BUTTERFLIES CALSCAPE SIGN IN

California Native Plant Society
Calscape
Restore Nature One Garden at a Time

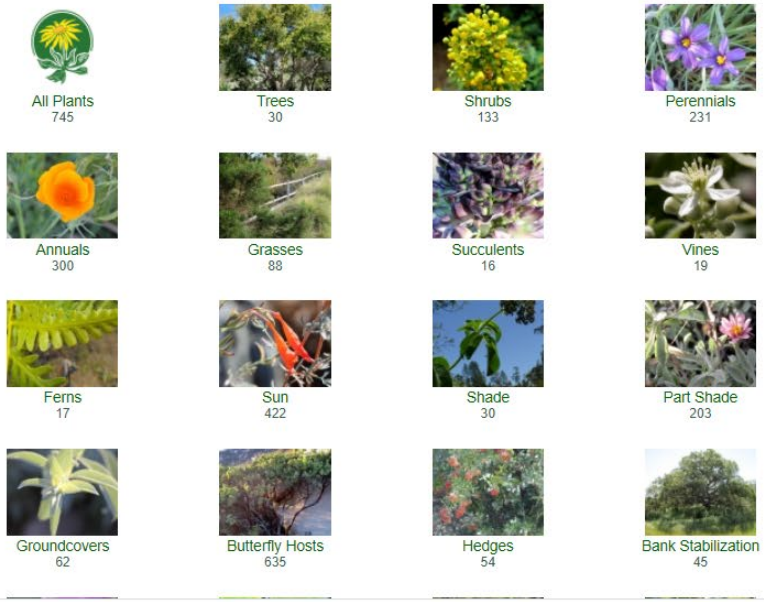
Search for California native plants by name

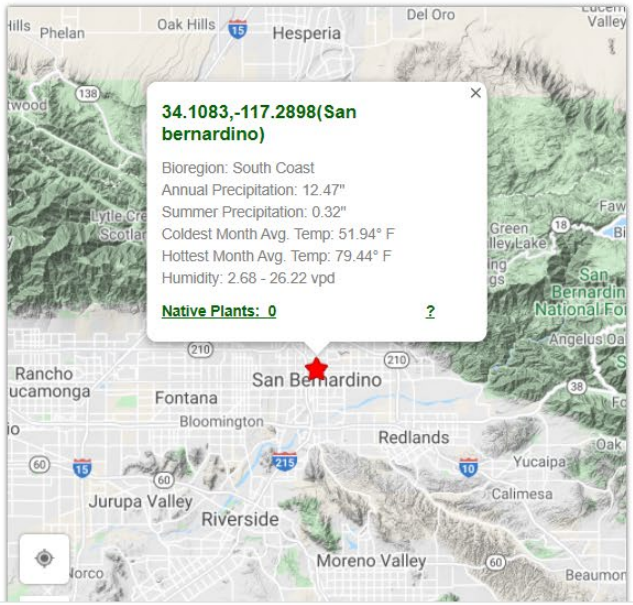
ADVANCED SEARCH

Enter a California address or click the map to see plants native to that location

San Bernardino

745 plants native to 34.1083,-117.2898 (San bernardino)





SurveyResults_323....xlsx | Dalila_UCR_SP21 F....pdf | Show all

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calscape.org/search.php

ABOUT CALSCAPE CONTACT CALSCAPE PLANTING GUIDE NURSERIES MY PLANT LISTS BUTTERFLIES CALSCAPE SIGN IN

California Native Plant Society
Calscape
Restore Nature One Garden at a Time

Search for California native plants by name

ADVANCED SEARCH

HOME > ADVANCED SEARCH

Advanced Search

Search Clear

Select desired plant characteristics and then click 'Search' to see matching plants

Native To San Bernardino

Type
- [ ] Annual herb
- [ ] Fern
- [ ] Grass
- [ ] Perennial herb
- [ ] Shrub
- [ ] Succulent
- [x] Tree
- [ ] Vine

Sun
- [ ] Full Sun
- [x] Part Shade
- [ ] Full Shade

Drainage
- [ ] Fast
- [ ] Medium
- [ ] Slow
- [ ] Standing

Water Requirement
- [x] Extremely Low
- [x] Very Low
- [x] Low
- [ ] Moderate - High

SurveyResults_323....xlsx | Dalila_UCR_SP21 F....pdf | Show all

Type here to search

7:48 AM
3/20/2021

Drainage
- [ ] Fast
- [ ] Medium
- [ ] Slow
- [ ] Standing

Water Requirement
- [ ] Extremely Low
- [ ] Very Low
- [ ] Low
- [ ] Moderate - High

Ease of Care
- [ ] Very Easy
- [ ] Moderately Easy
- [ ] Fairly Difficult
- [ ] Very Difficult

Common Uses
- [ ] Bank Stabilization
- [ ] Bee Gardens
- [ ] Bird Gardens
- [ ] Bogs and Ponds
- [ ] Butterfly Gardens
- [ ] Deer Resistant
- [ ] Groundcovers
- [ ] Hedges
- [ ] Hummingbird Gardens

Availability in Nurseries
- [ ] Commonly Available
- [ ] Sometimes Available
- [ ] Rarely Available
- [ ] Never or Almost Never Available
- [ ] Available Through Seed Stores

Nurseries
- [ ] Ackerman Native Plant Nursery
- [ ] Acterra Wholesale Native Nursery
- [ ] Annie's Annuals

- [ ] Rarely Available
- [ ] Never or Almost Never Available
- [ ] Available Through Seed Stores

Nurseries

- [ ] Ackerman Native Plant Nursery
- [ ] Acterra Wholesale Native Nursery
- [ ] Annie's Annuals
- [ ] Antelope Valley Resource Conservation Nursery
- [ ] Aspen Hollow Nursery
- [ ] Back to Natives Nursery @ Santiago Park
- [ ] Bay Natives
- [ ] Baylands Nursery
- [ ] Belmont Nursery
- [ ] Berkeley Horticultural Nursery
- [ ] Buckeye Nursery
- [ ] CNL Native Plant Nursery
- [ ] Cactus Jungle Nursery and Garden

Fragrance

- [ ] Fragrant - Pleasant
- [ ] Fragrant - Unpleasant
- [ ] None
- [ ] Slight

Flower Color

- [ ] Black
- [ ] Blue
- [ ] Brown
- [ ] Cream
- [ ] Green
- [ ] Lavender
- [ ] Orange
- [ ] Pink
- [ ] Purple
- [ ] Red
- [ ] White
- [ ] Yellow

- [ ] Bay Natives
- [ ] Baylands Nursery
- [ ] Belmont Nursery
- [ ] Berkeley Horticultural Nursery
- [ ] Buckeye Nursery
- [ ] CNL Native Plant Nursery
- [ ] Cactus Jungle Nursery and Garden

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- [ ] Cream
- [ ] Green
- [ ] Lavender
- [ ] Orange
- [ ] Pink
- [ ] Purple
- [ ] Red
- [ ] White
- [ ] Yellow

Flowering Season

- [ ] Spring
- [ ] Summer
- [ ] Fall
- [ ] Winter

Height

[ ] - [ ] (•) Feet ( ) Inches

Genus

[ ]

Advanced Search Results

Options Edit Search

14 Plants. Native to: **San Bernardino**. Type: ***Tree***. Sun: ***Full Sun***. Water Requirement: ***Extremely Low, Very Low, Low***.

1 
Coast Live Oak
Quercus agrifolia

2 
Blue Elderberry
Sambucus nigra ssp. caerulea

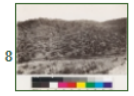
3 
Engelmann Oak
Quercus engelmannii

4 
Scrub Oak
Quercus berberidifolia

5 
Nuttall's Scrub Oak
Quercus dumosa

6 
Hollyleaf Cherry
Prunus ilicifolia ssp. ilicifolia

7 
Hollyleaf Cherry
Prunus ilicifolia

8 
California Juniper
Juniperus californica

9 
Red Shanks
Adenostoma sparsifolium

10 
Honey Mesquite
Prosopis glandulosa

11 
Mesquite
Prosopis glandulosa var. torreyana

12 
Oregon Ash
Fraxinus latifolia

13 
Northern California Black Walnut
Juglans hindsii

14 
Fan Palm
Washingtonia filifera

Drought Resistant Plants for Small Spaces: Side Yards, Condos, Public Areas (HOAs)

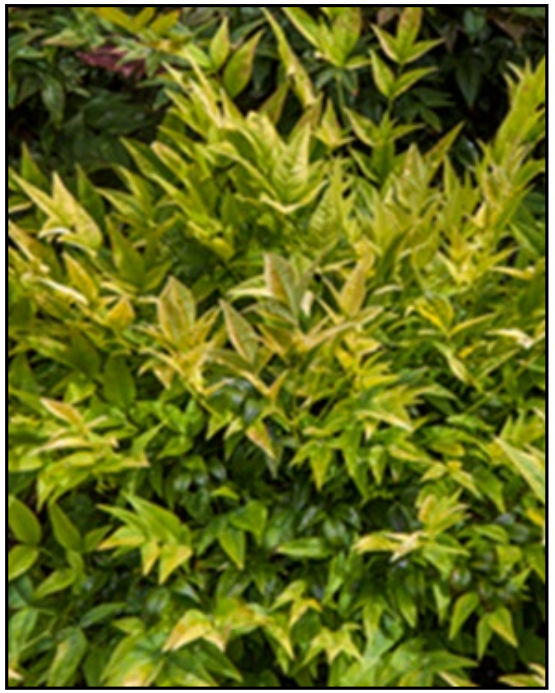
‘Beyond Blue’ Fescue (*Festuca glauca)*

- Intense, powder blue foliage year-round
- Evergreen or deciduous evergreen
- USDA zones: hardy to -30˚ F USDA zones 4
- Sunset zones: 1-24
- Special features: drought resistant, low maintenance, deer resistant
- Landscape uses: border, container, slope, groundcover

‘Clarity Blue’ Dianella (*Dianella* hybrid)

- Exposure full coastal sun to part shade inland
- USDA Zones Hardy to 10
- Sunset Zones 4-7 (with protection), 8-9, 14-24
- Drought resistant, low maintenance, deer resistant
- Dimension 24-30" H x 18-24" W
- Growth rate slow to moderate
- Plant type evergreen
- Water low water needs

‘Lemon Lime’ Nandina
(*Nandina domestica Alba)*



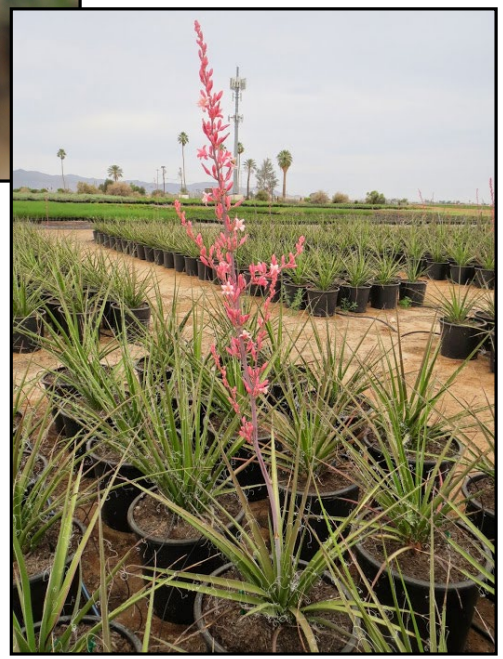
- **Bright lime green new foliage**
- **Evergreen**
- **USDA zones: 6-9 (hardy to -10° F)**
- **Sunset zones: 3 (with protection), -33**
- **Special features: drought resistant, compact habit, deer resistant**
- **Landscape use: border, container, slope, firescaping/fire wise, hedge, mass planting**

Hesperaloe parviflora
'Perpa' Brakelights

- **Size: 2 feet x 2 feet**
- **Flower color: bright red**
- **Flower season: Sept - June**
- **Growth rate: slow**
- **Exposure: full sun**

Hesperaloe spp. 'Pink Parade'

- Size: 3-4 ft x 3-4 ft
- Pink flowers
- Flowers spring to fall
- Full sun, reflected heat
- Slow to moderate



Tecoma hybrid Crimson Flare®

- Red flowers from spring - fall
- Attracts hummingbirds
- Rapid growth rate
- Size: 6-8 feet x 6-8 feet

Tecoma Hybrid Solar Flare®

- Bright yellow/orange flowers spring - fall
- Drought resistant
- Sunset zones:12-13, 16, 18-24; USDA 8
- Attracts hummingbirds
- Rapid growth rate
- Size (h x w) 6-8 feet x 6-8 feet

Little Miss Sunshine Cistus (Rockrose) (*Cistus Corbariensis* hybrid)

- Feature/white flowers in spring; year-round colorful foliage
- Evergreen or deciduous evergreen
- USDA zones hardy to 20˚ F USDA zones 9-11
- Sunset zones 5-9, 14-24, 26, 28, 31
- Special features deer resistant, disease / pest resistance, easy care, water-wise
- Landscape use border, container, slope, rock gardens, groundcover

Chef's Choice® Rosemary (*Rosemary officinales*)

- Violet blue flowers in spring
- Evergreen or deciduous evergreen
- USDA zones: hardy to -10˚ F USDA zones 6-11
- Sunset zones: 4-24
- Drought resistant, aromatic, deer resistant, food seasoning
- Use as landscape plant, border, container, or mass planting

Purple Pixie® Weeping Loropetalum

- Profuse pink flowers in spring
- Evergreen or deciduous evergreen
- USDA zones hardy to 0° F USDA zones 7-11
- Sunset zones 4-5 (with protection); 6-9; 14-24
- Drought resistant, low maintenance, compact, pest resistance, easy care
- Use as border, container, slope, or groundcover

‘Little Kiss’ Salvia
(*Salvia microphylla*)

- Feature/red and white bi-color blooms spring to fall
- Evergreen or deciduous evergreen
- USDA zones hardy to -10˚ F zones 8-10
- Sunset zones 5, 7-24
- Drought resistant, attracts pollinators, clumping habit, heat tolerant
- Use as an accent plant, border, container, or in mass planting

‘Black And Bloom’ Salvia (*Salvia guaranitica)*

- Dark blue flowers mid-spring to mid-fall
- Evergreen or deciduous evergreen
- USDA zones hardy to 10˚ F USDA zones 8-10
- Sunset zones 4-7 (with protection), 8-24
- Drought resistant, low maintenance, attracts pollinators, deer resistant
- Use as a landscape or container plant

‘Love And Wishes’ Salvia (*Salvia* spp.)

- Dark purple flowers in fall
- Evergreen or deciduous herbaceous
- USDA zones hardy to 25
- Sunset zones 16-24; annual in cooler areas
- Drought resistant and heat tolerant
- Attracts pollinators
- Use as a landscape or container plant

Orange Rocket Berberis
(*Berberis thunbergii* 'Orange Rocket')

- Deciduous
- USDA zones hardy to -20˚ F USDA zones 5-9
- Sunset zones 2B, 3-24
- Drought resistant, low maintenance, heat tolerant
- Beautiful foliage
- Use as a landscape, border, container, slope, or rock garden plant

Leucophyllum frutescens
Texas Ranger

Leucophyllum zygophyllum
Cimarron™ and Rio Bravo™

- Low water use
- Evergreen
- Small/compact shrubs
- Purple flowers summer - fall

Eremophila maculata Valentine ™

- Low water use
- Evergreen
- Red flowers early spring
- 4-5 ft high x 4-5 ft wide

Eremophila
var. Summertime Blue ™

- Low water use
- Evergreen
- Blue flowers in fall
- 6 ft tall x 10 ft wide
- Does well in heavy soils

Achillea (Yarrow)

- 6 in. – 4 ft. tall
- Up to 2 ft wide
- Evergreen
- Low water use and low fire hazard
- White, yellow or pink flowers

Penstemon heterophyllus
Foothill Penstemon

- 1-1/2 ft tall x 2 ft wide
- Hardy to 5,500 ft
- Deciduous
- Low water use
- Low fire hazard

Arctostaphylos spp.
'Emerald Carpet' Manzanita

- 7- 9 in tall x 5-6 ft wide
- Low water use
- Low fire hazard
- Evergreen

Atriplex canescens
Four Wing Saltbush

- Hardy to 7,500 ft
- 3-4 ft tall x 6-8 ft wide
- Evergreen
- Very low water use
- Low fire hazard
- Prune or leave natural

University of California
Agriculture and Natural Resources

UC Ag/Natural Resources Free Downloadable Publications:

https: anrcatalog.ucanr.edu

- Sustainable Landscaping in California
- Keeping Plants Alive Under Drought And Water Restrictions
- Lawn Watering Guide For California
- Use Of Graywater In CA Landscapes

Thank you for Helping Make the Future Brighter for our Children's Children

Contact a UCCE Master Gardener for More Help With Your Gardening Questions

(Workshop Calendar://mgsb.ucanr.edu)

E-mail your gardening/landscaping questions: mgsanbern@ucanr.edu