



We humans do not grow trees the way Nature grows trees.

1

Highly Xeric Trees

xeric

adjective

: characterized by, relating to, or requiring only a small amount of moisture

2

If a newly planted 15 gallon tree's watering basin is roughly 4 ft in diameter, that diameter's area is roughly 12.5 sq ft ($\pi \times r^2$). 15 gallons of water applied to an area of 12.5 sq ft is equivalent to 1.9 inches of rainfall. Applied to this area, 15 gallons/week is equivalent to 98.8 inches of rainfall/year. If applied to this area, 10 gallons/week is equivalent to about 65 inches of rainfall/year.

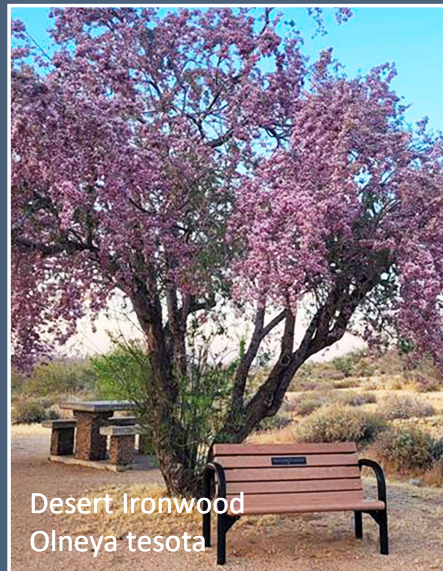
Reference appendix for information about locations that receive this much water.

3

Do all trees have the same needs?



30-64 inches average annual rainfall, plus humid air



3-8 inches average annual rainfall, desert air


4



- Pollinator Garden
- Western Garden
- Woodland Garden
- Kumeyaay Ethnobotany Garden
- Butterfly Garden
- California Wildflower Fields

5

Native. Meaning what, exactly?



Native: Grows in the region where the species originated ('region' defined by physical features **or** by human socio-political lines), but not necessarily all areas within that region.

See appendix for expanded definitions.

- US State of California
- California Floristic Province
- Kumeyaay (Tipai-Ipai & Kamia)

6



September 1, 2020

August 15, 2025

Engelmann Oak
Quercus engelmannii

7



May 5, 2026

Wildflower Meadows

seeded with Southern California native annual wildflowers in February and March, 2026

8

Paradise Hills Native Garden

A water-wise, all California native plant demonstration garden located on and around the old Paradise Landfill (1966-67)

Map Legend:

- Center: children's nature discovery play area
- Native wildflower meadows, seeded Feb 2026
- Through-fence access for trucks & equipment
- 1966-67 Perimeter (Paradise Landfill)
- Parking: 16 spaces + 2 handicapped

9



10



Velvet Ash, aka, Arizona Ash
Fraxinus velutina



California Ash, aka, Foothill Ash
Fraxinus dipetala

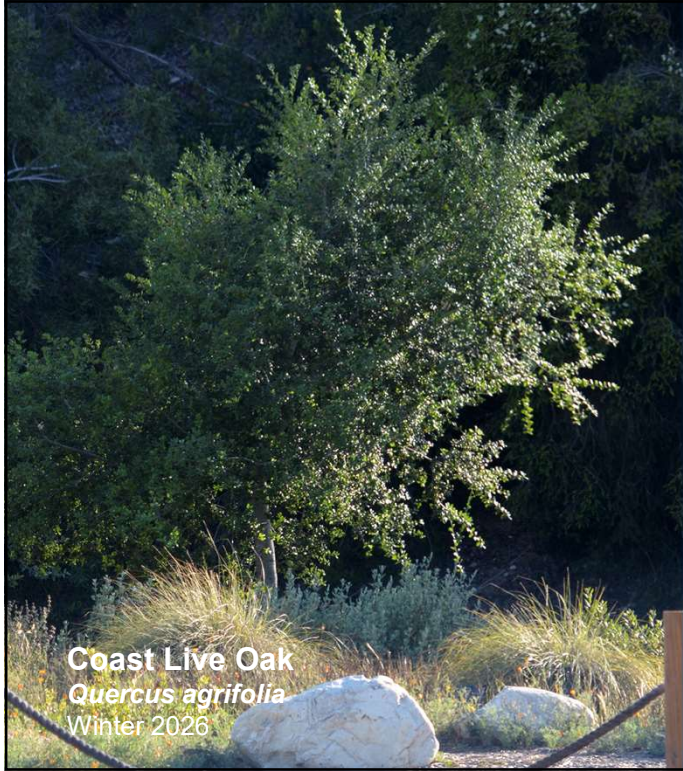
11



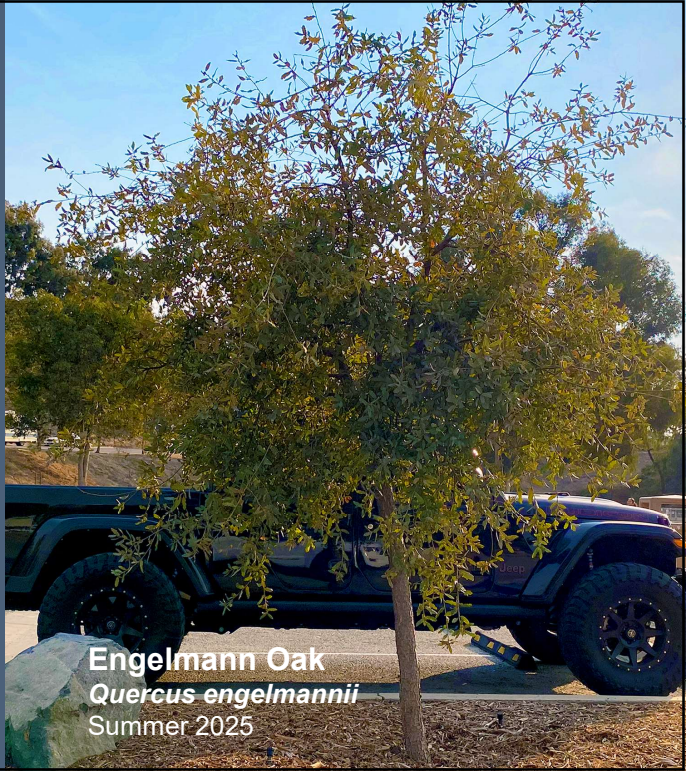
Hollyleaf Cherry
Prunus ilicifolia

Catalina Cherry
Prunus ilicifolia ssp. *lyonii*

12



Coast Live Oak
Quercus agrifolia
Winter 2026



Engelmann Oak
Quercus engelmannii
Summer 2025

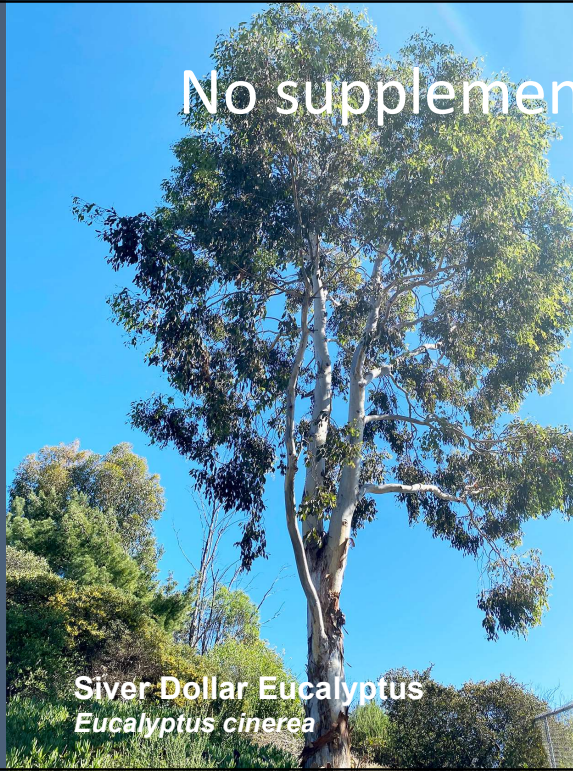
13



Toyon
Heteromeles arbutifolia
PARADISE HILLS
NATIVE GARDEN

14

No supplemental water, *ever*.



Silver Dollar Eucalyptus
Eucalyptus cinerea



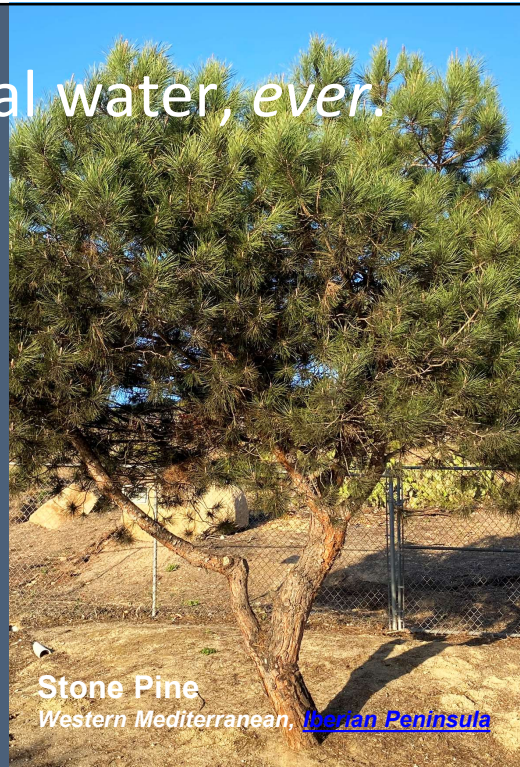
Aleppo Pine
Pinus halepensis

15

No supplemental water, *ever*.



African Sumac
Searsia lancea (South Africa & Namibia)



Stone Pine
Western Mediterranean, [Iberian Peninsula](#)

16

No supplemental water, *ever*.

Stone Pine
Pinus pinea

Velvet Ash
Fraxinus velutina

Highly Xeric Tree Selections



Appendix

CFAB | May 13, 2026

We have recently discussed watering volumes that, if projected over a year, would equate to 65 or even 100 inches of rainfall/year. If these volumes were necessary to success, would that not indicate that rather than under-watering trees, that we'd be planting the wrong trees? The wettest area anywhere near San Diego is Palomar Mountain, where annual rainfall averages ~ 35 inches a year.

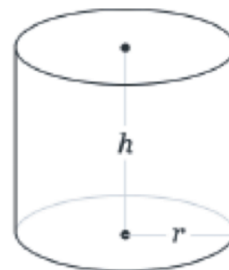
If a newly planted 15 gallon tree's watering basin is roughly 4 ft in diameter, that diameter's area is roughly 12.5 sq ft ($\pi \times r^2$). 15 gallons of water applied to an area of 12.5 sq ft is equivalent to 1.9 inches of rainfall. Applied to this area, 15 gallons/week is equivalent to 98.8 inches of rainfall/year.

Right cylinder

Solving for height *units converted to inches

$$h \approx 1.91 \text{ in}$$

| | | |
|------------|-----------------------------------|-----------------|
| r Radius | <input type="text" value="24"/> | in |
| V Volume | <input type="text" value="3465"/> | in ³ |



Using the formula

$$V = \pi r^2 h$$

Solving for h

$$h = \frac{V}{\pi r^2} = \frac{3465}{\pi \cdot 24^2} \approx 1.91483 \text{ in}$$

Where in the US does average annual precipitation reach 60 in/yr? 100 in/yr?

Locations in the US that average around 60 inches/year precipitation:

- Gulf of Mexico coastline (hurricane alley)
- A few locations in southern Appalachia

Locations in the US that average 100 inches/year or greater precipitation:

- Several locations in Hawaii
- Several locations along coastal Gulf of Alaska
- Washington's Olympic Peninsula

‘Native’ meaning what, exactly?

Native: Grows in a region where the species originated (‘region’ either defined by geophysical features or by human political lines), but not necessarily all areas within that region.

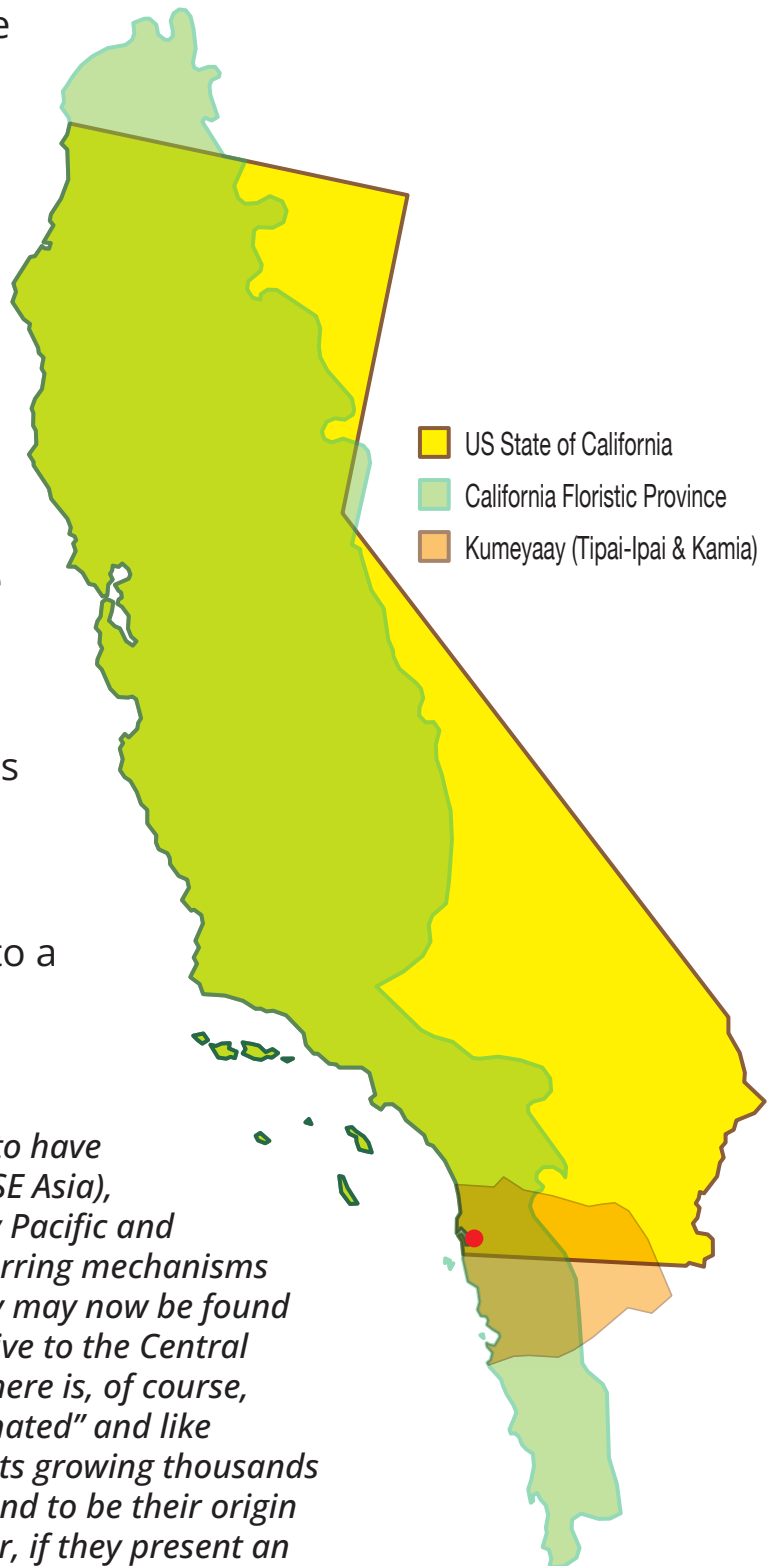
Indigenous/Local provenance

indigenous: Grows in region where the species originated, ‘region’ being more narrowly specific and defined by natural perimeters, occurrences may be separated within that region.

Endemic: Grows in a narrowly defined region where the species originated and has no natural occurrence anywhere else.

Introduced/Invasive: Brought to a new area by whatever means (accidentally or intentionally).

Example: Coconut palms are believed to have originated in the Central Indo-Pacific (SE Asia), and were long ago distributed to many Pacific and Indian Ocean islands by naturally occurring mechanisms like tsunamis and ocean currents. They may now be found in far flung locations, but they are Native to the Central Indo-Pacific. On our dynamic planet, there is, of course, some ‘fuzziness’ to concepts like “originated” and like “location”. But we can speak of coconuts growing thousands of miles from the location we understand to be their origin as being ‘introduced’ or ‘naturalized’, or, if they present an ecological problem, ‘invasive’. Introduced species may trace their presence to either natural phenomena or human agency. The concept of ‘location’ may trace to geophysical features or to human socio-political agency.



Oxygen (O²) makes up approximately 20.8 to 20.9% of Earth's atmosphere by volume. This concentration is consistent across the globe. Oxygen is a by-product of photosynthesis.

Below 19% O², humans become physically weak and have impaired brain function. At below 14%, physical function becomes minimal and brain damage becomes inevitable. At lower levels still, humans lose consciousness and experience cardiac arrest.

At O² levels significantly higher than 21%, the atmosphere has increased fire risks, and imposes oxidative stress in organisms.

Note that as human life (add all animal life) has ever existed, it needs / has needed atmospheric oxygen levels above 19% but not higher than 21%. The PLANT Kingdom alone provides this "Goldilocks" oxygen level to Life's only knowable host planet.

phytophilia

"After years of visiting plant scientists and reading about botany, my most luscious thoughts have all turned green. Plants have thoroughly gotten to me—but of course the reality is, they've had me all along.

Plants made me, after all. Every bundle of muscle in my body was woven from the sugars plants spun from moisture and air. My blood cells that course through my veins like water through rootlets are each kept ruby red with the oxygen plants made. The branching structure of my lungs are suffused with that too. Every inward breath of mine was first breathed out by plants. In this material sense, in terms of what they've contributed to my physical being, they are as much my relatives as any family member I know.

We can feel it a little, I think, even though we may not articulate it. It can be as simple as the sense that there is something sacrilegious about felling a four-hundred-year-old tree for decking- or even a thirty-year-old pine for toilet paper. What did it take for that tree to live through those years, make thousands of leaves each spring, store sugars through the winter, turn light and water into layers and layers of wood? It is hard to underestimate the drama of being a tree, or any plant. Every one is an unimaginable feat of luck and ingenuity. Once you know that, you can't unknow it. A new moral pocket has opened in your mind."

- Zoë Schlanger, *The Light Eaters: How the Unseen World of Plant Intelligence Offers a New Way of Understanding Life*