H20 FOR HOA'S

Tips on Plant Selection and Landscape Design

Bob Perry

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Checklist of Guidelines

Tips on Plant Selection and Landscape Design

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GOAL: To design a HOA community landscape upon:

1. Plant and Water Basics
   a. Plants need water to grow
2. Proper Plant Selection - Climate Appropriate
   a. Mediterranean
   b. Regional California Native
3. Plant Horticulture
   a. Roots and Soil
   b. Design & Manage with Seasonal Water Budgets
4. Health and safety needs
   a. Visibility, Erosion, Roots
   b. Fire Risk

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1. Plant and Water Basics

Plants need water to grow

Water is essential to all plant growth; no water no photosynthesis
(Growth stops; dessication begins, damage accrues)

All Plants require 50-100 gallons of water to grow 1 pound of biomass
(Oaks, Magnolias, Bougainvillea, Turf Grass, Acacia)

Plants transpire 97-99% of the water they use for cooling

All plants will use water as long as its available

Larger trees transpire more water than smaller trees
(Water budgets can increase over time)

An appropriate water budget ranges between 2.5-3.5 acre feet
(810,000 - 1,134,300 Gallons or 8,100 - 11, 340 pounds of Plants)

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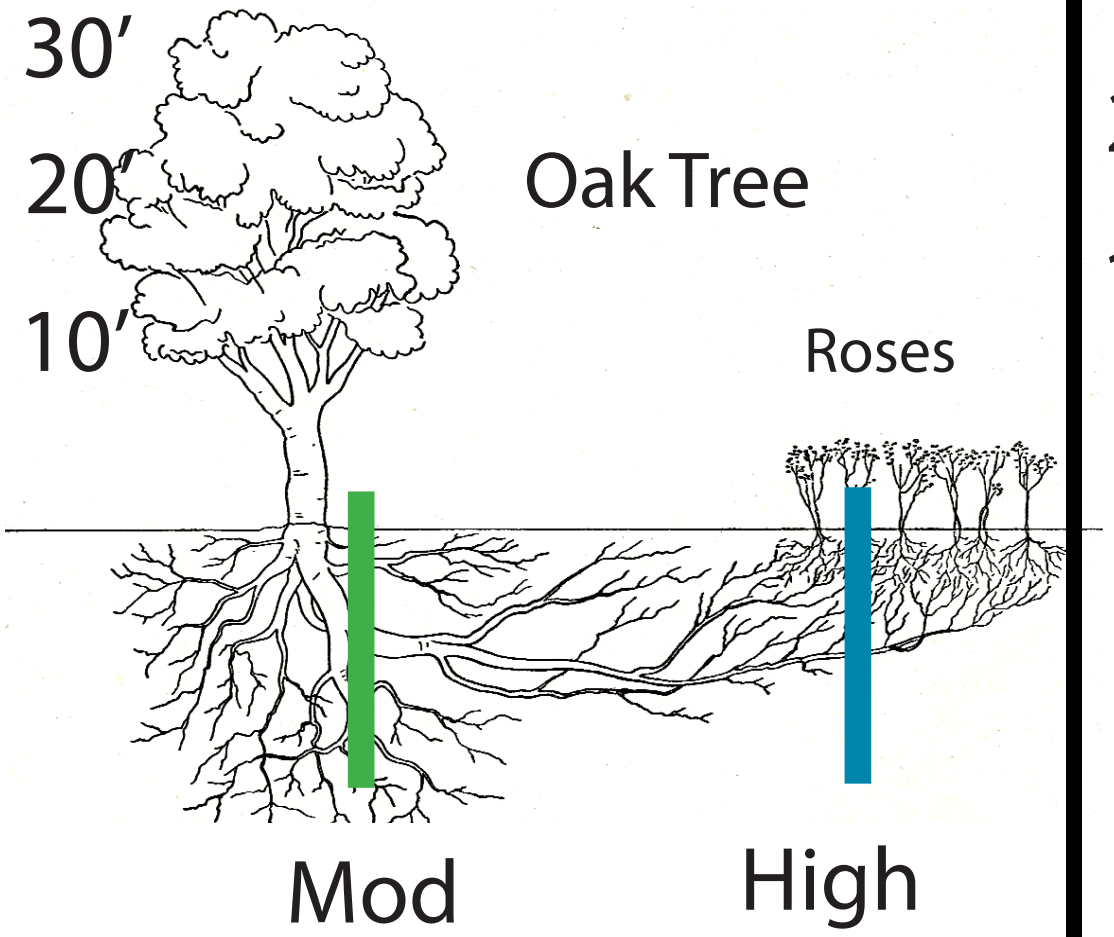
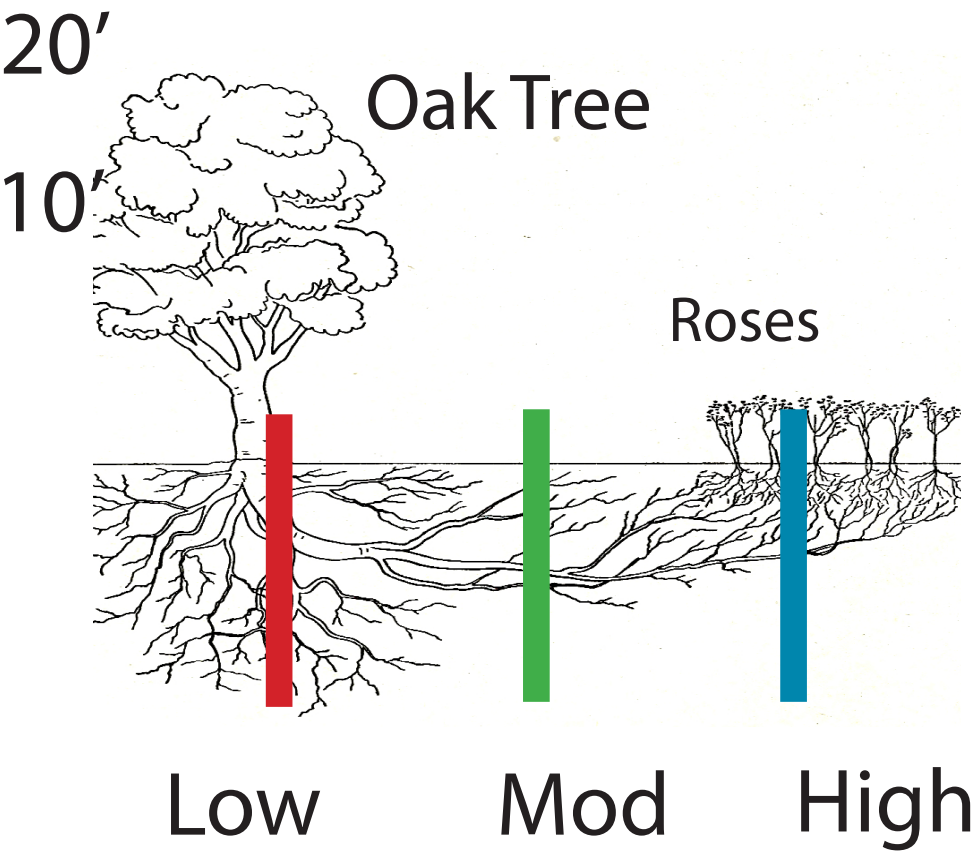
1. Plant and Water Basics

Plants can grow with a Range of Water - No absolute amount

MORE WATER = LONGER GROWING SEASON AND LARGER SIZES



LESS WATER = SHORTER GROWING SEASON AND SMALLER SIZES



BOTH LANDSCAPES ARE HEALTHY; ONE HAS RECEIVED MORE WATER AND GROWS LARGER

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Plants Need Water - 50-100 Gallons

2. Proper Plant Selection - Climate Appropriate

Quercus agrifolia - Coast Live Oak
50-100 Gallons of Water per 1 Pound Biomass

2,000 # Oak = 100,000 - 200,000 Gallons

Magnolia grandiflora - Southern Magnolia
50-100 Gallons of Water per 1 Pound Biomass

2,000 # Magnolia = 100,000 - 200,000 Gallons

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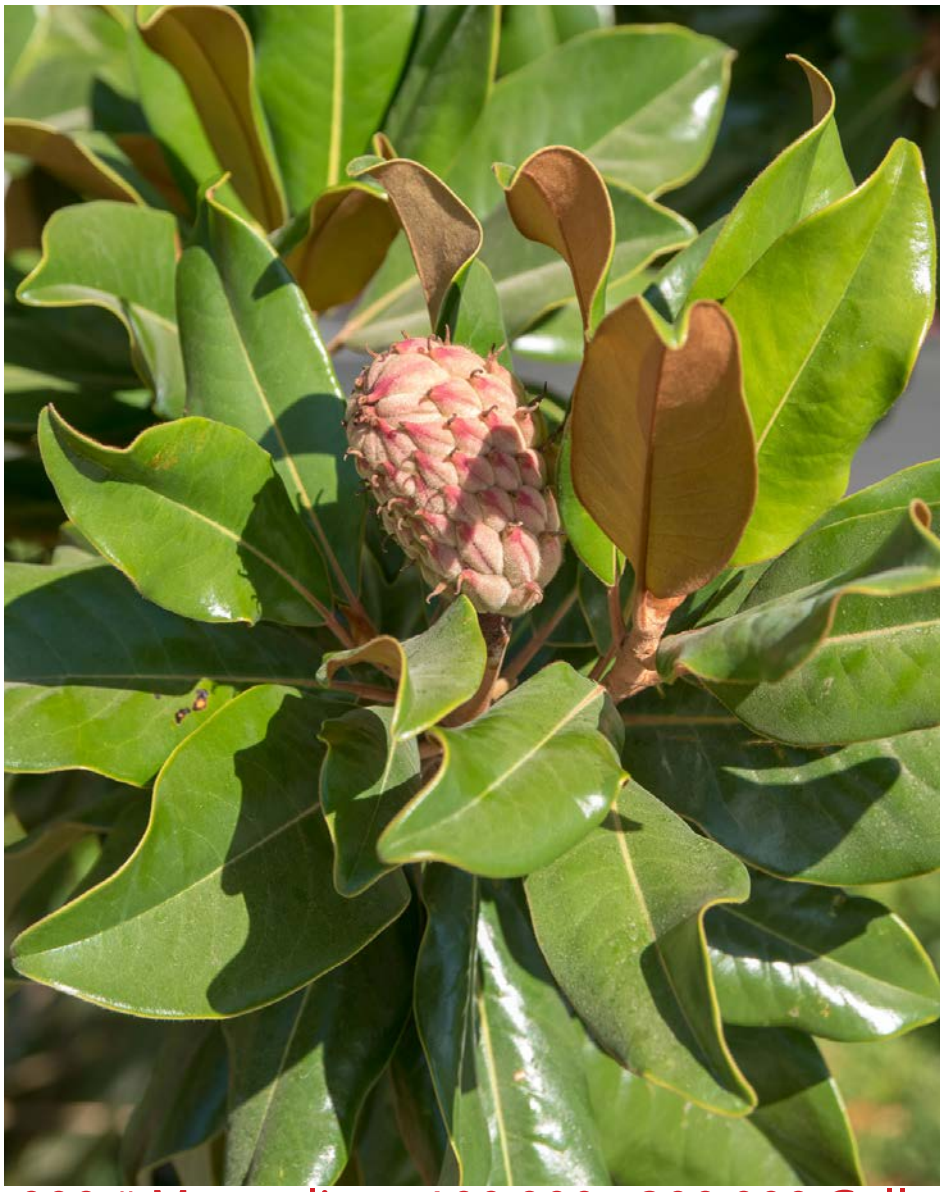
Southern California Growing Season: 300-330 Days

2. Proper Plant Selection - Climate Appropriate

Quercus agrifolia - Coast Live Oak
Small, leathery, sun adapted, drought enduring

2,000 # Oak = 100,000 - 200,000 Gallons

Magnolia grandiflora - Southern Magnolia
Large, leathery, sun Adapted, Regular Moisture



2,000 # Magnolia = 100,000 - 200,000 Gallons

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2. Proper Plant Selection - Climate Appropriate

Quercus agrifolia - Coast Live Oak
Mediterranean Climate - Drought Adapted

Oaks endure drought stress longer

Magnolia grandiflora - Southern Magnolia
Temperate Climate - Non Drought Adapted

Magnolias die back under drought stress

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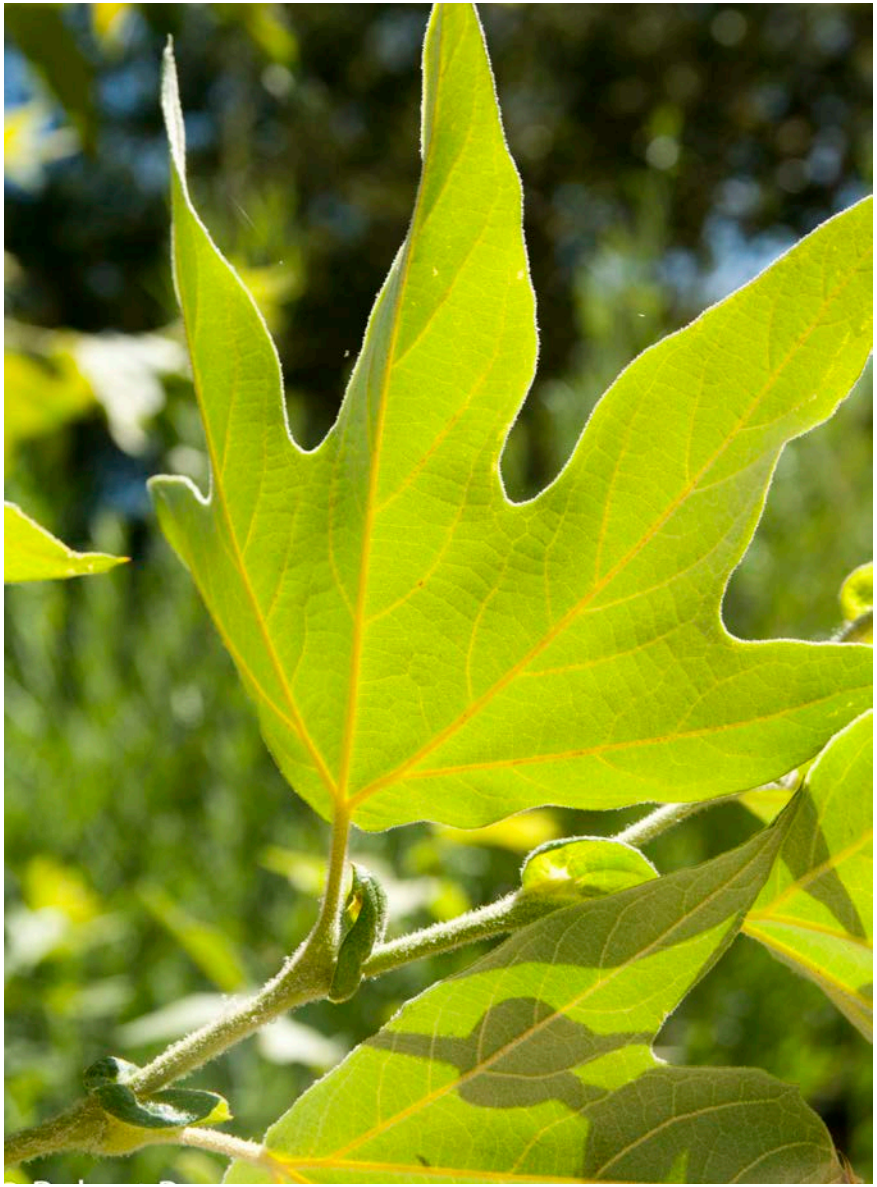
Southern California Growing Season: 300-330 Days

2. Proper Plant Selection - Climate Appropriate

Platanus racemosa - Western Sycamore
Large, thin leaves, poor drought endurance



Adapted to regular moisture year around

Liquidambar styraciflua - Sweet Gum
Large, thin leaves, poor drought endurance

Adapted to regular moisture year around

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2. Proper Plant Selection - Climate Appropriate

Liquidambar styraciflua - Sweet Gum
Temperate Climate - Non Drought Adapted

Platanus racemosa - Western Sycamore
Mediterranean Climate - Riparian Plant

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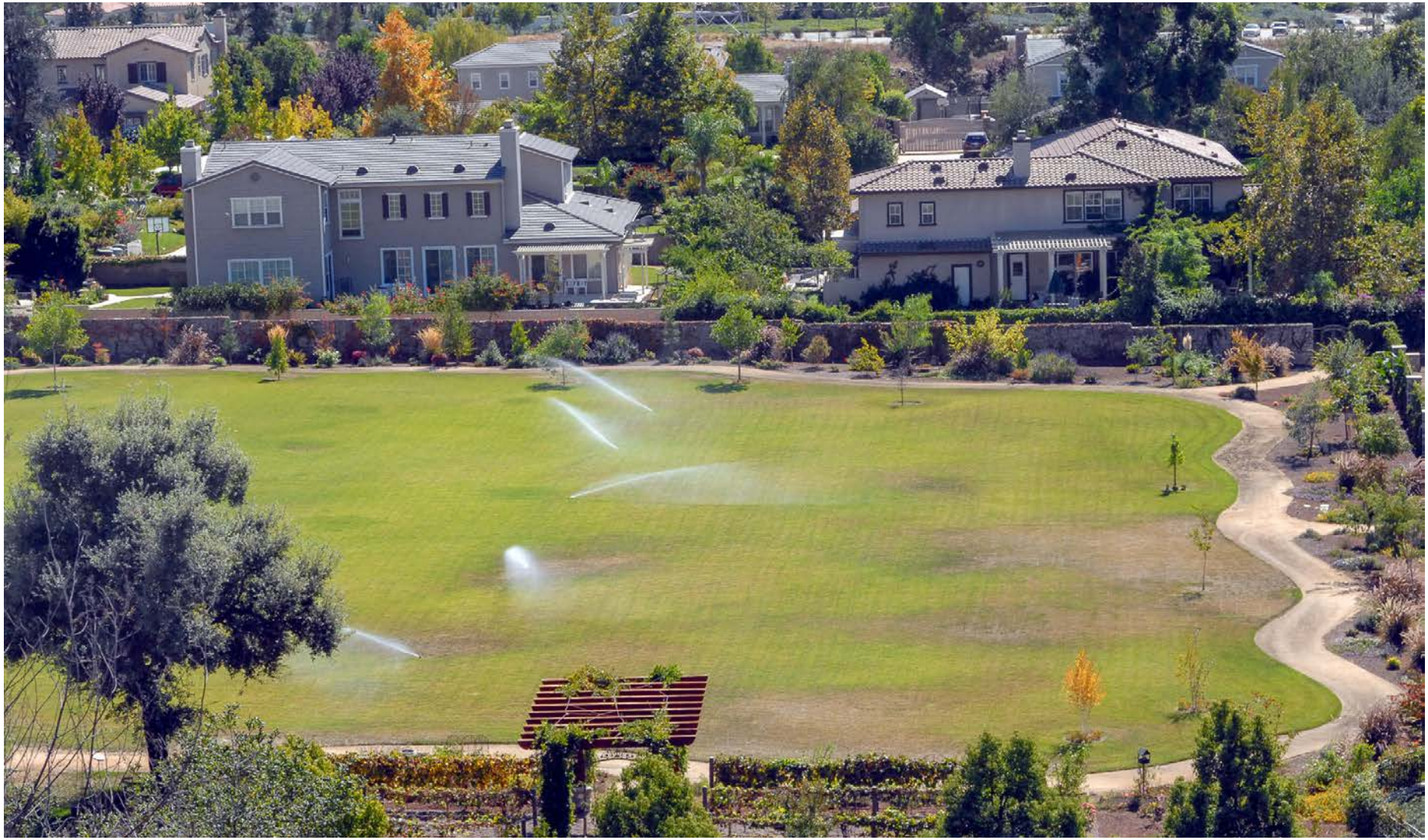
2. Proper Plant Selection - Climate Appropriate

Tall Fescus Turf grass

50-100 Gallons of Water per 1 Pound Biomass Cool Season Plant - Non Drought Adapted



Plants without sufficient water will dry out and suffer leaf and stem damage and eventually die

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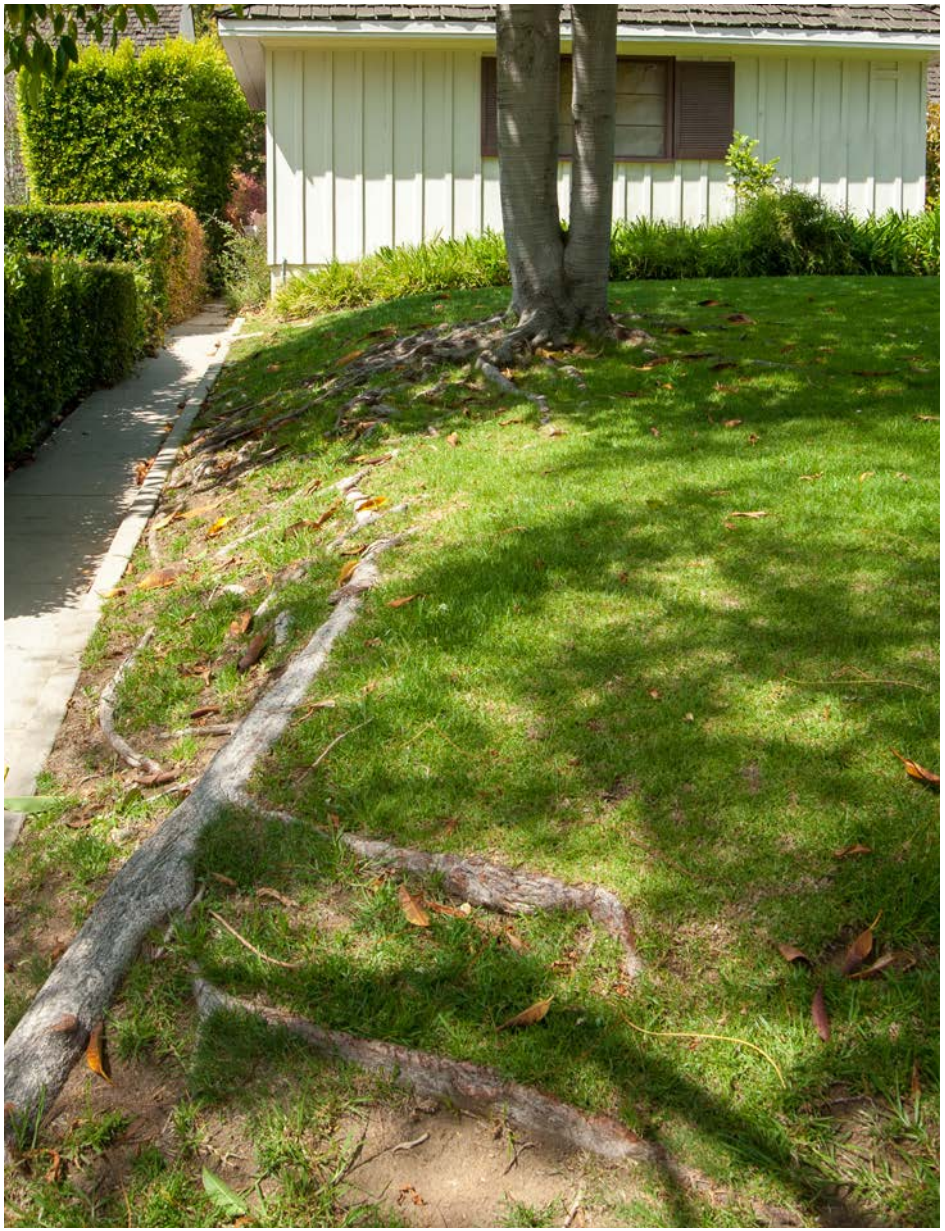
3. Plant Horticulture



Tree Roots need:

Oxygen
Moisture
Nutrients
Soil Volume

Most tree roots occur in the top 12-18" of soil due to oxygen and moisture availability

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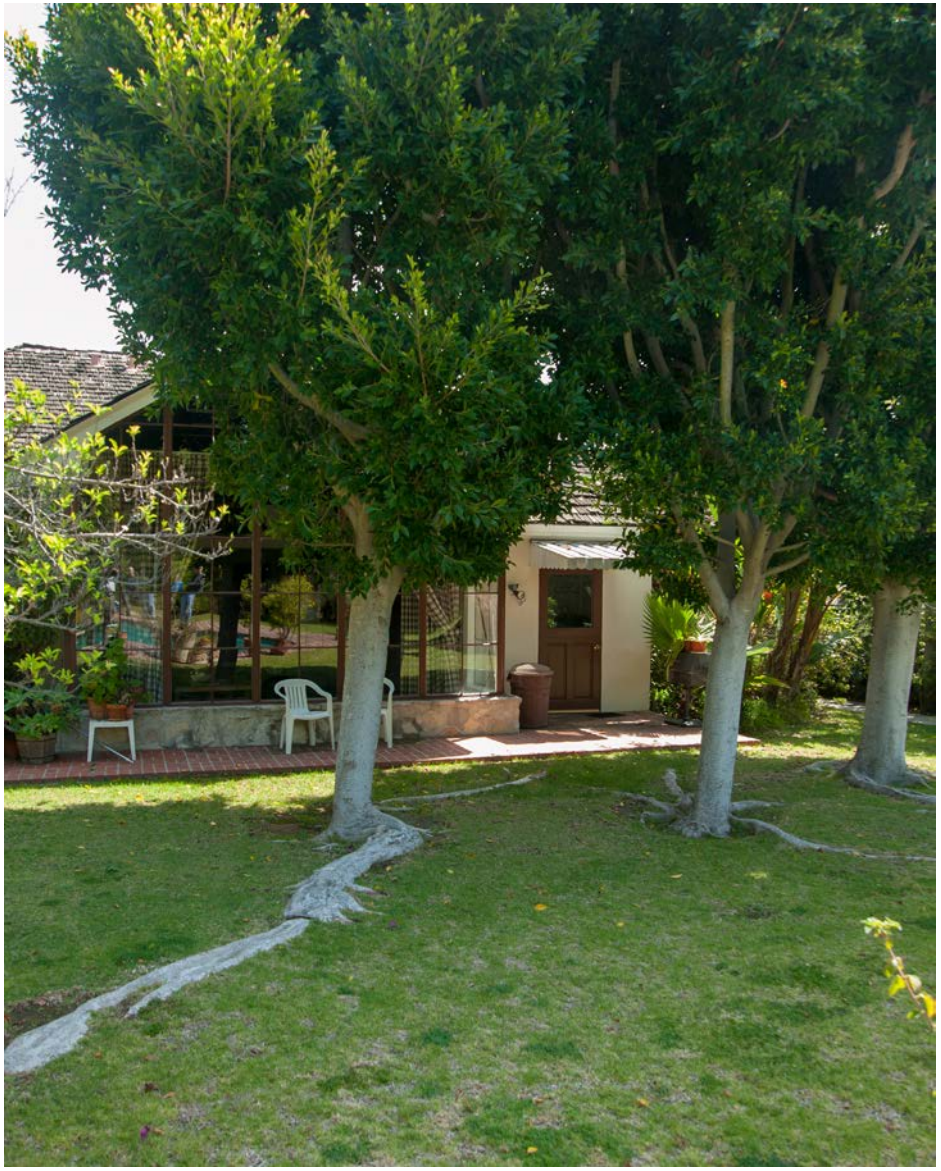
3. Plant Horticulture

Ficus microcarpa - Surface roots for oxygen, moisture, nutrients, space



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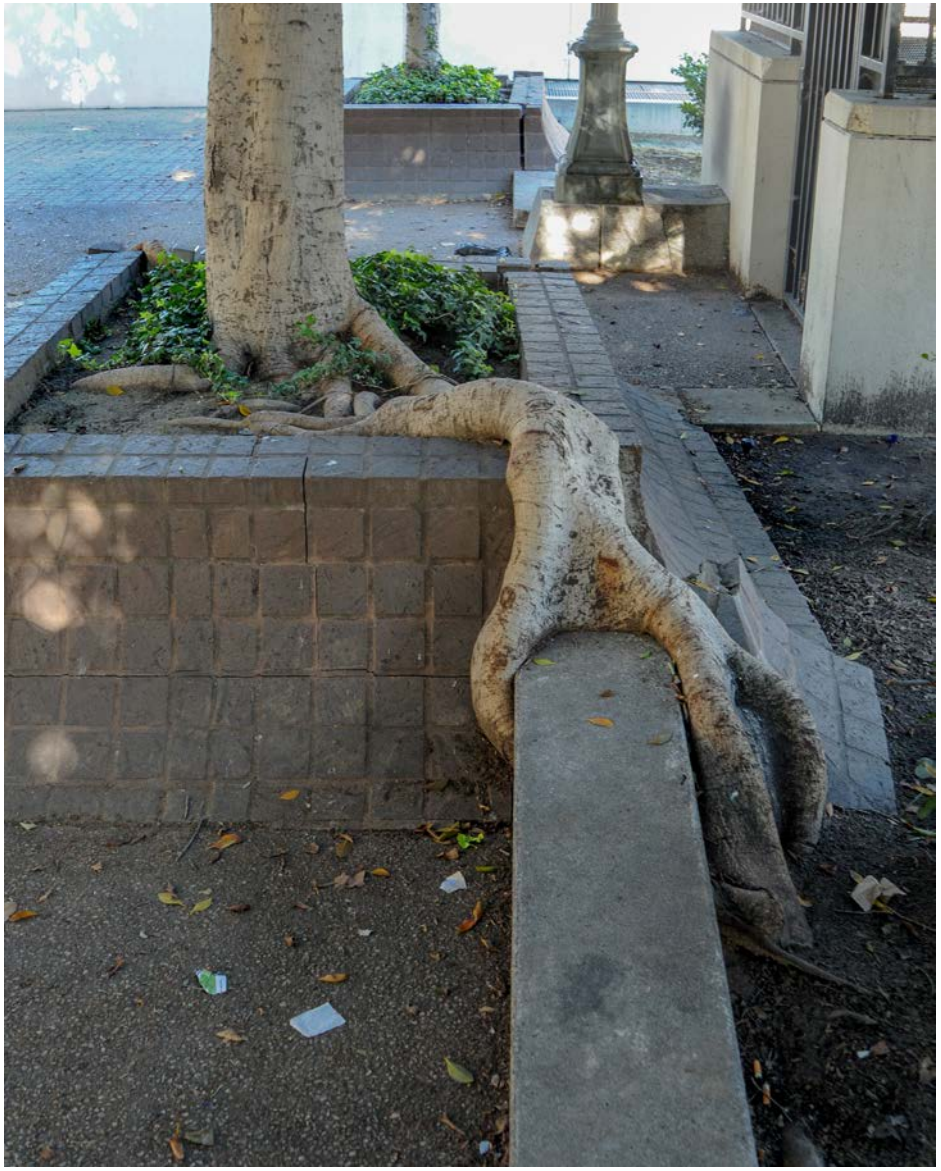
3. Plant Horticulture

Ficus microcarpa, Los Angeles



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3. Plant Horticulture

Design & Manage with Seasonal Water Budgets

Climate/Microclimate Weather Data

Dedicated Landscape Water Meters/Central Control Flow Meters

Mediterranean, S. California Native, Arid Climate Plants

1 Acre of Landscape = 24 inches Annual Supplemental Water
18 inches Fall /Winter/Spring + Rain
6 inches Summer

652,000 Gallons per Acre per year

Temperate, Subtropical Plants

1 Acre of Landscape = 36 inches Annual Supplemental Water
18 inches Fall /Winter/Spring + Rain
18 inches Summer

977,500 Gallons per Acre per year

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4. Health and safety needs

Green Belt and Erosion Control Planting

Large scale slopes requiring compaction, jute netting, trees, shrubs, and ground covers

Design for long term water budgets and Fire Safety among tree plantings

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4. Health and safety needs

Green Belt and Erosion Control Planting
Large scale slopes requiring compaction, jute netting, trees, shrubs, and ground covers

Design for long term water budgets and Fire Safety among tree plantings

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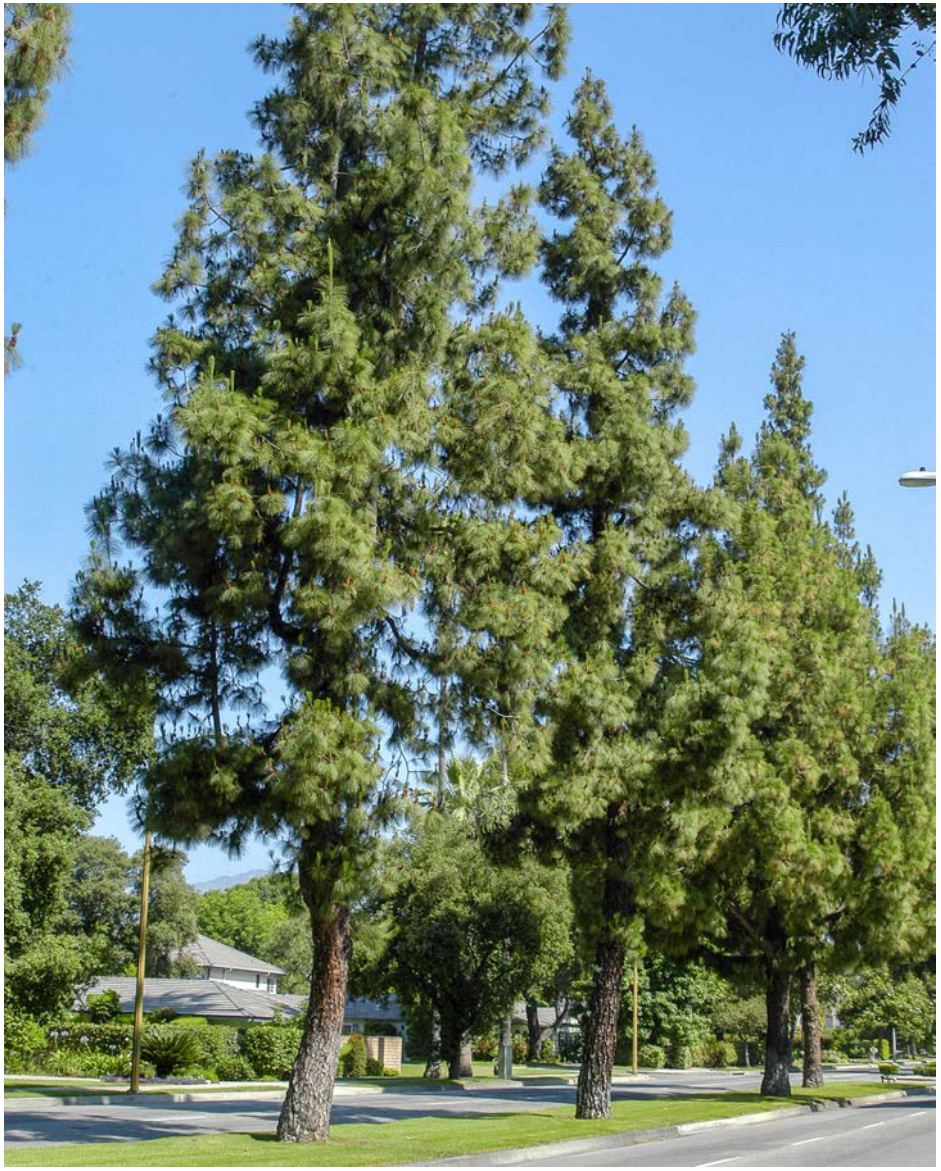
4. Health and safety needs

Pinus canariensis - Canary Island Pine



Eucalyptus camaldulensis

Biomass, Foliage oils, dessication, heat and wind

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4. Health and safety needs

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Design for long term Fire Safety among tree plantings

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Baccharis pilularis native ground cover

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Green Belt and Erosion Control Planting

Large scale slopes requiring compaction, jute netting, trees, shrubs, and ground covers

Baccharis pilularis native ground cover

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4. Health and safety needs

Succulents and Woody Shrubs following fire

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Conclusion: Essential Benefits of Plants

Each pound of biomass contains:

1,930 Kilocalories of food energy (enough energy to sustain one person for one day)

Every pound of biomass produced stores .4-.5 pounds of Carbon.

Every pound of biomass produced releases .9-1.0 pounds of oxygen into the atmosphere.

9,650 Pounds of Biomass

Food energy & oxygen for 1 Person for 9,650 Days (26 Years)

4,825 Pounds of Carbon Sequestered

Consumed 482,500 - 965,000 Gallons of Water
(1 1/2 AF - 3 AF)