The Basics

- Keep it simple
- Less is more
- It’s more than just the plants!
- Put the oak tree first!
Our Native Oaks (Santa Clara Valley)

*Quercus agrifolia*, coast live oak

*Q. lobata*, valley oak

*Q. douglasii*, blue oak

*Q. kelloggii*, black oak

*Q. chrysolepis*, canyon live oak
Quercus agrifolia
Quercus agrifolia
Quercus lobata
Quercus lobata
Quercus douglasii
Quercus douglasii
Quercus agrifolia, douglasii & lobata
Quercus kelloggii
Quercus kelloggii
Quercus chrysolepis
Quercus chrysolepis
Where do they live?

Climate: Mediterranean

Soils: Varies, but generally well drained

Exposure: Varies, but full sun is best
What Do They Really Want?

**Guiding Principles**

1. Provide as much undisturbed space as possible around trunk & canopy

2. Mulch as much of the ground surface underneath the tree’s canopy as possible

3. Companion plantings should be “Summer Dry”

4. Pruning: be a minimalist
Space — How Much?

The Whole Dripline
Half the Dripline
1.5 x the Dripline
2x the Dripline

One foot for every inch of tree diameter

3xDBH

3 feet
5 feet
6 feet
10 feet
12 feet
20 feet

No one really knows!
Taken from: *Living Among the Oaks, a Management Guide for Landowners*. Johnson et al. U.C.C.E. at Berkeley, Natural Resources Program. No Date, > 10 years old.
3xDBH

- **DBH**: Diameter At Breast Height (4.5 feet above the ground).
- Standard trunk diameter measurement height for Forestry, then Arboriculture
- Common size descriptor for trees
- Used to calculate many tree related concerns such as root protection distances
- 3xDBH – danger zone for whole-tree stability
- 5xDBH or greater – better for tree long-term tree health.
- 24” DBH tree – 3xDBH = 6 ft., 5xDBH = 10 ft.
Mulch
Benefits of Organic Mulch

1. Conserves soil moisture
2. Encourage beneficial microbial growth & interaction with plant roots
3. Benefits shallow soil tilthe
4. Reduces weed growth
5. Cushions soil from foot or other traffic
More Benefits of Organic Mulch

5. Provides slow-release fertilizer for the tree, custom-made for each species!

6. Recycles an otherwise "waste" material

7. It is free!
Mulch Sources

1. Best – the tree itself
2. Landscape Supply Companies
3. Tree Service Companies
Mulch Materials

1. Tree’s own natural leaf, twig & small branch litter.

2. Bark chips, wood chips, mixture

3. Tree trimming chippings (bark, wood, foliage)
Mulch Cautions

1. 3 – 4” depth (6” or more maybe OK if coarse)

2. Avoid potentially toxic materials such as walnut or Eucalyptus

3. Keep it off root collar

4. Do not mulch or rake back mulch if trying to dry out soil.

5. Do not place weed fabric underneath mulch.
Pennsylvania Master Gardeners
More on Weed Fabric

Do not use it around established trees!

Even though porous, reduces soil gas & water exchange

Can kill established trees, particularly summer dry species

Weeds eventually grow in accumulated debris on top

Best for newly planted, young trees that can adapt
Summer Dry Landscaping

1. As far from the trunk as possible

2. Same water requirement as the oak tree

3. Able to survive without irrigation; with only natural precipitation after a 2-3 year establishment period.

4. Sparsely planted

5. Use small container size plants, e.g. 1-gallon.
Summer Dry Landscaping

6. Individually dug planting holes. No rototilling or broadscale soil cultivation.

7. Irrigated by drip or manually to establish, then stop.

8. Can leave drip system in place for use in future, if needed.

9. Mulch around new plantings as well as in plant-free zone around trunk.
Minimal Pruning

HELP!, I'VE BEEN LION-TAILED!
Tree Aging
Tree Aging
Tree Aging
Tolerance?
Tolerance - Good

Acer rubrum, red maple

Platanus x hispanica, London plane tree
Tolerance - Poor
My Advice....

1. Play it safe

2. Respect the typical tolerance of the species

3. Recognize the risk the tree can pose if mistreated
Native Oak Landscapes
The Companion Plants

• Drought tolerant, summer dry

• Soil tolerances – Texture, pH

• Exposure
A few favorites

*Arctostaphylos species*, prostrate manzanitas
Iris douglasiana, Douglas iris
Mimulus aurantiacus, sticky monkey flower
Ribes sanguineum
Red or pink flowering currant
Ribes viburnifolium
Evergreen currant
Monardella villosa, Coyote mint
Frangula Californica (Syn. Rhamnus c.)
coffeeberry
Umbellularia californica, Calif. bay tree w/ red oak group (SOD)
Your Plant Suggestions?
A coast live oak Ringer—for irrigated locations

*Quercus virginiana*, Southern live oak
Coast live oak Ringer—
for irrigated locations

Quercus virginiana, Southern live oak
PLANT LIST AND PROCEDURES FOR LANDSCAPING UNDER NATIVE OAKS OF THE CENTRAL VALLEY

John Lichter, Horticultural Consultant/Certified Arborist, Winters and Ellen Zagory, University Arboretum, UC Davis

California native oaks such as the valley oak (Quercus lobata), blue oak (Qu. douglasii), interior live oak (Qu. wislizenii), and coast live oak (Qu. agrifolia) are some of the most significant natural components of our California landscape. Besides beauty they provide a multitude of benefits, including wildlife habitat, shading, erosion control, wind protection, pollution reduction, and screening. Oak woodlands are sustainable landscapes, requiring a minimum of resources if successfully incorporated into new developments. Even with the most careful attention to the architectural design in oak woodlands, constructional alterations bring environmental changes that often lead to tree decline. By understanding the oak's habitat, physiology, growth habits and response to environmental changes, we can design and manage landscapes near oaks which ensure their survival.

The Oak Habitat, Growth Habits and Roots

California native oaks have evolved under the cool, wet winters and hot, dry summers typical of our Mediterranean climate. Through adaptations such as the development of deep and extensive root systems, various water conserving leaf characteristics, and a slowing of growth in the summer, these trees are able to survive the prolonged seasonal droughts which typify the Central Valley. California native oaks often produce sinker roots within several feet of the trunk, which grow deep into the soil profile, providing the oak access to water as the summer progresses. Lateral roots are commonly shallow and extend well beyond the dripline of the tree. Maintaining the health of the oak root system is the key to successful landscaping around oaks.

Tree root health is largely affected by mechanical injury, physical and chemical properties of soil, and pathogens. During landscape installation, oak roots may be directly injured by backhoes, trenched, tillage equipment or shovels, or indirectly by altering physical soil properties due to grading and compaction. Frequent irrigation and compaction limit oxygen access to oak roots that favor pathogens, such as crown and root rot (Phytophthora sp.) and oak root fungus (Armillaria mellea). These fungi often lead to the decline or structural instability of California native oaks.

Recommendations for Landscape Planting, Establishment and Maintenance

As a general rule, strive to ensure that the environmental conditions both above and below ground are similar to those conditions under which the oak grows naturally. Therefore, an ideal landscape near most Central Valley oaks is one which will tolerate a minimum of maintenance and irrigation once established. An appropriate plant palette may be composed of plants native to the local region or those plants which will tolerate the local environment (California natives or other Mediterranean plants). When establishing landscapes near oaks, one should observe the following guidelines.

- Ensure that drainage from landscaped areas does not collect under oaks.
Saturated soils (especially near the tree trunk) when soil temperatures are moderate create ideal conditions for the establishment of crown and root rot and oak root fungus, which can kill trees. Ensure that landscape grading does not allow drainage to collect around the base of the trunk. French drains or other systems may be used to carry water away from the tree.

- Prevent tree injury and soil compaction during landscape installation.
Avoid traffic and storage of equipment in the oak root area.
A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California

The Landscape Coefficient Method and WUCOLS III

http://www.cuwcc.org
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Other Good References

*Oaks in the Urban Landscape, Selection, Care & Preservation.*

Costello et al.

U.C.A.N.R. Publication #3518

U.C. Regents, 2011
Keeping Native California Oaks Healthy

Hagen.

Tree Notes #7

CDF. June 1990
Living Among the Oaks, a Management Guide for Landowners.

Johnson et al.

UCANR
Sudden Oak Death

California Oak Mortality Task Force

What is Sudden Oak Death?

Sudden Oak Death is a tree disease caused by the plant pathogen Phytophthora ramorum. The disease kills some oak species and has had devastating effects on forests in California and Oregon. Read more about Sudden Oak Death.

Areas of Interest

P. ramorum in Wildlands. The information in this section is geared toward land management, forestry and arboriculture professionals, including Best.

News

P. ramorum confirmed in Jackson Demonstration State Forest, Mendocino County. Read more...

Big Sur’s burned areas becoming reinfested as vegetation returns. Read more...

Oregon’s quarantine rule revised to allow

www.suddenoakdeath.org
Tree Tomography
Thank you!

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