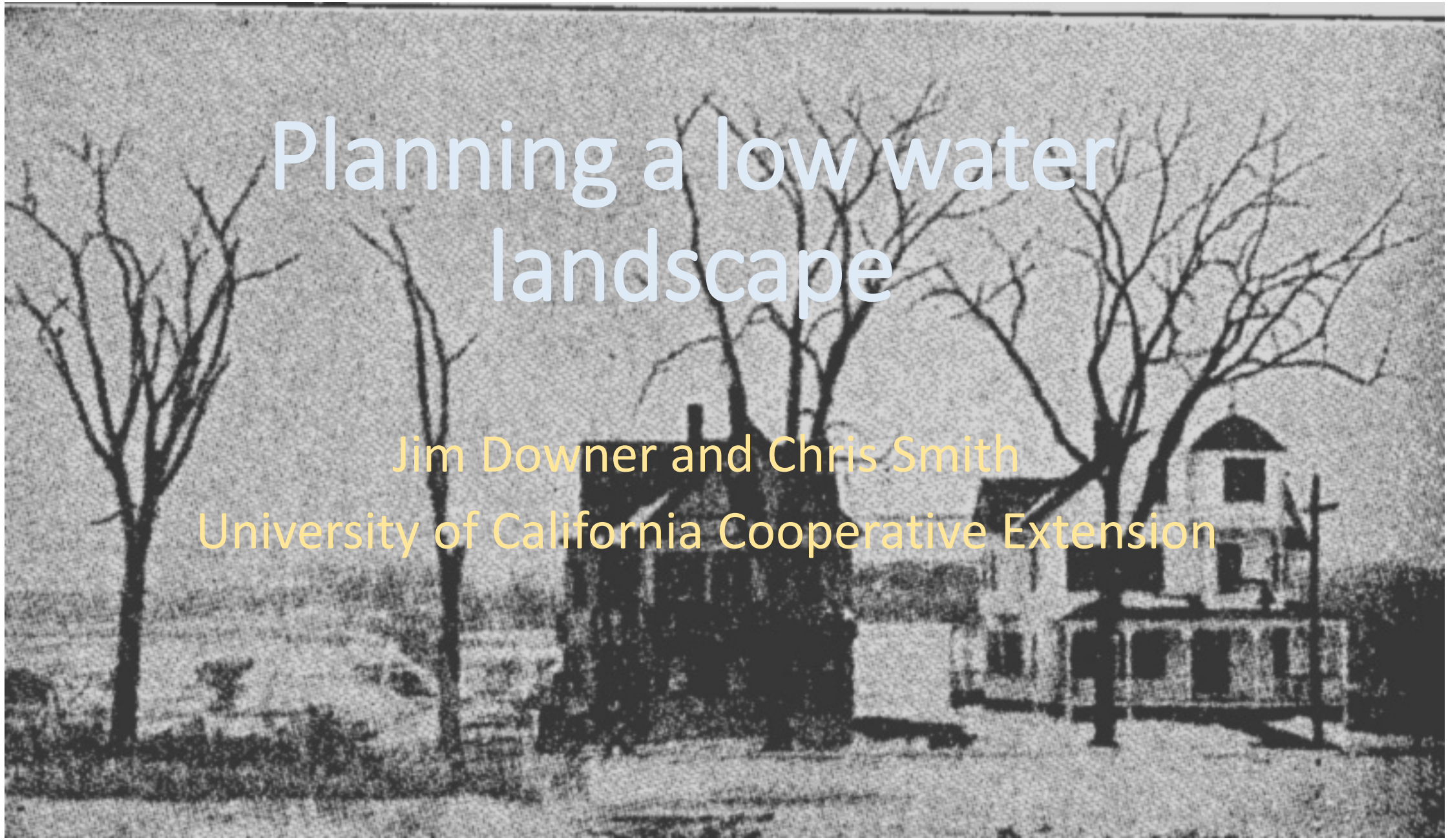


Planning a low water landscape

Jim Downer and Chris Smith
University of California Cooperative Extension

Sustainable landscaping

Not quite as sustainable

Less Sustainable

Not easily sustained

The first step in creating a drought tolerant landscape is to remove plants from the landscape especially excess trees, shrubs and turfgrasses.

DURING DROUGHT

If we don't remove trees, native insects and/or pathogens will

Sustainable landscapes are not necessarily Drought tolerant landscapes

- Inputs are reduced
- Landscape Performance is maximized

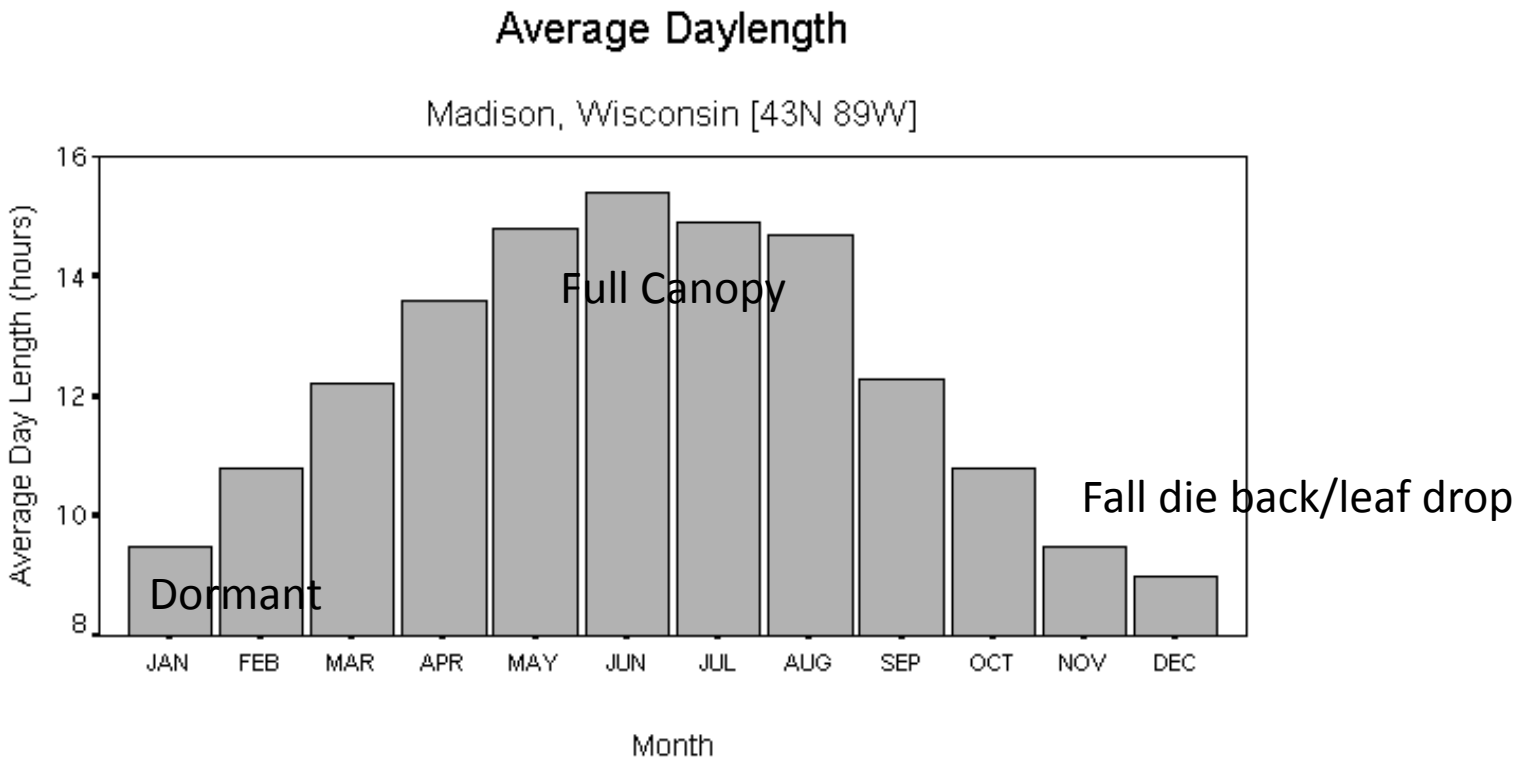
The Nature of drought tolerance

- Low water using plants
- Drought avoiding plants
- True drought tolerant plants
- Differing Photosynthetic systems
  - CAM

Calendaring Change

- The phenology of plants changes on an annual basis
- Water requirements of plants are related to canopy cover and day length
  - Evergreen vs. Deciduous
  - Leafdrop following/preceding flowering
  - Growth Stage
  - Annuals, perennials, biennials

Day length determines the length of the photosynthetic period and thus the length of transpiration and thus water use.



Planting Densities affect water use

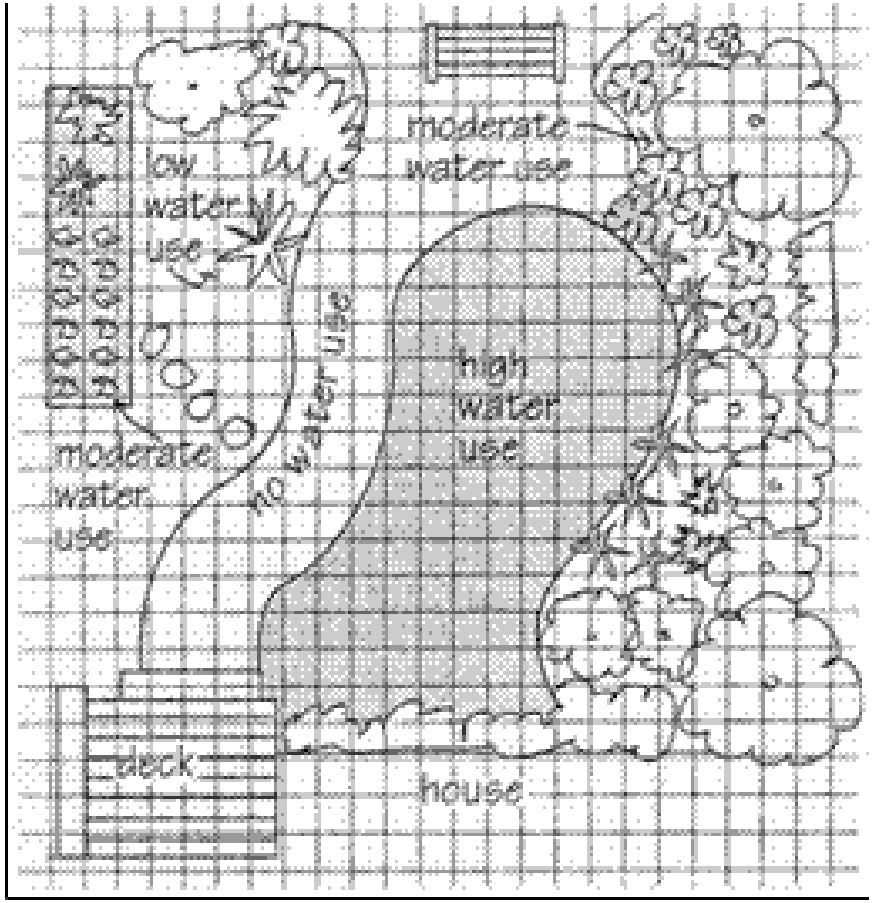
- Avoid Mass Plantings
- Think Specimen Plantings

Specimen Plantings

- Use “Enduring”plants
- Incorporate with hardscape for dramatic effects
- Use as a centerpiece

Hydrozoning

- Placing plants with similar water needs in similar places in a landscape.
- Hydrozoning does not preclude plants of any particular water use category
- Efficiencies are gained by applying the correct amount of water as needed by landscape plants.



Hydrozones

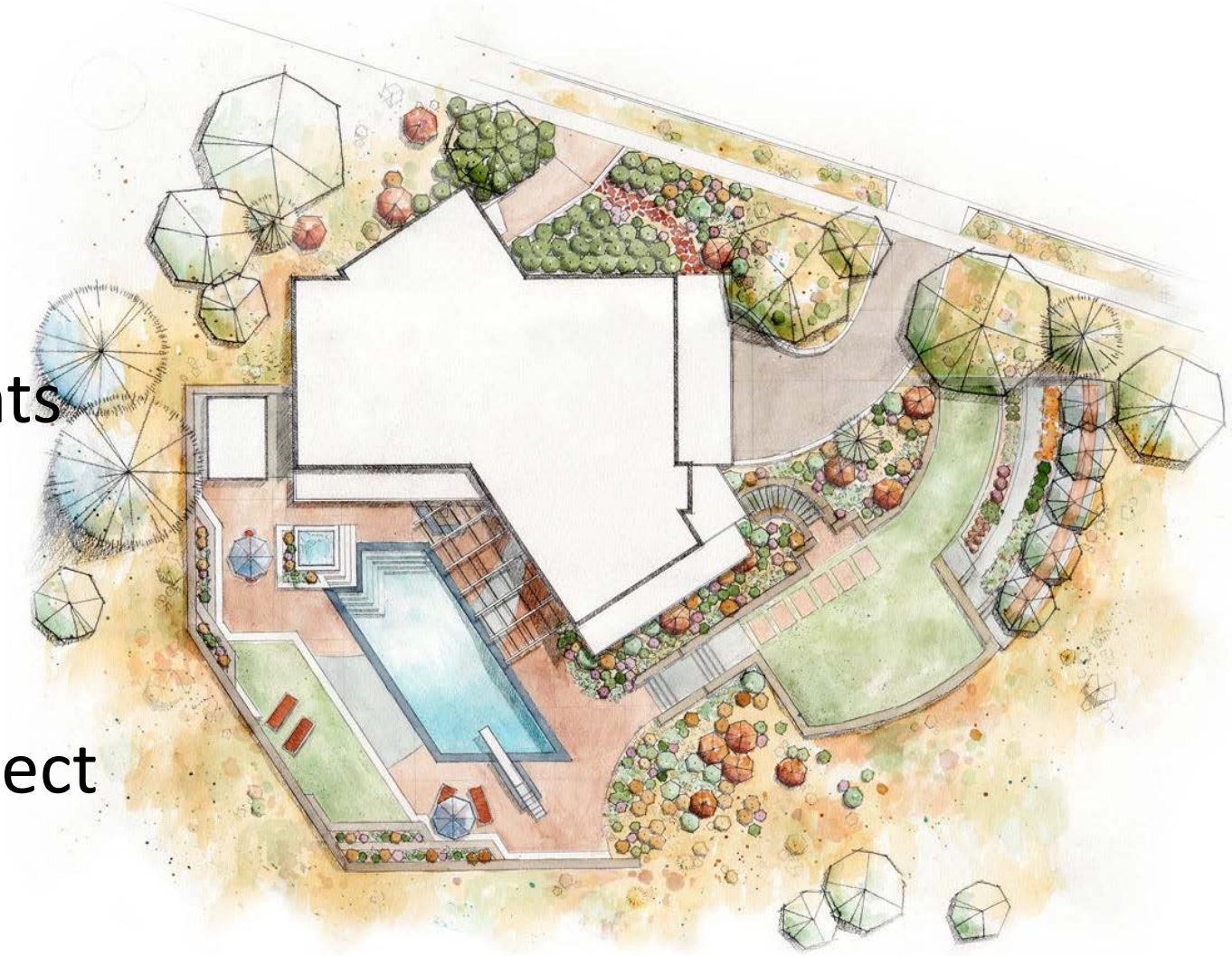
Source: Santa Clara Valley Water District, "Rules of Thumb for Water-Wise Gardening"

Good vs Bad

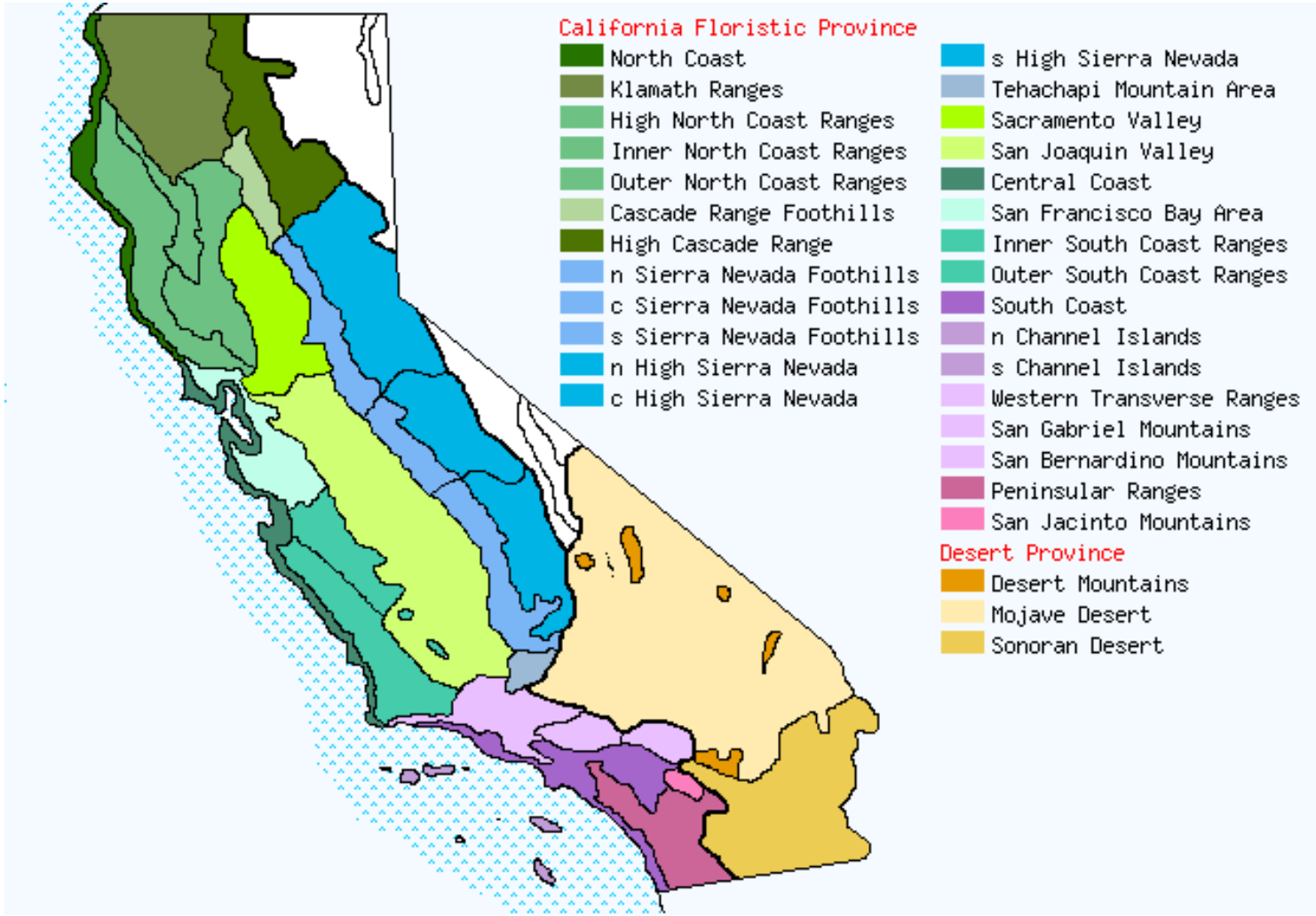
To decrease the need for water, INCREASE hardscape!

Efficient Design

- Hardscape
- Plant groupings
- Plant selections
- Site modifications
- Plan for the growth of plants
- A vision
- Planting details
- Plan for water capture
- Plan respects the soils, aspect and climate of the site.



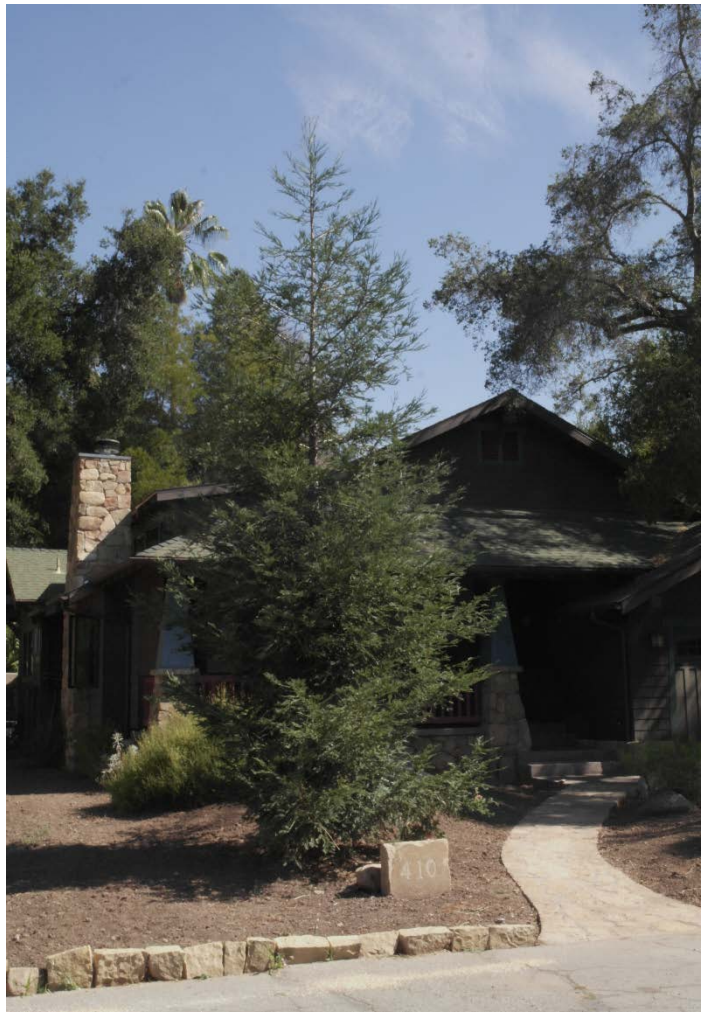
California is a botanically diverse place



Native Plants vs. Mediterranean Plants

- Many places in California have a Mediterranean climate
- Other areas of the world with matching climates such as South Africa, Europe, and Australia, as well as parts of South America share this climate
- Climate matching allows us to grow some plants as we would native plants

Native Plants



Native Plants

Coast Live Oak

California Sycamore

Understanding root systems: the “drinkers of water”

- Tree root systems can grow in unpredictable patterns

Alternatives to Turf

- Less Turf
- Drought Tolerant (warm season) Turfgrasses
- No Turfgrass at all
- Renovate turfgrass areas to landscape perennials and mulch
- Increase the hardscape content of landscapes
- Increase the use of mulches

Landscape Retrofits can kill trees

Specimen plants and increased hardscape, delimited planting areas all conserve water

Defined and unique hardscape elements
Limited use of plants (low density)
No turfgrass
Color plants utilized

Irrigation

- Water controller
  - What turns on and off the irrigation?
- Water delivery System
  - The pipes
- Water emitters
  - Sprinklers, drippers, hose or tubing emitters

Irrigation Controllers

Controller Types

- Time
- Weather (ET)
  - Uses weather information to estimate landscape water use
  - Adjusts irrigation program to replace water used by landscape

Controller Types

- Time
- Weather (ET)
- Soil moisture
  - Uses sensors to measure water content of the soil
  - Allows irrigation when soil is dry

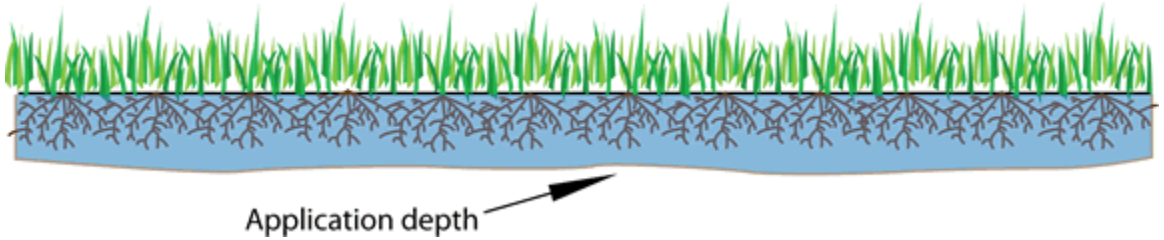
Tree Ring Irrigation Contraption (TRIC)

- Developed to irrigate trees during drought conditions, mainly where other landscape irrigation is turned off.
- Designed for applying water to significant depths.

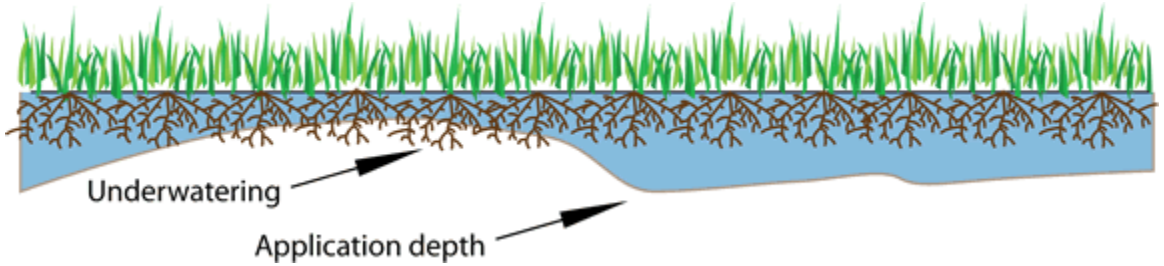
http://ccuh.ucdavis.edu/public/drought/tree-ring-irrigation-contraption-tric-1/tree-ring-irrigation-contraption-tric

Emitter Technology is changing….or not.

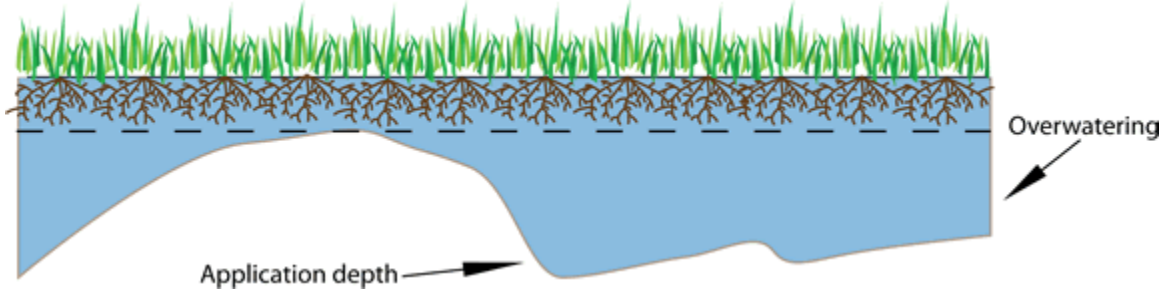
Irrigation efficiency (DU)



Good DU



Poor DU



Really Poor DU

Conclusions

Mariposa lily on the Gridley Trail, Ojai, 2015

- Plant fewer plants
- Increase the use of hardscape
- Hyrdozone
- Incorporate mulches
- Limit turfgrass square footage
- Use “intelligent” application of water methodologies
- Select plants adapted to a Mediterranean climate