

Low-Water Lush

Plant Selection and Gardening Practices



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The Goal

CHANGE

- Perspective
- Aesthetic ideal



Factors in Landscape Water Use

Things I can't change

- Soil type
- Climate /Microclimate
- Time of Year

Things I can change

- Plants & Hardscape
- Soil health
- Irrigation (system & schedule)
- Fertilization
- Pruning

Low-water Lush Success Factors

PLANTS

- Low water users
- Suited to the region
- Hydro-zoned

PRACTICES

- Planted properly
- Mulch kept at 3"
- Established fully
- Irrigated adequately
- Maintained
 - Health
 - Aesthetics

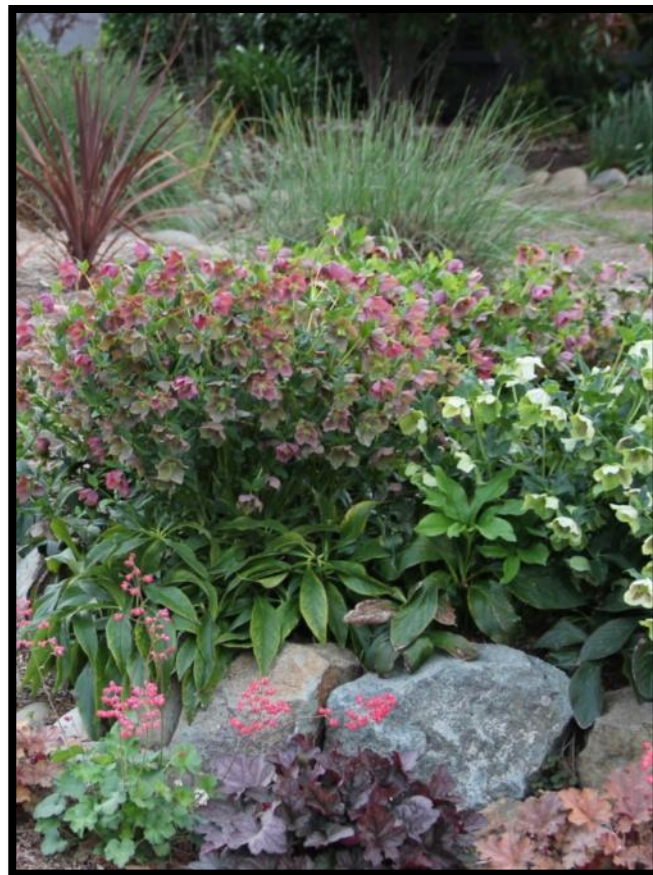
Steps to Low-water Lush

1. **Assess your site**
 - Where is sun and shade?
 - Where are slopes?
2. **Assess your irrigation**
3. **Assess your soil**
4. **Make a plan-*What is your goal?***
5. **Remove unwanted hardscape & plants**



Steps to Low-Water Lush

6. Amend soil with good compost
7. Install/convert irrigation to most efficient for the space
8. Plant new material
9. Cover bare soil and lines with organic mulch




IMPORTANT CONSIDERATIONS



Ask yourself what you want!

- **Shady spot to read?**
- **Vegetable beds?**
- **Herb garden?**
- **Colorful flowers?**
- **Screen?**
- **Bocce area?**

HARDSCAPE SOLUTIONS

- Reduce planted area
-  reduce water use!
- SIDE EFFECTS:
 - In sun: raised temps
 - If impervious- rain runoff



HARDSCAPE SOLUTIONS

- Use permeable material
 - Pervious concrete
 - Pavers with sand between
 - Crushed rock (like DG)
 - Walk-on bark
- Use permeable landscape fabric base



Assessing your plants and trees

- Remove
 - high maintenance plants
 - high water users
 - anything you don't like
- Build around what you like/looks good
- Move plants together with similar water needs (hydrozone)
- *Make a list of plants you'd like and your empty spaces*

*Plants aren't children-
it's okay to get rid of them
if they don't
perform!*

PLANNING YOUR PLANTS

Plan A

You know what you want

1. Make your list
2. Look up water needs on WUCOLS
3. Group plants by water needs
4. Shop and plant

Plan B

You want to find plants

1. Decide types of plants you need
2. Use WUCOLS to generate list by type and water need
3. Narrow the list down
4. Shop and plant

Finding Plants



Magazines



Nurseries



Websites

LATEST!

GREATEST!

IMPROVED!

BEST YET!

What makes a plant the BEST?

- Suited to local climate
- Suited to the soil
- Suited to the micro-site
 - Light exposure
 - Wind exposure
 - Slope, level, low spot
- *Mature* size fits space



The *BEST* plants will also be



- Pest-tolerant
- Disease-resistant
- Non-invasive
- Low-water users
- Host to beneficial wildlife

Invasive Plants



INVASIVE (not just aggressive)

- Non-native
 - No natural controls (weather, animals, competitive plants, etc.)
- Spreads widely
 - Highly viable seed dispersal
 - *And usually also vegetative spread*
- Displaces native vegetation



***Causes economic
and/or ecological damage***

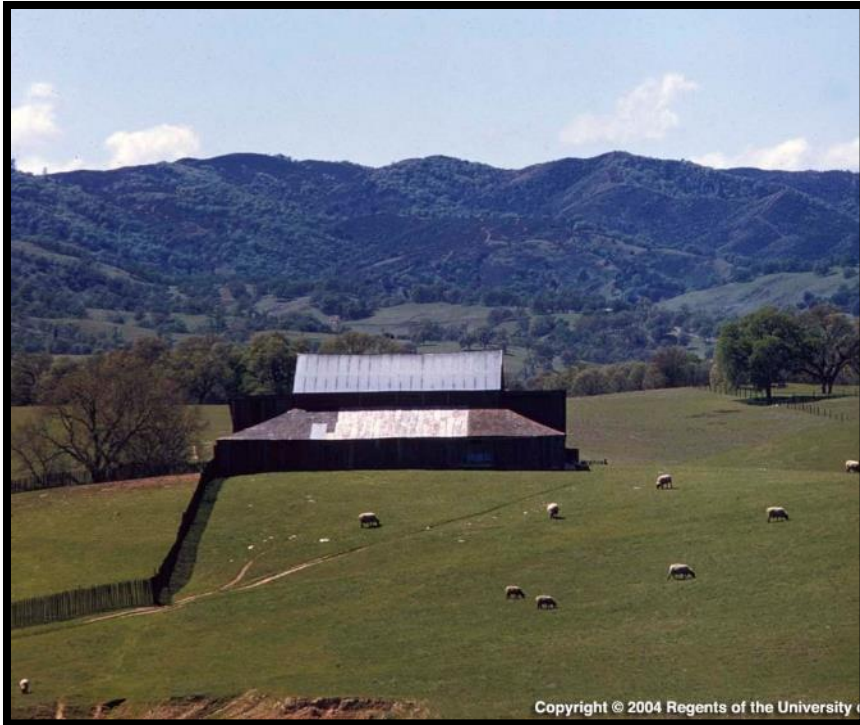
What's the big deal?

- **California- 1 of 35 biodiversity hotspots**
 - 1500 or more endemic species
 - 30% or less of original vegetation
- **2.3% of land**
 - > 50% of plant species
 - 43% of bird, mammal, reptile and amphibian species as endemics

Plants & animals interconnected!



Rangeland and Aquatic Damage



Animal health- cost to ranchers

Economic & Environmental Degradation



Urban & Nature Area Degradation



**Economic Impact from weed
mgt., depressed property values**

**Restricted access; diminished value
to wildlife**



Organizations that help

California Invasive Plant Council (www.cal-ipc.org)

- Documents locations
- Rates plants as they emerge as problems
- Creates watchlists
- Regional “Do Not Plant” lists
- Alternatives



Organizations that help

PlantRight

(<https://plantright.org>)

- Promotes education
- Provides lists of alternatives by region



<https://plantright.org/about-invasive-plants/better-plants/?water=&sun=®ion=NC>

Can natives be invasive?

Yes and No

BE CAUTIOUS IF:

- Aggressive outside native ecosystem range
- Potential for difficult control
- Removal is restricted once established





Choosing the Plants for Low-water Lush

Researching water use: UC Landscape Plant Irrigation Trials



Brief Science-thinking interlude



Measuring plant water use

- EVAPOTRANSPIRATION (ET): all the water lost from plant and soil
- Reference ET (ET_o): the water loss from a well-watered reference plant
 - *COOL SEASON TURF*
 - performs well at 80%
- *Everything else is compared to GRASS!*



Water Use Categories

- **HIGH** **70-100%**
- **MODERATE** **40-60%**
- **LOW** **10-30%**
- **VERY LOW** **< 10%**



Low-water Use vs. Drought Tolerant



Not dead – but *not* low-water



Low-water Use vs. Drought Tolerant



Low-water use vs. Drought-tolerant

Thriving



Moderates water use

Surviving



**Does not moderate
water use**

Low-water Plant Strategies for Water Conservation

- **Summer deciduous**
 - Broadleaf or bulbs
- **Reflect light**
- **Slow metabolism, go dormant**
- **Close stomates in day; fix CO₂ at night (CAM)**
- **Roots deep *and* wide**



Leaf characteristics- your clues!



- Light – gray, silvery
- Hairy
- Succulent
- Reduced leaf size needles
- Vertically held
- Waxy coating
 - Leaves will feel very stiff



Look to the origins!

- **Mediterranean-climate regions**
 - Central California
 - Central Chile
 - Mediterranean Basin
 - South/West Australia
 - South/West Africa
- **Competition for resources: forest floor**



Lowering Your Water Needs

- **Reduce the amount of turf**
 - **Eliminate all non-amenity turf**
 - **Use low-water groundcovers for green swaths**



Turf Alternatives

- Evergreen groundcovers
- Planted pavers



Kurapia



The Meadow Look



Water Use Categories

- **HIGH** 70-100%
- **MODERATE** 40-60%
- **LOW** 10-30%
- **VERY LOW** < 10%

How do I know?



Water Use Classification of Landscape Species

WUCOLS



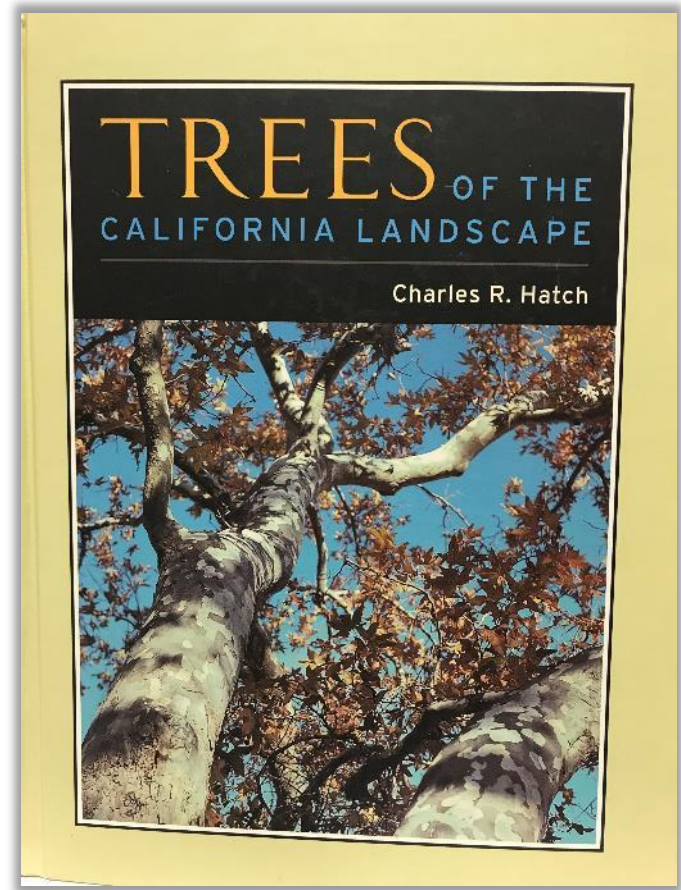
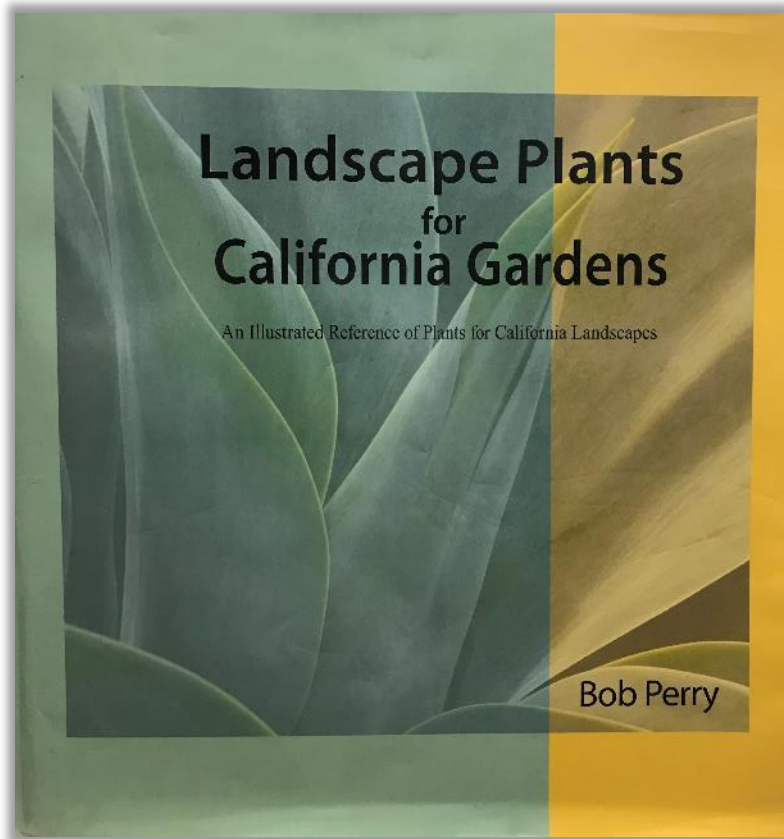
<http://ucanr.edu/sites/WUCOLS/>

Additional Website for Trees

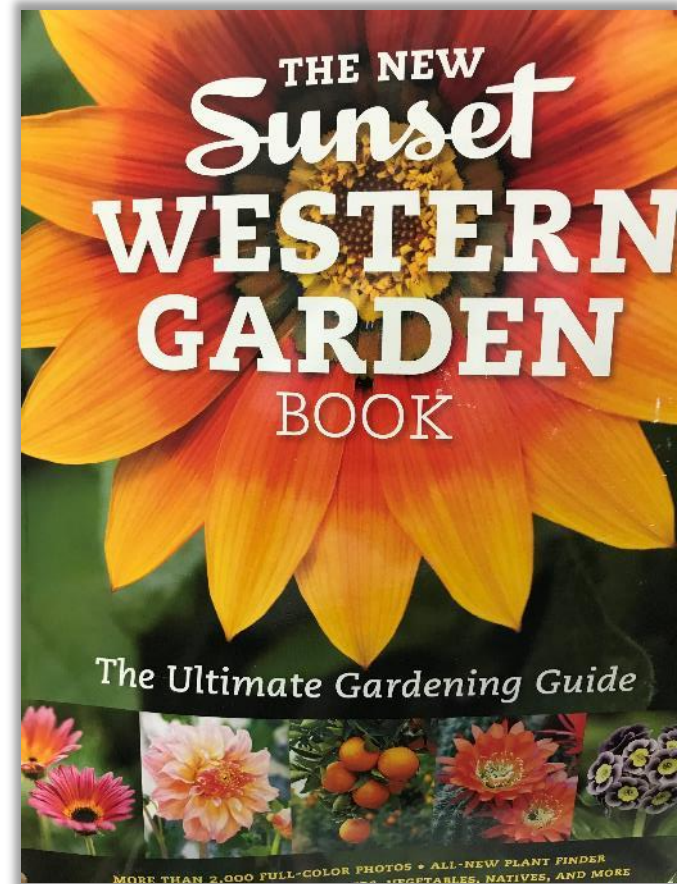
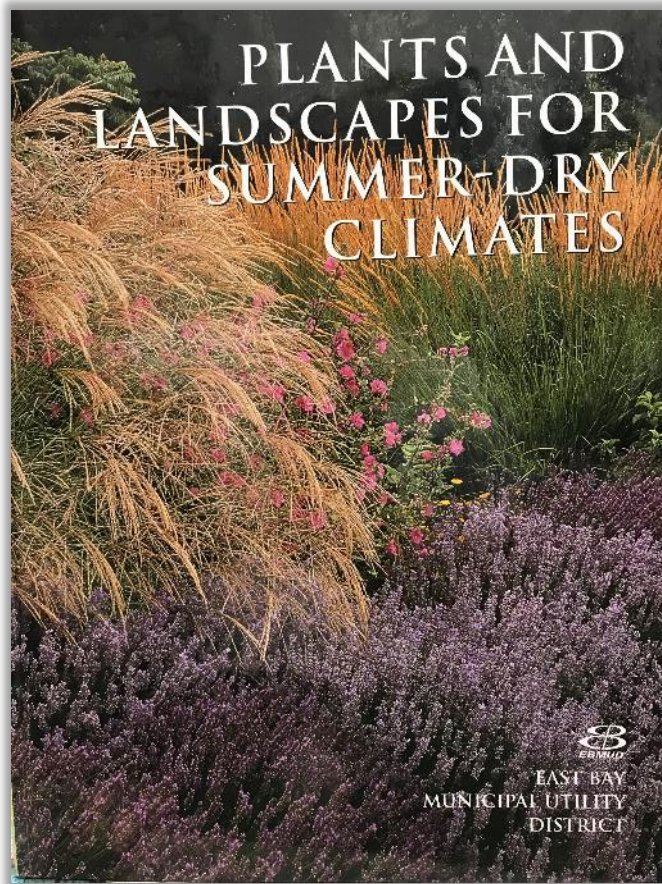
<https://selectree.calpoly.edu/search-trees-by-characteristics>



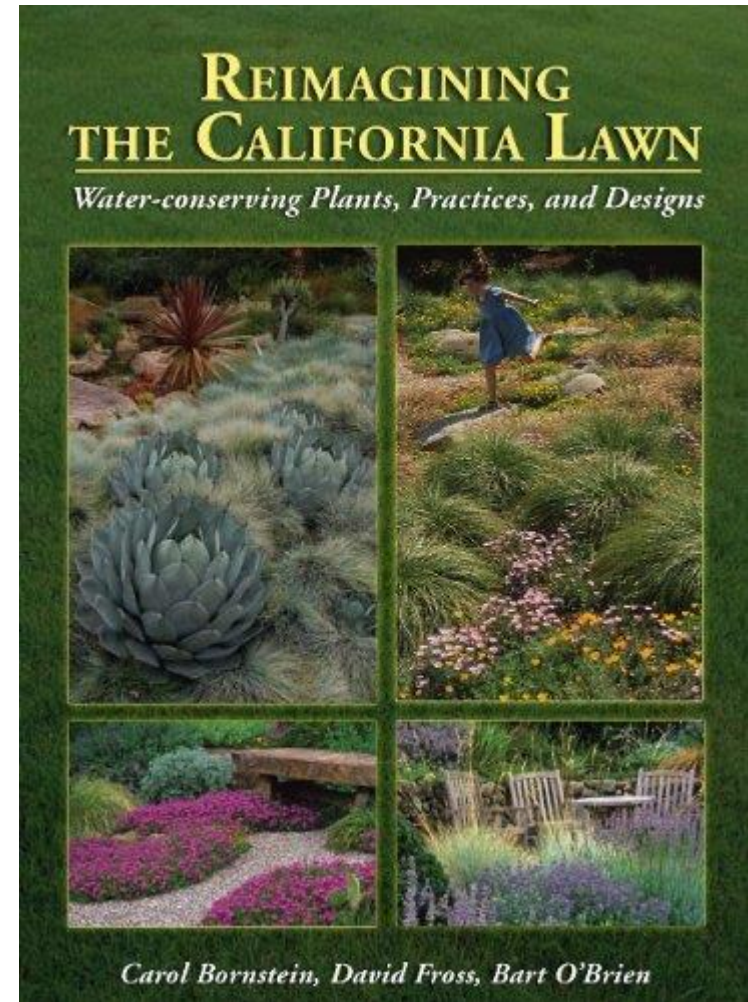
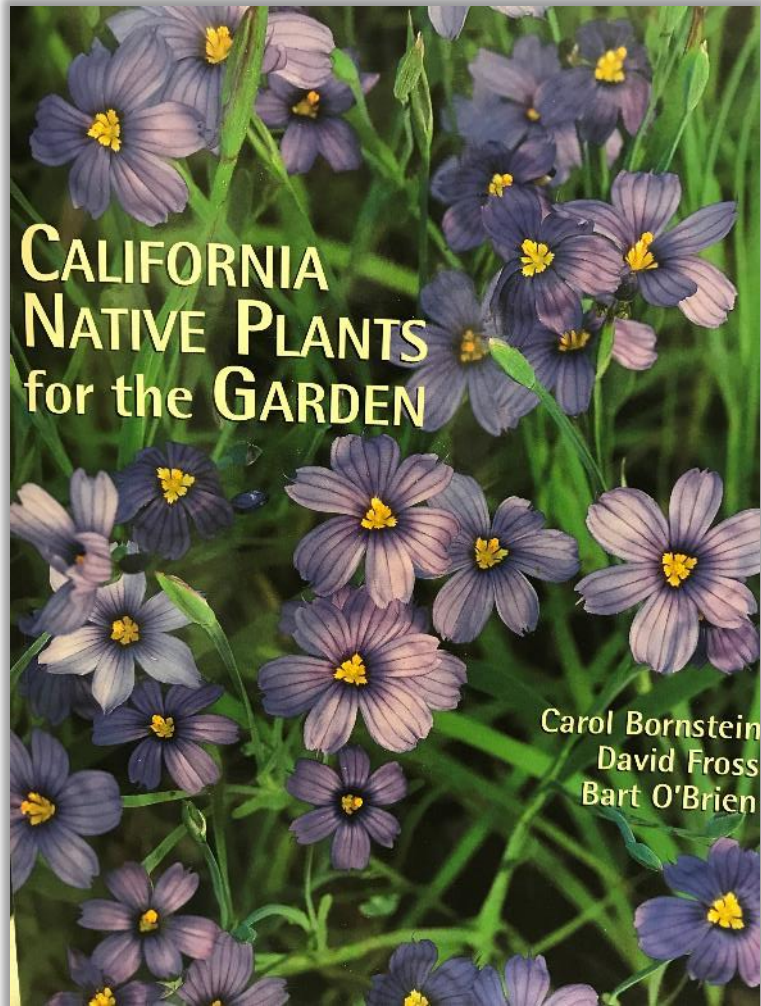
Best Book Resources



Best Book Resources



Best Book Resources



The ART of Low-water Lush



A NEW AESTHETIC

- **Lots of green**
- **Layers of texture**
- **Contrasts for drama**
- **Year-round interest**
 - Think in seasons
- **Lots of color**
 - Use opposites but avoid clashes



Use color to advantage

Pastels/same side of color
wheel:
YELLOW- ORANGE- RED



Deep hues/primaries
BLUE- ORANGE- RED



Use color to advantage

Opposite side of color wheel:
YELLOW- PURPLE



Shades & textures of 1 color
PINKS



Use color to advantage

Shades and textures of one color

GREENS



HYDRO-ZONE Your Plan!

Put plants with same water needs on same valve

- Get plant water needs from:
 - WUCOLS
 - Sunset Western Garden Book (and others)
 - APP AVAILABLE

The highest water user will call the shots!



Other Notes

- Sun/shade exposure
- Pay attention to mature size
- Don't overplant, but plan for slight overlap



Designs that will fill in with time!

QUESTIONS?

BRIEF BREAK



Establishing a maximum capacity root system

- Careful *proper* planting
- Careful watering critical during establishment
- Frequency will vary by
 - Soil type
 - Season
- Creates maximum access to water storage



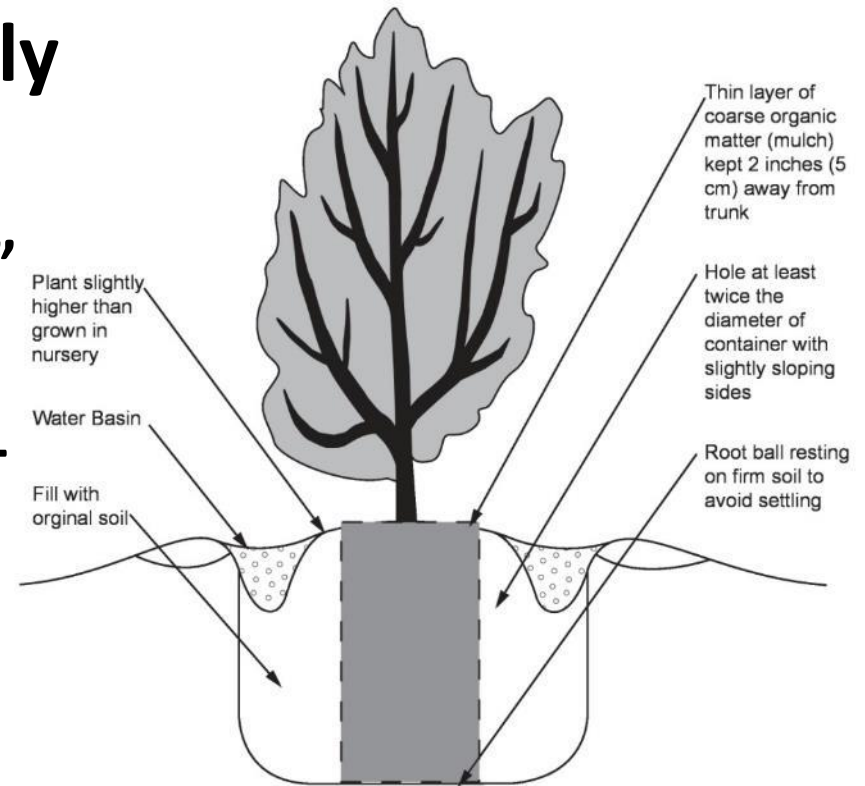
Planting for Success

- Plant in autumn to take advantage of cooler temps and rain
- Closely inspect plants in the nursery for
 - Pests/disease signs or symptoms
 - Healthy root systems
- Buy small except for slow growers



Establishing a maximum capacity root system

- Dig hole 2x as wide- only as deep
 - Trees may be planted 1-2" high
 - Shrubs may be planted ½-1" high
 - Perennials (non-woody) planted at grade
- **NO BARK IN THE HOLE!**





Planted too high!

Establishing a maximum capacity root system

- Irrigation should begin at the pot/soil margin
- Gradually add water further out
- Drive roots down: water should go below the root ball

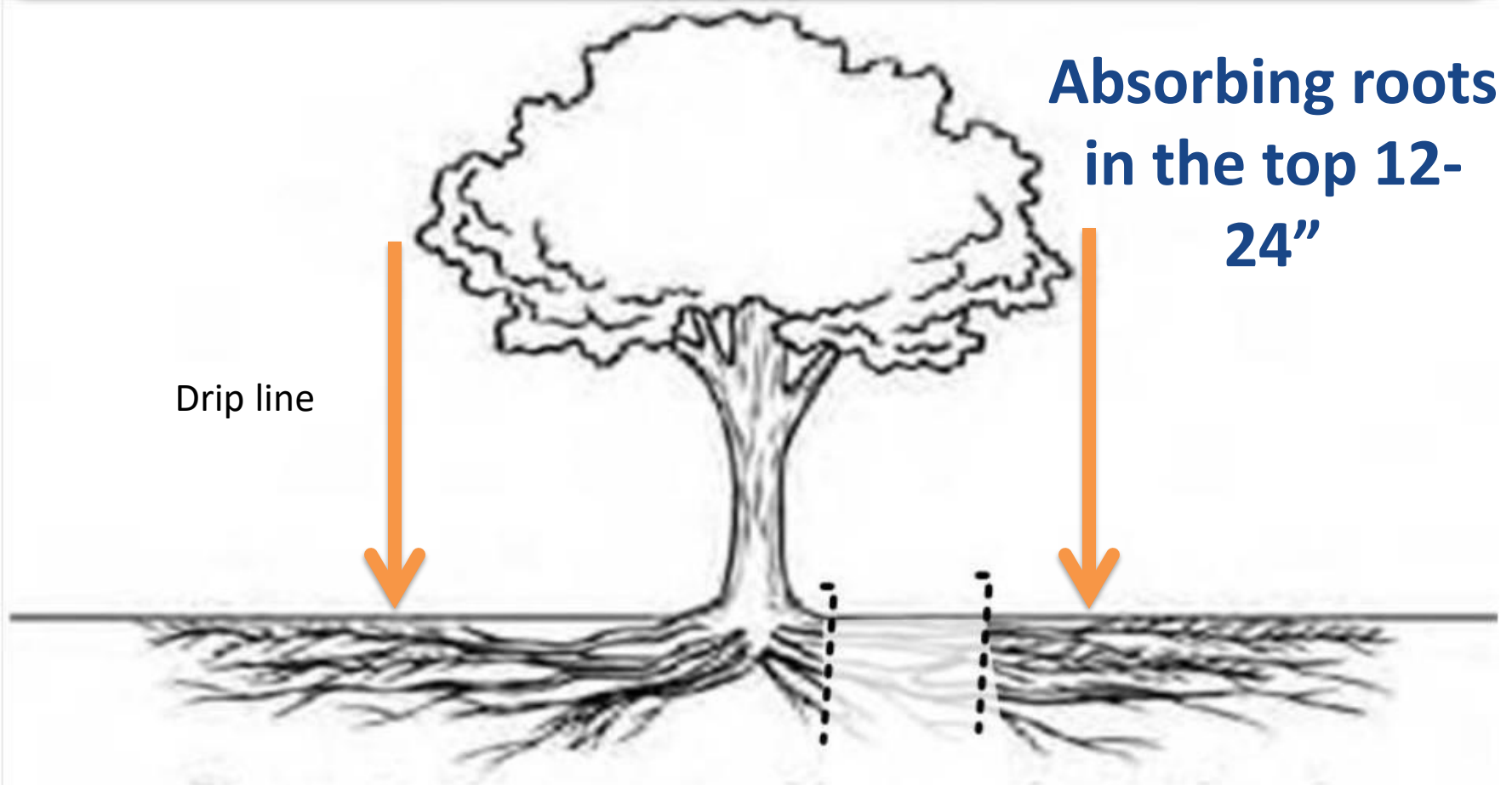


Establishing a maximum capacity root system



- Each season the irrigation intervals increase
- Allow some dry-down between intervals
- Eliminate tree water between trunk and drip-line ½-way mark

Root Zone of Trees



The background of the slide is a lush garden. In the foreground, there are numerous tall, thin green stems with small, colorful flowers in shades of red, orange, yellow, and blue. Some of the flowers are in full bloom, while others are just buds. In the middle ground, there are more green plants and a few larger, dark green leaves. In the background, there are several large, leafy trees with green foliage, and a portion of a light-colored building is visible on the left side. A white rectangular text box with a thin blue border is centered in the upper half of the image.

Before Maturity

- Most plants are ***HIGH WATER USERS***
 - TREES— 3-5 years of regular water
 - SHRUBS – 1 full year of regular water
 - PERENNIALS – 1 year or 1 spring & summer (for spring or summer planting)



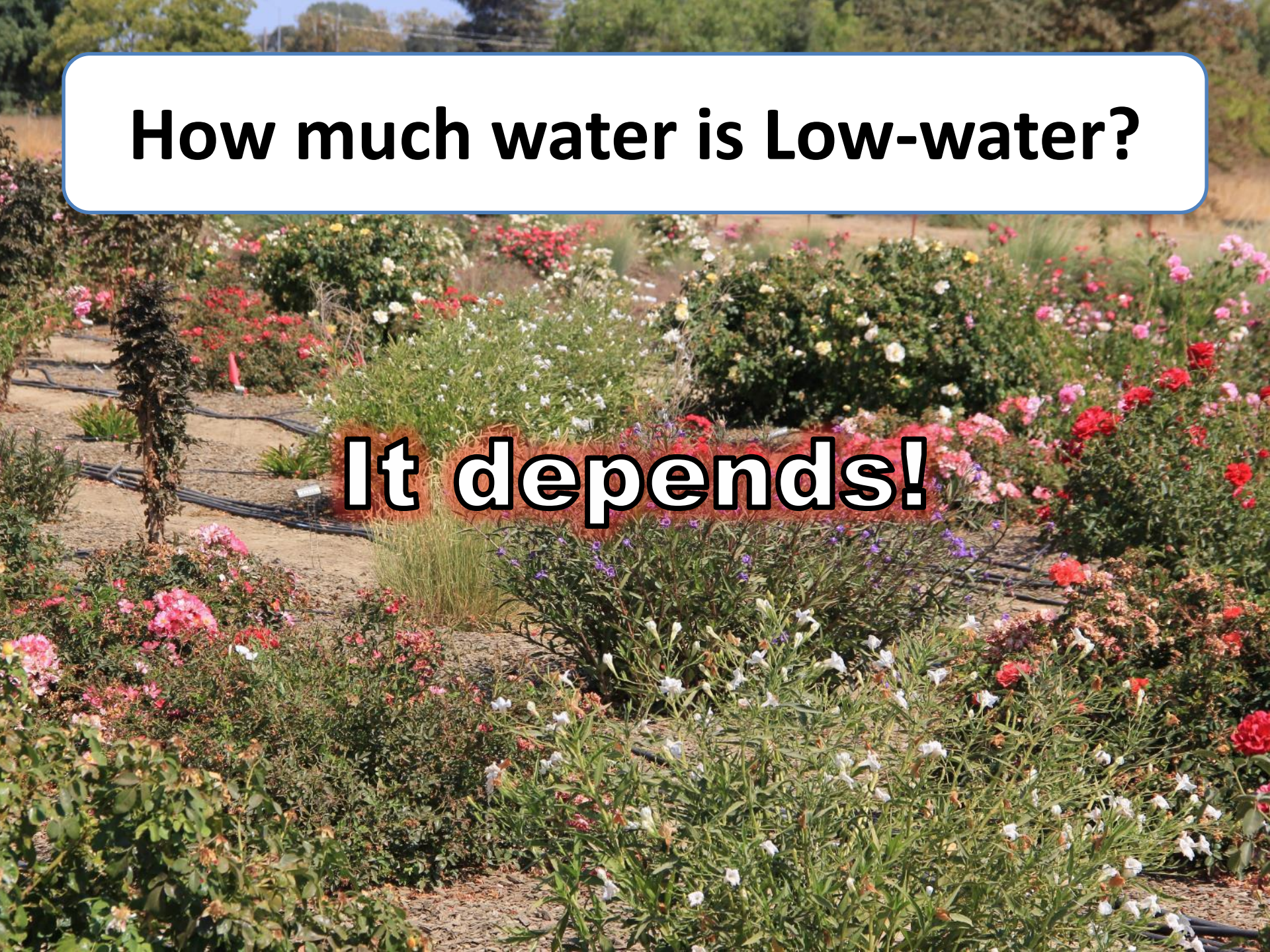
RULE OF THUMB

New plantings - *frequent water* until roots have grown into surrounding soil

- **SUMMER** – every 2 or 3 days
- **SPRING/FALL** – 1X/wk (depending on rainfall)

How much water is Low-water?

It depends!



How much & How often depend on

- Your local weather
- Sun or Shade
- Your soil type
- Your application system
- Planting density
- Soil coverage
 - PLANTS & MULCH



Come to an irrigation workshop!

Average 2nd-Yr Irrigation Frequency

(full sun, clay-loam soil, 18" deep/ 1m², \cong 16G)

Treatment ET₀
Percentage

Days between
irrigation events

80

12 (8-14)

60

18 (14-21)

40

30 (23-36)

20

2X during the period



Average 2nd-Yr Irrigation Frequency

(shade, clay-loam soil, 18" deep/1m², \cong 16G)

Treatment ET₀
Percentage

Days between
irrigation events

80

1x/month

60

45 days

40

2x/ season

20

1x (maybe)



Practices that Matter

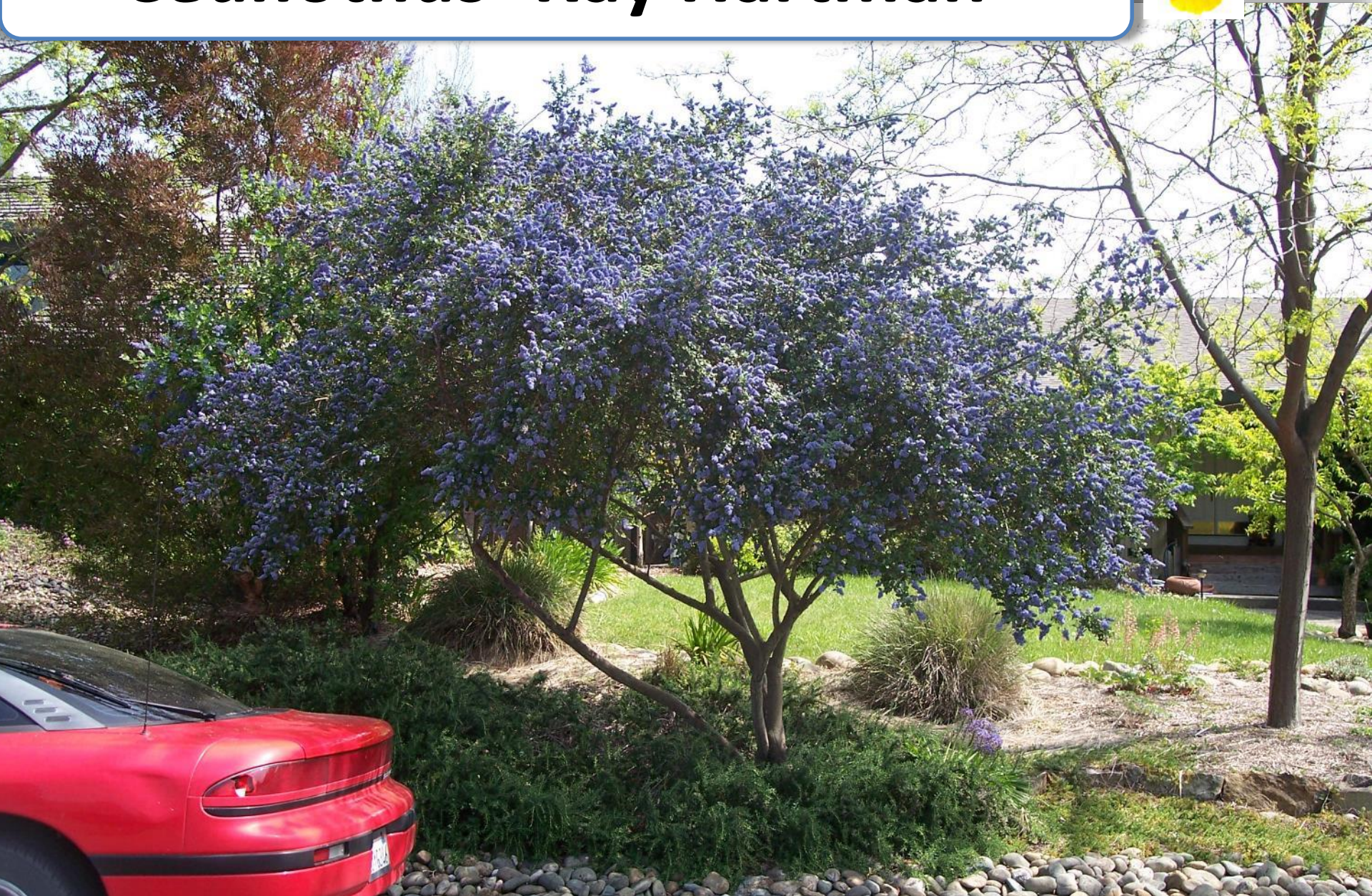


- **Improve soil with compost**
- **Plant only healthy material**
- **MULCH, MULCH, MULCH**

FULL SUN FAVORITES



Ceanothus 'Ray Hartman'



Rosa 'Korbin' or Iceberg rose



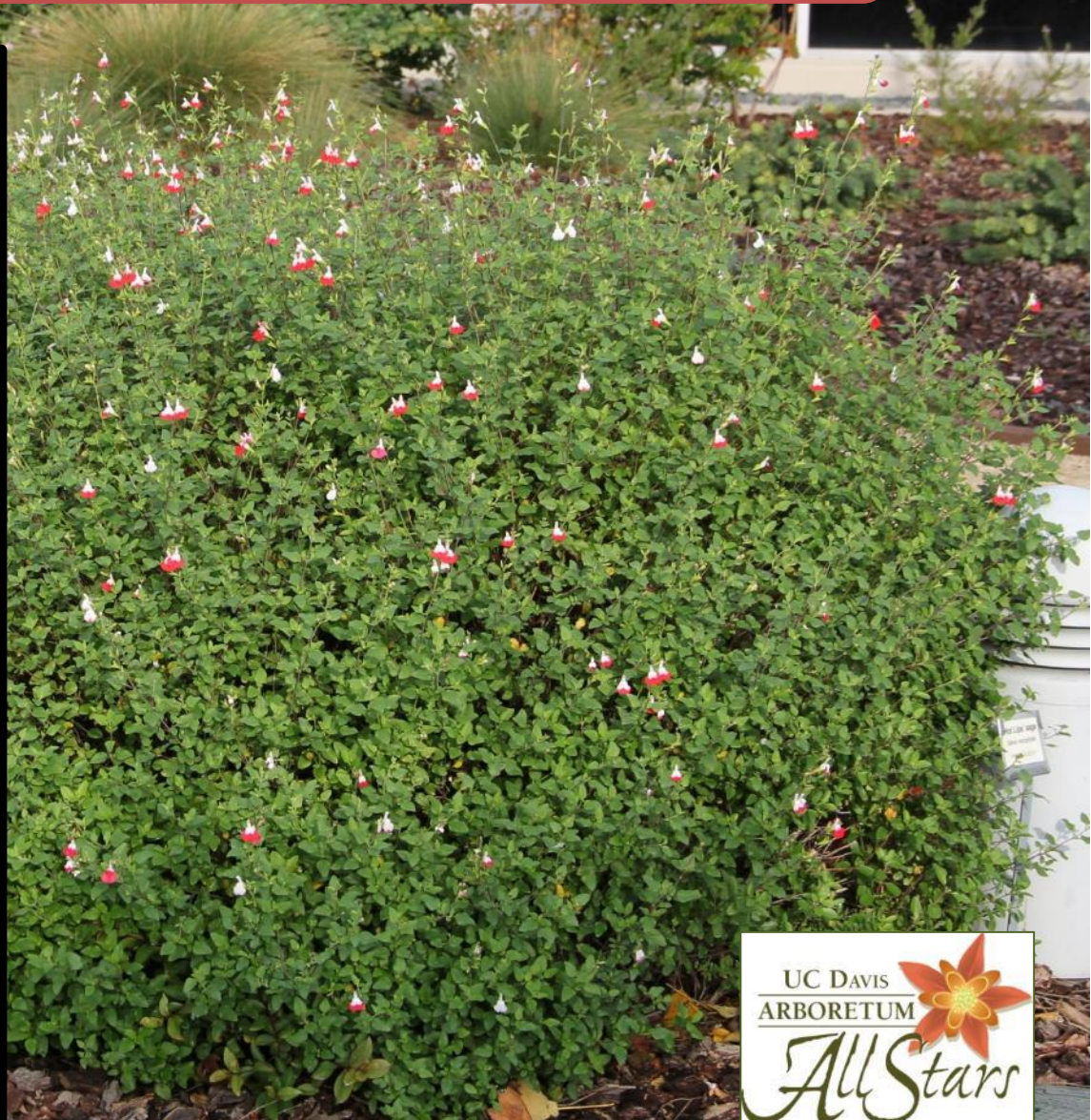
***Buddleia* 'Purple Splendor'**



Arctostaphylos densiflora 'Howard McMinn'



Salvia microphylla 'Hot Lips'



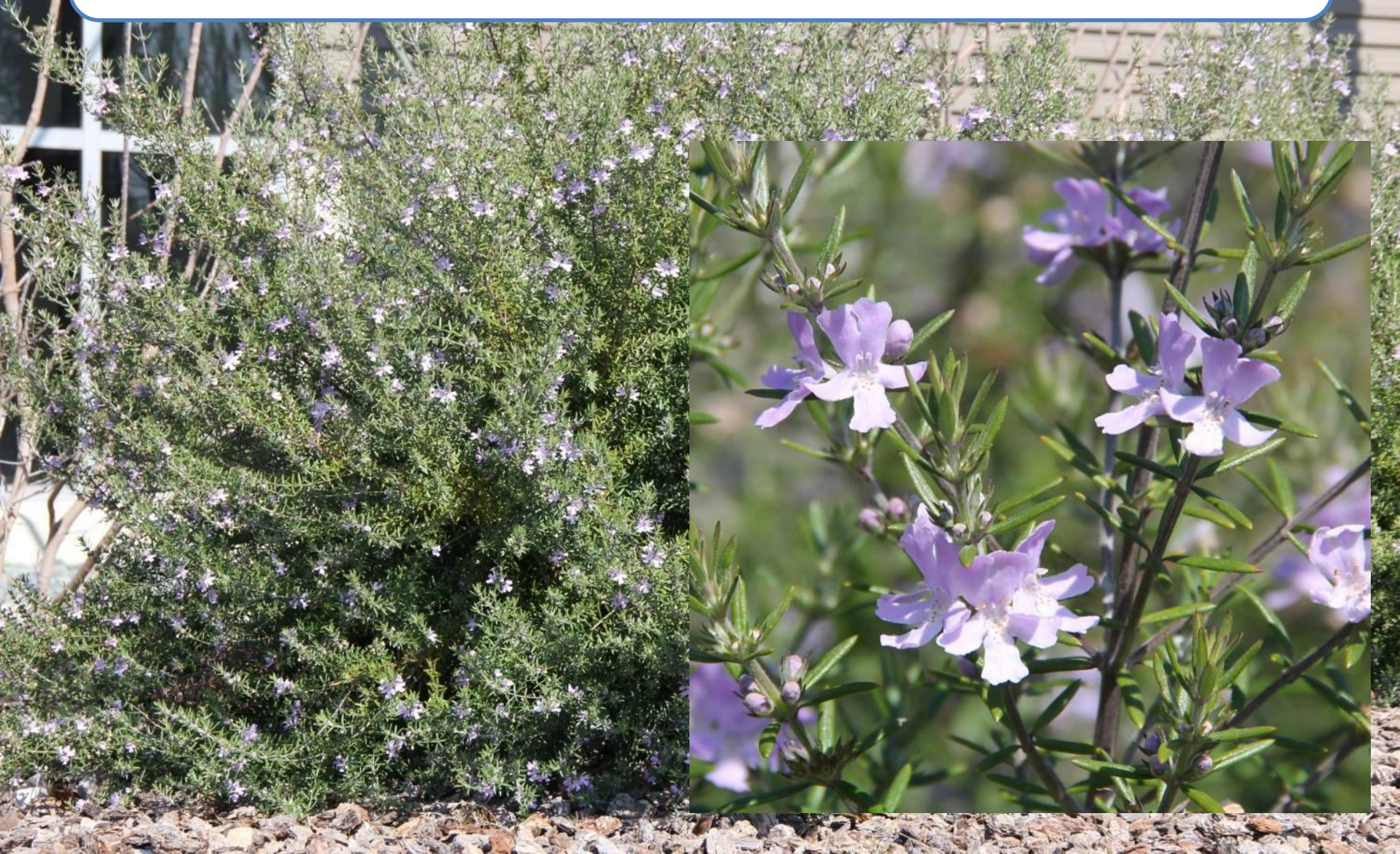
Salvia clevelandii 'Winnifred Gilman'



***Rhamnus californica* 'Mound San Bruno'**



***Westringia* cultivars**





***Kniphofia* 'Christmas Cheer'**

Nepeta x faassennii 'Walker's Low'



Lavenders- many kinds



Phlomis fruticosa



Iris 'Canyon Snow'



Bulbine frutescens & 'Tiny Tangerine'



Santa Barbara daisy

Erigeron karvinskianus



Dwarf germander

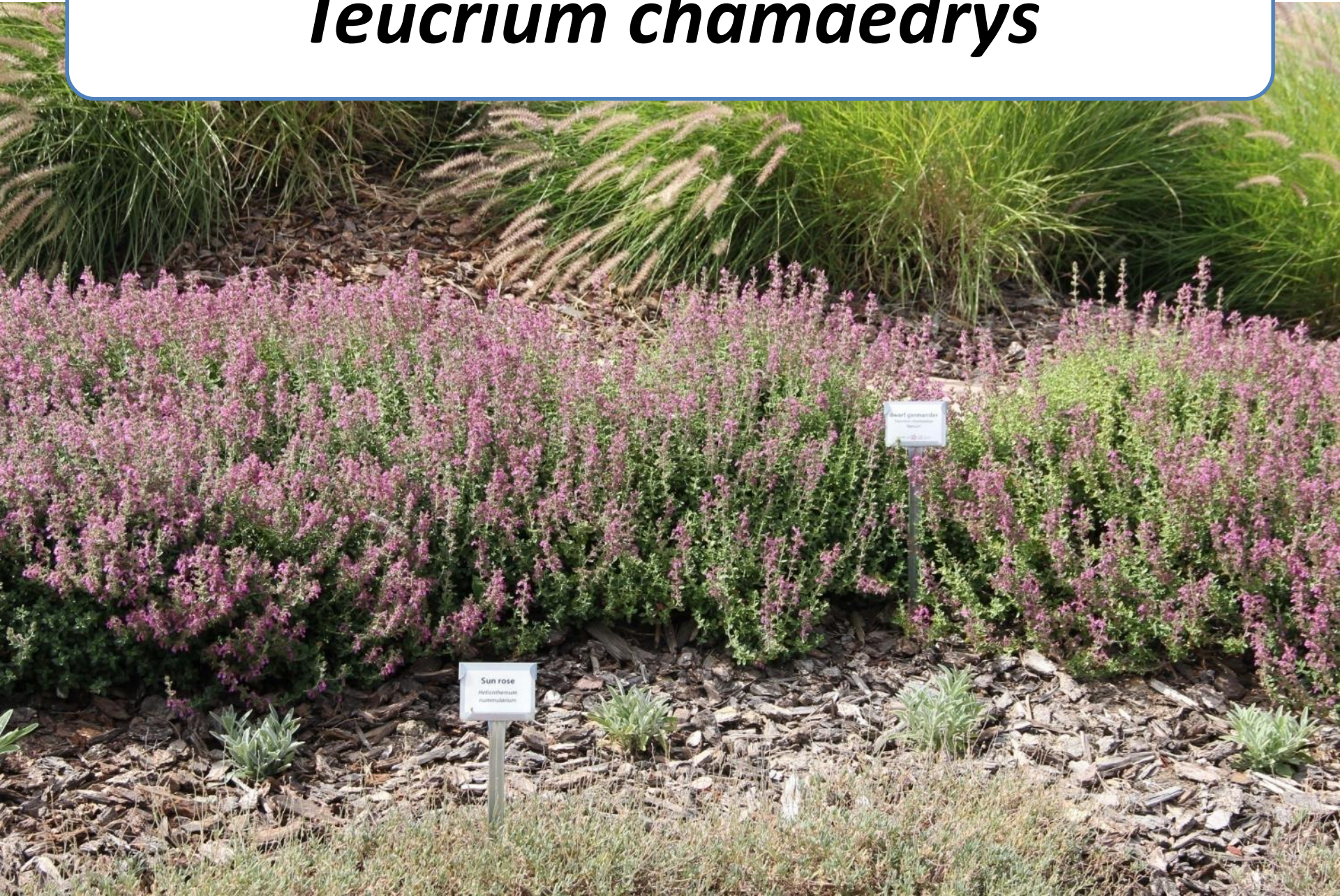
Teucrium chamaedrys

'Prostratum' or 'Nanum'



- Low mounds
- Spread slowly

Teucrium chamaedrys



***Epilobium* cvs.**
California fuchsia



Bouteloua gracilis



‘Karl Foerster’ feather reed grass
Calamagrostis acutiflora



Lomandra 'Lime Tuff'



Lomandra 'Lime Tuff' in shade



SHADE/AFTERNOON SHADE FAVORITES



Heuchera rosada



Heuchera 'Canyon Delight'



Heuchera maxima



***Dianella tasmanica* 'Variegata'**



***Lomandra* 'Platinum Beauty'**



Helleborus 'Lady' series & others



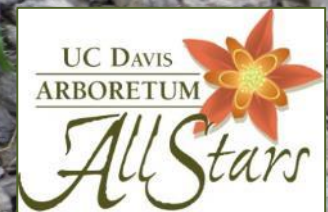
Helleborus 'Red Lady' & 'White lady'



***Ligustrum sinense* 'Sunshine'**



Berberis aquifolium 'Compacta'



Berberis aquifolium



Sollya heterophylla



***Daphne odora* 'Aureomarginata'**



***Ribes viburnifolium* 'Spooner's Mesa'**



***Correa pulchella* 'Pink Eyre'**



Key messages for low-water lush

1. Attractive low-water use plants are available!
2. Proper planting leads to success.
3. Hydrozoning is essential.
4. Establishing on regular water is KEY to success.
 - Begin at pot/soil interface- water BOTH!
 - Gradually increase width of irrigation zone.
5. Irrigation needs to be DEEP to drive roots deep.
6. MULCH, MULCH, MULCH

The Sustainable Landscape – Beyond Xeri-scaping



Low Water Use



Low Water Use



Low Water Use



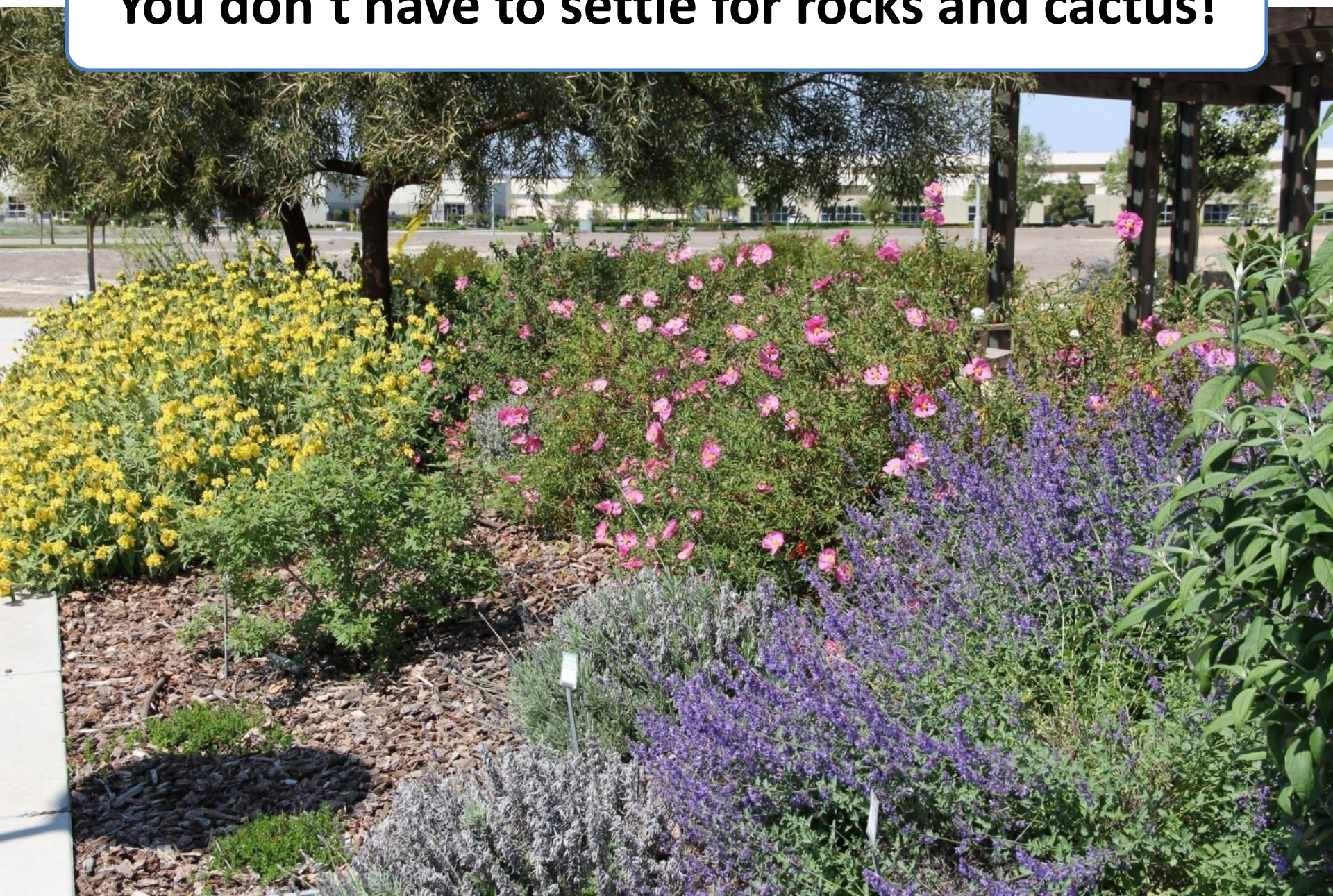
Low Water Use



Low Water Use



You don't have to settle for rocks and cactus!



A photograph of a garden bed. In the foreground, there are numerous pink coneflowers (Echinacea) with dark brown centers. Behind them is a large, dense bush of light pink flowers. To the left, there are purple flowers, possibly lavender. In the center, a white, spherical vent or light fixture is partially visible. The background shows a paved area, a building with a sign, and several tall, thin wooden posts. The text "Thank You!" is written in a white, cursive font across the upper left portion of the image.

Thank You!

Questions?