WaterSmart Gardens Converting Thirsty Lawns to Beautiful Beds









Presentations & Handouts at www.ecolandscape.org



How to Remove Your Lawn

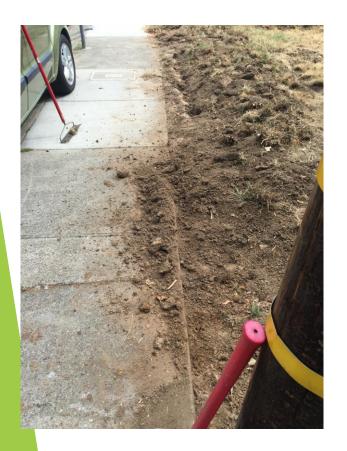
Presented by
Eric Zemlicka, Landscape Contractor, Zscapes
River-Friendly Landscaping Qualified Green Gardener
zscapessacto@gmail.com

- ► Type of Lawn Removal Methods
- ► Steps for Various Methods
- ▶ Pros, Cons, Time, Cost Comparison
- Converting Sprinklers to Low-volume Drip

What type of lawn (turf, grass) do you have?

- ► Cool season
 - Green in winter
 - Dwarf & tall Fescues, Ryegrass, Kentucky Bluegrass
- ▶ Warm season
 - ► Brown in winter
 - ► Bermudagrass, St. Augustine
- ► Combination Grass with weeds

Lower Soil Grade Away from Hardscape







Square Footage Area & Coverage

- Area = Length x Width
 - ≥20 ft. long x 5 ft. wide = 100 sq. ft.
- ▶ 1 sq. yd. of material = 3'x3'x3' = 327 sq. ft. @ 1" deep
 - ► 100 sq. ft. @ 3" (Example: mulch) = 300 sq. ft. = 1 yard of material (approx.)

Removal Methods - Manually (Shovel)

- Most cost-effective
- ► Great for small areas
- Most labor intensive
- ► Environmentally friendly





Steps to Removing Lawn Manually

- Cut grass into long strips width of spade or edge cutter, depth depends on conditions
- Cut into pieces
 - Add cool-season grass to compost pile or turn over and leave in place
 - ► Warm-season grass dispose

Removal Methods - Sod Cutting

- ► Good for large areas & Coolseason grass
 - Warm-season grass can regrow from deeper roots
- More uniform cutting depth
- Faster than removing by shovel
- Challenging to maneuver equipment & air pollution
- Allows you to create contoured shapes



Steps to Sod Cutting

- Water grass one or two days before cutting
- ► Soil moist to 4 inches deep
- Mark sprinkler heads
- ► Roll cut strips for removal



Removal Methods - Chemicals

- Consider other options first
- ► Herbicides are pesticides used to kill plants
- ▶ Identify target vegetation for product selection
- Use when grass is actively growing
- Easy and effective
- Expensive, can require 3 applications
- ► NOT environmentally sound
 - ► Kills soil biology
 - Waterways polluted from runoff



Steps to Chemical Removal

- Water grass well for about 2 weeks prior to application for longer grass blades
- Wear PPE (Personal Protective Equipment)= Cover skin, goggles, gloves, etc.
- ▶ Do not apply when windy and within 24 hours of predicted rain

Steps to Chemical Removal

- Apply chemical
- Leave area undisturbed for 1 week
- After 2 weeks, mow, water, and wait 2 weeks
- If new growth appears, reapply chemical to actively growing grass and/or weeds
- ► Remember: Consider other methods before using chemicals!



Removal Methods - Solarization



Removal Methods - Solarization

- ► Plastic traps heat to sterilize grass
- ►Kills beneficial soil biology in top 3 4 inches
- Relatively quick (1 2 months) High temperatures needed to be effective
- Less effective on deep rooting grass and weeds, e.g., Bermudagrass, Nutsedge
- Does not require heavy equipment or chemicals

Steps to Solarization

- Remove any materials that can puncture plastic
- Mow lawn short, leave grass on lawn, & water to speed heating process once covered
- Mark sprinkler heads
- ▶ Dig out edges of grass approx. 6 inches deep & wide to make a trench
- ► Apply clear plastic (not black) 1.5 2 mil thick over lawn and into the trench at the edges

Steps to Solarization

- Add soil, sand, or rocks on plastic in trench
- If using more than one piece of plastic, overlap edges 6 inches at seams
- ► Monitor
 - Avoid activity on plastic
 - Repair holes & tears
 - ► Keep edges secure

Removal Methods - Sheet Mulching

- Minimizes weeds
- ► Improves soil
- ► Increases plant health
- ► No emissions from equipment
- ▶ No hauling
- ► Can do any time of year
- ► A process of layering



Steps to Sheet Mulching

- ► Mow grass short
- Leave cut grass in place
- ► Water lawn so moist, not soggy
- Next to sidewalks, driveway Create 12" wide strip, removing soil several inches down to avoid overflow of material



Irrigation System Considerations when Sheet Mulching

- Convert sprinkler system to low-volume drip
- ► Considerations include:
- Installing irrigation on top of the sheet mulch
 - Exposed lines, aesthetically unappealing
- Installing irrigation on the bottom of the sheet mulch
 - Future planting, you have to work around lines

Steps to Sheet Mulching

► Spread 2" layer of compost over lawn

Install layer(s) of cardboard, overlapping

edges by 6"

Important: Moisten each layer during installation

- Final layer 4" organic mulch
- Keep layers moist throughout decomposition process



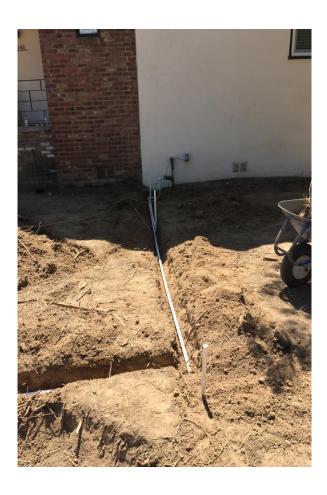
Pros, Cons, Time, Cost Comparison

Туре	Pro	Con	Time to Do*	Cost
Shovel	Inexpensive	Labor intensive	Days/Weeks	\$
Sod Cutter	Fast	Rent equipment, hauling	Hours	\$\$
Sheet Mulching	Organic, Improves soil biology	Difficult on slopes	Weeks	\$\$\$\$
Chemicals	Effective	Environmental impacts	Weeks	\$\$\$
Solarization	No Equipment or Chemicals	Time constraints	Months	\$

^{*} Time to do depends on conditions of project and whether a combination of methods is used

Irrigation Infrastructure







Convert Traditional Sprinklers to Low-Volume Drip Irrigation

- ► Planning efficient irrigation system
- System components / equipment
- Irrigation system considerations when sheet mulching
- WaterSmart irrigation techniques and tips

Planning an Efficient Irrigation System~ Water pressure & Flow Rate



Low-Volume Drip Assembly

Anti-Siphon Valve

Filter

Pressure Regulator

Flexible Tubing



System Components / Equipment



Pressure Regulators



Filters

Spray-to-Drip Conversions

Spray-to-Drip Retrofit Kits

Convert Any Spray Zone to a Drip Zone!

The easiest and fastest way to convert a conventional spray zone to a low-volume irrigation zone.

1800-Retro

1800 Series Spray Body that contains a filter, pressure regulator, and 1/2" male threaded outlet



Installation

- Simply remove the top of any 1800 and remove the internal assembly (On the 1806 and 1812 leave the spring in the body)
- · Remove the internal assembly of the retro kit and drop into the existing body
- Tighten the cap
- Use Easy Fit Fittings or a female adapter to connect to drip tubing or other 1/2"
 FPT devices

Features

- · Can be installed above or below grade
- · Provides 30 psi (2,1 bar) pressure regulation and 200-mesh (75 micron) screen
- Flow rate 0.50 to 4.00 GPM (1.9 to 15.1 l/m)



Spray-to-Drip Conversions

RBY Pressure-Regulating Filter

Unique, compact unit that combines filtration and pressure regulation in one compact piece for protection of downstream components



Installation

- · Simply connect the RBY Pressure-Regulating Filter into the water line
- · Use Easy Fit Fittings or a female adapter to connect to drip tubing
- · Install a valve or emitter box over the filter for easy access during cleaning

Features

- · Comes in 3/4" MPT (model PRF-075-RBY, not shown) or 1" versions (model PRF-100-RBY)
- 3/4" MPT (PRF-075-RBY) regulates pressure at 30 psi (2,1 bar) and flows 0.20 to 5.0 GPM (0.8 to 18.9 l/m)
- 1"MPT (PRF-100-RBY) regulates pressure at 40 psi (2,8 bar) and flows 3.0 to 15.0 GPM (11.4 to 56.8 l/m)
- Can be installed above or below grade
- Robust body and cap are made of glass-filled polypropylene and provide 150 psi (10,3 bar) pressure rating
- 200 mesh stainless steel filter (75 micron)



Two Types of Drip



Emitters placed at the plants - Point Source for sparse plantings



Built-in emitters in a grid formation - Line Source for dense plantings

System Components / Equipment





WaterSmart Irrigation Tips

- Whatever system you use, know and understand it.
 - ► How much water does it apply?
 - ► How long does it take to apply it?
- ▶ Use weather-based controllers to adjust for seasonal changes.
- Ask questions
 - After years in the irrigation business, there's always more to learn!

WaterSmart Irrigation Tips

- ▶ Begin with the end in mind.
- To select the best drip system for your situation and conditions, learn how to select, group, and place plants.
- ► That's next!

After Next Presentations, Outside Demonstrations

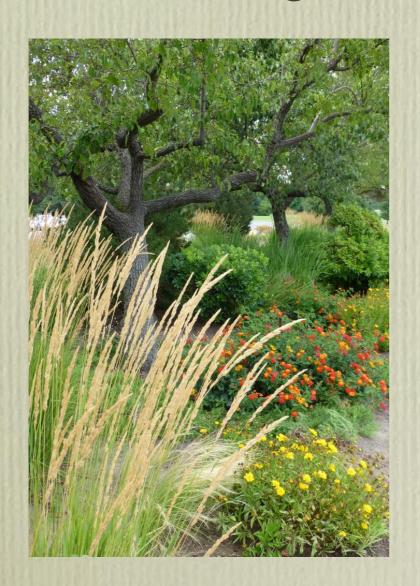
Efficient Irrigation Systems

- Regulating water pressure
- Checking flow rate
- Outfitting conventional sprinklers with efficient nozzles
- Converting spray to low-volume drip
- Placing and spacing emitters
- ► Q & A

WaterSmart Gardens

Converting Thirsty Lawns to Beautiful Beds

Selecting, Grouping, Placing, & Establishing Climate-appropriate Plants



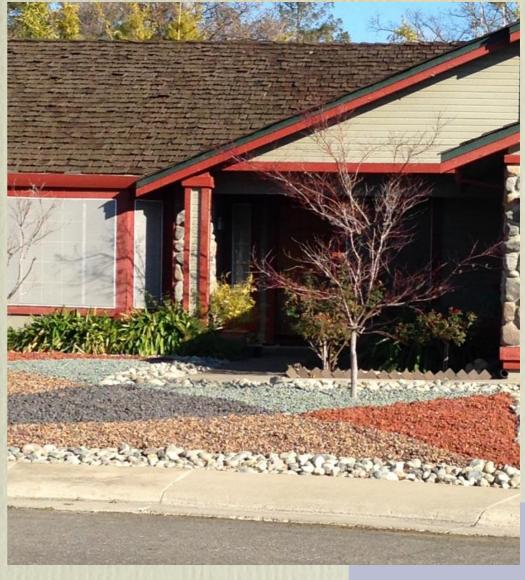
Presented by
Cheryl Buckwalter
CLIA, QWEL, RFL GG,
Landscape Designer, & President
EcoLandscape California
cheryl@ecolandscape.org

There Versus Here



And... We're Not in the Desert

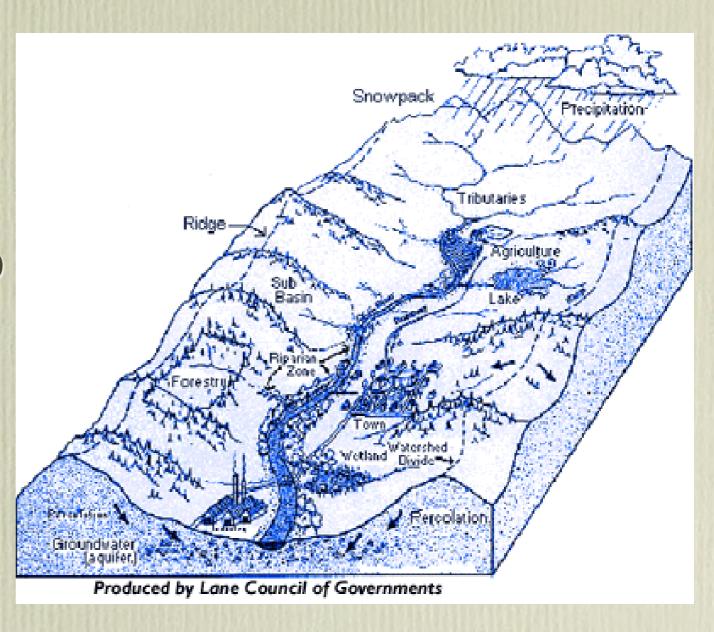




Watershed-based Approach to Landscaping

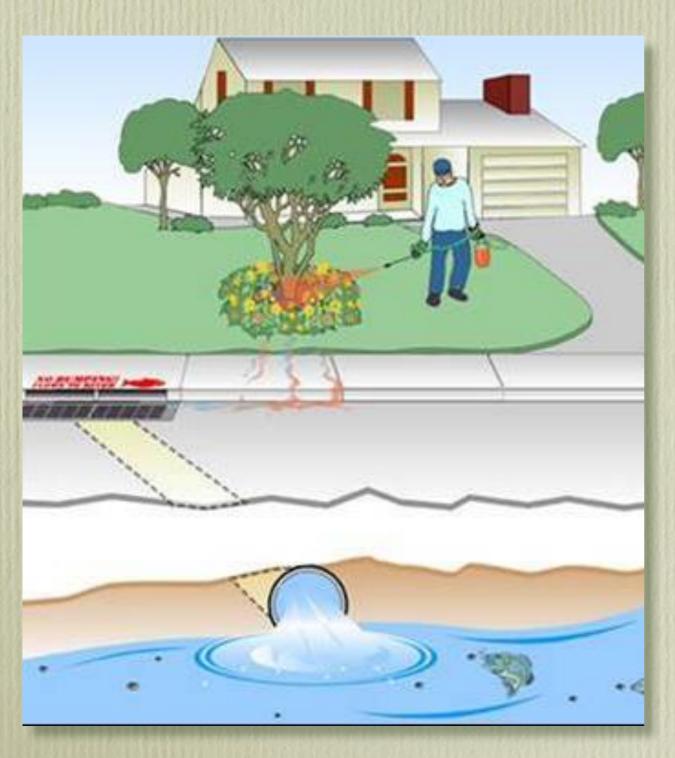
What is a Watershed?

- An area of land where all water under it or drains off of it goes into the same place
- Your home is a miniwatershed
- Rain from roof drains toward street or garden



U.S. Environmental Protection Agency

The Link Between Watersheds & Wastesheds



Water from irrigation
 & rainfall washes
 pesticides, fertilizers,
 & other contaminants
 into gutters & storm
 drains

Reduce Toxic Chemicals in Waterways



www.ipm.ucdavis.edu

Healthy Soil, Healthy Plants

- Living soils have balance of oxygen, water & soil organisms
- Did you know? 600 gallons of fresh water runs off of a 1,000 sq. ft. roof that receives 1 inch of rain

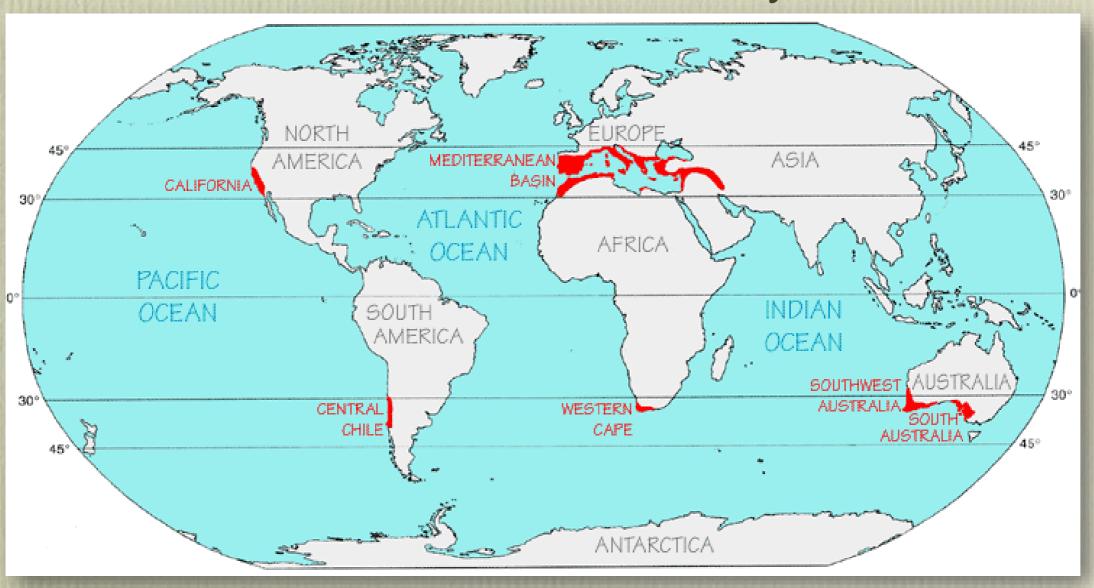


Compost

- Forms soil aggregates, allowing air and water to flow into and through soil
- Contains living organisms that feed soil organisms
- Healthy, well-processed compost smells good and looks like brown soil
- General guidelines for compacted soils: 2"- 4" tilled into top 6" 12" soil
- Maintenance: ¼" to ½" on soil surface: No tilling

Selecting Plants Mediterranean-type Climates

Cool, wet winters & warm, dry summers



Ecosystems of the World, Vol. II, Mediterranean-Type Shrublands (F. DiCastri, D.W. Goodall and R.L. Specht, Eds.), Elsevier, Amsterdam, 1981. www.grabovrat.com

Selecting Plants

With the same requirements for

- Sun or shade
- Soil type/texture (mixture and content of clay, loam, sand)
- Cold hardiness or temperature adaptation
- Fire-resistant www.fire.ca.gov

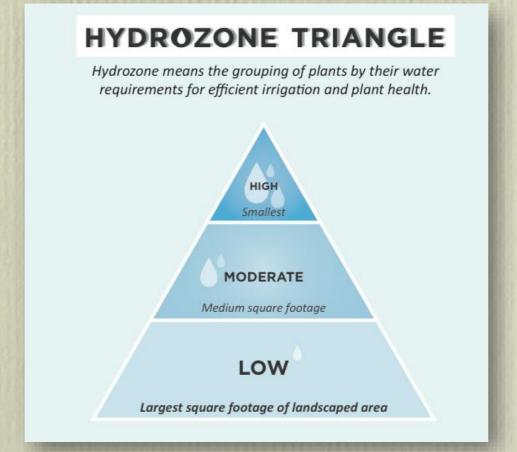




Grouping Plants

With similar water needs to

- Water where and when they need it
- Reduce plant stress, non-beneficial growth, and risk of pest and disease problems
- Separate valves for zones based on plant water needs



Understanding Water-Use Categories & Definitions



High
Moderate
Low
Very Low
None

Low Water-Use Plants

- Adapted to Mediterranean-type climates
 - Growing cycles late fall through early spring
- Low Water Use
 - Little additional summer watering
 - May or may not be drought tolerant



Very Low & No-Water Use Plants*

- Also adapted to Mediterranean-type climates
- Some established California natives
- Rely on seasonal rainfall
- No additional summer water (except prolonged periods of winter drought)
- * Once <u>Established</u> Reduced Summer Water



Defining "Established"

General rules of thumb:

- Two to three times size when planted
- In the garden two to three growing seasons
- Trees 3 to 5 years

Note: **ALL plants** need regular water until established

Even plants that can survive on seasonal moisture once mature





Terms: Low-Water Use & Drought-Tolerant – Not Equal

Drought Tolerant - Once established – Plants that survive on

- Seasonal rainfall
- Infrequent watering, or

Repeated dry periods and recover from

repeated wilting

Low Water-Use Plants

- A constant classification
- Plants that always require low amounts of water



Low Water-Use & Drought-Tolerant Characteristics



Stachys byzantina Lamb's Ear



Rosmarinus officinalis
Rosemary



Salvia apiana
California White
Sage

Leaves - Retain moisture, reduce sun exposure, "hairs", waxy surface, leathery, tiny, thick Roots – Deep taproot, fibrous

Moderate Water-Use Plants

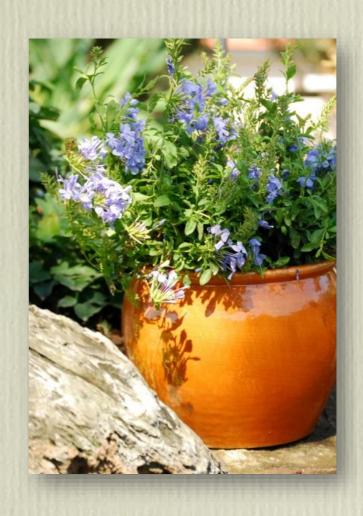
- Supplemental irrigation needed, depending on season, location, rainfall, and adaptability
- Generally, water when top three inches of soil is dry to the touch
- Examine moisture in root zone





High Water-Use Plants

- Prefer regular moisture year round
- Frequent watering, generally two to three times a week, sometimes more during hot and dry conditions
 - Examples include: Lawns,
 plants from other regions,
 container plants
 - Soil moisture to remain consistently moist



Solar Needs Plants for Hot Sun

- Require direct sun most of day
- Thrive under toughest conditions



Dasylirion wheeleri
Desert Spoon



Leucophyllum frutescens Cenizo or Texas Ranger

Plants for Sun to Part Shade

Tolerate sun all day or some shade part day



Heteromeles arbutifolia Toyon, Christmas Berry



Nepeta x faassennii 'Walker's Low' Hybrid Catmint

Plants for Dry Shade

- Full to dappled shade, some morning sun
- Useful under Oaks

Elizabeth Bush Anemone

Carpenteria californica

'Elizabeth'



Invasive species

- Do not purchase
- Do not plant
- Remove and replace with appropriate plant



Mexican Feather Grass
Stipa tenuissima



Pampas Grass Cortaderia selloana

www.cal-ipc.org www.plantright.org

Plant Spacing & Placing

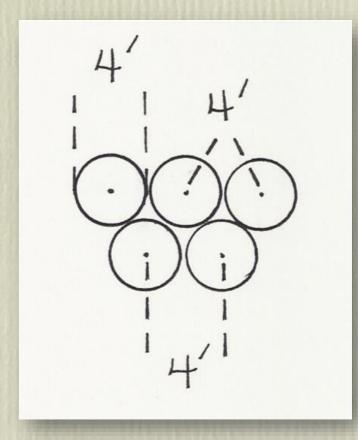
Plant WIDTH at maturity

Mature plant WIDTH is the most important piece of information you need to know for

proper PLANT SPACING

- Plant Height at maturity
- Tip:

Use a measuring tape



Why Spacing is Important?

- Flower or fruit production
- Maximum leaf surface (photosynthesis)
- Results in <u>less</u>
 - Maintenance & labor
 - Stress to plant
 - Pollution
 - WATER
- Natural form



Natural Form

Not This

A Few Words about Un-Natural Pruning









Lawn Alternatives

Yarrow as lawn substitute



Mulch, Mulch, Mulch – What is it?

Generally defined: Any material spread evenly over the surface of soil to enhance the growth of Plants and the appearance of the landscape.





Benefits of Mulch

In addition to saving time and money...

- Conserve water, reduce evaporation, retain soil moisture
- Moderate soil temperature for soil life and plant roots
- Protect irrigation system components
- Reduce weed growth (weeds compete with plants for nutrients & moisture)
- Reduce soil compaction, crusting (improving water infiltration), and erosion

Front Lawn Conversion Plant Spacing







Regional Water Authority
Ultimate Water-Smart Garden Makeover

Day of Planting & After 7 Months





1-1/2 Years after Planting



Lawn Conversion "Before"



Colleen Hamilton, Bloomin'
Landscape Designs
www.bloominlandscapedesigns.co
m

Landscapes by Rhodes www.landscapesbyrhodes.com



Early April 2015



End of May 2015



Right Plant, Right Place, Plant Well

- Hole no deeper than root ball & twice as wide
- Score sides of hole to rough up soil
- Check plant roots & loosen
- Root ball placed on undisturbed soil

TREE PLANTING

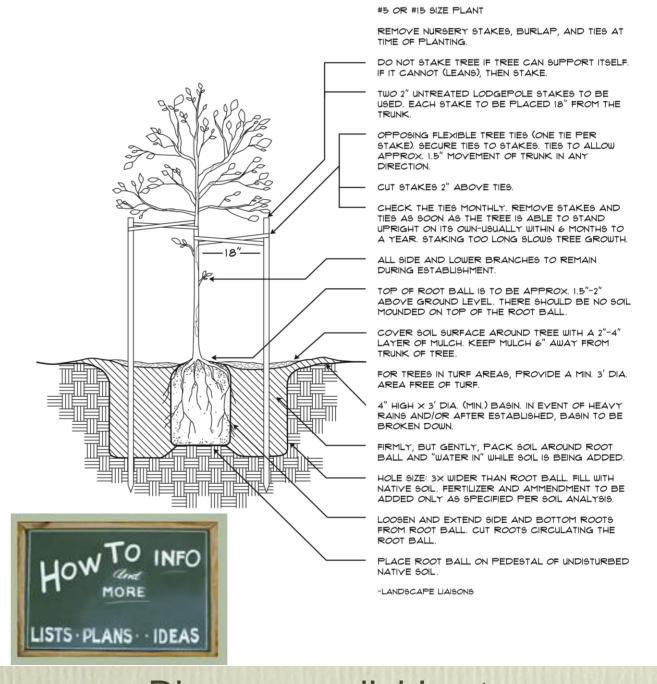


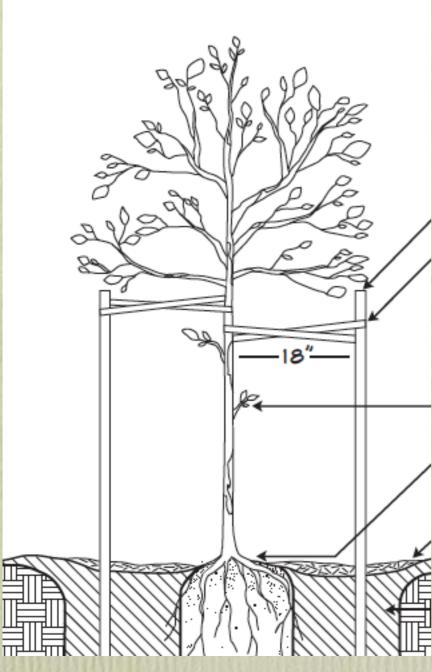
Diagram available at www.ecolandscape.org

Right Plant, Right Place, Plant Well

- Break up soil removed from hole (consistency in size)
- Fill hole with original soil
- Firm soil around roots
- Root crown slightly above grade
- Water well!

www.sactree.org







Staking Trees – IF Needed

- Two untreated poles 18" from trunk
- Flexible ties
- Cut stakes 2" above ties
- Check ties & stakes / remove as soon as tree can support itself (6 mo. to 1 yr.)
- Leave side & lower branches during establishment
- Top/crown of root ball approx. 1-1/2" above grade
- Cover soil with 3" mulch
- Keep mulch away from tree trunk

Plant Water Needs



WaterSmart Plants for the Sacramento Region

This Plant List contains some of the most common very low, low and moderate water-use plants found in the Sacramento region.

This list is intended as a tool to participants in rebate and incentive programs for calculating the living plant coverage requirement (oftentimes a minimum of 50% plant coverage) for the converted area.

Refer to specific requirements for the rebate or incentive program for which you are an applicant to determine if you must use plants only from this list or if you can use plants from this list and plants that are not on this list.

Use of drought-tolerant, low-water-use plants, and California plant species native to this region is highly encouraged.

PLANT COVERAGE & SIZE

Plant Coverage Value

The Plant Coverage Value in square feet is for each plant at its mature width; it is the value that will be used by Program Administrators to determine the canopy coverage regardless of the size of the plant at the time of planting and/or inspection. NOTE: Tree canopy will not be used to determine the 50% plant coverage requirement for Placer County Water Agency's Lawn Replacement Rebate Program.

WATER

Plant Water Requirements

Plant water requirements were obtained from WUCOLS IV, Water Use Classification of Landscape Species, Fourth Edition, CA Department of Water Resources, Regents of the University of California, California Center for Urban Horticulture, 2014, except where noted. Sacramento is in Region 2, the Central Valley.

Cultivars, with some exceptions, may not have been included in WUCOLS because it is presumed that



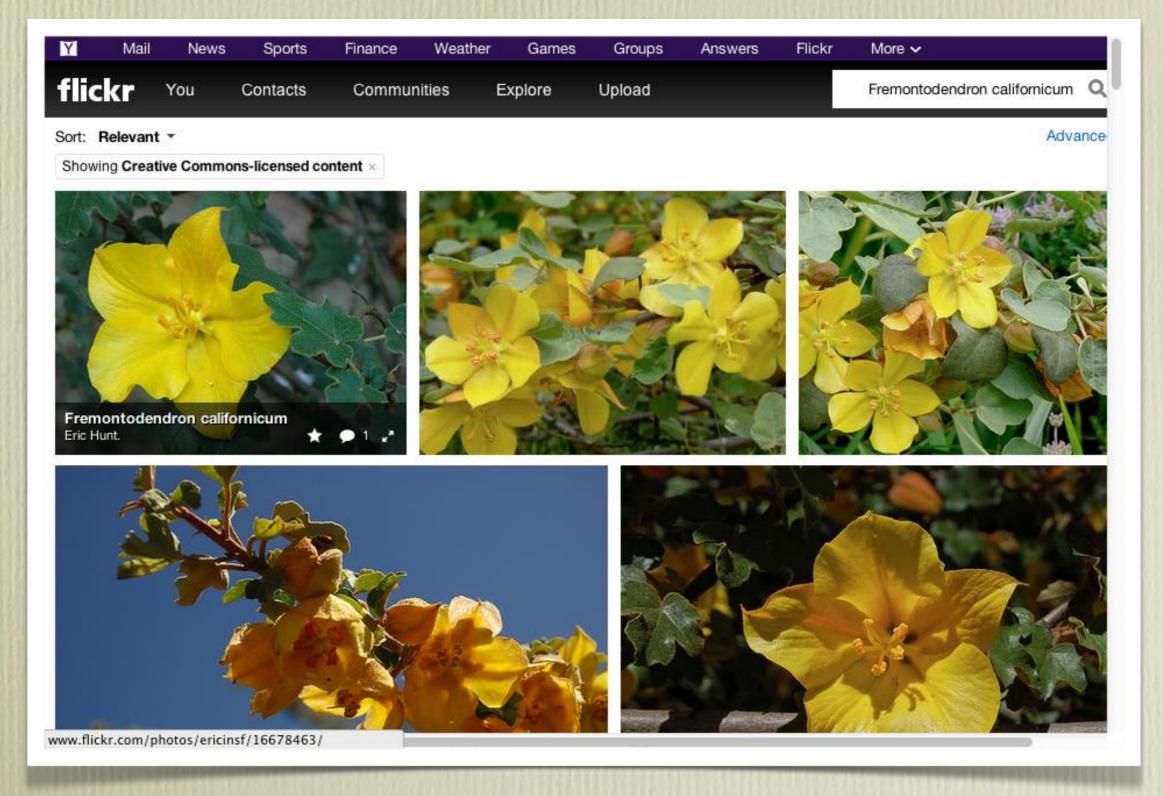
The Plants listed below in the following categories are identified by Genus, Species, Variety/Cultivar, and Common

www.ecolandscape.org

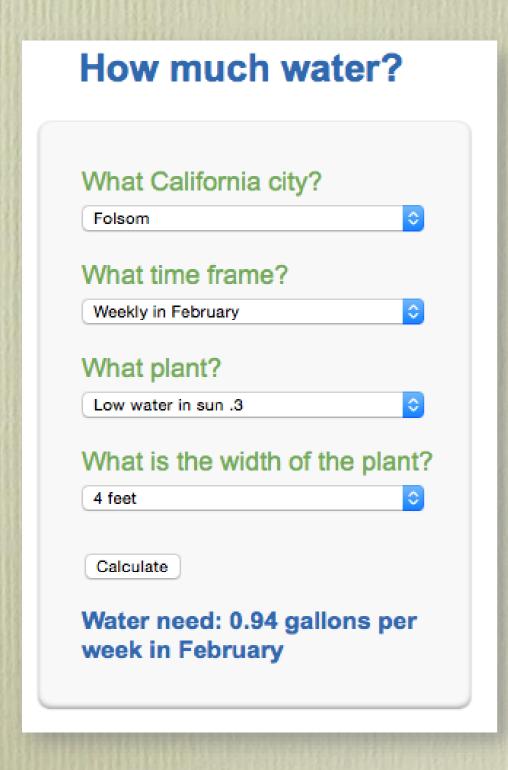
www.WaterWonk.us

Lori		Choose city > Plant search > My Plant List				Logout Mon		
Plant Search American Canyon, C	CA							
WUCOLS Region 1								
Choose new city	Botanical name begins with					Fin	d	
	Common name begins with					Fin	d	
	Plant	t Туре		Water use				
		Ba Bamboo	□ Pm Palm	□ Very Low				
		Bu Bulb	S Shrub	□ Low			_	
		G Grass	Su Succulent	■ Moderate		Fin	d	
		Gc Groundcover	☐ T Tree	☐ High				
		P Perennial	■ V Vine	Unknown				
	_			☐ Not appropring For this reg				
		California Native						
	Go	to WUCOLS list fo	r all 6 regions		All plants for this region Find			
New Search	೨ ₩ Califo	ornia Native				G	o to list	
Search Results 34 plants: Type-Grass Water use-Low	Туре	Botanical Na	me	Common Name	Water Use	Flickr Photos	Select for My List	
	G	Aristida purpu	rea 🐲	purple three-awn	Low	See it	Add	
	G	Arundinaria gi	gantea	cane reed	Low	See it		
TT MADE MODELLUTY								
	G	Bothriochloa b	parbinodis 🗫	cane bluestem	Low	See it		

Flickr Plant Search at WaterWonk.us



www.WaterWonk.us/how-much



How much water does a plant need:

- Any incorporated city in California
- Any time frame
- Any plant material
- Various sizes of plants and planted areas

BeWaterSmart.info

Garden Tours

Garden Gallery

Plants

My List

Resources

Watering Guide









Find Your Water Provider

Want to contact your water provider about great rebates and programs?



Water Saving Tips:

Water between sunset and sunrise when temperatures and wind are the lowest.









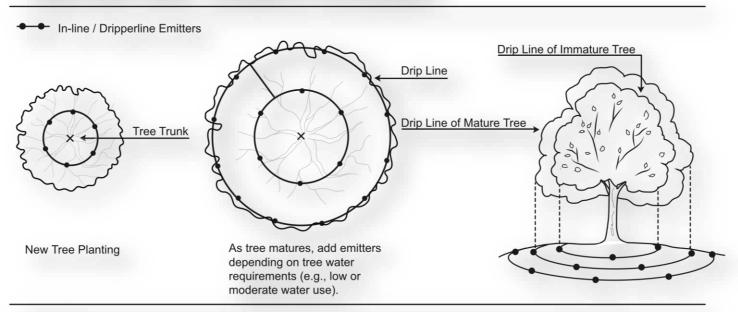




Establishing Plants for Drought Tolerance & Healthy Roots

- Newly installed plants
 - Must have water on root ball and native soil
 - Bridges existing & new soil interface
 - Encourages roots to extend into native soil
- As tree/plant matures & based on plant water needs
 - Extend intervals between watering to allow soil to dry down
 - Add, move, remove emitters

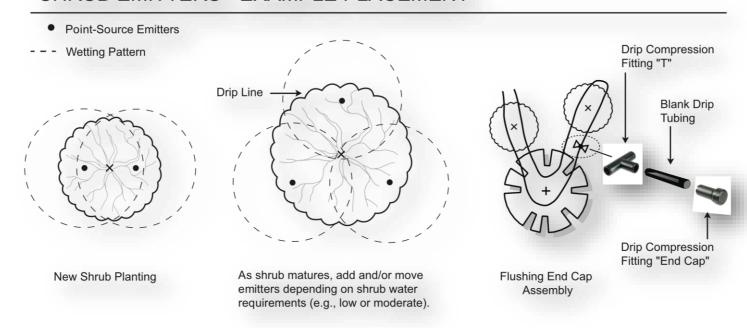
TREE EMITTERS - EXAMPLE PLACEMENT

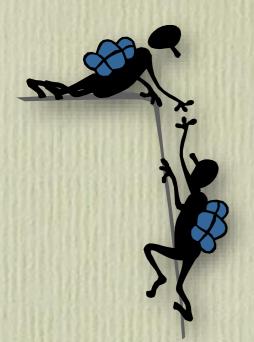


NOTE: - The spacing and number of emitters are examples.

 Specific spacing and number of emitters will depend on plant size at installation, plant water requirements, soil type, and emitter flow rate.

SHRUB EMITTERS - EXAMPLE PLACEMENT





Who can assist you?

Irrigation stores and manufacturers

- Irrigation Tutorials www.irrigationtutorials.com
- Green Acres Nursery & Supply www.idiggreenacres.com
- Sprinkler Service & Supply 5733 Manzanita Ave.,
 Carmichael
- The Urban Farmer Store www.UrbanFarmer.com
- Hunter Industries <u>www.HunterIndustries.com</u>
- Rain Bird Corporation <u>www.RainBird.com</u>
- Commercial houses (Ewing, John Deere, Horizon, etc.)



Who can assist you?

- EcoLandscapers & Green Gardeners www.ecolandscape.org
- Landscape Designers www.apldca.org
- CLCA Water Managers www.CLCA.org
- Master Gardeners
 http://camastergardeners.ucanr.edu
- CA Turf Replacement Rebates www.saveourwaterrebates.com
- Your water provider!

Free Resources

EcoLandscape.org



FREE WORKSHOPS TO HELP

CONSERVE WATER REGISTER NOW ...

Use less water by adjusting your controller for weather at least monthly. Use this irrigation scheduler on your computer, tablet, or smart phone to calculate run-times based on current weather in your area.



How Tos and Workshop Handouts Downloadable pdfs













Learn how to maintain and fortify your existing landscape while reducing the amount of water usage. Create a more drought-tolerant landscape for today and beyond the drought.

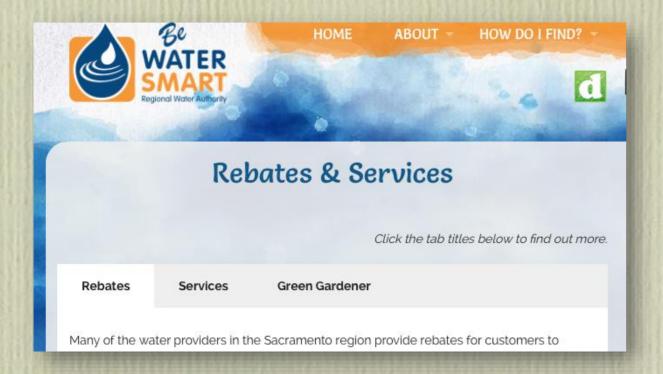


Renovate your landscape for water efficiency.

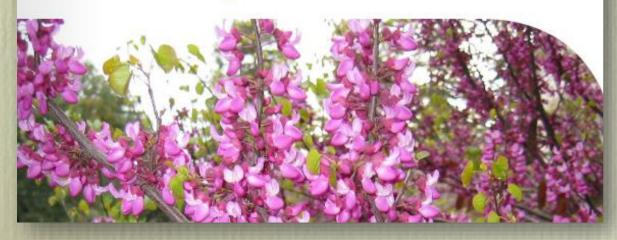
Learn strategies to help you create a georgeous, water-efficient landscape for today and beyond the drought.

BeyondTheDrought.com

BeWaterSmart.info



A Homeowner's Guide to a WaterSmart Landscape



Roseville.ca.us/gardentour Elkgrovegreenergardens.org









Saturday, May 14, 9AM - 3PM | \$5 per family 1501 Pleasant Grove Blvd. in Mahany Park

WATER-EFFICIENT GARDENS | ASK THE EXPERTS
HANDS-ON DEMONSTRATIONS | WORKSHOPS
IRRIGATION EFFICIENCY | ECO-FRIENDLY PRODUCTS

For more information or to register visit roseville.ca.us/gardentour or call 916-746-1550.



Sacramento Region Smart Irrigation Scheduler





www.beyondthedrought.com

Next...

Outside demonstrations

• Q & A

