

Right Plant, Right Place, Right Care A Watershed Approach to Softscape



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Navigation

Utility Service

Wastewater/ Sewe

Utility Maintenance

later Conservation

Report a Water Leak or Sewer Spil

Water

Engineering and Admir

- The Watershed Approach to Landscapes
 - Urban Impacts
 - Create & Maintain Healthy, Living Soil
 - Capture & Use Rainwater as a Resource
 - Use Climate-Appropriate Plants
 - Use Highly-Efficient Irrigation
- Plant Right & Landscape Care
- Resources

Presentation available at waterconservation@folsom.ca.us

free water use survey.

water use occurs outdoor

What is a Water-Wise House Call or Water Survey?

CITY OF

Environmental & Water Resources » Water » Water Conservation Workshop

m

Water Conservation Services

Sign up for Your FREE Water Wise House Call Today

up. Call the Water Management Program at 916-461-6174 or send an e-mail to waterconser

City of Folsom water customers may receive a free evaluation of indoor and outdoor water use, in

It is a free service provided by the Water Management Program for all Folsom water customers. C water usage and make recommendations on how you can use water more efficiently. Typically, up

EXPLORE

rch the City



Watershed Approach to Landscaping

- Create & Maintain Healthy, Living Soil
- Capture & Use Rainwater as a Resource
- Use Climate-Appropriate Plants
- Use Highly Efficient Irrigation, when irrigation is needed



Bringing Back the Natives Garden Tour 2018



River-friendly Landscapes & Watersheds

What is a Watershed?

• Area of land where all water under it or on it drains into a water body



Water flows from one to another until ultimately flowing into the ocean or inland body of water disconnected from the ocean (e.g., lakes)

Laguna Creek Watershed Photo Barbara Washburn



Urban Impacts on Watersheds

DEVELOPED LANDS

Rain pours more quickly off of city and suburban landscapes, which have high levels of impervious cover

NATURAL LANDS

Trees, brush, and soil help soak up rain and slow runoff in undeveloped landscapes



Courtesy California Water & Land Use Partnership (CA WALUP) & Office of Environmental Health Hazard Assessment (OEHHA)



Watershed Waste vs. Abundance





Dehydrated site - Rain & runoff drains away from property & into storm drains

- Runoff contaminated with
 fertilizers, pesticides, pollutants
- Flows untreated into waterways
- Leaf drop & mulch flows away depleting soil fertility
 Hydrated site - Rain water is

captured or soaks into soil

- Soil helps to cleanse pollutants
- Every home & landscape is a "mini" watershed



CREATE & MAINTAIN HEALTHY, LIVING SOIL



Healthy, fully functioning soil is balanced to provide an environment that sustains & nourishes plants, soil microbes, & beneficial insects

-- U.S. Department of Agriculture



Healthy Soil = Healthy Plants

Healthy Soil

- Has more organic matter (O.M.) & soil organisms that improve aeration, water retention, drainage, & nutrient availability to plants
 - O.M. = Organic component of soil composed decomposing plant material & living organisms
- With more O.M., can store (sequester) atmospheric carbon (e.g., carbon dioxide)
- Increases resilience to climate changes & drought Healthy plants
- Look better, tolerate stress better, have fewer pest problems



What Soil Organisms Do to Improve Soil for Plants?

- Break down raw plant material, releasing nutrients back into the soil
- Improve soil by building "humus" (fully decomposed organic matter)
- Break down minerals & release nutrients (microorganisms chemically dissolve rock in soil to release nutrients)





What NOT To Do for Healthy Soil

DO NOT

- Do Not remove organic matter, leave grass clippings & leaves
- Do Not apply salt-based, synthetic fertilizers
- Do Not apply pesticides
- Do Not cultivate or till

WHY

- Kills or damages beneficial soil organisms & biological network
- Compacts soil, reduces space for air (oxygen) & water & its movement



Know Your Soil Type

- A mix of sand, silt, & clay
- How to determine?
 - Soil probe
 - Jar test
 - Soil analysis by a lab









Soil Texture Combinations



If your jar test is **20% clay, 40% Silt, 40% sand = Loam**, you have the perfect combination.



Soil Texture

- Soil "texture" is how it feels & governs how water behaves in the soil
- Texture describes the balance of sand, silt, & clay
- Sand Sandy soil feels gritty & falls apart
- Silt Feels smooth
- Clay feels sticky
- Sand, silt, & clay describes the size of the mineral particle





CAPTURE & USE RAINWATER AS A RESOURCE

Shaping the Soil

Shallow depressions & contours that *slow, spread,* & sink rain from roofs, pavement, irrigation (overspray)

- Benefits:
 - Allows water to slowly soak into soil instead of running
 - off & into drainage system
 - Creates added interest by shaping the soil, rather than flat or sloped
 - Provides habitat for birds, butterflies, beneficial insects





Shaping the Soil Creek Beds

- Rainwater retention areas created with shallow depressions & swales
- Use plants that can tolerate both increased moisture & dry conditions
- May need to include drip irrigation
- Remove leaf build up





Movement of Water & Drainage

- How & where does rain move onto & across your site
- Where does it stay, where does it leave
- Dig hole, fill with water, how fast or slow does water soak into soil
- Identify potential areas for contouring soil, creating a rain garden, etc.

Diagram courtesy of MWDOC, The Drought Tolerant Garden: Los Angeles County Handbook, 2012





What is a Rain Garden?

- A landscaped area that collects, absorbs, & filters stormwater runoff
- Collects runoff from roof tops, driveways, patios, & other hard impermeable surfaces
- Sized to allow temporary ponding after rain events, not permanent ponds
- Plant roots & soil organisms create channels & pores to soak up & filter water, improve nutrient & oxygen availability
- Plants help ran garden absorb stormwater & create an attractive & functional landscape



Anatomy of a Rain Garden



Graphic Courtesy Washington State University, "Rain Garden Handbook for Western Washington Homeowners"



Shaping the Soil Rain Gardens

- Properly designed & constructed, rain gardens drain rapidly
- Water present for only 1 to 3 days
- Water is not "standing" (no mosquitoes)



Soleil Tranquilli Tranquill Gardens



1" of rain from a 1,000 sq. ft. roof yields 623 gallons of fresh water Source: U.S. Geological Survey



Where NOT to Locate Rain Gardens

- Within 10' from foundation of home, buildings
- Over utilities (Before you dig, call USA at 811)
- Near edge of steep slopes
- Near septic tanks, leach fields, & reserve fields
- Low spots that do not drain well
- Areas that disturb healthy, native soils, trees, & vegetation
- Where there is high groundwater during the winter
- Near wells used for drinking water



Use variety of small trees, shrubs, groundcovers & grasses

Planting Rain Gardens



When selecting plants, consider

- Full sun, part shade
- High, moderate, low water-use plants

Courtesy Snohomish Conservation District



Watering Rain Gardens

- Year 1
 - During planting water plants & first week after installation, water every day or every other day
 - After second week & until rains begin water 2 to 3 times per week
- Year 2
 - Water deeply every 1 to 3 weeks, depending on plant needs & site conditions
- Year 3 & beyond
 - With proper plant selection, minimal or no water should be needed – except during prolonged periods of drought



Rain Garden Care

- Keep the Water Flowing
 - Check inflow & overflow
 - Maintain rock/cobble pad to break up force of incoming water
 - If flow is too great, add areas of cobble or check dams to slow the flow
 - Check for areas where water may not be soaking into soil
 - Remove debris & sediment that can interfere with flow
 - If compacted, loosen soil when not saturated
- Take photos as rain garden matures to document its evolution



Capture & Use Rainwater as a Resource

Swales, Contours, & Berms Garden on Eden Makeover



Before: With lawn, used over 110,000 gallons of water per year

3,683 Sq. Ft.



Swales, Contours, & Berms





Swales, Contours, & Berms



After: Uses less than 25,000 gallons of water per year



Slopes & Terraces



- Use low water-use groundcovers on inaccessible slopes
- Create accessible, planting areas



Decomposed Granite (D.G.) path







Concrete cells & turf



Increase Permeable Areas

Workshop: August 28 – Watershed Approach

to Hardscape

Concrete pavers & gravel

Steps of natural stone, gravel path



USE CLIMATE-APPROPRIATE PLANTS

Plants & the Watershed



- Support springs & creeks, & help recharge groundwater
- Anchor & shelter soil, reducing erosion, controlling dust
- Create beneficial microclimates to support soil organisms & other life



Plants & the Watershed

Trees

- Cool, provide shade, deflect or direct wind
- Help improve water quality by filtering out impurities
- Plant-based web of life matures, continues to be productive and diverse ~~ "regenerative"



Protect existing trees & roots during construction



Plants & the Watershed

- Deeper root systems (than turf) and networks of fine roots help to stabilize soils
- Groundcovers & native grasses effectively reduce runoff & require little to no fertilizer, reducing polluted runoff into waterways
- Trees & shrubs can be more effective than turfgrass at reducing temperature, controlling erosion, & trapping pollutants from stormwater

Source: U.S. Environmental Protection Agency



Plants Select Plants Based on...

- Climate & conditions
 - Sacramento region & Central Valley
 - Sunset Zones 7, 8, 9, 14
 - Sun/shade
 - Wind
 - Microclimates
- Natural settings & local plant communities







Plants Select Plants Based on...

Eschscholzia californica Californica Poppy



- Individual plant's water & sun requirements
- Soil type/texture (mixture of sand, silt, & clay)
- Life cycle



Chaste Tree *Vitex agnus-castus*



Low-Water Use & Drought-Tolerant – *Not Equal*

Drought Tolerant - **Once established** = Plants can survive (not necessarily thrive) on:

- Seasonal rainfall
- Infrequent watering, or
- Repeated periods of dry conditions & recover from repeated wilting

Low Water-Use Plants:

- A constant classification
- Plants that always require less water than other classifications
- Less water to supplement rain





Defining "Established"

General Rules of Thumb

- Two to three times size when planted
- In ground for 1 to 1-1/2 years
- Trees Can take 3 to 5 years or more
- Note: ALL plants need consistent levels of soil moisture (water) until established
 - Even plants that can survive only on seasonal moisture once mature

Prunus caroliniana 'Bright 'n Tight' Bright 'N Tight Carolina Laurel







Selecting Plants

- Use diverse plant palette
 - California natives, &
 - Plants adapted to <u>local</u> climate & conditions
- Provide year-round food source, shelter, water
- Reduce/eliminate use of pesticides
- Conserve or restore natural areas & wildlife corridors




Selecting Plants California Natives



Philadelphus lewisii Lewis Mock Orange

Why use native plants?

- Preserve & support habitat
- In harmony with natural plant communities
- Increase plant population unique to location
- Lower maintenance
 - When correctly designed & installed
 - Can require 60% to 90% less water
- Year-round interest
 - Use 60-70% evergreen plants



Selecting Plants California Natives



Bringing Back the Natives Garden Tour 2018 Misconceptions about native plants

- Look dead/or dormant much of the year
- Fire prone
- Difficult to grow & maintain
- Native gardens have one "style", messy, unkept
- All natives are "low water-use plants" – Not So

Embrace a New Aesthetic



Select & Use "Fire-Safer" Plants



For specific guidelines & regulations

- Refer to ReadyforWildfire.org, California
 Department of Forestry & Fire Protection
- Your county, local agencies, & organizations



Invasive Plants

- Out-compete "good plants" for moisture, nutrients, light
- Vigorous, displace native plants, clog waterways, invade wildland areas, increase wildfire danger
- Can bring in pests ~ natural enemies (predators) may not exist here

Take action:

• Learn to identify invasive plants

– cal-ipc.org & plantright.org

- Do not select, purchase, or plant
- Remove & replace with appropriate plants



Fire-Resistant Plant Selection

- Avoid plants that contain oils, resins, and waxes
 - Burn with great intensity
 - Examples: Junipers, Eucalyptus
- Select plants with high moisture content, low growing, stems & leaves are not oily or waxy
 - Deciduous trees (generally) have higher moisture content when in leaf, lower fuel volume when dormant (leaf drop)
- "Lean, clean, & green"
 - No plant is "fire proof", but fire resistant when...
 - Properly watered, hydrated tissues
 - No dead wood or dry plant material
 - Spaced properly



Invasive Plants



YES, PLANT Purple Three-awn Aristida purpurea Photo: Calscape.org



DO NOT PLANT Mexican Feather Grass *Stipa tenuissima*

> YES, PLANT Blonde Ambition Blue Grama Grass Bouteloua gracilis 'Blonde Ambition'





Invasive Plants



DO NOT PLANT Scotch Broom *Cytisus scoparius*

> YES, PLANT Forsythia Forsythia x intermedia 'Spring Glory'



YES, PLANT Golden Current *Ribes aureum* Photo: PlantMaster

Photo: Monrovia



Plant Color & Characteristics













Creating Year-Round Color with Plants



Arctostaphylos (Manzanita)



Cercis (Redbud)



Rosmarinus (Rosemary)

Muhlenbergia (Muhly)



Grevillea





Plant Color & Characteristics

- Bark & Leaf Texture
 - Course, fine, rough, smooth, thick, thin
- Height, width, canopy
- Deciduous, evergreen
- Flower & fruit color
- Scent
 - Sweet, odiferous

Cercis occidentalis Western Redbud





Invigorate Your Landscape with COLOR



Purpureus Smoke Tree *Cotinus coggygria* 'Purpureus'



Cercocarpus betuloides Mountain Mahogany



Cistus x pulverulentus 'Sunset' Magenta Rock Rose, Sunset Rockrose



Plant Characteristics & Color



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Water-use Classifications



High Moderate Low Very Low None

Note: Once Established





Water-Use Classifications

- Low Plants adapted to Mediterranean-type climates & area-specific CA natives ~ they rest during warm, dry summer months & grow during the cool, moist winter months
 - Periodically require additional summer water
 - May or may not be drought tolerant
- Very low Some California natives
 - Rely on seasonal rainfall
 - No additional summer water (except prolonged periods of winter drought)



Heteromeles arbutifolia, Toyon



Water-Use Classifications

- High Plants prefer consistent soil moisture throughout the year, even once established
 - Examples include: Lawns (Turf) (Green Sponges), water-loving plants (Hydrangeas), container plants
- Moderate Supplemental irrigation required depending on season, location, rainfall, & adaptability of plant





Sun (Solar Exposure)

- Determine direction site faces Orientation
- North-facing (receives the least sunlight), South (receives the most sun), East (afternoon shade), West (morning shade)
- Timing Morning sun, afternoon, all day
- Length of time exposed to sun
- Obstructions Houses, trees, etc., block sun
- Intense heat next to street, reflective heat from walls
- Season Angle of sun changes



Low Water – Full Sun



Arbutus 'Marina' Marina Madrone Up to 30' Tall / 30' Wide Tree



- Direct sun all day
- 10 hours or more
- Tough conditions



Low Water - Full Sun



Lavandula stoechas 'Otto Quast' Spanish Lavender 4' or less / Small shrub = Size according to UC Arboretum "All Stars" list



L. x *ginginsii* 'Goodwin Creek Grey' Goodwin Creek Lavender 2-1/2' T / 3-4' Wide Shrub



Low Water - Full Sun



Phlomis fruticosa Jerusalem Sage 4' Tall / 4' Wide or more Shrub



Leucophyllum frutescens Cenizo or Texas Ranger 6-8' Tall / 6-8' Wide Shrub



Low Water – Full Sun



Grevillea 'Noellii' Noell's Grevillea 4' Tall / 4'-5' Wide Shrub



Muhlenbergia capillaris 'Regal Mist' Regal Mist Pink Muhly 2-3' Tall / 3-4' Wide Perennial



- Tolerate full sun & some afternoon shade
- 5 10 hours of direct sun



Hesperaloe parviflora Coral Yucca 3-4' T / 3-4' Wide Shrub



Rosmarinus officinalis 'Mozart' Ed Carmen's Rosemary 3' Tall / 6' Wide Shrub





Cercis occidentalis Western Redbud 10-18' Tall / 10-18' Wide Tree/Shrub

Fall Seed Pods Persist through Winter





Callistemon 'Violaceus' Purple Bottlebrush 6' Tall / 4' Wide Shrub



Arbutus unedo 'Compacta' Dwarf Strawberry Tree 6-8' Tall / 6-8' Wide Tree/Shrub





Salvia spathacea Hummingbird Sage 1-2' Tall / 4'-5' Wide Perennial



Teucrium fruticans Bush Germander 6-8' Tall / 12' Wide Shrub





Kniphofia 'Christmas Cheer' Christmas Cheer Poker Plant 3'-5' Tall / 3-5' Wide Perennial



Bouteloua gracilis Blue Grama Grass 1-3' Tall / 1-3' Wide Perennial



Low Water – Part Shade

- Less than 5 hours of direct sun (mornings)
- Shade for half of day (afternoons)

Carpenteria californica 'Elizabeth' Bush Anemone 4'-6' Tall / 4-6' Wide Shrub





Low Water - Part to Full Shade



Daphne odora 'Aureo-marginata' Variegated Winter Daphne 4-6' Tall / 4-6' Wide Shrub



Ribies malvaceum Chaparral Currant 2-3' Tall / 3-4' Wide Shrub Groundcover



Low Water - Shade



Helleborus argutifolius Corsican Hellebore 2-3' Tall / 2-3' Wide Perennial



Heuchera 'Lillian's Pink' Lillian's Pink Coral Bells 1-1/2' Tall / 1' Wide Perennial



Moderate Water - Full Sun



Coleonema pulchellum 'Sunset Gold' Sunset Gold Breath of Heaven 2-3' Tall / 4-6' Wide Shrub



Crataegus phaenopyrum Washington Hawthorn 20' Tall / 20' Wide Tree



Moderate Water – Full Sun to Part Shade



Garrya elliptica 'James Roof' Jams Roof Coast Silk Tassel 8-12' Tall / 8-12' Wide





Moderate Water – Full Sun to Part Shade



Hardenbergia violacea Lilac Vine, Coral Pea 12'-16' Long Vine Photo: San Marcos Growers



Miscanthus sinensis Japanese Silver Grass Dwarfs 3-5' Tall / 4'-8' Wide Perennial



High Water-Use Turf (Lawn)



- Turfgrass is a "plant" too
- Purpose/function Play area,
 pets, sports activities
- Reasonable size based on function





Lawn- vs. Plant-based Landscapes

Lawn-based require

- Weekly care Water, fertilize, mow, & repeat
- Increased labor
- Increased use of fertilizers, chemicals
- Increased potential for pollution of air & water

Plant-based require

- Seasonal care approach
- Reduced noise
- New knowledge
- Groundcovers & native grasses reduce runoff & require little to no fertilizes
- Trees & shrubs reduce temperature, controls erosion, & cleanse air Source: U.S. EPA



Reduce Size of Lawn Kathleen Olson – Before



Kathleen Olson Kathleen's Garden Landscape Design

- Objectives: Reduce massive lawn, add color, & deer resistant plants
- Lawn sloped to the street, irrigation runoff
- Challenge to remove lawn under large, well established Magnolia grandiflora
- Compacted clay soil



Blend of Lawn- & Plant-based Landscape



Kathleen Olson – After

- Moss rock used for terraced planting areas, leveled area for turf
- Drip irrigation for planting areas
- Took care not to damage roots of trees, hand digging to remove lawn under *Magnolia*, & spray irrigation left in place



Kathleen Olson – After

- Some of the Plants
 - Leafy Reed Grass,
 Calamagrostis foliosa
 - Catmint, Nepeta
 - Purple Cedros Island Verbena,
 Verbena lilacina 'De La Mina"
 - Moonshine Yarrow, Achillea
 'Mooshine'
 - Flax, *Phormium*; Lavender,
 Lavandula; *Penstemon*; Star
 Jasmine, *Trachelospermum*



Nepeta x faassennii 'Walker's Low Walker's Low Catmint


Alternatives to Traditional Turf

UC Verde Buffalograss®

- Uses about 75% less water
- Once established, water once per week
- Maximum height of 4-6" fine blades
- Can leave longer
- Drought tolerant, durable
- Dense, mature habit helps to reduce weed growth
- Full sun
- Nearly pollen free

For more information, visit UC IPM, The UC Guide to Healthy Lawns, ipm.ucanr.edu/TOOLS/TURF/index. Html

BeWaterSmart.info, & Florasource





UC Verde Buffalograss



Photo: Florasource



Turf Alternatives

Delta Bluegrass 90/10 Tall Fescue

- Moderate water, full sun to partial shade
- Good wear recovery, stays green year round
- Drought tolerant, deep roots
- Improved disease resistance
- Mowing height 1-1/2 to 2", better at 3"
- Water needs can depend upon tolerance for varying shades of green



Turf Alternative

Delta Bluegrass 90/10 Tall fescue Festuca arundinacea, Poa pratensis, Blend



Photo: Delta Bluegrass



Turf Alternatives

- Lower water use (50% less than traditional turf)
- Full sun, partial shade tolerance
- Clumpy not for sports activities CA native (also non-native)
- Fine leaf blade for softer texture
- Can be maintained as turf lawn or left unmoved for meadow-like appearance
- Useful for erosion control on slopes



"No Mow" / "Mow Free" Festuca idahoensis, Festuca rubra, Festuca occidentalis, blend



Turf Alternatives

- Moderate water
- Full sun, part shade
- Low-tolerance for foot traffic
- CA native evergreen
- Spreads by underground stems
- Mow every 4-6 weeks encourages shoot growth



Carex praegracilis CA Field Sedge



Turf Substitute

- Low water, full sun evergreen
- Blooms light lavender-pink spring, summer, fall
- Dense, flat in full sun, taller & not as compact in part shade
- Spreads by runners need to contain
- Excellent erosion control & on slopes
- Attracts bees



Phyla (Lippia) nodiflora, Kurapia Photo Credit: Delta Bluegrass

Workshop: July 31 - Life Beyond the Lawn



Turfgrass Substitute



Phyla nodiflora, Kurapia, used as front yard lawn substitute Roxy Designs



Turfgrass Substitute

- Low water, evergreen, full sun
- White blooms, summer
- Cut back rather than shearing, good for slopes



Myoporum parvifolium, Creeping Myoporum Jacky Surber, Urbafloria



Turf Substitutes

- Dymondia, *Dymondia margaretae*
- Low water full sun, part shade
- Evergreen
- Yellow blooms in summer
- Spreads by underground stems
- Other than weeding maintenance free
- Tolerates light foot traffic



Dymondia *Dymondia margaretae*



Lawn Alternatives & Substitutes

HOW DO I FIND?

State Turf Replacement

Rebate Program

Lawn Options

HOME

Sac Region Smart

Irrigation Scheduler

Tired of Your Thirsty Turfgrass?

ATER

aional Water Authori

Outdoor water use in the Sacramento region accounts for more than half of a household's total water use, which can be 250 gallons per day in the summer. About 30 percent of outdoor water use is wasted from evaporation and overwatering. Watering in the early morning hours and installing WaterSense-labeled irrigation timers can reduce this water waste.



Another option is to replace traditional cool season turfgrass with lower-water use plant options like turfgrass alternatives and turfgrass substitutes/ground cover plants. These plants are more suited to the Sacramento region's Mediterranean climate.

Turfgrass alternatives are low-water use grasses that have the look and feel of turf grass but require half the water to thrive.

Turfgrass substitutes are lawn-like small plants that grow together to cover an area and have the same lush green appearance of traditional turf grass with less maintenance (limited mowing needed!).

Find Your Water Provider Not sure which district is your water provider?

0

31

Search.



Learn more about California's Dry Conditions at saveourh20.org



Announcements

2019 Water Spots Video Contest Winners Announced

https://bewatersmart.info/lawn-options/



Spacing & Placing Plants

- Consider mature height & width
- Give plants room to grow
- Allow time for plants to get established
- Performance based on length of growing season, timing & amount of rainfall, winter lows, summer highs, wind, & humidity





Loropetalum, Fringe Flower











Before









Young to Mature





Going Against Nature

This Results in This







Natural Shape & *Beautiful!*





Unnatural Shapes



Photo: Darleen Halsted, DHLandscape



Pruning Ornamental Grasses

February 2017 Warm-season grass, preparing for spring growth

Correct Pruning

Incorrect Pruning







Pruning Ornamental Grasses

May 2017

Correct Pruning



Incorrect Pruning







pge.com

Placing Trees

- When placing, look up, look down, & look out
- Deciduous trees on west & southwest side of house
- Consider solar panels, height & shade from tree
- Consider distance from structures, underground, & overhead utilities
- DO NOT top trees



Root Depth / Zone

- Grasses typically 6 to 8 inches
- Woody shrubs & trees
 - Absorbing roots collect water & nutrients
 - 90% of roots in top 3 ft. of soil
 - Up to 70% in top 1 ft.
 - Most within top 18 24" of soil
 - Extend 1-1/2 to 3 times radius of canopy away from trunk
 - Heart or structural roots provide stability



Highly-efficient Irrigation

- Use rotary- & precision-type nozzles in sprinklers (overhead spray)
 - Do not use sprinklers in narrow areas
 - Create planted "buffer zone" between lawn & impermeable materials
- Irrigating CA native plants
 - Consider rotatory nozzles on tall popups to mimic rain, a <u>brief</u> shower
 - Keep in mind mulch absorbs water
- General rule of thumb:
 "Drip the plants & spray the lawn"







Check Soil Moisture



- Press probe into soil, twist probe, pull out of soil
- Feel soil in your hand to determine its moisture level
- Does water ooze out when squeezed?
- Dry soil on top / wet soil below = No additional water required
- Dry soil on top / dry soil below = Irrigation is needed
- Wet soil below the root zone = No additional water
- Depending on how fast water soaks into soil, shorten length of time an irrigation cycle runs or add more time between cycles – Cycle & Soak





Highly-efficient Irrigation

HYDROZONE TRIANGLE

Hydrozone means the grouping of plants by their water requirements for efficient irrigation and plant health.







Highly-efficient Irrigation

- Separate valves (when possible) for
 - Trees
 - Lawn
 - Edibles, fruit trees, etc.
 - Potted plants
 - When keeping mature plants
 - Plants that rely on seasonal rainfall & little, if any, supplemental water (once established)



Correct Hydrozoning



Mixed Water-use Zones

- Do not mix plants with different water-use categories in same zone / same valve
- Wastes water, requires increased care, & results in plant death



Incorrect Hydrozoning

Hydrozone plan Courtesy of Lori Palmquist, puddlestompers.com



Planting Trees

- Fall = Perfect time!
- Before you dig, call U.S.A. 811
- Hole no deeper than root ball & twice as wide
- Fill hole with water
- Score sides of hole_
- Check plant roots
 & loosen
- Root ball placed on undisturbed soil



Remove nursery stakes, burlap, and ties at time of planting.

Do not stake tree if tree can support itself. If it cannot (leans), then stake.

Two, 2" untreated lodgepole stakes to be used. Each stake to be placed 18" from the trunk.

Opposing flexible tree ties (one tie per stake). Secure ties to stakes. Ties to allow approximately 1.5" movement of trunk in any direction.

Cut stakes 2" above ties.

Check the ties monthly. Remove stakes and ties as soon as the tree is able to stand upright on its own, which is usually within 6 months to a year.

All side and lower branches to remain during establishment of tree.

Top of root ball is to be approximately 1.5"-2" above ground level. There should be no soil mounded on top of the root ball.

Cover soil surface around tree with a 3"-4" layer of mulch. Keep mulch 6" away from trunk of tree.

For trees in turf areas, provide a minimum 3' diameter area free of turf.

Firmly, but gently, pack soil around root ball and "water in" while soil is being added.

Hole size: 3 times wider than root ball. Fill with native soil. Add handful of worm castings. Fertilizer and ammendment to be added only as specified per soil analysis.

Loosen and extend side and bottom roots from root ball. Cut roots circulating the root ball.

Place root ball on pedestal of undisturbed native soil.

- EcoLandscape California



Planting Trees

Visit: Sactree.org

- Break up soil removed from hole
- Add compost (max. 1" in bottom of hole) or handful of worm castings that slowly release nutrients
- Fill hole with original soil, water as you fill
- Gently press soil around roots
- Top of root ball slightly above grade & no soil on it
- WATER This is the ONE time when you almost cannot water enough!





Stake Trees ONLY IF Needed



Depends upon

- Trunk strength at time of planting
- Expected wind & site conditions
- Vehicular &/or pedestrian traffic
 - Staking is TEMPORARY until trunk taper & caliper and/or root systems develop enough to support the tree upright
- Routinely check ties to determine if they can be removed



Stake Trees ONLY IF Needed



- Remove nursery stake always!
- 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



Watering Young Trees Up to 5 Years After Planting

- Plant properly & allow time for plants to get established
- All newly planted trees require regular WATER
- Roots mostly near trunk
- Require a total of 10 to 15 gallons of water per week
- Check soil moisture before watering
- Slowly apply near base of tree 2 to 3 times per week
 - Bucket method can be used
- As tree grows expand area being watered away from trunk & throughout root zone
- As tree matures, increase length of time between thorough waterings based on water-use classification



Watering Mature Trees 5 Years & More After Planting

- Roots extend beyond canopy / edges of branches
- Check soil moisture before watering
- Slowly soak area of root zone to depth of 12" to 18"
 - No need to water near trunk
 - If sprinklers are used, keep water away from trunk/bark
 - Bucket method can be used
- Understand cultural needs of each species (moderate-, low-water use; full-, part-sun, etc.)
- Existing native, mature trees May not need supplemental water; consult certified Arborist



Tree Care as They Mature

Prune trees properly for Longevity, Safety, & Beauty

- Remove dying, diseased, or injured wood; crossing or crowded branches
 - Broken, dead, or pest infested branches can be removed any time of year
- Do not remove more than ¼ (25%) of foliage within one growing season; leave cuttings on ground for reevaluation of amount being removed
- Prune after leaf fall and during winter or dormant months
- Prune young trees for structure & form during first 3 to 5 years
- Visit treesaregood.org, sactree.com, or cagardenweb.ucdavis.edu



Highly-efficient Irrigation

- Use weather-based irrigation controller with moisture or rain sensor shutoff
- Effective irrigation strategies deliver water in a widespread, uniform manner
 - Grid pattern using dripline tubing with built-in emitters



Design-Build Contractor Martin Carrion van Rinjn Landscape Symphonies



Highly-efficient Irrigation

- Flowing, organic patterns
- Site-specific challenges








Establishing Plants for Drought Resilience & Healthy Roots

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



Emitter Placement

- Emitters not in contact with trunk/base of plant
- As plant matures, adjust placement
- Depending on species, add or remove emitters
- Replacing single plant, hand water
- Entire root zone receives water

TREE EMITTERS - EXAMPLE PLACEMENT



SHRUB EMITTERS - EXAMPLE PLACEMENT





What is MULCH & Why Use It?

- Any material spread evenly over the soil surface to <u>enhance the growth</u> of plants & appearance of the landscape
- Many benefits!









Mulch

- Mulch Porous materials on the soil surface
 - Compost
 - Wood chips
 - Straw
 - Grass clippings...
- Yes, gravel/rock can be mulch, but does not break down to build healthy soils

- Improves water infiltration
- Reduces moisture lost to evaporation
- Limits soil erosion
- Protects soil & roots from extreme temperatures
- Discourages competition from grass & weeds
- Reduces compaction
- Delineates planted areas
- Decomposes & releases nutrients into the soil



Green (Living) Mulch = Plants



- Groundcover layer = Cover crops (e.g., clovers)
- Living mulch prevents water runoff & soil erosion, improves soil fertility & quality, suppresses weeds, promote plant diversity
- Reduce energy use



Mulch Preparation & Application

MULCH DIAGRAM



Use soil excavated from hardscape edges to form mounds & contours

Diagram: Landscape Liaisons & EcoLandscape California



Applying Mulch

- Remove weeds and irrigate area before applying mulch
- Cover all exposed soil surfaces with a 3- to 4-inch layer of organic mulch once or twice a year, depending on the type of mulch used, rate of decomposition
- Spread mulch Leave open space around the crown of each plant to reduce the risk of damage from disease, insects, and rodents
- Keep away from bases of plants (trunks/stems)
- Do not use weed cloth Can increase water runoff, prevents many of the benefits of mulch
- Leave area of soil exposed for ground-nesting bees



Landscape Care Let Nature Take Its Course

- A well-designed & properly installed landscape requires less maintenance
- Healthy soil & plants, balanced have fewer pests or diseases
- Plant selection, style of landscape, & preference for neat & tidy or more relaxed determines amount of work required



Marilee Kuhlmann Urban Water Group



Plant Care

- Type of care based upon:
 - Type of plant
 - Trees & woody shrubs, perennials, ornamental grasses, etc.
 - Growth habit, natural form
- Amount of care depends upon:
 - Specific species
 - Level of involvement ~ Desire to garden
- Refer to handout: Seasonal Landscape Care Notes



Caring for Plants by Season Spring

- Test, repair irrigation system
- Call for a Water-wise Housecall
- Identify & remove weeds
- Apply compost (one time per year, see fall care notes)
- Add mulch to maintain 3-4" layer, not in contact with the bases of plants
- Monitor & manage pests & diseases





Caring for Plants by Season Summer

- Visually inspect irrigation system, check for leaks, make repairs
- Check soil moisture, give trees a slow, deep soaking
- Add, move, remove emitters
- Identify & remove weeds
- Remove/deadhead spent blooms to encourage repeat bloom; prune native plants late summer, if needed
- Monitor & manage pests & diseases
- Maintain 3-4" layer of mulch, not in contact with bases of plants



Caring for Plants by Season Fall

- Fall Best time to plant!
- Remove dead, broken, or crossed limbs
 - When in doubt, do not cut
 - Hire a certified Arborist
- Pinch perennials to increase fullness, deadhead spent flowers
- Care for plants per specific needs of species





Caring for Plants by Season Fall

- Apply thin layer of compost under mulch, around plants
- Redistribute, add mulch, not in contact with base of plants
- Once rains begin, monitor weather
- Pull weeds, leave or rake leaves, compost healthy, discard diseased
- Remove debris from dry river beds & rain garden inflow & overflow





Caring for Plants by Season Winter

- Identify & remove weeds
- Irrigation OFF, hand water if needed
- Prune winter-deciduous perennials, shrubs, small trees only to enhance form & structure
- Prune warm-season grasses
- Remove dead parts of perennials
- Continue leaf clean-up
- Protect frost-sensitive plants from damage





Watershed-friendly Landscape Soleil Tranquilli - Before



Soleil Tranquilli Tranquill Gardens APLD Member





Soleil Tranquilli - After



January 2016

Rain Garden



March 2016





Soleil Tranquilli - After

- Planting theme Sages & other pollinator favorites
- Swaths of plants provide visual impact & a welcome mat for pollinators
- Small trees & larger shrubs create multiple perches & cover for birds...

56% California native plants



Chilopsis linearis 'Bubba' Desert Willow

Hibiscus laziocarpus Harry-fruited Hibiscus (Rose Mallow)



Soleil Tranquilli - After

This landscape has it all!

- Pollinator friendly
- Wildlife habitat
- Principles of Watershed Approach to Landscaping
 - Creates & maintains Healthy, Living Soil
 - Captures & uses rainwater as a resource
 - Uses climate-appropriate plants
 - Uses highly efficient irrigation, when needed





Resources roseville.ca.us/plantlist

WaterSmart Plant List for the Sacramento Region, includes:

- Which plants tolerate recycled water •
- Which plants are fire-resistant •
- More California native plants •
- Just added, common names linked to online photos, stay tuned... Updated list to be available soon!

Very Low, Low, and Moderate Water-Use Perennials																	
Genus	Species	Variety / Cultivar / Hybrid	Common Name	Water Use	Plant Type	Exposure	Climate Zone	Mature Size Tall (T) / Wide (W)	Plant Coverage Value (Sg. Ft.)	Bloom Color / Season	ø	5	¥	*	Ą	ā	X
Perennials									(-4)				Use	s / Ber	efits		
Achillea	filipendulina		Fernleaf Yarrow	L	Evergreen to Semi- evergreen	FS	A1-A3, 1-24	4-5' T / 1-3' W	3	Yellow / Spring-Fall	Y		Y			Y	Y
Achillea		hybride	Varrow	1	Semi-evergreen	FS/PS	1 to 24	1-2' T / 1-3' W	3	White, Lavender, Salmon / Spring, Summer Fall	v		v			v	v
Achillea	millefolium	'Island Pink'	Island Pink Yarrow	L	Semi-evergreen	FS/PS	1 to 24	1-2' T / 1-3' W	3	Pink / Spring, Summer, Fall	Y	Y	Y	Y		Y	Y
Achillea	millefolium	'Moonshine'	Moonshine Yarrow	1	Semi-evergreen	ES/PS	1 to 24	2' T / 1-3' W	3	Yellow / Spring, Summer, Fall	Y		Y			Y	Y

Water Cmart Dlant List fay the Coorservante Dagle



Resources BeyondTheDrought.com









Plant Resources



CalScape.org

(2194)



(186)

(56)

(590)



Resource to Determine Water-use Classification

WUCOLS IV Water Use Classification of Landscape Species

Plant Search Database

	Perion	Central Valley			Start Over Q Search Agai	n 🔺 Export List *
	City	Roseville				
Search	Results:	1				
Туре	Photo	Botanical Name		Common Name	Water Use	Export
TA		Lagerstroemia spj	<u>a, hybrids and cvs.</u>	crape myrtle	Low	0
Ca	UCD alifornia Irban Ho	AVIS Center for orticulture	A CONTRACTOR OF		UCDA UNIVERSITY OF CAL	VIS IFORNIA







Resources

Find a Signer Full Address within 50 mi California Designer Name	Association Professio Landsca Designer	of Inal Ipe rs	
Full Address within 50 mi ↔ California ♦ Designer Name	D es	igne	er
California 🗘 Designer Name	Full Address	within 50 mi	Go
	California 🛟	Designer Name	

Our Newest Handbook

Download California Watershed Approach to Landscape Design, which was made possible through a collaboration with Green Gardens Group (G3), California Water Efficiency Partnership (CalWEP), and Surfrider Foundation.

California Watershed Approach Landscape Design

Association of Professional Landscape Designers California Chapter ~~ apldca.org



Our Decisions & Actions Make a Difference

 River-Friendly

 Location

 Location

<tr



Benefits Calculator at riverfriendly.org



Resources

Search the City..

|--|--|--|

CITY OF
FOLSOM
DISTINCTIVE BY NATURI



Call 916-461-6174 or e-mail waterconservation@ folsom.ca.us

Homepage » Environmental & Water Resources » Water » Water Conservation Workshops

Navigation

Engineering and Admin	•
Utility Service	•
Water	•
Wastewater/ Sewer	•
Utility Maintenance	•
Report a Water Leak or Sewer Spill	
Water Conservation	

Water Conservation Services

Sign up for Your FREE Water Wise House Call Today

City of Folsom water customers may receive a free evaluation of indoor and outdoor water use, incl up. Call the Water <u>Management Program</u> at 916-461-6174 or send an e-mail to waterconservation@ free water use survey.

2019 Water-Wise Landscaping Workshops

What is a Water-Wise House Call or Water Survey

It is a free service provided by the Water Manager water usage and make recommendations on how water use occurs outdoors.





Right Plant, Right Place, Right Care A Watershed Approach to Softscape

Thank you!

Cheryl Buckwalter Landscape Liaisons Iandscapeliaisons@gmail.com

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Presentation developed by Cheryl Buckwalter