Resources for Native Plant Enthusiasts
South Bay Area, California

BOOKS

California Native Plants for the Garden – Carol Bornstein, David Fross, Bart O'Brien
Plants and Landscapes for Summer-Dry Climates of the SF Bay Region - EBMUD
The California Landscape Garden – Francis & Reimann
Edible and Useful Plants of California – Charlotte Clarke
The Flavors of Home: A Guide to Wild Edible Plants … – Margit Roos-Collins
Flora of the Santa Cruz Mountains of California – John Hunter Thomas
Gaia's Garden – Toby Hemenway, John Todd
Gardening with a Wild Heart – Judith Larner Lowry
Growing California Native Plants – Marjorie Schmidt
The Habitat Garden Book – Nancy Bauer
The Jepson Manual: Higher Plants of California – James C. Hickman, ed.
Landscape Plants for Western Regions – Bob Perry (rare)
Manual of Pacific Coast Trees – McMinn & Maino
Oaks of California – Bruce M. Pavlik
The Wildlife Sanctuary Garden – Carol Buchanan
Common Butterflies of California – Bob Stewart

WEBSITES

www.landscapestandards.com (local professionals, vendors, photos and guidelines)
www.gardeningwithnatives.com (Gardening with Natives Santa Clara Valley)
www.nativeplantdesign.com (with example portfolio photos)
www.cnps-scv.org (Native California Plant Society Santa Clara Valley Chapter)
www.laspilitas.com (click on '1000 Native Plants')
www.calflora.org (Database and plant photos)

NURSERIES

Capitol Wholesale Nursery, San Jose (408) 239.0357
www.capitolwholesalenursery.com
Elkhorn Native Plant Nursery, Moss Landing & Soquel (831) 763.1207
www.elkhornnursery.com
Yerba Buena Nursery, Woodside (650) 851.1668
www.yerbabuenanursery.com
Native Revival Nursery, Aptos (831) 684.1811
www.nativerevival.com
Central Coast Wilds, Santa Cruz
www.centralcoastwilds.com

Stephanie Morris, Landscape Architect
(408) 206.5055 · StephLMorris@hotmail.com

Basic Elements of a Water-Efficient Garden

Stephanie Morris, Landscape Architect – www.NativePlantDesign.com

March 21, 2013

Basic Elements of a Water Wise Design - Ecological

- Hydrozoning
- CA native or low water use plants by community
- Space plants appropriately
- Efficient watering system
- Keep rainwater on site
- Use topdressing/mulch
- Reduce waste and maintenance

Basic Elements of Landscape Design – Aesthetic

- Architectural style/personal taste
- Focal point, accents
- Texture, contrast, form, repetition
- Foliage, bark, berries (not just flowers)
- Avoid too much complexity
- Incorporate seasonal change
- Attractive hardscape elements

Basic Elements of Landscape Design – Functional

- Circulation needs and materials
- Desired uses – both active/passive
- People AND wildlife (food, cover, water)
- Screen or frame views
- Utilitarian elements (tools, trash, compost)

Creating a Landscape Plan

- Define goals (functional, aesthetic ecological)
- Site analysis & base map
- Conceptual diagram
- Refine Design
- Installation
- Maintenance

PLANNING/PLANTING THE NATIVE PLANT GARDEN
Stephanie Morris

1. Review garden for:
    a. Sun/shade amounts
    b. Soil type(s)
    c. Watering system
    d. Wind, views, other factors
    e. Choose plant communities that reflect the onsite environment
    f. Incorporate personal tastes/functional needs
2. Soil Preparation
    a. Should be as minimal as possible
    b. Amend only in clay soil areas – 25% or less
    c. Use organic compost or planting mix w/compost
    d. Excess organic matter shortens the life of the plant by promoting excessive growth
3. Plant Selection
    a. Plant as small a container size as possible
    b. Smaller plant container size will surpass larger in growth
    c. Roots are less likely to be bound in can if plant is younger
    d. Easier to dig the hole if the plant is smaller
    e. Choose plants that are healthy, show signs of new growth, not root bound
4. When to Plant
    a. Fall is often the 'best' time
    b. Allows root growth to establish plant with fall/winter rains
    c. Strong roots help achieve drought tolerance
    d. Spring planting is also an option
    e. Easier to dig holes during the rainy season
    f. Often, planting season is determined by plant availability
    g. Avoid planting in June, July, August
5. Plant Spacing
    a. Make sure to research full size of plant at maturity – height and width
    b. Landscape will look bare at first
    c. Filling gaps with wildflowers is an option
    d. Wildflowers will often re-seed (this can be positive or negative)
6. Plant Pit Preparation
    a. Consider mounding or berming to enhance drainage
    b. Dig hole twice as wide and as deep as the container
    c. Leave jagged edges in hole so roots don't coil and bind plant
    d. Plant root ball slightly above soil level so crown of plant doesn't rot
    e. Basin at perimeter of each plant is not necessary
    f. Water entire eventual root zone area, not just at rootball
7. Fertilizer
    a. Generally not necessary; plants are used to un-amended soils
    b. Fertilizer can shorten the life span of a native plant
    c. Plants will draw what they need from the soil
    d. Use minimal amounts of compost when planting
    e. Feed the soil, not the plant

8. Topdressing/Mulch
    a. Extremely important
    b. Keeps down weeds
    c. Maintains soil moisture from extremes
    d. Holds water in the soil
    e. Apply after planting, then about once per year before spring weeds
    f. Pro-chip or tree-trimmers wood chips are ideal
9. Change in the Garden
    a. Expect the garden to change over time
    b. Natural processes such as seeding from birds
    c. Some species will be shaded out as trees grow
    d. Soil will become more workable and healthy
    e. Some species are short-lived
10. Irrigation Tactics
    a. Remember: A drought tolerant plant needs water to become established!
    b. Plants received regular water at the nursery
    c. Provide extra attention and water for the first two years minimum
    d. Irrigate beyond the rootball of the plant to encourage roots to spread
    e. Irrigate during the cool parts of the day
    f. Water deeply and infrequently
11. Hand watering
    a. Allows for close interaction/observation
    b. Monitor growth and flowering
    c. More time consuming
    d. Make at least two soaks/passes vs a quick spray
    e. No installation cost (save money and plastic)
    f. More exact and potentially very water-conserving
12. Drip Irrigation
    a. Keeps garden watered during vacationing/busy schedules
    b. Very time-efficient
    c. Relatively easy to install
    d. Install drip on soil surface, then cover with mulch
    e. Use ½" poly pipe for areas with broad plant spacing (8' and up)
    f. Use an inline drip for more uniform plantings and a better root network
13. Spray Irrigation
    a. Often a waste of water and can cause runoff
    b. Promotes more year-round weeds
    c. Very time efficient
    d. More labor to install
    e. Can cause leaf fungal issues on plants
    f. Appropriate only for grassland/meadow
    g. Can be retrofitted to drip system or more efficient nozzle if it is existing
14. Estimated Watering Schedule – Some general guidelines
    a. Natives from different plant communities require different amounts of water. For drought tolerant natives:
    b. Check once per week when establishing plants during rainy season
    c. If planted in fall…check once every 1- 2 weeks the next dry season
    d. The second dry season, check once every 2-3 weeks
    e. Use your hands to dig into the soil, or use a moisture meter
    f. Plant is considered 'established' after 2-3 seasons, or when it has grown 2 to 3 times its original size.



Design Elements of a Water-Efficient Garden

Stephanie Morris, Landscape Architect

A Talk in Four Parts

- What is Water Efficient Design?
- Basic elements of Landscape Design
- Creating a Landscape Plan
- Design Exercise!

Stephanie Morris, Landscape Architect

Typical Suburban Yard with Lawn

Stephanie Morris, Landscape Architect

Water Efficient Garden in Summer – 2 years later

Stephanie Morris, Landscape Architect

Landscape Design Goals

- Functional – practical uses of the landscape
- Aesthetic – beauty of design
- Ecological – connecting with nature

Stephanie Morris, Landscape Architect

Basic Elements of Water Wise Design

Ecological

- Hydrozoning
- CA native or low water use plants by community
- Space plants appropriately
- Efficient watering system
- Keep rainwater on site
- Use topdressing/mulch
- Reduce waste and maintenance

Stephanie Morris, Landscape Architect

Basic Elements of Landscape Design

Aesthetic

- Architectural style/personal taste
- Focal point, accents
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Stephanie Morris, Landscape Architect

Basic Elements of Landscape Design

Functional

- Circulation needs and materials
- Desired uses – both active/passive
- People AND wildlife (food, cover, water)
- Screen or frame views
- Utilitarian elements (tools, trash, compost)

Stephanie Morris, Landscape Architect

Part 1: What is a Water-Efficient Design?

Stephanie Morris, Landscape Architect

What makes a plant water efficient?

- Adapted to local conditions (summer dry, winter rain)
- Extensive root system
- Adapted with soil microorganisms to obtain water and nutrients
- Smaller or grey leaves are possible
- Some plants take a summer rest

Stephanie Morris, Landscape Architect

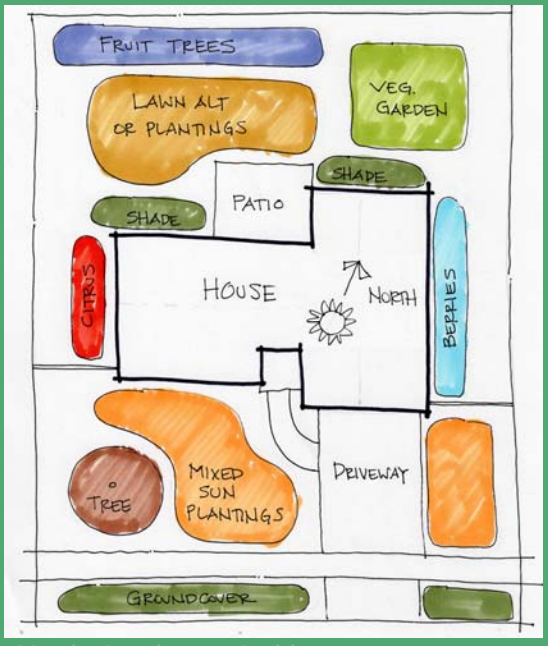
What is hydrozoning?

- Grouping plants together that have similar watering needs
- Place sun or shade loving plants together
- Place water loving plants closest to the house or in areas that will favor more watering

Stephanie Morris, Landscape Architect

Hydrozones for a Residence

Sun/Shade Zones
Fruit Tree
Vegetable Garden
Sunny Plantings



Stephanie Morris, Landscape Architect

Why plant a California Native?

- Less maintenance
- Less toxic
- More interesting
- Ecological link to habitat
- Plants are naturally adapted to our area
- Connect with California

Stephanie Morris, Landscape Architect

What is design by community?

- Plants in nature group together by common sun, soil, water and cultural needs. This is called a 'Plant Community'
- Plants evolved naturally to have similar needs
- We can replicate this in the garden
- Native communities common in our area:

Oak woodland, Chaparral, Grassland, Mixed Evergreen Woodland, Riparian

Stephanie Morris, Landscape Architect

Chaparral/Scrub Community
Characteristics

- Hot Summers
- Full Sun
- No summer rainfall
- Well drained soils
- Usually sloped
- Very few trees

Stephanie Morris, Landscape Architect

Summer blooms in Chaparral Garden - 2 years old

Stephanie Morris, Landscape Architect

Suburban Garden Lawn Transition

Stephanie Morris, Landscape Architect

Suburban Garden Third Year

Stephanie Morris, Landscape Architect

Design Credit:Stephanie Morris

Suburban Garden Fourth Year

Poppies, Salvia brandegii, S. 'Bees Bliss', S. spathacea

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Hillside with Salvia, Ceanothus

(also includes non-native Cistus, Westringea, Lavender)

Stephanie Morris, Landscape Architect

Suburban Garden with Baccharis, Manzanita, Eriogonum arborescens

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Spanish Style Garden - Spring
Sulfur Buckwheat, Deer Grass, Salvias,

Stephanie Morris, Landscape Architect

Spanish Style Garden - Summer
CA Fuchsia, Salvias, Coyote Mint

Stephanie Morris, Landscape Architect

Oak Woodland Garden
Characteristics

- Warm Summers
- No summer rainfall
- Part shade
- Often sloped
- Clay soils

Heteromeles arbutifolia
Toyon

Stephanie Morris, Landscape Architect

Oak Woodland Garden with crushed stone path, Ribes, Mimulus, Myrica

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Mahonia (Berberis) aquifolium
Oregon Grape

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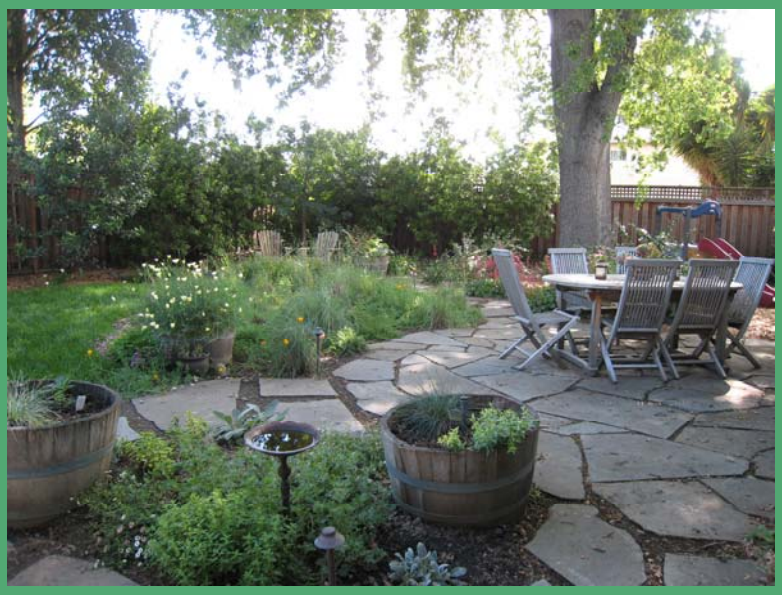
Valley Oak with Meadow

Stephanie Morris, Landscape Architect

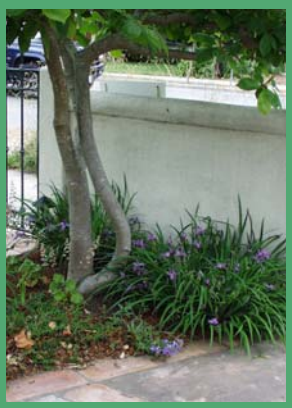


Valley Oak, Meadow, and Patio

Stephanie Morris, Landscape Architect

Mixed Evergreen Woodland Garden
Characteristics

- Some summer moisture
- Part shade
- Often sloped
- Soils w/organic matter



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Carpenteria californica ‘Elizabeth’
Bush Anemone

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Iris douglasiana and ‘Canyon Snow’
Pacific Coast Iris

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Heuchera maxima and ‘Wendy’

Alum Root

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Narrow Bed

Iris, Bush Anemone, Festuca Ca., Heuchera

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Grassland/Meadow
Characteristics

- Full Sun to Part Shade
- Perennial Bunchgrasses
- Annual/Perennial Flowers
- Bulbs
- Does not require frequent mowing
- Tolerates minimal foot traffic

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Festuca californica

California Fescue

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Carex pansa – Meadow Sedge

Stephanie Morris, Landscape Architect

Festuca idahoensis ‘Siskyou Blue’

Blue Fescue

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Verbena lilacina and Festuca occidentalis

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Achillea millefolium

White Yarrow

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Achillea millefolium Meadow
White Yarrow

Stephanie Morris, Landscape Architect

Yarrow Lawn

Stephanie Morris, Landscape Architect

Success with CA Natives

- Small container sizes = better success
- No fertilizer (will shorten life span)
- Minimal soil preparation
- Plant water wise plants a bit higher up
- Don't forget to water until established!
- Avoid planting in summer

Stephanie Morris, Landscape Architect

Plant spacing

- Common mistake is to space plants too close together
- Crowded plants = more pruning, more waste, more time, less flowering, less healthy plant
- Give them room to grow!

Stephanie Morris, Landscape Architect

Efficient Watering System

- Remember a drought tolerant plant needs water to become established!
- Plants received regular water at nursery
- Extra attention for first two to three years
- Irrigate during cool parts of the day
- Water deeply and infrequently
- Drip/Hose/Spray options

Stephanie Morris, Landscape Architect

Spray Irrigation

- Often a waste of water
- Promotes weeds
- Very time-efficient
- More labor to install
- Can cause fungus
- Appropriate mostly for grassland/meadow

Stephanie Morris, Landscape Architect

Drip Irrigation

- Keeps things watered while vacationing/busy
- Very time-efficient
- Relatively easy to install
- Use ½" poly pipe covered with mulch
- Emitters control water to each plant

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Poly Pipe Drip Irrigation

Stephanie Morris, Landscape Architect

Netafim Drip Irrigation

Stephanie Morris, Landscape Architect

Photo Courtesy Netafim USA

Netafim Inline Drip System

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Hand Watering

- Allows for close interaction/observation
- Monitor growth and flowering
- More time-consuming
- More exact
- Potentially best for plant health

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Estimated Watering Schedule

Some very general guidelines:

- Check once to twice per week when first establishing plants
- After first winter, check once every 2 weeks
- After second winter, check once every 3 weeks
- A moisture meter can be helpful

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ET ‘Smart’ Controller

Hydropoint or Rewater

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Controller Scheduling

If using a ‘standard Controller”

- Adjust each season (minimum)
- Adjust monthly (ideal)
- Usually, turn it off from November to February (particularly if your plants are established)

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Keep Rainwater on Site

- Direct downspouts into softscape areas
- Provide percolation pits
- Create a rainwater garden
- Collect/store water for re-use
- Use pervious paving
- Reduce peak water volume and pollutants to local waterways

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From wasted water:

to *this:*

Let it soak in!

and *this:*

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www.InvisibleStructures.com

Gravel Pave Driveway

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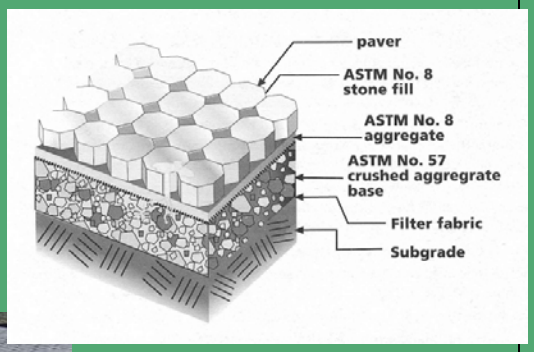

Pervious Uni-Ecostone Pavingstones

Calstone Quarry
Stone Permeable

Stephanie Morris, Landscape Architect

Design: Sherri Osaka, Installation: Earthcare Landscaping

Pervious Concrete with Brick Bands

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System at Scott's Valley Plumbing

Typical Rain Barrel

Rainwater Catchment Systems

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Greywater Laundry to Landscape

Source: GreywaterAction.org

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Why use mulch?

- Reduces weeds
- Maintains soil temperature from extremes
- Holds water in the soil
- Apply after planting, then about once every year or two
- Pro Chip or wood chip
- Tree trimmings

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Mulch Improves Soil Biology

- Natural woodlands know the secret to soil health:
- Keep plant litter on top of soils
- Add tree trimmings, leaves, or other mulch

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Newspaper Sheet Mulching

An extra method to keep down annual weeds

- Maintains soil temperature from extremes
- Holds water in the soil
- Wet the soil first, then apply newspaper, then wood chip mulch

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Reduce waste/Maintenance

- Water takes energy and energy takes water
- Water-related energy consumes approximately 20 percent of the state's electricity (transportation, treatment, etc).
- Coal-fired electricity generation accounts for 39% of freshwater use in U.S.A.
- It takes 18 gallons of water to produce one gallon of gasoline

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More People Power, Less Machines

More exercise too!

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Reduce Plant Maintenance

Some plants require less trimming/deadheading.
Compost plant remains when possible

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Passive cooling – deciduous trees

WINTER

SUMMER

Consider using fruit trees for passive cooling

Stephanie Morris, Landscape Architect www.greenandpractical.com

Part 2: Basic Elements of Landscape Design

Stephanie Morris, Landscape Architect

Basic Elements of Landscape Design

Aesthetic

- Architectural style/personal taste
- Focal point, accents
- Texture, contrast, form, repetition
- Foliage, bark, berries (not just flowers)
- Avoid too much complexity
- Incorporate seasonal change
- Attractive hardscape elements

Stephanie Morris, Landscape Architect

Garden Style

- Fear of the 'Wild Look'
- A water wise garden can easily be designed to fit ANY architectural or garden style

Spanish, Contemporary, English/Cottage, Mediterranean, Asian, etc.

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Spanish Style Garden

Ceanothus 'Julia Phelps' & 'Yankee Point', Salvia 'Bees Bliss'

Stephanie Morris, Landscape Architect

Contemporary Style Garden

CA Fuchsia, Heterotheca, Festuca, Toyon

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Woodland Style Garden

Coffeeberry, Fragaria, Douglas Iris, Heuchera

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English Cottage Style

Eriogonum ‘Shasta Sulfur’, Baccharis ‘Twin Peaks II’

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Contemporary Style

Carex testacea, Deer Grass, Olive Tree

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Design Elements

Focal Point

Cercis occidentalis - Redbud

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Design Elements

Focal Point

Bench and Polystichum munitum – Western Sword Fern

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Design Elements

Contrast

Galvezia speciosa and Epilobium

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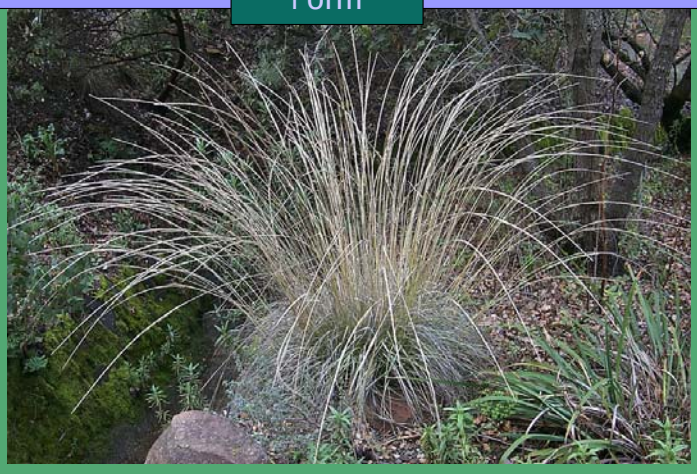
Design Elements

Form



Muhlenbergia rigens - Deer Grass

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Design Elements

Form

Salvia clevlandii
Sage

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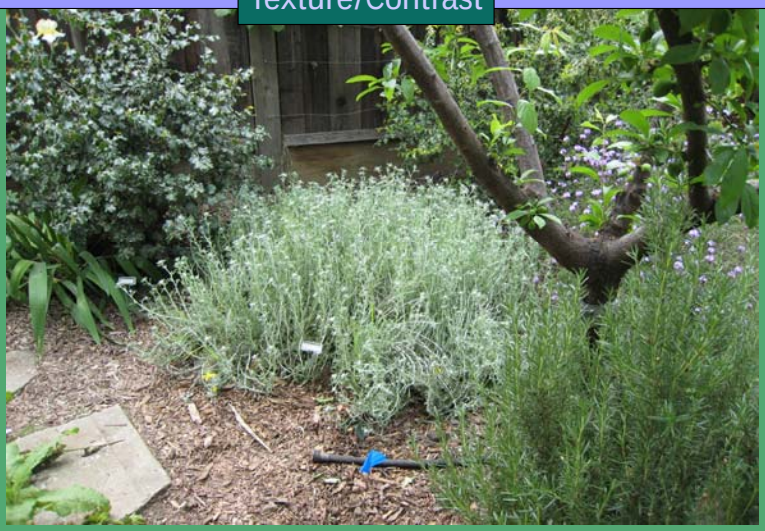
Design Elements

Texture/Contrast



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Design Elements

Texture/Contrast

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Design Elements

Foliage

Ceanothus,
Coffeeberry,
Blue Fescue

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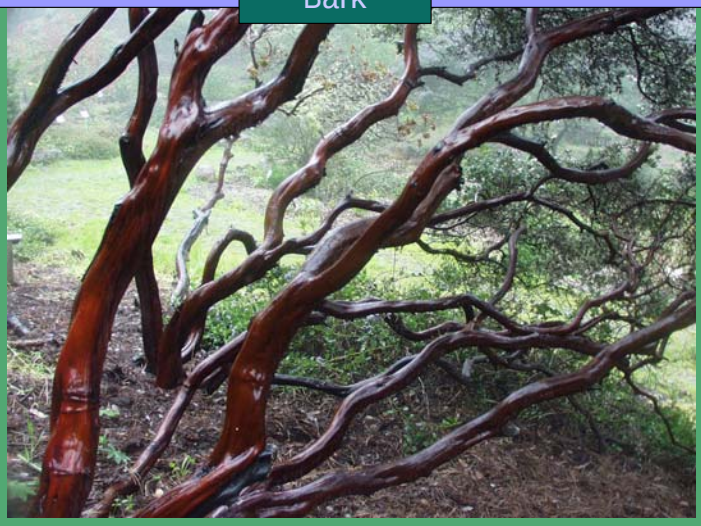
Design Elements

Bark



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Design Elements

Berries

Heteromeles arbutifolia

Toyon

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Design Elements

Seasonal Change

July 2007

May 2008

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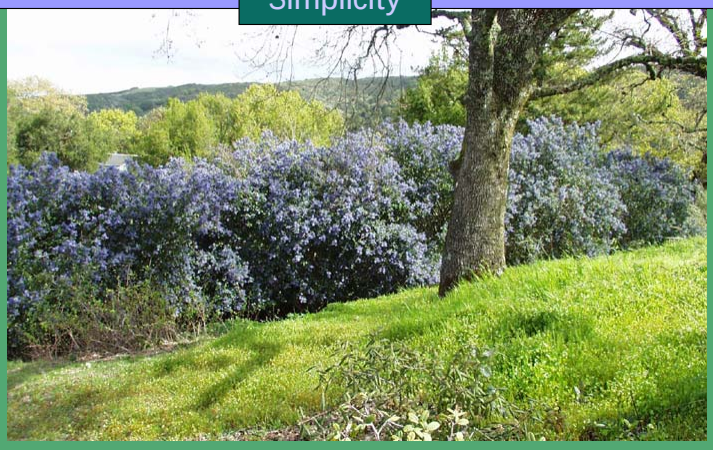
Design Elements

Simplicity



Ceanothus 'Ray Hartman'

California Wild Lilac

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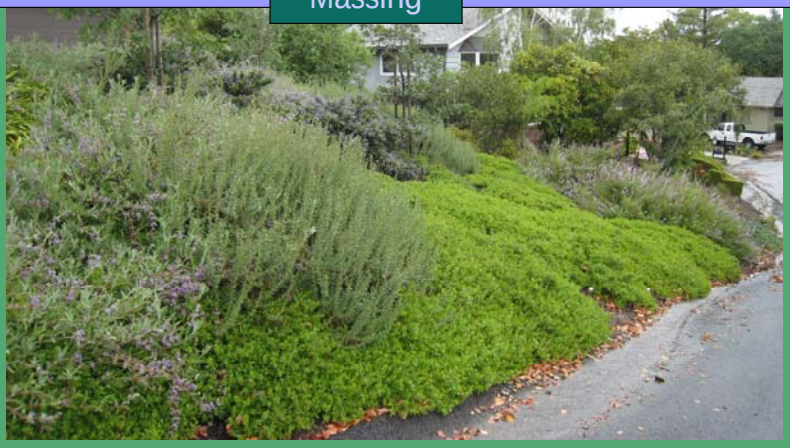
Design Elements

Massing



Baccharis ‘Twin Peaks II’

Groundcover Coyote Bush

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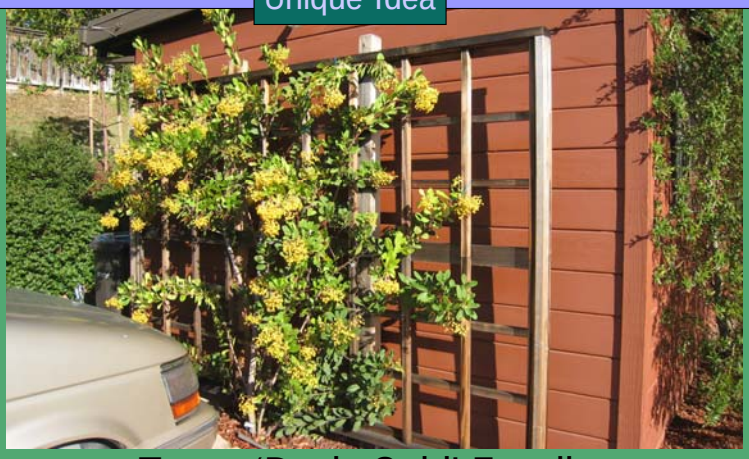
Design Elements

Unique Idea



Toyon ‘Davis Gold’ Espalier

Golden Toyon

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Design Elements

Hardscape

Low stucco wall, gate, stone path

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Design Elements

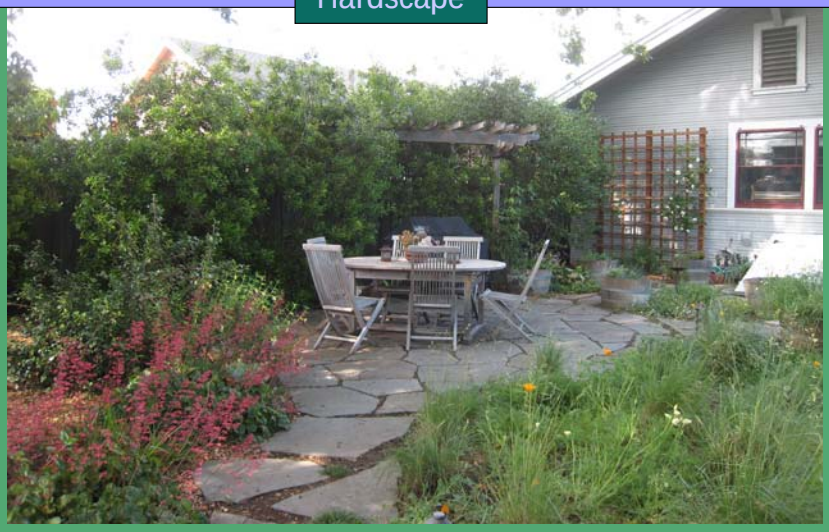
Hardscape

Stacked stone adds height and interest

Stephanie Morris, Landscape Architect

Design Elements

Hardscape



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Basic Elements of Landscape Design

Functional

- Circulation needs and materials
- Desired uses – both active/passive
- People AND wildlife (food, cover, water)
- Screen or frame views
- Utilitarian elements

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Design Elements

Circulation

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Design Elements

Use the Front Yard

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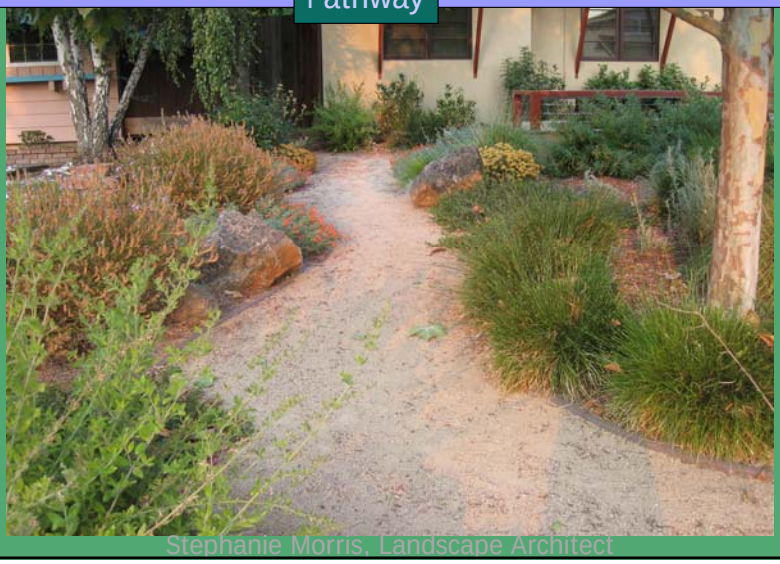
Design Elements

Pathway



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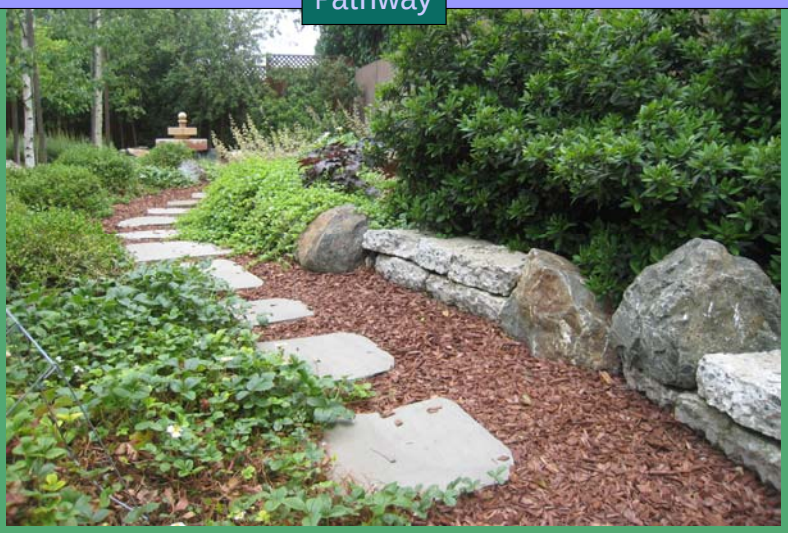
Design Elements

Pathway



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Design Elements

Outdoor Dining

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Design Elements

Outdoor Kitchen

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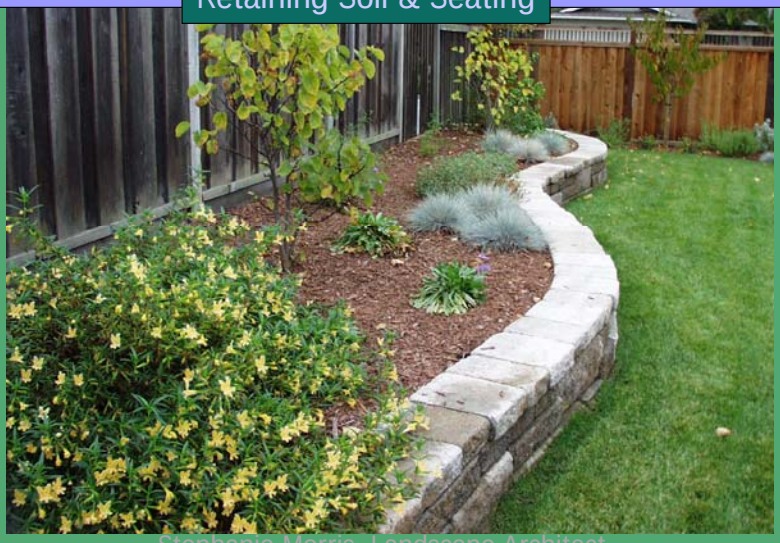
Design Elements

Retaining Soil & Seating



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Design Elements

Shade Arbor

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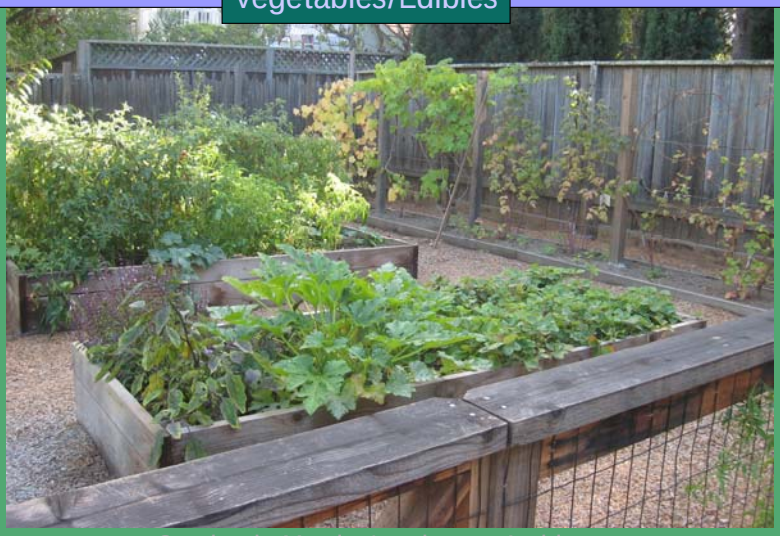
Design Elements

Vegetables/Edibles



Stephanie Morris, Landscape Architect

Design Elements

Screen Views

Myrica californica - Pacific Wax Myrtle

Stephanie Morris, Landscape Architect

Design for Wildlife!

- Food, water, cover
- Create Edges
- Don't spray
- Suburban habitat network
- Accept some plant damage

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Hummingbird visits a Salvia clevlandii

Rock 'puddle' for butterflies/birds

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Design Elements

Utilitarian/Composting

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Part 3: Creating a Landscape Plan

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Process of Designing a Garden

- Define goals (functional, aesthetic ecological)
- Site analysis & base map
- Conceptual diagram
- Refine Design
- Installation
- Maintenance

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Site Analysis

- Sun/shade/microclimates
- Where is North?
- Soil type
- Wind
- Compaction
- Mature trees
- Views

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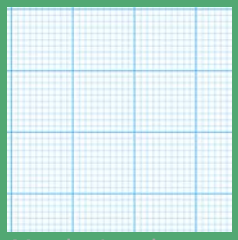
Base Map

- Measure house, doors, windows, utilities, trees, paving to remain
- Draw it to scale on paper – measure with a tape measure, then use a ruler or scale on graph paper. Common scales are 1/8”=1’ or 1/4” =1’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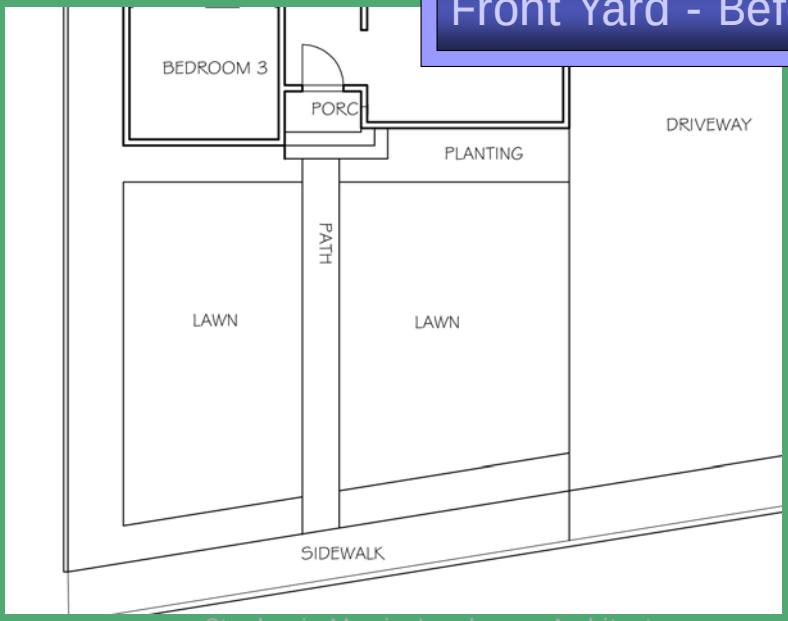
Front Yard - Before



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Conceptual Diagram

- Write in notes and sketch out rough ideas of how elements should be positioned
- Best time for free flow of ideas
- I use tracing paper over the base plan
- Use 'idea photos' if needed
- Be consistent with styles and avoid blending too many shapes

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Design Goals: Front

- Need wider/aligned front path
- Hot south facing house – shade tree
- Connection to driveway
- Add focal point and foliage/seasonal interest
- Wildlife habitat
- Provide edge for dog walkers
- Screen large neighbor's house

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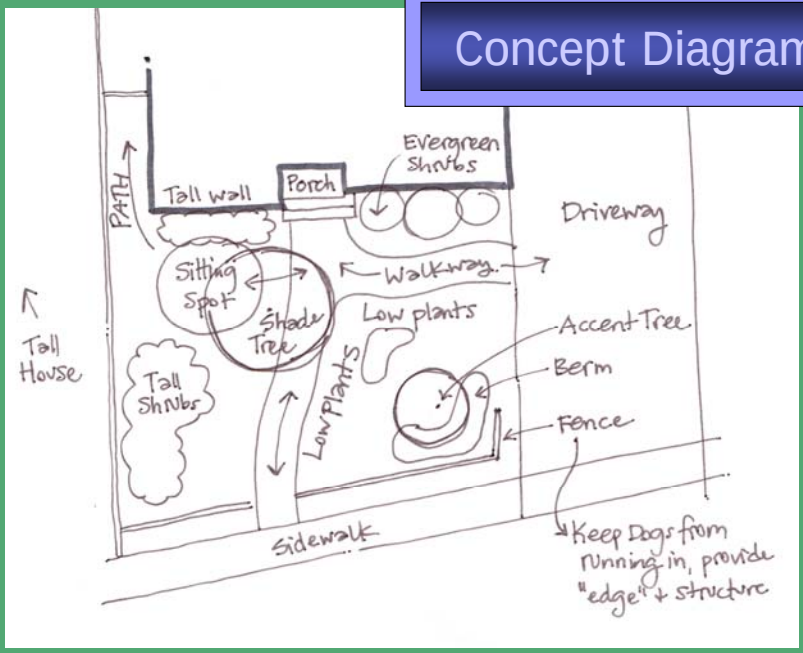
Concept Diagram



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Refine Design

- Get input from all decision makers
- Do planting design: trees first, shrubs, perennials/groundcovers
- Recommended books: California Native Plants for the Garden and Designing California Native Gardens
- Check design for Functional, Ecological, and Aesthetic elements. Does it have a balance of seasonal interest?

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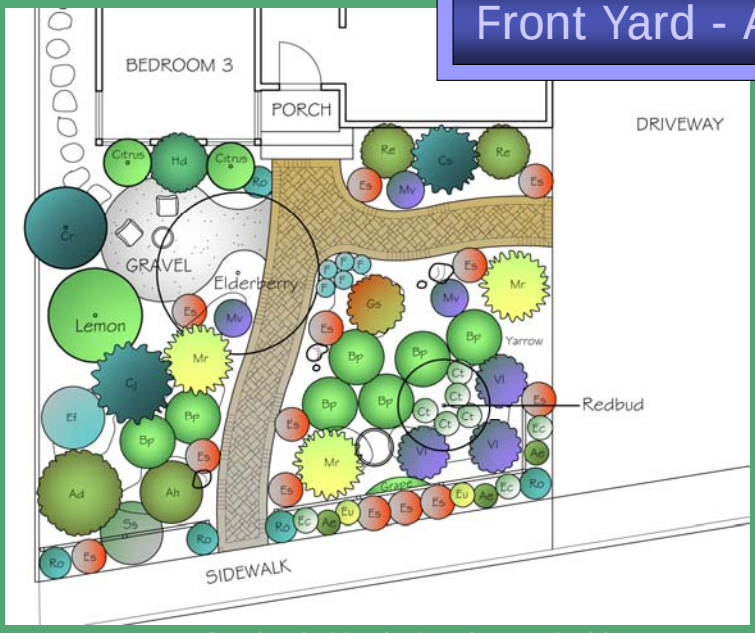
Front Yard - After



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Suburban Cottage Style Garden

One Year Old

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Mixed Meadow w/Poppies

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April 2005 – 1 year old

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April 2006

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July 2007 – 3.5 years old

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July 2007

May 2008

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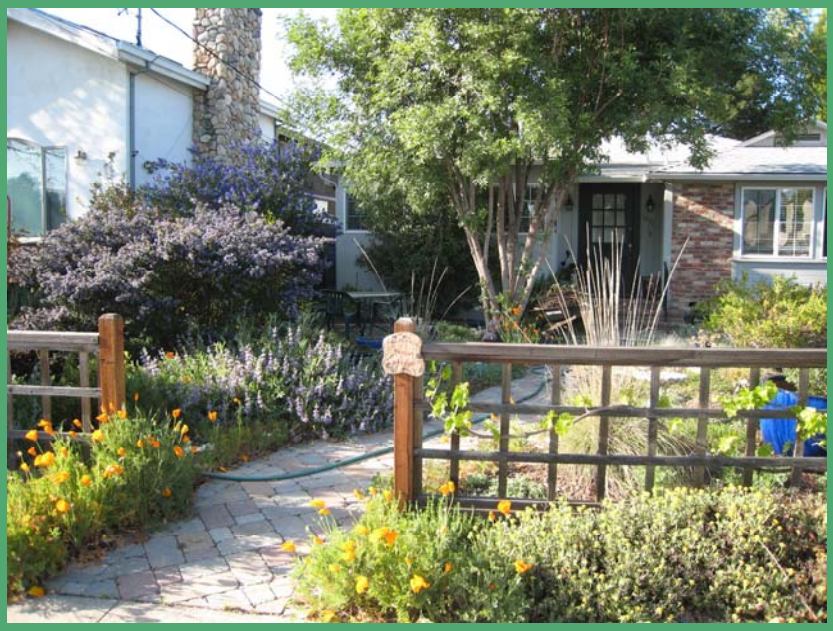

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Rear Yard - Before

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Design Goals: Rear

- Small play lawn
- Fruit/veggies in easy access to house
- Shady seating area
- Add patio door access
- Compost and shed area
- Seating areas
- Added hose bibs and drip irrigation

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Rear Yard - After

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- Use graph paper to create base map
- List goals (functional/aesthetic/ecological)
- Conceptual diagram
- We will select some to review together

Part 4: Design Exercise

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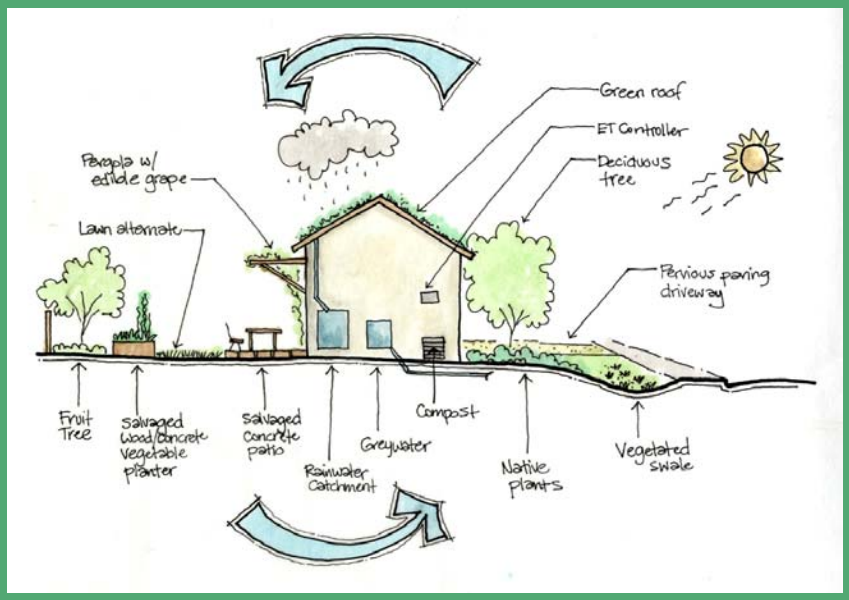

WHOLE SYSTEMS APPROACH

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