Ditch Your Lawn Curriculum - Revised for Sanhedrin CNPS 2/26/17

Introduction

GARDENING WITH NATIVES

California native plants are unlike any other in the world. From the richly colored expanse of spring wildflowers in the desert to groves of Monterey cypress on the coast, California's wild gardens are immensely diverse and awe-inspiring in their beauty. While California's native plants have graced gardens worldwide for over a century, few of the landscapes designed for our state's gardens reflect the natural splendor for which California is famous. CNPS teaches that by gardening with native plants, you can bring the beauty of California into your own landscape offering Californians a sense of place, pride and stability, while providing habitat for endemic wildlife species that exist no place else on earth.

I. NATIVE VS. NON NATIVE: ‘Exotic’ non-native plants can thrive in California's renowned climate, however, not without overcoming certain conditions with fertilizer, water, and constant care. Exotics grouped into the category of ‘Mediterranean’ plants are indeed a viable option for a water-wise landscape because of their adaptable characteristic to climates similar to California’s floristic province, however, they still do not match up to the benefits of California native plant. Native plants are perfectly in sync with our soil, climate, and wildlife making them a holistically sustainable choice. Native plants and the crucial resources we are working so hard to conserve are essentially ‘made for each other’ and can thrive naturally.

II. NATIVE PLANTS SAVE WATER: Replacing water-consuming, high-maintenance, traditional landscapes and lawn with California native plants can reduce the average homeowner's water consumption by 60% according to the U.S. Environmental Protection Agency. California studies combining California native plants with water-wise landscapes that include rain gardens, swales, and other drainage-control techniques found even higher irrigation savings. Once established, native plants can withstand little or no watering even in extreme drought conditions.

III. ADDITIONAL BENEFITS:

· Pollinator Conservation- native pollinators are most effective and thrive best in native plant habitats. Native plants provide urban corridors between natural and agricultural areas
· Lower Maintenance- In a garden environment, native plants do best with some attention and care, but require less water, fertilizer and pruning, and less of your time to maintain. Spend your time enjoying your garden not mowing, blowing, or hedging away.
· Reduce Pesticides- Native plants have developed their own defenses against many pests and diseases. Since most pesticides kill indiscriminately, beneficial insects become secondary targets in the fight against pests. Reducing or eliminating pesticide use lets natural pest control take over and keeps garden toxins out of our creeks and watersheds.
· Invite Wildlife- Native plants create a habitat not only for pollinators but for other wildlife such as birds and other beneficial insects. California’s variety of native insects and birds will help keep your landscape free of mosquitoes and plant-eating bugs. Native plants bring nature into your home garden and restore our environment.
· Support Local Ecology- While creating native landscapes can never replace natural habitats lost to development, planting gardens and parks
with California native plants can help provide an important bridge to nearby remaining wild areas.

**Section 1: Understanding the ‘Bigger Picture’**
California is one of only 25 GLOBAL biodiversity hot spots. At the rate we are turning ecosystems into monocrop farms, lawns, hardscapes, developments, and human biomass, we are quickly taking ourselves out of a very unique honor. CA is the most hydrologically altered landmass on the planet and at alarming rates we are depleting our moisture bearing bioregions (ie. wetlands, riparian woodlands, vernal pools, freshwater marshlands and CA native grasslands). This consequential loss of species and biological diversity is heartbreaking. Homeowners can be part of the solution by converting their sterile suburban garden to a rich natural habitat through the use of native plants.

I. ‘KNOW THY PLACE’: Understanding the unique interweaving of climate, hydrology, geology, community dynamics, and humans as an integrated whole-getting clear on where we are in the world and how it works/worked
   a. How we have altered these aspects with current practices, and how we can address them at the home level
   b. Read your landscape with loose goals in mind and design, how to “think like a watershed” with your landscapes unique features- enhance what is working and fix what is not

II. INTEGRATED DESIGN: The integrated design process places water harvesting features in intentional relationship with other site elements and within the natural and human context of the site. The goal is to create systems whose value and utility are greater than the sum of their parts.
   a. ‘Stacking functions’ of integrated design:
      EX. Harvesting rainwater in a tank, feeds an outdoor shower, the greywater of which irrigates a native, food bearing, nitrogen fixing (soil improving) tree that is also set in a passive water harvesting rain garden, that also creates passive, cooling shade where it is needed.
   b. Benefits:
      · Create native habitat
      · Storm water/non-point source pollution mitigation
      · Natural fertility/soil enhancement: produced, fostered & circulated on site rather than relying on industrial or imported fertility, mulch, etc.
      · Passive sun/shade harvesting
      · Energy savings and concept of ‘Watergy’: Embodied water that utilizes the free powers of sun, wind, shade, and gravity. Designing to minimize energy to save a tremendous amount of water

**Section 2: Getting Started**
**SITE ANALYSIS** An important and often overlooked step is getting familiar with the site and taking inventory of the site conditions. Determine the soil type, how the water flows and drains, wind characteristics and the sun exposure in the various areas of the site. Take note of area that need to be blocked (neighboring views) or features that want to be highlighted. Taking the time to evaluate your site conditions by working through these questions can help you avoid planting natives that won’t thrive in your particular soil or climate conditions.
I. CLIMATE: California is considered a ‘Mediterranean’ climate which only occurs on 2% of the world’s land area. Other regions included in this area are Chile, South Africa, Australia and the Mediterranean Basin

- Characterized by cool, wet winter and warm, dry summer
- Total annual rain is highly variable from year to year
- Snow is rare except at high elevations

**California microclimates**
1. Drier from north to south and coastal to inland
2. Fog modifies coastal climate
3. As you move away from the coast the summers are hotter and drier and the winters are cooler with occasional frost as you move inland.

California’s variation in climate throughout the state plays a large factor in the natural variation of the local flora. Choosing plants that are well adapted to the local climate will ensure the most success for a garden.

*Use Calscape to find plants local to our area*

II. SUN-SHADE EXPOSURE: The amount of sun a plant requires varies by region, and season. There are also variables with in the garden setting itself such as shade cast from mature trees & surrounding structures. In addition the intensity of the sun exposure varies: cool morning sun or hot afternoon sun.

III. SOIL: Garden soil is complex and variable, and it has a big impact on what plants will do well in the garden. Many native plants used in gardens prefer lean, well-drained soils. Although native plants are typically adapted to the native soil, garden soils are often far from pristine and may have been altered over the years. It is important to get to know your soil throughout the site not in just one spot in particular.

a. **TEXTURE** is defined by the relative amounts of large, medium and small mineral particulates

1. **CLAY**
   - Over 25-30% tiny, flat mineral particulates
   - Poor drainage, reduced aeration, easily compacted
   - Hard to wet when dry, stays wet a long time
   - Highest in nutrients, though more tightly bound to clay particles and may not be readily available to plant
   - Organic matter decomposes slowly

2. **SAND**
   - Over 50% larger, rounded or angular mineral particulates
   - Fast drainage, light and airy, not compactible
   - Water penetrates easily but washes through quickly, carrying nutrients and minerals, dries out quickly
   - Lean, low in available nutrients
   - Organic matter decomposes rapidly

3. **SILT**
   - Over 40% intermediate particulate size
   - Intermediate drainage, and aeration
   - Water penetrates more easily than clay but does not wash through as quickly as in sandy soils
   - Typically intermediate in available nutrients
   - Intermediate rate of decomposition of organic matter
b. **STRUCTURE** is the combination and arrangement of a soil’s mineral density, organic material, and living organisms; determines the availability of essential materials to plants
   1. Rototilling and cultivation destroy soil structure and set the stage for a healthy crop of weeds

c. **CHEMISTRY** Fertility, pH, salinity, and toxicity are four basic chemical properties that affect garden soils. Native plants are adapted to the natural chemical properties of local soils and so, generally speaking, adding fertilizer or otherwise amending soil is not necessary and can create adverse growing conditions.

IV. **WATER**: Explore water availability in the garden (fog, irrigation, rain, greywater, etc.) and water requirements of plants. Native plants do not just need a set amount of water; the water must be available when the plant is actively growing.
   a. Young and/or recently transplanted plants generally require more water than established. Best planting time for natives is in the fall where rainfall can be their initial source of irrigation
   b. Mulch, wind, sun, and soil type influence water retention
   c. Native plants have adapted to dry, hot summers; over-irrigation (especially in summer/fall months) can lead to plant mortality.

**Section 3: Design a Plan**
After the garden conditions are understood, create a plan. This starts with a general bubble plan that includes both garden conditions and personal considerations (what you want and what you think you will be able to do). Next, create a plan to scale that should include both the bones (hardscape, paths, etc.), and the meat (plants).

a. **BUBBLE PLAN**: Like a writer’s outline (especially useful for the bit by bit approach)
   1. Sketch out the garden space, including locations of existing structures
   2. Add garden conditions by area

b. **HARDSCAPE**: Paths, benches, decks, raised beds, etc.
   1. Long-term fixtures
   2. Defines the garden space and provides flow and order, making the garden approachable

c. **SCALED PLAN**: should focus area by area
   1. Draw the full garden space to scale
   2. Add hardscape sketches on tracing paper over the base
   3. Plan wilderness-inspired, hydozoned groupings in planting areas, making sure not to crowd the plants (plant sizes can be deceiving when potted, and can expand in width quickly, once planted)

e. **HYDROZONING**: the grouping together of plants with similar water needs. Introduce concept of “Oasis Zone” 30-50 ft. from the home. This is the area where the most water is available (i.e. rainwater, greywater) and easiest distribution. Beyond this point, hardy native should be planted that can survive, after establishment, on rainfall alone.

e. **RAIN GARDEN**: Intentionally uses run off from impenetrable surfaces and utilize rainwater where it falls or is directed. This conserves water, reduces
urban run-off, and increases rain water infiltration and landscape rehydration; reducing energy use and need for potable water irrigation.
1. To be truly water wise- aim to design your landscape where rainwater can be the primary source of irrigation (after establishment) grey water as the secondary source, and municipal water as the final back up source.
2. For information on Greywater system implementation visit www.growwater.org
3. Landscape on a ‘water budget’ and estimate your sites water budget.

f. IRRIGATION: Types of watering systems to implement during establishment: Overhead, drip, hand watering. Options for converting existing popup sprinklers to drip, note that drip irrigation is not ideal for establishment and supplemental hand watering may be needed.

PRODUCT TIP for establishment period: DRIWATER
DriWater is pure potable water that is held in a solid form and applied to plants in a variety of settings and applications to water plants until they are established. www.driwater.com

Section 4: Removing your lawn
I. There are many effective ways to remove your lawn, but choosing the proper method for your site will depend on a close analysis of what type of turfgrass you have, which will most likely be mixed of perennial grasses and the inevitable presence of different weed species. The best way to identify what you will be working with (or against) dig out a sample and take it to a landscape professional (nursery, contractor, CNPS plant sale) to help id your sample.

Perennial grasses and weeds that are particular difficult to eliminate: Bermuda Grass, Kikuyu grass, St. Augustine grass, nutsedges, bindweed, and Bermuda buttercup. The presence or absence of these will help determine which of the following methods will work best.

a. SHEET MULCHING
Best done when the lawn is actively growing so it is important to know what your lawn is composed of
Method/Description: is a layering system that removes your lawn, creates a weed barrier and fortifies your existing soil all without having to haul material off to the landfill. The layers consist of an organic weed barrier, compost (optional) and a thick layer of mulch (4” think). It can be done any time of the year, but optimal effectiveness is achieved when the lawn is actively growing.
Step 1: Mow your lawn and leave the nitrogen-rich grass clippings in place as this will just add nutrients to the soil, however, remove any other bulky plant material. Water the ground to kick start the decomposition process.
Note: If you are planting during this process plant all 5gal and larger plants before moving on to the next step
Step 2: Water the ground so the soil is moist, not muddy or overly saturated
Step 3: Lay down an organic weed barrier. Tip: Moisten the material to prevent it from blowing away. This will also help with the decomposition. Overlap the material by 4-6” to completely cover the ground.
Optional material:
· Cardboard (not waxed)- This can be recycled cardboard pieces or some companies offer rolls in various sizes (ex. 3’,4’,5’ W x 250’L)
· Newspaper (5 sheets thick)
· Burlap bags
· Builder’s paper

Step 4: Apply 1-2” of organic compost on top of cardboard, and top with 4” of locally sourced arborist chips or plant debris.

**Benefits:** Minimizes weeds, improves soil structure, increases plant health, no gas emissions, no hauling of green waste. Can be done anytime of the year

**TIP:** Remove an 18” strip of sod alongside driveways, walkways, and sidewalks. This keeps the mulch on site during heavy rains.

b. **SOLARIZATION**

Caution if you are trying to eliminate burr clover, vetch, sweet clover, nutsedges, Bermuda grass, or bindweed. They will only be set back initially but will eventually reemerge from their deep roots that survived below the solarization zone

**Method/Description:** Heat the soil by covering it with a clear plastic tarp for 4 to 6 weeks during a hot period of the year. The plastic sheets allow the sun’s radiant energy to be trapped in the soil, heating the top 12 to 18 inches and killing a wide range of soilborne pests, such as weeds, pathogens, nematodes, and insects. - needs direct sunlight in order to raise temperature. The best time of the year to begin this process is when there will be 6-8 weeks of peak temps. over 80° and the site will receive 6-8 hours of full sun a day.

**Pros:** Relatively quick and effective in hot areas

**Cons:** May also kill beneficial soil life, does not work well in cool climates, specific weather conditions needed for success.

c. **PHYSICAL REMOVAL**

**Method/Description:** Water in your turf area. Use a flat-end shovel and work in long strips. Punctuate the ground in long lines and return to the first spot. Dig out a strip the width of the shovel and about eight to ten inches long. Dig down about three to four inches. Use a spade or edger to cut strips into the turf. Use a sod cutter for large lawns. Insert a pitchfork or spade underneath a strip of turf.

**Pros:** Inexpensive and environmentally friendly

**Cons:** May take a long time

d. **HERBICIDES**

Although other options should be considered before choosing this option in some cases such as the presence of Kikuyu or Bermuda grass this option may be the only feasible option. Carefully monitor the site the first year or two and pull every stem that appears.

**Method/Description:** Chemical application of herbicide to kill lawn and weeds

**Pro:** Easy and effective

**Con:** Expensive, slow process (can take up to 3 applications), not environmentally sound due to the long term consequences:

· Kills soil biology
· Indiscriminate downstream effects from runoff
· Over-reliance on man-made chemicals that negate the healthful benefits your native plant garden is meant to create.

e. **KICK SOD CUTTER**
Method/Description: A mechanized version of "Physical Removal" described above. Instead of using a shovel, you can buy an inexpensive tool, like a plow, to help speed the process. A kick sod cutter has two long handles anchored with a cross bar. There's a roller and a flat blade at ground level, and you can adjust the level of the blade to one that works best with your project. You use the cutter by kicking the cross bar to move it along as you cut. You can use this type of cutter to remove long, narrow strips of sod you can roll up and remove.

A general step by step guide is available on CNPS website

Link to Step by Step guide on CNPS site:
http://www.cnps.org/cnps/grownative/lawn/#grass_removal

Pros: Clean and Easy
Cons: Cut Sod and Soil will need to be disposed of

f. MOTORIZED SOD CUTTER
Method/Description: If you plan to remove a large area of sod, you may be able to rent a mechanical sod cutter at a local tool supply house. It requires some strength and control to run, and you may want to hire a professional if your turf area is large enough to warrant its use.

If you still want to do the job yourself, each motorized cutter comes with its own operation manual that contains specific directions for using that machine. So, always read those directions before you begin.

A general step by step guide is available on CNPS website

Link to Step by Step guide on CNPS site:
http://www.cnps.org/cnps/grownative/lawn/#grass_removal

Pros: Clean and Easy
Cons: Mechanical petrochemical based engines. Cut sod and soil will need to be disposed of.

g. ROTOTILL
Methods/Description: Plow the soil with a mechanized device, which can be rented for short terms. The soil is turned over in place and theoretically it kills grass because it tears up the stolons of rhizomatous plants like Bermuda grass, Nut Sedge, and Oxalis. But in general practice, this method promotes and spreads these very plants. It may, in the short term alleviate soil compaction of the surface layer but it also negatively affects the soil biology. Soil stays in place and can be mounded. Breaking up sod with a tiller requires strength and persistence, especially in clay and heavily compacted or rocky soils.

Pros: Retains organic matter; is quicker and easier than digging; planting can begin immediately
Cons: It is difficult on rocky sites and in wet or clay soils; turns up week seeds; propagates certain weeds

Follow up: After tilling water and wait 2 weeks for seeds to sprout and repeat tilling at a shallow depth, this may need to be repeated to eliminate the majority of the weed seeds.

TIP: If sod is removed either for a path or around the hardscape perimeter try to reuse it onsite to either make a small berm or if you stack it and leave it to decompose it will turn into an excellent compost.
Section 5: The Plants

I. **HANDOUT: List of regionally appropriate plants**

A. **CALSCAPE** “Helping Californians Save Water and Restore Nature - One Garden at a Time” offer a native plant solution that not only saves water, but also helps restore nature in California. Calscapes is based on a mapping of the natural distribution ranges of over 3000 native California plants, developed in coordination with the Consortium of California Herbaria. With this mapping, Calscapes site visitors can enter in the name of any California street address to easily see the plants that would naturally grow at that location. Plant profiles include detailed descriptions, hundreds of thousands of plant photographs, sun, water, soil and site requirements, gardening information and nursery availability.

TIP: To create a balance in the landscape diversity is key. It is important to have a mix of trees, shrubs, annuals and perennials to invite wildlife into your garden.

Section 6: Installing Your New Landscape

I. **HOW TO PICK HEALTHY PLANTS**

a. **ROOTS**
   1. Check the bottom of the pot; there should not be roots growing out of the bottom
   2. Gently squeeze the pot to see if roots are packed against the pot wall
   3. A sour or unpleasant smell from the pot indicates rotting in the root area
   4. Crowded roots are of particular concern in trees because substantial damage may not become apparent for years
   5. The correct plant size for a given container depends on the roots, which should loosely fill the pot
      · Keep in mind that native plants in nursery pots often look scrawny in comparison to commercial ornamentals

b. **STEM**
   1. Check for damage/breakage, especially at the collar (between the stem and roots)
   2. Avoid woody stems in smaller plants; can mean plant has been too long in its pot
   3. The collar should be at or slightly above the soil level; a buried collar is susceptible to disease

c. **LEAVES**
   1. Browning or yellowing leaves can indicate an accumulation of salts in the potting medium from over-fertilization
   2. Deciduous plants drop their leaves seasonally, and may look unhealthy without being unhealthy
   3. Check ratio of new leaves to old; can indicate past stress due to drought, pests, or nutrient imbalance
   4. Check under leaves for scale, aphids, and other pests

d. **LIFE CYCLE**
   1. More bloom for your buck: look for plants in bud, not already in full bloom
   2. Buy Young
      · The longer a plant resides in a nursery, the more chance there is for plant stress
      · Younger plants are easier to manage, less expensive to start with, and transplant more easily than mature plants
e. Most local CNPS Chapters host native plant sales at various times throughout the year where they sell native plants that can be incorporated into your home landscapes. In addition, your local chapter will be able to provide regional growing and resource information and address gardening issues specific to where you live. To contact your local chapter, access our State location map and click on the area where you live.

II. HOW TO PLANT

a. Plant during rainy season (fall through spring)
   1. Fall (Optimal): Takes advantage of winter rains
   2. Winter: Ground can be too wet and cold for establishment
   3. Spring: Can be successful but may need extra attention in summer
   4. Summer: Only in mild weather near the coast

b. Research each species predicted size and space the plants accordingly to prevent overcrowding, which is the number one mistake new gardeners make.
c. Check the weather
   1. Avoid planting in high winds, high heat, or heavy rains
d. Water
   1. Water potted plant well, several hours before transplanting
   2. If garden soil is dry, water the day before planting, so soil is moderately moist
e. Dig a hole as deep as the soil depth of the container, but wider than the pot
f. Decant the plant
   1. Gently shake off excess potting soil from roots
   2. Gently unwind and stretch out pot bound roots
   3. If the plant is extremely pot bound and has a fibrous root system, like grasses, you can be quite brutal, cutting, tearing, and teasing the matted roots apart

g. Place the plant so that the collar is at or slightly above the soil surface
h. Fill the hole
   1. Use surrounding soil instead of amendments or fertilizers
   2. Fertilizers promote rapid, often unsustainable, summer growth
   3. Filling a planting hole in clay soil with a well-drained mix makes it more difficult for the young plant’s roots to break out of the hole and extend into the native soil, and leads to oversaturation and root rot when irrigation water cannot pass into surrounding clay
   2. Gently, but firmly, pat down soil: the goal is to eliminate large air pockets without compacting soil
i. Create a berm (a ring of soil about 6 inches from the plant) to keep water from running off
j. Spread mulch
   1. Moderates soil temperature and moisture
   2. Lends a finished look
   3. Helps with weed control
k. Watering in
   1. Water by hand as you replace the backfill, filling the basin with enough water to soak to bottom of the hole. It’s important to strike the delicate balance of soaking the soil right away, without over saturating

III. WILDFLOWERS IN THE GARDEN

Wildflowers can serve as a great solution for a young sparse garden. These fast-growing, short-lived perennial are perfect between young, long-term plants; they will fill the space and provide a springtime burst of color without threatening the establishing garden as planned
a. **SEED**
   1. Purchase seeds from reputable growers who specialize in California natives
      - Many wildflower seed mixes include invasive, non-native species
      - It is illegal to harvest seeds from public lands without a permit
   2. Generally, ½ ounce of seed will cover approximately 25 square feet

b. **PREP**
   1. Water newly exposed garden beds to encourage weed growth for easy removal
   2. Once you’re ready to sow the seeds, lightly rough the soil surface with a rake, or sprinkle a light layer of course gravel

c. **SOW**
   1. Best to sow in late fall or early spring, preferably when rain is predicted
   2. Continue sowing over several weeks to extend the period of bloom
   3. For fine seeds, cut with sand or saw dust, or sprinkle from a kitchen spice shaker for even distribution

d. **SEED-SOIL CONTACT**
   1. After sowing, rake the surface very gently; if they are lying lightly on top of the soil they can easily dry out, or be blown away or eaten by birds
   2. Apply a light layer of mulch or gravel
      - Avoid using large wood chips that can smother new seeds, block sunlight, and hide slugs and snails

e. **WATER**
   1. Use a fine spray to improve seed-soil contact
   2. Keep beds moist while seeds germinate
   3. For many native wildflowers, in winters with average rainfall, taper off supplemental water when annuals are a few inches tall

f. **TIPS**
   1. Sow some wildflower seeds in pots to help with seedling identification
   2. If weeds or insects are decimating the seedlings, seeds grown in pots or flats can be transplanted at about 4 inches
   3. Remove wildflowers and weeds that crown new perennial plantings
   4. Deadhead (removing spent flowers) to extend the bloom period
   5. Collect seeds in late spring to summer for next year; store seeds in a cool, dry location
   6. For aesthetic purposes, remove spent annuals at the end of their season
   7. For wildflowers to reseed the following spring, do not water during summer; seeds will rot in hot, wet soil

### Section 7: Maintaining your Garden

I. Tips on how to keep the plants alive while they become established with a focus on watering young plants. *(Info sheets: Factors that affect water needs, Water for new gardens)*

a. **ESTABLISHMENT**: A plant becomes established about 1-3 years after planting in your garden – roots extend beyond original root ball into surrounding soil, and they’re about 3x bigger than when you got them. Established means the plant has adjusted to your garden. It’s a gradual process, and trees and shrubs usually take longer than perennials. Established plants need less attention, and less frequent (but thorough) watering. How do you get your young plants to that point?
   1. Plants are treated very well in nurseries: perfect potting medium (soil), perfect watering, often fertilized to push them along, pest-free, controlled exposure (shade cloth). They have to abruptly transition
to less ideal conditions in your garden: uncontrolled weather conditions, no fertilizer, pests, and a gardener who hasn’t grown the plant in these conditions before. They take extra time and care to adapt to new conditions.

2. Native plants have adapted to hot, dry summers, but when they’re young and most vulnerable, they can’t make it through seasonal drought, so monitor carefully and water frequently. During dry winters, check soil moisture around new plantings and younger plants. If soil is dry, water. Check plants weekly through 1st year. Depending on soil and weather conditions, water 2-4x/month for the first summer.

3. Make sure not to allow weeds, annual wildflowers, and fast-growing perennials to crowd/smother new plants.

b. WATERING (NEW VS ESTABLISHED): When watering, water thoroughly. Soil in and around the planting hole should get wet several inches down. Soil should become moderately dry between watering – if soil around roots stays too wet, the roots are prone to rot. Once plant is established increase interval between waters. Check your soil and get to know your plants and their needs. Don’t use an automatic controller unless you have temperature, wind, humidity, age factors accounted for, or unless you’re going to be away for a while. Mediterranean plants are adapted to winter rainfall and summer drought – winter water is essential to sustain plants through dryer summers.

1. Winter: Implement supplemental irrigation If winter rainfall averages are not met by the end of January – early February, by deep watering once or twice a month

2. Summer: Keep soil on the dry side. Water riparian plants. Some plants look better in gardens with a few deep soakings in the summer. Occasional water for desert plants mimics monsoonal rains and will result in desert flowers. Careful water for newbies. Water and heat increase chance of plant diseases (pathogenic fungi, bacteria, viruses). Best to water when it is cool – morning, afternoon, cool foggy days. Some plants do not tolerate summer water (Fremontodendron spp., Trichostema lanatum).

3. General tips: Check soil in root area and in surrounding soil. Get down and dirty – use a soil probe or trowel. Look at your plants and get to know them. Water like you are Mother Nature. Water until root area and surrounding soil are thoroughly wet. Check soil beneath mulch to make sure it is getting wet.

4. Wilted plants can be caused by salt, frost, root disease, rodent, girdled roots. To solve: check the soil where the roots are. If it is dry, water. It is best to water before plant shows signs of stress. If it is moist, do not water. Cut back plant and hope - the plant is probably suffering from root rot. Some plants will wilt in heat of day and then perk up in late afternoon. Monitor carefully, may need to be pinched back. A sunscreen can be helpful.

c. MULCHING

Three to four inches of mulch can be helpful in moderating temperatures and reducing water loss. Keep mulch away from the crown of the plant (the area where stem goes up and the root goes down) and irrigate carefully so water penetrates.
1. **Organic mulch**: woodchips, garden debris, shredded leaves, bark.
   - **Pros**: conserves water, moderates temperature, can enrich soil, onsite use for garden debris.
   - **Cons**: decomposes (must be replaced), can result in disease if crown stays too wet, can enrich soil, may exacerbate future weed problems (weed seed, enriched soil).

   *Best for woodland and riparian gardens where soils naturally have more organic debris.*

2. **Inorganic**: decomposed granite, pebbles, rocks, boulders.
   - **Pros**: conserves water, moderates temperature (probably less than organic), lasts indefinitely, protects young plants & wildflower seeds, doesn’t enrich soil.
   - **Cons**: Often must be brought to site, doesn’t enrich soil, may be hard to weed.

   *Best for chaparral and desert gardens, plants adapted to lean soils.*

d. **PRUNING**

   It should be stressed that pruning is minimal with natives. The things listed below are optional and one of the benefits of natives is that there isn’t much pruning.

   Subshrubs like sages and monkey flowers: pinch tips to encourage denser growth or to encourage more blooms, however, it is not necessary.

   1. Most trees and shrubs may be pruned right after flowering, unless you want to preserve the fruits for decoration or to attract wildlife. Remove no more than 10 – 25% of live foliage at a time. Prune young trees to establish good structure.

e. **WHAT TO EXPECT**

   1. Observing your plants over time will teach you more about how to care for them than any book or class.
   2. Each “failure” is an opportunity to learn. Do a postmortem to try to determine what went wrong. If you cannot figure it out you may want to try again.
   3. Three strikes, you’re out: Any plant that does not succeed in three tries is not meant to be in your garden. With so many wonderful native plants from which to choose, this is just an opportunity to try something new.