

# Landscaping with Drought Tolerant California Natives

## The Climate

Understanding the Californian Mediterranean climate is important to gardening successfully with many California native plants. Their life cycle includes a period of summer dormancy which is broken by the first rains of fall. This is very different from the natural cycle of many of the eastern U.S. or English garden plants with which we are familiar. In their natural settings, winter means death or dormancy, not renewal.

For plants native to Mediterranean regions, like the coastal and chaparral plants of California, the new growing season starts in fall, rather than spring. With the first rains, the coats of fallen seeds begin to swell and split and the roots of perennials and shrubs begin vigorous new growth. While the nights may begin to feel chilly, the ground remains warm for some time from the summer. In the garden, we can simulate the early rains by beginning to water as early as mid-September to hasten the start of growth.

The results of this early growth may not be immediately visible. Foliage may brighten, but tender new growth doesn't show until February's early warm spell. At this time, plants freshen and grow rapidly, flowering early and vigorously. Garden tasks in the spring are not to plant, but to maintain the irrigation system, weed and renew the mulch.

California natives have had to develop mechanisms to survive summer heat. Their foliage consists of tough and leathery evergreen leaves, often protected by a waxy cuticle or surface hairs to resist dehydration. They toughen up in the summer, often taking on a waxy or dull cast, their aromatic oils or resins concentrating to repel grazing animals. Their metabolism slows down, and the plants take a rest, reducing both new growth and loss of moisture by transpiration. Some plants shed some of their foliage to reduce the amount of moisture they lose.

Our aesthetic in gardening is to enjoy the forms and foliage of a plant, and especially to appreciate its flowers. However, the plant has a different goal. Its whole agenda is directed toward the production of seeds. The flower is the vehicle for the plant to produce seeds. With that job done, the perennial plant can rest, and the annual fades and dies.

It is important to respect this cycle in the garden, to be sparing with summer water and fertilization. Allow your plants to toughen up. Less tender new growth means less deer damage, less cleanup and pruning, and longer lived plants. This is the time also to do a little trimming. Perennials should have spent flowers and seed stalks removed and shrubs can be tip pruned or pinched to induce bushing later.

In the fall and winter, before new spring growth begins, is the time for more major cleanup, raking out dead debris and trimming out dead wood. Late September to mid-October is by far the best time for planting natives because the winter rains give the plants time to send down deep roots and get established before the dryness of summer arrives. Sometimes it is hard to think about gardening in the fall and winter. But, if you

can summon up some energy from the returning coolness and promise of rain, you will be well rewarded by planting at this time of the year.

## **Soil Types**

Many drought-tolerant California natives require excellent drainage, and low or no fertilizer, except natural leaf droppings. Roots also need air in the soil. Gravelly or sandy soil on hillsides with some partially decomposed organic matter, such as composted leaves, provides well-aerated soil and good drainage. If you have flat clay soil, you may need to mound the soil to provide good drainage for most native plant communities originating from the hills and mountains, or northern and southern extremes of the state. An exception is our Oak grassland plant community on the Santa Clara Valley floor. Plants of the valley floor tolerate fine clay soil, alkalinity, slow drainage, and sometimes wetness, as well as long dry summers. Variety of species is less on the floor, mainly grasses, bulbs, wildflowers, and oaks.

If you have any question about the drainage or are planting in a new area, it is best to start by digging one hole 12” deep, filling it with water and checking to see how fast it drains. If any water remains in the hole after 4 hours, you will have to plant on large berms (mounds) built up with soil at least 12” high.

## **Water and Root Growth**

New transplants need even soil moisture, even amount of air in the soil, and even soil temperature to allow root growth and keep them alive until enough roots have expanded into the landscape. Even moisture means the same level of moisture spread evenly around the plant where roots spread out, not at the stem.

However, after the first few months, unaccustomed moisture and warmth in the soil during the dry summer months promotes growth of pathogenic root fungi. For chaparral and desert plants, water infrequently, letting the topsoil go almost dry between watering, and add a thick mulch layer of leaves or wood chips to keep the soil cool. Once drought-tolerant native plants are established, avoiding water in the hot summer months is best. These are the main practices that prevent the fungi overgrowth that kills our mighty oaks and other established drought-tolerant plants.

Use only plants that don't need summer water under native oaks, and don't cover the ground under the canopy with hard surfaces or compact the soil.

## **Soil Preparation**

Avoid trenching, rototilling, and amending (adding things to) the soil where tree roots are already established in the area—even beyond the tree canopy. In fact, no soil amendments or fertilizer are required in most cases and are contraindicated for plants from the Chaparral or Desert Communities. One exception is for extremely poor soil, such as when all topsoil has been scraped off and all plants uprooted in the area. For amending

soil on a bare site, use only organic compost incorporated into the top 4-6" of the whole site before planting, not in the planting holes, and no fertilizer. Although all plantings will benefit from having micro-organisms replenished with compost tea or a mycorrhizae (beneficial root fungus) tablet or liquid drench, this is only absolutely required if the soil is extremely poor.

Provide good drainage, by sloping or mounds if possible, for communities other than the Redwood community. Compact the mounds in layers as you build them, by walking on it, not pounding.

## **Planting**

Contrary to common practice, the holes should be dug wide but not deep. (Most plants, even trees, do not have big tap roots but rather a wide network of fine roots that feed within 12-18' of the surface.) Dig the holes 2-3 times the width of the pot or root ball and only as deep as the root ball. (Five times wider in heavy clay soil, as roots spread wide at first).

Remove the plant from the container only after the hole is dug. Roots die quickly, stunting growth; exposure of roots should be less than one minute. Place the plant in its hole. Gently rinse off loose potting soil, filling the hole with water and native soil until soupy, and let plant settle before completely filling the hole. The root crown of woody trees and shrubs should remain about 1-2 inches above the soil level after the hole is filled. Water immediately after planting.

For woody chaparral plants like Ceanothus, Manzanitas, and Fremontodendrons, do not disturb the roots, or score the rootball, unless there are roots circling the pot, which could eventually strangle the plant. Cleanly cut off a circling root-do not pull them loose.

## **Compost and Mulch**

Apply a 1" thick layer of organic compost on top of the soil after planting, for gradual nutrient provision. Apply a 3-4" layer of wood chips, leaves or straw as a mulch over the compost to keep moisture, air, and temperature levels evenly balanced and stable. Even and balanced conditions provide for optimal growth. (The sun will heat the top 4" of soil if it is exposed, killing the feeder roots that absorb most of the nutrients and water, while promoting pathogenic root fungi.) The mulch will protect the top soil layer until the plants have established and grow large enough to shade the ground and provide their own leaf litter mulch.

Keep mulch 4-8" away from stems and trunks to prevent moisture on the root crown, which will cause rotting. Use gravel mulch for chaparral and desert plants.

## **Deer**

There is no such thing as a deer-proof plant. Deer seem to avoid plants that are thorny, spiny, poisonous, have a milky sap, or have a strong taste and aromatic foliage. Deer are also less likely to eat twiggy plants with very small leaves. However, when the deer's natural food source becomes scarce, at the end of the dry season in fall, during drought or in newly developed areas, deer eat almost anything. Also, in spring, new babies will not know that some plants taste bad and may sample "deer-proof" plants. Finally, plants that are never eaten in one area may be regularly eaten in another place.

New plants and older plants with lush new growth are especially susceptible to deer browsing. Well established, large old plants may be browsed but not destroyed. Even if they find a plant they love to eat, deer generally will not eat all they find of a large plant but rather will move on after a few minutes. So the trick is to start with deer-resistant plants and then try to get them to a size that can withstand some nibbles.

New plantings should be protected with a chicken-wire cage large enough to allow the plant to grow for a year or two. After the plant is established, remove the cage and observe how the plant gets along with the deer. Since in spring bucks will rub their antlers against the trunks of trees that they will not eat, trees may need to be protected well after their canopy has grown above the height that deer can reach.

The only fool proof way to protect plants from deer is high fence (7', or more on a slope) or two 5' high fences that are 5' apart.

## **Watering and Irrigation**

Under-watering of new plants, and over-watering of plants in general, are the main causes of failure in new landscapes. Mulching and the proper amount of water are keys to success. Newly planted landscapes need to be kept evenly moist, but if you have planted in the fall, the winter rains will generally do the job until April or May, unless there is a dry period of two weeks or more.

Drought tolerant chaparral and desert plants need only be watered every two weeks the first summer, monthly the second summer and not at all in subsequent years. (However, monthly watering will keep these plants looking fresher, except for Fremontadendron, which resents any summer watering at all and most species of Ceanothus which do not want summer watering after year two.)

Provide drip irrigation, not spray, for drought tolerant plants. Wetting the root crown or stem of any woody plants can cause rot, especially of Oaks and the drought-tolerant species.

Run drip lines at least 4-6 inches out from the shrub stems, 16" or more from young tree trunks, and 6-10 feet away from large trunks of established trees. (Drip tube should be moved away from the trunk as it grows.)

## **Low Water California Plants by Community**

### **Chaparral and Desert (Sun, dry or occasional deep watering)**

**Fremontadendron californica (Flannel bush)**

**Dendromecon hartfordii (Bush Poppy)**

**Ceanothus 'Skylark' (California Lilac)**

**Ceanothus 'Concha' (California Lilac)**

**Ceanothus 'Joyce Coulter' (California Lilac)**

**Ceanothus 'Dark Star' (California Lilac)**

**Festuca idahoensis (Idaho Fescue)**

**Mimulus aurantiacus (Sticky Monkeyflower)**

**Eriogonum umbellatum 'Shasta Sulfur' (Sulfur Buckwheat)**

**Romneya coulteri (Matilija poppy)**

**Clematis lasiantha (Chaparral Clematis)**

**Penstemon, Eschscholzia californica (Ca Poppy) & Eriogonum**

**Eschscholzia, Thyme and Eriogonum**

**Salvia clevelandii 'Winifred Gilman' (Cleveland Sage)**

**Cercocarpus betuloides (Mountain Mahogany)**

**Garrya elliptica (Silk Tassel Bush)**

**Rhus ovata (Sugar Bush)**

**Arctostaphylos 'Howard McMinn' (McMinn Manzanita)**

**Trichostema lanatum (Wooley Blue Curls)**

**Baccharis pilularis 'Twin Peaks' (Coyote Bush)**

**Ericamerica linearifolia (Golden Fleece Bush)**

**Lupinus albifrons (Silver Bush Lupine)**

**Linum lewisii (Blue Flax)**

### **Oak Woodland (Shade or part shade, dry or occasional deep watering)**

**Pinus sabiniana (Foothill Pine)**

**Aesculus californica (California Buckeye)**

**Stylomecon heterophylla (Wind Poppy)**

**Monardella villosa (Coyote Mint)**

**Penstemon heterophyllus (Foothill Penstemon)**

**Eriophyllum lanatum (Wooley Sunflower, Oregon Sunshine)**

**Sisyrinchium bellum (Blue eyed grass) & Lupinus densiflorus 'Alba'**

**Rhamnus 'Eve Case' (Coffeeberry)**

**Cercis occidentalis (Redbud)**

**Clarkia elegans (Elegant Clarkia) aka C. unguiculata**

**Heteromeles arbutifolia espaliered (Toyon, Christmasberry)**

**Salvia sonomensis 'Darah's Choice'**

**Epilobium canum canum (California Fuschia)**

**Arctostaphylos glauca (Manzanita)**

**Sidalcea malvaeflora (Checkerbloom)**

**Iris douglasiana (Douglas Iris)**

**Iris 'Canyon Snow'**

**Festuca californica**

**Tritelia laxa ((Ithuriel's spear)**

**Calochortus luteus (Golden Mariposa)**

**Calochortus albus (White Fairy Lantern)**

**Calochortus venustus (White Mariposa)**

**Holodiscus discolor (Creambush)**

**Muhlenbergia rigens (Deer Grass)**

**Eschscholzia californica (California Poppy)**

**Salvia spathacea (Hummingbird Sage)**

**Lonicera hispidula (Hairy Honeysuckle)**

**Coastal and Meadow (part sun, moderate water)**

**Achillea millefolium (Yarrow)**

**Heuchera micrantha (Coral Bells)**

**Heuchera maxima (Island Alumroot)**

**Heuchera hybrid**

**Myrica californica (California Wax Myrtle)**

**Dudleya cymosa**

**Aquilegia formosa (Red Columbine)**

**Dicentra formosa (Western Bleeding Heart)**

**Polystichum munitum (Western Sword Fern) and Acer circinatum (Vine Maple)**

**Calystegia occidentalis (Wild Morning Glory)**

**Epilobium 'Select Mattiole'(California Fuschia)**

**Epilobium canum 'Cloverdale' (California Fuschia)**

**Mimulus 'Pumpkin' (Monkeyflower)**

**Verbena lilacina (Lilac Verbena)**

**Allium unifolium (Wild Onion)**

**Ceanothus griseus 'Diamond Heights'**

**Vitus californica 'Roger's Red'(Wild Grape)**

**Armeria maritime (Sea Thrift)**

**Erigeron glaucus (Beach Fleabane)**

**Carpenteria californica 'Elizabeth'(Bush Anemone)**

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