

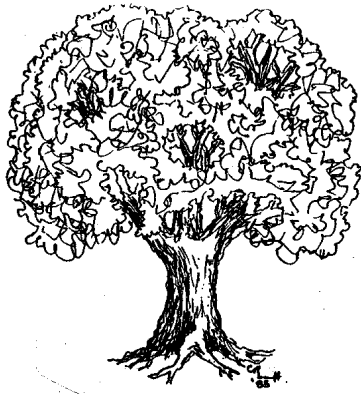


## Environmental Horticulture Notes

EHN 6

### THE USE OF CALIFORNIA NATIVE PLANT MATERIAL AS A MEANS OF CONSERVING WATER IN THE LANDSCAPE

California native plants can be successfully used to create attractive landscapes with little or no irrigation. Although not all native plants are tolerant of drought, many are well adapted to arid climatic conditions.



Some of the characteristics which help these plants perform well under low moisture conditions are:

- California native plants are often very deep rooted and capable of obtaining water from a large volume of soil.
- Many California native plants have leaves adapted to use less water in summer. Some of these adaptations to reduce the transpiration rate are fewer stomata, thick cuticle, curled leaves, many plant hairs, reflective color, and leaves turned to face the leaf edge to the sun.
- Some native plants become dormant in summer, and are deciduous or semi-deciduous during periods of low rainfall.

Most successful unirrigated landscapes which utilize California plants are in coastal or foothill and mountain areas where moister climates prevail, or in habitats with a high water table. This success reflects the fact that most of our native plants which we use in landscaping come from these areas.

Difficulties often result when native plant materials are used in interior valley or in desert areas. The major reason for this is that the quantity of really useful plant species adaptable to no irrigation in these areas is quite limited. These drier regions tend to have very hot summers and cold winters, short spring seasons, and hot, dry air and wind. Soils vary tremendously from coarse sands to heavy clays, and alkaline and saline conditions are common.

At Davis, California, where the climate is representative of the California interior valleys, we have had good success growing some native plant material. By success, for the purposes of this report, we mean the use of plant material that needs no supplemental irrigation and yet remains attractive and vigorous all year with no maintenance. A list of this plant material follows.

#### FULL SUN (low water table, no irrigation after first year)

- Trees: California buckeye, [Aesculus californica](#)  
 Big cone Douglas fir, [Pseudotsuga macrocarpa](#)  
 Foot-hill pine or gray pine, [Pinus sabiniana](#)  
 Torrey pine, [Pinus torreyana](#)  
 California fan palm, [Washingtonia filifera](#)  
 Blue oak, [Quercus douglasii](#)  
 Palo verde, [Cercidium floridum](#)

The University of California prohibits discrimination or harassment of any person in any of its programs or activities. (Complete nondiscrimination policy statement can be found at <http://ucanr.edu/sites/anrstaff/files/107778.doc>) Inquiries regarding ANR's equal employment opportunity policies may be directed to Linda Marie Manton, Affirmative Action Contact, University of California, Davis, Agriculture and Natural Resources, One Shields Avenue, Davis, CA 95616, (530) 752-0495

Agriculture • Community Resource Development • Nutrition, Family and Consumer Sciences • Master Food Preservers • 4-H Youth Development • Horticulture • Master Gardeners  
University of California, U.S. Department of Agriculture, and the County of Sacramento cooperating.

Sacramento County Board of Supervisors -- Phil Serna, 1st District; Jimmy Yee, 2nd District; Susan Peters, 3rd District; Roberta MacGlashan, 4th District; and Don Nottoli, 5th District.  
Also, Brad Hudson, County Executive; Ann Edwards, Countywide Services Agency; and Yvonne Nicholson and Chuck Ingels, Cooperative Extension.

Shrubs: Foot-hill tasselbush, Garrya congdonii  
 Desert Olive, Forestiera neo-mexicana  
 Chaparral pea, Pickeringia montana  
 Island bush poppy, Dendromecon rigida subsp. harfordii  
 Buckbrush, Ceanothus cuneatus  
 Greenback ceanothus, Ceanothus spinosus  
 Bigpod buckbrush, Ceanothus megocarpus  
 Manzanita, Arcotostaphylos manzanita  
 Creosote bush, Larrea divaricata  
 Jojoba, Simmondsia chinensis  
 Nolina, Nolina species  
 Sugarbush, Rhus ovata  
 Yucca, Yucca whipplei  
 Maguey, Agave deserti  
 San Fernando barberry, Mahonia nevinii  
 Leather oak, Quercus durata  
 Bladder pod, Isomeris arborea  
 Rabbit bush, Chrysalthamnus nauseosus  
 Encelia, Encelia californica  
 Chamise, Adenostoma species  
 Mormon tea, Ephedra species  
 Chuparrosa, Beloperone californica

**PROTECT FROM AFTERNOON SUN** (low water table, no irrigation after first year)

Trees: Coast live oak, Quercus agrifolia  
 Mesa oak, Quercus engelmannii  
 Santa Catalina cherry, Prunus lyonii  
 Hybrid holly-leaf cherry, Prunus lyonii X P. ilicifolia  
 Santa Cruz Island ironwood, Lyonothamnus floribundus var. asplenifolius  
 Coulter pine, Pinus coulteri  
 Jeffrey pine, Pinus jeffreyi  
 Yellow pine, Pinus ponderosa  
 Pinyon pine, Pinus species  
 Sargent cypress, Cupressus sargentii

Shrubs: Manzanita, Arcotostaphylosrudis, A. pajaroensis  
 Redberry, Rhamnus crocea  
 Coffeeberry, Rhamnus californica  
 Fremont barberry, Mahonia fremontii  
 Tassel bush, Garrya fremontii, G. elliptica  
 Toyon, Heteromeles arbutifolia  
 Redbud, Cercis occidentalis  
 Holly-leaf cherry, Prunus ilicifolia  
 Fuschia gooseberry, Ribes speciosum  
 Chaparral current, Ribes malvaceum  
 Apache plume, Fallugia paradoxa  
 Summer-holly, Comarostaphylis diversifolia  
 Palo blanco, Ornithostaphylis oppositifolia  
 Island mountain mahogany, Cercocarpus betuloides subsp. blancheae  
 Fremontia, Fremontodendron species  
 Wild rose, Rosa californica  
 Wild buckwheat, Eriogonum species

## Ground Covers:

California fuchsia, Zauschneria species (mow down each winter)

Catalina currant, Ribes viburnifolium

Maritime ceanothus, Ceanothus maritimus

Dwarf coyote bush, Baccharis pilularis subsp. pilularis

To help guarantee the success of California native plants used on very dry sites the following should be done.

- **Keep the soil free of other competing plants.** This includes weeds and the exclusion of other ornamentals within an area equal to twice the drip line area of the native plant.
- **Mulch.** This practice buffers the soil from temperature extremes, traps moisture, and discourages weeds. Mulching materials include wood chips, fir bark, pine needles, fine gravel or coarse sand, or even dust mulch, which should be renewed yearly. Asphalt, sometimes known as "Detroit Mulch", has also been used successfully.
- **Improve soil conditions.** This may include lowering the pH, improving physical properties through the use of organic materials and gypsum, leaching of salts, and breaking of hardpan (if present).
- **Make provisions for shade.** Many natives succeed on dry sites if they are protected from full sun, especially in the afternoon, or if the plant's active root zone is shaded, especially important for shallow-rooted plants.
- **Planting.** This is best performed just before or during the rainy season. This reduces transplant shock and allows the plant's roots to establish at greater depths so that summer drought is not as damaging. When planting, soil should be prepared so that water penetrates and is retained at greater depths. Irrigation basins and mulching will help in establishment of the plant, and care should be taken so that soil will never accumulate above the root crown.

California native plants, although relatively pest free, are not without problems. Since some plant material is quite inflammable it is best to use low growing plants or to avoid planting near buildings in high fire danger areas. The reduction of irrigation on these flammable plants will also result in reduced growth and less accumulation of potential fire fuel.

Diseases such as root and crown rots are often aggravated by summer irrigation or poor planting practices. Pruning can increase the danger of cankers on some natives such as ceanothus, manzanita, or fremontia and should be avoided as much as possible. Tip prune only, and perform pruning just after the rainy season.

The general aesthetic appearance of natives should be considered. Many plants become rather unattractive towards the end of summer unless they are watered occasionally during the dry season. Generally, one to five deep waterings during this period will improve the plant's appearance considerably. The public acceptance of the appearance of drought tolerant plantings is of concern and is presently being studied at U.C. Davis.

Before choosing drought tolerant California native plants it is quite important to question the plant list being used. Often plants which are listed as performing well in dry situations for one area will be unacceptable in other locations. The use of California natives in the landscape for drought conditions is increasing, but more observations and more controlled research are definitely needed to produce dependable information on their landscape use in our water-scarce environment.