

## CALIFORNIA SAGEBRUSH

*Artemisia californica* Less.  
Plant Symbol = ARCA11

Contributed by: USDA NRCS Lockeford Plant Materials Center, California



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### Alternate Names

Coastal sagebrush, California sagewort, California mugwort

### Uses

**Landscaping and erosion control:** Landscape use is usually restricted to slope plantings, especially road scars, and revegetation of disturbed areas for erosion control (Perry 1981).

**Wildlife:** Late-successional California sagebrush communities provide foraging and nesting habitat for many birds, including critical habitat for the federally threatened California gnatcatcher and the endemic Bell's sage sparrow, a state-listed species of special concern (Hauser 2006). These communities also support a number of amphibians, reptiles and small mammals, such as dusky-footed and desert woodrats who preferentially feed on California sagebrush (Meserve 1974).

**Ethnobotanical:** Native Americans in California used the leaves of California sagebrush for a number of medicinal treatments, including as a poultice for tooth aches or wounds, or applied to the back to treat asthma; as a decoction taken for menstrual problems, to ease childbirth, to ease menopausal symptoms, and for newborns to flush out their systems; and as a decoction used as a bath for colds, rheumatism and coughs (Bean and Saubel 1972; Bocek 1984; Foster and Hobbs 2002).

The leaves are also reported to have been chewed fresh, or dried and used for smoking, mixed with tobacco and other dried leaves (Bean and Saubel 1972). The Luiseno Indians reportedly burned the bushes with white sage in ceremonial fires before hunting (Sparkman 1908). Early Spanish Californians knew the plant as "Romerillo", and regarded it as a panacea, using it in tea for bronchial troubles, or as a wash for wounds and swellings (Dale 1986). It was also used by early miners in sprays to drive fleas from their beds (Dale 1986).

### Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

### Description

**General:** Aster Family (Asteraceae). California sagebrush is an aromatic, native, perennial shrub that can reach 5 to 8 ft (1.5-2.5 m) in height. It has a generally rounded growth habit, with slender, flexible stems branching from the base of the plant. Leaves are more or less hairy, light green to gray in color, usually 0.8 to 4.0 inches (2-10 cm) in length, with 2 to 4 thread-like lobes that are less than 0.04 inch (1 mm) wide, with the margins curled under. California sagebrush blooms in the later summer to autumn/winter (depending on locale), and inflorescences are long, narrow, leafy and sparse, generally exceeding the leaves, with heads less than 0.2 inch (5 mm) in diameter that nod when in fruit (Hickman 1993).

**Distribution:** California sagebrush is found at elevations below 2,625 ft (800 m) in central western and southwestern California south to northern Baja California, Mexico (Hickman 1993). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

**Habitat:** This shrub is a dominant component of the coastal sage scrub, and an important member of some chaparral, coastal dune and dry foothill plant communities, especially near the coast (Hickman 1993). It grows best on shallow, well-drained soils in hardiness zones 7-9 and 14-24 (Norris Brenzel 2001).

### Adaptation

California sagebrush is adapted to summer heat and drought, dropping its leaves only under periods of extreme drought stress (Perry 1981). The root system is shallow and fibrous, allowing the plant to take advantage of early season rains for rapid growth (Hauser 2006). The leaves produce soluble and volatile terpene compounds

that are thought to inhibit germination and growth of some plants, resulting in relatively bare patches of soil under and around the shrub (Hauser 2006). This plant is moderately adapted to fire, resprouting from the root crown about 25% of the time, or germinating from seed, especially in the second year after a fire (Keeley 1998). Foliage contains substantial amounts of oil, making it highly flammable during the summer (Perry 1981).

### **Establishment**

California sagebrush can be established from container stock or by direct seeding. Shallow seeding methods should be used, such as hydroseeding or broadcasting followed by seed imprinting, as seeds have a light requirement for germination. For restoration projects, especially on steeper slopes, either seeding method can be followed by blowing a thin layer of straw at a rate of approximately 1,500 lbs/acre (1,689 kg/ha), with a hydromulch slurry of water, wood fiber at 300 lbs/acre (340 kg/ha), and tackifier (soil stabilizer) at 120 lbs/acre (135 kg/ha) sprayed over the straw (Montalvo et al. 2002).

### **Management**

For ornamental use, shrubs should be pruned or pinched back each year to maintain their form. In range, livestock generally avoid California sagebrush due to the pungent aroma and bitter taste, although domestic goats will browse the shrub year-round (Hauser 2006).

### **Pests and Potential Problems**

There are no known pests or diseases of concern. However, the plant is sensitive to sulphur dioxide and ozone air pollution, which reduce foliar cover and may result in plant death (Preston 1988; Westman 1985). Elevated nitrogen deposition levels in the Los Angeles air basin also pose a threat to stand longevity, as exotic annual grasses tend to out-compete the shrub under such conditions (Hauser 2006).

### **Environmental Concerns**

There are no known environmental concerns associated with California sagebrush.



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### **Control**

California sagebrush can be controlled with the herbicides glyphosate and 2,4-D (Hauser 2006). Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA, NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

### **Seeds and Plant Production**

There are approximately 5,500,000 seeds/lb (12,000,000 seeds/kg; S & S Seeds 2009). Seed is collected from October to February from mature (brown) inflorescences. Seed is light to dark brown when mature, and achenes should be pulled from the seed head at time of collection to check for maturity (they should not be green) (Young 2001).

Germination occurs in 21–30 days at 73.4°F (23°C) in light, and no seed treatment is required. Germination rates are generally 60–75% in controlled environments, but as low as 10–30% when broadcast (Keeley 1987; Perry 1981; Young 2001). Stratification at 41°F (5°C) for 15 days is reported to produce more rapid and uniform germination in other species of *Artemisia* (Long 1986), and stratification for three months at 41°F (5°C) is used to improve germination of California sagebrush in commercial nurseries (personal communication, California Flora Nursery, 5 November 2009).

Young (2001) recommends surface sowing seed in flats, then transplanting seedlings to individual tubes (2" dia. x 7" deep Deepot 16) 21 days after germination (transplant survival rate of 70%), and maintaining seedlings in a shadehouse for at least five weeks to develop further before being planted out. Alternately, seed can be sown directly in individual containers (1.5" dia. x 8.25" deep Supercell), with thinning required one and two months

after sowing to leave only a single plant per container (Long 1986).

Shrubs can also be propagated by semi-hard new-wood cuttings in the spring. Cuttings are treated with rooting hormone and maintained in flats with bottom heat and mist until rooted (personal communication, California Flora Nursery, 5 November 2009).

### **Cultivars, Improved, and Selected Materials (and area of origin)**

These plant materials are somewhat available from commercial sources:

'**Canyon Gray**,' also called trailing sagebrush, is a prostrate cultivar that spreads along the ground, reaching 3 ft (0.9 m) high and 6 ft (1.8 m) wide. It prefers sunny locations, is drought tolerant, and deer resistant (Yerba Buena Nursery 2009).

'**Montara**' was selected by Roger Raiche at Montara Ridge in San Mateo County, CA. This cultivar forms a mound of finely-cut, fragrant foliage to around 2-3 ft (0.6-0.9 m) tall by 3 ft (0.9 m) wide. The plant requires full sun with decent drainage and is drought tolerant once established, but occasional summer water helps retain fresh look. Montara thrives in coastal environments and is deer resistant (California Flora Nursery 2009).

Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under United States Government. The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

### **References**

- Bean, L.J., and K.S. Saubel. 1972. *Temalpakh* (From the Earth): Cahuilla Indian Knowledge and Usage of Plants. Malki Museum Press, Banning, CA.
- Bocek, B.R. 1984. Ethnobotany of Costanoan Indians, California, based on collections by John P. Harrington. *Economic Botany* 38:240-255.
- Calflora Database. 2009. NRCS California eVegGuide [Online]. Available at <http://www.calflora.org/app/npb?page=home> (accessed 8 September 2009). Berkeley, CA.
- California Flora Nursery. 2009. *Artemisia californica* 'Montara' California sagebrush [Online]. Available at <http://www.calfloranursery.com> (accessed 23 September 2009). Fulton, CA.
- Dale, N. 1986. Flowering Plants: The Santa Monica Mountains, Coastal & Chaparral Regions of Southern California. The California Native Plant Society and Capra Press, Santa Barbara, CA.
- Foster, S., and C. Hobbs. 2002. Peterson Field Guide Series: Western Medicinal Plants and Herbs. Houghton Mifflin Company, New York.
- Hauser, A. Scott. 2006. *Artemisia californica*. In: Fire

Effects Information System [Online]. Available at <http://www.fs.fed.us/database/feis/> (accessed 3 November 2009). U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory.

- Hickman, J.C. (ed.) 1993. *The Jepson Manual: Higher Plants of California*. University of CA Press, Berkeley.
- Long, L.E. 1986. Container nursery production of *Artemisia* and *Chrysothamnus* species. p. 395-396. In E.D. McArthur and B.L. Welch (eds.) *Proc. Symp. Biology of Artemisia and Chrysothamnus*, Provo, UT. 9-13 July 1984. General Technical Report INT-200. USDA-FS Intermountain Research Station, Ogden, UT.
- Meserve, P.L. 1974. Ecological relationships of two sympatric woodrats in a California coastal sage scrub community. *Journal of Mammalogy* 55:442-447.
- Norris Brenzel, K. (ed.) 2001. *Sunset Western Garden Book*. Sunset Publishing Corporation, Menlo Park, CA.
- Perry, R.C. 1981. *Trees and Shrubs for Dry California Landscapes*. Land Design Publishing, San Dimas, CA.
- Preston, K.P. 1988. Effects of sulphur dioxide pollution on a Californian coastal sage scrub community. *Environmental Pollution* 51:179-195.
- Sparkman, P.S. 1908. The culture of the Luiseno Indians. *University of California Publications in American Archaeology and Ethnology* 8:187-234.
- S & S Seeds. 2009. *Artemisia californica*. In S & S Seeds Plant Database [Online]. Available at <http://www.ssseeds.com/database/index.html> (accessed 5 November 2009). Carpinteria, CA.
- USDA, NRCS. 2009. The PLANTS Database [Online]. Available at <http://plants.usda.gov> (accessed 17 September 2009). National Plant Data Center, Baton Rouge, LA 70874.
- Westman, W.E. 1985. Air pollution injury to coastal sage scrub in the Santa Monica Mountains, southern California. *Water, Air, and Soil Pollution* 26:19-41.
- Yerba Buena Nursery. 2009. *Artemisia californica* 'Canyon Grey' [Online]. Available at <http://www.yerbabuenanursery.com> (accessed 23 September 2009). Woodside, CA.
- Young, B. 2001. Propagation protocol for production of container *Artemisia californica* Less. plants (Deepot 16); USDI NPS - Golden Gate National Parks, San Francisco, California. In *Native Plant Network*. Available at <http://www.nativeplantnetwork.org> (accessed 23 September 2009). University of Idaho, College of Natural Resources, Forest Research Nursery, Moscow.

### **Prepared By**

*Anna Young-Mathews*  
USDA-NRCS Plant Materials Center  
Lockeford, CA

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