USDA
United States Department of Agriculture

Natural Resources Conservation Service Plant Guide

BUCKBRUSH

Ceanothus cuneatus (Hook.) Nutt.

Plant Symbol = CECU

Common Names: buckbrush, buckbrush ceanothus, blue brush, cuneate ceanothus, wedgeleaf ceanothus
Native American traditional names include: bä-käm' (Pomo tribe), hit (Wailaki tribe) (Chestnut, 1902).
Common Names: *Ceanothus cuneatus* var *cuneatus, C. cuneatus* var. *fasicularis*, *C. cuneatus* var. *ramulosus*, *C. cuneatus* var. *rigidus* (USDA ARS 2019).

Figure 1: Ceanothus cuneatus branches. Photo M. DeSiervo Lockeford Plant Materials Center.

Description
General: Buckthorn family (Rhamnaceae). California buckbrush is an erect, perennial, evergreen shrub within the California lilac *(Ceanothus)* genus (Wilken and Burge, 2016). The species ranges in size from 3 to 12 feet tall. As with other California lilac species, buckbrush shrubs are distinct from other woody chaparral plants with their unique pattern of angular, rigid branchlets of unequal sizes. The twigs are round and gray colored and do not have hairs or spines. The evergreen leaves on this species are in an opposite arrangement, generally 0.25 - 0.5 in long. The leaves are generally smooth and entire, sometimes with a toothed margin near the apex. The inflorescence, generally less than 1 inch, is displayed as a raceme with several umbellate clusters, each containing many fragrant flowers. The flowering period of this species is between March and May and the flower colors ranges from white to several shades of blue and lavender. The fruits are 0.25 - 0.5 in long and have 3 distinct horns near the top without crests or ridges. Each fruit capsule contains two to three seeds (McMinn, 1939; Hickman, 1993).

Distribution: *Ceanothus cuneatus* is widely distributed through California, Oregon and northern Baja California, Mexico, generally at elevations less than 6000 ft. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.
Habitat: Buckbrush is one of the primary shrub species in the chaparral ecosystem. It is commonly found on dry, rocky slopes and ridges along with associated shrub species including chamise (*Adenostoma fasciculatum*) and whiteleaf manzanita (*Arctostaphylos viscida)* (Baker, 1982). In some places, *Ceanothus cuneatus* outcompetes other shrub species to form dense, impenetrable thickets (McMinn, 1939). These ecosystems are known as ceanothus chaparral vegetation type.
Ceanothus cuneatus is adapted to serpentine soils and can therefore serve as a good indicator species for field identification of serpentine soils in California and Oregon (Kruckeberg, 1984). It should be noted however, that this species is more commonly found on non-serpentine soils of sandstone origins (Safford and Harrison, 2004).
Buckbrush is also an important shrub species in the montane ecosystem where it often grows as an understory species in pine forests and oak woodland habitats. In the coastal sage scrub habitat type, buckbrush is present in areas in or near low elevation coastal aspects, along with the dominant species, California sagebrush (*Artemisia californica)*. Buckbrush is also found in inland dune habitats in small populations. (League, 2005).

Adaptation
Ceanothus cuneatus is adapted to the annual summer drought in the Mediterranean climate zone. In a two year study comparing the phenology of chaparral shrubs, it was found that buckbrush undergoes branch elongation, leaf initiation and flowering in late winter and early spring before the onset of annual drought (Baker, 1982).
Buckbrush is also well adapted to chaparral fires, and is widely considered to be a "fire recruiter" species. High temperatures are necessary to melt and crack the cuticle of buried seeds, facilitating high germination rates after fire (League, 2005). McMinn (1939) noted that dense colonies of this plant can be formed within a few years after a major fire disturbance.

Uses
Wildlife: Deer will forage on the leaves, shoots and berries of buckbrush, preferring the tender young seedlings to the mature plants. Additionally, small rodents and birds including the quail and mourning dove feed on the seeds (League, 2005). Buckbrush is also an important cover species for wildlife, due to its size and abundance of branchlets.
Buckbrush is also an important species for pollinators such as bees, butterflies and hummingbirds.

Landscaping: Along with other native *Ceanothus* species, *Ceanothus cuneatus* is an aesthetically pleasing shrub commonly integrated in the outdoor landscape of homes, parks and other recreational areas throughout its range. Due to its fast-growing nature and nitrogen-fixing capabilities, buckbrush is a great pioneer species for new landscapes (Las Pilitas Nursery, 2011). It is also a valuable shrub species for pollinator hedgerows and attracts many bees with its fragrant flowers in the early spring. There are several cultivars of *Ceanothus cuneatus* available at local nurseries.

Ethnobotany
As one of the dominant species in the chaparral ecosystem, this shrub has been utilized by California Native Americans for centuries. Buckbrush shrubs contain a significant amount of woody material and several California tribes including the Kawaiisu and the Miwok used this species for firewood (Zigmond, 1981; Merriam, 1967). The twigs were also collected for a variety of hunting and fishing purposes. The Kawaiisu used the straight twigs of this shrub as the foreshafts for two-piece arrows. The arrows were created by stripping and sharpening the *Ceanothus* twigs and fitting them inside sections of hollow Carrizo grass of "cane" (Zigmond, 1981). Indians of Mendocino used buckbrush woody material to create fish dams (Chestnut, 1902). Buckbrush was also used for traditional Native American tools. Seed beaters were constructed using the rigid woody material of the shrub. Consisting of a basket with a handle, the seed beaters were used to "thrust over the spike or inflorescence of a grass of wildflower to knock off the grains and seeds into a burden basket" (Anderson, 2005). The Paiute and Miwok tribes used the rigid buckbrush wood to create digging sticks (Steward, 1933). Barrett and Gifford (1933) describe this tool as a three to four-foot-long stick that was hacked off with a sharp stone, scraped with flint, and hardened by fire. The tool was held as a staff and thrust into the ground as a digging device. Sharpened buckbrush twigs were also utilized by the Pit River tribe to create slender needles used in the piercing of earlobes of young girls (Merriam, 1967). Similarly, the Tubatulabal used the sharpened twigs as a skewer for roasted pinyon nuts (Voegelin, 1938).

To this day, *Ceanothus cuneatus* is an extremely valuable species for basketry. Several characteristics of buckbrush including its color, length and strength make it an ideal species for this craft. The young shoots in particular are highly valued for basketry. The Miwok and Mono Indians historically manipulated stands of buckbrush by pruning and coppicing to induce rapid elongation of young growth and burning to encourage new seedlings (Anderson, 1991, 2005).

Buckbrush branches are often used in the construction of burden baskets. According to Barrett and Gifford (1933), the burden baskets used by the Miwok Indians were reinforced by using a hoop made of *Ceanothus cuneatus* wood, placed midway down inside the basket. Buckbrush branches were also used by the Mono for the hood of cradleboards and the rims of winnowers and seed beaters (Anderson, 2005). The Sierra Miwok made shallow openwork scoop baskets of buckbrush called *cham-ah*, used for drying green acorns, and in later times for drying domesticated fruits such as peaches and figs. the foundation of some Miwok coiled baskets used for acorn mush are made of young buckbrush shoots (Merriam, 1967).

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

Planting Guidelines
The germination and establishment of *Ceanothus cuneatus* in its natural habitat is highly correlated with fire regime. Germination rates in the spring following fire disturbance are generally quite high, but seedling survival varies according to soil moisture (Sweeney, 1956). Since establishment occurs after fire, buckbrush typically forms even-aged stands (Keeley, 1982).

Management
Buckbrush stand maintenance is most successful with fire intervals of 30-100 years (Minnich, 1999; Paysen et al., 2000). This fire regime allows for larger quantities of seeds to accumulate in the seed bank. In the mid-twentieth century, it was believed that Native American burning practices led to the increase of several chaparral species, including *Ceanothus cuneatus* in oak woodlands (Biswell, 1956).

Pests and Potential Problems
There are no known pests or problems associated with buckbrush.

Environmental Concerns
There are no known environmental concerns associated with buckbrush.

Control
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
Ceanothus cuneatus fruits are usually ripe in late spring. When the seeds are ripe, the mature capsule bursts open with considerable force and the seeds can fall up to 35 feet from the plant (Biswell and Gilman, 1961). This seed-ejecting mechanism, while beneficial for the plant, can make seed collecting quite challenging. One technique for seed collection is to tie cloth bags over clusters of green seed pods (Reed, 1974). Another method is to cut seedpod clusters before the capsules have split; however, you must insure the seeds are mature, since prematurely collected seeds will not germinate successfully (Emery, 1988).
Seed propagation is most successful using a combination of scarification and stratification techniques. Seeds can be scarified with fire, or by using a hydrochloric acid mixture. Seeds should then be refrigerated and stored in sealed containers for about two to three weeks. In a greenhouse environment, germination of *Ceanothus cuneatus* was most successful when seeds were planted at depths of 0.5 to 1 inch (Adams, 1962; Belcher, 1985).
Plants can also be propagated from semi-hard cuttings in the summer, or from root cuttings in the late fall to early winter.

Cultivars, Improved, and Selected Materials (and area of origin)
Buckbrush container stock is readily available through most nurseries within its range. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information.
'Sierra Mt. Lilac' is a cultivar with fragrant blue flowers. It typically grows into a large evergreen bush (about 8 feet) with a showy inflorescence during the spring. Due to its fast-growing nature and nitrogen fixing capabilities, this cultivar is commonly planted as a companion to slow-growing species such as oaks, coffeeberry and toyon (Las Pilitas Nursery, 2019).

Literature Cited

Adams, L. 1962. Planting depths for seeds of three species of Ceanothus. Res. Note PSW-194.USDA-FS-Pacific Southwest For. and Range Exp. Stn., Berkeley, California.

Anderson, M.K. 1991. Wild plant management: cross-cultural examples of the small farmers of Jaumave, Mexico, and the southern Miwok of the Yosemite region. Arid Lands Newsletter. Tucson, Arizona, Office of Arid Lands Stud. 31:18-23.

Anderson, M.K. 2005. Tending the Wild: Native American Knowledge and the Management of California's Natural Resources. University of California Press, Berkeley, CA.

Baker, G.A., P.W. Rundel, and D.J. Parsons. 1982. Comparative phenology and growth in three chaparral shrubs. Botanical Gazette. 143: 94-100.

Barrett, S.A. and E.W. Gifford. 1933. Miwok Material Culture: Indian life of the Yosemite Region. Bulletin of Milwaukee Public Museum. Vol. 2, No. 4. Yosemite Association, Yosemite National Park, CA.

Belcher, E. 1985. Handbook on seeds of browse shrubs and forbs. Technical Publication R8-TP8. USDA-FS-Southern Region and Association of Official Seed Analysts. Atlanta, Georgia.

Biswell, H.H. 1956. Ecology of California grasslands. Journal of Forestry. 9:19-24.

Biswell, H.H. and J.H. Gilman. 1961. Brush management in relation to fire and other environmental factors on the Tehama deer winter range. California Fish and Game. 47:357-389.

Chestnut, V.K. 1902. Plants used by the Indians of Mendocino County, California Mendocino County Historical Society. Contributions from the U.S. National Herbarium. 7:295-408.

Emery, D.E. 1988. Seed propagation of native California plants. Leaflets Santa Barbara Botanical Garden. 1: 90-91.

Hickman, J.C. 1993. The Jepson Manual. University of California Press. Berkeley, CA.

Keeley, J.E. 1982. Distribution of lightning- and man-caused wildfires in California. pp. 431-437.

Kruckeberg, A.R. 1984. California serpentines: flora, vegetation, geology, soils and management problems. Publications in Botany. Vol. 48. University of California Press. Berkeley, CA.

Las Pilitas Nursery. *Ceanothus cuneatus.* Sierra Mt. lilac. Available at http://www.laspilitas.com. (Accessed on August 28, 2019). Santa Margarita, CA.

League, K.R. 2005. *Ceanothus cuneatus*. In Fire Effects Information System [Online]. Available at http://www.fs.fed.us/database/feis/ (accessed 1 Jun. 2011). USDA-FS-Rocky Mountain Res. Stn., Fire Sci. Lab.

McMinn, H.E. 1939. An Illustrated manual of California shrubs. University of California Press. Berkeley, CA.

Merriam, C.H. 1967. Ethnographic notes on California Indian Tribes. III. Compiled and Edited by R.F. Heizer. Reports of the California Archaeological Survey No.58, III. University of California Archaeological Research Facility. Berkeley, CA.

Minnich, R.A. 1999. Vegetation, fire regimes, and forest dynamics. pp. 44-80.

Paysen, T.E., R.J. Ansley, J.K. Brown et al. 2000. Fire in western shrubland, woodland, and grassland ecosystems. p. 121-159. In J.K. Brown and J.K. Smith (ed.) Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-v. 2. USDA-FS- Rocky Mountain Res. Stn., Ogden, UT.
Reed, M.J. *Ceanothus* L. In: Seeds of Woody Plants of the United States. Forest Service, USDA Agriculture Handbook No. 450: pp 284-290.
Safford, H.D., and S. Harrison. 2004. Fire effects on plant diversity in serpentine vs. sandstone chaparral. Ecology 85:539-548.
Steward, J.H. 1933. Ethnography of the Owens Valley Paiute. Univ. of California Publ. in Am. Archaeology and Ethnology 33:233-250.
Sweeney, J.R. 1956. Responses of vegetation to fire: a study of the herbaceous vegetation following chaparral fires. Univ. of California Publ. in Bot. 28:143-250.
USDA, Agricultural Research Service, GRIN-Global Website. 2019. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: https://npgsweb.ars-grin.gov/gringlobal/search.aspx. Accessed 12 August 2019.
Voegelin, E.W. 1938. Tubatulabal ethnography. Anthropological Records 2:1-84.
Wilken, D.H. and D.O. Burge. 2016. *Ceanothus cuneatus*, in Jepson Flora Project (eds.) *Jepson eFlora*, Revision 4, http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=18434, (accessed on August 28, 2019).
Zigmond, M.L. 1981. Kawaiisu ethnobotany. University of Utah Press, Salt Lake City, Utah.

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