USDA United States Department of Agriculture

Natural Resources Conservation Service Plant Guide

CALIFORNIA BUCKEYE

Aesculus californica (Spach) Nutt.

Plant Symbol = AECA

Common Names: Buckeye, Horse chestnut,

Figure 1 California Buckeye small tree or shrub. Photo Lockeford Plant Materials Center.

Description

General: California buckeye is classified in either the Buckeye Family (Hippocastanaceae) (USDA, NRCS, 2019), or Soapberry Family (Sapindaceae) (Calflora, 2019; Stone, 2012). This native, deciduous shrub or tree reaches 36 feet in height with a broad, rounded crown (Figure 1). The palmately compound leaves occur in leaflets of 5 to 7 and each leaflet is oblong-lanceolate and finely serrate. The inflorescence has many showy flowers in a panicle-like arrangement and it is erect,6-12 inches. in length. Each individual flower has 4-5 petals and these are white to pale rose with 5-7 exserted stamens (Figure 2). The flowering spikes appear in May and June, although bloom may occur through the year in moist areas. The fruit develops at the tip of the inflorescence, is smooth, buckeye shaped, and still green when it starts to split. Fruits usually contain a single, shiny, light-brown seed, 1-2 inches in diameter. The fruits develop on the typically leafless trees in September and October and seed drops in November or December.

Distribution: California buckeye is native to northwestern and central western California, Cascade Range, Sierra Nevada foothills, Tehachapi Mountains, Great Central Valley, and southwestern Mohave Desert and southwestern Oregon. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: The plant is found on dry slopes, canyons and the borders of streams in many plant communities below 6000 feet (Stone, 2012). A major component of foothill woodland communities: it occurs as a codominant in oak woodland, including Interior live oak (*Quercus wislizenii*) and blue oak (*Q. douglasii*) (Howard 1992). In chaparral communities it is sometimes a dominant shrub or tree. California buckeye woodland is recognized as a distinct plant community including in Pinnacles National Park (Halvorson and Clark, 1989).

Adaptation

The California buckeye is tolerant of a range of soil types, including fine, medium and coarse textures and a pH from 5-8.4, although it is not tolerant of high salinity soils (Calflora, 2019). The plant.is adapted to drought conditions, it is one of the first shrubs to leaf out in spring and then sheds its leaves early in mid-summer as the soils dry out (Stone, 2012). If there is abundant moisture, such as in Coastal Areas of California, the leaves may remain green into the fall (Howard, 1992)

Warning

All parts of the California buckeye plant are toxic. Glycosidal compounds are present in the bark, leaves, stems, fruits, and seeds. These chemicals cause haemolytic action on red blood cells and depress the central nervous system when ingested (Howard, 1992). The seeds and husks contain cytotoxic saponins, water soluble compounds with toxicity to fish (Kubo and Ying, 1992; Yuan et al., 2013). Do not plant California buckeye near apiaries as the nectar and pollen in the flowers are poisonous to European honey bees (Stone, 2012).

Uses

Wildlife: Although the plants are toxic, the leaves and shoots are browsed by a variety of wildlife including deer in chaparral (Howard, 1992; Martin et al., 1951). California buckeye seeds are avoided by wildlife apart from squirrels, such as the California ground squirrel (*Citellus beecheyi*) and tree squirrels (*Sciurus* spp.) (Anderson and Roderick, 2003; Mendoza and Dirzo, 2009). The plant does not provide good cover as the leaves, at least in inland areas drop early in late June. Butterflies visit the flowers (Calflora, 2019).

Erosion Control: California buckeye is valuable sas a means of erosion control on steep banks and in stream areas (Howard, 1992). It grows quickly and can achieve as much as ten inches in height in one year.

Ornamental: The plant is sometimes grown as an ornamental, due to its moderate size, showy blooms and drought tolerance.

Figure 2. Flowering spike of California buckeye.

Ethnobotany

American Indian names: de-sa' ka-la' (Pomo); far'-sokt (Nomlaki); sympt'-ol (Yuki); ah'-te (Coast Miwok).

This tree had multiple cultural uses among California Indian tribes (Anderson and Roderick, 2003). Many indigenous groups utilized buckeye seeds for food, often when other plant food sources were scarce. These tribes included the Costanoan, Salinan, Kitanemuk, Serrano, Wappo, Sierra Miwok, Coast Miwok, Chumash, Kawaiisu, Northern Maidu among others (Beard, 1979; Collier and Thalman, 1991; Dixon, 1905; Harrington, 1942; Zigmond, 1981). The Pomo ate the seeds even when other important food plants were plentiful (Goodrich and Lawson, 1980). The seeds are poisonous to humans in the raw state. Thus, the nuts were cracked open with a rock, the shells removed, the seeds pounded into flour, and their toxic saponins removed in a lengthy leaching process. The meal was subsequently cooked and eaten. There are many different methods for processing and cooking buckeye seeds for food, depending upon the tribe. The seeds have medicinal properties and were cut into pieces, mixed with water, and made into suppositories for hemorrhoids by the Costanoan and Kawaiisu (Bocek, 1984; Zigmond, 1981). The Pomo cut bark from the base of the tree and made a poultice, which was laid on a snakebite. Young buckeye shoots were sometimes used as spindles or twirling sticks in fire-making kits of the Sierra Miwok, Northern Maidu, Wappo, Yahi and other tribes (Anderson and Roderick, 2003; Zigmond, 1981). Many tribes mashed buckeye nuts and poured the contents into quiet pools to stupefy or kill fish (Bocek, 1984; Goodrich and Lawson, 1980).

Status

Wetland Indicator: FAC, found in wetland and non-wetland sites.

Weedy or Invasive: This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use.

Planting Guidelines

Immediately after harvest, plant seed into well-drained soil. Water the soil immediately after planting, and supplement with additional irrigation if needed over the winter and spring for the first year, After California buckeye seeds have been in the ground one full year, they should become established, and will not need continual care.

Management

When the shrub is mature, the branches can be pruned if necessary.

Pests and Potential Problems

Listed as a host for Sudden Oak Death, *Phytophthora ramorum* (USDA APHIS 2019). It is also a host for *Xylella fastidiosa*, the cause of Pierce's Disease of Grape, the bacterium is transmitted by xylem feeding insects including the glassy-winged sharpshooter (Purcell and Saunders, 1999).

Environmental Concerns

None

Control

Chemical controls may be necessary for control of California buckeye, as the plant will resprout from the roots when cut back. 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

Harvest the large seeds from the tree or shrub in the fall as soon as the green fruit capsules start to turn yellow and break open. Stratification is not required as seed germinates with fall rains, however seed may be stratified to germinate in spring (Rudolf, 1974).

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

Cultivars should be selected based on the local climate, resistance to local pests, and intended use. Consult with your local land grant university, local extension or local USDA NRCS office for recommendations on adapted cultivars for use in your area**.**

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