

CALIFORNIA BULRUSH

Schoenoplectus californicus
(C.A. Mey.) Palla
Plant Symbol = SCCA11

Contributed by: USDA NRCS National Plant Data Center & the Idaho Plant Materials Center



Alfred Brousseau
© Brother Eric Vogel, St. Mary's College
@ CalPhotos

Alternate Names

Bulrush, tule, black root. Known in most floras as *Scirpus californicus*.

Uses

Ethnobotanic: Bulrush is similar to the cattail in edibility, although it is purportedly sweeter. Young shoots coming up in the spring can be eaten raw or cooked. Bulrush pollen is eaten as flour in bread, mush or pancakes. Later in the season, the seeds can be beaten off into baskets or pails, ground into a similar meal and used as flour. The large rhizomes are eaten raw or cooked; sometimes they were dried in the sun, then pounded into a kind of flour.

Schoenoplectus validus (synonym: *Scirpus validus*), a similar species, has as much as 8% sugar and 5.5% starch in rhizomes, but less than 1% protein (Harrington 1972).

The rhizome (underground stem) is used for the black element in basket design. Rhizomes are obtained by digging around the plant and following them out from the parent plant. Often the green stalks are cut, to make the rooting area more accessible. Bulrushes are called black root by Pomo basketweavers in California; the cream-colored rhizome is dyed black for basketry designs.

Tule houses were common throughout many parts of California with the overlapping tule matters being well-insulated and rain-proof. Willow poles, arched and anchored into the ground and tied with cordage or bark, formed the framework. The walls were thatched with mats of tule or cattail and secured to the frame. In Nevada, tules and willows were bound together in a sort of crude weaving for "Kani", the Paiute name for summerhouse.

Tules and cattails were used as insulating thatch for structures, matting, bedding, and roofing materials. Shredded tule was used for baby diapers, bedding, and menstrual padding. Women made skirts from tule. During inclement weather, men wore shredded tule capes, which tied around the neck and was belted at the waist. Duck decoys were made of tule. Several California Indian tribes made canoes of tule stems bound together with vines from wild grape. Groups located near the California coast used tule to make large round mud-shoes so they could walk without sinking.

Other Uses: Streambank stabilization, wetland restoration, wildlife food and shelter, edible (young shoots, pollen, seeds, rhizomes), and matting. These native plants are especially good for stabilizing or restoring disturbed or degraded (including logged or burned) areas, for erosion and slope control, and for wildlife food and cover. Bulrushes may be less suitable for general garden use.

Wildlife: The seeds, being less hairy and larger than cattail, are one of the most important and commonly used foods of ducks and of certain marshbirds and shorebirds (Martin et al. 1951). Bulrushes provide choice food for wetland birds: American widgeon, bufflehead, mallard, pintail, shoveler, blue-winged teal, cinnamon teal, greater scaup, lesser scaup, avocet, marbled godwit, clapper rail, Virginia rail, sora rail, long-billed dowitcher, and tricolored blackbird. Canada geese and white-fronted geese prefer the shoots and roots. The stems provide nesting habitat for blackbirds and marsh wrens.

Freshwater emergent wetlands are among the most productive wildlife habitats in California. They provide food, cover, and water for more than 160 species of birds and numerous mammals, reptiles and amphibians. The endangered Santa Cruz long-toed salamander and rare giant garter snake use these

wetlands as primary habitat. The endangered Aleutian Canada goose, bald eagle, and peregrine falcon use wetlands as feeding areas and roost sites.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

Description

General: Sedge Family (Cyperaceae). California bulrush, a perennial herbaceous plant, is distinguished by long triangular or subterete stems from 5 to 8 feet tall. The leaves are slender, v-shaped blades that are sheathed around the long stem. The flowers are arranged in a spikelet and resemble orange-brown scales. The inflorescence of California bulrush is a larger and more open panicle than hardstem bulrush, with 20 to many spikelets, and it is consistently a reddish brown color. Bulrushes have clonal growth, with stout rootstocks and long, thick, brown rhizomes (underground stems).

Distribution

For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site. Bulrushes are often dominant emergent vegetation found in marshes and wetlands throughout temperate North America. California bulrush, which often hybridizes with hardstem bulrush, is abundant in freshwater marshes along the California coast from San Diego County to Napa County, inland in the Central Valley, occasional in the Mojave Desert, east to South Carolina, Florida, temperate South America and the Hawaiian Islands (Hickman 1993).

Establishment

Schoenoplectus species may be planted from bare rootstock or seedlings from container stalk or directly seeded into the soil. Germination problems have been reported in the literature for some *Schoenoplectus* (synonym: *Scirpus*) species. Consequently, live plant collections of this species are recommended.

Live Plant Collections: No more than 1/4 of the plants in an area should be collected. If no more than 0.09 m² (1 ft²) are removed from a 0.4 m² (4 ft²) area, the plants will grow back into the hole in one good growing season. A depth of 15 cm (6 in) is sufficiently deep for digging plugs. This will leave enough plants and rhizomes to grow back during the growing season. Donor plants that are drought-stressed tend to have higher re-vegetation success.

Live transplants should be planted as soon as possible in moist (not flooded or anoxic) soils. Plants should be transported and stored in a cool location prior to planting. Plugs may be split into smaller units, generally no smaller than 6 x 6 cm (2.4 x 2.4 in), with healthy rhizomes and tops. The important factor in live plant collections is to be sure to include a growing bud in either plugs or rhizomes. Weeds in the plugs should be removed by hand. Soil can either be left on the roots of harvested material or removed. For ease in transport, soil may be washed gently from roots. The roots should always remain moist or in water until planted.

Clip the leaves and stem from 15 to 25 cm (6 to 10 inches). This allows the plant to allocate more energy into root production. Plant approximately 1 meter apart. Plants should be planted closer together if the site has fine soils such as clay or silt, steep slopes, or prolonged inundation. Don't flood plants right away, or the seedlings will experience high mortality. Get the roots started before flooding soils if possible. Ideally, plants should be planted in late fall just after the first rains (usually late October to November). This enables plant root systems to become established before heavy flooding and winter dormancy occurs. Survival is highest when plants are dormant and soils are moist. Fertilization is very helpful for plant growth and reproduction. Many more seeds are produced with moderate fertilization.

Seed Collections:

- Select seed collection sites where continuous stands with few intermixed species can easily be found.
- At each collection location, obtain permission for seed collection. Seed is harvested by either taking hand clippers or cutting the stem off below the seed heads or stripping the seed heads off the stalk.
- Less than 1/2 hour is required to make a decent collection of 1 to 2 cups of seed. The ease of collection is affected by water depth.
- Collect and store seeds in brown paper bags or burlap bags. Dry the seeds in these bags.
- Seeds and seed heads need to be cleaned in a seed cleaner. Plant cleaned seed in fall. Plant in clean, weed - free, moist seed bed. Flooded or ponded soils will significantly increase seedling mortality.
- Broadcast seed and roll in or rake 1/4" to 1/2" from the soil surface.

- Some seed may be lost due to scour or flooding. Recommended seed density is unknown at this time.

Seed germination in greenhouse:

- Clean seed - blow out light seed.
- To germinate seeds, plant in greenhouse in 1" x 1" x 2" pots, 1/4" under the soil surface. Keep soil surface moist at a temperature of 100 degrees F (plus or minus 5 degrees). Seeds begin to germinate after a couple weeks in warm temperatures.
- Plants are ready in 100 - 120 days to come out as plugs. By planting seeds in August, plugs are ready to plant in soil by November. These plants are very small; growing plants to a larger size will result in increased re-vegetation success.

Management

Hydrology is the most important factor in determining wetland type, revegetation, success, and wetland function and value. Changes in water levels influence species composition, structure, and distribution of plant communities. Water management is absolutely critical during plant establishment, and remains crucial through the life of the wetland for proper community management. Heavy grazing will eliminate *Schoenoplectus* species as well as other native species.

Muskrats have evolved with wetland ecosystems and form a valuable component of healthy functioning wetland communities. Muskrats use emergent wetland vegetation for hut construction and for food. An area of open water is created around the huts, which increase wetland diversity by providing opportunities for aquatic vegetation to become established. Muskrats opening up the dense stands of emergent vegetation also create habitat for other species. Both beaver and muskrats often improve wetland habitat.

Traditional Resource Management: The plant must grow in coarse-textured soil that is free of gravel, clay and silt for the roots to be of the quality necessary for basketweaving. Plants are tended by gathering rhizomes and reducing plant density. Sustainable harvesting of plants occurs through limiting harvest in any given area. Fire was also used to manage tule wetlands; fire eliminated decadent old stems and restored open water to the wetland. This stimulates growth of new shoots from rhizomes and provides a bare soil substrate for seed germination. Many Native Americans feel the use of herbicides is inappropriate in traditional gathering sites. Bulrush is densely rhizomatous with abundant seed

production. In most cases, it will out-compete other species within the wetland area of the site, eliminating the need for manual or chemical control of invasive species.

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

This species is available from most nurseries within the species range that handles wetland plants. 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

- Clarke, C.B. 1977. *Edible and useful plants of California*. University of California Press, Berkeley, California. 280 pp.
- Dahl, T.E. & C.E. Johnson 1991. *Status and trends of wetlands in the coterminous United States, mid-1970s to mid-1980s*. USDI, Fish and Wildlife Service, Washington, D.C. 28 pp.
- Harrington, H.D. 1972. *Western edible wild plants*. The University of New Mexico Press, Albuquerque, New Mexico. 156 pp.
- Hickman, J.C. (ed.) 1993. *The Jepson manual. Higher plants of California*. University of California Press, Berkeley, California. 1399 pp.
- Hoag, J.C. & M.E. Sellers (April) 1995. *Use of greenhouse propagated wetland plants versus live transplants to vegetate constructed or created wetlands*. Riparian/Wetland Project Information Series No. 7. USDA, NRCS, Plant Materials Center, Aberdeen, Idaho. 6 pp.
- Martin, A.C., H.S. Zim, & A.L. Nelson 1951. *American wildlife and plants: A guide to wildlife food habits*. Dover Publications, Inc., New York, New York. 500 pp.
- Murphy, E.V.A. no date. *Indian uses of native plants*. Mendocino County Historical Society. 81 pp.
- Roos-Collins, M. 1990. *The flavors of home. A guide to wild edible plants of the San Francisco Bay area*. Heyday Books, Berkeley, California. 224 pp.
- Tiner, R.W. 1984. *Wetlands of the United States: Current status and recent trends*. USDI, FWS,

National Wetlands Inventory, Washington, D.C. 58 pp.

Timbrook, J.J. 1997. *California Indian Basketweavers*. California Indian Basketweavers Association newsletter.

USDA, NRCS 2003. *The PLANTS database*. National Plant Data Center, Baton Rouge, Louisiana. <<http://plants.usda.gov>>. Version: 030127.

Prepared By

Michelle Stevens

Formerly USDA, NRCS, National Plant Data Center

Chris Hoag

Interagency Riparian/Wetland Project
USDA, NRCS, Plant Materials Center, Aberdeen,
Idaho

Species Coordinator

M. Kat Anderson

USDA, NRCS, National Plant Data Center
c/o Plant Sciences Department, University of
California, Davis, California

Edited: 27jan03 jsp; 060817 jsp

For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://Plant-Materials.nrcs.usda.gov>>

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

Read about [Civil Rights at the Natural Resources Conservation Service](#).