

CALIFORNIA BROME

Bromus carinatus Hook. &
Arn.

Plant Symbol = BRCA5

Contributed by: USDA NRCS National Plant Data
Center & California Plant Materials Center



F. Ballerini 2008

Alternate Names

Big brome, *Bromus carinatus* var. *californicus*,
Bromus carinatus var. *hookerianus*, *Bromus*
laciniatus, *Ceratochloa carinata*, keeled brome,
mountain brome.

Uses

Ethnobotanic: The seeds of California brome were
feared by the Native Americans to be poisonous if
swallowed. However, they were often dried and
ground into flour to make bread and other foods.

Livestock: California brome is an important forage
species for livestock throughout its growing season.
It is sometimes planted as pasture grass.

Restoration: California brome is a rapid establisher
and has good soil stabilizing capabilities. For these
reasons, it is useful for revegetation and erosion
control in disturbed rangeland sites, spent oil shale,
coalmine spoils, heavy metal mine tailings, and
roadsides. It is best suited for side-slopes and back-
slopes because it can withstand periodic drought.

It is effective in improving water infiltration and has
been used successfully on waterfront sites.

Wildlife: Elk, grizzly bear, geese, squirrels, pocket
gophers, and other rodents consume California brome
plants. Birds consume the seeds. California brome
also provides good cover for small mammals, small
non-game birds, and upland game birds.

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).

Weediness

The Western Society of Weed Science has listed
California brome as having invasive characteristics.
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, or state natural resource or
agriculture department regarding its status and use.
Weed information is also available from the
PLANTS Web site at plants.usda.gov.

Description

General: Grass Family (Poaceae). California brome
is a native, cool-season perennial bunchgrass that
lives 3 to 5 years and grows to be 60 to 120 cm tall.
The roots of California brome are fibrous, grow very
quickly, and become deep and widespread. Young
plants are erect, but older stems grow along the
ground with only the apical tips remaining erect
(decumbent). Stems are robust with hairy sheaths.
Leaf blades are 0.5 to 1 cm wide and 15 to 30 cm
long. They can be pubescent or glabrous. The
inflorescence is a stiff, open panicle, 10 to 20 cm
long and droops at maturity. The spikelets are 5 to 7
flowered, 2 to 4 cm long, 5 to 7 mm wide and
flattened. Lemmas are 1 to 1.5 cm long, flattened,
keeled and usually pubescent. The awns are 2 to 5

mm long. Seeds mature in May and June at low elevations and by late August at high elevations.

Distribution: California brome occurs from Alaska east to Ontario and south to Illinois, Texas, California, and northern Mexico. It is native from the Pacific Coast to the Rocky Mountains and is casually introduced in the Great Plains. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site (<http://plants.usda.gov>).

Habitat: California brome grows in open woods and forests, shrublands, grasslands, meadows, and waste places. It is closely associated with pine dropseed, bracken fern, corn lily, dwarf purple monkey flower, mountain muhly, and Rocky Mountain iris and shares dominance in plant communities like coastal prairie and northern coastal scrub, sagebrush steppes, aspen, oak woodland, and Douglas-fir.

Adaptation

California brome grows well in a variety of soils including poorly drained types. It is most abundant in moderately moist, well-developed, deep, medium-textured soils. It tolerates soils in the pH range of 5.5 to 8.0. It occurs in bottomlands, mountain slopes, valleys, and ridge tops, up to elevations of 4,000 m. It requires nearly full to full sunlight.

Management

Although fair control of California brome by trifluralin and pronamide has been documented, it does not respond to most herbicides.

It is reduced by heavy grazing and favored in moderate to light grazing. Sheep are more likely to kill plants by trampling them rather than overgrazing. Cattle are more likely to overgraze than trample the plants.

California brome is top-killed by fire, but appears to recover within a few years. It can sprout from surviving root crowns as early as the next growing season. Coverage of California brome is slightly reduced from pre-fire levels for several years after fire, then returns to pre-fire levels. It is sometimes seeded in after fire to help stabilize soil.

Pests and Potential Problems

California brome is sometimes prone to stem rust, head smut, leaf rust, and leaf spot.

Seeds and Plant Production

Seeds are collected between May 1 and September 10, depending on rate of maturation. Mature

inflorescences turn from green-purple to brown and mature seeds are light brown-gray. Cleaning is not required for germination. Seeds should be stored in a dry, evenly temperate environment. Dry refrigeration is best for long term storage.

Seeds are surface sown, 3 seeds per container, and planted 2 times the diameter of seed to depth. Sixty-five percent germination will occur within 30 days and seedlings are transplanted into individual containers.

Other sources state that 85% germination will occur in 13 days at 30°C, 83% in 13 days between 19° and 23°C, and 46% in 21 days at 14°C. Natural seed stock will have higher germination rates than commercial stock.

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

California brome seed is readily available from commercial sources.

'Southern Cal 1000' Germplasm California brome (*Bromus carinatus*) was collected in 2006 in Orange County near Irvine Ranch at 1,000 feet elevation on silty clay soils in a purple needlegrass community. It was selected from 28 accessions after a two-year field trial evaluation. It is noted for its vigor, plant mass, and seed yield amongst other southern California accessions within the trial. It is recommended for use in southern California in MLRA 14d, 15d, 19 and 20.

'Central Coast 2600' Germplasm California brome (*Bromus carinatus*) was collected in 2006 in a location east of Los Olivos, California on Figueroa Mountain at 2,600 feet elevation on sandy clay soils in a blue oak grassland community. It was selected from 28 accessions after a two-year field trial evaluation. It is noted for its superior vigor, height, and seed yield. It is recommended for use in MLRA 15d, 20, 22d, and 22e.

'Coastal 500' Germplasm California brome (*Bromus carinatus*) was collected in 2006 in San Luis Obispo County near Cal Poly Canyon at 500 feet elevation on sandy clay loam soils in a coast live oak grassland community. It was selected from 28 accessions after a two-year field trial evaluation. It is noted for its vigor, plant mass, and seed yield. It is recommended for use in MLRA 4c, 14c, 14d, 15c, and 15d.

'Northern Cal 40' Germplasm California brome (*Bromus carinatus*) was collected in 2006 near Point Pinole in Pinole, California at 40 feet elevation on

silty clay loam soils within an annual grassland community. It was selected from 28 accessions after a two-year field trial evaluation. It is noted for its superior vigor, plant mass, early seed production, and seed yield amongst other coastal accessions within the trial. It is recommended for use in MLRA 14c, 14d, 15c, 15d, 15e, 16e, 17d, 17e, and 18d.

'Central Sierra 3200' Germplasm California brome (*Bromus carinatus*) was collected in 2006 in Yuba County at Pike County Peak at 3,200 feet elevation on silty clay soils within a pine and fir community. It was selected from 28 accessions after a two-year field trial evaluation. It is noted for its superior vigor, plant mass, and seed yield amongst other higher elevation accessions within the trial. It is recommended for use in MLRA 18d, 22c, and 22d.

'Bromar' is recommended for revegetating high-elevation sites. It is resistant to stem rust, head smut, leaf rust, and leaf spot.

'Cucamonga' is recommended for erosion control and ground cover on droughty, low fertility grasslands. It can also be used for revegetation of disturbed areas, and wildfire land rehabilitation. It is susceptible to head smut, which can be controlled with a mercuric fungicide. This cultivar was collected from a native stand near Cucamonga, California in 1939.

'Luval' is a drought resistant cultivar.

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.

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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>>

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