

Bromus hordeaceus

SOFT BROME

ENGLISH NAMES	Soft brome, soft chess, lopgrass
SCIENTIFIC NAME	<i>Bromus hordeaceus</i> L. (alt. <i>Bromus mollis</i>)
FAMILY	Poaceae or Gramineae (Grass)



Photo Credit: © ADOLF CESKA/E-FLORA BC

Soft brome is a hairy annual or biennial winter grass having long, droopy leaves and erect flowerheads with long awns.

RANGE/KNOWN DISTRIBUTION

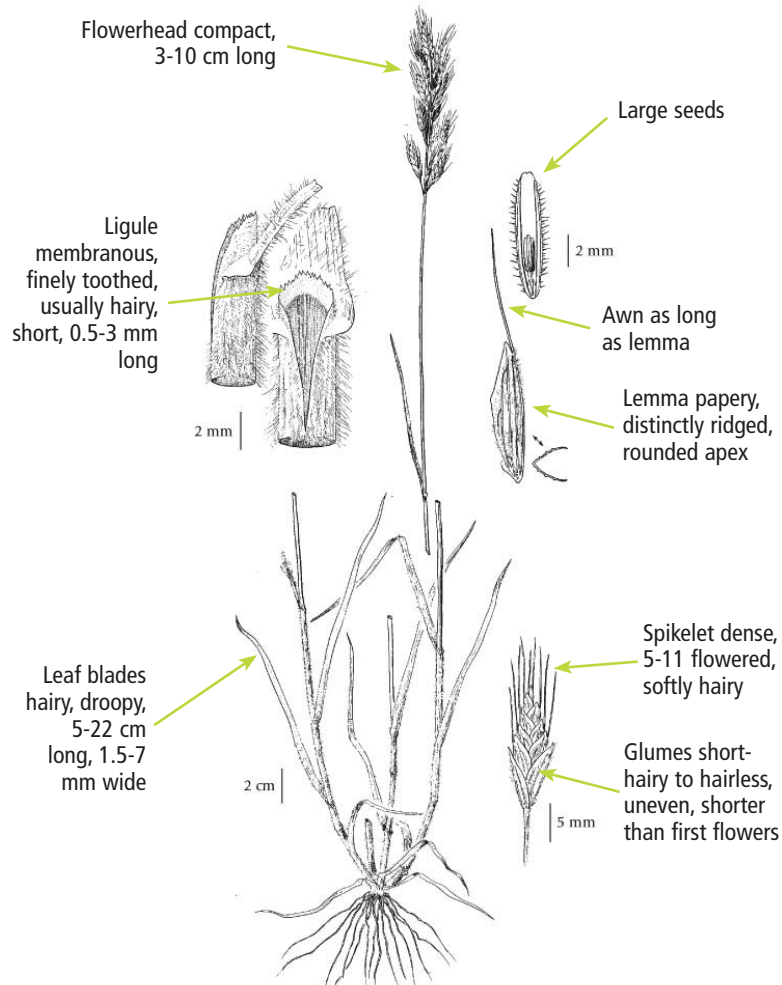
Soft brome is native to Europe, West Asia and North Africa. It was introduced to North America by the end of the 19th century, likely for use as livestock fodder and in erosion control. Its current global range includes Europe, Asia, Africa, Australia and New Zealand, North and South America, and the sub-Antarctic Islands. In British Columbia, it is most common in the southwestern and south-central parts of the province, becoming uncommon North to the Queen Charlotte Islands.

IMPACTS ON GARRY OAK AND ASSOCIATED ECOSYSTEMS

Non-native grasses are present in most Garry oak ecosystems and may cover a combined total of 50-80 percent of the landscape. Non-native winter grasses such as soft brome develop early in the season, aggressively out-competing native species for light. Competition for water continues throughout the year, becoming critical during the drought of summer, for which soft brome is well adapted. As the grasses die off, they form a dense litter layer that blocks light and thus suppresses the regeneration and establishment of native species. The litter also provides fuel and creates conditions for detrimental high-intensity fires. As it decomposes, nitrogen is added to the soil, favouring the growth of the non-native species. These grasses can also be a medium for the introduction of harmful fungi, viruses and nematodes. A study in California found that with the presence of soft brome, the abundance of a virus more than doubled in native grasses. Combined, these effects can significantly change the plant composition, reducing available habitats and food sources for some rare plant and animal species.

INVASIVE SPECIES IN GARRY OAK AND ASSOCIATED ECOSYSTEMS IN BRITISH COLUMBIA

BROMUS HORDEACEUS



Vascular Plants of the Pacific Northwest, Leo C. Hitchcock; Arthur Cronquist, and Mario Ownbey, illustrations by Jeanne R. Janish. Published by the University of Washington Press (1969).

FIELD DESCRIPTION

Soft brome is an erect grass that grows up to 100 cm tall. It has fibrous roots and the entire plant is very hairy. The stems tend to be tufted, but can also be solitary. The long and droopy leaf blades are rolled when young. The flowerheads are narrow and contracted except during flowering, when they open up. The short spikelet stalks lie flat along the main stalk, making the flowerheads appear unbranched. The lemmas are rounded, distinctly ridged and have long awns.

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Soft brome can be distinguished from other common bromes (*B. rigidus*, *B. sterilis*, *B. tectorum*, also found in this manual), which typically have more pointed lemmas and longer awns. Meadow brome (*B. commutatus*) lacks lemma ridges and has a more erect and upright flowerhead. Expert consultation may be required as grass identification can be difficult.

LIFE HISTORY

Soft brome is annual or biennial, self-fertilizing and reseeds readily. Few seeds persist for longer than a year, however dormancy is relatively strong. Seed germination begins in the fall and requires darkness (is inhibited by light). Shoots grow rapidly during the fall and spring, when there is abundant moisture, and slowly through the winter. Shoots reach full maturity and flower by late spring.

HABITAT

Soft brome lives in Mediterranean-type climates where annual rainfall is greater than 25 cm. It tolerates a wide range of soils, preferring dry to well-drained and nutrient-moderate to rich soils. In British Columbia it is primarily found at low elevations but will grow at up to 1,000 metres. Typical habitats include open meadows, grasslands, forests and disturbed areas and well as dry salt marshes and lakeshores.

MANAGEMENT

Management of non-native grasses should focus on the removal of the grasses as well as the accumulated litter layer, while minimizing soil disturbance. Carefully identify native and non-native species before starting any treatment. If the infestation is already large, priority should be given to areas having highest conservation values, such as those with rare species.

Develop a long-term, realistic program for invasive species removal before undertaking any work. Before taking action, obtain expert advice. Please refer to the introductory section of this manual.

PHYSICAL CONTROL: Manual removal by hand pulling can be effective in spring or early summer before the seed sets. However, this is very labour intensive and is feasible only when patches are small. Disturbance to the soil should be minimal.

B R O M U S H O R D E A C E U S

BIOLOGICAL CONTROL: No known biological agents are available.

CHEMICAL CONTROL: Populations too large for manual removal can be managed by cautious application of herbicides. *Herbicides should only be used with extreme caution, and under expert advice, in sensitive Garry oak ecosystems.*

OTHER TECHNIQUES: Burning has been found to have no effect on soft brome and its seeds are generally not killed. However, some studies have shown a slight decline immediately following a burn. Prescribed burning should only be undertaken with expert advice as the effect can be highly variable depending on timing, species composition and fire intensity, among other factors. A combination of mowing and raking (to remove the litter) can have similar effects as burning and minimizes the risks associated with burning. Soft brome withstands mowing better than most grasses, however removal of the hatch layer and exposure of seeds to light can inhibit germination.

PREVENTATIVE MEASURES: Soil disturbance and the use of fertilizers should be avoided in natural areas. Equipment, clothing and animals should be checked and cleared for seeds when leaving an infested area. Encourage plant nurseries, gardeners and farmers to stock and use native or non-invasive species, and to avoid using non-native grasses such as early hairgrass.

PERSISTENCE: Few seeds persist for more than a year.

SELECT REFERENCES

DiTomasio, J. M., M. L. Brooks, E. B. Allen, R. Minnich, P. M. Rice, and G. B. Kyser. 2006. Control of invasive weeds with prescribed burning. *Weed Technology* 20: 535-548.

Peeters, A. 2008. Grassland Species Profiles. <http://www.fao.org/ag/AGP/AGPC/doc/GBASE/Default.htm>. Food and Agriculture Organization.

A comprehensive annotated bibliography of literature specific to soft brome is available at www.goert.ca.

For more information contact the Garry Oak Ecosystems Recovery Team, or see the website at www.goert.ca