

Agrostis stolonifera

CREeping BENTGRASS

ENGLISH NAMES Creeping bentgrass, carpet bentgrass, redtop
SCIENTIFIC NAME *Agrostis stolonifera*
(alt. *A. palustris*)
FAMILY Poaceae or Graminae (Grass)



Photo Credit: © JAMIE FENNEMAN/E-FLORA BC

Creeping bentgrass is a low, creeping perennial grass forming dense sod. It can be distinguished by its narrow leaves and long stolons.

RANGE/KNOWN DISTRIBUTION

Creeping bentgrass is native to Eurasia and North Africa and has been introduced and naturalized around the globe. It is thought that it was likely introduced to North America prior to 1750. It is now common throughout British Columbia and the range of Garry oak and associated ecosystems in Canada.

IMPACTS ON GARRY OAK AND ASSOCIATED ECOSYSTEMS

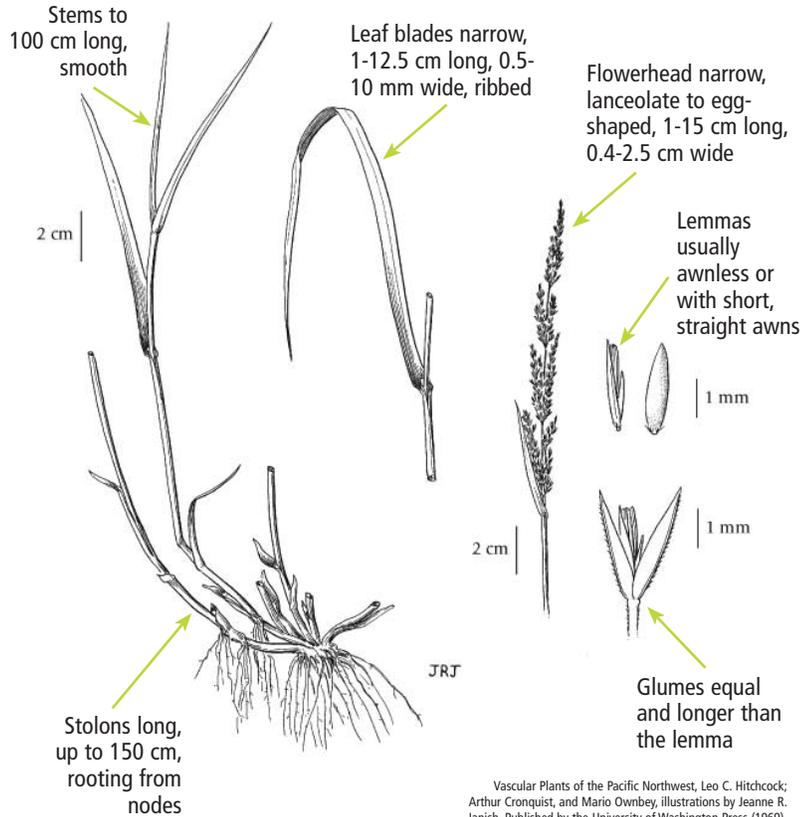
Non-native grasses are present in most Garry oak ecosystems and may cover a combined total of 50-80 percent of the landscape. Creeping bentgrass fills the openings between native bunchgrasses particularly quickly, shading out and preventing the spread of these native species. Competition for water continues throughout the year, becoming critical during the dry summer months. 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. Combined, these effects can significantly change the plant composition, reducing available habitats and food sources for some rare plant and animal species.

FIELD DESCRIPTION

Creeping bentgrass is a low, tufted and creeping perennial grass that forms dense sod. It grows from rhizomes and long stolons that root at the nodes. The leaf blades are blue-green in colour, flat to folded when

INVASIVE SPECIES IN GARRY OAK AND ASSOCIATED ECOSYSTEMS IN BRITISH COLUMBIA

AGROSTIS STOLONIFERA



mature and rolled when young. The membranous ligules are up to 8 mm long, rounded and slightly toothed. The flowerhead is dense and purple or tan in colour. Flowerhead branches are flattened against the axis except during flowering. The spikelets are solitary, laterally compressed and one-flowered.

Creeping bentgrass is particularly similar to colonial bentgrass (*A. capillaris*), also found in this handbook, and the two will often hybridize. Colonial bentgrass has shorter ligules and no stolons. Expert consultation may be required as grass identification can be difficult.

LIFE HISTORY

Creeping bentgrass is a fast growing perennial turfgrass. It is a pioneer species and quickly colonizes bare ground where seeds can easily establish. Once established it primarily spreads vegetatively by its long

AGROSTIS STOLONIFERA

stolons and detached shoots, which readily root and produce new plants. It thus produces large patches of cloned individuals. Its annual growth starts early in the season with flowering typically occurring from June to September. It will sometimes set seed within the first year. Seeds are generally wind pollinated, although self-fertilization has been known to occur. The small seeds are dispersed by wind, water and fauna.

HABITAT

Creeping bentgrass occurs in a wide range of habitats in the lowland to montane zones of British Columbia. Preference is for rich to very rich soils and all but very acidic soils. Creeping bentgrass occurs on wetter sites and tolerates frequent flooding and, to a lesser extent, drought. Typical habitats include grasslands, meadows, thickets, vernal pools, bogs, shorelines, salt marshes and disturbed sites such as lawns, fields and roadsides.

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 or careful hoeing 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. Control by manual removal is difficult since broken stolons will often develop roots and regrow.

BIOLOGICAL CONTROL: No known biological agents are available.

CHEMICAL CONTROL: Populations too large for manual removal can be managed by cautious application of herbicides. Greatest control was achieved with multiple applications of glyphosate, mesotrione or

AGROSTIS STOLONIFERA

isoxaflutole. There is a genetically modified form of this species that is glyphosate-resistant and is spreading to wild populations. As of 2006, this form had spread as far North as the state of Oregon. *Herbicides should only be used with extreme caution, and under expert advice, in sensitive Garry oak ecosystems.*

OTHER TECHNIQUES: Little information is available on the response of creeping bentgrass to burning. One study found that a single spring fire inhibited growth of the species, while another found that a similar species, *A. scabra*, will reestablish from seed after spring fires. 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. Grazing or cutting is ineffective for managing creeping bentgrass, which can withstand and even increase with frequent defoliation.

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

PERSISTENCE: Seeds will not survive for more than one year.

SELECT REFERENCES

Esser, L. L. 1994. *Agrostis stolonifera*. In: Fire Effects Information System. <http://www.fs.fed.us/database/feis/>. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory.

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

Rice, B. 2006. Featured foe: *Agrostis stolonifera* L. - creeping bentgrass. <http://tncinvasives.ucdavis.edu/products/featured/agrostis1.html>. The Nature Conservancy.

A comprehensive annotated bibliography of literature specific to creeping bentgrass is available at www.goert.ca.

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