

Lolium perenne

PERENNIAL RYEGRASS

ENGLISH NAMES Perennial ryegrass, English ryegrass, crested ryegrass
SCIENTIFIC NAME *Lolium perenne*
FAMILY Poaceae or Gramineae (Grass)



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Perennial ryegrass is a tufted annual or short-lived perennial grass. It has feather-like seed heads, which lack awns, and is commonly found in lawns.

RANGE/KNOWN DISTRIBUTION

Perennial ryegrass is a native of Eurasia and North Africa. Being one of the most commonly sown grasses for forage, turf, and erosion control, it has been introduced around the globe. Its global range now extends to all of Africa, Australia and New Zealand, North, Central and South America as well as the sub-Antarctic. It is found throughout southern British Columbia and the Canadian range of Garry oak and associated ecosystems.

IMPACTS ON GARRY OAK AND ASSOCIATED ECOSYSTEMS

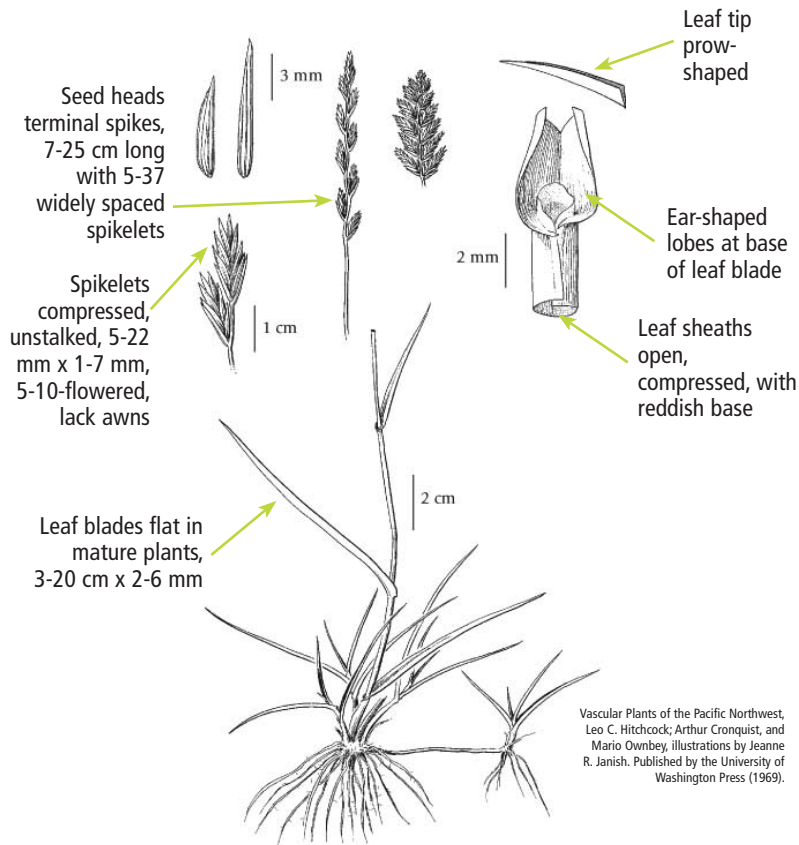
Non-native grasses are present in most Garry oak ecosystems and may cover a combined total of 50-80 percent of the landscape. Non-native winter grasses such as perennial ryegrass develop early in the season, aggressively out-competing native species for light. Perennial ryegrass also readily establishes and spreads on disturbed and bare soils. 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

Perennial ryegrass is a tufted grass with fibrous roots and rhizomes. It grows to 100 cm tall and is erect or spreading. The entire plant is

INVASIVE SPECIES IN GARRY OAK AND ASSOCIATED ECOSYSTEMS IN BRITISH COLUMBIA

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smooth and hairless. The blades are flat, except in young shoots when they are folded. The membranous, near-transparent ligules are 0.5-2.5 mm long and rounded. Narrow auricles are hook-shaped and rounded and can be observed on most leaves. The lower glume is absent on each spikelet, except the on terminal ones.

Perennial ryegrass is distinguished from annual ryegrass (*L. multiflorum*), with which it sometimes hybridizes, by having unawned lemmas, folded leaf blades in young shoots and ten or fewer florets per spikelet. Expert consultation may be required as grass identification can be difficult.

LIFE HISTORY

Perennial ryegrass can be either an annual (var. *aristatum*) or a short-lived (2-3 years) perennial (var. *perenne*). The large seeds do not go dormant and are therefore not persistent in the seedbank. Germination

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begins in August or September when soil moisture is sufficient, regardless of temperature and light conditions. Roots are mostly found in the top 15 cm of soil, but can reach as deep as 1.5 metres. Plant growth starts in early spring and peaks during both the moist spring and fall seasons. In warmer climates, the plant stays green throughout the winter. Perennial ryegrass flowers from April or May to August and seeds are dispersed in late spring and summer.

HABITAT

Perennial ryegrass is well-adapted to live in a broad range of soil types and topography. Optimal soil conditions are mesic to moist, normally drained, nutrient rich to very rich, slightly acidic to neutral and clay or loam textures. Its preferred topography is shallow to steep slopes at moderate elevations and with primarily southern aspects. Unsuitable conditions include severe wetness or dryness, shade or long periods at extreme temperatures. Typical habitats are open meadows and disturbed sites such as 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.

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.*

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OTHER TECHNIQUES: Low intensity fires have been found to top-kill perennial ryegrass only and stimulate regrowth from the rhizomes. A high intensity fire is required to kill the rhizomes as well. 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 and cutting also increase the abundance of perennial ryegrass.

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 barren fescue. Equipment, clothing and animals should be checked and cleared for seeds when leaving an infested area.

PERSISTENCE: Perennial ryegrass seeds do not persist in the seed bank.

SELECT REFERENCES

Barthram, G. T., D. A. Elston, C. P. D. Birch, and G. R. Bolton. 2002. Defoliation and site differences influence vegetative spread in grassland. *New Phytologist* 155: 257-264.

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Sullivan, J. 2008. *Lolium perenne*. 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.

Welch, D. and D. Scott. 1995. Studies in the grazing of heather moorland in north-east Scotland. VI. 20-Year trends in botanical composition. *Journal of Applied Ecology* 32 (3): 596-611.

A comprehensive annotated bibliography of literature specific to perennial ryegrass is available at www.goert.ca.

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