

Agrostis capillaris [简体中文](#) [正體中文](#)

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Cyperales	Poaceae

Common name

Synonym

Agrostis alba , var. *vulgaris*
Agrostis tenuis
Agrostis vulgaris
Agrostis sylvatica , Huds.
Agrostis tenuis , Sibthorp
Agrostis tenuis , var. *aristata*
Agrostis tenuis , var. *hispida*
Agrostis tenuis , var. *pumila*

Similar species

Agrostis castellana, *Agrostis sibirica*, *Agrostis gigantea*, *Agrostis stolonifera*

Summary

Agrostis capillaris is a perennial grass that inhabits various environments ranging from urban to coastal wetland, including grassland as well as near arctic regions of the world. In areas of invasion *A. capillaris* reduces native biodiversity through disease transmission and competition. The many valuable uses of *Agrostis capillaris* have resulted in its widespread introduction into many non-native ranges around the world.



[view this species on IUCN Red List](#)

Species Description

Agrostis capillaris is a tufted perennial C3 tetraploid grass. It is variably described as reaching heights of 20-25cm (IPAO, undated) 70cm (NZPCN, 2010) or 100cm (Edgar & Forde, 1991). Roots have rhizomes and occasionally stolons. Leaves are flat, short and narrow measuring 100-150 x 1.5mm. Ribs and regular and margins slightly rough (NZPCN, 2010). The entire plant is hairless (Garry Oak Ecosystems Recovery Team, 2003). Spikelets (flower clusters in grasses) are 1.5-3.5mm in length and purplish brown to greenish in colour (Edgar & Forde, 1991). Seed heads are usually 15cm long with spreading branches with tiny, brown seeds (NZPCN, 2010). It is a long-day plant with floral initials forming early May in the Northern hemisphere, with flowering peaking early July (Philipson, 1937 in Rapson & Wilson, 1992). A detailed description of the plant can be found in Edgar and Forde (1991).

A. capillaris is a highly variable species; plants can differ greatly in size, habit, presence of absence of stolons or rhizomes, type of inflorescence and in spikelet structure. Some of this variation may be the result of hybridisation with *A. stolonifera* and *A. castellana* (Edgar & Forde, 1991).

Notes

Agrostis capillaris is often referred to in many scientific articles and research as *Agrostis tenuis*. The accepted name according to ITIS is *A. capillaris*, while *A. tenuis* remains a synonym it is commonly found and incorrectly labeled as the primary name (ITIS, 2008).

A. capillaris is highly variable with many cultivars recognised. There is wide phenotypic and genotypic variation in populations (Grime *et al.*, 1988). Common bent forms hybrids with creeping bent (*A. stolonifera*).

Lifecycle Stages

Agrostis capillaris has an active growth period in spring and summer accompanied by blooms midway through. Fruit and seed production begins at the same time blooms appear which lead to dispersal of *A. capillaris* seeds (USDA, NRCS, 2008).

In the Northern hemisphere flowering begins in early June, with flowering peaking in early July). Anthesis (time when flower is open and fully functional) occurs about 14 days after first emergence of inflorescences (Philipson, 1937 in Rapson & Wilson, 1992). In New Zealand inflorescence emergence occurred in December-January with anthesis occurring about 26 days later. There were some latitudinal trends with more southerly populations flowering earlier (Rapson & Wilson, 1992).

Uses

Agrostis capillaris, like many other members of the *Agrostis* genus are a valuable agronomic species because of their ability to produce fodder as well as provide food for grazing animals (APHIS, undated). *A. capillaris* is also used for tennis courts, high-grade lawns, golf course fairways and erosion control (Hubbard, 1984 in Zhao *et al.*, 2006).

Habitat Description

Agrostis capillaris is known to invade disturbed areas and also frequently grows along roadsides (Manual, undated). *A. capillaris* is also abundant in wetlands including moist grasslands and open meadows as well as cultivated areas (IPAO, undated). It is frequent on acid grassland, damp soils, meadows, pasture and rough ground (Stace 1997 in Bond *et al.*, 2007). In a study done in Oregon, *A. capillaris* was 10 times as abundant in areas after prescribed burn versus that of an unburned area (Wilson, 1999). It has a preference for poorly drained, fine to medium textured soils of pH 6.5 to 7.3 with a moderate level of organic matter (Dale *et al.*, 1965). It is tolerant of temperature extremes and can grow at a range of altitudes from coastline up to 2,200 metres in British Columbia (Garry Oak Ecosystems Recovery Team, 2003) and 2106 m in Australia (Pickering & Hill, 2007).

Reproduction

Agrostis capillaris propagates by way of highly abundant seeds and vegetatively by rhizomes and stolons. The large proportion of *A. capillaris* clones and low proportion of seedlings in populations suggests that much of its reproduction is vegetative (Smith, 1972 in Wilson, 1988). Flowers are wind pollinated, but are also spread by water, humans and vertebrates (Timmins & MacKenzie, 1995 in NZPCN, 2010). Seed is set from August to October in the northern hemisphere (Grime *et al.*, 1988). Seeds may persist for 5 years or more (Thompson *et al.*, 1993).

Nutrition

Agrostis capillaris has a lack of tolerance for magnesium, and therefore has difficulty growing in areas of higher magnesium concentrated soils like seashores (Wu, 1981). It can grow on dry, low fertility soils (Rapson & Wilson, 1992) and has high tolerance to heavy metals (Wilson, 1988) and arsenic (Watkins & Macnair, 1991). It does, however, require high light levels (Rapson & Wilson, 1992b).

General Impacts

Agrostis capillaris impacts native biodiversity in its known introduced range by out competing and replacing native species (Johnston, 2001). The spread of *A. capillaris* has decreased the cover of native herbs in some New Zealand grasslands, leading to reductions in endemic grassland moths (White, 1991). *Agrostis capillaris* adapts in two main ways to environmental stresses: by adapting genetically, and through plasticity. In New Zealand Rapson and Wilson (1992, 1992b) showed *A. capillaris* populations to be highly plastic, which may give adaptive advantages in New Zealand's unpredictable and small scale environment and contribute to its invasiveness (Rapson & Wilson, 1992b).

A. capillaris is also a known carrier of the Barley yellow-dwarf virus (BYDV), which reduces populations of native grasses in New Zealand (Davis, 2001).



GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Agrostis capillaris*

Management Info

Physical: The use of prescribed burning has shown a dramatic increase in growth of *Agrostis capillaris*, so is not an effective management tool (Wilson, 1999). Similarly grazing is not effective due to its low growth form. Grazing can even increase abundance (Garry Oak Ecosystems Recovery Team, 2003). Mechanical removal by hand pulling, ploughing, grubbing and harrowing can reduce common bent and prevent seeding. This method is most effective in spring or early summer before seed set. Control by manual removal is however labour intensive and can be difficult due to broken stolons which can develop roots and regrow (Garry Oak Ecosystems Recovery Team, 2003). Short rotations with root crops may help reduce the weed (Bond *et al.*, 2007).

Chemical: The graminicides cycloxydim and fluzafop-p-butyl have been used in the effective management of *A. capillaris* (Clay, 2006). *A. capillaris* is also susceptible to the herbicide dalapon (Evans, 1964). A study found that the application of the herbicide BAS 9052 OH on *A. capillaris* produced a 100% mean control rate (Hosaka, 1984). Glyphosate applied to soil before emergence of *A. capillaris* has been found to be effective in reducing growth (Salazar, 1982). Hexazinone has also been used in successful treatment and control of various weed and grass species including *A. capillaris* (White, 1990).

Biological: There are no known biological agents available for *A. capillaris* (Garry Oak Ecosystems Recovery Team, 2003; Froude, 2002).

Principal source: [USDA, NRCS. 2008. *Agrostis capillaris* L. colonial bentgrass. The PLANTS Database](#)
[USDA, ARS, 2008. *Agrostis tenuis* Sibth. National Genetic Resources Program. Germplasm Resources Information Network - \(GRIN\) \[Online Database\]. National Germplasm Resources Laboratory, Beltsville, Maryland.](#)
[Invasive Plants of Asian Origin Established in the US and Their Natural Enemies *Agrostis tenuis* Bentgrass](#)

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Expert review underway:

Publication date: 2010-07-20

ALIEN RANGE

[4] AUSTRALIA

[1] GREENLAND

[8] NEW ZEALAND

[1] SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS

[2] CANADA

[1] HIMALAYAS

[2] SAINT HELENA

[36] UNITED STATES

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Management information

Clay, D.V.; F.L. Dixon, I. Willoughby., 2006. Efficacy of graminicides on grass weed species of forestry. *Crop Protection* 25 (2006) 1039-1050

Summary: Article which features the effective use of graminicides on grass weeds and the results that follow.

Evans, Stanley., 1964. The herbicidal control of broad-leaved and grass weeds in established grasslands. *Grass and Forage Science* 19 (2) , 205-211

Summary: Provides information on management strategies and effectiveness of herbicides on unwanted species in grasslands.

[Froude, V.A. 2002 Biological control options for invasive weeds of New Zealand protected areas. *Science for Conservation*, 199. Department of Conservation.](#)

Summary: Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/sfc199.pdf> [Accessed 20 July, 2010]

Hosaka, Hideo; Hideo Inaba; Hisao Ishikawa., 1984. Weed Control and Herbicide Technology Response of Monocotyledons to BAS 9052 OH. *Weed Science*, Vol. 32, No. 1. (Jan., 1984), pp. 28-32.

Summary: Article that discusses the use of postmergence applications of herbicides on various plants and their effects on growth factors. New Zealand Plant Conservation Network, 2005. Unwanted Organisms. Factsheet *Lonicera japonica*

Salazar, Luis C.; Arnold P. Appleby., 1982. Herbicidal Activity of Glyphosate in Soil. *Weed Science*, Vol. 30, No. 5. (Sep., 1982), pp. 463-466.

Summary: Paper with pertinent management information regarding the use of glyphosate in soil.

Global Invasive Species Database (GISD) 2024. Species profile *Agrostis capillaris*. Available from:

<https://iucngisd.org/gisd/species.php?sc=1365> [Accessed 01 September 2024]

[Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.](#)

Summary: This database compiles information on alien species from British Overseas Territories.

Available from: <http://www.jncc.gov.uk/page-3660> [Accessed 10 November 2009]

White, Diane E.; Laura Witherspoon-Joos and Michael Newton., 1990. Herbaceous weed control in conifer plantations with hexazinone and nitrogen formulations. *New Forests* Volume 4, Number 2 / June, 1990

Summary: Study that looked at effects of chemical herbicides mixed with fertilizers on various weed species and surrounding tree species.

General information

[APHIS undated. APHIS Preliminary Risk Assessment on the Petition for a Determination of Nonregulated Status for Creeping Bentgrass \(*Agrostis stolonifera*\) Genetically Engineered \(Event ASR368\) for Tolerance to the Herbicide Glyphosate submitted by Monsanto Company and the Scotts Company.](#)

Summary: Report issued that discusses the status of many species from the genus *Agrostis* and other various invaders and their roles in non-native areas.

Available from: http://www.aphis.usda.gov/brs/aphisdocs/03_10401p_ra.pdf [Accessed 25 February 2008]

Batson, M.G., 1998. *Agrostis castellana* (Poaceae), Dominant *Agrostis* Species, Found in Bent Grass Pastures in South-eastern Australia. *Australian Journal of Botany* Volume 46, 1998

Summary: This article attempts to determine which species makes up the largest percentage of bent grass pastures in Australia.

Carnahan, J.A., 1961. Ecological interaction between introduced and indigenous plants species in the Manawatu district In Carnahan: *Indigenous and Introduced Plants in Manawatu*.

Summary: Paper looking at habitat types and various exotic species that inhabit them in New Zealand.

[Dale, H.M., Harrison, P.J. & Thomson, G.W. 1965. Weeds as indicators of physical characteristics in abandoned pastures. Canadian Journal of Botany, 43: 1319- 1327.](#)

Summary: Available from:

<http://particle.web-p.cisti.nrc.ca/rparticle/AbstractTemplateServlet?calyLang=eng&journal=cjb&volume=43&year=1965&issue=11&msno=b65-139> [Accessed 20 July, 2010]

Davis, L.T. & P.L. Guy., 2001. Introduced plant viruses and the invasion of a native grass flora. *Biological Invasions* 3: 89-95, 2001.

Summary: Article featuring information on introduced plant viruses and their effect on native grasses.

Edgar, E & M.B. Forde., 1991. *Agrostis* L. in New Zealand. *New Zealand Journal of Botany*, 1991, Vol. 29: 139-161

Summary: Provides information on the genus *Agrostis* in New Zealand including, distribution and hybridization.

[Garry Oak Ecosystems Recovery Team, 2003. Invasive Species in Garry Oak and Associated Ecosystems in British Columbia. Garry Oak Ecosystems Recovery Team, Victoria, BC.](#)

Summary: Available from: <http://www.goert.ca/documents/A.capillaris.pdf> [Accessed 20 July, 2010]

[Global Biodiversity Information Facility \(GBIF\), 2008. Species: *Agrostis tenuis* Sibthorp](#)

Summary: Available from: <http://data.gbif.org/species/13785195/> [Accessed 15 June 2010]

[Global Compendium of Weeds \(GCW\), 2007. *Agrostis tenuis* \(Poaceae\)](#)

Summary: Website containing the summary information about particular species from the Global Compendium of Weeds.

Available from: http://www.hear.org/gcw/species/agrostis_tenuis/ [Accessed 24 February]

[Invasive Plants of Asian Origin Established in the US and Their Natural Enemies *Agrostis tenuis* Bentgrass](#)

Summary: Website that provides information on foreign invaders of Asian origin and their natural enemies.

Available from: <http://www.invasive.org/weeds/asian/agrostistenuis.pdf> [Accessed 24 February 2007]

[ITIS \(Integrated Taxonomic Information System\), 2008. Online Database *Agrostis capillaris* L.](#)

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=185249 [Accessed 24 February 2008]

Johnston, Frances M. and Catherine M. Pickering., 2001. Alien Plants in the Australian Alps. *Mountain Research and Development* Vol 21 No 3 August 2001: 284-291

Summary: Report on the status of alien weed species in Australian Alps.

Kelley, A. D.; V. F. Bruns., 1975. Dissemination of Weed Seeds by Irrigation Water. *Weed Science*, Vol. 23, No. 6. (Nov., 1975), pp. 486-493.

Summary: Article discussing the use and effectiveness of irrigation waterways to distribute seeds for grasses and weeds.

Lewis, J., 1973. Longevity of crop and weed seeds: Survival after 20 years in soil. *Weed Research* 13 (2) , 179-191

Summary: Article which looks at longevity of seeds in various soil types.

Lloyd, Kelvin M.; William G. Lee and Susan Walker., 2006. Takahe Valley Hut: a focal point for weed invasion in an isolated area of Fiordland National Park, New Zealand. *New Zealand Journal of Ecology* (2006) 30(3): 371-375

Summary: Report on the ability of various exotic weed species to grow in close proximity to field stations.

[Manual of Grasses for North America. Grass Manual on the Web. *Agrostis capillaris*.](#)

Summary: Database project available on the web that provides information on plant species including distribution map, images, lifecycles, etc. Available from: <http://herbarium.usu.edu/webmanual/default.htm> [Accessed 17 March 2008]

McCully, Kevin V.; M. Glen Sampson; Alan K. Watson., 1991. Weed Biology and Ecology Weed Survey of Nova Scotia Lowbush Blueberry (*Vaccinium angustifolium*) Fields. *Weed Science*, Vol. 39, No. 2. (Apr. - Jun., 1991), pp. 180-185.

Summary: Survey conducted to determine the most common and prevalent weed species in low bush blueberry fields in Nova Scotia.

McDougall, K., Colonization by alpine native plants of a stabilized road verge on the Bogong High Plains, Victoria. *ECOLOGICAL MANAGEMENT & RESTORATION* VOL 2 NO 1 APRIL 2001

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