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

Similar species

Agrostis castellana, Agrostis sibrica, 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).\r\n\r\n
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).\r\n\r\n
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).\r\n\r\n
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
Agrotis 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).\r\n\r\n\r\n
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).

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).\r\n\r\n
Chemical: The gramicides cycloxydim and fluazifop-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).\r\n\r\n
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:

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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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Managment information
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General information

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Invasive Plants of Asian Origin Established in the US and Their Natural Enemies *Agrostis tenuis* Bentgrass
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