meadow foxtail
Alopecurus pratensis L.

Synonyms: *Alopecurus alpinus* Smith var. *songaricus* Schrenk ex Fischer & Meyen, *A. laxiflorus* Ovcz., *A. songaricus* (Schrenk ex Fischer & Meyen) V. Petrov.
Other common names: field meadow-foxtail
Family: Poaceae

Invasiveness Rank: **52** The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

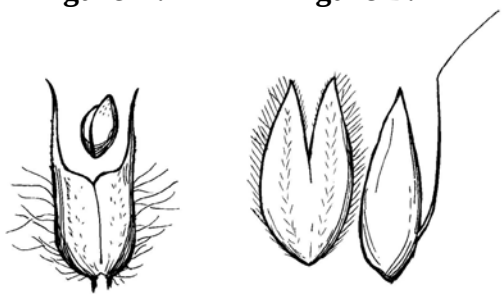
Description
Meadow foxtail is a tufted, perennial grass with short rhizomes. Stems are erect and 30 to 100 cm tall with three to five nodes. Leaf sheaths are open, smooth, and slightly inflated. Ligules on the lower leaves are entire and 1.5 to 2 mm long, while ligules on the upper leaves are finely jagged and up to 6 mm long. Leaf blades are 3 to 10 mm wide, 2.5 to 30 cm long, and scabrous on both surfaces. Panicles are gray-green, cylindrical, dense, 3 to 10 cm long, and 6 to 10 mm wide. Spikelets are 4 to 6 mm long. Glumes are pubescent on the nerves and keels, and each have three distinctive veins. Lemmas are awned from near the base. Awns are bent and 2 to 5 mm longer than lemmas (Hultén 1968, Cody 1996, DiTomaso and Healy 2007, eFloras 2008, Dzyubenko and Dzyubenko 2009, Klinkenberg 2010).

Panicle of *Alopecurus pratensis* L.

Mounted specimen of *Alopecurus pratensis* L.

Similar species: Meadow foxtail is similar to the non-native timothy (*Phleum pratense*). Timothy can be distinguished from meadow foxtail by the presence of awns on the glumes rather than on the lower portion of the lemma (Cody 1996, eFloras 2008). Several other *Alopecurus* species can be confused with meadow foxtail. The non-native water foxtail (*A. geniculatus*), can be distinguished from meadow foxtail by its creeping lower stems and short spikelets that are 3 mm long or less (Hultén 1968, Klinkenberg 2010). Water foxtail also usually has shorter, thinner panicles than meadow foxtail (Peeters 2004). Two native *Alopecurus* species can be found in Alaska: short-awned foxtail (*A. aequalis*) and alpine foxtail (*A. alpinus*). Unlike meadow foxtail, short-awned foxtail has spikelets that are 2 to 3 mm long and alpine foxtail has oblong to ovoid panicles (Hultén 1968, Cody 1996, eFloras 2008).

Figure A. **Figure B.**


Dissected floret of **A.** *Phleum pratense* and **B.** *Alopecurus pratensis*. The awns are shown on the glumes of *P. pratensis*. The long, bent, awned lemma is shown to the right of the glumes of *A. pratensis*.

Ecological Impact

Impact on community composition, structure, and interactions: In its native range, meadow foxtail can develop pure stands on nutrient-rich, wet soils (Peeters 2004). This species invades emergent wetlands, moist meadows, ditches, streams, and grasslands in Oregon and has been observed spreading in wet and dry meadows to the detriment of native plants (OSU Rangeland Ecology and Management, Neugarten and Elseroad 2006). In disturbed areas and wet, nutrient-rich meadows, this grass has the potential to reduce the population sizes of native plants (Crawley et al. 1999). It may also increase the density of graminoid layers in disturbed sites (AKEPIC 2010). Meadow foxtail is palatable to wildlife, although its nutritional value and digestibility vary with the age of the grass and the region in which it grows. This species provides cover for small animals (Peeters 2004, OSU Rangeland Ecology and Management 2005). Several fungi and nematode species have been associated with meadow foxtail (Duke 1983, Peeters 2004).

Impact on ecosystem processes: Meadow foxtail probably has little impact on ecosystem processes (Rutledge and McLendon 1996). It may, however, outcompete native species for soil nitrogen (Venterink and Güsewell 2010).

Biology and Invasive Potential

Reproductive potential: Meadow foxtail reproduces sexually by seeds and vegetatively by sprouting from short rhizomes and rooting at lower stem nodes. Plants are prolific seed producers, but the amount of seeds produced per plant has not been quantified (Rutledge and McLendon 1996, OSU Rangeland Ecology and Management 2005, DiTomaso and Healy 2007, Klinkenberg 2010, USDA 2010). Seed banks are persistent for a short term or are transient. The exact amount of time seeds remain viable under field conditions has not been documented (Rosenthal 2006, USDA 2010).

Role of disturbance in establishment: Meadow foxtail is a facultative wetland species that can establish in disturbed areas and can invade moist places, marshy areas, wet meadows, emergent wetlands, and coastal slopes (OSU Rangeland Ecology and Management 2005, Neugarten and Elseroad 2006, DiTomaso and Healy 2007). Seeds can germinate in vegetated areas that have deep soil and receive little shade (MacDougall et al. 2006). Meadow foxtail establishes primarily in disturbed areas or around abandoned cabin sites in Alaska; however, it has been documented establishing in wet and dry meadows that are dominated by native vegetation in Oregon (Neugarten and Elseroad 2006, AKEPIC 2010).

Potential for long-distance dispersal: Seeds are light and can be dispersed by wind. They are occasionally transported by the movement of water, but they do not appear to be specifically adapted for water dispersal (Rosenthal 2006, USDA 2010).

Potential to be spread by human activity: In Alaska, meadow foxtail has been associated with grass seed and imported straw, which is sometimes used by mushers as dog-bedding (Conn 2010, Conn et al. 2006). This species is commonly planted as a garden ornamental and as a forage crop (DiTomaso and Healy 2007). Its use as a forage crop in Alaska has been documented (Quarberg and Jahns 2002).

Germination requirements: Seeds have physiological dormancy. Germination significantly increases when seeds are allowed to after-ripen for two to ten months (Baskin and Baskin 2001).

Growth requirements: Meadow foxtail can grow on fine- and medium-textured soils with pH between 5.8 and 8. It grows best in moist, nutrient-rich soils. It is somewhat shade tolerant, but grows best in open areas. Meadow foxtail can grow in soil that has high calcium carbonate ($CaCO_3$) content. The plant can withstand long periods of snow cover and temperatures as low as -38°F (Peeters 2004, DiTomaso and Healy 2007, USDA 2010).

Congeneric weeds: Water foxtail (*Alopecurus geniculatus*) is known to occur as a non-native species in Alaska and has an invasiveness rank of 49 (AKEPIC 2010). Slender meadow foxtail (*A. myosuroides*) is listed as a noxious weed in Washington (USDA 2010).

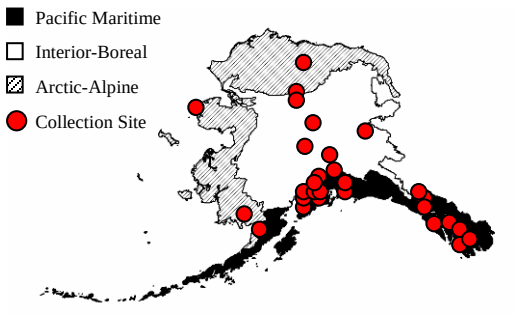
Legal Listings

- ☒ Has not been declared noxious
- ☐ Listed noxious in Alaska
- ☐ Listed noxious by other states
- ☐ Federal noxious weed
- ☐ Listed noxious in Canada or other countries

Distribution and Abundance

Meadow foxtail is cultivated as a pasture grass in many parts of the world, including the Pacific Northwest, Southern Canada, and Alaska. It is also planted as a garden ornamental (Duke 1983, Morisawa 1999, Quarberg and Jahns 2002, DiTomaso and Healy 2007). Meadow foxtail grows in disturbed areas, roadsides, wet to mesic meadows, and marshy areas (DiTomaso and Healy 2007, Klinkenberg 2010).

Native and current distribution: Meadow foxtail is native to Eurasia. It has been introduced to Japan, North America, and Australia (Duke 1983, Western Australian Herbarium 1998, eFloras 2008). This species has been collected from arctic Norway and Svalbard, at approximately 78°N (Vascular Plant Herbarium Oslo 2010). It has been planted as a forage crop in Alaska (Quarberg and Jahns 2002). Meadow foxtail has been documented from all three ecogeographic regions in Alaska (Hultén 1968, AKEPIC 2010, UAM 2010).



Distribution of meadow foxtail in Alaska

Management

Glyphosate herbicides applied at 1 kg per hectare in late summer can effectively control meadow foxtail (OSU Rangeland Ecology and Management 2005). Frequent mowing and cutting can reduce plant yield and prevent seeding (OSU Rangeland Ecology and Management 2005). Digging and hand pulling methods have not been investigated but may be effective because the rhizomes are not extensive (Morisawa 1999).

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