United States Department of Agriculture

Natural Resources Conservation Service

ANNUAL HAIRGRASS

Deschampsia danthonioides (Trin.) Munro

Plant Symbol = DEDA

Figure 1. Annual hairgrass is a native annual grass with a spreading panicle inflorescence.

Alternative Names
Common Names: None known
Scientific Names: Aira danthonioides Trin., Deschampsia calycina J. Presl, and D. danthonioides (Trin.) Munro var. gracilis (Vasey) Munz

Description
General: Annual hairgrass is a fine textured, native, cool season grass with smooth, slender stems (culms) that are 10 to 60 cm tall. The form is upright to spreading, short, and somewhat tufted. The narrow leaf blades are hairless, rough on the edges, slightly in-rolled, 0.5 to 1.5 mm wide, and 1 to 10 cm long. Flower heads (panicles) are open, 7 to 25 cm long, with ascending lower branches (Welsh et al., 2003).

Key to identification: Annual hairgrass can be distinguished from slender hairgrass (*Deschampsia elongata*) and tufted hairgrass (*D. cespitosa*) by its weaker root development, fewer leaves, and smaller stature. Without close inspection it may be confused with other annual grasses, such as annual fescues (*Vulpia* spp.) and North Africa grass (*Ventenata dubia*). Consult botanical keys for proper identification.

Distribution: Annual hairgrass occurs from sea level to 8,000 ft in Western North America from Yukon and Alaska south to Arizona, New Mexico, and Baja California and east to Montana and Wyoming. This species is absent throughout central North America, but populations have been found in the northeast in Ohio, New York, and Maine. The species is considered native to the lower U.S. and introduced in Alaska (Hultén, 1968). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Annual hairgrass reaches its preeminence in vernal pools, mudflats and other shallow depressions that are ponded in winter and desiccated in summer. In California, habitat also includes alkali and coastal grasslands, the edges of alkali playas, and seasonally or periodically inundated wetlands dominated by annuals (Hickman, 1993). Other habitats can include streambanks, roadsides, drier banks, vernal seepage areas, waste areas, and mountain meadows. Annual hairgrass is a facultative wetland species in the Intermountain West (Welsh et al., 2003). It is mostly found in wet meadows, seeps, springs, ditches, and pastures at middle elevations in Idaho. As an early successional colonizer, it is also associated with disturbed areas such as salt licks and watering stations. In the west it is often associated with and growing interspersed with Baltic rush (*Juncus balticus*) and creeping spikerush (*Eleocharis palustris*) and various wetland forbs. Often it will form small, near-monoculture patches within a larger meadow community.

Adaptation
Typical substrates appear to be acidic (pH 5) to moderately alkaline, fine-textured clay soils and silt loams above a shallow, impervious layer. However, it also grows on coarse textured substrates that stay moist through seed development. Annual hairgrass apparently tolerates some salinity and prefers full sun. Fall germinants actively grow all winter, tolerating several days to several weeks of continual submergence.

Uses

Annual hairgrass is useful for wetland restoration, erosion control, and revegetation of moist, disturbed areas where quick, low growing ground cover is desired. Given its apparent lack of competitiveness, this species may prove valuable as a temporary nurse crop for establishing perennial native species in both wetland and upland seed mixes. Waterfowl and birds eat the seeds. However, the foliage may be of less merit for wildlife herbage and cover compared to other grasses because of its short stature, annual lifespan, and limited productivity. The palatability and nutritional value of annual hairgrass for livestock and game is not documented. The vernal pools which it occupies are important reservoirs for aquatic invertebrates and amphibians.

Figure 2. Annual hairgrass is adapted to meadows, seeps, vernal pools and other areas with seasonally moist soils.

Status

Threatened or Endangered: No.

Wetland Indicator: Annual hairgrass is considered FAC in Alaska and FACW in the rest of North America.

Planting Guidelines

Annual hairgrass germinates readily and is easy to establish on open, moist ground. There is no seed dormancy and therefore no requirement for physical conditioning or over wintering outdoors. However, as a winter annual in milder growing climes of the West Coast, it is best suited to early fall sowing. The seed should be run through a debearder or brush machine to remove pubescence (hairs). This will facilitate further seed cleaning and improve flow through a drill and other planting devices. Counts done by Corvallis PMC on Cascade ecotypes had a seed weight of 900,000 seeds per pound (± 30%). Barner (2009) indicated 530,000 seeds/lb (ecotype not stated), and Tilley (2023) found an average of 770,000 seeds/lb of Snake River Plain ecotypes. A seeding rate of one pound per acre pure live seed (PLS) would result in 20 live seeds per square foot. Seeding rates will vary widely depending on planting purpose, site conditions, and method used.

Management

As an annual, this species requires regular disturbance or moist to wet open ground in fall and winter in order to proliferate. It is not competitive and is easily replaced by other species. Annual hairgrass should be well suited to moist soil management techniques (slow de-watering, disking, etc.) in shallow water impoundments and other controlled wetlands. Such methods are used to improve habitat for waterfowl, shorebirds, and other wildlife by maximizing seed production of annuals.

Pests and Potential Problems

There are no known pests or potential problems known concerning annual hairgrass.

Environmental Concerns

Annual hairgrass is morphologically similar to, and overlaps in distribution with, the invasive species North Africa grass or ventenata, in the west. The most distinguishing and reliable trait to distinguish ventenata from annual hairgrass is the floret (seed) morphology. Both bear slender awns arising from the middle back of the lemma with a bend at the half-way point. However, seed size and shape are quite different. Annual hairgrass florets are approximately 3 mm long and are approximately 3 to 4 times longer than broad, giving them a more rounded outline. Ventenata seeds are much longer, approximately 5-7 mm long, and 8-10 times longer than broad, making them very slender in comparison. Ventenata favors drier sites but can be found adjacent to or even mingled with annual hairgrass. See Tilley and Wolf (2023) for more information.

Figure 3. Annual hairgrass is similar in appearance to North Africa grass, but annual hairgrass seeds (above) are approximately 3 mm long and are approximately 3 to 4 times longer than broad, giving them a more rounded outline.

Shallow roots and low herbage production may limit the usefulness of annual hairgrass for soil stabilization on highly erosive soils or unconsolidated substrates. While it is a weak competitor with weeds, it may be less likely to become a weed itself. Although annual hairgrass can increase in open waste areas, there are no reports of this species becoming invasive.

Seeds and Plant Production
Barner (2009) processed small seed collections using a Westrup Model LA-H laboratory brush machine, with a #40 mantel, at a speed of 3, to remove seed from stems and de-awn. Seeds were finished by air-screening, to remove chaff and inert material, using an office Clipper, with a top screen: 5 1/2 round and a bottom screen: blank, medium speed, and low to medium air. Tilley (2023) followed a similar procedure using a multi-deck airscreen cleaner with 3.55 mm top screen and 6x38 bottom screen followed by a second run with 2.35 mm top and blank bottom screen.

Tilley (2023) compared germination of annual hairgrass in germination boxes on blotter paper with seed placed in an oxygenated water bath and found no difference in final germination (73%) after 15 days.

Cultivars, Improved, and Selected Materials (and area of origin)
Plants and seeds are sometimes available in California and Oregon. This species is generally not available elsewhere within its range, requiring wild harvest or contract seed growing to provide material. Germplasms should be selected based on the local climate, resistance to local pests, and intended use. Consult with your local land grant university, local extension or local USDA NRCS office for recommendations on adapted cultivars for use in your area**.**

Literature Cited
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Citation
Darris, D. and A. Bartow. 2005. Plant Guide for annual hairgrass (*Deschampsia danthonioides*). USDA-Natural Resources Conservation Service, Corvallis Plant Materials Center. Corvallis, OR, 97330.
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