

hairy cat's ear

Hypochaeris radicata L.

Synonyms: none

Other common names: common cat's-ear, false dandelion, frogbit, gosmore, hairy catsear, spotted catsear

Family: Asteraceae

Invasiveness Rank: 44 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

Hairy cat's ear is a perennial plant that grows from 10 to 60 cm tall from a thick taproot. Plants exude milky juice when broken. Each plant produces one to 15 stems from the woody caudex. Stems are erect, usually branched, enlarged below the flower heads, and leafless with many scale-like bracts. Leaves are basal, oblanceolate, coarsely hairy, 5 to 35 cm long, and 5 to 30 mm wide with coarsely toothed to pinnatifid margins and rounded tips. Flower heads are borne alone or in loose arrays of two to seven. Involucres are cylindrical or bell-shaped, 10 to 25 mm long, and 10 to 20 mm wide. Involucral bracts are narrowly lanceolate, unequal, hairy or glabrous, and 3 to 20 mm long. They form more than two overlapping rows. Florets are strap-shaped, yellow, and 10 to 15 mm long. Seeds are brown, rough, ribbed, and 4 to 10 mm long with beaks that are 3 to 5 mm long. Each seed has a pappus that consists of two rows of bristles: feathery outer bristles and shorter, barbed inner bristles (Hultén 1968, Bogler 2006, DiTomaso and Healy 2007, eFloras 2008, Klinkenberg 2010).

confused with hairy cat's ear in Alaska. Common dandelion (including the native *Taraxacum officinale* ssp. *ceratophorum* and the non-native *Taraxacum officinale* ssp. *officinale*) can be distinguished from hairy cat's ear by the absence of branched stalks and bracts on the stalks. Unlike hairy cat's ear, dandelion has glabrous foliage (DiTomaso and Healy 2007). Narrowleaf hawkbeard (*Crepis tectorum*) can be distinguished from hairy cat's ear by the presence of involucral bracts arranged in two rows. Fall dandelion (*Leontodon autumnalis*) can be distinguished from hairy cat's ear by the presence of beakless seeds, pappi that are composed only of feathery bristles, bracts on the stems only near the flower heads, and much narrower and longer lobes on the leaves (Bogler 2006, eFloras 2008).



Basal rosette of *Hypochaeris radicata* L. Photo by R. Old.



(Left) Involucre and stem bracts on *Hypochaeris radicata* L. Photo by R. Old. (Right) Coarsely hairy leaf of *Hypochaeris radicata* L. Photo by T. Webster.

Similar species: Several other yellow-flowered Asteraceae species that produce basal rosettes can be

Ecological Impact

Impact on community composition, structure, and

interactions: Hairy cat's ear displaces native species and alters the community composition in coastal terrace prairies in California (Warner 2003) and in Garry oak ecosystems in Washington and British Columbia (GOERT 2005). Hairy cat's ear may increase the density of vegetation, displace native species, and alter community composition in early successional grasslands, disturbed areas, and heavily grazed pastures (Turkington and Aarssen 1983, de Kroon et al. 1987, Warner 2003, DiTomaso and Healy 2007). However, a study in which hairy cat's ear was removed from primary successional sites on Mount Saint Helens suggested that this species has limited effects on the composition of surrounding vegetation (Schoenfelder et al. 2010). Hairy cat's ear can dominate and reduce the quality of pastures in Britain (Turkington and Aarssen 1983). Shoots of hairy cat's ear are eaten by wild and domesticated animals, including sheep, pigs, snowshoe hares, slugs, snails, birds, and ants (Aarssen 1981, Turkington and Aarssen 1983, Weiner 1993). Sheep and snowshoe hares show a preference for this species over other plant species (Turkington and Aarssen 1983). When ingested in large quantities by horses, hairy cat's ear is known to cause stringhalt, a disease involving high-stepping with hyperflexion of the hind limbs. The toxicity of the plant likely depends on the habitat in which it grows (Araújo et al. 2008). Roots form associations with mycorrhizal fungi. Numerous insect species visit the flowers for pollen or nectar (Turkington and Aarssen 1983). The presence of hairy cat's ear may alter native plant-pollinator interactions. Hairy cat's ear is associated with many nematodes, plant pests, parasites, and diseases (Turkington and Aarssen 1983). *Impact on ecosystem processes:* Hairy cat's ear grows in recently disturbed sites and grasslands that are repeatedly disturbed, mown, or grazed (Turkington and Aarssen 1983). The deep taproots can draw considerable amounts of water and may limit the soil moisture available to native species (GOERT 2005). Hairy cat's ear rapidly uptakes and incorporates soil nitrogen, limiting the nitrogen available to native species and increasing the retention of nitrogen in nitrogen-poor ecosystems (Schoenfelder et al. 2010).

Biology and Invasive Potential

Reproductive potential: Hairy cat's ear can reproduce sexually by seeds or vegetatively by overwintering buds (Turkington and Aarssen 1983). Each rosette can produce from 300 to 6,000 seeds (de Kroon et al. 1987). In British Columbia, this species produced an average of 2,329 seeds per plant (Turkington and Aarssen 1983). Less than 1% of seeds germinated after dry storage for 12 months (Turkington and Aarssen 1983). This species does not form long-lived seed banks (de Kroon et al. 1987). Multiple rosettes can be produced from a single taproot. Vegetative propagation primarily contributes to increasing the density of rosettes in established

populations rather than to establishing new or maintaining existing populations (de Kroon et al. 1987). *Role of disturbance in establishment:* Hairy cat's ear establishes on exposed mineral soil and is common in early-seral communities (Klinkenberg 2010). Disturbances increase the survival rates of seedlings (de Kroon et al. 1987). Hairy cat's ear often invades overgrazed, underfertilized pastures, and its establishment is most successful on bare soil (Aarssen 1981, Turkington and Aarssen 1983). In Australia, occurrences of hairy cat's ear decline as the distance from roads (into forests) increases (Aarssen 1981). This species has been documented growing in naturally disturbed areas in Canada, such as beaches, outcrops, and rocky shores (Turkington and Aarssen 1983). In Alaska, however, 98% of recorded infestations are associated with anthropogenic disturbances; the remaining 2% of infestations do not have enough information to identify the disturbance type (AKEPIC 2010).

Potential for long-distance dispersal: Each seed has a pappus of feathery bristles and is well suited to wind-dispersal (Turkington and Aarssen 1983). Seeds have a terminal velocity of 0.34 m/s, and 95% of seeds land at least 10 m from the parent plant in a 12 m/s wind. More rarely, seeds can land 100 m from the parent plant (Soons et al. 2004). Seeds can stick to and be dispersed by birds and are sometimes moved by ants (Turkington and Aarssen 1983).

Potential to be spread by human activity: Hairy cat's ear has been documented as a contaminant in commercial grass seed (Turkington and Aarssen 1983). Seeds can attach to clothing and can be transported on agricultural equipment (Warner 2003, DiTomaso and Healy 2007). Infestations in Alaska have spread primarily along road systems (AKEPIC 2010).

Germination requirements: Seeds do not have innate dormancy and can germinate immediately after maturation. Light is required for seeds to germinate. Germination rates peak in the spring and autumn (Turkington and Aarssen 1983), although germination in the spring is less significant (de Kroon et al. 1987). Moist soil conditions promote germination (Turkington and Aarssen 1983).

Growth requirements: Hairy cat's ear can tolerate a wide range of substrates, including clay, sand, and gravel, with pH from 3.9 to 8.6. It grows best in well-drained areas and can grow in nutrient-poor soils. This species is somewhat tolerant of saline conditions and can grow in coastal habitats (Turkington and Aarssen 1983).

Congeneric weeds: Brazilian cat's ear (*Hypochaeris brasiliensis*), smooth cat's ear (*H. glabra*), and smallhead cat's ear (*H. microcephala*) are known to occur as non-native weeds in North America (USDA 2010). Smooth cat's ear is considered a weed in California (DiTomaso and Healy 2007) and is known to

occur in British Columbia (USDA 2010).

Legal Listings

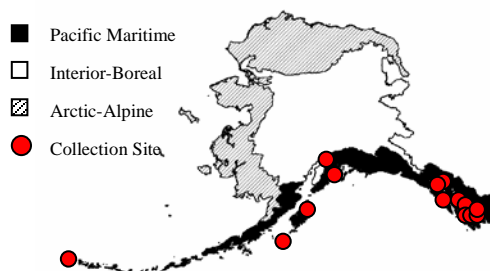
- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states (WA)
- Federal noxious weed
- Listed noxious in Canada or other countries

Distribution and Abundance

Hairy cat's ear occasionally grows as a weed in ploughed fields and blueberry and raspberry patches in Canada (Aarssen 1981). It grows in pastures in the U.S., Australia, New Zealand, and Brazil (Araújo et al. 2008). In North America, this species grows in oak-pine forests, coastal prairies, dunes, waste places, dry fields, roadsides, railroad tracks, lawns, pastures, beaches, outcrops, and rocky shores (Turkington and Aarssen 1983, Bogler 2006, Klinkenberg 2010).

Native and current distribution: Hairy cat's ear is native to Europe, North Africa, and northern Asia. It has been introduced to North America, South America, southern Africa, Australia, New Zealand, Taiwan, and Japan (Aarssen 1981, Turkington and Aarssen 1983, Bogler 2006, eFloras 2008). It grows in 41 states of the U.S. (USDA 2010). This species has not been documented from arctic or subarctic regions, although it grows as far north as 62°47'N in coastal Norway (Turkington and Aarssen 1983). Hairy cat's ear has been documented from the Pacific Maritime ecogeographic region of Alaska and from Anchorage in the Interior-Boreal

ecogeographic region (Hultén 1968, AKEPIC 2010, UAM 2010).



Distribution of hairy cat's ear in Alaska

Management

Although mowing reduces the vegetative propagation of hairy cat's ear, it is an ineffective control method because it stimulates the growth of flowering stalks, which can double in number and increase the overall seed production of the population (de Kroon et al. 1987). Roots can be destroyed by tilling. Digging plants out below the crown in early spring effectively controls this species. Hairy cat's ear does not resprout from any root fragment that does not contain a portion of the crown, which extends 2 to 3 cm below the soil surface (Turkington and Aarssen 1983). Hairy cat's ear is resistant to several types of herbicides but can be controlled using MCPA-salt, 2,4-D-amine and -ester, and mecoprop-salt (Turkington and Aarssen 1983).

References:

- Aarssen, L. 1981. The Biology of Canadian Weeds. 50. *Hypochoeris radicata* L. Canadian Journal of Plant Science. 61(2). 365-381 p.
- AKEPIC database. Alaska Exotic Plant Information Clearinghouse Database. 2010. Available: <http://akweeds.uaa.alaska.edu/>
- Araújo, J., B. Curcio, J. Alda, R. Medeiros, and F. Miet-Correa. 2008. Stringhalt in Brazilian horses caused by *Hypochoeris radicata*. Toxicon. 52(1). 190-193 p.
- Bogler, D. 2006. *Hypochoeris radicata* L. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. New York and Oxford. Vol. 19, p. 299.
- de Kroon, H., A. Plaisier, J. van Groenendale. 1987. Density dependant simulation of the population dynamics of a perennial grassland species, *Hypochoeris radicata*. Oikos. 50(1). 3-12 p.
- DiTomaso, J., and E. Healy. 2007. Weeds of California and Other Western States. Vol. 1. University of California Agriculture and Natural Resources Communication Services, Oakland, CA. 834 p.
- eFloras. 2008. Published on the Internet <http://www.efloras.org> [accessed 30 November 2010]. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA.
- GOERT (Gary Oak Ecosystem Recovery Team). 2005. *Hypochoeris radicata*: Invasive species in Garry oak and associated ecosystems in British Columbia. Gary Oak Ecosystem Recovery Team. Victoria, BC. [30 November 2010] Available: http://www.goert.ca/documents/InvFS_hairycat_s.pdf
- Hultén, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press, Stanford, CA. 1008 pp.
- Invaders Database System. 2010. University of Montana. Missoula, MT. <http://invader.dbs.umt.edu/>
- Klinkenberg, B. (Editor) 2010. *Hypochoeris radicata* L. In: E-Flora BC: Electronic Atlas of the Plants of British Columbia. Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia. Vancouver, BC. [30 November 2010] Available:

- <http://www.geog.ubc.ca/biodiversity/eflora/index.shtml>
- Schoenfelder, A., J. Bishop, H. Martinson, W. Fagan. 2010. Resource use efficiency and community effects of invasive *Hypochoeris radicata* (Asteraceae) during primary succession. *American Journal of Botany*. 97(11). 1772-1779 p.
- Soons, M., G. Heil, R. Nathan, and G. Katul. 2004. Determinants of long-distance seed dispersal by wind in grasslands. *Ecology*. 85(11). 3056-3068 p.
- Turkington, R., and L. Aarssen. 1983. Biological Flora of the British Isles. 156. *Hypochoeris radicata* L. (*Achyrophorus radicans* (L.) Scop.). *Journal of Ecology*. 71(3). 999-1022 p.
- UAM. 2010. University of Alaska Museum, University of Alaska Fairbanks. Available: <http://arctos.database.museum/home.cfm>
- USDA. 2010. The PLANTS Database. National Plant Data Center, Natural Resources Conservation Service, United States Department of Agriculture. Baton Rouge, LA. <http://plants.usda.gov>
- Warner, P. 2003. Plant Assessment Form *Hypochoeris radicata*. California Exotic Pest Plant Council and Southwest Vegetation Management Association. [30 November 2010] Available: <http://www.cal-ipc.org/ip/inventory/PAF/Hypochoeris%20radicata.pdf>
- Weiner, J. 1993. Competition, herbivory, and plant size variability: *Hypochoeris radicata* grazed by snails (*Helix aspersa*). *Functional Ecology*. 7(1). 47-53 p.