mouse-ear hawkweed
Hieracium pilosella L.

Synonyms: *Hieracium pilosella* var. *nivuem* Müll. Arg., *H. pilosella* var. *pilosella* L., *Pilosella officinarum* F. W. Schultz & Schultz-Bipontinus
Other common names: none
Family: Asteraceae

Invasiveness Rank: **63** 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
Mouse-ear hawkweed is a stoloniferous, perennial plant that grows 10 to 40 cm tall. Plants exude milky juice when broken. Stems are hairy and erect. Basal leaves are hairy, elliptic to oblanceolate, 10 to 75 mm long, and 5 to 18 mm wide with cuneate bases and entire margins. Leaves of the stolons are similar but smaller. Stem leaves are absent or few. When present, they are reduced in size up the stem. Flower heads are usually borne singly or, less commonly, in groups of two or three at the ends of stems with 60 to 120 florets each. Peduncles are hairy. Involucres are hemispheric or obconic and 7.5 to 11 mm long with black hairs. Florets are yellow, strap-shaped, 8 to 13 mm long, and often red-tinged on the lower surfaces. Seeds are cylindrical and 1.5 to 2 mm long. Each seed has a pappus composed of 30 or more bristles that are 4 to 5 mm long (Strother 2006, Klinkenberg 2010).


Hairy leaf of *Hieracium pilosella* L. Photo by T. Spaans.

Similar species: Mouse-ear hawkweed can be distinguished from all other *Hieracium* species in Alaska by the presence of yellow florets with red-tinged lower surfaces, cylindrical seeds that are 1.5 to 2 mm long, entire leaf margins, leaves that are all basal or mostly basal, and flower heads that are usually alone at the ends of stems. Several other yellow-flowered Asteraceae species that produce basal rosettes can be confused with mouse-ear hawkweed. Narrowleaf hawksbeard (*Crepis tectorum*) can be distinguished from mouse-ear hawkweed by the presence of groups of 5 to 20 flower heads arranged at the ends of stems, stems up to 1 m tall, two rows of involucral bracts, white hairs on the involucres, and leaves that are often coarsely pinnatifid. Unlike mouse-ear hawkweed, common dandelion (including the native *Taraxacum officinale* ssp. *ceratophorum* and the non-native *Taraxacum officinale* spp. *officinale*), hairy cat's ear (*Hypochaeris radicata*), and fall dandelion (*Leontodon autumnalis*) have deeply lobed, pinnatifid, or coarsely toothed leaves (Strother 2006, eFloras 2008, Klinkenberg 2010).


Hairy involucre of *Hieracium pilosella* L. Photo by T. Spaans.

Ecological Impact
Impact on community composition, structure, and interactions: Mouse-ear hawkweed invades fescue tussock (*Festuca novae-zelandiae*) grasslands in dry inter-montane basins in New Zealand, where it displaces

inter-tussock vegetation first and then fescue tussock. Infestations spread extensively, reaching up to 80% ground cover (Makepeace 1985). Dense mats of rosettes reduce the quality of pastures for sheep in New Zealand (Scott et al. 1990). This species also grows in dense mats and excludes desirable species in meadows and pastures in the eastern U.S. (Washington NWCB 2008). Mouse-ear hawkweed can significantly increase the density of forb-graminoid layers and displace native species in grasslands (Makepeace 1985, Piening and Russo 1988). *Hieracium* species hybridize with other native and non-native *Hieracium* species (Wilson 2006, Gaskin and Wilson 2007). Mouse-ear hawkweed reduces the amount of vegetation available for grazing animals in grasslands in New Zealand (Makepeace 1985).

Impact on ecosystem processes: In New Zealand, mouse-ear hawkweed reduces the nitrogen and phosphorus content of fescue tussock, suggesting that this species limits the availability of nutrients (Makepeace et al. 1985). Infestations increase soil pH by up to 0.5 and increase the amount of organic carbon and soil exchangeable calcium, magnesium, and potassium in the soil (McIntosh et al. 1995).

Mat of *Hieracium pilosella* L. in a meadow in Germany. Photo by Conny.

Biology and Invasive Potential

Reproductive potential: Mouse-ear hawkweed reproduces sexually by seeds and vegetatively from stolons (Makepeace 1985, Piening and Russo 1988). Individual rosettes produce 23 to 108 seeds (Winkler and Stöcklin 2002). Most seedlings do not survive longer than several weeks (Piening and Russo 1988). Plants only produce stolons when initiating inflorescences. Parent plants die after flowering, and stolons decay after vegetative rosettes root. Pioneer plants arise from seeds, but the maintenance and expansion of populations primarily depend on vegetative reproduction (Makepeace 1985, Winkler and Stöcklin 2002). The amount of time seeds remain viable for this species is unknown, but *Hieracium* species oftem maintain seed viability for seven years (Rinella and Sheley 2002).

Role of disturbance in establishment: Mouse-ear hawkweed establishes on open soil or in sparsely vegetated areas (Piening and Russo 1988). It grows in anthropogenically disturbed areas in North America (Strother 2006, Klinkenberg 2010). In New Zealand, it has established in extensively grazed short tussock grassland (Makepeace 1985). Although *Hieracium* species do not readily germinate in heavily vegetated areas, populations may spread vegetatively into undisturbed areas once established (Giroday and Baker 2006).

Potential for long-distance dispersal: Each seed has a pappus composed of 30 or more bristles that are 4 to 5 mm long (Strother 2006). Seeds are dispersed by wind (Makepeace 1985).

Potential to be spread by human activity: Mouse-ear hawkweed was likely introduced to New Zealand in contaminated crop seed (Makepeace 1985).

Germination requirements: Seeds germinate in spring and autumn when sufficient moisture is present. Germination rates are highest at 22°C (Piening and Russo 1988).

Growth requirements: Mouse-ear hawkweed usually grows in well-drained, coarse, nutrient-poor soils in dry areas. Low annual rainfall favors the establishment of this species (Piening and Russo 1988). As populations expand by stolons outward from a center, gaps form in the center where parent plants die. On shallow, dry soils, the gaps are not recolonized (Makepeace 1985).

Congeneric weeds: All *Hieracium* species are considered noxious weeds in Washington. Polar hawkweed (*Hieracium atratum*), orange hawkweed (*H. aurantiacum*), meadow hawkweed (*H. caespitosum*), *H. ×floribundum* (no common name), tall hawkweed (*H. piloselloides*), and common hawkweed (*H. vulgatum*) are each considered a noxious weed in one or more states of the U.S. or provinces of Canada (Invaders 2011, USDA 2011).

Legal Listings

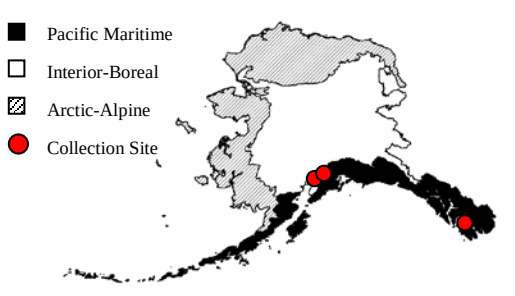
☐ Has not been declared noxious
☐ Listed noxious in Alaska
☒ Listed noxious by other states (All *Hieracium* species: WA; *Hieracium pilosella*: OR)
☐ Federal noxious weed
☒ Listed noxious in Canada or other countries (QC)

Distribution and Abundance

In North America, mouse-ear hawkweed grows in

disturbed areas, sand, gravel, fields, lawns, and roadsides (Strother 2006, Klinkenberg 2010). It is a weed of pastures in North America and New Zealand (Davy and Bishop 1984, Piening and Russo 1988, Scott et al. 1990).

Native and current distribution: Mouse-ear hawkweed is native to Europe (Piening and Russo 1988, Strother 2006). It was introduced to North America and New Zealand in the early 20th century (Piening and Russo 1988). This species grows in 23 states of the U.S. in the Pacific Northwest and eastern U.S. (Strother 2006, USDA 2011). It has also been introduced to South America (Cipriotti et al. 2010). Mouse-ear hawkweed grows as far north as 67.9°N in Norway (Norwegian Species Observation Service 2011). It has been documented from Girdwood and Prince of Wales Island in the Pacific Maritime ecogeographic region of Alaska and Kenai in the Interior-Boreal ecogeographic region (AKEPIC 2011, UAM 2011).



Distribution of mouse-ear hawkweed in Alaska

Management

The addition of nitrogen, potassium, and phosphorus to grasslands increases populations of native grasses and reduces or eliminates populations of mouse-ear hawkweed. Increased nutrient levels stimulate flowering, which increases the turnover of rosettes since parent plants die after flowering (Davy and Bishop 1984). Mouse-ear hawkweed can be controlled by the application of 2, 4-D ester at 1,000 g/ha combined with clopyralid at 400 g/ha (Piening and Russo 1988). Aminopyralid at 105 grams per hectare and clopyralid at 420 grams per hectare consistently controlled orange hawkweed (*Hieracium aurantiacum*) infestations in southern Alaska and may provide effective control of mouse-ear hawkweed as well. Aminopyralid is better suited to pasture habitats as it controls a broader spectrum of forbs than clopyralid, while clopyralid is better suited to natural habitats as it will remove less of the native vegetation (Seefeldt and Conn 2010). Mechanical control efforts have not been investigated; however, similar to orange hawkweed, mechanical control efforts are likely ineffective. Mouse-ear hawkweed can resprout from root and stolon fragments (King County 2010); for this reason, tilling is not recommended.

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