

# Mouse ear Hawkweed (*Pilosella officinarum* Vaill.)

## Family

Asteraceae

## Description and Life cycle

Mouse ear hawkweed is a perennial that reproduces by stolons, rhizomes and seeds<sup>1, 7</sup>. Mouse ear hawkweed plants produce numerous leafy, matt-forming reddish coloured stolons that measure 5 – 25 cm long. The leafy stolons become elongated in the summer and produce daughter rosettes at the stolon tips in as little as seven weeks<sup>4</sup>. Leaves are restricted to the basal part of the plant and are egg-shaped with narrow bases. Both sides of the leaf are hairy, the upper leaf surface is dark green coloured with numerous long hairs, whereas the lower leaf surface appears whitish due to the dense mat of short hairs. The bolting stems are erect and un-branching, are hairy at their bases and reach a height of 15 – 30 cm tall. Mouse ear hawkweed is the only yellow flowering hawkweed that produces a single (rarely two) flower<sup>7</sup>. The flower is borne at the top of the stem<sup>7</sup> and measures 1.3 to 2.0 cm in diameter<sup>4</sup>. Seeds are produced asexually, however, recent studies indicate cross pollination is quite common. Each hawkweed flower can produce 12 to 30 small black ribbed seeds (achenes). The seeds are narrower at their base, measure 1.5 to 2 mm long and have a tawny coloured pappus. Hawkweed seeds can remain viable in the soil for up to seven years. An entire generation can take only four months to complete. Hawkweeds die back over the winter and regenerate each year from their underground rhizomes. Canadian studies determined that seeds generally are not carried great distances by wind and often fall to the soil within an existing infestation, thus, contributing to increasing the size and density of established locations, whereas new infestations occur when the ribbed seeds become attached to fur, feathers, clothing or vehicles and are carried to new sites<sup>4</sup>.

## Origin and History

Mouse ear hawkweed originates from Europe<sup>2</sup>. It is not clear when mouse ear hawkweed first appeared in B.C. or how it first came to North America<sup>5</sup>.

In eastern North America, mouse ear hawkweed is widespread in the eastern United States and Canada. In the western areas of North America it occurs in B.C., Alaska, and western parts of Oreg., and Wash. In Canada, mouse ear hawkweed is recorded present in B.C, Ont., Que., Nfld., N.B., N.S. and P.E.I.<sup>2</sup>. Mouse ear hawkweed infestations are rare in southern B.C.<sup>1</sup>. Mouse ear hawkweed sites have been positively identified in the central Kootenays near Nelson and Christina Lake. Mouse-ear hawkweed can be often be confused with whiplash hawkweed.

## Native and Predicted Habitat

Mouse ear hawkweed originates in the Palearctic region of Eurasia. Its native range includes areas from the sub-Arctic Northern Europe south to the Mediterranean and into western Asia<sup>6</sup>. Here they establish in wasteland type areas such as roadside cutbanks, abandoned fields as well as in meadows and pastures and grow in small, isolated patches. The highest density patches of hawkweeds are found in newly disturbed areas, but typically do not persist<sup>4</sup>. Mouse ear hawkweed is not considered a weed in Europe<sup>6</sup>. Mouse ear hawkweed appears to favour dry roadsides, lawns and waste areas located in the lowland, steppe and montane zones<sup>2</sup>.



Fig. 1. Mouse ear hawkweed plants



Fig. 2. Mouse ear hawkweed flower



Fig. 3. Mouse ear hawkweed plant

Hawkweeds are not drought tolerant and are unable to withstand long periods of drying. Hawkweeds are very cold tolerant and are able to establish at high elevations. Cool, sub-humid to humid sites at elevations up to 1500 meters may be preferred. In North America, hawkweeds generally establish in moist pastures and forest meadows and in mesic rangelands. The most predictable habitats may have soils that have moderately low levels of organic matter that are also well drained and coarse textured<sup>4</sup> and some preferred areas include dry roadsides, lawns, waste places<sup>2</sup>, meadows, forest openings pastures, hayfields, clear cuts and abandoned farm lands<sup>4</sup>. Generally these preferred habitats and sites are found located in lowland, steppe and montane zones<sup>2</sup>. Despite growing in forest openings, hawkweeds generally do not do well in shade. Invasive hawkweeds share habitat similarities with several other invasive plants including ox-eye daisy, sulphur cinquefoil, and spotted knapweed<sup>4</sup>.



Fig. 4. Mouse ear hawkweed leaf surface



Fig. 5. Mouse ear hawkweed leaf underside



Fig. 6. Mouse ear hawkweed leaf margins

### British Columbia Habitat

In B.C. mouse ear hawkweed is confirmed to occur in the Interior cedar-hemlock and the Interior Douglas-fir biogeoclimatic zones<sup>5</sup>.

### Biocontrol Agents

*Aulacidea subterminalis* (gall wasp)



Fig. 7. Mouse ear hawkweed infestation site at Christina Lake, Interior Douglas-fir zone.



Fig. 8. Mouse ear hawkweed plants

## References

1. Birdstall, J. and P.C. Quimby. 1996. Mouseear hawkweed. Sect. III., Weeds and Potential Biological Control Agents. In: Biological control of weeds in the west. Rees, N.E., P.C. Quimby, Jr., E.M. Coombs, C.E. Turner., N.R. Spencer, L.V. Knutson, (editors). Western Soc. of Weed Sci.
2. Douglas, G. W., G. B. Straley, D. Meidinger and J. Pojar. 1998. Illustrated flora of British Columbia. Province of BC, Min. of Environ., Lands and Parks and Min. of For. Vol. 1: 280 – 292.
3. Hitchcock, C. L. and A. Cronquist. 1996. Flora of the Pacific Northwest an illustrated manual. University of WA.
4. Littlefield, J., G. Grosshopf, and L. Wilson. 2008. A petition for the field release of the gall wasp *Aulacidea subterminalis* (Hymenoptera: Cynipidae) for biological control of invasive hawkweeds in North America. 77 p.
5. Ministry of Forests, Lands and Natural Resource Operations. Staff personal comments.
6. Sarospataki, M. 1999. Phytophagous insects associated with *Hieracium pilosella* (Asteraceae) in Hungary, Central Europe. Entomol. Soc. of America. Vol. 28, No. 1. 8 p.
7. Wilson, L. M. 2007. Identification key to hawkweeds (*Hieracium* spp.) in the Pacific Northwest. Prov. of BC, Min. For. And Range, For. Pract. Br., Invasive Alien Plant Prog. 21 p.