Hawkweeds

Hieracium spp.

Sunflower Family

Identification Tips

- Hawkweeds are perennials in the sunflower family with milky juice, yellow, white, or orange dandelion-like flower heads, and bristly hair overall.
- In the Pacific Northwest, there are both native hawkweeds and non-native invasive hawkweeds.
- Both native and invasive plants have rosettes of strap or lance-shaped leaves at the base of the stem. The basal leaves of most non-native hawkweeds persist through flowering.
- Some, but not all, non-native hawkweeds have stolons (runners), allowing for aggressive vegetative reproduction. No native Pacific Northwest hawkweed species have stolons.
- For more information and help deciphering between native and non-native hawkweeds, please refer to the Key to Identification of Invasive and Native Hawkweeds (*Hieracium* spp.) in the Pacific Northwest (referenced below).

Meadow/vellow hawkweed

Common hawkweed

Impacts

- **Some non-native hawkweeds may be allelopathic. They may put toxins in the soil which prevent the growth of other plants.**
- As a result of prolific seed and stolon production, hawkweeds are successful competitors, crowding out native, ornamental, pasture, and crop species.
- Hawkweeds reduce forest forage.

Habitat & Distribution

- Hawkweeds prefer full sun or partial shade and soil that is well-drained, coarse-textured, and moderately low in organic matter.

- They are mostly found on roadsides and in fields, pastures, and mountain meadows.
- Hawkweeds can tolerate some shade and grow in forest openings and cleared areas.
- Orange hawkweed is sometimes found in residential yards where it escapes from intentional plantings or was introduced as part of a "wildflower meadow mix." It is illegal to sell orange hawkweed plants or seeds in both Oregon and Washington.
- Hawkweeds can be found from sea level to high elevations but are most abundant at middle elevations in the mountains and along roadsides.

Orange hawkweed

Reproduction & Spread

- Hawkweeds are perennials that reproduce by seed. Many also spread vegetatively through stolons, rhizomes, and axillary buds from root crowns. Also, hawkweeds can produce viable seed by self-pollinating.
- Most hawkweed species flower in late May or early June.
- Plants go to seed starting in July but may continue to flower and go to seed through September.
- Motor vehicles are the primary mode of spread in the Pacific Northwest.

CONTROL INFORMATION

Integrated Pest Management

- Integrated Pest Management (IPM) involves selecting from a range of possible control methods to match the management requirements of each site. The goal is to maximize effective control and to minimize negative environmental, economic, and recreational impacts.
- Use a multifaceted and adaptive approach. Select control methods reflecting the available time, funding, and labor of the participants, the land use goals, and the values of the community and landowners. Management will require dedication for a number of years and should allow flexibility in methods.

Mouseear hawkweed

Planning Considerations

- Survey the area for weeds, set priorities, and select the best control method(s) for the site.
- Minimize soil disturbance to prevent further infestations of weeds.

- Begin work on the perimeter of the infestation and move inward toward the core.
- Monitor the site and treat plants that germinate from the seed bank.
- Re-vegetate treatment areas with site-suitable native plants to improve ecosystem function and prevent new infestations.

Early Detection and Prevention

- Minimize soil disturbance from vehicles, machinery, and over-grazing to reduce seed establishment.
- Hawkweeds are difficult to spot in tall grass unless they are in flower. Survey pasture areas, unmanaged grasslands, and roadsides for flowering and pre-flowering plants from mid May to late June**.** Small isolated populations can be dug up, but sites should be monitored for several years for plants growing from fragments and from the seed bank.
- Ensure any existing plants do not produce and release seed.
- Cut and bag flower heads from plants to prevent seed spread.
- Thoroughly clean tools, boots, and vehicles after working in or traveling through an infested area to prevent the spread of noxious weeds.

Manual, Mechanical, & Cultural Control

- Infested areas typically have many seedlings and an extensive seed bank.
- Dig up plants in the spring or early summer when the soil is still moist and before the seeds mature. The roots are fibrous and relatively easy to dig up, but break easily. It is important to remove as much root as possible. Hawkweeds with stolons will re-sprout from any fragments left in the soil.
- Cut off and bag all flower heads because they can form viable seeds even after they are cut or dug up. If there are already seeds, cut and bag the seed heads before digging up the rest of the plant. It is very difficult to pull the plants without dispersing the small, lightweight seeds. Brush off boots and clothes before leaving the infested area.
- Dispose of flower heads and plants in household garbage or take to a transfer station for disposal. Do not compost or put in yard waste. **Never dump yard debris in natural areas.**
- Carefully monitor areas where mature plants have been dug up to prevent new infestations. If possible, plant with native grass or other competitive native vegetation.
- **Mowing will not control hawkweeds** because they are perennials and most reproduce by stolons as well as seed. Mowed plants respond by sending up shorter stems and quickly flowering again. Plants will also put more energy into spreading by stolons and the infestation size and density will increase.
- A single plowing may increase hawkweed cover, but on productive agricultural sites, an intensive management program that combines cultivation and annual crops will effectively control hawkweed.

Biological Control

- There are no biological controls currently available for hawkweeds.

Herbicide Control

- Only apply herbicide at proper rates and for the site conditions or land usage specified on the label. **Follow all label directions** and wear recommended personal protective equipment (PPE).
- Monitor treated areas for missed and newly germinated plants.
- Choose selective herbicides over non-selective herbicides when applying in a grassy area.
- **Minimize impacts to pollinators by controlling weeds before they flower. When possible, make herbicide applications in the morning or evening when bees are least active. Avoid spraying pollinators directly.**

Specific Herbicide Information

Herbicides are described here by the active ingredient. Many commercial formulations are available that contain specific active ingredients, but often are not formulated for use near aquatic sites. Always be sure to select an aquatically-approved herbicide and surfactant for use near water. **References to product names are for example only.** Directions for use may vary between brands.

- **Triclopyr [amine/salt]** (e.g. Garlon 3a, Brush-B-Gon, Vastlan,) and **2,4-D** (e.g. Weed-B-Gon, Weedmaster) are effective on most hawkweed species, but work best in combination with each other or with other selective herbicides such as **dicamba**. Apply to actively growing plants before buds form in late spring: usually before mid-May; later at higher elevations. The higher recommended label rates seem to be more effective; adding a surfactant is also recommended.
- **Aminopyralid** (e.g. Milestone) is very effective on all hawkweed species. Use the product appropriate for the site; right-of-way, non-crop, or pasture. This herbicide is not available for residential or commercial turf applications. It can damage or kill neighboring plants and should be used sparingly around desired vegetation.
- **Clopyralid** (e.g. Transline) may be applied to actively growing plants before the buds form (usually before mid-May, later at higher elevations). This herbicide is also not available for residential or commercial turf applications.

This BMP does not constitute a formal recommendation. **When using herbicides, always consult the label.**

Resource

- http://Hortsense.cahnrs.wsu.edu/Home/HortsenseHome.aspx
- https://www.for.gov.bc.ca/hfp/publications/00230/Hawkweed%20key_PNW_R3-June06.pdf
- http://wric.ucdavis.edu/information/natural%20areas/wr_H/Hieracium.pdf

- http://www.co.Jefferson.wa.us/WeedBoard/pdfs/BestManagementPractices/Hawkweed.pdf
- http://www.co.Lincoln.wa.us/WeedBoard/biocontrol/ORANGE%20HAWKWEED%20BROCHURE.pdf
- http://www.MSUextension.org/invasiveplants/documents/mt_noxious_weeds/orange_and_meadow_hawkweed.pdf
- http://www.msuinvasiveplants.org/noxioussub.html
- http://www.nwcb.wa.gov