

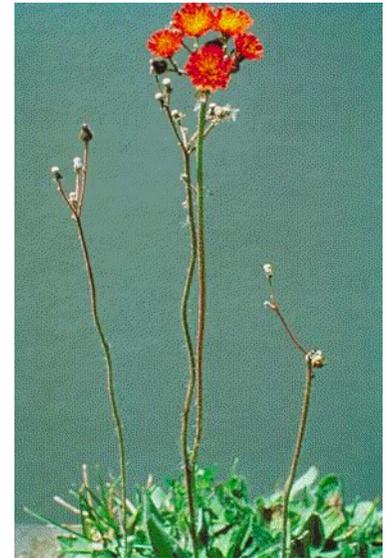


JEFFERSON COUNTY NOXIOUS WEED CONTROL BOARD

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BEST MANAGEMENT PRACTICES Hawkweeds (*Hieracium* spp.) (Family—*Asteraceae*—Sunflower Family)

Legal Status in Jefferson County: There are many invasive hawkweed species, but only three have been seen in Jefferson County. They are orange hawkweed, yellow hawkweed and common hawkweed. The first two are Class B Noxious Weeds (non-native species designated for control by State Law RCW 17.10). Common hawkweed is a Class C Noxious Weed, selected for control in Jefferson County. The Jefferson County Noxious Weed Control Board requires property owners to control all of these hawkweeds on private and public lands throughout the county. State Weed Law defines control as *to prevent all seed production and to prevent the dispersal of all propagative parts capable of forming new plants.* (See WAC 16-750-003). State quarantine laws prohibit transporting, buying, selling or offering orange or yellow hawkweed for sale or distributing plants, plant parts or seeds.



Orange hawkweed

BACKGROUND INFORMATION

Impacts and History

- When hawkweeds form monocultures by establishing a dense mat of plants, they lower biodiversity and reduce the forage value of grasslands for grazing animals.
- As a result of prolific seed and stolon production each season, hawkweeds have become successful competitors, crowding out native, ornamental, pasture and crop species.
- Hawkweeds were introduced to the United States from Europe as herbal remedies and ornamentals. Orange hawkweed was introduced before 1818 as an ornamental and the other hawkweeds were introduced around 1879. Reports of hawkweeds in Washington began in 1969.

Description

- Hawkweeds hybridize freely with native and non-native species, and are very difficult to identify to species.
- Perennials with milky juice, yellow or orange flower heads and bristly-hairy overall.
- Rosettes of lance-shaped leaves at the base of the stem.
- Most have stolons (runners) allowing for aggressive vegetative reproduction.
- Native species do not have stolons. Some non-native species do not have stolons either.
- **Orange hawkweed (*Hieracium aurantiacum*)**—see above for picture) is usually 12 inches tall, with deep red-orange, notch-tipped ray flowers. Flowers begin to open in May or June and plants produce from 12 to 30 seeds per flower and send out four to eight stolons each season. Has been reported to be allelopathic (inhibits other plants by producing toxic chemicals in the surrounding soil).
- There are several species of hawkweeds with yellow flowers and variable leaf types and arrangements. These are the most difficult to distinguish to species. Only those species



Yellow hawkweed

known to be present in Jefferson County are mentioned here. For details on other hawkweed species see the websites mentioned at the end of this document. **Yellow hawkweed (*H. caespitosum*)** has clusters of flowers near the tops of the stems, has stolons and no leaves on the stem.

- **Common hawkweed (*H. lachenalii*)** has arrow-shaped leaves at the base and smaller leaves, with no stalks, higher up the stem. The small yellow dandelion-like flowers appear in loose clusters in June or July.



Common hawkweed

Habitat

- Prefers full sun or partial shade and soil that is well-drained, coarse-textured and moderately low in organic matter.
- Mostly found on roadsides, in fields and pastures and in disturbed areas.
- Hawkweeds tolerate some shade and can grow in forest openings and cleared areas.
- Orange hawkweed often grows near garden areas where it escapes from intentional plantings as part of a “wildflower meadow mix”.

Reproduction and Spread

- Hawkweeds are perennials that reproduce by seed. Many also spread out vegetatively through stolons, rhizomes and axillary buds from root crowns. Also, hawkweeds can produce viable seed without pollination.
- Flowering typically starts in late May or early June. Usually some plants go to seed starting in July but plants continue to flower and go to seed through September.
- If stems are mowed, they will send up a shorter stem and flower again soon after being cut.

Local Distribution

Small orange hawkweed infestations have been found on Oak Bay Road and Highway 101. Yellow hawkweed has been found on Highway 104 and on Highway 101. One patch of common hawkweed was found in 2011 on Anderson Lake Road.

CONTROL INFORMATION

Integrated Pest Management

- The preferred approach for weed control is Integrated Pest Management (IPM). IPM involves selecting from a range of possible control methods to match the management requirements of each specific site. The goal is to maximize effective control and to minimize negative environmental, economic and social impacts.
- Use a multifaceted and adaptive approach. Select control methods which reflect 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 over a number of years, and should allow for flexibility in method as appropriate.

Planning Considerations

- Survey area for weeds, set priorities and select best control method(s) for the site conditions. Small infestations can be effectively dug up. Isolated plants should be carefully removed in order to stop them from infesting a larger area.
- For larger infestations, the strategy will depend on the land use of the site. In pastures, good grazing practices and management of grass and forage species will greatly improve control of hawkweed. Specific suggestions are given later.
- Control practices in critical areas should be selected to minimize soil disturbance or efforts should be taken to mitigate or reduce impacts of disturbance. Any disturbed areas need to be stabilized to control erosion and sediment deposition. Minimizing disturbance also avoids creating more opportunities for germination of giant hogweed and other weeds.
- If the control site requires extensive clearing or grading, or is located near a shoreline, steep slope, stream, or wetland, contact the Jefferson County Department of Community Development to find out whether or not a permit may be necessary.
- Because invasive hawkweeds are state-listed noxious weeds, control (both manual and chemical) in critical areas is allowed as long as the landowner consults with the Jefferson County Noxious Weed Control Board and follows their guidelines.

Early Detection and Prevention

- Difficult to spot in tall grass unless it is in flower. Survey pasture areas, grasslands and roadsides for flowering and pre-flowering plants from **mid May to late June**.
- Isolated small populations can be dug up but the site should be monitored for several years for plants growing from root fragments and from the seed bank.
- Prevent plants from spreading from existing populations by cleaning vehicles, boots and animals that have been in infested areas. Seeds are small and are easily carried in mud.
- To prevent new infestations: monitor for hawkweed, avoid over-grazing, maintain proper turf or ornamental management (irrigation, fertilization, mowing) or increase shade by planting shrubs and trees.

Manual

- 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 but break easily. It is important to remove as much root as possible to prevent re-sprouting.
- If the plants are in flower, cut off and bag all flower heads because they can form viable seeds after they are cut or dug. If there are already seeds, bag and cut off 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.
- Areas where mature plants are dug may become infested with new seedlings unless they are carefully monitored and planted with grass or other competitive vegetation. Infested areas typically have many seedlings and an extensive seed bank.

Mechanical

- 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 increases.
- 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

Biological control is the deliberate introduction of insects, mammals or other organisms that adversely affect the target weed species. Biological control is generally most effective when used in conjunction with other control techniques.

- There are no biological controls currently available for hawkweeds.

Chemical

- Effective chemical control of biennial and perennial weeds can be achieved only with *translocated* herbicides (ones that move through the plant and kill the roots).
- If desirable grasses or other monocots (sedges, rushes or cattails) are present, use a selective herbicide (one that affects only broadleaved plants), or carefully spot-spray only the hawkweed.
- Herbicides are most effective on actively growing plants in warm, dry weather.
- Herbicides should only be applied at the rates and for the site conditions and/or land usage specified on the label. **Follow all label directions.**
- Treated areas should not be mowed or cut until after the herbicide has had a chance to work. This can be as long as 2-3 weeks.
- It is important to establish new vegetation after treating an area. Follow the label for the timing because some herbicides stay active longer than others.
- **If using herbicide on plants that are about to flower, the flower heads need to be removed and bagged before applying herbicide.**

For questions about herbicide use, and specific herbicide recommendations, contact the Jefferson County Noxious Weed Control Program at 360-379-0470 ext 205, or noxiousweeds@co.jefferson.wa.us.

SUMMARY OF BEST MANAGEMENT PRACTICES

Small Infestations in Desirable Vegetation

- Dig up plants by hand including stolons and all roots. This is easier to accomplish when the soil is moist.
- OR apply appropriate herbicide by spot spray to minimize off target injury.
- Monitor site throughout growing season and remove new plants.

Large Infestations\Monocultures

- If enough labor is available, even large infestations can be controlled manually, by digging. However, great care must be taken to dig out ALL the stolons and roots and the site should be checked constantly for several year to remove plants growing from seeds or root fragments left in the ground.
- Mowing is not effective for controlling hawkweed. See mechanical control section.
- An appropriate herbicide can be sprayed in the early spring. The infested area should then be monitored in May and June for any flowering plants that were missed by the herbicide.
- If needed, apply a nitrogen fertilizer after the selective herbicide application and then manage grazing so that 4 to 6 inches of grass re-growth remains at the end of the growing season. For more information on pasture management, contact the Jefferson Conservation District (<http://www.jeffersoncd.org/links.html>).
- If no other action is taken, all flower heads should be bagged and removed before seeds mature in July.
- For several years following treatment, monitor areas for plants growing from the seed bank.

Riparian and Aquatic Area Control

- Focus on manual removal for small infestations if possible—see guidelines above.
- If manual control is not feasible, spot spray using an appropriate herbicide.
- When large areas of weeds are removed, the cleared area needs to be replanted with native or non-invasive vegetation and stabilized against erosion.
- **Any herbicide application over or near water can be done only by a specially-licensed applicator using an approved aquatic formulation, and may require a permit from the Washington State Department of Ecology.**

Road Right-of-Way Control

- Manually remove infestations if possible—see guidelines above.
- If manual control is not feasible, spot spray using an appropriate herbicide.
- If bare spots are left after spraying, replant with low-growing native plants.

REFERENCES

- Hawkweed Identification. Peter Rice and John Halpop, Montana State University. <http://msuextension.org/publications/AgandNaturalResources/EB0187.pdf>
- Key to Identification of Invasive and Native Hawkweeds (*Hieracium* spp.) in the Pacific Northwest. Linda M Wilson, British Columbia Ministry of Forests and Range, Forest Practices Branch, Invasive Alien Plant Program. http://www.for.gov.bc.ca/hfp/publications/00230/Hawkweed%20key_PNW_R3-June06.pdf
- King County Noxious Weed Control Program—Best Management Practices--Hawkweeds

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