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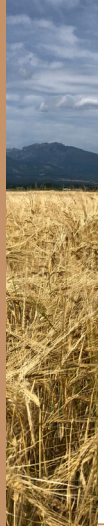

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AGRICULTURE AND NATURAL RESOURCES

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Houndstongue: Identification, Biology, and Integrated Management

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Houndstongue is a non-native, poisonous weed that infests pastures, fields and disturbed areas. This guide includes information on its history, biology, ecology, and management.

HOUNDSTONGUE (*CYNOGLOSSUM OFFICINALE* L.) IS KNOWN by a number of common names – beggar's lice, dog's tongue, sheep bur, dog bur, sheep lice, glovewort, and woolmat – which suggest the problematic nature of its barbed seeds that stick to fur, fleece, and clothing. In addition to being a general nuisance, houndstongue impacts livestock fitness, marketing costs, and fleece quality. Houndstongue foliage has the potential to poison livestock and wildlife. Dense infestations can reduce forage for grazing animals. Correctly identifying houndstongue and understanding its life cycle and growth requirements are important for selecting management strategies that effectively suppress houndstongue populations and promote healthy, desired vegetation.

Origin and distribution

Houndstongue, native to Asia and Europe, was probably introduced to North America as a contaminant of cereal seed. The first occurrences of houndstongue in the United States were recorded in Oregon in 1893, and then in Montana (Sweetgrass County) in 1900. Over the next 50 years, fewer than 10 counties reported houndstongue in Montana. After the mid-1950s, the number of Montana counties reporting houndstongue increased sharply. As of 2025, houndstongue was reported in 47 of 56 counties. The majority of Montana counties not reporting houndstongue are in the far eastern portion of the state. Houndstongue occurs in most states of the U.S. and is included on noxious weed lists for nine western states: Colorado, Idaho, Montana, Nevada, North Dakota, Oregon, Utah, Washington, Wyoming.

Houndstongue is often associated with disturbed areas such as trails, roadsides, logging areas, or abandoned cropland, but plants are also effective competitors in rangelands, pastures,

Houndstongue Uses and Lore

Houndstongue has a long history of use for a variety of magical, medicinal, and practical purposes.

- The name houndstongue comes from the belief that a leaf worn in the shoe could ward off dog attacks.
- Extracts of roots and leaves of houndstongue have been used in folk remedies for various ailments including fever, eczema, acne vulgaris, and hemorrhoids.
- Houndstongue ointment is said to cure baldness.
- The red pigments of the outer root surface are anti-bacterial and reportedly have wound-healing properties.
- Roots and leaves have been used as pesticides and leaves have been used to repel moles in gardens and rodents from stored foods.

Figure 1. Houndstongue rosette with oblong leaves with prominent veins. Photo: Matt Lavin, Montana State University

riparian areas, and borders or openings of wooded areas. Houndstongue is shade-tolerant and survives well in wetter grasslands and moist draws on drier sites. This weed is found on soils ranging from well-drained relatively coarse material, to clay subsoils in open forests.

Identification and biology

Houndstongue is a member of the Boraginaceae (Borage) family. Leaves are oblong with numerous soft white hairs on both surfaces. They have prominent veins and are said to look like a dog's tongue (**Figure 1**). During the second year of growth, plants produce a flowering stalk 8 to 30 inches tall (**Figure 2**). Flowers range in color from dull red to burgundy (**Figure 3**). Each flower develops seed clusters containing three to four nutlets roughly ¼ inch long. Fruits are flat, teardrop-shaped, and have a hard spiny husk with barbs (**Figure 4**). Protruding barbs adhere to fur or fleece of wildlife and livestock, and human clothing. Research suggests that cattle are major dispersers of houndstongue, picking up about 65 percent of bur stalks in grazed paddocks.

HOW DOES HOUNDSTONGUE GROW?

Houndstongue is a **biennial** or short-lived **perennial** plant that reproduces by seed. Seedlings emerge in the spring and early summer and form a **rosette** with a thick, black, branching taproot that can grow to depths of greater than three feet in the first year. The taproots store nutrients sufficient for seed production in the second year even when second-year rosette leaves are removed. In early summer of the second year, plants **bolt** and form a flowering stalk. If environmental conditions are unfavorable, flowering may be delayed past the second year. Flowering occurs from May through July, and seeds mature from July through August. In Montana, a single houndstongue plant typically produces 300 to 675 seeds per year, but exceptionally robust plants may produce up to 2000 seeds. Seeds either fall nearby to the ground or remain on the parent plant where they are positioned to attach to a passing animal or person. Seeds may be carried long distances this way. Seeds on the soil surface often dry out and fail to germinate, whereas seeds buried about an inch under the soil may remain viable for two to three years. Houndstongue seeds do not form large or persistent seeds banks in the soil, and germination generally requires some form of **scarification** or softening of the seed coat.

Impacts

Houndstongue readily displaces desirable species, can establish monocultures, and degrades forage quality and grazing capacity. Nutlets entangled in the wool or hair of livestock may create marketing problems for ranchers because of the extra time and money required to remove burs. They can also become lodged in the eyelashes of livestock causing potentially severe eye damage. Another concern is the threat of livestock poisoning from houndstongue (see Houndstongue Poisoning in Livestock). Although in most cases the fresh plant is considered unpalatable and is generally avoided, livestock may eat plants when they are cut and dried with harvested hay, or when animals are confined to a small area lacking desirable forage. Herbicides may also increase palatability of houndstongue foliage.

Figure 2. Flowering houndstongue plant. Photo: Jane Mangold, Montana State University

Figure 3. Houndstongue flowers. Photo: Stacy Davis, Montana State University.

Figure 4. Fruits, or burs, of houndstongue. Photo: Matt Lavin, Montana State University.

Integrated management

The most effective method of houndstongue management is preventing its spread and establishment. Limiting weed seed dispersal, containing current infestations, minimizing soil disturbances, detecting and eradicating new plants, maintaining competitive desirable plants, and proper grazing management will help reduce the establishment and spread of houndstongue. Once houndstongue is established, persistent management using a combination of techniques will give the best control. Because houndstongue seeds do not usually remain viable in the seedbank for more than a few years, preventing seed production from year to year is critical. Small-scale infestations may be controlled using hand removal or herbicide spot treatments. Larger infestations may require combinations of techniques such as planting competitive perennial grasses and judicious application of herbicides.

Hand pulling may be practical for small populations of houndstongue. To effectively control houndstongue, the root crown must be removed.

Tilling and cultivation - Houndstongue is rarely found on cropland, therefore repeated cultivation may be an effective control measure as long as cultivation practices sever the root one to two inches below the surface.

Cutting, mowing, and other forms of defoliation are not effective in controlling houndstongue. Although one study found that seed production was reduced in plants that were cut zero to three inches from the soil surface, taproots often store enough nutrients to support normal flowering and seed production following mowing.

Prescribed burning in the late summer or early fall may destroy seeds and prevent spread because the nutlets on the plant are exposed to high temperatures. Near the soil surface, however, temperatures may not be hot enough to destroy houndstongue seeds. Instead, fire may stimulate germination and provide optimal conditions for houndstongue establishment by creating a disturbance and exposing bare mineral soil.

Biological control agents have not been approved for release in the United States to date because of concerns for negative effects on rare native plant species that are in the same family as houndstongue. *Mogulones crucifer*, a root-mining weevil, has persistently reduced houndstongue populations in British Columbia and Alberta, Canada, but it is not approved for use in the U.S. because it feeds on endangered native plants. However, it has spread southward naturally and is now established in northern Washington, Idaho, and Montana. *Mogulones borraginis*, a seed-feeding weevil, is a more specific potential agent and is in the final stages of evaluation as a likely candidate for release in the near future.

Houndstongue Poisoning in Livestock

Poisoning occurs when animals consume sufficient quantities of houndstongue with high pyrrolizidine alkaloid (PA) concentrations. PAs interfere with cell division, affecting especially the liver of cattle and horses, which can cause liver disease and eventually failure. PA levels are generally highest in immature plants (1.5 to 2 percent dry weight) and decrease with maturation. The acute or chronic nature of poisoning depends on the PA concentration, amount eaten, and rate of ingestion.

Signs of houndstongue poisoning:

- Slight disinterest in food
- Stands off by itself, reluctant to move
- Stands with head lowered for much of the day
- Kicking at belly
- Gradual weight loss, slow to gain weight
- Diarrhea or constipation; severe straining
- Nervousness, convulsions, photosensitivity, jaundice, coma

To prevent poisoning, do not confine animals in a pasture that is densely infested with houndstongue and lacking other forage. Avoid harvesting houndstongue in hay crops. Should poisoning occur, owners must remove the animal from pasture as soon as possible and consult a veterinarian.

Grazing is more likely to contribute to the spread than the control of houndstongue because of the plant's association with disturbance, resistance to defoliation and herbivory, and tendency of seeds to stick in fur and fleece. Furthermore, houndstongue has the potential to poison livestock and wildlife that graze it (see Houndstongue Poisoning in Livestock). Prescribed grazing management that maintains competitive grasses and desirable forage can help reduce the risk of houndstongue invasion and some instances of poisoning. In areas susceptible to invasion, proper livestock grazing should include altering timing, frequency, and level of defoliation to allow a full recovery of desirable grass species. Cattle and other livestock may carry houndstongue seeds in their fur or fleece, so it is important to avoid spreading seeds from infested sites to uninfested sites.

Chemical methods can be used to manage houndstongue on range, wildland, and pasture sites. Several herbicides, including 2,4-D, metsulfuron, and chlorsulfuron can provide effective houndstongue control. Application rates and timing of application for various herbicides are shown in **Table 1**. Herbicide choice and rates are influenced primarily by growth stage at time of application. In general, spring applications provide consistently better control of houndstongue than fall treatments. First-year and second-year plants can be controlled using 2,4-D amine when applied at the rosette growth stage. Metsulfuron and chlorsulfuron are most effective applied in approximately mid-June when plants are actively growing. Because of the hairy nature of houndstongue leaves, it is important to add a non-ionic surfactant to the spray solution. Annual herbicide applications may be needed for several years until seed is no longer viable in the soil. Label information for all herbicides should be carefully followed not only for application restrictions, but also for restrictions that apply to grazing and harvest of forage after application. Herbicide application may increase the palatability of houndstongue foliage, so grazing too soon after treatment could increase the risk of livestock poisoning.

Glossary

Biennial – a plant that normally requires two seasons to complete its life cycle, the first season's growth being strictly vegetative

Bolt – growth of an elongated stalk with flowers grown from within the main stem of a plant

Perennial – a plant that lives for more than two years

Rosette – circular arrangement of leaves, with all the leaves at a single height

Scarification – process involving breaching the natural seed coat by mechanical, thermal, or microbial methods

Table 1. Examples of herbicides that can be used to manage houndstongue. Consult herbicide labels for additional rate, application, and safety information. Additional information can be found at www.greenbook.net.

Herbicide Active Ingredient **Trade Name**	**Product per acre**	**Timing**
2,4-D Amine Many trade names	1 to 2 quarts	First or second year rosettes
*Metsulfuron** Escort® XP/Cimarron® Plus	1 to 2 ounces	Actively growing plants, early flower
*Chlorsulfuron** Telar® XP	1 to 2.6 ounces	Actively growing plants
*Aminopyralid + metsulfuron** Chaparral™/Opensight®	2.5 to 3.3 ounces	Rosettes to early bolting stage

*requires non-ionic surfactant

Information in this document is provided for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension. Common chemical and trade names are used in this publication for clarity. Inclusion of a common chemical or trade name does not imply endorsement of that particular product or brand of herbicide and exclusion does not imply non-approval. This publication is not intended to replace the product label.

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