Hoary cress, hairy whitetop, and lens-podded whitetop are three closely related species of serious weed in rangeland, alfalfa, other field crops, and vegetable crops. Each has been called “whitetop.”

Hoary cress (Cardaria draba), a central European and western Asian native, was the first to be reported in the United States. Apparently introduced as a contaminant in discarded ship ballast, by 1889 it grew near seaports on the East and West coasts of the United States. It has become a familiar roadside plant throughout the United States. Hoary cress is designated a noxious weed in the laws of most western states. It must not be trans-ported and must be controlled.

Hoary cress and hairy whitetop (C. pubescens) are designated noxious weeds in the pure seed laws of Idaho, Oregon, and Washington. Crop seed contaminated with seed of either species may not be sold for any purpose.

Lens-podded whitetop, also called chalapa whitetop (C. chalapensis, also C. draba subsp. chalapensis), is less widespread than hoary cress or hairy whitetop.

IDENTIFICATION

The three Cardaria species are perennial weeds in the mustard family. They reproduce by seed or by horizontal growth of rootstocks.

Leaves are grayish green, oblong to arrowhead-shaped and have smooth to finely toothed edges and a covering of soft, fine hairs. They range from 3/4 to 3 inches in length and are arranged alternately on the stem.

Lower leaves often taper to a short stem that attaches to the crown near ground level. Upper leaves are smaller and tend to clasp the flower stalk.

Leaves grow from ground level to form rosettes from autumn until early spring whenever temperatures are warm enough. Stems begin to

Showy white flowers bloom in April through early June.

Alternate leaves clasp the stalk.

Hoary cress has heart-shaped seedpods tipped with a beak.
arise from the center of each rosette in late April and commonly reach a height of 2 feet.

Inflorescences (flower clusters) are dense racemes. Individual white flowers are borne on slender stems about 1/2 inch long. Flowers are small (1/8 - 1/4 inch), with four petals, four long stamens and two short stamens. Flowers open from May to early June to form dense, flat-topped clusters. Infestations can become so dense that, from a distance, they resemble patches of late-melting snow.

The genus name Cardaria is from the Greek word kardia, meaning heart. The name refers to the slightly inflated, heart-shaped seedpod of hoary cress. Hairy whitetop has a globe-shaped seedpod that is finely hairy and purplish. Lens-podded whitetop has a slightly inflated, hairless, oval to football-shaped seedpod. Seedpods of all our Cardaria species become prominently veined as they mature. The seedpods are tipped with a "beak," which is absent from many other mustards.

The seedpods of all three species consist of two joined compartments in which seeds are produced. Hoary cress seedpods normally contain two seeds (one per compartment), while seedpods of hairy whitetop and lens-podded whitetop normally contain four seeds (two per compartment). Seeds are oval, reddish brown and about 1/12 inch long.

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Species that may be confused with the Cardaria species from a distance are common yarrow (Achillea millefolium) and wild carrot (Daucus carota). Whereas the Cardaria species flower in early spring, common yarrow and wild carrot produce showy white flowers in late spring and summer. Yarrow and wild carrot differ also in having feathery, finely divided leaves. Inflorescences also differ. Yarrow has flat-topped clusters, with each apparent flower actually a group of several tiny flowers in a head. Wild carrot bears flowers in an umbel, and all flower stems arise from one point on the stem, much like the ribs of an umbrella. For a photographic comparison of hoary cress, the whitetops, and similar weeds, see Weeds of the West, published by the Western Society of Weed Science.

CONTROL

BIOLOGICAL CONTROL

Competitive plant species, particularly dense stands of established perennial grasses, provide some resistance to the invasion and spread of hoary cress and the whitetops. Pasture grasses lose much of their competitive ability when grazed but will retard perennial weed spread if grazing is not excessive.

Growing competitive crops such as small grains in infested fields will suppress hoary cress and the whitetops once the crops form a tall, dense canopy. Do not plant infested areas to nongrass crops because these crops do not adequately suppress these weeds.

No biological control parasites (insects or disease organisms that live only on hoary cress or the whitetops) are available for use in the United States at this time.

MECHANICAL/ CULTURAL CONTROL

Cultivating fallow ground will eventually eliminate hoary cress and the whitetops if it is repeated within 10 days of weed emergence throughout the season. Because these weeds bloom in early spring, even one spring cultivation before flowering will reduce the amount of seed produced that season.

Close mowing also will reduce seed production but will not eliminate the infestation. Both mowing and cultivation delay flowering and seed production.

Around the home, control hoary cress and the whitetops by hoeing or digging out roots within 10 days of weed emergence throughout the growing season.

CHEMICAL CONTROL

Hoary cress and the whitetop species can be controlled most easily with foliar herbicides applied during the rosette stage. Foliar herbicides can be effective until early bloom.

All herbicide labels do not permit the same uses, even those with the same active ingredient. Be sure the label of
the product you are considering permits use on the intended site. No herbicide may be used on a site or crop for which it is not labeled. However, the absence of a particular weed from the label does not prevent use of the herbicide on that weed.

Herbicide registrations change frequently, resulting in more or fewer available herbicides and changes in permissible herbicide practices. Therefore, this publication does not make specific herbicide recommendations. Current recommendations are summarized each year in the Pacific Northwest Weed Control Handbook. In addition, detailed instructions for herbicide use are provided on herbicide container labels and in other literature provided by herbicide manufacturers.

Currently registered herbicides can be used to control hoary cress and the whitetops in the following situations.

Established pasture/rangeland. Apply selective herbicides to actively growing rosettes early in spring, to regrowth before bud stage, or to fall regrowth before killing freezes. Treatment after bloom is generally less effective. Follow label requirements concerning grazing of treated forage.

Legumes are susceptible to most herbicides that control hoary cress and the whitetops. To restrict the loss of legumes in legume-grass pastures, spot treat if feasible.

Tordon (picloram), commonly used for controlling many rangeland weeds, does not control hoary cress or the whitetops.

Small grains. In cereals, selective herbicides applied at rates high enough for good control of hoary cress or the whitetops will endanger the crop. However, weed suppression is possible. To avoid injury to wheat or barley, apply a selective herbicide after weeds emerge and when the crop developmental stage meets label requirements. Oat crops are more sensitive to most herbicides than is wheat or barley.

If an infestation is heavy, choose the higher rates specified on the pesticide label. However, some crop injury may result. Keep this risk in mind.

Some herbicides for hoary cress and the whitetops will control other cereal weeds. Some mixtures of herbicides may be permissible for suppressing hoary cress or the whitetops in cereal crops.

Stubble or fallow. Selective herbicides are more effective when applied in spring or fall when the soil is moist enough for good plant growth than when applied during the dry, summer season. Before seeding the next crop, wait for the period stated on the herbicide label or until the herbicide has disappeared from the soil. Otherwise, crop injury may result.

CRP. Several herbicides are registered for selective use on CRP land. CRP grasses can tolerate more injury than crops that will be harvested. Selective control where legumes are planted is not possible. Some CRP grass plantings include crops that are sensitive to herbicides used for hoary cress and whitetop control. Herbicide treatments in these plantings may leave only the grasses.

Alfalfa, peas, onions, sugar beets and other nongrass crops. These crops do not compete well with hoary cress or the whitetops, they cannot be tilled for hoary cress or whitetop control, and herbicides that are registered for these crops are not effective on hoary cress or the whitetops. Before planting these crops, reduce hoary cress and the whitetops to negligible amounts during another part of the crop rotation.

Non-cropland (roadsides, fencerows, waste areas, industrial sites). To preserve existing vegetation, use selective herbicides. Dense stands of grass, mowed only when necessary and treated with a selective herbicide, are best for controlling hoary cress or whitetops in these areas.

In areas to be kept free of vegetation, herbicides are available at soil sterilant doses. In most cases, soil sterilization results in invasion by herbicide-tolerant weeds, so a rotation of different herbicides may be needed. Do not use soil sterilants unnecessarily. Removal of ground cover can result in soil erosion, herbicide movement on eroding soil particles and surface water contamination.
INTEGRATED CONTROL

Use of several strategies together to control a weed is termed “integrated weed management” (IWM). IWM for hoary cress and the whitetops in a summer fallow and winter wheat cropping system would include a spring prebloom application of a selective or nonselective foliar herbicide followed by cultivation after 1 week. The fallow field would then be cultivated every 2 to 3 weeks, or after the weeds emerge, until fall planting. A selective foliar herbicide treatment the next spring would help to control resprouted and seedling hoary cress and whitetops.

In spring-planted cereals, IWM would include spring tillage for seedbed preparation and weed control followed by competition from the growing crop. The program might include use of a selective herbicide during crop growth.

In pastures, CRP land, or noncropland, a dense stand of grass and adequate soil nitrogen will complement herbicide treatment and reduce the frequency of herbicide application. IWM for your situation can be developed by consulting the Extension agricultural agent in your county.

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