

Perennial pepperweed

Colorado Dept. of
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Conservation
Services Division
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Key ID Points

1. White flowers in dense round clusters at branch tips.
2. Leaves are waxy with a white midrib.

Perennial pepperweed Identification and Management



and floodplains. If introduced, it can also invade roadsides, hay and alfalfa fields and rangeland. It readily invades disturbed and bareground areas. It can thrive in either low or high-saline soils. Large monocultures and dense litter layers prevent native plants from regenerating. Pepperweed displaces native plants and wildlife habitats, reduces food quality for wildlife and reduces agricultural and pasture production.

Identification and Impacts

Perennial pepperweed (*Lepidium latifolium*) is an extremely invasive perennial forb introduced from Europe and Asia in 1900 as a containment in sugar beet seed. Pepperweed reproduces both by seed and vegetatively by roots and shoots. Root fragments as small as 0.5 inch can grow into new plants. A serious threat, pepperweed alters ecosystems by acting as a "salt pump" absorbing salts from deep in the soil. The plant then excretes the salt through the leaves and deposits it on the surface soil. Since most desirable plants do not tolerate high saline concentrated soils, the entire plant composition and diversity of the area changes.

Growing 1 to 5 feet high, pepperweed has tiny white flowers. The flowers have four spoon-shaped petals in dense, rounded clusters on branch tips of erect stems. Stems emerge from deep, thick, woody root stocks that can penetrate 10 feet into the soil. Leaves of the mature plant are alternate, and lance or oblong in shape with serrated edges that are slightly wavy. They are glabrous (not hairy) and green to gray-green in color, with a distinctive white midrib. Upper leaves are smaller than basal leaves and have no stalks.

Perennial pepperweed invades a wide variety of habitats, from intermountain, mountainous areas and marshes. It is frequently found in riparian areas, wetlands, marshes, irrigation ditches, canals,

Perennial pepperweed rarely produces seedlings in the field, even with extensive seed crops. Research is underway, but the lack of seedlings may be due to seeds rapidly losing viability in the field (but not in the laboratory). Reproduction is primarily from deep, perennial roots and root pieces which break off and sprout new plants. However, preventing seed production is still recommended until further research is done.

The key to effective control of Perennial pepperweed is preventing establishment of large populations. Early detection and removal of plants if found, is the key to prevention. Planting desirable and competing grasses and forbs can aid in limiting the spread of Perennial pepperweed. Herbicide treatments are a good option if used during the bud to flowering stage of the plant. Once established, containment is key. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Perennial pepperweed is designated as a "List B" species in the Colorado Noxious Weed Act. It is required to be either eradicated, contained, or suppressed depending on the local infestations. For more information visit www.colorado.gov/ag/csd and click on the Noxious Weed Management Program. Or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, 303-239-4100.

Photos courtesy of Kelly Uhing, Colorado Department of Agriculture.

Lepidium latifolium

**CULTURAL**

Prolonged spring flooding of new growth will kill pepperweed. Grazing is not recommended because the plant may be toxic. Reestablishing the native or desired plants can take years, so repeat plantings must be repeated, but it can aid in controlling populations. Contact your local Natural Resources Conservation Service for seed mix recommendations.

**BIOLOGICAL**

Biological control is not a viable option because 11 other species of native *Lepidium* are on the Endangered species list, and the risk to these species as well as agricultural species is too great. For more information, contact the Palisade Insectary of the Colorado Department of Agriculture at 970-464-7916.

**MECHANICAL**

Due to the deep, brittle root, most mechanical methods are not recommended, and can actually propagate, spread and increase the density of pepperweed. Hand pulling can also bring seeds to the soil surface, and spread pieces of root, which will sprout. However, spring mowing combined with chemical treatments can be effective.

Integrated Weed Management:

Because of the deep roots and persistence of pepperweed, it is critical to combine repeated herbicide application with monitoring and revegetation of the area. Control of Perennial pepperweed can be difficult, so prevention is the best option. Early detection, eradication and containment of small populations and their source are vital.

HERBICIDES

NOTE: The following are recommendations for herbicides that can be applied to specific areas. Rates are approximate and based on equipment with an output of 30 gal./acre. **Always read, understand, and follow the label directions. The herbicide label is the LAW!**

HERBICIDE	RATE	APPLICATION TIMING
Chlorsulfuron (Telar)	1 oz product/ac. + 0.25 v/v non-ionic surfactant	Apply when plant is in bolting to early flower growth stages. (Early Spring to Early Summer)
Metsulfuron (Escort XP)	1 oz product/ac. + 0.25 v/v non-ionic surfactant	Apply when plant is in bolting growth stage. (Spring)
Imazapyr (Plateau)	12 fl oz/ac. + 2 pt/ac. methylated seed oil	Apply when plant is in flower to late flower growth stages. (Early Summer to Mid Summer)

NOTE: Herbicides, when applied at the flower bud stage, are extremely effective to control pepperweed. Repeat applications for up to five years. However, the waxy leaf surface and the dense growth of this weed can make it difficult to obtain adequate coverage with the herbicide, so apply the chemical carefully and thoroughly for effective control.

Top photo, © Kelly Uhing, Colorado Department of Agriculture. *Calophasia lunula* larva photo © Bob Richard, USDA APHIS, Invasive.org. Root system, Nature Conservancy.

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