

PERENNIAL PEPPERWEED: Options for control

Perennial Pepperweed, a class-B designate noxious weed in Lincoln County, Washington (*Lepidium latifolium*). Perennial pepperweed, belonging to the mustard or the Brassicaceae family, is a perennial plant native to Eurasia.

It is a **deep-rooted** forb that reproduces by seeds and spreading roots. Plants are typically 1 to 3 ft. tall, but can reach 6 feet. The **bright-green to gray-green leaves** are broad at the base and taper to a pointed tip. Basal leaves up to 13 in. long and 4 in. wide have long stalks and are **covered with a waxy layer**. **Stem leaves**, which are smaller and have smaller stalks than basal leaves, are alternately arranged on the stem. Perennial pepperweed should not be confused with whitetop (hoarycress), (also a nox-

ious weed) same family, different genus and is usually much shorter. Perennial pepperweed is distinguished from whitetop by **leaves that do not clasp the stem**. All leaves have a prominent whitish mid-

vein. Flowers are less than 1/8 in. wide and consist of four white petals arranged in a cross; which bloom from early summer to fall and are borne in dense, rounded clusters at the terminal part of branches. The fruit is a flat, rounded, slightly hairy 1/16-inch long reddish-brown capsule that contains two tiny seeds, which do not open at maturity. Instead, seeds fall at irregular intervals throughout the winter. Abundant seed production is followed by a high germination rate, with seeds germinating from February to March. A wide and fluctuating temperature range produces the highest germination rates. Constant cold temperatures produce a low germination rate. In addition to profuse seed production, Perennial pepperweed has an extensive, creeping root system. Dense colonies establish when shoots emerge in late winter and early spring from the branching, underground root system.

Perennial pepperweed is often used by florists in fresh and dried flower arrangements.



Seedlings have smooth to slightly wavy edges.



Perennial pepperweed has waxy leaves with distinctive white veins and may have a leathery texture.



Easily spreads by transportation of root fragments.

Key identifying traits

- The **roots** enlarge at the soil surface to form a **woody crown**.
- The **base of the stem** is woody.
- Upper **leaves** have no stalk and are **directly attached** to the stem.
- **Dense white flower clusters** of **six to eight tiny blossoms** occur near the ends of stems around mid-June.

Biology and ecology

- **Rhizomatous perennial** in the Mustard Family. Very competitive, can form dense colonies in riparian areas or in range or pastures.
- A **prolific seed producer**, capable of producing more than **six billion seeds per acre**.
- Also referred to as **broad leaved-peppergrass** or **tall whitetop**.
- Distinguished from whitetop by leaves that **do not clasp** the stem.
- Nearly microscopic, reddish-brown seeds occur in an elongated pod and are **rounded, flattened** and **slightly hairy**.
- **Flowers** are less than an one eighth inch wide and consist of four white petals arranged in a cross pattern.



Dense infestations appear brilliantly white in mid-summer.



Perennial pepperweed loves seasonably wet areas, but easily adapts to a wide range of environments.



White flowers are borne in dense, rounded clusters at branch tips.

If you discover an infestation of Perennial pepperweed, containment is critical. The most effective method of containment is to spray borders of the infested areas with a herbicide. Lastly, limit seed dispersal. Once Perennial pepperweed is established, control is difficult because the plant is so competitive and spreads rapidly by its creeping roots.



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CONTROL MEASURES:

Prevention:

- Minimizing soil disturbances from vehicles, machinery and over grazing will reduce areas where the weed might become established. **Early detection** is vital to prevent invasion.

Biological:

- No biological control agent is approved for Perennial Pepperweed. Many valuable crop species like canola, mustard and cabbage belong to the same family as Perennial pepperweed.

Cultural:

- Spring grazing with subsequent chlorsulfuron or imazapyr application at flower bud
- Spring mowing with subsequent chlorsulfuron or

imazapyr application at flower bud.

- Spring mowing followed by glyphosate at bud stage in wetland areas.

Mechanical:

- Mechanical control is not recommended. **Very small** patches can be controlled by hand removal if the process is repeated often for several years and plants are not allowed to mature.
- Because **root** systems are brittle and can extend so deep in the soil most **mechanical techniques**, such as disking, **can spread** the weed and **increase the density**.

Chemical:

- See chart below.
- Read the label** instructions before applying.

Foliar application:

Only foliar application methods have been shown to be effective. A list of herbicides, sites where the compound has been approved for use, restrictions, and effectiveness is included in the table. For rates and other important information, see the herbicide label.

Herbicide	Site	Restrictions	Effectiveness
Telar® (chlorsulfuron)	Non-crop Industrial	Selective herbicide (will not harm most grasses), do not apply near water.	Excellent control for 1-2 years
Habitat® (imazapyr) Stalker® (imazapyr)	Riparian, Wetlands Range, Pastures	Nonselective herbicide, do not apply near water.	Excellent control for 1-2 years. Treated areas typically remain void of any vegetation for 1-2 years after treatment.
Roundup® and others (glyphosate) Rodeo®, Aquamaster® and others (glyphosate)	Range, Pastures Aquatic	Alone at flower bud when populations are not dense. Nonselective herbicide. Rodeo® for areas near/ in aquatic sites.	Effective unless infestation is dense. If dense, mow area and apply to re-sprouting plants.
Weedar 64® (2,4-D)	Range, Pastures Aquatic	Selective herbicide (will not harm grasses)	Somewhat effective unless infestation is dense. If dense, mow area and apply to re-sprouting plants.

Photos and references courtesy of: WSNWCB technical bulletin; IPM, University of California; PCA's Alien Plant Working Group; Montana State University Extension Service; B.C.'s Ministry of Agriculture and Lands.