

PERENNIAL PEPPERWEED

Also known as tall whitetop

Lepidium latifolium

Mustard Family (Brassicaceae)

DESCRIPTION

This versatile, rapid-growing perennial herb forms dense stands, commonly in or adjacent to salt marshes and freshwater riparian areas as well as hay meadows and even roadsides.

An erect and branching plant, perennial pepperweed reaches 3 feet or taller in moist conditions. The alternate leaves are lanceolate, toothed or smooth-edged, typically gray-green, and waxy; lower leaves are larger. The thick roots look like weedy parsnips and grow to a length of 10 feet, making removal extremely difficult. Pepperweed often grows near and is confused with *Grindelia*. *Grindelia* stems are reddish, while pepperweed stems are not.

REPRODUCTION

Perennial pepperweed spreads primarily from underground roots, in addition to root fragments, which can float in water for long periods and still sprout. It also spreads from abundant seeds, with a single plant producing thousands of seeds each year. Tiny, white 4-petaled flowers bloom in terminal clusters from June to September. The seed pods, maturing in August and September, are tan to red-brown, rounded, slightly hairy, approximately $\frac{1}{8}$ inch long, and bear 2 tiny, flattened seeds. Seeds are dispersed by water, machinery, and passing animals or people. Their longevity is not known, but is probably no more than 2 years.

IMPACT

Pepperweed tolerates salty soils and can invade intact ecosystems. A vigorous root system allows it to compete for water and nutrients with native species, such as pickleweed, which



the threatened salt marsh harvest mouse requires. Pepperweed also degrades habitat for the California clapper rail. The woody stems can shade out sunlight needed for growth. The roots of pepperweed do not hold the soil well and allow increased erosion on riverbanks after flooding. Pepperweed is also an agricultural weed of hay meadows and is toxic to horses.

Perennial pepperweed is considered one of the most difficult invasive plants to remove. If you see a new infestation, act immediately! Most non-chemical methods are reported to have little impact on controlling this weed once it has become established.

KEY FACTORS

- u Large, deep, and vigorous perennial root system.
- u Resprouts from small root fragments (of less than an inch) left in the soil.

- u Produces thousands of tiny, viable seeds, although they appear to be short-lived.
- u Accumulates thick layer of debris.

TREATMENT OPTIONS

- u **Pull** plants by hand, preferably when the soil is moist and loose, and grub out as much of the root as possible. Hand pulling is feasible only for seedlings of young infestations. There are no easily pulled individual roots, but a continuous mass of deep, interconnecting roots that frequently break. Mechanical removal is not recommended given the plant's ability to spread easily from root fragments, but it will temporarily stop seed from spreading.
- u **Cut and cover.** It may be possible to cut this plant back prior to flowering, and then cover the root system with cardboard or landscape fabric to reduce the plant's ability to resprout, though it may be difficult to hold the covering in place along shorelines.
- u **Mow or brush cut** plants close to the ground when flower buds appear. (Removing only the top growth will stimulate regrowth.) Let the pepperweed grow back and bud again, then mow a second time. Some practitioners have followed this by immediately applying a 2 percent solution of glyphosate to the cut stems. *Note:* glyphosate is not reported to be effective as a foliar application (skipping the step of mowing or brushcutting) because the leaves have a waxy coating. In riparian or wetland habitat, use a suitable glyphosate product—one that is not toxic to aquatic organisms—and apply with a wick-type applicator to prevent herbicide drift.
- u **Graze.** Sheep and goats will graze on perennial pepperweed if the leaves are still young and there is nothing else to eat.

DISPOSAL

Keep roots away from waterways to minimize further infestations downstream. Wash equipment and the tires and undersides of vehicles after leaving the site. Bag and dispose of pulled plants as household garbage or take them to a green waste facility. Alternatively, dispose of the plants through hot compost with grinding (but not ordinary compost, as very small fragments will reroot).

FOLLOW-UP

Regular follow-up is essential as the roots can lie dormant underground for several years. Return to the site in early spring and late summer to check for regrowth and to remove rosettes. Scrape litter from the soil surface to allow other species to grow. Soil remediation may be required before planting native species. Any revegetation should be carried out as soon as possible. Natives with creeping perennial roots may be best.

INTERESTING FACTS

Perennial pepperweed is thought to originate in southwest Asia and to have spread to Europe many centuries ago. It came to California sometime in the 1930s, possibly as a contaminant of shipped seed. It seems likely that in ancient times the young leaves were served as a spicy salad green. In medieval Britain the seeds were “poor man’s pepper” and the roots were a substitute for horseradish. Perennial pepperweed has been used to treat medical conditions such as skin disorders and painful joints, and may contain insecticidal properties. The flowers are still used in dried flower arranging.