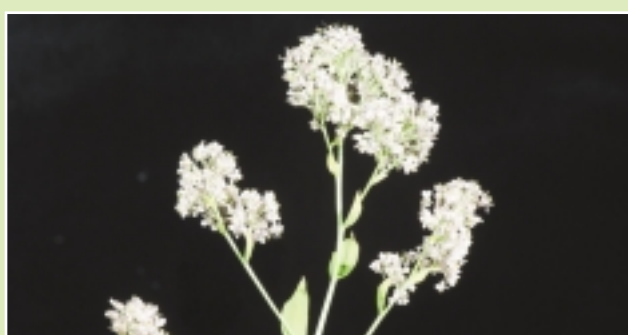


PERENNIAL PEPPERWEED (*Lepidium latifolium*)

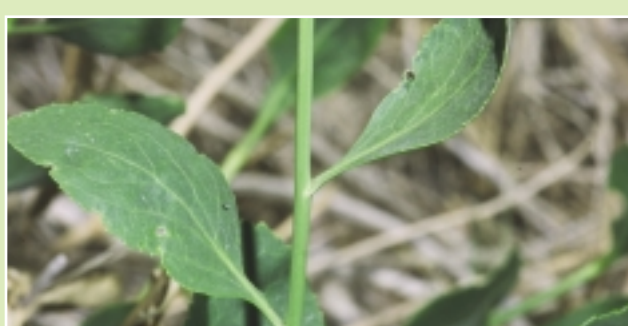
State Noxious Weed List: B-rated



entire plant



flower clusters

stem leaves - not clasping stem
(compare with hoary cress)**PERENNIAL PEPPERWEED**

General description: Perennial pepperweed is a multi-stemmed, erect, perennial herb, with a deep, spreading root system. Roots have been found to extend up to 10 feet deep. Plants spread laterally underground via rhizomes (root-like underground stems). Plants range from 3 to 8 feet in height. Leaves are glabrous (without hairs), are 1 to 2 inches wide and 4 to 12 inches long, and are smaller toward the top of the stem. Leaf bases do not clasp stem as in hoary cress.

Flowers and seeds: Flowers are arranged in a panicle (see photo) that is 5 to 6 inches wide. Flowers are white and tiny (about 1/10 of an inch wide), with 4 white sepals and 4 white petals. Fruit is a small round pod.

Habitat: Perennial pepperweed occurs in sunny riparian areas, flood plains, stream corridors, and irrigation ditches. It also grows along dry roadsides, and can infest areas with saline or alkaline soils.

Mechanism of spread: Distributed by seeds or by segments of rhizomes (underground stems). Seeds can be moved by wind and water. Possibly spread as a contaminant in rice straw. Root fragments and seeds float and disperse with flooding, soil movement, and agricultural and other human activities. Seeds can also cling to tires, shoes, and animals. Also spread via contaminated hay or crop and pasture seed.

Impacts: Aggressive wetland invader. Increases erosion of banks. Forms dense stands in wetlands to the exclusion of other plants, including rare native plants. Can displace grasses needed by nesting waterfowl. Can contaminate hay crops, reducing the value of the hay, and increasing the chance of being spread to wildlands.

Origin and distribution: Originally from Eurasia, where it grows in a wide variety of wetland and dry habitats, from sea level up to 10,000 feet. Perennial pepperweed occurs in all western states. It was first documented in California in 1936, near Oakdale in Stanislaus County. It has been found in 55 of the 58 counties of California. In our area, this plant has not yet been allowed to spread widely. However, new infestations were found above 5,000 feet near Shaver Lake (Fresno County) in 2002.

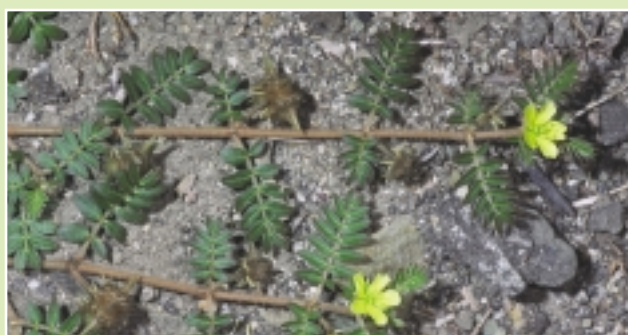
Important control hints: Manual/mechanical methods do not work well because small pieces of rootstock (even pieces less than 1 inch long) remaining in the soil can resprout to produce new plants. Sustained flooding may work well if it occurs during the growing season. See pages 4 and 5 for more information about control.

PUNCTUREVINE (*Tribulus terrestris*)

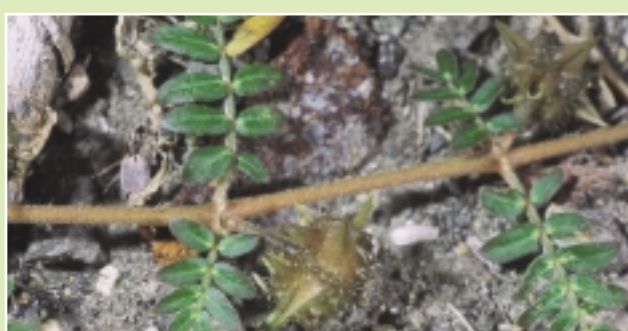
State Noxious Weed List: C-rated



plant



flower



fruit

PUNCTUREVINE

General description: Herbaceous, taprooted annual. Generally prostrate to ascending. Spreads radially from the center, with sprawling stems up to 5 feet long. Leaves are opposite, pinnately compound, with 3 to 7 pairs of leaflets per leaf. Leaves with silky to bristly silver pubescence.

Flowers and seeds: Bright yellow, generally 5-petaled flowers (about 1/2 inch diameter). Fruits are hard, painful, and plentiful (up to 5,000 per plant). They are made up of five, spiny, wedge-shaped nutlets. Generally there are 3 to 5 seeds per nutlet that remain inside the fruit. Seeds generally require an after-ripening period of at least 6 months. Warm temperatures are necessary for germination. Buried seeds are viable for 4 to 5 years.

Habitat: Disturbed areas such as roadsides, yards, and waste places, in areas that do not generally freeze. Grows best in sandy, dry soils.

Mechanism of spread: Seed is spread widely as the sharp fruits attach to the fur of animals, hiking boots, clothing, and vehicle tires.

Impacts: Toxic to livestock, particularly sheep. Fruits damaging to feet of animals and people. Fruits puncture bike tires.

Origin and distribution: Native to the Mediterranean. In the US, puncturevine occurs in at least 29 states. Locally, puncturevine is found in the valley and foothills of Mariposa, Madera, and Fresno counties.

Important control hints: Handpulling or tilling is effective, but mowing is not effective because plants grow close to the ground. Two weevils are used in California as biocontrols for puncturevine. See pages 4 and 5 for more information about control.