

Western Ecological Research Center <http://www.werc.usgs.gov>

Perennial Pepperweed: A Growing Threat to Wildlife Refuges

Perennial pepperweed (*Lepidium latifolium*), also known as tall whitetop, is an invasive weed found throughout California and in all of the western United States. Native to portions of Europe and southwestern Asia, pepperweed was accidentally introduced into the United States in a sugar beet seed shipment and is rapidly spreading throughout the West. Populations of pepperweed can establish and spread by seeds or by root fragments. This enables the species to expand into large monotypic stands in a variety of environments including wetland perimeters, rangelands, meadows, riparian areas, salt marshes and estuaries, roadsides, irrigation channels, and even irrigated alfalfa fields.

The competitive nature of perennial pepperweed poses a serious threat to many native undisturbed areas as well as previously disturbed areas that are undergoing restoration. In these areas perennial pepperweed can threaten environmentally sensitive habitats and displace threatened and endangered plant and animal species. Along riparian corridors, perennial pepperweed invasions can interfere with the regeneration of willows and cottonwood trees. Land managers have also observed dense infestations degrading waterfowl nesting habitat.

Currently, little is known about the biology and ecology of perennial pepperweed. To properly address this



Pepperweed infestations develop into dense stands that crowd out native species and degrade wildlife habitat. Photo: M. Renz, University of California, Davis.

Research is still needed on:

- Which native plants can compete effectively with perennial pepperweed
- Development of risk profiles for vegetation communities on managed lands subject to invasion by perennial pepperweed
- Restoration methods that will prevent or reduce potential reinvasion by perennial pepperweed
- How perennial pepperweed invasion alters the value of habitat to wildlife

situation, land managers need more information about the potential spread of pepperweed and what impact this plant will have on the ecosystems it invades. While pepperweed appears to spread rapidly in some areas, it may not invade adjacent locations. This behavior suggests that environmental factors such as soil moisture and competition may determine its establishment and direction of spread.

USGS and University of California, Davis researchers are collaborating to better understand environmental factors that influence the spread of perennial pepperweed. Experiments have been established throughout three bioregions of California—the Klamath region, the Central Valley, and the San Francisco Bay region—to evaluate the rate of spread and how species diversity, species composition, soil moisture, and salinity influence the spread of perennial pepperweed.

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