



Broad-leaved Pepper-grass

Lepidium latifolium (aka Perennial Pepperweed, Perennial Pepper-grass, Tall Whitetop, Giant Whiteweed, Ironweed)



PHOTO: Steve Dewey, Utah State University, Bugwood.org

Overview:

Broad-leaved Pepper-grass is a highly invasive creeping perennial in the mustard family. Native to Europe and West Asia, it is believed to have been introduced to the United States as a contaminant of sugar beet seed in the 1920s.¹ Populations have been reported in Quebec, Alberta and British Columbia. In Alberta Broad-leaved Pepper-grass has been well established around Lethbridge since 1940 and become a problem in hay crops.²

Broad-leaved Pepper-grass can invade a wide range of habitats including riparian areas, wetlands, marshes and floodplains.³ It rapidly forms large, dense stands that displace native vegetation and disrupt waterfowl nesting sites.⁴ Broad-leaved Pepper-grass can act as a salt pump, transporting ions from its roots into leaves and stems. When the plants die these salts are deposited on the soil surface, creating a saline environment.²

Studies have shown that Broad-leaved Pepper-grass can produce over 16 million seeds/ha.¹ It also has extensive creeping roots that can fragment during washouts and be moved

down stream corridors to start new infestations.⁵ The plant may be confused with closely related hoary cress species. Broad-leaved Pepper-grass is distinguished by its height and leaves with distinct petioles (stalks).⁴

Habitat:

Broad-leaved Pepper-grass thrives in moist soils but will grow on dry, sandy sites if sufficient water is available.² It is very tolerant of salinity. In addition to riparian zones, the plant can be found growing in ditches, roadsides, waste areas, pastures and crops.⁶ It often reaches fields via irrigation ditches.¹

Identification:

Stems: Erect, many-branched, nearly smooth stems up to 1.5 m tall emerge from a woody crown.¹ In wet areas stems may reach heights of 2.4 m.⁶ Dead stalks may persist for years.¹

Leaves: Leaves are grayish-green with a waxy coating and a prominent whitish mid-vein.¹ They are lance-shaped with margins ranging from smooth to toothed.⁶ Rosette leaves are larger and more stalked than the

alternate, upper leaves.⁵

Flowers: Tiny, white, cross-shaped flowers are located in dense clusters (racemes) at the tips of branches. The inflorescence has a rounded to pyramidal shape.¹

Seeds: Nearly microscopic, hairy, reddish-brown seeds occur in small round-elongated, flattened pods (silicles) that are slightly hairy.⁶ Each pod contains two seeds.¹

Prevention:

In Alberta buying certified weed-free hay will ensure Broad-leaved Pepper-grass is not present since it is classified as an undesirable weed under this program.² Periodic surveys of riparian corridors will help to detect new infestations.⁴ Small areas can be hand-pulled or dug as long as care is taken to remove as much root as possible. It is imperative to continue to monitor these sites until no regrowth is visible.¹

Control:

Cultural: Older plants can tolerate light graz-

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Broad-leaved Pepper-grass (Continued)

ing.⁴ Invasive plants should never be considered as forage.

Grazing: The woody crowns and persistent dead stalks deter cattle from eating this plant.¹ Goats have been used in the United States to clean up infested areas.²

Mechanical: Unless repeated routinely, mowing is usually ineffective since new shoots will emerge to perpetuate the infestation. Mowing has been used as a means to remove accumulated woody stems and plant debris before grazing or herbicide application.⁷

Chemical: Broad-leaved Pepper-grass is hard to kill because of its waxy leaves.⁷ In the U.S., herbicides have been effective in rangelands, and in non-crop areas in combination with grazing.² 2,4-D, MCPA and Metsulfuron-methyl, alone or with Aminopyralid are registered for use on perennial pepperweed. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: Biocontrol agents are not available and prospects are low because Broad-leaved Pepper-grass is closely related to important crops like canola and mustard as well as native *Lepidium* species.⁷ The consensus has been that biological control of *L. latifolium* is very unlikely to be feasible because of the many closely related species in the native flora. Nevertheless, further study is in progress on *Melanobaris* sp. pr. *semistriata* and *P. reitteri*⁸.



Foliage

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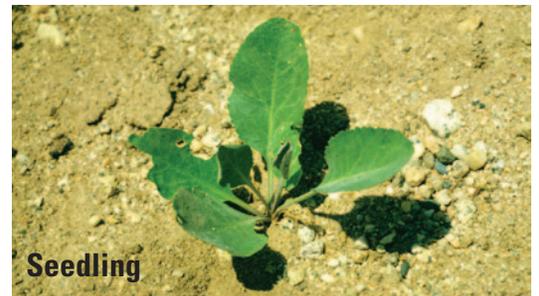
Stems & Leaves

TIM BUTLER, OREGON DEPT. AGRICULTURE



Plant

STEVE DEWEY, UTAH STATE UNIVERSITY, BUGWOOD.ORG



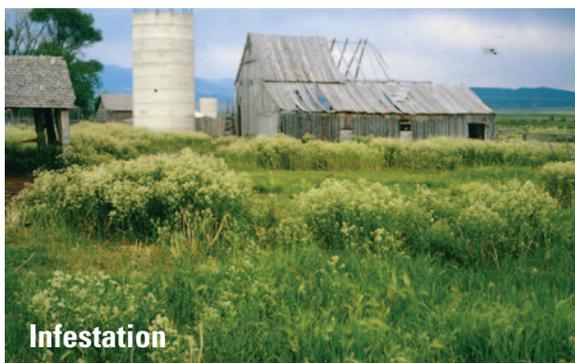
Seedling

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Seeds

STEVE HURST, USDA NRCS PLANTS DATABASE, BUGWOOD.ORG



Infestation

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Feature

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Plant

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REFERENCES

- 1 Perennial Pepperweed Fact Sheet http://www.nwcb.wa.gov/weed_info/written_findings/Lepidium_latifolium.2.html
- 2 Francis, A and S.I. Warwick. 2007. The Biology of Invasive Alien Plants in Canada. 8. *Lepidium latifolium* L. Can. J. Plant Sci. 87: 639-658
- 3 USDA Forest Service Weed of the Week – Perennial Pepperweed http://www.na.fs.fed.us/fhp/invasive_plants/weeds/perennial_Pepperweed.pdf
- 4 UC IPM Fact Sheet – Perennial Pepperweed <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74121.html>
- 5 Plant Conservation Alliance's Alien Plant Working Group – Least Wanted: Perennial Pepperweed <http://www.nps.gov/plants/alien/fact/lela1.htm>
- 6 Perennial Pepperweed (*Lepidium latifolium*) MontGuide MT 199906 AG <http://ipm.montana.edu>
- 7 Steve's Weed of the Month – Perennial Pepperweed http://www.whitman.wsu.edu/weeds/perennial_Pepperweed.html
- 8 <http://www.cabi.org/isc/?compid=5&dsid=115209&loadmodule=datasheet&page=481&site=144>