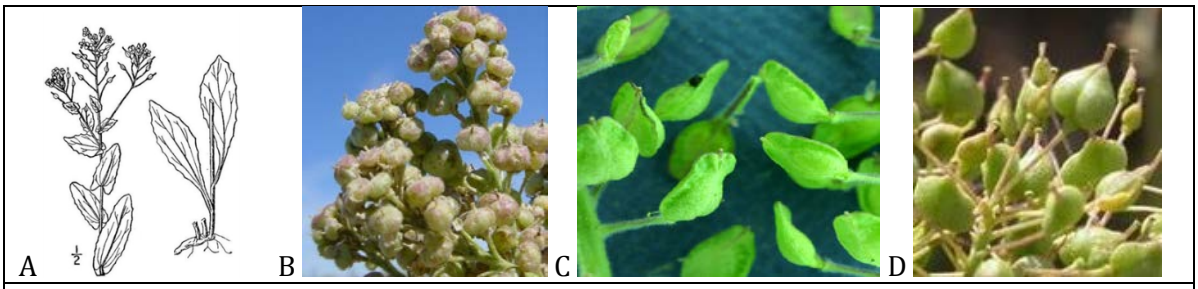
Whitetop (*Cardaria* spp.)

Identification: Globe-podded whitetop *(C. pubescens),* lenspod whitetop *(C. chalepensis),* and heart-podded whitetop *(C. draba)* are three closely related exotic mustards (Brassicaceae family) often referred to collectively as 'whitetop.' All three have small white flowers with four petals, six stamens, and erect stems with oblong to elliptic, gray-green to blue-green leaves. The lower leaves have a short stalk, but upper leaves are sessile, clasp the stem and have lobes (Figure 1A). Seed pods are necessary to distinguish among the three species (Figure 1 B-D). They bloom in late spring to early summer and reproduce by seed and rhizomes. Seeds typically germinate in the fall and overwinter as rosettes.



Figures 1 A-D. (A) Upper leaves on all three species clasp the stem and have lobes & lower leaves have a short pedicel. Seed pods of: globe-podded white top (B); lenspod whitetop(C); and heart-podded whitetop (D). Photos by Richard Old, Steve Mattson, J. Peralta and P. Lezama.

Perennial pepperweed (*Lepidium latifolium*) resembles whitetop but the leaves have no lobes. Additionally, all three whitetop plants are generally not much taller than knee-high (1-1.5'), while perennial pepperweed can reach heights of 6' and has stems that are woody at the base.

Impacts: Whitetop displaces native plant species, reduces biodiversity, wildlife habitat and forage production, and threatens the cattle and tourism/recreation industries. Whitetop contains glucosinolates which can be toxic to cattle, but the plant is generally considered unpalatable.

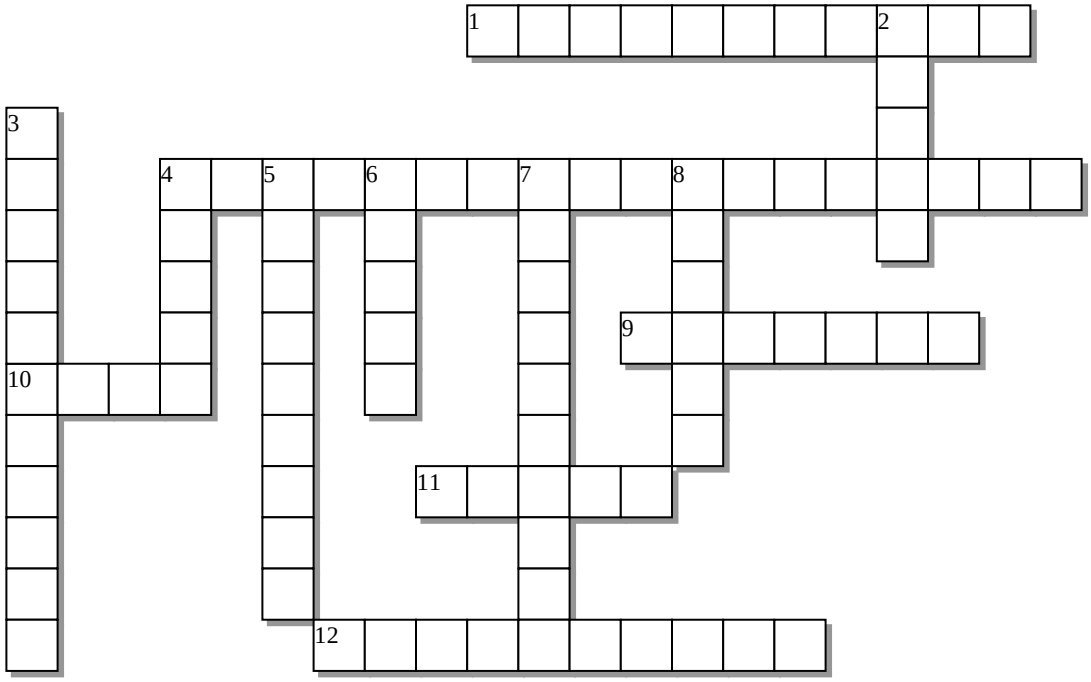
Habitat In Montana heart-podded whitetop has been reported in every county except Daniels and Roosevelt, lenspod in 10 counties, and globe-podded in 8 counties. Whitetop is found predominantly in alfalfa, pastures, rangeland, and along roadways. It often grows on moderately moist, alkaline to saline soils, but can tolerate a wide range of soil types and moisture conditions. Whitetop increases with grazing and irrigation.

Whitetop can quickly fill in abandoned lots forming near monocultures.

Spread: Whitetop spreads by seed and rhizomes. Seed has no mechanism for long distance dispersal, but when consumed by livestock, it survives through the digestive tract. Seed also spreads by water (especially irrigation ditches), contaminated hay, and farming equipment.

Management Priorities: Heart-podded whitetop is a **priority 2B** species in Montana, meaning priorities are containment or eradication where less abundant. All three species are most invasive in agriculture settings, especially irrigated fields. With few or no disturbances, no irrigation, and with competition from perennial species, they are described as relatively easy to control. All control efforts must be persistent, and require at least 2-3 years of monitoring because they can reestablish quickly from rhizomes. For more information, see "Biology, Ecology and Management of Whitetop" EB138.
http://msuextension.org/publications/AgandNaturalResources/EB0138.pdf

Weed Post Puzzle: Test your knowledge of whitetop



Across:

1 - Cardaria _____ has flattened pods
4 - Four small white petals and six stamens, but no lobes on leaves and nearly six feet tall (latin name)
9 - Whitetop plants commonly occur with this irrigated crop
10 - Good luck differentiating the three whitetops without these
11 - Seeds of heart-podded whitetop remain viable for approximately _____ years*
12 - Whitetop increases with grazing and _____

Down:

2 - Leaves on whitetop stems don't have these, but basal leaves have a short one
3 - This whitetop is state listed as Priority 2A in Montana (common name)
4 - Leaves on whitetop stems have these, but basal leaves don't
5 - Cardaria _____ has globe-shaped pods
6 - Cardaria _____ has heart-shaped pods
7 - Even if whitetop appears to be eradicated, continue _____ the area for several years
8 - In the 1st year of growth, whitetop plants may spread rhizomatously _____ feet*

*Refer to the Extension Bulletin for answers to these questions
Solutions are posted on the MSU Extension Invasive Rangeland Weed website:
http://www.msuextension.org/invasiveplantsMangold/extensionsub.html

MONTANA STATE UNIVERSITY EXTENSION

Pulling Together Against Noxious Weeds