

Invasive mustards: hoary alyssum, perennial pepperweed, and whitetop



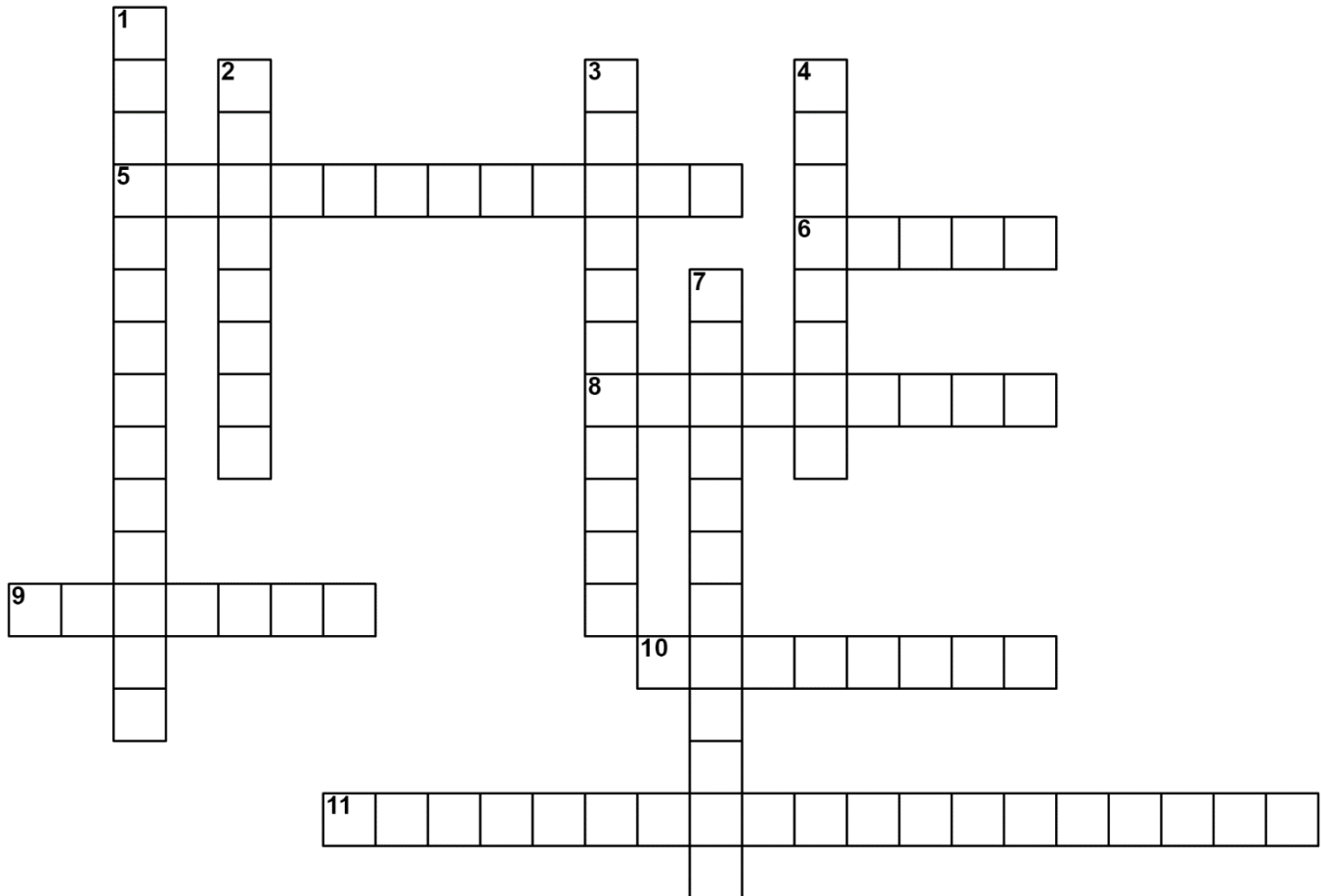
	Perennial pepperweed- <i>Lepidium latifolium</i>	Whitetop- <i>Lepidium draba</i> , <i>L. chalepense</i> , and <i>L. appelianum</i>	Hoary alyssum- <i>Berteroa incana</i>
Growth/reproduction	Rhizomatous/seeds and vegetative	Rhizomatous/seeds and vegetative	Slender taproot/seeds only
Habitat	Moist habitats. Alongside streams, rivers, irrigation canals, and sub-irrigated pasture.	Moist habitats. Sub-irrigated pastures, hay fields, rangelands, roadsides, and ditch banks.	Dry and disturbed areas. Lawns, pastures, hayfields, vacant lots, and along roadways.
Leaves	Upper leaves do not clasp the stem. No lobes.	Upper leaves clasp the stem. Lobed.	Covered in tiny, star-shaped (stellate) hairs.
Fruits	Flattened silicles	Round or inflated silicles	Round or inflated silicles
Height	Can reach heights of 6 feet and have woody stems at the base.	Generally not much taller than knee-high (1-1.5 feet).	Usually less than 2.5 feet tall.

History and status: All of these plants are invasive mustards (Brassicaceae family) native to Europe and/or Asia. Perennial pepperweed is a priority 2A noxious weed in Montana, while whitetop and hoary alyssum are priority 2B, meaning they are more abundant and widespread. The three species in the whitetop complex were in the genus *Cardaria*, but recent molecular-genetics data indicated that these species are actually within the *Lepidium* genus (same genus as perennial pepperweed).

Identification: All three plants have small, white flowers with four petals. Key characteristics to differentiate these species from each other include leaves, silicles (fruits), and height (Table, above). Hoary alyssum can be distinguished from perennial pepperweed and whitetop by its tiny, stellate hairs that cover the leaves, notched flower petals, as well as the fruits and stem. Whitetop has upper leaves that clasp the stem, whereas perennial pepperweed does not. Both whitetop and hoary alyssum have round or inflated silicles, while perennial pepperweed has flattened silicles. Whitetop and hoary alyssum are generally not much taller than 2.5 feet, while perennial pepperweed can reach heights of six feet, especially in wetter areas. The three species of whitetop are closely related and can be difficult to distinguish without silicles.

Management: Hoary alyssum reproduces by seed, therefore management should focus on preventing seed production through hand-pulling, mowing, or herbicide applications. Whitetop and perennial pepperweed are rhizomatous, so management is generally more difficult and control techniques must reduce seed production and stress roots. Hand-pulling and mowing are not as effective on these two mustards. Herbicides that contain metsulfuron or chlorsulfuron are effective on all three species, and application should occur rosette to bolting (hoary alyssum) or bud to bloom (whitetop, perennial pepperweed). Grazing is not recommended as all three species exhibit some degree of toxicity to livestock. No biological control agents are currently approved for these species, however agents are being developed for whitetop. For more information see MSU-Extension publications for [hoary alyssum](#), [whitetop](#), and [perennial pepperweed](#).

Crossword: Test your knowledge of invasive mustards



Across:

- 5 alternative common name for perennial pepperweed, which only serves to confuse invasive mustard identification!
- 6 leaf characteristic of whitetop
- 8 description of perennial pepperweed silicles
- 9 management strategy not recommended for all three species
- 10 former genus of the whitetop complex
- 11 tallest of these three invasive mustards

Down:

- 1 scientific name of hoary alyssum
- 2 fruits of the mustard family
- 3 one herbicide that is effective on all three species
- 4 description of star-shaped hairs
- 7 mustard family

Solutions are posted to the MSU Extension Invasive Rangeland Weed website:

http://msuinvasiveplants.org/extension/monthly_weed_post.html

