Weed impact rankings for western Montana grassland invaders

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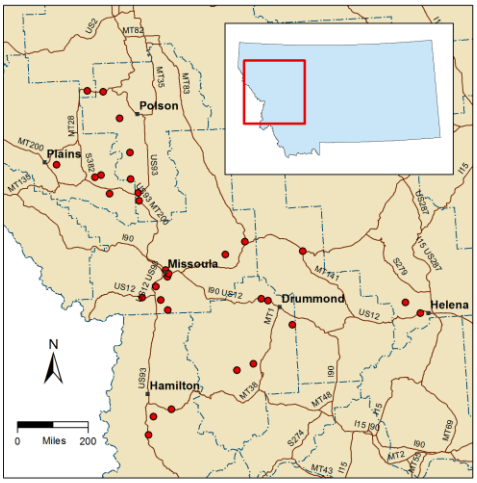
What is a manager to do when the number of weeds invading exceeds the resources available to combat them all? This is a ubiquitous problem in invasive plant management, and as every manager knows, the answer is triage. You do the best you can with what you have by prioritizing your target plants relative to your resources. The problem is that we often do not have sufficient data to effectively prioritize which species to target. Imagine how much easier this problem would be if you had a list that ranked the impact or damage being caused by every exotic in your system. Imagine no more, the list is here – at least for one common habitat type in Montana—bluebunch wheatgrass grasslands.

Field study: Researchers from the Rocky Mountain Research Station, USFS laboratory in Missoula, Montana, surveyed 620 1-m^2 vegetation plots across 31 grasslands spread over 20,000 km^2 of bluebunch wheatgrass habitat in west-central Montana to quantify the invasiveness and impact of 48 exotic plants found within this system. These surveys targeted grasslands that were ≥1 ha, located near potential sources of invasions like roads, but that had not been transformed through agriculture, development, or extreme grazing. Hence, the survey represents common, natural western Montana rangelands.



Distribution of survey plots across bluebunch wheatgrass grasslands.

Results: The average grassland in this survey contained 13 exotic plant species. Total cover of exotic plants averaged 25% of the total vegetation cover per grassland. Across all 31 grasslands, of the total identified flora 25% of the species were exotic plants. Impacts of exotic plants were measured as reductions in native plant cover associated with increasing abundance of each invader. Of the 48 exotic plant species identified in the survey, 11 showed significant impacts on native plants. Of these 11 high impact invaders, five are classified as noxious by the Montana noxious weed list, but the other six are not. The highest impact invader was cheatgrass, which is currently considered a regulated plant but not a noxious weed in Montana. These data are specific to the bluebunch wheatgrass habitat type; the same invaders may have greater or lesser impacts in other community types.

Weed Impact Rankings

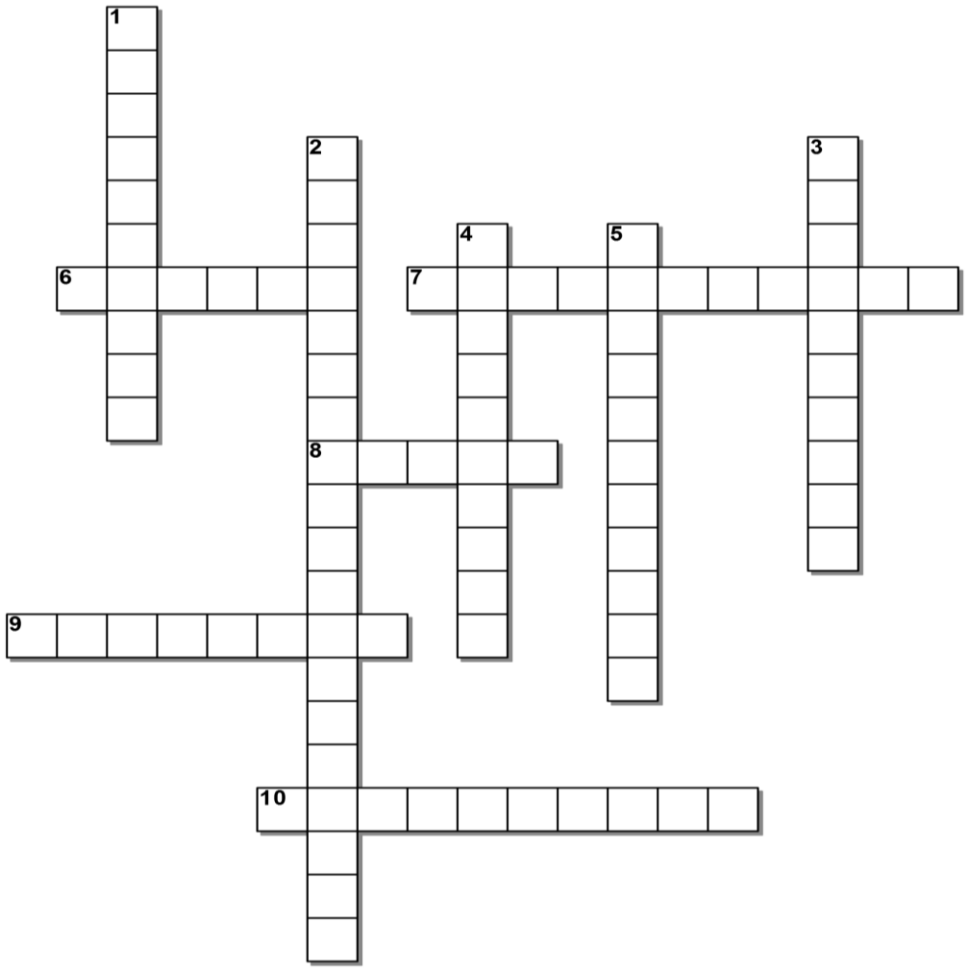
Rank	Common name	Scientific name
1	Cheatgrass	*Bromus tectorum*
2	Spotted knapweed*	*Centaurea stoebe*
3	Leafy spurge*	*Euphorbia esula*
4	Sulphur cinquefoil*	*Potentilla recta*
5	Spring speedwell	*Veronica verna*
6	Dalmatian toadflax*	*Linaria dalmatica*
7	Kentucky bluegrass	*Poa pratensis*
8	Pale alyssum	*Alyssum alyssoides*
9	Canada bluegrass	*Poa compressa*
10	St. John's wort*	*Hypericum perforatum*
11	Moth mullein	*Verbascum blattaria*

* indicates species denoted as noxious weeds in Montana.

Management implications: The resulting survey-based weed impact ranking provides a powerful tool for managers to prioritize weeds for management within bluebunch wheatgrass and similar habitats. The list provides a reference that ranks the invasiveness and the impact of each of 48 exotic species within this habitat. It highlights five high-impact invaders that are on Montana's noxious weed list as well as six high-impact invaders that are not recognized by Montana's noxious weed list. The survey and associated data also provide a baseline for projecting future impacts for these same invaders and for monitoring long-term changes in the system. This work paves the way for developing weed impact rankings for other at-risk habitats that could provide baselines for monitoring. Weed impact rankings are valuable tools for complementing and informing Montana's noxious weed list.

Read more about the study and find a link to the journal article by clicking here http://www.fs.fed.us/rmrs-beta/science-spotlights/invasiveness-and-impact-48-exotic-plant-species-native-grasslands

Weed Post Puzzle: Weed impact rankings for western Montana grasslands



Across:

6 This approach, often used in emergency rooms, can also be used to prioritize which weeds to manage with limited resources

7 The type of research described here can be useful for informing state _____ (2 words) lists

8 "Impact" was measured as a decrease in native plant _____ as exotic species abundance increased

9 Average number of exotic plant species found at each site in the study

10 Habitat type that was the focus of the study

Down:

1 This species had the highest impact to bluebunch wheatgrass grasslands in western Montana

2 Ubiquitous native grass in study area

3 Plants were characterized by _____ form and _____ form*

4 Total number of exotic plant species found during the study

5 This exotic species made the Top 11 list and is closely related to another Verbascum species that is on some county noxious weed lists

*refer to journal article for answer

Solutions are posted to the MSU Extension Invasive Rangeland Weed website:
http://www.msuextension.org/invasiveplantsMangold/extensionsub.html

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Montana noxious weed Education Campaign