

## Going my way? Weed Seeds as Hitchhikers

Weeds are often found along roads and trails because such areas are disturbance-prone and weed seeds are dispersed by humans traveling along such routes. A growing body of research suggests weed seeds are catching a free ride as we drive our regular routes and hike our favorite trails.

A series of studies conducted at Montana State University measured the number of seeds picked up by vehicles and the distance seeds traveled on vehicles before they fell off. Different types of vehicles, road surfaces, and moisture conditions were studied to determine how they affected seed dispersal. One study revealed that ATVs collected a large number of seeds when driven on- or off-trail, and more seeds were collected in the fall than in the spring. The highest number of seeds, about 5,500 seeds/mile, was collected from ATVs driven off-trail in the fall. Even when driven on-trail, ATVs collected about 400 seeds/mile in the fall. A second study determined that many more seeds were collected by vehicles driven under wet conditions than under dry conditions. The third study found that >90% of seeds stayed attached to a vehicle for at least 160 miles under dry conditions, allowing for long distance transport of seeds. Check out the MSU Extension MontGuide “Weed Seed Dispersal by Vehicles” (<http://msuextension.org/publications/AgandNaturalResources/MT201105AG.pdf>) for more information.



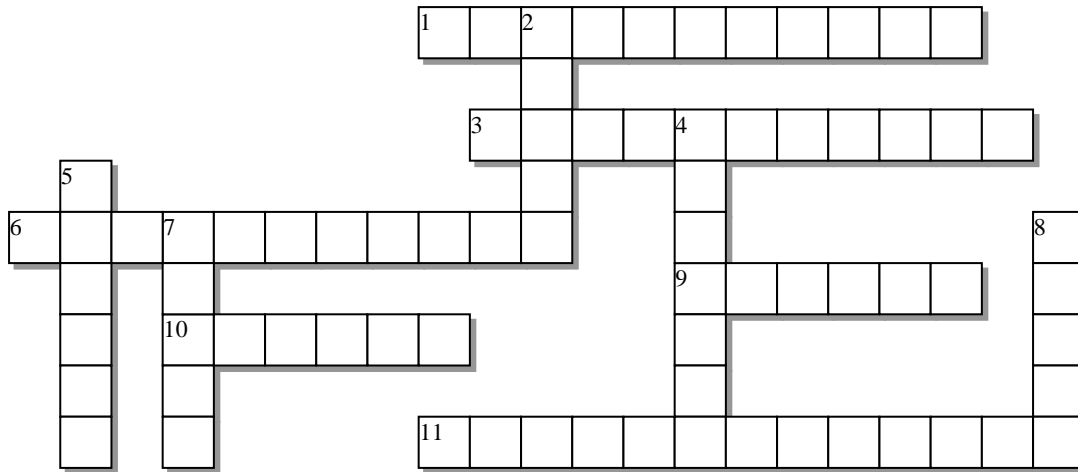
Houndstongue seed on hunting pants.

Studies on weed seed dispersal by vehicles have also been conducted in Germany (von der Lippe and Kowarik 2007 [http://www.eve.ucdavis.edu/catoft/eve101/Protected/PDF/lit/VonDerLippe\\_Kowarik\\_2006.pdf](http://www.eve.ucdavis.edu/catoft/eve101/Protected/PDF/lit/VonDerLippe_Kowarik_2006.pdf); von der Lippe et al. 2013 <http://www.plosone.org/article/fetchObject.action?uri=info%3Adoi%2F10.1371%2Fjournal.pone.0052733&representation=PDF>). In one of these studies, researchers collected from 635 to 1579 seeds/m<sup>2</sup>/year along stretches of road that ranged from forested to urban. The seeds collected represented just over 200 species, half of which were not native to the area, suggesting that seed dispersal by vehicles is a source for introductions of new plant species. The other study showed that vehicles not only pick up and drop off seeds along the road, but the air currents created by passing cars facilitates the movement of those seeds along roads and their accumulation along the roadside.

Hikers can also disperse weed seeds, which is potentially a major cause of weed spread into roadless areas. In two separate studies, seeds of various shapes and sizes were attached to boots, socks, and pants (Marina et al. 2011, <http://link.springer.com/content/pdf/10.1007%2Fs10530-011-0006-y.pdf>; Wichman et al. 2009, <http://rsps.royalsocietypublishing.org/content/276/1656/523>). Hikers then walked a certain distance ranging from a few yards to a few miles. In most cases, seeds fell off the hikers within the first 14 to 20 feet, but some seeds stayed on for over three miles. The long-distance hitchhikers are the most worrisome because they may result in new introductions of weeds into the backcountry.

To minimize weed seed dispersal along roads and trails, wash the undercarriage of vehicles before entering weed-free areas; check your outdoor gear and remove any hitchhiking seed, when seed is found don't drop it wherever you are but instead place it in the trash or burn it; avoid driving through weed infestations, particularly in the fall or under wet and muddy conditions; and use weed seed free forage for your pack animals, especially if you are traveling into the backcountry or will be within the next few days. Regardless of the precautions we take to minimize hitchhiking weed seeds, weeds will show up along roads and trails. In that case, monitor along travel routes and remove any new weed infestations before they become well-established.

## Test Your Knowledge of Going My Way? Weed Seeds as Hitchhikers



### Across:

- 1 - Use weed seed free forage if travelling into this area  
 3 - Hold on to your hats! These can move seeds along roads and accumulation of seeds along roadsides (two words)  
 6 - Roads and trails see a lot of this, which can be very conducive to weed growth  
 9 - Attention all hunters! Seed dispersal via vehicles during this season may be higher than during other seasons  
 10 - Don't drive through weed infestations, especially if it has recently done this  
 11 - Seeds dispersed by vehicles are not always from plants growing nearby. Therefore, vehicles can serve as a source for \_\_\_\_\_ of new species

### Down:

- 2 - A study done in this country showed that the more roads, the more weeds there are. In other words, "If you build it, they will come"\*  
 4 - Seeds are more likely to fall off a vehicle when the vehicle is driven on this type of road  
 5 - A potential cause of weed spread into roadless areas (assuming you've got pants, socks, shoelaces or in your birthday suit with very hairy legs)  
 7 - Some seeds can remain on a hiker for up to this many miles  
 8 - Check these for weed seeds and properly dispose of them so they're not a vector for seed dispersal (see photo above for hint)

\*Refer to Extension MontGuide for answer

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

<http://www.msuextension.org/invasiveplantsMangold/extensionsub.html>

