Cars, trucks and ATVs are weed-spreading machines

Weeds, both noxious and simply obnoxious, are often found growing along roads and trails. Vehicles have long been suspected of causing this proliferation by picking up weed seeds and dispersing them to new locations.

Roads and trails are especially susceptible to colonization by weeds because of disturbances such as trampling, mowing or road maintenance that weakens the native plant communities and allows weed establishment.

Research conducted by Lisa Rew and her associates at Montana State University demonstrates the extent to which vehicles can pick up and disperse weed seeds. She also looked into how much washing would be necessary to remove the seeds from vehicles to prevent weed spread.

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Three separate field studies were conducted to determine the number of seeds gained and lost by vehicles over varying distances.

The first study determined how many seeds all-terrain vehicles pick up driving on- and off-trail in Montana.

The second study examined the number of seeds gained by military vehicles (Humvees, trucks, ATVs and tanks) in military training areas in Montana and Idaho.

The final study determined how long seeds stay attached to the vehicle before they are dispersed when driven along paved and unpaved roads under both wet and dry conditions.

In the first study, ATVs driven on- and off-trail collected a large number of seeds in both spring and fall. Not surprisingly, ATVs picked up more seeds when driven off-trail than on-trail. They also picked up more seeds in the fall than in the spring.

In the fall, up to 5,500 seeds per mile were picked up off-trail compared to about 400 seeds per mile on-trail.

The study at the military sites determined that many times more seeds were collected by vehicles driven under wet conditions than under dry conditions, and tracked vehicles picked up more seeds than wheeled vehicles.

The final study found that up to 99 percent of seeds stayed attached to a vehicle after traveling 160 miles under dry conditions.

Seed retention was much lower under wet conditions, where seed retention varied from zero to 60 percent, depending on where the seed was attached to the vehicle and whether the road was paved or unpaved.

In summary, these three

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Weeds

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research studies showed that vehicles can pick up large numbers of seeds, especially when driven off-trail and under wet conditions.

If seeds are picked up in mud which is then allowed to dry on the vehicle, they can travel almost indefinitely until the mud is washed off, either by rain or by wet road conditions.

Washing the undercarriage of vehicles to remove soil and weed seeds is often recommended to prevent the spread of weeds and is standard procedure for many groups working in undisturbed areas.

Rew and her associates also conducted a series of studies to determine optimal vehicle washing duration and compare the effectiveness of various commercial portable vehicle wash units.

In two studies testing wash duration, a known amount of soil and debris was sprayed onto the underside of a clean pickup and allowed to dry.

The pickup was then washed with the washing unit for a set number of minutes and the soil collected from the washing process was compared to the amount of soil applied initially.

In the study comparing vehicle wash units, three different vehicle types were driven on a specified course covering both off- and on-road sections.

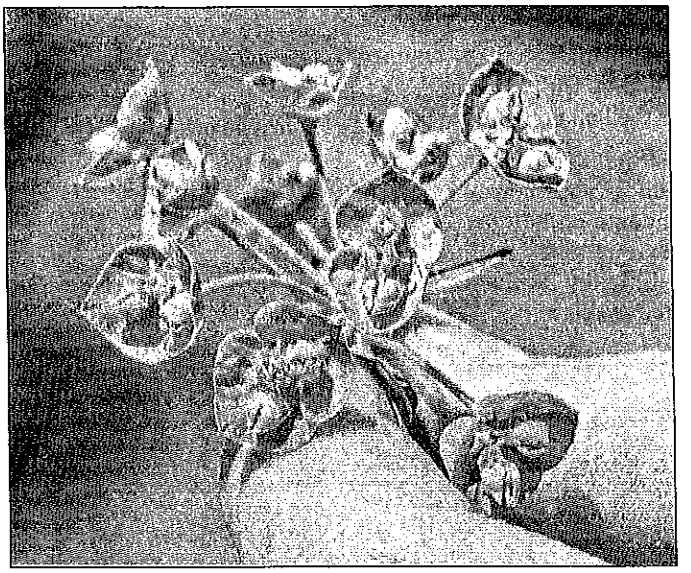
Vehicles were washed for five minutes by one of the commercial wash units and then meticulously hand-washed. The soil and other debris collected from each vehicle type by each commercial wash unit was collected as was the soil and other debris collected during the follow-up hand washes.

The amount of soil collected during the hand washes was compared to the amount of soil collected during the wash unit wash to determine the total amount of soil and other debris not dislodged by the commercial vehicle washing units.

Results from these studies suggested that wash length and number of washes is important when cleaning a vehicle to remove soil that may contain weed seeds. Vehicles washed for six minutes in one wash or two to three successive three-minute washes were the cleanest.

A three-minute wash removed much more soil material than a 1.5 minute wash, which is considered standard by some wash unit operators.

All commercial wash units, regardless of water pressure or water use, performed similarly.



Leafy spurge is one of many weeds that may be spread by vehicles. TRIBUNE FILE PHOTO

Preventing the spread

Outdoor recreationists who drive on remote roads to trailheads or who ride ATVs both on- and off-trail may be unknowingly spreading weeds.

Preventing the spread of weeds into non-infested areas is the most effective and efficient way to manage weeds over the long term. To help prevent the spread of weeds, washing vehicles frequently is beneficial. Washing vehicles is especially important after driving on roads with high densities of weeds along the roadsides or after driving off-road or off-trail.

Read more about this research in two new MSU Extension publications "Weed Seed Dispersal by Vehicles" and "Washing Vehicles to Prevent Weed Seed Dispersal".

The publications are free and can be downloaded or ordered through MSU Extension Publication online at www.msuextion.org/store/, by calling 406-424-8350 or by visiting a local Extension office.