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## The Grapevine

By Maryann Whitman

### Bring the Buffalo and Native Grasses Home to the Range

Common wisdom has assumed that exotic plants thrive on our continent because they lack natural enemies in their new range. Not so, says a recent paper in the journal *Science*. Findings suggest that native herbivores (the deer and the antelope of song) suppress the abundance of exotic plants. Further, exotic herbivores (cattle, pigs, Old World goats, and rabbits) facilitate abundance and species richness of exotic plants. The researcher suggests that our native herbivore population has been driven close to extinction by settlers who also introduced their Old World herbivores. This replacement of native with exotic herbivores "eliminates an ecosystem service, helps alien plant invasions, and triggers an invasional 'meltdown.'" I wonder if we can teach our native deer to suppress our alien garlic mustard.

The search is on to find some way to identify either species or habitat characteristics that predict invasiveness of exotic species in given areas. A researcher out of University of California at Davis, considered all the grasses known to be growing in California, and confirmed what had been assumed as common sense – the more genetically related the exotic invader is to the species growing on a site, the less likely that invader will be able to move in.

During the '90s, some research on invasives was done using small, controlled plots. The results showed that the greater the diversity of natives in a planted plot, the less likely that the plot was invaded by exotic plants, and the exotic plants that did invade, did less well.

**It's All One Piece.** Millions of acres of rangeland in the western states have been taken over by spotted knapweed (*Centauria maculosa*). The cattle won't eat it – the elk have modified migration routes to avoid heavily infested areas, and land stewards are training dogs to help them find new patches of knapweed so they can eradicate them.

In the 1970s, a natural enemy of knapweed, a gall fly, was imported, tested, and released. Thirty years later a biologist reports in *Ecology Letters* that "the fly has not halted the spread of knapweed ... but it has changed the ecosystem dynamics." The fly causes the knapweed to form a gall which protects the flies' eggs. Deer mice have learned to climb the stalks, during the winter months, to feed on the larvae of the fly in the gall. During a season that would normally kill most of the deer mice, they are instead thriving. Populations of deer mice have tripled with this new food supply. These mice can carry hantavirus, which in a human being can cause a fatal form of pneumonia. With their increased numbers they are more likely to come in contact with humans. And we wonder where our rare diseases come from.

It's possible that over time the pendulum will swing back and the populations will even out. However, they will even out at higher numbers than the system

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originally entertained because the new food source came from outside the system. What effect this will have and on whom can only be surmised.

Biologists researching bio-controls agree that exotic insects "are too liberally released...three times as many exotics have been released as there are target species." "Rather than reduce grazing," (which helps spread the invasive plants), contends one researcher from the University of Nebraska, "the agriculture officials release beetles, and the ranchers go on grazing."

I would argue that along with reducing grazing by exotic herbivores, the agriculture officials also need to consider densely, overseeding with a broad diversity of appropriate native plants. Appropriate in that they are not closely related to the exotic aliens that are already occupying the soil.

Maryann is Editor of the Wild Ones Journal, and comes to the position with an extensive background in environmental matters of all kinds.