

Screening preferred to halt invasive species

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Leafy spurge infests thousands of acres of rangeland in Wyoming and the West. A policy proposed by UW Professor Ed Barbier and colleagues would ban imports of exotic species that have a high likelihood of invasion. Credit: Brian Mealor

(Phys.org) —Stakeholders interested in the environmental impacts of North America's horticultural industry would prefer a mandatory screening process—over other policy options, such as fees or taxes—to help effectively deter the accidental introduction of invasive plant species, according to a study led by Edward Barbier, the John S. Bugas Professor of Economics in the University of Wyoming College of Business.

He and colleagues from the University of Wyoming, University of Washington and Simon Fraser University in Canada explored several approaches to resolving the industry's [invasive species](#) problem, deemed

the second largest cause of biodiversity loss in the United States. Their findings are published in the February issue of the journal *BioScience*.

Many of the harmful [plant invasions](#) that have occurred in North America can be traced to accidental introduction of exotic species via the horticultural trade and industry, Barbier says. Around 40 percent of the endangered [native plant species](#) in North America are vulnerable to invasive species. The total damage to the U.S. economy each year from reductions in crop yields and pasture forage caused by nonnative plants amounts to \$27 billion, and \$8 billion is spent annually on controlling exotic weeds in agriculture.

In the Rocky Mountain region, common invader plant species include cheat grass, leafy spurge, salt cedar, yellow toadflax and spotted knapweed.

"All of these have been costly to farmers, ranchers and even homeowners. It's an expensive problem and people want to control it," Barbier says.

The researchers asked stakeholders—farmers, ranchers, environmentalists, the horticultural industry, government experts, land managers and others—to choose from among five options that could effectively reduce importation of and lower the treatment costs caused by harmful exotic species.

The five options were:

- Ban all new horticultural imports.
- Establish a mandatory system to screen and ban plant species that have a high likelihood of invasion.
- Establish a voluntary system to screen and ban potentially

harmful species.

- Implement a flat environmental fee to cover the costs of treatment when an invasion occurs.
- Charge a tax for different species based on the likelihood of invasion.

The stakeholder groups unanimously supported the second option to "establish a mandatory screening system and ban the importation of species that pose a high invasion risk." Establishing environmental fees or taxes were the least popular options.

Barbier is optimistic that such a system could be implemented within a few years, in part, because the U.S. Department of Agriculture is interested in the health and prosperity of the horticultural industry. The USDA already is examining guidelines and considering changes to America's horticultural import policies along the lines suggested by the second option.

"We have the technology in place to accomplish such screening, and this study helps the USDA clarify that it is taking the proper first steps to solving this problem," Barbier says.

Once the policy is established and proven successful, Barbier says it would be feasible later to impose an environmental fee or tax that would help cover the costs of controlling damaging species that are already here.

"It would be nice to have some type of annual revenue stream to cover the \$8 billion in control costs," Barbier adds.

He says another positive aspect of the study is that it shows that the horticultural industry is willing to accept a policy that establishes a mandatory system to screen and ban [plant species](#) that have a high likelihood of invasion.

Provided by University of Wyoming

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