

Response to Comment on “Opposing Effects of Native and Exotic Herbivores on Plant Invasions”

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Our investigation found that non-native plants were more susceptible to native generalist herbivores than were native plants. Ricciardi and Ward’s finding that non-native plants without native congeners are more susceptible to native herbivores than are non-natives with coexisting native congeners supports our hypothesis that evolutionary naïveté leaves plants at greater risk of attack by newly encountered generalist herbivores.

Ricciardi and Ward (1) add an intriguing dimension to the analyses of Parker *et al.* (2) by showing that the impact of native herbivores is six times as strong on exotic plants that are novel genera in the invaded region than on exotic plants that have native congeners in the region. This finding contradicts the long-standing assumption that native herbivores should be better adapted for attacking invaders that are closely related to native species (3, 4), a previously untested hypothesis for why prob-

lematic invaders often derive from taxonomic lineages that are underrepresented in the recipient community (5, 6). Instead, the findings presented by Ricciardi and Ward further support our hypothesis that evolutionary naïveté leaves plants at greater risk of attack by newly encountered generalist herbivores.

Ricciardi and Ward make an exciting extension to our study and further illustrate the need for a mechanistic understanding of how phylogeny affects the interactions between invaders and the natural enemies they encounter. In-depth examination of these mechanisms is warranted, because exotic congeners may be less affected by native herbivores because they have similar defensive adaptations to native congeners or because the physiological adapta-

tions of exotic congeners may be similar to their native relatives, lessening environmental stress in the new habitat and thus not compromising their normal antiherbivore defenses (7, 8). Ricciardi and Ward’s data come from regional-scale rather than community-scale analyses and therefore have the potential for considerable uncontrolled variance that might obscure other interesting patterns. However, they still get a strong signal showing the increased susceptibility of more evolutionary naïve genera. Further studies using phylogenetics at the community scale [e.g., (6)] should be informative in extending these initial findings. As with our initial paper, the new results provided by Ricciardi and Ward (1) show the power of incorporating evolutionary logic into invasion biology and suggest that the success of phylogenetically distinct exotic species is unlikely to stem from release from generalist native herbivores.

References

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