

Do Invasive Species Cause Damage? Yes.

In a recent Viewpoint (2011, 61: 501–502) Mark Davis proposed that a newly uncovered mutualism between invasive honeysuckle and native North American birds mitigates the multitude of documented otherwise-negative impacts of honeysuckle (e.g., Schierenbeck 2004). He then goes on to suggest that the distinction between native and nonnative species no longer holds value. A large number of scientists disagree with this view (Simberloff et al. 2011). Indeed, 15 years ago, *BioScience* already reported the value in studying the introduction history of honeysuckle to guide plant invasion biology (Luken and Thieret 1996).

Invasive species are defined as the subset of nonnative species that cross a threshold for disproportionate negative impact in an ecosystem, and this distinction is vital. The majority of nonnative species do not cross such a threshold, and for many, the sum of their impacts can be positive. This definition in no way precludes an invasive species' having some positive impacts, and indeed, it is unlikely that all impacts of any invasive species will be negative. However, to suggest that the few exceptions of positive impacts negate all negative impacts is disingenuous. Even pest rats are now recognized as engaging in mutualisms with native species (Pattimore and Wilcove 2012); however, this in no way validates their introduction or mitigates their negative impacts.

Humans are ultimately responsible for the introduction and subsequent impacts of all nonnative species, whether those impacts are positive or negative. Invasion biologists are interested in nonnative species not as an end unto themselves but because such nonnative species are the pathway to invasion. Our ethical duty to nonnative species, and to the invasive species that arise from them, therefore differs from our duty to native species. Because of this, the distinction

between *native* and *nonnative* remains as valid as ever. We must be pragmatic in our conservation decisions with limited resources, but we must not dress such pragmatism up as idealism and thus embrace invasive species in our native ecosystems.

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doi:10.1525/bio.2012.62.3.20

Response from Davis

I agree with James Russell about the importance of reporting the full story when it comes to nonnative species. But for 30 years, it has been primarily invasion biologists, not their critics, who have been telling just half the story. Only recently has a more balanced perspective begun to emerge, a perspective the public needs to hear, since it is usually the public's resources that are used to manage these species.

Russell's argument seems to be based on the assumption that honeysuckle is causing more harm than good. Many of the original claims of havoc being wreaked by nonnative plants in eastern North American forests have not been substantiated, and it is increasingly

being recognized by researchers that introduced woodland plants, including honeysuckle, are often more the products than the agents of change in these forests (Rogers et al. 2008, Nuzzo et al. 2010). Am I claiming that honeysuckle does not negatively affect any species? Of course not. Focused and persistent research will always be able to document some adverse effects of any species, native or nonnative, on at least some other species. However, even if negative effects on other species are documented, ecologists should not feel empowered to declare a species to be *invasive (harmful)*. Declaring harm is a value-based social decision, one that needs to be made through collaboration with the larger citizenry. This is not a scientific decision, even if scientists are making it.

Russell states that the distinction between *native* and *nonnative* remains valid because "our ethical duty to nonnative species... differs from our duty to native species." Says who? Since its inception in the early 1980s, invasion biology has been rooted in a starkly value-based distinction between native and nonnative species. Russell's claim of an ethical imperative when it comes to native and nonnative species is an example of this and is more evidence that conservation needs to move away from this normative approach to managing species.

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doi:10.1525/bio.2012.62.3.21