

# FROM READERS



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**No Two Sides to This Story**

I was pleased to see the cover story of the April-June issue devoted to the important issue of invasive species, but disappointed in the overall depth of coverage and dismayed by the factual inaccuracies in Sagoff's assessment. In asserting that the harmfulness of nonnative species depends on one's perspective, Sagoff claims that "even for the most villainous suspects, there are two sides to the story." He chooses to illustrate this point by using the example of dreissenid mussels in the Great Lakes and makes several mischaracterizations in the process. First (for the sake of accuracy), the zebra mussel has been joined or replaced in many areas of the Great Lakes by its congener, the quagga mussel, and the two are now better described as dreissenid mussels. Second (and far more important), these dreissenids have not, as Sagoff suggests, "cleaned up" the

lakes by filtering out particulates, nor have they "saved aquatic ecosystems from eutrophication." The dreissenid invasion has not reduced nutrient levels but rather redistributed them to the benthic environment. (1) More light and nutrient-rich pseudofeces from



the mussels have helped some native organisms gain ground, including the benthic alga *Cladophora*. However, this alga has now reached nuisance biomass levels not seen in the Great Lakes since before the Clean Water Act, and it washes up on shorelines in decaying mats that foul beaches and support fecal indicator bacteria. (2) Furthermore,

food web changes directly resulting from dreissenid mussels and the round goby (a more recent invasive fish) are implicated in annual type E botulism events that have killed thousands of fish and waterfowl in the lower Great Lakes since 1999. (3) Such phenomena hardly characterize ecosystem recovery. Regardless of how we regard and refer to invasive species, we are obliged to understand and accurately represent the science surrounding them. Recasting these mussels as environmental saviors in the Great Lakes, as Sagoff attempted, was inaccurate and careless. ❧

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**Overlooked Damages**

In his essay, Mark Sagoff (April-June issue) displays a disconcertingly limited—and U.S.-centric—breadth of knowledge on invasive species. His philosophical arguments are engaging but extraneous in the absence of biological facts. Land mammals were absent from many oceanic islands in the world prior to human arrival. The nonnative mammals introduced have

no native equivalent. They are clearly out of place and “unnatural” on these islands. Some of these land mammals have caused many extinctions. These extinct species would most certainly consider themselves “harmed.” In arguing that invasive species also provide benefits to ecosystems, Sagoff overlooks that these benefits are conditional on tolerating the associated damages. It is indeed exactly when a nonnative species has greater impact than benefit that it might be considered invasive. Invasion ecologists do not advocate banning all species—only those with bad records, as any government would do in the screening of potential immigrants. It is important to listen to people like Mark Sagoff. They remind us there is still much educating to be done about invasive species. ☛

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**Unnecessary Uncertainty**

In the article “Aliens Among Us” (April-June 2007 issue), you posed the questions: Do biological invasions decrease biodiversity? and Are nonnative species harmful? The responses (from James Brown and Dov Sax to the former and Mark Sagoff to the latter) suggest from either a profound lack of knowledge about invasive species research or a desire to promote a great sense of uncertainty. The responses leave the reader with an oddly slanted view. The arguments reminded me of the arguments over uncertainty about climate change. There are cases where both invasive species and climate change may have little or uncertain impact on biological systems, but it is ill-conceived to suggest that this uncertainty is so great that we don’t need to act. Articles such as these provide great fodder for



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politicians who would rather conduct business as usual than change our activities to conserve natural resources. Brown and Sax call for more rigorous scientific evidence to prove that alien species decrease local biodiversity and damage ecosystems. Their view is that biodiversity is a matter of species richness and that more species mean more biodiversity. However, biodiversity is more than a list of species, and Brown and Sax ignore the impacts of invasive species on the composition, structure, and ecological processes, and functions of species and ecosystems. Sagoff states that “if you try to prove that invasive species harm natural environments, you’ll find yourself in a scientific maze of dead ends and circular logic.” The study of biological invasions is full of examples that identify the impacts of invasive species on ecological systems. These are not value judgments, as Sagoff suggests, but observable changes that decrease biodiversity.

MARC HOSHOVSKY

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**The Outdoors is Too Expensive**

Add to your list of variables to explain the decline in visits to U.S. national parks (Is There Anybody Out There?, April-June issue) a more direct and insidious one: ongoing and increasing public land access fees and penalties for noncompliance. Enacted in 2004, the U.S. Federal Lands Recreation Act continues the federal government’s controversial 9-year-old practice of charging



fees to visit thousands of high-impact areas on federal lands and allows the U.S. Forest Service to keep charging for the next ten years. For example, here in Southern California, if you “use” any of four national forests without buying an Adventure Pass, expect to pay US\$100 for the first offense and up to US\$5,000 and/or six months in jail for further violations, along with misdemeanor charges. If indeed “this land was made for you and me,” I do not find a possible jail sentence for using it a very welcoming message. Public, natural spaces were set aside for all to enjoy and support, not just for those who can afford to pay or as a means to an alternate government revenue stream. If this practice continues, don’t be surprised if one day we find thousands of forest areas closed to the public because they weren’t “profitable enough.”

KEN HALE

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