

Invasive Species and the Conservation Community

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What Environmentalists Haven't Done

Before proceeding, we need to make one thing clear, we aren't faulting environmentalists for their insufficient engagement with invasive species. We and our fellow members of the Environmental Working Group on Invasive Species work in or are closely involved with the conservation community, and we know it wouldn't be fair to judge them too harshly for their shortcomings regarding invasives. For one thing, the conservation community is increasing their involvement with the issue, and we hope that our working group will accelerate and focus that involvement. We discuss these matters below. For another thing, significant obstacles stand between the conservation community and vigorous involvement, which is another subject we examine in this paper. We conclude by discussing some measures environmentalists may support as they rise to meet the challenge of invasive species.

Let's begin by thinking about lather leaf (*Colubrina asiatica*) in Everglades National Park. An invasive, vine-like shrub from tropical Asia, lather leaf is spreading rapidly through the park's coastal hammocks and mangrove swamps (D.T. Jones personal communication: 1997). This climbing invader shrouds and kills buttonwood, mangroves and other native vegetation (Doren et al. 1997).

Lather leaf constitutes a significant threat to an area of exceptional biological value; Everglades National Park is the only place in the Western Hemisphere to be named an International Biosphere Reserve, a World Heritage Site and a wetland of international importance. Yet, due to budget constraints, little

is being done to combat lather leaf, although very recently a fair amount of money was procured for that process. (We should note that the National Park Service, as well as assorted other federal, state and local agencies, has committed considerable resources to battling invasives around the nation. Unfortunately, considerable isn't enough.) A lack of funding likewise prevented park managers from eradicating lather leaf when it first appeared, when a paltry \$20,000 or so would have done the job (D.M. DeVries personal communication: 1997).

One would expect the conservation community to be in a lather over lather leaf. The health of the park is prominent on the agendas of numerous environmental groups, who are striving to improve its water pollution and water supply problems. Imagine the protests from conservationists if a corporation attempted to drill oil wells along the park's coast, yet lather leaf and its ilk pose a greater long-term danger than would oil wells. The conservation community has given some attention to melaleuca (*Melaleuca quinquenervia*), Australian pine (*Casuarina spp.*) and Brazilian pepper (*Schinus terebinthifolius*), the high-profile Everglades exotics, but even in these cases the amount of attention falls short of what the situation warrants.

The modest engagement by the conservation community regarding invaders of natural areas is not confined to Everglades National Park. Only a few environmentalists have expressed concern about efforts to bring raw logs from Siberia into the western United States, which might introduce the voracious Asian gypsy moth (*Lymantria dispar*) and other invasive insects and pathogens that could devastate vast expanses of western forests (Office of Technology Assessment 1993). Few conservation groups have pressed for the control of Chinese tallow (*Sapium sebiferum*), though this insidiously pretty tree is overrunning coastal prairies throughout the South (The Nature Conservancy 1996), including habitat vital to endangered species icons, such as the whooping crane (*Grus americana*). Nor have many environmentalists called for the control of the balsam wooly adelgid (*Adelges piceae*), an insect that has killed nearly every adult Fraser fir tree (*Abies fraseri*) in Great Smoky Mountains National Park (The Nature Conservancy 1996) the salt cedar (*Tamarix spp.*), a Eurasian tree that crowds riparian areas and monopolizes precious water throughout the desert Southwest (Office of Technology Assessment 1993); or the green crab (*Carcinus maenas*), which is disrupting native marine communities in many bays along the West Coast (The Nature Conservancy 1996).

As these examples suggest, a host of invasive exotic species plague natural areas all over the United States, yet in few cases is the conservation community deeply engaged. Many of these same species cause economic and social harm to farms, range lands, waterways, and urban areas, as well. These common problems present fertile opportunities to create productive partner-

ships. Conservationists have begun forming these crucial alliances with other people whose interests suffer from invasive species, but in this regard, too, they also have much work yet to do. Neither has the conservation community done enough to address the invasion at a broad, policy level, dealing with such areas as global trade and federal legislation.

What Environmentalists Have Done

Though the conservation community has not given invasive species the attention they merit, it has spent some time and resources on the issue. A number of small local and state organizations have devoted much of their modest capacities to the matter. For example, various native plant societies convey information regarding invasives to their members and to the press, encourage government and businesses to address the problem, and organize local removal and restoration efforts. People in several states formed exotic pest plant councils (EPPCs), which typically consist of individual scientists, land managers and conservationists who are concerned about alien plants. These EPPCs provide a clearinghouse for information regarding invasives and bring the issue to the attention of their organizations, policymakers and the media.

At the national level, a number of conservation organizations at least have the invasion on their radar screens. The most involved is the Nature Conservancy (TNC), one of the nation's largest conservation groups. TNC is unusual among such organizations in that it owns and manages large amounts of land. In fact, there are about 1,300 TNC preserves in the U.S. alone. TNC's interest in exotics has focused mainly on combating invasives in its preserves, and it has poured significant resources into on-the-ground remedies. TNC also has collaborated with private landowners, government agencies, the business community, and others in broad efforts, such as removing Brazilian pepper and planting native species in some of the Florida Keys and eradicating blue tilapia (*Oreochromis aureus*) and restoring endangered Moapa dace (*Moapa coriacea*) in Nevada (Devine 1999).

Why has TNC paid so much attention to exotics? A visit to Garden Creek Ranch Preserve, which TNC partly owns and manages, provides the basic answer. This holding on the Idaho side of the Snake River is typical of TNC preserves; it's a place of high biodiversity and little development. However, yellow starthistle (*Centaurea solstitialis*) infests at least 2,000 acres (809 ha) in the preserve and Russian knapweed (*Centaurea repens*), common crupina (*Crupina vulgaris*), Canada thistle (*Cirsium arvense*), and numerous other weeds have established beachheads and are expanding (Devine 1998). Invaders are hard to ignore when every day you see the harm they cause. Given that

many TNC lands have been invaded, the group had little choice but to deal with invasives. However, sources within TNC state that their organization realizes it must do more and is gearing up its anti-invasive efforts to better meet the scale of the problem (J.M. Randall personal communication: 2000).

The National Audubon Society owns and manages some preserves and, like TNC, has been battling invasives on its properties, but the other major national conservation groups don't own land and haven't been similarly compelled to confront invasive species. However, some of these large, landless organizations, such as Defenders of Wildlife, blend a consideration of invasive species into its other programs. For instance, in its biodiversity strategy for Oregon, Defenders highlights problems with invasive species in each ecoregion. Defenders' work on a major river basin restoration project has made invasives one of the ten main emphases of the initiative. And Defenders staffers serving on local and regional entities, such as watershed boards and parks commissions, have helped convince them to focus significant resources on exotics that threaten natural areas.

Many other examples exist. Conservationists have referred to invasives in lawsuits seeking endangered species status for sage grouse (M. Salvo personal communication: 1999) and in concerns about global trade. They've testified at Congressional hearings on biological control. Environmentalists have published booklets, magazine articles, and technical manuals regarding invasives. Nonetheless, given the magnitude of the alien invasion, the efforts of the conservation community have been insufficient and scattered.

Reasons Environmentalists Haven't Done More

One reason can be appreciated by anyone working in wildlife management; conservationists lack the resources to mount anti-invasive species campaigns painlessly. Most major environmental organizations have officers and staffers who would like to devote more time to invasive exotics, but these individuals already are working on water pollution, forests, wetlands, global climate change, and myriad other vital issues. They are reluctant to neglect any of their current responsibilities and they're reluctant to pile on more hours to their already overloaded work weeks in order to tackle invasives. In the end, conservation groups probably will have to shift some resources from other programs to invasive species, but we hope that significant additional funding can be found to help support invasive species work. In addition, the need to find new money can be minimized by blending awareness of invasive species into existing programs.

Just as the invasion is a relatively new issue for environmental groups, so is

it relatively new to policy makers and the public. Even the scientific community, although it has known of invasives for many years, didn't extensively study the problems associated with invaders of natural areas until fairly recently. This short track record can hinder engagement. For example, some conservationists have expressed an interest in preventing the entry into the U.S. of new problem species, but as of yet no one has developed a simple method to accurately predict which species will become invasive. Without such a method, preventing the entry of new invasives is more complicated and diffused, which makes it difficult for the conservation community to rally its troops behind a prevention effort.

In addition, the public's lack of familiarity regarding exotics puts conservation organizations in something of a Catch-22—their members know little about invasives, so it is hard for the organizations to make exotics a high priority. But until they make exotics a high priority, their members aren't likely to know or care much about invasives.

Even when conservation organizations elect to take the initiative in educating their members, which many have begun doing, the nature of the invasive species problem complicates the learning process. It is easy to communicate the harm caused by a clearcut or an oil spill. A single dramatic photograph can stir concern, even action. People don't have quite the same response to a photo of a wetland lush with the lovely blossoms of purple loosestrife (*Lythrum salicaria*).

It is harder still to convince people that the health of the land dictates the control of mountain goats (*Oreamnos americanus*) in Olympic National Park or wild horses (*Equus caballus*) in the Great Basin. Even when the animals can be removed without killing them, many members of conservation groups and the public voice concern. When the elimination of invasive animals does involve killing them, that concern sometimes erupts into fierce protest.

The Nature Conservancy knows all too well how passionate such protests can become. Faced with the ravaging of some of their Hawaiian preserves by pigs, TNC reluctantly decided that, in 1989, in places where other methods wouldn't work, it would be necessary to snare and kill some of the pigs. Some animal rights groups objected to the snaring. People for the Ethical Treatment of Animals (PETA) was especially vehement. PETA picketed TNC headquarters, disrupted TNC meetings, sent inflammatory literature to TNC members and boycotted some of TNC's corporate sponsors, going so far as to chain themselves to the doors of Nature Company stores. TNC persevered and eventually both the pig population and PETA's protests diminished to background levels, but the Conservancy paid a high price in terms of bad publicity, personal misery and wasted staff time (Devine 1998).

Other conservation organizations also have experienced nasty confronta-

tions with animal rights groups, and the fear of stirring up vocal animal advocates sometimes inhibits the anti-invasives efforts of the conservation community. And it is more than a public relations problem. Many conservationists have legitimate concerns that invasive animals may endure unnecessary pain and death in the course of control programs. Taking such concerns into account can complicate matters, even when people acknowledge the greater good of keeping the ecosystem healthy.

As with the control of alien animals, the use of chemical pesticides to fight invasives creates dissension within the ranks of environmentalists. Reducing pesticide pollution has long been one of the defining tenets of the environmental movement and it's a tough sell to make an exception in the case of invasive species. And most environmentalists feel that it should be a tough sell, that the use of pesticides on invasive organisms should receive close scrutiny. Many conservationists may resign themselves to occasional pesticide use as a lesser evil than an unchecked invasion, but even they worry, with good reason, that pesticides may be applied too freely and not only as a last resort. They also worry that some land managers might use chemicals as a crutch, postponing the need to make basic changes in the way some lands are used.

Animal control and pesticide use are two examples of a fundamental dilemma that the conservation community must work through as it comes to grips with the alien invasion. Many environmentalists distrust active management. They've seen excessive logging done in the name of forest health, ecologically ruinous fire suppression carried out to protect trophy homes and timber supplies, and the control of native predators in order to protect livestock. Specifically in the realm of invasive species, environmentalists often have seen active management go awry. They remember such fiascos as the introduction of Indian mongooses (*Herpestes auro-punctatus*) on various islands in an ill-fated attempt to control rats; the planting of kudzu (*Pueraria lobata*) a.k.a. "the vine that ate the South"—to curtail erosion; and the importation of opossum shrimp (*Mysis relicta*) into the Flathead River-Lake system in Glacier National Park to boost game fish populations, which started a ripple effect that decimated the whole community (Devine 1998).

Yet many invasive species can't be controlled without some active management. The conservation community's default position of "leave it alone" works well when trying to protect wild lands from logging, mining, grazing, urban sprawl, oil exploration, ski development, and the like. But a hands-off approach often is not sufficient to repel invasive species. Certainly it would help if people quit importing invasive species and curtailed management practices that make land vulnerable to invasion, but such measures alone would not be sufficient to stave off harmful exotics. For one thing, non-native species already have invaded a great many natural areas and invasives seldom go away on their

own. But even many pristine wildernesses eventually will be invaded to some degree unless managers actively prevent invasion and carry out early detection and eradication programs. The conservation community sooner or later (and we hope sooner) will need to determine the appropriate role for active management of invasive species.

What Environmentalists Will Do in the Future

We don't know. But we do have some ideas and some hopes.

All three of us belong to the Environmental Working Group on Invasive Species (EWGIS), a new entity formed in November 1999, with a grant from the Turner Foundation. So far, we have members from American Lands Alliance, Defenders of Wildlife, Environmental Defense (formerly the Environmental Defense Fund), TNC, Sierra Club, Wilderness Society, and World Wildlife Fund, along with an executive director and an advisor from the Turner Endangered Species Fund. In addition, we'll be communicating with a wide network of scientists, land managers, industry representatives, private land owners, government officials, and conservationists whose groups aren't represented on EWGIS.

Our mission is to energize and focus the anti-invasion efforts of the conservation community in order to protect our nation's wild lands. We hope to perform some functions that have been largely neglected within the conservation community. For example, EWGIS will be a forum for multi-organization discussions on invasives and a clearinghouse for conservation-oriented information regarding non-native invaders. Perhaps most important, EWGIS can be the unifying force that brings environmental groups together to pursue anti-invasives initiatives. Concerted efforts by conservationists can exert a powerful influence on legislation, management plans, funding allocations, and the like. More generally, an informed and determined environmental community can fundamentally shape invasive species policy in the U.S. and, to some extent, in the world.

We also hope to help conservation organizations address invasive exotics in the context of their other programs. Many of our environmental problems and ineffective efforts to solve them exist because we look at things in isolation, not as dynamic ecosystems. We need to make sure that when people gather around a table to discuss a forest plan or a river corridor restoration or an endangered species study, they also consider invasives.

So much for sweeping, even grandiose, intentions. Though EWGIS is so new that we don't yet have our detailed goals nailed down, we can get a bit more specific about a few of the things we may urge an energized conservation

community to accomplish. Whether a particular conservation organization signs on to any initiative EWGIS may promote is, of course, the prerogative of that organization. Following are some possibilities, listed in no particular order:

- Convey the conservation community's views to the framers of the National Invasive Species Management Plan—a document mandated by President Clinton's 1999 executive order on invasive species.
- Strive for a robust and ambitious National Plan, and work to see that the plan gets implemented, not shelved.
- Strengthen existing legislation regarding invasive species, such as the Federal Noxious Weed Act, and make it more attuned to the needs of natural areas.
- Propose or support new legislation regarding invasives, especially those that affect natural areas.
- Urge government, business and non-profits to substantially increase their spending on invasives, particularly regarding natural areas.
- Support the development of a nationwide early detection and eradication program; no more lather leafs.
- Improve screening for invasives at U.S. borders, and greatly increase screening for invaders of natural areas, which currently get little attention.
- Structure trade agreements so that legitimate concerns about invasive species are not construed as illegal trade barriers.
- Improve management practices that facilitate the spread of invasive species, such as overgrazing and dam operations that create river conditions in which exotic fish thrive and natives languish.
- Promote the use of native plants or non-invasive exotics by government agencies, developers, property owners and homeowners.
- Form and support partnerships with property owners, industry and all levels of government.

Some of the most important partnerships will be between conservation organizations and wildlife and natural resource agencies. Agency scientists and managers could provide environmentalists with vital information about invasives and strategies for dealing with them. In turn, a committed environmental community could greatly boost the anti-invasives programs of government agencies.

Let's imagine that lather leaf hadn't appeared in Everglades National Park yet, that it doesn't show up until 2010. By then park managers would be able to enlist the aid of environmentalists, perhaps via a decade-old, well-oiled anti-invasives machine called EWGIS. The conservation community could press the Administration and Congress for the necessary funding and perhaps even supply a corps of informed and dedicated volunteers to assist with lather leaf removal. Better yet, assuming that, by 2010, the alien invasion is established as

a high priority among environmentalists and they've long been pressing government to address the problem, lather leaf wouldn't even have to be dealt with in such an ad hoc manner. The park service already would have the budget to eradicate lather leaf and any other serious pest that crops up. And maybe the vastly improved invasive species border patrol of 2010 would have prevented lather leaf from ever entering the U.S.

The conservation community and the nation's wildlife and natural resource agencies won't agree on every issue. No doubt there even will be times when environmentalists challenge agency practices. For example, once conservationists tune in to the invasion, they'll probably question agencies that stock exotic game fish in places where those invaders harm native fish. But in the large majority of cases, the conservation community and the agencies likely will be on the same side. Together we can protect a great deal of habitat and wildlife from invasive species.

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