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NEWS & ANALYSIS

The Paradox of U.S. Alien Species Law

by Marc L. Miller

Non-indigenous species (NIS) have increasingly come to be recognized in scientific and popular arenas as one of the most significant threats to biodiversity. That recognition has yet to extend to law and policy, which, in the United States, remain fractured and incomplete. This Article surveys the most significant of the many bits and pieces of U.S. federal law that relate to prevention and control of NIS, and argues that a more coherent and powerful legal framework is needed to address the NIS problem.

I. Introduction

U.S. law addressing NIS presents a paradox.

The best way to summarize U.S. NIS law is to say that there is very little statutory law, and for important dimensions of the NIS problem, including identifying new NIS invasions, tracking the impact of known harmful invasive species, and responding to emerging threats, there is none. Some federal laws have responded to threats from particular invasive species, or threats from particular pathways for alien species (such as ballast water as a source of aquatic NIS). But no federal law has ever responded directly to the general problem of prohibiting, preventing, screening, identifying, attacking, and understanding NIS.

The law of the various U.S. states is even easier to summarize: with a few interesting exceptions, including NIS legislation in Hawaii and Minnesota, most U.S. states at

best offer a weak echo of the general aspects of federal statutory law.

Oddly, the second best way to summarize U.S. NIS law is to say that there is a ton of it, and that no report has yet done it justice. Indeed, there is so much law, of so many kinds, that there is no way this Article can do it justice. A comprehensive summary would point to the many dozens of federal statutes that are relevant, or might be relevant, to NIS issues. It would point to the dozens of federal agencies and hundreds of state agencies that have responded to alien species issues under various kinds of legal authority, including general organic acts for the supervisory agency and annual appropriations bills.

High on the list of evidence supporting the view that invasive species have a broad presence in U.S. law would be two presidential Executive Orders, a quirky species of law, that have addressed NIS issues directly, first in a 1977 Executive Order issued by President Jimmy Carter, and then, in an Executive Order issued by President William J. Clinton on February 3, 1999.¹ Indeed, the first piece of evidence in support of the view that the United States has broad legal coverage of invasive species issues would be the creation of a National Invasive Species Council staffed by Cabinet-level officers and the promulgation, in January 2001, of a National Invasive Species Management Plan.

To complicate matters still further, to the extent that law reflects culture and popular understanding, there has been a dramatic increase in coverage of NIS issues in the popular press, and to some degree in scientific and legal materials. An increasing flood of news stories has focused on particular invaders and their economic, social, aesthetic, and ecological costs.

One way to resolve the paradox is to shift the terrain of the question from: “what laws apply to NIS?” to “what legal authority should exist to deal with harmful NIS, and what purposes would a new or different set of NIS laws serve?” In other words, the proper question is not whether a lawyer or policymaker might be able to find a basis in current legal authority to defend a specific action, but whether a biologist or policymaker would say that the law adequately guides and mandates appropriate government and private actions, and, more generally, that it responds to the costs and threats imposed by NIS.

From the perspective of coherent law and policy, it is relatively easy to identify the gaps in U.S. federal and state law.

The author is Associate Dean for Faculty and Scholarship and Professor of Law, Emory University School of Law. E-mail: mmiller@law.emory.edu. He would like to thank Greg Aplet, Anita Bernstein, Bill Buzbee, Nick Fabian, Peter McAvoy, Richard Orr, Keith Pitts, Sarah Reichard, Robert Schapiro, and Ron Wright, each of whom offered insights on earlier drafts, and Stephanie Allen, Terry Gordon, Jason Herman, and Wendy Phillips for research support. The author wishes to express his appreciation for the insights into invasive species policy and politics provided by the National Invasive Species Council Policy and Regulation Working Group, which he served as nonfederal co-chair. See INTERIM REPORT: POLICY AND REGULATION WORKING GROUP OF THE INVASIVE SPECIES ADVISORY COUNCIL (2000), available at <http://www.invasivespecies.gov/council/PR%20interim%20final2%20703.doc> (last visited June 10, 2003).

[Editors' Note: This Article is excerpted from HARMFUL INVASIVE SPECIES: LEGAL RESPONSES (Marc Miller & Robert Fabian eds., *Envtl. L. Inst.* 2004). The book, now available from the Environmental Law Institute, describes the law and policy regarding harmful non-indigenous species in six countries: Argentina, Germany, New Zealand, Poland, South Africa, and the United States. The book also addresses three international and cross-cutting dimensions of harmful non-indigenous species policy: quarantine systems, trade issues, and the special concerns raised by genetically modified organisms. For more information and to order, visit http://www.elistore.org/books_detail.asp?ID=10930]

1. Exec. Order No. 11987, 3 C.F.R. §116 (1977), ELR ADMIN. MAT. 45015; Exec. Order No. 13112, 64 Fed. Reg. 6183 (Feb. 8, 1999), ELR ADMIN. MAT. 45105.

It is harder to explain whether and how those gaps should be filled. If government agencies can respond to NIS problems under their current authority, and if increasing public awareness of threats from harmful NIS makes it more likely that agencies will try to deal with NIS issues, then why should anyone care about the absence of clearer, explicit legal authority on NIS issues?

Part II of this Article summarizes the increasing awareness of the importance and seriousness of NIS issues in the United States in popular, scientific, and legal literature. Part III describes current federal legal authority, focusing first on the limitations of the existing federal statutory law regarding NIS, and then on an unusual legal animal—the presidential Executive Orders—at the heart of modern U.S. legal history regarding NIS. Part IV considers the legal authority regarding NIS in the U.S. states, with a special emphasis on the law of Hawaii and Minnesota.

Part V addresses the need for new statutory provisions in U.S. federal and state law. The Article concludes that current U.S. statutory law leaves essential aspects of the NIS problem unaddressed. Moreover, as a social and political matter, NIS pose a sufficient threat to justify their separate recognition in positive law, including the structural, substantive, public, and funding issues that such legal identification would generate. At a minimum, as a matter of coherent law and policy, a single, organic NIS law should be articulated, and that model then used to assess gaps in actual current legal authority.

II. Alien Awareness in the United States

Any evaluation of the adequacy of current law must have some metric against which to test its success or failure. In other words, there must be some sense of a social problem or situation that calls for a governmental response. If the values against which the law is being tested are not stated explicitly, or are not clear and compelling, then any critique of current law must stand or fall based on materials or facts not presented with the legal analysis.

Moreover, any assessment of the adequacy of current law must also encompass or reflect some theory of law—what role law plays in society, what subjects are the legitimate and proper domain of regulation (in contrast to private discourse and markets), and how laws work, including both the likely efficacy and the likely costs of any proposed regulation, i.e., a theory of regulation.

The present analysis rests on the assumption that invasive alien species pose a major economic, ecological, and social threat that is not being dealt with adequately. This section provides an overview of the scope of the NIS problem in the United States, and the level of public and professional awareness of that problem. The legal analysis that follows assumes that the multidimensional case for responding to NIS has been more than adequately made elsewhere by ecologists and economists.

Though increasingly outdated, the best overview of the NIS problem in the United States remains the 1993 report *Harmful Non-Indigenous Species in the United States*.² The Office of Technology Assessment (OTA), a now-defunct re-

search arm of the U.S. Congress (eliminated in 1995),³ produced a 400-page report that for a decade has been the standard reference for the scope of the NIS problem in the United States.

The OTA scientists, after reviewing the literature, concluded that “[a]t least 4,500 species of foreign origin have established free-living populations” in the United States.⁴ The OTA summary of the estimated numbers of NIS in the United States appears in Table 1. Other scientists have estimated much higher numbers,⁵ and all assessments, including that by the OTA, emphasize the lack of knowledge in this area, and the likelihood that for many kinds of organisms, the counts are probably much higher.

The OTA notes the variety of harms from NIS, including economic, ecological, and aesthetic harms. The report captures the difficulty in adequately describing the scope of harm in the following summary paragraphs:

Approximately 15[%] of the NIS in the United States cause severe harm. High impact species—such as the zebra mussel, gypsy moth, or leafy spurge (*Euphorbia esula*) (a weed)—occur through the country. Almost every part of the United States confronts at least one heavily damaging NIS today. They affect many national interests: agriculture, industry, human health, and the protection of natural areas.

The number and impact of harmful NIS are chronically underestimated, especially for species that do not damage agriculture, industry, or human health. Harmful NIS cost millions to perhaps billions of dollars annually. From 1906 to 1991, just 79 NIS caused documented losses of \$97 billion in harmful effects, for example. A worst-case scenario for 15 potential high-impact NIS puts forth another \$134 billion in future economic losses. The figures represent only a part of the total documented and possible costs—that is, they do not include a large number of species known to be costly but for which little or no economic data were available, e.g., non-indigenous agricultural weeds. Nor do they account for intangible, nonmarket impacts.

Harmful NIS also have had profound environmental consequences, exacting a significant toll on U.S. ecosystems. These range from wholesale ecosystem changes and extinction of indigenous species (especially on islands) to more subtle ecological changes and increased biological sameness. . . .⁶

2. OFFICE OF TECHNOLOGY ASSESSMENT (OTA), HARMFUL NON-INDIGENOUS SPECIES IN THE UNITED STATES (1993), available at http://www.wws.princeton.edu/~ota/disk1/1993/9325_n.html (last visited Aug. 1, 2003) [hereinafter OTA REPORT].

3. See Wendy Wagner, *Congress, Science, and Environmental Policy*, 1999 U. ILL. L. REV. 181, 213 n.121; Colleen Krueger, *Congress' Own "Think Tank" Falls Victim to Cuts by GOP*, L.A. TIMES, Oct. 25, 1995, at A5.

4. OTA REPORT, *supra* note 2, at 3.

5. More recent reports have suggested that there are as many as 50,000 NIS in the United States. See David Pimental et al., *Environmental and Economic Costs Associated With Non-Indigenous Species in the United States*, Presentation at American Association for the Advancement of Science, Anaheim, Cal., January 1999, available at http://www.news.cornell.edu/releases/Jan99/species_costs.html (last visited Aug. 1, 2003).

6. The range of estimates of total NIS since the promulgation of the 1977 Executive Order by President Jimmy Carter has ranged across two orders of magnitude (1977 Executive Order—several hundred; 1993, OTA REPORT, *supra* note 2—5,000; 1999, Pimental et al., *supra* note 5,—50,000). The problems in assessing the total number of NIS, are in part definitional—including whether only harmful NIS are counted, and whether the range of established agricultural and other familiar species, e.g., dogs and cats, are counted. But the problems with accurate numbers also reflect a basic lack of knowledge. OTA REPORT, *supra* note 2, at 5.

It is easy to list harmful NIS that do not seem to be included in the cumulative economic and ecological assessments. For example at the turn of the last century, chestnut blight—a non-indigenous disease—appeared in the United States and decimated eastern forests by wiping out the American chestnut. The American chestnut was the most important hardwood species in eastern forests⁷ and constituted 25% of the trees and a substantial portion of the biomass in those forests. The blight is estimated to have killed as many as one billion trees.⁸ Any estimate of economic harm from chestnut blight is likely to be highly speculative, and it is not clear that this harm was included in the OTA estimates.

Table 1⁹

Table 1 [OTA Table 1-1] Estimated Numbers of Non-Indigenous Species in the United States ^a		
Species with origins outside of the United States		
Category	Number	Percentage of total species in the United States in category
Plants	>2,000	— ^b
Terrestrial vertebrates	142	=6%
Insects and arachnids	>2,000	=2%
Fish	70	=8% ^c
Mollusks (non-marine)	91	=4% ^b
Plant pathogens	239	—
Total	4,542	—
Species of U.S. origin introduced beyond their natural ranges		
Category	Number	Percentage of total species in the United States in category
Plants	— ^b	— ^b
Terrestrial vertebrates	51 ^b	=2% ^b
Insects and arachnids	— ^b	— ^b
Fish	57 ^b	=17% ^b
Mollusks (non-marine)	— ^b	— ^b
Plant pathogens	— ^b	— ^b

^a Numbers should be considered minimum estimates. Experts believe many more NIS are established in the country, but have not yet been detected.

^b Number or proportion unknown.

^c Percentage for fish is the calculated average percentage for several regions. Percentages for all other categories are calculated as the percent of the total U.S. flora or fauna in that category.

Other reports, popular and technical, have tried to capture the scope of harm from NIS in the United States, and have concluded that the impact is even greater than the OTA report suggests. A 1999 Congressional Research Service (CRS) report cited an unpublished study estimating NIS costs at \$123 billion annually.¹⁰ Another study concluded in

1998 that NIS are second only to habitat destruction as a cause of modern extinction.¹¹

Reports on the harm from NIS are equally dramatic when focused on specific areas and specific invaders. For example, among the best state-level evaluations of general NIS issues is a 1992 report by the Nature Conservancy of Hawaii and the Natural Resources Defense Council, Inc. (NRDC) titled *The Alien Species Invasion in Hawaii: Background Study and Recommendations for Interagency Planning*.¹² This report found significant financial impact on Hawaii's \$1 billion annual agriculture industry; ecosystem degradation, especially of watershed forests; financial harm to housing from an introduced termite; harm to rangeland; and threats to human health. The report also found that "[t]he primary cause of [ecosystem changes], and the greatest single threat to native species, is predation or competition by non-native weeds and animal pests."¹³

Breathtaking economic and ecological impacts leap from the pages of various reports that begin with a focus on one area or problem. An excellent 1999 report on NIS in the Great Lakes suggests the scope of alien species issues at regional scales:

Harmful exotic aquatic organisms (aquatic nuisance species) do economic damage in the range of several billion dollars per year, damage native fishery resources, and cause irreplaceable loss to the biodiversity of the planet. Some of the past invaders of the Great Lakes include the sea lamprey, purple loosestrife, the alewife, furunculosis, Eurasian watermilfoil, protozoan fish parasites, European ruffe, the Asiatic clam, and the zebra mussel. The threat includes organisms throughout the taxonomic scale, from fish and macroscopic plants to bacteria and viruses. The majority of current aquatic invaders of the Great Lakes enter through ballast water of transoceanic commercial shipping. Other major vectors of concern are commercial transportation of aquatic organisms across large ecological zones for use as aquaculture, bait, and aquarium or ornamental pond fish. Genetic modification of native species for use in aquaculture is also a matter of concern.¹⁴

Both technical and policy literatures reveal widespread agreement that the NIS problem in the United States is substantial on economic, ecological, and aesthetic dimensions. The problems are so substantial and so varied, both in cause and in impact, that they are difficult to frame in policy and research terms. In other words, descriptions of the harm from specific invasive species often show a concreteness and specificity that aggregate descriptions lack. But I

7. *Id.* at 66 (citing U.S. DEP'T OF AGRICULTURE, U.S. FOREST SERVICE, PEST RISK ASSESSMENT OF THE IMPORTATION OF LARCH FROM SIBERIA AND THE SOVIET FAR EAST, Miscellaneous Publication No. 1495 (1991)).

8. OTA REPORT, *supra* note 2, at 66.

9. *Id.* tbl. 1-1.

10. M. LYNNE CORN ET AL., CONGRESSIONAL RESEARCH SERVICE, HARMFUL NON-NATIVE SPECIES: ISSUES FOR CONGRESS (1999) [hereinafter CRS REPORT] (citing Pimental et al., *supra* note 5).

11. David Wilcove et al., *Quantifying Threats to Imperiled Species in the United States*, 48 BIOSCIENCE 607 (1998). The January 2001 federal National Invasive Species Management Plan synthesizes and quotes these prior reports but does not provide additional estimates or analysis of the scope of the NIS problem in the United States. NATIONAL INVASIVE SPECIES COUNCIL, NATIONAL INVASIVE SPECIES MANAGEMENT PLAN (2001), at <http://www.invasivespecies.gov/council/nmp.shtml> (last visited June 4, 2003).

12. THE NATURE CONSERVANCY OF HAWAII & SUSAN MILLER & ALAN HOLT, NRDC, THE ALIEN PEST SPECIES INVASION IN HAWAII: BACKGROUND STUDY AND RECOMMENDATIONS FOR INTERAGENCY PLANNING (1992).

13. *Id.* at 4.

14. ERIC REEVES, ANALYSIS OF LAWS AND POLICIES CONCERNING EXOTIC INVASIONS OF THE GREAT LAKES I (1999), *available*, along with other documents related to NIS issues in the Great Lakes, at http://www.michigan.gov/deq/0,1607,7-135-3313_3677_8314--,00.html (last visited June 3, 2003).

have found no serious (or for that matter, nonserious) statement suggesting that modern scientific concerns with NIS are overblown.

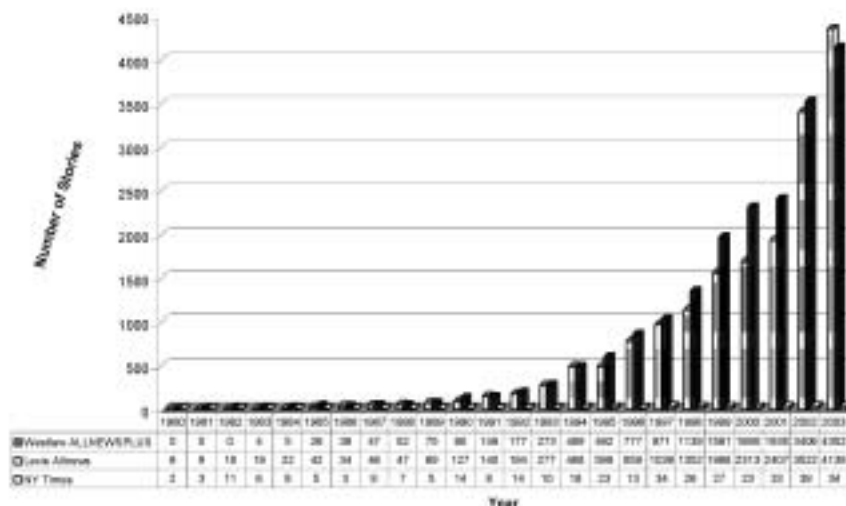
Despite this consistent view in the scientific and policy literature about NIS, general concern for NIS has only recently begun to attract much popular—or political—attention. Indeed, until recently, only a handful of NIS had received widespread recognition for the harm they caused. Even the OTA report recognizes that only a handful of economically significant species led to Congress’ request for this report. These species include the zebra mussel and Asian clam, the gypsy moth, and leafy spurge. The list might easily and fairly be expanded to include another dozen organisms. However, it would be fair to say that general NIS threats, as opposed to species or location-specific concerns, are much more an emerging phenomenon.¹⁵

But, as Bob Dylan noted some years back: “There’s a battle outside, and it is ragin’ . . . for the times, they are a-changin’.”¹⁶ Over the past several years, there has been a

dramatic increase in the number of news stories that address the potential harm from NIS. Increasingly, the popular media highlights invasive species beyond the handful that have achieved statutory responses and widespread recognition. For reasons that are not hard to understand, news stories tend to focus on invasive species with substantial economic impacts or other impacts on human enjoyment. For example, Africanized honeybees have received widespread coverage, as have concerns about the spread of fire ants. In both cases, the direct impact on peoples’ lives may help sell the stories.

News stories have been expanding, in number and scope, to include a wider range of invasive species with a wider range of impacts. Chart 1 illustrates the trend toward increasing coverage of NIS issues in the U.S. media.¹⁷ Illustrations of U.S. media coverage of invasive species issues can be found on the National Invasive Species Council website.¹⁸

Chart 1: NIS U.S. News Stories, 1980-2003



15. See, e.g., UNION OF CONCERNED SCIENTISTS, THE SCIENCE OF INVASIVE SPECIES (2001), available at <http://www.ucsusa.org/publication.cfm?publicationID=451> (last visited June 5, 2003); NATIONAL WILDLIFE REFUGE ASS’N, SILENT INVASION: A CALL TO ACTION (2002), available at <http://www.refugenet.org/new-pdf-files/Silent%20Invasion%20pdf.pdf> (last visited June 4, 2003).
16. Bob Dylan, *The Times They Are A-Changin’*, on THE TIMES THEY ARE A-CHANGING (1964). Bob Dylan surely did not have invasive species in mind when he penned these lyrics, but the lyrics make it seem like he did. A portion of the lyrics to that song follow, applicable then to social change and now to ecological change.

Come gather ‘round people
Wherever you roam
And admit that the waters
Around you have grown
And accept it that soon
You’ll be drenched to the bone.
If your time to you
Is worth savin’
Then you better start swimmin’
Or you’ll sink like a stone
For the times they are a-changin’ . . .
Come senators, congressmen
Please heed the call
Don’t stand in the doorway
Don’t block up the hall

For he that gets hurt
Will be he who has stalled
There’s a battle outside
And it is ragin’.
It’ll soon shake your windows
And rattle your walls
For the times they are a-changin’ . . .

17. There are some data problems with using the Lexis and Westlaw newspaper databases for general topic prevalence and incidence since the database has expanded somewhat over the years as new newspapers were added. The more recent information data is more accurate than the older data. Thus, the numbers before 1990 should be taken as only a loose indication of the prevalence of the terms. A rough calculation suggests that the database essentially doubled in size between the beginning of 1995 and the end of 1999. Since the frequency of references to alien species roughly quadrupled in the same period, the basic point still holds—that NIS have invaded popular media and that the scope of that media invasion is increasing. For a discussion and a more precise calculation of the change in the size of the Westlaw and Lexis news databases, see Ronald Wright, *The Abruptness of Action*, 36 CRIM. L. BULL. 401, 424-26 (2000).
18. Invasivespecies.gov, *Newsmedia on Invasive Species*, at <http://www.invasivespecies.gov/new/newsmedia.shtml> (last visited June 5, 2003) (chronological list, with links where available); Invasivespecies.gov, *Invasive Species News Sources*, at <http://www.invasivespecies.gov/new/isnews.shtml> (last visited June 5, 2003) (organized by topic).

The increase in popular attention to NIS issues is reflected in books and magazines as well. The best illustration of this trend may be the 1998 book *Alien Invasion: America's Battle With Non-Native Plants and Animals*.¹⁹ This volume, written by science writer Robert Devine, was published by the National Geographic Society, and appeared with an introduction by then-Secretary of the Interior Bruce Babbitt. Another current popular overview of NIS issues appears in the 1998 book *Life Out of Bounds: Bioinvasion in a Borderless World*.²⁰

The scientific literature addressing invasive species has been growing steadily, and one journal—the *Journal of Biological Invasions*²¹—is devoted to the topic. The legal literature devoted to invasive species is far more sparse, but even among legal scholars there seems to be some increasing attention to NIS issues.

NIS have a substantial presence in scientific discourse, a growing popular recognition, and a small but growing presence in legal literature. But to what extent are they part of our laws? The answer, oddly, is a lot, and a little.

III. U.S. Legal Authority

The most important point about U.S. NIS law is that there is very little, and yet, in another sense, there is a lot. There are a small number of U.S. federal laws that address specific NIS issues directly, but there are a huge number of U.S. federal laws that grant authority and funding to agencies that might be used to deal with NIS problems. Moreover, there are two dramatic presidential Executive Orders directly addressing NIS issues, the first issued by President Carter in 1977 and the second by President Clinton in February 1999. Finally, there are a host of regulations and practices in federal agencies and less formal working groups that also address NIS issues.

This paradox—the essential absence and, at the same time, the abundance of relevant legal authority—is the major puzzle that this Article tries to solve. To do so, I first present summaries of current law, and then suggest the limits of available law to serve as a foundation for a general legal framework to deal with harmful NIS. Finally, given the indirect and odd nature of much of the available legal authority, I point out what does not yet exist—what is missing from this seemingly rich legal bouillabaisse.

The first part of this section describes the federal legal authority that exists, summarizing explicit federal NIS statutory authority and then noting, in passing, the general authorizing legislation for relevant government agencies. It then describes general federal governmental powers under environmental legislation not designed primarily (and perhaps at all) with NIS in mind. The second and more detailed part of this section evaluates the two presidential Executive Orders. In a very direct way, these presidential Executive Orders test the combined powers of all available laws since they rely on those collective powers to direct federal agencies to act.

19. ROBERT DEVINE, *ALIEN INVASION: AMERICA'S BATTLE WITH NON-NATIVE PLANTS AND ANIMALS* (1998).

20. CHRISTOPHER BRIGHT, *LIFE OUT OF BOUNDS: BIOINVASION IN A BORDERLESS WORLD* (1998). A more technical though still accessible overview of alien species in Florida appears in DANIEL SIMBERLOFF ET AL., EDS., *STRANGERS IN PARADISE: IMPACT AND MANAGEMENT OF NON-INDIGENOUS SPECIES IN FLORIDA* (1997).

21. See World Conservation Union, *New Journal Biological Invasions*, at <http://www.issg.org/bioinvasions.html> (last visited July 3, 2003).

A. Federal Statutory Authority

The first question regarding current federal statutory authority is whether current law directly addresses the general issue of harmful NIS: it does not. A more interesting question with regard to current authority, however, is whether enough partial and indirect authority exists that, when read expansively, would allow current federal agencies to act appropriately to deal with harmful NIS.

No one has yet published a full accounting of U.S. legal authority that might be applicable to government responses to harmful NIS. The OTA report concluded that “[t]he current Federal effort is largely a patchwork of laws, regulations, policies, and programs. Many only peripherally address NIS, while others address the more narrowly drawn problems of the past, not the broader emerging issues.”²² An April 1999 CRS report titled *Harmful Non-Native Species: Issues for Congress*, concluded that “[f]ederal law concerning non-native species is scattered. No laws focus on the broad problems of non-native species, their interception, prevention, and control across a variety of industries and habitats.”²³ At another point, the CRS report summarized U.S. federal law this way:

[I]n the century or so of congressional responses to harmful, non-native species, the usual approach has been an ad hoc attack on the particular problem, from impure seed stocks, to brown tree snakes on Guam. A few attempts have been made to address specific pathways, e.g., contaminated ballast water, but no current law addresses the general concern over non-native species and the variety of paths by which they enter this country.²⁴

The CRS report did provide a list of relevant federal laws, but none of the discussions of any one law, even the most relevant, extended more than a few paragraphs. The OTA report made reference to a number of federal laws, but did not analyze any of those laws in detail. The OTA was primarily interested in what federal and state agencies were doing (under whatever authority) and what such agencies might do, rather than in specifying the precise limits on government power under current statutes and regulations. Indeed, some of the assertions about federal law in the OTA report seem open to challenge.

The reasons that a comprehensive survey of U.S. law on invasive species has not been done is partly practical, but more importantly the challenges are conceptual and functional. The practical challenge arises because of the immense number of minor legal provisions that might be used to justify policy responses to invasive species. Such provisions would include appropriations and spending bills for relevant agencies, and many pieces of legislation with no obvious link to invasive species, such as the organic acts (the initial, general authorization and authority) for the many relevant government agencies.²⁵ Thus, practically, a complete listing of all potentially relevant U.S. legal authority would be a dreary project, and it would produce a ponderous product.

22. OTA REPORT, *supra* note 2, at 11.

23. CRS REPORT, *supra* note 10, pt. IV.

24. *Id.* Introduction.

25. See, e.g., The National Park Service Organic Act, Act of Aug. 25, 1916, 39 Stat. 535, codified at 16 U.S.C. §§1-4.

More importantly, even an exhaustive survey of potentially relevant statutory authority would not produce a determinate answer to the abstract question “what legal authority might be used to support invasive species policies.” The full answer, if there is ever to be a full answer, would come in light of judicial, executive, or legislative challenges to particular policy initiatives. Moreover, a catalog of all potentially applicable legal authorities would not be especially revealing, since it would be unlikely to answer the most immediate and important questions about how either the federal or state governments are responding, or how they should respond, to harmful NIS.

Providing a comprehensive review of U.S. law might be necessary in defense of some government action that is alleged to be lawless (or less dramatically, beyond current authority). Indeed, it is fair to say that for most conceivable federal government actions with respect to NIS there would probably be a reasonable claim that authority exists, should such actions be challenged in court. But such a study of the plausible outer reaches of the law is not necessary or even useful to answer the question of what general legal authority is currently used in responding to harmful NIS, or whether additional legal authority (and responsibility) would be useful.

While it is useful to consider whether the current authority might be stretched to cover new policy initiatives, the very need to imagine creative readings and understandings of current authority highlights the most important point: most aspects of the harmful NIS problem are not clearly addressed in current law. Moreover, examining the minutiae of the mass of legal authority that might be brought to bear on the problem of harmful NIS could also obscure the important virtues—from the standpoint of efficiency, funding, coherent policy, and public understanding—of designing laws to address serious problems directly.

B. *Explicit Federal Statutory NIS Authority*

1. “Black List” and “Exclusion” Acts

“There is a compensation in the distribution of plants, birds, and animals by the God of nature. Man’s attempt to change and interfere often leads to serious results.”

Rep. John Lacey (R-Ind.)
33 Cong. Rec. 4871 (1900)

The recognition that NIS might cause harm has been evident in U.S. federal law at least since the Lacey Act, first enacted in 1900 and substantially revised in recent years.²⁶ It was originally enacted for a range of purposes anchored to the idea of protecting native wildlife, especially birds that were being commercially harvested for their feathers. A particular place of concern was the Everglades. The sponsors were not only aware of the lack of controls on commerce in wild species among the states, as well as between nations, but they also recognized that alien species could harm native species and ecosystems (though, of course, Representative Lacey and his colleagues did not use the term “ecosystems”). Harms from sparrows and starlings that had been introduced in the latter half of the 19th century were noted in the legislative history.²⁷

The Lacey Act currently provides the federal government with authority to ban the import, export, or transportation of “any fish or wildlife” or “any plant” that is made illegal by “any law, treaty[,] or regulation” of the United States or of any individual state.²⁸ The Act provides for both civil penalties of a modest nature, e.g., knowingly or negligently violating the Act may result in a penalty of “not more than \$10,000 for each such violation,”²⁹ and criminal penalties, up to five years in prison and a \$20,000 fine for each violation.³⁰

The Lacey Act seems to provide broad authority to the government to ban harmful NIS. There are other aspects of the Lacey Act that also have this sweeping character. For example, the Act provides enforcement authority to the Secretary of the Interior, the Secretary of Transportation, and the Secretary of the Treasury.³¹ The Act also explicitly leaves U.S. states free to make or enforce laws “not inconsistent” with the federal provisions.³²

The problem with relying on the Lacey Act’s general authority to ban animal and plant species is that these powers only apply to animals and plants that are made illegal under federal or state law. The key provision of the Lacey Act that establishes the authority to specify which organisms should be excluded is substantially more restrictive than the general enforcement powers, which relate to organisms identified not only under the Lacey Act, but also under other federal and state laws. Title 18, §42 provides the following:

The importation into the United States . . . or any shipment between the continental United States [and Hawaii, Puerto Rico, U.S. territories or possessions] of the mongoose of the species *Herpestes auropunctatus*; of the species of so-called flying foxes or fruit bats of the genus *Pteropus*; of the zebra mussel of the species *Dreissena polymorpha* and such other species of wild mammals, wild birds, fish (including mollusks and crustacea), amphibians, reptiles, brown tree snakes, or the offspring of eggs of any of the foregoing which the Secretary of the Interior may prescribe by regulation to be injurious to human beings, to the interests of agriculture, forestry, or

Although its coverage extended to animals, the Lacey Act was essentially a bird preservation and restoration measure designed to enhance and protect agriculture. Its language reflected Rep. Lacey’s personal passion for the preservation of agriculturally beneficial birds and the eradication of harmful exotic species Lacey listed the primary threats to bird populations as excessive hunting of game birds by market hunters, the introduction of harmful exotic species that displaced native populations, and the millinery industry, which at that time consumed millions of birds each year for the production of ladies’ hats.

See also Davina Kari Kaile, *Evolution of Wildlife Legislation in the United States: An Analysis of the Legal Efforts to Protect Endangered Species and the Prospects for the Future*, 5 GEO. INT’L ENVTL. L. REV. 441, 446-48 (1993); STUART MCIVER, TRUE TALES OF THE EVERGLADES 5 (1989) (attributing passage of the Lacey Act to harvesting of birds from the Everglades).

28. 16 U.S.C. §3372.

29. *Id.* §3373(a)-(c).

30. *Id.* §3373(d).

31. *Id.* §3375(a).

32. *Id.* §3378(a). The nonpreemption of state law would have been clear enough from the general provisions of the Lacey Act since federal agencies are given enforcement power—the power to ban species—made illegal under the law of any state.

26. Lacey Act, as amended, 16 U.S.C. §§3371-3379; 18 U.S.C. §42.

27. See Robert Anderson, *The Lacey Act: America’s Premier Weapon in the Fight Against Unlawful Wildlife Trafficking*, 16 PUB. LAND L. REV. 27, 36-53 (1995) (discussing history of Lacey Act):

to wildlife or the wildlife resources of the United States, is hereby prohibited.³³

There are three major limitations that prevent the Lacey Act from being or becoming a general harmful NIS law.³⁴ First, while the Lacey Act provides the Secretary of the Interior the power to exclude several species of particular concern, as demonstrated above, as well as some other animals, it does not provide for the exclusion of plants, seeds, or plant pests.³⁵ This gap in the Lacey Act is partially closed by a host of federal statutes that, together, provide federal officials with power to exclude many kinds of harmful plant pests, seeds, and noxious weeds. These acts are the Plant Pest Act,³⁶ the Plant Quarantine Act,³⁷ the Federal Noxious Weed Act of 1974,³⁸ and the Federal Seed Act.³⁹ In May 2000, Congress passed the Plant Protection Act, which consolidated and revised the Plant Quarantine Act, the Plant Pest Act, the Federal Noxious Weed Act, aspects of the Department of Agriculture Organic Act, and several less prominent acts.⁴⁰

Second, the Lacey Act focuses on identifying harmful species with the purpose of limiting their importation. But introduction of new NIS, or harmful NIS, is only one aspect of the NIS problem. Many NIS have already been introduced, many have already caused great harm, and even the most stringent barriers to introduction of known harmful NIS will not keep some harmful NIS, known and unknown, from entering the country. A complete law regarding harmful NIS would address not only the identification of potentially harmful NIS, but also the review of proposed introductions not known to be harmful, and the proper response to harmful NIS already in place. In addition, a comprehensive legal response to NIS would address various education and research efforts to address the cultural and scientific aspects that contribute to expanding or limiting the NIS problem.

The third major problem with the Lacey Act as the foundation for a complete strategy to deal with harmful NIS is that it authorizes the creation of a list of forbidden animals—a “black list” or “exclusion list”—but it does not authorize the exclusion of animals whose threat is unknown.

Laws that are passed for a particular purpose or based on a specific understanding often change over time in light of shifts in knowledge or culture, yet they may still grant sufficient legal authority for government to respond to the newer demands and conceptions. Could the Secretary of the Inte-

rior simply declare that all species of animals and plants not previously approved are disapproved, and thus convert the “black” list to a “white” list?

Probably not. Both the text of 18 U.S.C. §42 and the history of the Lacey Act suggest that Congress requires the Secretary of the Interior to make a particular finding that a particular species is “injurious to human beings, to the interests of agriculture, forestry, or to wildlife or the wildlife resources of the United States.”⁴¹ The Secretary of the Interior has issued regulations that appear to limit the importation of any live wildlife or eggs under the Lacey Act, but this broad assertion of authority has not been tested.⁴² Even if a court were to uphold this broad reading of the Lacey Act, the limitations of the Act as a general foundation for harmful NIS law would remain.

The May 2000 Plant Protection Act shows clear signs of Congress’ increasing awareness of the importance of NIS issues and the need for more coherent legislative responses. The Plant Protection Act provides a unitary framework for dealing with plant pests and noxious weeds. While the statement of findings recognizes that plant pests and noxious weeds threaten “the agriculture, environment, and economy of the United States,”⁴³ and noxious weeds are defined to include “any plant or plant product that can directly injure or cause damage to . . . the natural resources of the United States . . . or the environment,”⁴⁴ it is nevertheless apparent that the principal focus of the Act is to protect against agricultural and other economic harms, since the environment is not a prominent concern in the remainder of the Act.⁴⁵

33. 18 U.S.C. §42.

34. An additional minor concern is that the listing powers may not include general ecological concerns, such as protection of ecosystem services, ecosystem function, or appearance. However, the list of concerns that are relevant to exclusion is sufficiently broad that the Secretary of Agriculture can probably find a listed reason to exclude a particular animal species of concern.

35. The original Lacey Act did not include fish, a gap that was filled by the Black Bass Act of 1926, 16 U.S.C. §§851-856, repealed Pub. L. No. 97-79, 91 Stat. 1079 (1981), and later amendments to both the Lacey and Black Bass acts, including a substantial set of amendments in 1969. See Anderson, *supra* note 27, at 44-48 (amendments expanded coverage of Lacey Act to include amphibians, reptiles, mollusks, and crustaceans).

36. 7 U.S.C. §§150aa-150jj.

37. Plant Quarantine Act of 1912, 7 U.S.C. §§151-157.

38. 7 U.S.C. §§2801-2814.

39. Federal Seed Act, 7 U.S.C. §§1551-1611.

40. See Pub. L. No. 106-224, 114 Stat. 358 (June 20, 2000), codified at 7 U.S.C. §§7701-7772.

41. One possible reading of the Lacey Act is that it leaves a technical gap in that there may be no authority for the federal government to limit introduction of species that threaten only wild lands. However, it is difficult to imagine a species that would impact wild lands but not wildlife or “wildlife resources.” There does not appear to be any instance of the federal government failing to list a species because it believed it lacked the authority to do so.

42.

Any importation or transportation of live wildlife or eggs thereof, or dead fish or eggs or salmonids of the fish family Salmonidae into the United States or its territories or possessions is deemed to be injurious or potentially injurious to the health and welfare of human beings, to the interest of forestry, agriculture, and horticulture, and to the welfare and survival of the wildlife or wildlife resources of the United States; and any such importation into or the transportation of live wildlife or eggs thereof between the continental United States, the District of Columbia, Hawaii, the Commonwealth of Puerto Rico, or any territory or possession of the United States by any means whatsoever, is prohibited except for certain purposes and under certain conditions as hereinafter provided

50 C.F.R. §16.3.

43. Pub. L. No. 106-224, §402(1), codified at 7 U.S.C. §7701.

44. *Id.* §403(10), codified at 7 U.S.C. §7702.

45. The agricultural and commercial focus of the Plant Protection Act is readily apparent from the comments of its sponsors. Speaking about the final version of the bill after consideration in conference, Rep. Charles Canady (R-Fla.) explained that the Plant Protection Act

is designed to address a very real problem facing American agriculture. The United States loses thousands of acres and billions of dollars in farm production each year due to invasive species. Exacerbating this serious problem are the outdated and fragmented quarantine statutes that govern interdiction of prohibited plants and plant pests. Our agricultural sector needs a modern, effective statutory authority that will protect our crops from these destructive invasive species.

[I]t was for this reason that I introduced the Plant Protection Act. This legislation, crafted in consultation with the

The 2000 Plant Protection Act suggests the importance of mere reorganization and simplification of laws that relate to harmful invasive species. However, the Plant Protection Act does not merely reorganize existing law. It expands the regulatory and enforcement powers over plant pests and noxious weeds, including new civil penalty structures.⁴⁶ The Act also encourages a steady use of science,⁴⁷ the wide involvement of experts and stakeholders in policymaking, consideration of “systems approaches,” the development of integrated management plans on the basis of geographic and ecological regions, and the authorization of new types of classification systems. While some of these systematic concepts were evident in prior law, the new act joins them to regulatory and enforcement mechanisms and thus offers the hope for more effective, efficient, and informed federal plant pest and noxious weed policies.

Several provisions, however, plant their own substantial seeds for mischief. For example, the Act encourages the use of biological pest controls, finding that “biological control is often a desirable, low-risk means of ridding crops and other plants of plant pests and noxious weeds.”⁴⁸ Biological controls are themselves invasive species—additional biological pollution.⁴⁹ Congress does not seem to have considered this fact, or the very mixed record of biological controls over the past century.⁵⁰

Congress chose to create a strong federal preemption of state efforts to regulate plant pests and noxious weeds.⁵¹ States and political subdivisions are forbidden to regulate

“any article, means of conveyance, plant, biological control organism, plant pest, noxious weed, or plant product” in an effort to control, eradicate, or prevent the introduction of plant pests, noxious weeds, or biological control organisms.⁵² States and local subdivisions are also barred from regulating the interstate commerce of these kinds of organisms when there are already federal regulations regarding these organisms.⁵³

Given the varied needs of different states, most notably those with highly unique and susceptible ecosystems, such as Hawaii, these are extraordinary and unwise preemption provisions that go far beyond prior law. Whether or not these preemption provisions prove to be harmful will depend on how courts and agencies interpret the provision that allows regulation of interstate commerce when regulations “are consistent with” federal regulations, and how sympathetic and wise the Secretary of Commerce will be in response to state requests for waivers based on “special need.”⁵⁴

Some federal laws promote harmful NIS, and make it difficult or impossible for federal or state authorities to deal with important aspects of the harmful NIS problem. One example is the Wild Free-Roaming Horses and Burros Act, which protects some feral horses and burros from elimination or control.⁵⁵ A less clear but perhaps more important example is the sum of trade laws and international agreements that may place limits on the kinds of inspections and regulations the United States and its states can create for detection of harmful NIS.

What other federal laws might be used to fill in the requirements for a general law that responds to harmful NIS?⁵⁶

C. National Invasive Species Act: Big Name, Narrow Scope

If awards were given for act titles, then anyone concerned with the threat from harmful NIS would give the grand prize to two federal statutes: the National Invasive Species Act (NISA) of 1996⁵⁷ and the Alien Species Prevention and Enforcement Act of 1992.⁵⁸

NISA reauthorized a 1990 federal statute with a less encompassing but more accurate title: the Non-Indigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990.⁵⁹ The NANPCA focused on one place (the Great Lakes), on one pathway (ballast water), and was driven by concerns about one NIS (zebra mussel). It was a statute designed to organize state and federal forces against the zebra

USDA, will help to prevent the introduction and dissemination of invasive plants and pests by giving the Animal and Plant Health Inspection Service greatly enhanced investigatory and enforcement tools. The Plant Protection Act will streamline and consolidate existing statutes into one comprehensive law and eliminate outdated and ambiguous provisions. It will also boost deterrents against trafficking of prohibited species by increasing monetary penalties for smuggling, and it will provide USDA with a comprehensive set of investigatory tools and ensure transparency for our trading partners.

Conference Report on H.R. 2559, 146 CONG. REC. H3816-01, 3820 (May 25, 2000).

46. In setting ranges for civil penalties, Congress included several unusual factors, including “ability to pay” and the “effect on ability to continue to do business.” See 7 U.S.C. §7734(b).
47. The references to the use of science have a dual-edged quality. For example, §412(b) provides that “[t]he Secretary [of Agriculture] shall ensure that the processes used in developing regulations . . . governing consideration of import requests are based on sound science and are transparent and accessible.” 7 U.S.C. §7712(b). The reference to “sound” science may be largely rhetorical; it may also place a burden of scientific proof whereby uncertainty and risk favor continued commerce or the status quo rather than action (or regulation). Other examples of “braking” actions by Congress in the Plant Protection Act include the requirement of “least drastic action” by the government with respect to threats from new plant pests and noxious weeds. 7 U.S.C. §7714(c)(2).
48. See, e.g., 7 U.S.C. §7701(2) & (5). Further mischief may be caused by defining a “biological control organism” as “any enemy, antagonist, or competitor used to control a plant pest or noxious weed” since this definition does not distinguish between “classical” biological controls, where the control agent has evolved with the target in its home range, and the use of biological agents against unrelated targets. 7 U.S.C. §7702(2). Compare Marc Miller & Gregory Aplet, *Biological Control: A Little Knowledge Is a Dangerous Thing*, 45 RUTGERS L. REV. 285 (1993) (criticizing the increasing proposals for nonclassical biological controls).
49. Miller & Aplet, *supra* note 48, at 285.
50. *Id.*
51. Pub. L. No. 106-224, §436, codified at 7 U.S.C. §7756.

52. 7 U.S.C. §7756(a).

53. *Id.* §7756(b)(1).

54. *Id.* §7756(b)(2)(A)&(B). A special waiver for a state or political subdivision requires support by “sound scientific data or a thorough risk assessment.” These are high and costly standards in the face of immediate and short-term threats, and may require substantial assistance by the federal government if the waiver will be in fact a way to take account of quite varied local needs and threats.

55. Wild Free-Roaming Horses and Burros Act of 1971, 16 U.S.C. §1334.

56. A large number of more focused federal laws dealing with specific invasive species problems might be used to defend particular federal government activities regarding harmful invasive species. Examples include the Virus-Serum-Toxin Act, 21 U.S.C. §§151-158, and various forestry acts, both national and region-specific.

57. 16 U.S.C. §§4701-4715.

58. 39 U.S.C. §3015.

59. Pub. L. No. 106-646, 104 Stat. 4762 (1990), codified in 16 U.S.C. §§4701-4715, reauthorized by Pub. L. No. 104-332, 110 Stat. 4073 (1996).

mussel and other NIS that had been, and might be, introduced through ballast water. The Act directed the U.S. Army Corp of Engineers to develop a research program for the control of zebra mussels.⁶⁰ (Clearly, Congress understood the invasion metaphor in this specific context.) The NANPCA created a federal interagency Aquatic Nuisance Species Task Force to reduce risk from harmful NIS. The task force was charged with assessing aquatic nuisance species threats to “the ecological characteristics and economic uses of U.S. waters other than the Great Lakes.”⁶¹

In 1996, NISA expanded the focus of the NANPCA to mandate regulations to prevent introduction and spread of aquatic nuisance species.⁶² In NISA, Congress encouraged the federal government to negotiate with foreign governments to develop an international program for preventing NIS introductions through ballast water. The geographical scope of the Act was expanded as well, to include funding authorization for research on aquatic NIS in the Chesapeake Bay, San Francisco Bay, Honolulu Harbor, and the Columbia River system.⁶³

As of March 2003, a bill to reauthorize NISA has been introduced in the U.S. Senate and referred to committee.⁶⁴ The NISA of 2003 proposes to require mandatory ballast water regulations, and to encourage both further development of ballast water treatment and the use of best available technologies by the shipping industry, though with substantial lag time for adoption.⁶⁵ Sen. Susan Collins (R-Me.) introduced the bill with the following observations:

As with national security, protecting the integrity of our lakes, streams, and coastlines from invading species cannot be accomplished by individual States alone. We need a uniform, nationwide approach to deal effectively with invasive species

60. *Id.*

61. 16 U.S.C. §4712(a)(2).

62. National Invasive Species Act of 1996, Pub. L. No. 104-332, 110 Stat. 4073, 4091, codified at 16 U.S.C. §§4701 et seq.

63. *Id.* at §2(c), amending 16 U.S.C. §4712.

64. S. 525, 108th Cong. (2003).

65. 149 CONG. REC. S3179 (daily ed. Mar. 5, 2003). Sen. Carl Levin (D-Mich.), one of the principal sponsors, explained ballast water treatment requirements in the bill as follows:

I understand that ballast water technologies are being researched and are ready to be tested onboard ships. These technologies include ultraviolet lights, filters, chemicals, deoxygenation, and several others. Each of these technologies has a different pricetag attached to it. It is not my intention to overburden the maritime industry with an expensive requirement to install technology. In fact, the legislation states that the final ballast water technology standard must be based on “best available technology economically achievable.” That means that the EPA must consider what technology is available, and if there is not economically achievable technology available to a class of vessels, then the standard will not require ballast technology for that class of vessels, subject to review every 3 years. I do not believe this will be the case, however, because the approach creates a clear incentive for treatment vendors to develop affordable equipment for the market. Since ballast technology will be always evolving, it is important that the EPA review and revise the standard so that it reflects what is the best technology currently available and whether it is economically achievable. Shipowners cannot be expected to upgrade their equipment upon every few years as technology develops, however, so the law provides an approval period of at least 10 years.

Id. at S3179.

The [NISA] of 2003 is the most comprehensive effort ever to address the threat of invasive species. By authorizing \$836 million over 6 years, this legislation would open numerous new fronts in our war against invasive species. The bill directs the [U.S.] Coast Guard to develop regulations that will end the easy cruise of invasive species into U.S. waters through the ballast water of international ships, and would provide the Coast Guard with \$6 million per year to develop and implement these regulations.

The bill also would provide \$30 million per year for a grant program to assist State efforts to prevent the spread of invasive species. It would provide \$12 million per year for the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service to contain and control invasive species. Finally, the Levin-Collins Bill would authorize \$30 million annually for research, education, and outreach.

The most effective means of stopping invading species is to attack them before they attack us. We need an early alert, rapid response system to combat invading species before they have a chance to take hold. For the first time, this bill would establish a national monitoring network to detect newly introduced species, while providing \$25 million to the Secretary of the Interior to create a rapid response fund to help States and regions respond quickly once invasive species have been detected. This bill is our best effort at preventing the next wave of invasive species from taking hold and decimating industries and destroying waterways in Maine and throughout the country.⁶⁶

NISA may well be a good piece of legislation for responding to threats from aquatic invasive species introduced in ballast water; if a version anything like the proposed reauthorization is enacted the legislation will be even better.⁶⁷ The increase in authority and scope from the NANPCA to NISA in 1996 suggests an increasing awareness on the part of Congress about the complexity of NIS issues, even in the focused context of the ballast water pathway. The proposed expansion of authority in 2003 and the range of bipartisan sponsorship for the bill suggests that Congress is likely to further expand the mandates and authorities with regard to aquatic invasive species, with a particular emphasis on regulating the introduction of NIS through ballast water.

But NISA fails to suggest a general model for responding to harmful NIS. The 1996 version demonstrates that Congress did not then recognize the NIS problem to be the serious problem that its own research agency, the OTA, had described only three years earlier in its path-breaking report. The reauthorization of NISA in 2003, if it succeeds, will be evidence of Congress’ awareness of the nature and scope of one slice of the NIS problem (aquatic species).

The second linguistically promising federal statute is the Alien Species Prevention and Enforcement Act (ASPEA) of 1992.⁶⁸ Unfortunately, the major (and useful) purpose of this act, despite its grand title, was simply to confirm the authority to make illegal the shipment through the mail of otherwise illegal organisms, including those species identified under the Lacey Act, the Plant Pest Act, and the Plant Quar-

66. *Id.* at S3179-80.

67. See UNION OF CONCERNED SCIENTISTS, THE NATIONAL INVASIVE SPECIES ACT (2002), available at <http://www.ucsus.org/publication.cfm?publicationID=383> (last visited June 5, 2003) (supporting reauthorization efforts to strengthen NISA).

68. 39 U.S.C. §3015 note.

antine Act. ASPEA does not itself create any new categories of organisms that are illegal to ship, nor does it create any presumptions or institutions to help in responding to harmful NIS.

Individual members of Congress have shown increasing awareness of threats specific to their jurisdictions and especially agricultural, commercial, and industrial interests with strong concerns about harm from invasive species. Thus, in the first session of the 108th Congress alone, Congress passed the Nutria Eradication and Control Act of 2003⁶⁹ and introduced the Tamarisk Research and Control Act of 2003,⁷⁰ the Salt Cedar Control Demonstration Act,⁷¹ and the Noxious Weed Control Act of 2003.⁷²

D. General Environmental Policy Acts

There are at least two major federal environmental policy statutes and a set of public lands statutes that might apply to harmful NIS in some situations. The National Environmental Policy Act⁷³ (NEPA) requires federal government agencies to assess the environmental impact of their actions through the promulgation of an environmental impact statement (EIS). Yet many actions of the federal government that seem as if they could or should trigger EIS requirements, in fact, do not, due to both statutory and regulatory interpretations that limit NEPA to “major” government actions that “significantly” affect the quality of “the human environment.”⁷⁴

69. Pub. L. No. 108-16 (signed into law on Mar. 23, 2003).

70. H.R. 695, 108th Cong. (2003).

71. S. 1051, 108th Cong. (2003).

72. S. 144, 108th Cong. (2003).

73. 42 U.S.C. §§4321-4370d, ELR STAT. NEPA §§2-209.

74. *Id.* §4332(c) provides:

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—

- (i) the environmental impact of the proposed action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and
- (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Id. The regulations promulgated under the authority of NEPA chose to emphasize the requirements of “major” actions “significantly” affecting the environment. However, the current regulations suggest that intentional applications of biological control agents do trigger EIS requirements. See 7 C.F.R. §520.7:

§520.7 Preparation of an Environmental Impact Statement (EIS).

(a) Actions requiring EIS. An EIS will normally be prepared for:

- (1) Proposals for legislation which are determined to be a major Federal action significantly affecting the quality of the human environment; or,
- (2) Other major Federal actions significantly affecting the quality of the human environment. In the experience of ARS, an environmental impact statement shall normally be required in situations when a research project has advanced beyond the laboratory and small plot testing to full scale field testing over a very large area and involving the introduction of control agents

Claimants have argued that the federal government has failed to take account of the impact of invasive species under NEPA.⁷⁵ But even an expanded interpretation of NEPA to apply to as many federal actions as possible regarding NIS would cover only a modest portion of the full range of harmful NIS issues.⁷⁶ NEPA is primarily directed at the actions of federal agencies, and therefore would not apply to the myriad actions of individuals relevant to harmful NIS, or to the actions of state and local authorities. Moreover, NEPA assumes the possibility of expertise in recognizing and assessing future environmental harms from present actions. In the case of potentially harmful NIS, this kind of information and expertise may not be present, and the policy issue will then turn on legal presumptions and risk preferences in the face of great uncertainty. More importantly, even when NEPA applies, it only requires analysis of environmental impacts, but does not itself impose substantive barriers, preferences, or limits on government action.⁷⁷

A second major federal environmental statute with some possible application to harmful NIS issues is the Endangered Species Act (ESA).⁷⁸ The ESA might apply whenever a government or private action threatens an endangered species. The ESA might also lead to direct actions against harmful NIS in the development of recovery plans for listed

Regulations also provide a definition of what constitutes a “major” federal action. See 40 C.F.R. §1508.18:

“Major Federal action” includes actions with effects that may be major and which are potentially subject to Federal control and responsibility. Major reinforces but does not have a meaning independent of significantly (§1508.27). Actions include the circumstance where the responsible officials fail to act and that failure to act is reviewable by courts or administrative tribunals under the Administrative Procedure Act or other applicable law as agency action.

(a) Actions include new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by federal agencies; new or revised agency rules, regulations, plans, policies, or procedures; and legislative proposals (§§1506.8, 1508.17). Actions do not include funding assistance solely in the form of general revenue sharing funds, distributed under the State and Local Fiscal Assistance Act of 1972, 31 U.S.C. §§1221 et seq., with no Federal agency control over the subsequent use of such funds. Actions do not include bringing judicial or administrative civil or criminal enforcement actions. . . .

Id.

- 75. See *San Francisco Baykeeper v. Corps of Eng’rs*, 219 F. Supp. 2d 1001, 1016 (N.D. Cal. 2002) (U.S. Army Corps of Engineers (the Corps) not required to describe potential severe consequences of invasive species introduction through ballast water releases for two Port of Oakland construction projects because “because there was no ‘credible scientific evidence’ that such impacts would occur”); *National Parks Conservation Ass’n v. Department of Transp.*, 222 F.3d 677, 30 ELR 20787 (9th Cir. 2000) (upholding sufficiency of “hard look” at alien species in EIS for expansion of Maui airport).
- 76. See Jonathan Cosco, *NEPA for the Gander: NEPA’s Application to Critical Habitat Designations and Other “Benevolent” Federal Action*, 8 DUKE ENVTL. L. & POL’Y F. 345 (1998).
- 77. See, e.g., Victor Flatt, *The Human Environment of the Mind: Correcting NEPA Implementation by Treating Environmental Philosophy and Environmental Risk Allocation as Environmental Values Under NEPA*, 46 HASTINGS L.J. 85 (1994); Bill Lockhart, *NEPA: All Form, No Substance?* 14 J. ENERGY NAT. RESOURCES & ENVTL. L. 415 (1994); Donald Zillman & Peggy Gentles, *NEPA’s Evolution: The Decline of Substantive Review*, 20 ENVTL. L. 505 (1990); William Rodgers, *NEPA at Twenty: Mimicry and Recruitment in Environmental Law*, 20 ENVTL. L. 485 (1990); Nicholas Yost, *NEPA’s Promise—Partially Fulfilled*, 20 ENVTL. L. 533 (1990).
- 78. 16 U.S.C. §§1531-1544, ELR STAT. ESA §§2-18.

species. Since harmful NIS have been identified as a significant source of ecosystem change (which may lead to pressures on rare or endangered species), and in some contexts as a direct extinction threat through predation, competition, or displacement, the ESA might bar some introductions or lead to some efforts at removal.

The situations where the powerful effects of the ESA apply, however, are likely to be few. If the ESA applies at all in terms of introductions, it will most likely apply only to intentional introductions of NIS, and only to those introductions where a nexus can be found between the NIS and a listed species. Perhaps a creative argument under the ESA could focus on the risk of introducing harmful NIS that could have a substantial impact on a listed species. Thus, a claim might be made that particular activities (such as use of wood packing materials or whole log imports or release of ballast water) provide a sufficient risk to a listed species to come within regulation under a recovery plan or a voluntary habitat conservation plan (HCP), but courts might well find such links too distant to support such policies.⁷⁹ More directly, a recovery plan for a species listed under the ESA can involve control of existing harmful NIS. While control of NIS is apparently a common feature of recovery plans according to the OTA report, implementation of recovery plans, at least with respect to components related to harmful NIS, has been poor.⁸⁰

In at least one prominent case the federal courts have several times upheld an order to the Hawaiian Department of Land and Natural Resources to remove non-indigenous goats and sheep that threatened the endangered palila bird. The unlikelihood of the ESA and recovery plans becoming a major mechanism for control of harmful NIS is suggested not only by the limited numbers of species listed under the ESA, but by the very caption of the federal case: *Palila (Psittirostra bailleui), an endangered species v. Hawaii Department of Land & Natural Resources*.⁸¹ Thus, while the ESA creates government obligations and provides government powers beyond other statutes, for the general range of harmful NIS these obligations and powers are in practice fairly limited.

Another broad class of federal laws that provide authority to federal agencies that have at times been used for regulation and policy with respect to harmful invasive species are the federal public lands laws, especially the Multiple Use Sustained Yield Act of 1960,⁸² the National Forest Manage-

ment Act of 1976,⁸³ and the Federal Land Policy and Management Act of 1976.⁸⁴ These acts, and related historical and contemporary legislation governing grazing, timber, and other uses of federal lands, provide a broad array of authorities and responsibilities with respect to public lands. Similar legislation aimed at the governance of smaller federal land units includes the National Wildlife Refuge System Administration Act.⁸⁵ In addition, the powers granted under these sweeping public land laws may be magnified further still, and extended to some activities on state and private lands, under the expansive interpretation of the U.S. Constitution's "Property Clause," which provides that "[t]he Congress shall have power to . . . make all needful rules and regulations respecting the Territory or other property belonging to the United States."⁸⁶

In addition to these major federal environmental statutes, a host of more focused environmental and nonenvironmental laws also have some relevance to harmful NIS. For example, the Wild Bird Conservation Act of 1992⁸⁷ regulates the importation of some wild birds, and thus might limit both the introduction of birds that pose a special risk of becoming harmful NIS should they escape, and might as well reduce the chance of accidental introduction of bird diseases through careless importation of wild birds.⁸⁸ Other pieces of legislation, seemingly utterly unrelated to NIS issues on their surface, include a handful of odd provisions, some with very direct relevance. For example, the Violent Crime Control and Law Enforcement Act of 1994 includes a provision authorizing the U.S. Attorney General to convene a multiagency, federal, and state "law enforcement task force in Hawaii to facilitate the prosecution of violations of Federal laws, and laws of the State of Hawaii, relating to the wrongful conveyance, sale, or introduction of non-indigenous plant and animal species."⁸⁹

At this point in our review of federal U.S. authority relating to harmful NIS, a reader might ask why analysis of any additional laws is necessary. If the most direct federal legislation (the various black list acts) and the most grandly titled legislation (NISA and ASPEA) and the most sweeping environmental legislation (NEPA and ESA) together leave enormous gaps in terms of government authority to respond to harmful NIS, then why look at less direct laws? Why not declare analytic victory and substantive defeat and move on to an assessment of what kinds of new legal authority might be appropriate?

If only the analytic task were so easy! Tables 2 and 3, taken from the OTA report, suggest one reason why consid-

79. *San Francisco Baykeeper*, 219 F. Supp. 2d at 1016 (upholding Corps' finding that Oakland port projects leading to additional release of ballast water not likely to jeopardize species listed under the ESA).

80. OTA REPORT, *supra* note 2, at 187.

81. 852 F.2d 1106, 18 ELR 21119 (9th Cir. 1998) (*Palila II*); 639 F.2d 495, 11 ELR 20446 (9th Cir. 1981) (*Palila I*). The power of the federal government to issue regulations under the ESA that include protection not just of endangered species but of the habitats that support them was upheld by the U.S. Supreme Court in *Babbitt v. Sweet Home Chapter of Communities for a Great Or.*, 515 U.S. 687, 25 ELR 21194 (1995). See Ray Vaughan, *State of Extinction: The Case of the Alabama Sturgeon and Ways Opponents of the Endangered Species Act Thwart Protection for Rare Species*, 46 ALA. L. REV. 569 (1995). However, in *Sweet Home*, Justice Sandra Day O'Connor questioned whether the link between harm by the feral sheep to a plant that protects the palila bird was too tenuous to support the requirement of a "taking" under the ESA. 515 U.S. at 713-14 (O'Connor, J., concurring) (citing *Palila II*, 852 F.2d at 1106).

82. 16 U.S.C. §§528-531.

83. *Id.* §§1600-1687, ELR STAT. NFMA §§2-16.

84. 43 U.S.C. §§1701-1785, ELR STAT. FLPMA §§102-603.

85. 16 U.S.C. §668dd-668ee.

86. U.S. CONST. art. IV, §3. See *Kleppe v. New Mexico*, 426 U.S. 529, 6 ELR 20545 (1976) (upholding the constitutionality of the Wild Free-Roaming Horses and Burros Act, and its application on private lands that affect public lands).

87. 16 U.S.C. §§4901-4916.

88. *Id.*

89. Pub. L. No. 103-322, 108 Stat. 1796 (1994). The task force was charged with facilitating prosecution of federal and state laws relating to NIS, recommending ways to strengthen law enforcement regarding NIS "to prevent introduction of non-indigenous plant and animal species," *id.* §320108, codified at 42 U.S.C. §14221, and reporting to various congressional committees and federal agencies. What made Congress in 1994 think that criminal laws were avenue through which to deal with harmful NIS?

erable additional analysis is required to understand the federal U.S. NIS legal picture. These tables show 21 different federal agencies that deal with some aspect of harmful NIS. This multitude of government actors suggests (though alone it does not prove) that there must be far greater legal authority to deal with NIS than is described by the handful of stat-

utes dealing explicitly with narrow aspects of the NIS problem. This long list of federal government actors also suggests that perhaps the sum of federal legal authority to deal with NIS may be great enough to respond to most NIS problems after all.

Table 2 – Areas of Federal Agency Activity Related to NIS [OTA Table 6-2]

Agency*	Manufacture, distribution, sale, or use of biological products	Invasive insect pest control	Regulate product content or labeling	Control or eradication programs	Trade or do introductions	Federal land management	Land use or research	Appropriate development	Biological development
APHIS	✓	✓	✓	✓	✓	✓	✓	✓	✓
AMS	✓	✓	✓	✓	✓	✓	✓	✓	✓
FAS	✓	✓	✓	✓	✓	✓	✓	✓	✓
USFS	✓	✓	✓	✓	✓	✓	✓	✓	✓
ARS	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCS	✓	✓	✓	✓	✓	✓	✓	✓	✓
ASCS	✓	✓	✓	✓	✓	✓	✓	✓	✓
CSRS	✓	✓	✓	✓	✓	✓	✓	✓	✓
FWS	✓	✓	✓	✓	✓	✓	✓	✓	✓
NPS	✓	✓	✓	✓	✓	✓	✓	✓	✓
BLM	✓	✓	✓	✓	✓	✓	✓	✓	✓
BIA	✓	✓	✓	✓	✓	✓	✓	✓	✓
BOR	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOAA	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOD	✓	✓	✓	✓	✓	✓	✓	✓	✓
EPA	✓	✓	✓	✓	✓	✓	✓	✓	✓
PHS	✓	✓	✓	✓	✓	✓	✓	✓	✓
Customs	✓	✓	✓	✓	✓	✓	✓	✓	✓
USCG	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOE	✓	✓	✓	✓	✓	✓	✓	✓	✓
DEA	✓	✓	✓	✓	✓	✓	✓	✓	✓

* Acronyms of Federal Agencies: Department of Agriculture—Animal and Plant Health Inspection Service (APHIS); Agricultural Marketing Service (AMS); Foreign Agricultural Service (FAS); Forest Service (USFS); Agricultural Research Service (ARS); Soil Conservation Service (SCS); Agricultural Stabilization and Conservation Service (ASCS); Cooperative State Research Service (CSRS); Department of the Interior—Fish and Wildlife Service (FWS); National Park Service (NPS); Bureau of Land Management (BLM); Bureau of Indian Affairs (BIA); Bureau of Reclamation (BOR); Department of Commerce—National Oceanic and Atmospheric Administration (NOAA); Department of Defense (DOD); Environmental Protection Agency (EPA); Department of Health and Human Services—Public Health Service (PHS); Department of the Treasury—Customs Service (Customs); Department of Transportation—Coast Guard (USCG); Department of Energy (DOE); Department of Justice—Drug Enforcement Agency (DEA).

† Monitors animal diseases abroad.

‡ Monitors spread of human disease vectors within the United States.

§ Regulates exportation releases of microbial pesticides.

¶ DOE lacks policies on NIS.

Table 3—Federal Coverage of Different Groups of Organisms [OTA Table 6-3]

	Movement into U.S. Restrict	Enhance	Interstate Movement within U.S. Restrict	Enhance	Regulate product content or labeling	Control or eradication programs	Fund or do introduction	Prevent eradication or control	Introduce or maintain	Prevention control eradication	Uses of species	Assist industry uses
Plants	APHIS DOD Customs DEA	ARS ^c SCS ^c	APHIS AMIS	ARS SCS DOD ^b	APHIS AMIS	APHIS FWS BIA BOR NOAA DOD	ARS ^c ASCS ^c	USFS FWS NPS BLM DOD	FWS NPS DOD	APHIS ARS SCS CSRS FWS NPS BLM BOR DOD	USFS ^c ARS ^c SCS ^c	ARS ^c SCS ^c
Terrestrial vertebrates	APHIS FWS DOD PHS Customs	DOD ^b	APHIS FWS	FWS	FWS	APHIS FWS	FWS	FWS NPS	USFS FWS NPS BLM DOD	APHIS FWS NPS		
Insects (and arachnids)	APHIS FAS ARS DOD PHS Customs	ARS ^d DOD ^b	APHIS	ARS ^d DOD ^b	APHIS USFS	APHIS USFS	ARS ^d USFS ^d DOD ^d	USFS NPS BLM	USFS ^d NPS ^d BLM ^d	APHIS USFS ARS CSRS NPS PHS	APHIS ^d ARS ^d ARS NPS ^d DOD ^d	ARS ^d CSRS ^d
Fish	Customs USCG		FWS	DOD ^d	FWS	FWS BOR	FWS BOR ^d	NPS BLM	USFS FWS NPS BLM DOD	FWS NPS NOAA EPA USCG	ARS ^c CSRS ^c FWS ^{de} NOAA ^c	ARS ^c
Invertebrate(n on-insect)	APHIS ARS FWS DOD PHS Customs USCG		APHIS FWS	DOD ^b	FWS	APHIS			FWS NPS NOAA EPA USCG	FWS NPS NOAA EPA USCG	ARS ^c NOAA ^c CSRS ^c DOD ^c	ARS ^c
Microbes	APHIS FAS ARS FWS NOAA DOD EPA PHS Customs USCG	ARS ^d DOD ^d	APHIS		EPA	APHIS USFS FWS	ARS ^d USFS ^d	USFS NPS	USFS ^d NPS ^c	APHIS USFS ARS CSRS FWS NPS NOAA USCG	ARS ^d CSRS ^d NPS ^d	ARS ^d

^b Pests move unintentionally with equipment or due to construction.

^c Plants for agriculture, horticulture, or soil conservation.

^d Biological control agents.

^e Aquaculture.

1. Federal Agency Legal Powers

The 21 government agencies identified by the OTA fall under the Cabinet-level direction of 10 different government departments.⁹⁰ The most important of these agencies for dealing with NIS, including the Animal and Plant Health Inspection Service (APHIS), the Agricultural Research Service (ARS), the U.S. Forest Service (USFS), the U.S. Fish and Wildlife Service (FWS), and the National Park Service (NPS), all fall under the authority of two departments—the U.S. Department of Agriculture (USDA) and the U.S. Department of the Interior (DOI).

Federal government agencies get their power from a number of sources. One source of authority is the original or so-called organic acts that generally create a government department or agency and provide it with particular responsibilities and authority. Another common source of authority is a statute, such as the Lacey Act or Plant Pest Act or the other statutes described in previous sections, that direct the agency, or the executive generally, to act in some way—whether to achieve a goal, or respond to a problem, or develop procedures, or whatever.⁹¹ A third source of authority derives from appropriations acts, which can explicitly or implicitly (by appropriating funds for specific purposes) provide government agencies with additional substantive authority.⁹²

For example, and of most relevance to control of harmful NIS, the USDA finds its general authority in legislation known as the Organic Act of 1944.⁹³ The general provisions are often expanded and modified by later legislation, including the various substantive acts such as the new Plant Protection Act. Thus, over time, general concepts recognized in organic and other general pieces of legislation can be expanded to include ideas such as whether a plant pest is native or non-indigenous. As early as 1957, Congress recognized that some plant pests are alien or “imported.”⁹⁴

Congress creates some agencies, while others are created by the Cabinet-level officers under the general authority of the department as a whole. When Congress creates a new agency, then that agency is likely to have its own organic (originating) statute. For example, the NPS, while part of the DOI, has its own National Park Service Organic Act,

first passed in 1916.⁹⁵ The organic statutes for particular agencies might provide indirect authority for dealing with harmful NIS. For example, the National Park Service Organic Act directs the NPS to

promote and regulate the use of the Federal areas known as national parks, monuments, and reservations . . . to conserve the scenery and the natural and historic objects and the wild life [sic] therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.⁹⁶

When agencies are created within the executive branch, Congress will both appropriate funds directed toward particular offices, and otherwise grant specific additional authority to those particular agencies. For example, there is no general authorizing act for APHIS,⁹⁷ which is the most important federal agency for preventing harmful NIS introductions, but Congress has granted APHIS authority to contract for services to be performed outside the United States.⁹⁸

Government authority to respond to harmful NIS arises from at least one additional source, which is international law that is reflected in treaties signed by the United States. Perhaps the best example of such legal authority is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),⁹⁹ which provides additional authority for border inspections and creates an independent basis (indeed, an independent obligation), even in the absence of listing a species under one of the “black list” acts, for exclusion. The OTA report lists seven treaties with direct effects on harmful NIS and seven treaties with indirect effects on harmful NIS, including CITES.¹⁰⁰

Apparent government authority to deal with harmful NIS appears in two additional settings: regulations and rules issued by relevant government agencies, and the activities of interagency “working groups” or councils. On the one hand, the rules and regulations of government agencies can provide the most specific illustrations of government response to harmful NIS. For example, regulations issued by the National Oceanic and Atmosphere Administration (NOAA),

95. 16 U.S.C. §§1-4, 22, 43.

96. *Id.*

97. General authority for APHIS is specified in a regulation in which the Secretary of Agriculture delegates relevant authority from various plant protection and pest control statutes. *See* 7 C.F.R. §371.3.

98. 7 U.S.C. §2277 provides:

Funds available to the Animal and Plant Health Inspection Service (APHIS) under this and subsequent appropriations shall be available for contracting with individuals for services to be performed outside of the United States, as determined by APHIS to be necessary or appropriate for carrying out programs and activities abroad

This provision was enacted in 1991. *See* Pub. L. No. 102-142, tit. VII, S. 737, 105 Stat. 915 (1991). The provision echoed similar authority first granted in a 1990 appropriation act. *See* Pub. L. No. 101-506, tit. VI, S. 641, 104 Stat. 1350 (1990).

99. 27 U.S.T. 1987, T.I.A.S. No. 8249, 993 U.N.T.S. 243 (1973).

100. *See* OTA REPORT, *supra* note 2, at 295. International agreements may also be a source of limitation on a country’s power to develop domestic environmental policy. For example, world trade agreements might restrict NIS policies, such as comprehensive import restrictions and review, that were deemed a discriminatory or excessive restraint on free trade. *See* Marc L. Miller, *NIS, WTO, SPS, WTR: Does the WTO Substantially Limit the Ability of Countries to Regulate Harmful Non-Indigenous Species?*, 17 EMORY INT’L L.J. (forthcoming 2003).

90. The Cabinet-level departments that deal in some way with NIS issues include the U.S. Department of Agriculture, the U.S. Department of the Interior, the U.S. Department of Commerce, the U.S. Department of Defense, the U.S. Environmental Protection Agency (EPA), the U.S. Department of Health and Human Services, the U.S. Treasury, the U.S. Department of Transportation, and the U.S. Department of Justice.

91. In addition to the statutes described in the prior section—those with substantial and direct links to policy regarding harmful NIS—there are a large number of more or less obscure statutes that provide some authority that might be said to expand an agencies powers to deal with some aspect of the NIS problem. One example might be the Cooperative Forestry Assistance Act of 1978, which makes the U.S. Forest Service responsible for identifying and controlling forest pests. *See* 16 U.S.C. §§2101-2114, and 16 U.S.C. §1606.

92. The federal budgetary process is extremely complex. There are actually two required bills before any actual expenditure of funds, first a bill that “authorizes” expenditures, which may be part of a substantive act, and then a later bill that actually appropriates funds.

93. 7 U.S.C. §§147a et seq.; 7 U.S.C. §§428a et seq.

94. 1957 Amendments. Subsec. (a). Pub. L. No. 85-36 added “insect pests, plant diseases, and nematodes, such as imported fire ant, soybean cyst nematode, witchweed, spotted alfalfa aphid” following “or to prevent or retard the spread of.”

which has a policy role regarding various coastal resources, forbid “any person” from “introducing or releasing an exotic species of plant, invertebrate, fish, amphibian, or mammals” into the Florida Keys National Marine Sanctuary.¹⁰¹ But regulations can also encourage the introduction of NIS, and even harmful NIS. For example, USDA regulations for a conservation reserve program allows “practices specific in the conservation plan that meet all standards needed to cost-effectively establish permanent vegetative or water cover, including introduced or native species of grasses and legumes, forest trees, and permanent wildlife habitat”¹⁰²

Similarly, interagency working groups, which may also be interjurisdictional, and which may (or may not) be authorized specifically by statute, such as the Aquatic Nuisance Species Task Force, and the Federal Interagency Committee for Management of Noxious and Exotic Weeds (FICMNEW), are often the groups with the most direct and substantial interest in harmful NIS.

I refer to both the authority implicit in regulations and the authority in working groups as “apparent” because such regulations and groups can exercise only existing sources of legal authority; they cannot create new legal authority. Where substantial possible sources of authority exist, this may be a distinction without a difference. Moreover, to the extent that interagency working groups do not conduct activities that anyone can challenge, the lack of explicit legal authority may have no practical effect. To the extent, however, that one central question is what legal authority exists to deal with harmful NIS, regulations and working groups are not a source of such authority; indeed, they are not even evidence that such authority exists. Often agencies recognizing the general problem of invasive species or particular problems that appear to be within the agency’s jurisdiction will not recognize or will sidestep questions of legal authority.¹⁰³

If this combination of substantive statutes, general agency organic acts, various appropriations provisions, and binding international agreements have allowed 21 federal agencies to respond to varying degrees and in varying ways to harmful NIS, again an observer might fairly say: “Sure, this is a legal mess, but the total is, at least, the sum of the parts, and perhaps the parts, all together, make a working machine.” If this were so, the legal mess would be a lawyer’s quibble, and in the United States at least, those concerned about harmful NIS could focus solely on increasing appropriations and encouraging the various agencies to do more and to do what they do better.

A complete answer to the question of whether total sufficient legal authority exists to deal with harmful NIS requires a closer analysis than the scope of this Article or the available literature can provide. A partial answer, however, is easy to provide. If the question is changed from “what are these myriad agencies doing?” to “what would we want government agencies to do in response to harmful NIS?” then huge gaps are revealed. That there may not be adequate federal legal authority to respond to the full range of issues

raised by harmful NIS is suggested by a close examination of one other very important, and very odd kind of legal animal: two presidential Executive Orders directly addressing the problems of harmful NIS.

E. Executive Orders Addressing Harmful NIS

A judge, like an executive adviser, may be surprised at the poverty of really useful and unambiguous authority applicable to concrete problems of executive power as they actually present themselves. Just what our forefathers did envision, or would have envisioned had they foreseen modern conditions, must be divined from materials almost as enigmatic as the dreams Joseph was called upon to interpret for Pharaoh.

Justice Robert H. Jackson,
Youngstown Sheet & Tube Co. v. Sawyer,
343 U.S. 579, 634 (1952) (concurring)

Two Executive Orders, one issued by President Carter in 1977 and the other issued by President Clinton in 1999, directly address the problem of harmful NIS.

Executive Orders are an odd species of law, issued on occasion by the president.¹⁰⁴ They direct one or more federal agencies to act in a particular policy direction specified by the president. Executive Orders do not themselves create new government powers, and they cannot: legislative power is vested in the legislative branch (the Congress). The president can, however, rely on powers already vested in the executive branch by Congress, and those limited powers constitutionally committed to the president.

Why assess the effect of Executive Orders if they cannot create new legal authority? First, as the mass of possible legal authority in the prior sections suggests, the limits of the current authority remain unclear, and simply asserting greater authority might become a basis for some court (if a government action were properly challenged) to find authority in fact. Second, both Executive Orders on invasive species draw on the full range of available legal authority; in other words, they assert the maximum available authority in support of federal NIS efforts. This assertion of maximum authority highlights the necessity of understanding the greatest possible reach of current laws, at least in the absence of possible new or additional authority that might clarify current law, expand it, or fill gaps. Third, and related to the prior point, often the issue with regard to a problem with harmful NIS is not one of authority but of action, and of budgetary allocations, and in a unitary executive branch Executive Orders are the policy command of the president (at least in theory).

1. Executive Order No. 11987 (1977) (Carter)—Dramatic, Ignored, Defunct

President Carter issued Executive Order No. 11987 on May

101. 15 C.F.R. §922.163.

102. 7 C.F.R. §1410.23.

103. See, e.g., U.S. EPA, HENRY LEE & JOHN CHAPMAN, NON-INDIGENOUS SPECIES—AN EMERGING ISSUE FOR THE EPA: VOLUME 1—REGION/ORD NON-INDIGENOUS SPECIES WORKSHOP REPORTS; VOLUME 2—A LANDSCAPE IN TRANSITION: EFFECTS OF INVASIVE SPECIES ON ECOSYSTEMS, HUMAN HEALTH, AND EPA GOALS (2001), available at http://www.epa.gov/owow/invasive_species (last visited June 8, 2003).

104. Michael Stokes Paulsen, *The Most Dangerous Branch: Executive Power to Say What the Law Is*, 83 GEO. L.J. 217, 220 (1995); Ronald Turner, *Banning the Permanent Replacement of Strikers by Executive Order: The Conflict Between Executive Order No. 12954 and the NLRA*, 12 J.L. & POL. 1 n.29 (1995) (Executive Orders “were not numbered until 1907 when the State Department organized all executive orders (including old orders on file) and numbered them consecutively; the designation Executive Order No. 1 went to an order issued by President Abraham Lincoln”). Frank Cross, *Executive Orders 12291 and 12498: A Test Case in Presidential Control of Executive Agencies*, 4 J.L. & POL. 483, 484 n.5 (1988).

24, 1977.¹⁰⁵ Although Executive Order No. 11987 has been entirely supplanted by Executive Order No. 13112, issued by President Clinton in 1999, it is still quite useful to review the fortunes of 11987, as it provides several lessons that might allow Executive Order No. 13112 a different and better fate.

Executive Order No. 11987 is an astounding document, as striking and unexpected, though not nearly as profound, as Charles Elton's classic 1958 book *The Ecology of Invasions by Plants and Animals*.¹⁰⁶ Some aspects of harmful NIS were of course part of public policy and debate by 1977, but NIS as a general issue had yet to strike public and political consciousness. For example, according to Devine the first effort to control any invasive plant in the Florida Everglades did not occur until 1969.¹⁰⁷

Executive Order No. 11987 is not only unexpected because of its topic, but also because of its brevity, its clarity, and its more local, political timing. Executive Order No. 11987 is one page long. Discussions about it began within the White House only weeks after Carter took office in January 1977, and the order itself was issued as part of the first public policy statement on the environment by the Carter Administration. The heart of the order provides the following policy directives:

(a) Executive agencies shall, to the extent permitted by law, restrict the introduction of exotic species into natural ecosystems on lands and waters which they own, lease, or hold for purposes of administration; and, shall encourage the States, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the United States.

(b) Executive agencies, to the extent they have been authorized by statute to restrict the importation of exotic species, shall restrict the introduction of exotic species into any natural ecosystem of the United States.¹⁰⁸

The short Executive Order included at least one other visionary aspect: it directed executive agencies to prevent the export of native (U.S.) species "for the purpose of introducing such species into ecosystems outside the United States where they do not naturally occur."¹⁰⁹ President Carter was not just concerned with U.S. ecosystems; he was concerned with the threat of NIS to the naturalness of all ecosystems.

Where did President Carter get the good idea that NIS were a bad idea? The answer, which emerges from a careful study of the Carter Presidential Papers, is that the interest of a handful of political advisors on the NIS issue, as well as Carter's own sensitivity to the impact of alien species, having lived in a farming area. This individual interest on the part of advisors and Carter himself was bolstered by the need to find early environmental initiatives that did not have substantial budget implications, since the funding decisions for Carter's first year in office had largely been set by the previous Congress and administration. The background statement issued with the release of the Executive Order included language that in its directness continues to help focus attention on harmful NIS issues even today, 27 years later.

President Carter issued the Executive Order as part of an environmental message. The press covered the message, but largely ignored the exotic species Executive Order.

Executive Order No. 11987 had several dramatic flaws that ultimately proved fatal to its virtues. The most significant flaw was that the Executive Order included no complete procedure for implementing its policy directive. The order did direct the Secretary of the Interior, in consultation with the Secretary of Agriculture and other agencies, to "develop and implement, by rule or regulation, a system to standardize and simplify the requirements, procedures, and other activities appropriate for implementing" the order. The lack of specificity in this procedural language—in contrast to the strong substantive principles of the order—made this provision more harmful than helpful.

Executive Order No. 11987 disappeared from federal policy as dramatically as it first appeared. A September 15, 1977, memorandum written by the Council on Environmental Quality (CEQ) summarized the response of all federal agencies to the various aspects of the May 23, 1977, environmental message. Tucked away in this memorandum were a few lines on the question of the DOI's response to the directive to "develop legislation to restrict the impact of exotic plants and animals into the [United States]." The memorandum stated that "legislation is being developed with Agriculture," that agency progress was "adequate," and in what appears to be the final White House file entry on the subject, the "CEQ Progress Evaluation," that there were "delays in interagency meetings and in focus on problems."

Another flaw was that Executive Order No. 11987 defined "exotic species" to mean plants and animals "not naturally occurring, either presently or historically, in any ecosystem of the United States," while "native species" were those that did occur "in any ecosystem of the United States." These are political, not ecological boundaries. Executive Order No. 11987 simply did not recognize that movement of organisms among states and within states could cause problems similar to the introduction of organisms from abroad.¹¹⁰

A third problem with Executive Order No. 11987 was that it focused only on introductions into "natural ecosystems." While such a limitation reduced, to some extent, possible conflicts with commercial interests in industries such as agriculture and horticulture, the line between introductions in disturbed or artificial ecosystems on one hand and "natural" systems on the other may not be wise as a matter of science or policy. To the extent harmful NIS occur on disturbed or artificial land, and then move to more natural systems, and to the extent that the economic, ecological, or aesthetic harm is to disturbed or artificial systems, Executive Order No. 11987 may have created a barrier to proper regulation and policy.

A fourth flaw in Executive Order No. 11987 was the extent to which it focused only on new NIS introductions—the "release, escape, or establishment"—and seemed to ignore

105. Exec. Order No. 11987, 3 C.F.R. §116.

106. CHARLES ELTON, *THE ECOLOGY OF INVASIONS BY ANIMALS AND PLANTS* 31-32 (1958).

107. DEVINE, *supra* note 19, at 166.

108. *See supra* note 105.

109. *Id.*

110. The OTA report reads these definitions as being "sufficiently vague to allow a species presently in one U.S. ecosystem to be 'exotic' in other U.S. ecosystems." OTA REPORT, *supra* note 2, at 167. I find this argument highly implausible, both because the language does not seem very "vague" in referring to "any ecosystem in the United States" and because in the face of ambiguous language a court would be likely to interpret the key terms in light of the "legislative history" (here the "executive history") which focused, with illustrations, only on introductions from outside the United States.

the possibility of reducing harm from the many NIS already established. Executive Order No. 11987 was issued 15 years before the OTA report, and the White House files and public statements suggest concerns for “hundreds” rather than the many thousands of NIS already in the United States. Still, even the most aggressive rules on new introductions would do little to stop the continuing and expanding harm from prior introductions, or from the inevitable occasional introductions that will occur even in a strict regulatory framework. The absence of a direct policy statement on established NIS is surprising to the extent that the signing statement and supporting executive branch documentation highlighted the harms from established invaders.

A fifth point about Executive Order No. 11987 is not so much a flaw as a warning sign not to read the currently legal authority too optimistically. While federal statutory legal authority to respond to harmful NIS has expanded somewhat since 1977, much of the legal framework, including the various “black list” acts and NEPA, were in place in 1977. The Carter White House files include several memoranda written in response to drafts that were circulated to cabinet and environmental agencies expressing support for the exotic species policy but doubts about whether available legal authority could support even the import and export policies that were the focus of the order.

The recognition among scientists, politicians, lawyers, and the public of the problems posed by harmful NIS has increased enormously since 1977, as suggested by the newspaper citation analysis in this Article. Sophistication about the pitfalls of various kinds of administrative process is also considerably greater among lawyers now than 20 years ago. It is wrong, I think, to judge Executive Order No. 11987 as anything other than a truly bold but ultimately ineffectual statement of wise policy unfortunately ahead of its time.

2. Executive Order No. 13112 (1999) (Clinton)—Hopeful, Bureaucratic

What difference has 20 years made on executive policy? For one thing, Executive Order No. 13112,¹¹¹ promulgated by President Clinton on February 3, 1999, is a longer and more complex document, substantively and procedurally, than Executive Order No. 11987, which it replaced. Executive Order No. 13112 states its goal as preventing “the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.”¹¹²

In some ways the policy goals are more sweeping than Executive Order No. 11987. Executive Order No. 13112 includes control of existing invasive species as one of its primary goals. “Alien species” is defined in ecological, not political terms, as “with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.”¹¹³ Furthermore, “introduction” is defined to include “intentional and unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.”

So far, so good. But Executive Order No. 11987 fell at least in part on its lack of process. How does Executive Order No. 13112 pursue its policy goals? Section 2 of the new Executive Order directs

[e]ach federal agency . . . to the extent practicable and permitted by law to use its programs and authority, subject to available funds, to pursue the following objectives:

- (i) to prevent the introduction of invasive species;
- (ii) to detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
- (iii) to monitor invasive species populations accurately and reliably;
- (iv) to provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
- (v) to conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and
- (vi) to promote public education on invasive species and the means to address them.¹¹⁴

The policy directive to all federal agencies whose actions may affect NIS is sweeping. Unfortunately, saying “everyone” has responsibility is a little like saying no one has responsibility. If the order stopped here, it would be only a more sophisticated, complete and current version of the Carter effort 22 years earlier.

However, Executive Order No. 13112 also creates an Invasive Species Council, made up of all cabinet officers with significant responsibility for NIS.¹¹⁵ The council was required to issue an Invasive Species Management Plan within 18 months. The council is advised by an Advisory Committee whose responsibility is to “recommend plans and actions at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives” of the management plan.¹¹⁶

Executive Order No. 13112 uses many of the hottest federal management tricks in the book. The interagency council made up of cabinet officers places responsibility as high as it can go. Involving a wide range of Cabinet-level officers increases the likelihood of a full airing of views, revelation of conflicts, and perhaps consistency, efficiency, and success of enforcement. Requiring a plan provides a device for action and commentary. Creating an advisory committee increases the chance of expert input and invests a number of people and organizations outside the government in the details of the council’s work.

F. The National Invasive Species Management Plan (January 18, 2001): Fail to Plan, Plan to Fail

The National Invasive Species Council issued its first draft management plan on July 10, 2000.¹¹⁷ This first draft man-

111. 64 Fed. Reg. at 6183.

112. *Id.*

113. *Id.*

114. *Id.*

115. A possible exception to the list of relevant cabinet-level officers is the U.S. Attorney General, who has responsibility for enforcing criminal laws regarding NIS.

116. 64 Fed. Reg. at 6184.

117. NATIONAL INVASIVE SPECIES COUNCIL, UNITED STATES INVASIVE SPECIES DRAFT MANAGEMENT PLAN: PREPARING FOR THE FU-

agement plan was long (63 pages) and completely incoherent. It called for more funding and staff, but did not delineate either the problems or the solutions with any clarity.¹¹⁸ It was a model of bureaucracies run amok.

The second draft management plan, issued on October 2, 2000,¹¹⁹ was completely rewritten, and the main body of the text was one-half the length of the first draft, but with far greater substantive content. That plan, issued shortly before the 2000 presidential election and in the sunset of the Clinton Administration, was formally adopted by the cabinet officers making up the National Invasive Species Council on January 18, 2001, two days before the inauguration of President George W. Bush.¹²⁰ (By the time the plan appeared in print in October 2001, it was the Bush cabinet members on the council that appeared to a quick reader to be the plan's author.)

The 80-page *National Invasive Species Management Plan*, bearing the formal title *Meeting the Invasive Species Challenge*, is replete with specific goals for the council and for specific federal agencies, often with target dates attached. It is highly ambitious in detail if modest (indeed unclear) in ultimate aim. The spirit of the plan—hopeful, bureaucratic, nonspecific—can be illustrated with just a few goals for the council itself:

1. By April 2001, the Council will establish a transparent oversight mechanism for use by Federal agencies in complying with the Order and reporting on implementation. The oversight mechanism will employ an interactive process that engages public involvement

3. By January 2002, the Council will conduct an evaluation of current legal authorities relevant to invasive species. The evaluation will include an analysis of whether and how existing authorities may be better utilized. If warranted, recommendations will be made for changes in legal authority.

4. Starting in October 2001, each member Department of the Council shall submit an annual written report summarizing their invasive species activities, including a description of their actions to comply with the Order, budget estimates, and steps in implementing the Plan. These reports will be used in preparing the invasive species cross-cut budget and will help the Council in drafting the biannual updates to the year Management Plan.

5. By January 2002, the Council will prepare an analysis of barriers to coordinated and joint actions among Federal agencies, including legal and policy barriers and barriers relating to the transfer and pooling of funds for invasive species projects. The analysis will include consideration of a standard Memorandum of Understanding

that would allow interagency transfer of funding for invasive species actions identified in the Plan.

6. By July 2002, the Council will identify at least two major invasive species issues, regulations, or policies where coordination is inadequate and will take action that fixes the problem.

7. Beginning with Fiscal Year (FY) 2003, and each year thereafter, the Council will coordinate and provide to the Office of Management and Budget (OMB) a proposed cross-cut budget for Federal agency expenditures concerning invasive species, and in particular will address implementation of the actions recommended in this and future editions of the Plan. The cross-cut budget will take into account views of the Advisory Committee, States, and the full range of stakeholders. In addition, it will be used as a tool for planning and coordination, giving emphasis to funding priorities to implement action items.

8. By January 2003, and every 2 years thereafter, the Council will give a report on success in achieving the goals and objectives of the current Plan, and issue an updated Plan. These updates and reports will be prepared in consultation with the Advisory Committee and through mechanisms securing comment from stakeholders and the general public¹²¹

Despite their generality, most and perhaps all of these goals have not been met. It would have been optimistic to think that even a majority of these goals could be met if the plan had appeared at the start or in the middle of a new administration. But the shift to an administration where the council included Secretary of the Interior Gail Norton as a co-chair and Secretary of Defense Donald Rumsfeld and Secretary of State Colin Powell, among other Cabinet officers, as members, made any progress on this plan unlikely.

Two general problems with the Invasive Species Management Plan stand out beyond its hyperactive, overstructured, action-item nature. The first is the extent to which the plan continues to define the invasive species problem largely in terms of current federal agency jurisdiction and authority, rather than as a cross-cutting issue for the federal government (and of immense relevance to states, localities, and private actors). Second, the draft does not include or require any measures of current collective harm and therefore offers no basis other than expenditure of energy and money for determining whether the policies proposed are effective or as efficient as possible. In the words of the old school-room saying: "Fail to plan, plan to fail."

The U.S. General Accounting Office (GAO) issued a report in October 2002 that concurs with these concerns.¹²²

While the National Invasive Species Council's 2001 management plan, *Meeting the Invasive Species Challenge*, calls for actions that are likely to help control invasive species, it lacks a clear long-term outcome and quantifiable performance criteria against which to evaluate the overall success of the plan [T]he only available performance measure that can be used to assess overall progress is the percentage of planned actions that

TURE (2000), available at <http://www.invasivespecies.gov/council/draft711.pdf> (last visited June 10, 2003).

118. See, e.g., *id.* at 17.

It will likely take several years to develop specific programs to phase in [a more effective approach]. Substantial additional funding and staff will also be necessary. These costs must be considered in the context of the additional costs required to implement the fully existing laws and the substantial costs of future invasions that will be avoided through implementation of a more effective approach.

119. NATIONAL INVASIVE SPECIES COUNCIL, MEETING THE INVASIVE SPECIES CHALLENGE (Draft Management Plan) (2000), available at <http://www.invasivespecies.gov/council/draft1002.pdf> (last visited June 10, 2003).

120. NATIONAL INVASIVE SPECIES COUNCIL, MEETING THE INVASIVE SPECIES CHALLENGE (2001), available at <http://www.invasivespecies.gov/council/mpfinal.pdf> (last visited June 10, 2003).

121. *Id.* at 27-28.

122. U.S. GAO, REPORT TO EXECUTIVE AGENCY OFFICIALS, INVASIVE SPECIES: CLEARER FOCUS AND GREATER COMMITMENT NEEDED TO EFFECTIVELY MANAGE THE PROBLEM (2002), available at <http://www.gao.gov/new.items/d031.pdf>. I write that the GAO report "concurs" with the views in this Article since GAO staff both discussed these issues with me in several telephone conversations and read an earlier substantial draft of this Article.

have been completed by the due dates set in the plan. By this measure, implementation has been slow. Specifically, the council departments have completed less than 20[%] of the planned actions that were called for by September 2000 . . . [W]hile the national management plan calls for many actions that would likely contribute to preventing and controlling invasive species, even if the actions in the plan were more fully implemented their effect would be uncertain because they typically do not call for quantifiable improvements in invasive species management or control.

The national management plan does not clearly define a long-term outcome or measures of success as are called for by sound management principles. The executive order states that the management plan shall “detail and recommend performance-oriented goals and objectives and specific measures of success for federal agency efforts concerning invasive species.” Consistent with that requirement, the council and its advisory committee adopted as one of their guiding principles that efforts to manage invasive species are most effective when they have goals and objectives that are clearly defined and prioritized. . . .

However, the council did not articulate in the plan a long-term outcome or condition toward which the federal government should strive. For example, the plan does not contain overall performance-oriented goals and objectives, such as reducing the introduction of new species by a certain percentage or halting the spread of established species on public lands. Instead, the plan contains an extensive list of actions that, while likely to contribute to preventing and controlling invasive species, are not clearly part of a comprehensive strategy.¹²³

In earlier reports to Congress and executive branch officials in August 2000 and July 2001, the GAO had reported about the delay in developing federal policy under Executive Order No. 13122 and about the need for better rapid response capabilities, authority and funding across federal agencies.¹²⁴

But in fairness to the drafters, even if the plan had been much better written, with measures of success and more clearly prioritized goals, the likelihood of great progress would be relatively slight given the horrible political timing, the environmental sympathies of the Bush Administration, and the terrible cloud of September 11, 2001, and the several wars that have followed. It is more than a little difficult to imagine Rumsfeld asking for the invasive species report following the update on the invasion of Baghdad.

Much of the success of any federal U.S. invasive species policy, but especially a policy emerging from within the executive branch, will turn on the attitudes of executive branch

officials and funding and other direction and encouragement from Congress. At the present time, it is only the increasing, widespread recognition of the threat from invasive species that prevents a prediction that the National Invasive Species Council and the Invasive Species Management Plan will follow the path of Carter’s 1977 Executive Order into oblivion.

One intriguing congressional twist to federal policy appeared in 2003 in the form of bills introduced in both the U.S. House of Representatives and the Senate that would codify and in some important ways modify President Clinton’s Executive Order No. 13112.¹²⁵ Rep. Vernon Ehlers (R-Mich.) introduced H. 266, the House version of the bill, on January 8, 2003. He explained the bill:

[The] authority [of the National Invasive Species Council] to coordinate the actions of Federal agencies has been limited. The General Accounting Office (GAO) recently recognized this problem GAO recommended that the Council study whether or not a lack of legislative authority has hampered its mission

[H.R. 266 gives] the Council a clear statutory mandate It also makes the Council an independent entity within the Executive Branch

[T]he Council must submit an annual list of the top priorities in several different areas related to addressing the threat posed by invasive species The legislation also calls on the Office of Management and Budget to develop a crosscut budget of all invasive species efforts in the Federal government. This is a necessary tool for the Council to coordinate efforts among the various Federal agencies.¹²⁶

Perhaps codifying the responsibilities of Executive Order No. 13112 would increase the chance of substantial policy action; certainly it would reduce or eliminate ambiguities with regard to whether existing legal authority supported all of the actions specified in the Executive Order. In addition, in codifying the order Congress would put itself on notice to expect annual requests for funding to support NIS policies. If Congress is serious about invasive species, however, it will set clearer standards and measures, place clearer responsibility on the president and specific cabinet agencies, require far more specific reports, and commit more substantial funds to the area.

Specific agencies have made some visible progress as well on NIS issues, though typically what is evident from *Federal Register* notices and information on department websites are developments on single topics or in response to identified species. At each agency, progress has been a fraction of the systematic and detailed agency-specific requirements listed in the management plan. For example, APHIS has been moving toward implementing solid wood packing material regulations.¹²⁷ Solid wood packing material has been the subject of public concern based largely on inva-

123. *Id.*

124. The GAO has responded to a series of requests from legislators on invasive species issues. In August 2000, the GAO described current federal and state funding for dealing with invasive species, and noted that a year and a half after President Clinton signed Executive Order No. 13112 “[t]he Invasive Species Council has been slow in getting off the ground,” and had yet to name people to two of four permanent staff positions. U.S. GAO, REPORT TO CONGRESSIONAL COMMITTEES, INVASIVE SPECIES: FEDERAL AND SELECTED STATE FUNDING TO ADDRESS HARMFUL, NON-NATIVE SPECIES (2000) (GAO/RCED-00-219), available at <http://www.gao.gov/new.items/rc00219.pdf> (last visited June 10, 2003). In July 2001, the GAO focused on the need for a more coherent national rapid response strategy. U.S. GAO, REPORT TO CONGRESSIONAL REQUESTERS, INVASIVE SPECIES: OBSTACLES HINDER FEDERAL RAPID RESPONSE TO GROWING THREAT (2001) (GAO-01-724), available at <http://www.gao.gov/new.items/d01724.pdf> (last visited June 10, 2003).

125. S. 535; H.R. 266, 108th Cong. (2003). The bills, creatively titled the “National Invasive Species Council Act,” have been referred to committees, and have only a few sponsors.

126. H.R. 266, 149 CONG. REC. E42 (daily ed. Jan. 8, 2003).

127. U.S. Department of Agriculture, APHIS, 68 Fed. Reg. 27480 (May 20, 2003) (proposed rule). Issues registering on the federal agenda often generate prior or contemporaneous action in the most severely effected states. States enacting ballast water legislations since 1999 include Alaska (1999), California (1999), Illinois (1999), Maryland (2002), Michigan (1999), Oregon (2001), Washington (2002), and Wisconsin (2001). See REEVES, *supra* note 14.

sions of the Asian longhorned beetle in New York City; solid wood packing material has also been the subject of guidelines issued by the International Plant Protection Convention (IPPC),¹²⁸ a multilateral convention to which the United States is a signatory. Similarly, following public concern and the directives of the National Invasive Policy Act of 1996, the Coast Guard has continued its efforts to pursue effective regulations and voluntary compliance with ballast water treatment and releases.¹²⁹ There is little evidence that federal agencies are living up to §2 of Executive Order No. 13112 or the demands of the management plan.

IV. State Legal Authority Regarding Harmful NIS

For many states, the range of actual and possible legal authority with regard to harmful NIS presents a picture as complicated as the federal situation. Indeed, inherent in any assessment of state legal authority is the additional dimension of limitations (if any) posed by federal law, and the very interesting and complicated questions raised by multistate, regional, and state and federal compacts, working groups, and parallel or joint state and federal policy implementation.

To make matters even more complicated, some federal laws specifically provide authority to assist and work with particular states. For example, the Hawaii Tropical Forest Recovery Act of 1992¹³⁰ included provisions designed to help Hawaii both protect native species and control non-native species. Other federal laws, including the Lacey Act, provide for federal enforcement of policy decisions made under state law. Still other federal laws have provisions encouraging (but not necessarily mandating) various state policies with respect to NIS. In this overview, I seek only to present the framework for understanding state NIS law generally, and to highlight some of the substantial variations among states in their legal response to harmful NIS.

States retain general power to do whatever they want with state lands. One obvious limitation on this applies to federal lands within state boundaries, a situation especially relevant to states in the West. Another obvious limitation on state lands policies applies to private lands, where an independent set of constitutional and statutory limitations together make up recognized private property rights. Still, as both a theoretical and a practical matter, U.S. states have an enormous range of power to prohibit, ignore, or even encourage harmful NIS within their borders.

In fact, state legal authority addressing harmful NIS varies enormously. Several states have substantial legal structures in place; others have substantial but incomplete legal and administrative structures, while still others seem hardly to have noticed the issue of harmful NIS at all. The OTA report summarized the law in all 50 states as of the early 1990s:¹³¹

States prohibit importation and/or release of a median of only eight potentially harmful fish and wildlife species or groups. In a survey of state fish and wildlife agency officials, about one-third responded that their lists are too short.

About one-quarter of the states lack legal authority over importation and/or release of one or more of the five major vertebrate groups (mammals, birds, fish, reptiles, and amphibians). Also, about 40% of state agencies would like to receive additional regulatory authority from their state legislatures.

Among those states that do not have decision-making standards for approval of importation and/or release of non-indigenous fish and wildlife, none legally requires adherence to a scientific protocol when considering a proposal. A few states mandate scientific studies for certain proposals. About one-half the states require a general determination of potential impacts, defined broadly enough to include all ecological impacts. The rest lack vigorous decisionmaking standards.

Most state agencies rate their own implementation and enforcement resources (staff, funding, or others) as “less” or “much less” than adequate; on average, they would like increases of resources of about 50% to meet their responsibilities.

Several states present exemplary approaches to managing non-indigenous fish and wildlife. On the other hand, many States are underregulating in several important respects. Overall, States are not adequately addressing non-indigenous fish and wildlife concerns.¹³²

Which states have “exemplary” approaches to managing NIS? A few states employ a “clean list” approach to new NIS introductions. The OTA report identifies Hawaii as the only state with a complete presumption against importation or release, and several other states—Florida, Georgia, Idaho, Kentucky, and Vermont—as states with partial “clean list” approaches. Most states have a “dirty” or “black” list approach, following the federal lead. The OTA provides a surprisingly long list of states that, it says, have no prohibitions whatsoever on importation or release, including Arizona, California, Massachusetts, and New Mexico; states with few restrictions include Nevada, New Jersey, Texas, and Virginia, though it is likely that most or all of these states have modified their policies on invasive species since the early 1990s, when the OTA did its research.

The accounting of state laws is incomplete without a full examination of state funding and actual agency behavior. The best illustration of state legislation appears in the 2002 volume from the Environmental Law Institute titled *Halting the Invasion: State Tools for Invasive Species Management*.¹³³

States have been changing their laws relating to NIS over the past decade, as awareness of NIS issues has increased,

128. United Nations Food and Agriculture Organization (FAO), International Plant Protection Convention New Revised Text Art. II (1997) (Approved by FAO Conference at its 29th Session in Rome).

129. See, e.g., U.S. Department of Transportation, Coast Guard, Implementation of the National Invasive Species Act of 1996, 64 Fed. Reg. 26672 (May 17, 1999) (interim rule).

130. Pub. L. No. 102-574, 106 Stat. 4593, codified at 16 U.S.C. §§4502-4503.

131. OTA REPORT, *supra* note 2, at 201-31. The report lists key state statutes and regulations state by state, though unfortunately not in citation forms that are easy to use. *Id.* at 222-23.

132. *Id.* at 208-09.

133. ENVIRONMENTAL LAW INST., HALTING THE INVASION: STATE TOOLS FOR INVASIVE SPECIES MANAGEMENT (2002). The most current and complete list of state invasive species laws can be found at the Northeast Midwest Institute. See Northeast Midwest Inst., *Invasive Species State Laws*, at <http://www.nemw.org/ANSstatelaws.htm>.

and in light of the emergence of state-level plant pest councils and federal and state policy groups such as the Aquatic Nuisance Species Task Force and FICMNEW.¹³⁴ For example, Minnesota was listed in the OTA report as a state whose basic legal approach to NIS was a “black list” approach, and which listed more than five identified species or groups, i.e., it was among the states that appeared on this measure to be more aware of harmful NIS.¹³⁵ But in 1996, Minnesota passed a statute making it one of the most aggressive states in excluding harmful NIS. The new Minnesota laws create a strong white list approach. The Commissioner of Agriculture is directed to classify all exotic species as prohibited, unlisted, or unregulated.¹³⁶ Listing is to be based on the following criteria:

Subd. 2. Criteria. The commissioner shall consider the following criteria in classifying an exotic species under this chapter:

- (1) the likelihood of introduction of the species if it is allowed to enter or exist in the state;
- (2) the likelihood that the species would naturalize in the state were it introduced;
- (3) the magnitude of potential adverse impacts of the species on native species and on outdoor recreation, commercial fishing, and other uses of natural resources in the state;
- (4) the ability to eradicate or control the spread of the species once it is introduced in the state; and
- (5) other criteria the commissioner deems appropriate.¹³⁷

Unlisted exotic species may not be introduced until the Commissioner of Agriculture has determined that the species is appropriate.¹³⁸ Regulated exotic species can only be introduced after obtaining a permit from the commissioner.¹³⁹ A person that allows introduction of an exotic species must notify the commissioner within 48 hours of learning of the introduction, and make every reasonable attempt to recapture or destroy it.¹⁴⁰ The person who allows release is liable for costs incurred by the state in capture or control of the animal “and its progeny.”¹⁴¹ A person who allows introduction and does not provide notice or make an attempt to recapture is subject to minor criminal sanctions.¹⁴²

The new Minnesota law concerning NIS looks to be as strong as any state. These provisions focus on introductions and therefore do not describe a complete law regarding harmful NIS. The success of these provisions will depend on the administrative decisions made under the law, the willingness of citizens to follow the law, and the funding

and support provided by the state legislature for the NIS review process.

Another dimension of state legal authority with respect to harmful NIS is that states will often have multiple agencies, offices, committees, and councils with authority over various aspects of the NIS problem. Because of the severity of NIS issues in Hawaii, for example, there is somewhat more literature on law and policy in the state, typified by an excellent 1992 report by the Nature Conservancy of Hawaii and the NRDC. This report includes a chart, reprinted here as Table 4, that illustrates the number of state agencies involved with harmful NIS in Hawaii. The chart also suggests the extent to which these state agencies interact or at least overlap with the many federal agencies involved in NIS issues.

Table 4: Hawaii’s Control System

Discovery	Identification And Prescription	Treatment And Monitoring
INSPECTIONS AND MONITORING HDOA/PQ DOH/VCB UHCES AREA SURVEYS HDOA/PPC DLNR/DOFAW USFWS NPS BPBM TNCH HSPA INCIDENTAL DETECTIONS HDOA/PC HDOA/PPC DLNR/DOFAW DLNR/DAR UHCES USFWS NPS TNCH BPBM HSPA Private Growers Private Biologists Private Land Owners Untrained Public	AGRICULTURAL PESTS HDOA/PPC HSPA BPBM UHCES Private Growers NATURAL AREA PESTS DLNR/DAR USFWS NPS USFS BPBM TNCH FCC Private Land Owners HUMAN HEALTH PESTS DOH	AGRICULTURAL PESTS HDOA/PPC HSPA UHCES USDA/ADC USDA/ARS Private Growers NATURAL AREA PESTS HDOA/PQ HDOA/PPC NPS DLNR/DOFAW DLNR/DAR USDA/ADC USFWS NPS TNCH FCC Private Land Managers HUMAN HEALTH PESTS DOH

Hawaiian law regarding harmful NIS law is among the strongest in the United States, no doubt due to the enormous impact NIS have had in Hawaii, as on many other islands. For example, Hawaiian law includes a general prohibition on the introduction of animals until they are evaluated and placed on a list of conditionally approved, restricted, or prohibited animals by the Hawaii Board of Agriculture.¹⁴³

In addition to a strong policy and administrative structure supporting exclusion of NIS, Hawaiian law is striking for its aggressive recognition of the need to survey its lands for areas that are relatively pristine, as well as for those that have been harmed by NIS, and then to follow up by protecting the pristine lands and responding to invasions. The additional dimensions of a complete NIS law, including the identification of invasions and the mechanisms for responding to new invasions, as well as those already in place in Hawaii, seem

134. See, e.g., National Conference of State Legislatures, Environment, Energy, and Transportation Program, *Invasive Species Internet Report* (2001), at <http://www.ncsl.org/programs/ESNR/invaspecies.htm> (last visited June 10, 2003).

135. Focusing on whether a state has a “black list” or “white list” or no list to introductions looks at only one of several relevant dimensions in dealing with harmful NIS. Perhaps the assumption is that if a state does not try to keep out harmful NIS, it is unlikely to be a leader in responding to NIS already in place.

136. MINN. STAT. §84D.04.

137. *Id.* §84D.04, sub. 2.

138. *Id.* §84D.06.

139. *Id.* §84D.07.

140. *Id.* §84D.08.

141. *Id.* §84D.08.

142. *Id.* §84D.13.

143. HAW. REV. STAT. §150-A-6 (“Any animal that is not on the lists of conditionally approved, restricted, or prohibited animals shall be prohibited until the board’s review and determination for placement on one of these lists; . . .”). See also *id.* tit. 11, ch. §150A.

to be absent from the law of many other states. The spirit, and perhaps the actual text of Hawaii Revised Statutes §152-6 (with NIS substituted for “noxious weed”), might serve as a model for other states and the federal system:

§152-6 Duties of the department; noxious weed control and eradication.

(a) The department shall maintain a constant vigilance for incipient infestations of specific noxious weeds on islands declared reasonably free from those weeds, and shall use those procedures and methods to control or eradicate the infestations of noxious weeds as are determined to be feasible and practicable.

(b) When the department determines that an infestation of a certain noxious weed exists on an island declared reasonably free from the weed, the department shall immediately conduct investigations and surveys as are necessary to determine the feasibility and practicability of controlling or eradicating the infestation. The department may also conduct investigations and surveys to determine the feasibility and practicability of controlling widespread noxious weed infestations. The methods of control or eradication adopted by the department for any noxious weed infestation shall cause as little damage to crops and property as possible.

(c) Upon determining that control or eradication of an infestation is practicable and feasible, the department shall immediately serve notice, either oral or written, on both the landowner of the property and the occupant of the property on which the infestations exist The notice shall set forth all pertinent information with respect to the infestation and notify the landowner and the land occupant of the procedure and methods of control or eradication.

(d) Upon the department’s notification pursuant to subsection (c) above, the department may enter into a

cooperative agreement with the landowner and land occupier for the control or eradication of the noxious weed infestation.

(e) Upon the department’s notification pursuant to subsection (c) above, the department may entirely undertake the eradication or control project when it has been determined that the owner, occupier, or lessee of the land on which the noxious weed infestation is located will not benefit materially or financially by the control or eradication of the noxious weed; or when the noxious weed infestation is on state-owned land not leased or under control of private interest.¹⁴⁴

Islands are special engines of endemism; they also tend to be especially vulnerable to invasion. It is not surprising, therefore, that Hawaii’s laws regarding alien species are more developed than in most states, and that there is a steady stream of proposed legislation in the Hawaiian legislature responding, typically, to particular invasions.¹⁴⁵ Indeed, the Hawaiian legislature has enacted more than 20 new laws dealing with invasive species since 2001.

A complete analysis of state NIS laws is beyond the scope of this Article. A complete analysis would require a state-by-state assessment not only of current laws, but also of current policies and budget allocations. This short survey, the available literature, and a sampling of state statutory and regulatory provisions provides sufficient information to conclude that states vary considerably in their response to invasive species, with most trailing behind the federal government in terms of their legal awareness of harmful NIS issues. This short review confirms that, the intriguing provisions in Hawaii and Minnesota notwithstanding, a complete legal response does not exist in even the most progressive states.¹⁴⁶

Table 5: State Invasive Species Laws¹⁴⁷

	General Non-Specific NIS Laws	Agriculture Farming, Nurseries, Ranching, Commerce	Forestry	Fisheries	Other Industries	Sporting and Pet	Environmental Protection	Total Laws Listed
Alabama	X	X						2
Alaska		X		X	X		X	2
Arizona		X						1
Arkansas		X						2
California	X	X		X	X	X	X	24
Colorado		X						2
Connecticut								0
Delaware		X						5
Florida	X	X		X	X		X	3
Georgia		X						1
Hawaii	X	X		X	X	X	X	9
Idaho	X	X						5
Illinois		X		X	X		X	7
Indiana		X					X	2
Iowa		X						4
Kansas		X						19
Kentucky		X						1
Louisiana		X						1
Maine		X	X	X	X		X	4

144. *Id.* §152-6.

145. *See, e.g.*, Haw. H.B. No. 1949, House Draft 2 (Mar. 3, 2000) (Rep. Brian Schatz, D-25th Dist.) (a bill addressing alien aquatic organisms); Haw. H.B. No. 2973, House Draft 2 (Haw. 2000) (Rep. Joseph Souki, D-8th Dist.) (a bill making appropriations for alien miconia eradication).

146. Perhaps a complete legal response to harmful NIS could be cobbled together from the most thoughtful provisions from among the states and federal system, but this exercise does not seem more useful or promising than addressing directly the most common gaps in federal and state law.

147. Northeast Midwest Inst., *supra* note 133.

Table 5: State Invasive Species Laws (cont.)

	General Non-Specific NIS Laws	Agriculture Farming, Nurseries, Ranching, Commerce	Forestry	Fisheries	Other Industries	Sporting and Pet	Environmental Protection	Total Laws Listed
Maryland		X			X		X	3
Massachusetts		X					X	3
Michigan	X	X		X	X		X	10
Minnesota		X		X	X		X	7
Mississippi		X						1
Missouri	X	X						3
Montana		X						1
Nebraska	X	X				X		6
Nevada		X				X		6
New Hampshire		X		X	X		X	4
New Jersey		X				X		4
New Mexico	X	X						4
New York		X		X	X		X	5
North Carolina	X	X						4
North Dakota		X						3
Ohio	X	X						4
Oklahoma		X						1
Oregon	X	X			X		X	6
Pennsylvania		X						1
Rhode Island		X			X		X	2
South Carolina		X						3
South Dakota		X						4
Tennessee		X						3
Texas		X						2
Utah	X	X		X	X		X	5
Vermont		X			X	X	X	7
Virginia		X			X		X	4
Washington	X	X		X	X		X	6
West Virginia		X						1
Wisconsin		X			X		X	4
Wyoming		X						2

V. Gaps in U.S. NIS Laws

What *should* the law say about non-indigenous species? What role should government play in regulating NIS? What should the goals of NIS law be? What is the best way to achieve these goals?

This Article began by asking whether there is any way to resolve the apparent paradox of a legal world with a huge amount of potentially relevant law and very little law that attacks the invasive species issue head-on or comprehensively. One resolution of this apparent paradox was to suggest that it is not a paradox at all when the question is expanded from “what laws exist?” to “what can (or cannot) be done under the laws that exist?” To make a similar point, there is no “much law”/ “little law” paradox if the issue of invasive species has yet to be conceived in a unified or coherent fashion, though parts of the issue have been recognized. Indeed, if the issue of harmful invasive species has emerged clearly in U.S. public discourse only in the past decade, the odd incident of the Carter Executive Order in 1977 notwithstanding, then it would be even more surprising—perhaps more of a paradox—for comprehensive legislation to exist. Laws are rarely ahead of their time; it is hard enough to draft laws that adequately match the needs of their time.

While the present legal situation regarding harmful invasive species may well be common as a matter of the evolu-

tion of legal regimes for other issues and areas, that recognition does not obviate the need to consider the continued wisdom of the current framework. In other words, the increasing recognition of a large and coherent problem with harmful invasive species (coherence here does not mean simple, just “connected,” or “understood as a whole”) poses two fair challenges to the many piecemeal laws on the books: first, do the present array of laws address all essential aspects of policy and administration with respect to harmful invasive species, and second, whether or not the current laws address all (or most) essential issues, should the legal regime nonetheless be reworked into a simpler, more coherent, and more unified framework?

This final part identifies some of the important gaps in the collective set of current NIS laws and suggests critical issues that a good NIS law would address. It identifies three major problems with current U.S. NIS law: lack of vision, lack of completeness, and lack of coherence. It concludes with some initial reflections on the virtues of simpler and more coherent laws.

A. The Vision Gap: NIS and Natural Ecosystems

It is good when legal systems recognize that some NIS are harmful, as most if not all U.S. legal systems now do. But perhaps it is equally important that legal systems recognize

that indigenous organisms and complete, functional, natural ecosystems populated by indigenous species have a special place and a special priority in policymaking. The important insight that NIS can cause enormous economic, ecological, and aesthetic harms may lead policymakers to focus on exclusion and control—to deal with the threats and negative consequences. A complete NIS law, though, would include a positive conception of ecological place. Especially for areas that are more natural and more wild, laws should express a general preference for indigenous over non-indigenous species, and treat even familiar non-indigenous species as exceptions to a favored norm.

The issues with respect to less wild and less natural areas, and especially with respect to agricultural land, are quite different. It would be awkward, to say the least, to apply a presumption against alien species to such systems which are almost entirely defined by introduced species, themselves highly modified through selective breeding and, now, through direct genetic modification. For agricultural areas, and perhaps in many other artificial or highly disturbed settings (homes, cities, and perhaps urban parks), a different set of presumptions with regards to alien species might apply. In such settings, the primary question might be the risk of alien species in those artificial contexts escaping into more natural or wild areas, or otherwise causing identifiable economic, ecological, or aesthetic harms.

Current federal law reveals multiple visions, some antagonistic to harmful NIS, some neutral, and some actually supportive of alien species introductions and protective of even harmful NIS now in place, even in more natural and more wild areas. In the new Executive Order No. 13112 there appears to be a general policy preference for indigenous over non-indigenous species where the order directs federal agencies to “provide for restoration of native species and habitat conditions in ecosystems that have been invaded.” But Executive Order No. 13112 also limits its concerns to harmful NIS, and states no general policy against alien species even in more natural and more wild areas.

There are many different ways to state positive conceptions of the role of indigenous species and natural ecosystems. It would help in the design and implementation of wise NIS law and policies if there were some stated goal. Of course there are enormous philosophical and practical problems in almost any definition based on what is “natural” and what is “wild,” given the pervasive effects of human presence and activities for long periods in much of the United States.¹⁴⁸ Perhaps invasive species laws need a principle of direction as much as one of destination. Perhaps an invasive species law would be a place to include, in a statement of principles, and at least with regards to more natural and more wild areas, Aldo Leopold’s land ethic: “A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.”¹⁴⁹

To point to a “vision gap” in current NIS laws may seem fairly abstract, and might suggest that the NIS problem—or at least its legal dimensions—is not so important after all. However, in the absence of some general statements of principle and identification of the goals to be achieved, it is hard to state coherent and complete legal or policy provisions, or to implement complex and wide-ranging laws, over time and place.

B. The Knowledge Gap

There may be no environmental issue of similar importance that is as little recognized to be a problem by the general public. This is true even as public awareness, reflected by an increase in news coverage, increases. The news stories are, for the most part, related to specific invasive species; they are not about, and often do not reflect, a more general concern with invasive species as a class.

The reasons for the relatively low standing of NIS issues are many and subtle. First, NIS problems are hard to see: it requires knowledge to differentiate between a native and invasive species, and to differentiate between harmful and benign alien species. When people look at their pets and their houseplants and their gardens, they do not usually think of these organisms as non-indigenous. The problem of NIS, therefore, is a problem in part of psychology (what is “seen”) and in part of culture (what practices are considered proper).¹⁵⁰

But many kinds of pollution other than biological pollution are nonobvious. The harms from other kinds of pollution may be easier, however, to perceive, especially when those harms are directly to human health. In addition, there are more accessible measures for other kinds of pollution, both in technical literature (assessing the risks from different pollutants) and in public and policy discourse (focusing on “smog days” or “superfund sites”).

A complete NIS law would include both authority and process for expanding knowledge about NIS. NIS laws should mandate the development of ready measures for assessing the costs and benefits of NIS and of the activities (such as trade, travel, and horticulture) that may indirectly introduce harmful NIS.

The lack of knowledge extends beyond public awareness to basic science and wise conservation policy. Basic scientific questions that have been answered only in rough and preliminary terms include: how many NIS are there in the United States, and in each of the states? what are the pathways and rates of new introductions?¹⁵¹ which NIS impose the greatest harm, and which NIS pose the greatest risk of harm over time? what are the most effective mechanisms for responding to different NIS? what are the most effective

148. See Gregory Aplet, *On the Nature of Wildness: Exploring What Wilderness Really Protects*, 76 DENV. U. L. REV. 347 (1999).

149. ALDO LEOPOLD, A SAND COUNTY ALMANAC 262 (1966). See Eric T. Freyfogle, *The Land Ethic and Pilgrim Leopold*, 61 U. COLO. L. REV. 217 (1990). See also Bradley Karkkainen, *Biodiversity and Land*, 83 CORNELL L. REV. 1 (1997); J.B. Ruhl, *Biodiversity Conservation and the Ever-Expanding Web of Federal Laws Regulating Nonfederal Lands: Time for Something Completely Different?*, 66 U. COLO. L. REV. 555 (1995); A. Dan Tarlock, *Local Government Protection of Biodiversity: What Is Its Niche?*, 60 U. CHI. L. REV. 555 (1993).

150. See JOHN HEINZ CENTER FOR SCIENCE, ECONOMICS, AND THE ENVIRONMENT, *STATE OF THE NATION’S ECOSYSTEMS: MEASURING THE LANDS, WATERS, AND LIVING RESOURCES OF THE UNITED STATES* 76, 145, 169-70, 204, 222, 251, 261-62 (2002) (wisely suggesting that the presence of non-native species are one measure of ecological health; asks the misguided question “whether there is a time (e.g., 50 or 100 years) after which an introduced species is considered to be native”).

151. See generally NATIONAL RESEARCH COUNCIL, COMMITTEE ON THE SCIENTIFIC BASIS FOR PREDICTING THE INVASIVE POTENTIAL OF NON-INDIGENOUS PLANTS AND PLANT PESTS IN THE UNITED STATES, *PREDICTING INVASIONS OF NON-INDIGENOUS PLANTS AND PLANT PESTS* (2002), available at <http://www.nap.edu/books/0309082641.html> (last visited June 10, 2003).

methods for reducing the rate of introductions? what standards should be applied to intentional introductions, including introductions in agricultural settings, of biological controls,¹⁵² and of genetically engineered organisms?

Among the most important knowledge gaps address policy issues—applied biological and social science—that might establish a list of priorities with respect to NIS for each available policy dollar, as well as a sound basis for determining a proper total level of resources for NIS issues. It is easy to come up with long lists of invasive species and the various kinds of harm they cause. It is harder to determine a “top 10” list, because that requires an understanding of facts and a choice about values, neither of which exists in most U.S. contexts. It is harder still to determine whether the first priority is to respond to the most costly current invaders, or the most threatening future invaders, or the potential of new introductions, each of which requires a substantial knowledge base, and each of which may require very different administrative processes.

Therefore, a top priority for sound policy development is expanding the knowledge base about these multiple dimensions of the NIS problem, and developing management tools such as measures to assess the priorities across a huge number of needs and demands. Like hurricanes and earthquakes, it would serve sound policy purposes if we knew that a particular NIS (widespread or not yet an invader) was a “class 5” (or whatever scale was selected) and therefore deserved a particular priority response. Like many other aspects of environmental oversight, it would help to have regular reports, and a basis for establishing changes in the NIS problem over time.

C. The Crisis Response Gap

Current U.S. NIS laws are strongest, in general, at providing government agencies with power to exclude particular identified species, and to conduct various kinds of searches at points and through mechanisms of entry and transport. If a war metaphor is justified with respect to NIS—and the familiar and well-established language of invasions and invasiveness suggests the metaphor may be more useful here than in some contexts—then the law and policy should match the metaphor. Current law focuses on the front lines, but pays too little attention to the enemies that have already arrived, and are spreading within.

Among the gaps in most current U.S. laws are substantive and structural provisions aimed at identifying NIS that have been introduced, and responding to those invasions.¹⁵³ Like crime reports and the myriad other reports provided by the government to mark and measure important social and physical facts, the authority, tools, and procedures should exist to produce steady information and reports on the NIS problem. The authority should also exist to respond quickly, especially in circumstances where a quick response to a limited invasion might succeed at total suppression, while a de-

layed response might leave far more restricted options. In other words, a good law would authorize and fund an alien species strike force.

Information about NIS introductions and invasions is critical for assessing the proper response. While federal and state government agencies have found the authority to respond to particular invasions, only Hawaii appears to have a statute in place that creates an obligation to identify new invasions and respond to them. Explicit statutory authority should support both rapid and long-term strategic responses, depending on the scope of the invasion, the risk of harm from and nature of the invasive species, and the availability of control mechanisms.

Another surprising gap in U.S. NIS law involves intentional NIS introductions. Intentional NIS introductions arise in a wide variety of settings. Some of those settings may have notably higher risks for harm than others. In terms of current gaps, some harmful NIS continue to be sold even after their harmful properties are widely recognized, and even after regulatory efforts to control their spread are already in place. Purple loosestrife (*Lythrum salicaria*) is just one common example of such continued commercial distribution in the face of enormous evidence of harmful impacts.

A legal framework should exist for the regularized assessment of all proposed introductions, including the introduction of biological controls and genetically engineered organisms. Decisions about intentional introductions should be made based on explicit, public standards, and public processes.

D. Enlisting the Citizenry: The Role of Public Education

Again, the war metaphor may come to the aid of good law making. A culture and community that does not distinguish between indigenous species and NIS is one less likely to recognize or care about *harmful* NIS. When institutions and individuals who should know better—such as zoos and botanical gardens and fishing enthusiasts and nurseries—promote NIS, they illustrate the importance of encouraging a much broader understanding of the threats posed by harmful NIS.¹⁵⁴

NIS laws can create extensive regulatory structures for assessing intentional introductions; they can also create formal civil or criminal liability for intentional and unintentional introductions. Such liability may be especially important with respect to the complex issues associated with intentional introductions for agricultural, pest control, horticulture, and sporting interests. But over time, better education about the threat of harmful NIS, including the training of citizens to help identify invasive species, may do more to lower the rate of introductions than formal regulatory or liability provisions for the individuals whose harmful behavior can be traced. (The point is not that regulatory and liability provisions are inappropriate, but that public awareness and education may be just as important.)

E. Coherence in Law

What determines whether an aspect of social policy is addressed by one law, 10 laws, or no law at all? What is the

152. With Greg Aplet I have previously expressed hesitation about treating biological controls as anything other than invasive species, even if the cost-benefit and risk calculations come out in their favor many times. See Miller & Aplet, *supra* note 48.

153. See U.S. GAO, REPORT TO CONGRESSIONAL REQUESTERS, *supra* note 124 (“A major obstacle to rapid response is the lack of a national system to address invasive species . . . Without such a system, obstacles to rapid response are less likely to be addressed and invasive species will continue to fall through the cracks.”).

154. Zoos often sell seeds for plants from faraway places in giftshops. At some zoos, signs point out alien plants, and encourage use of plants appropriate to climate (but not necessarily appropriate to the local ecosystem).

proper scope of law in any particular area? There are no absolute answers to these questions. Indeed, as a scholarly field, theories of legislation and law making are fairly impoverished. However, when the history of an area and the habits of law making have led to the promulgation of many related laws, it is probably a good time to consider whether there are logical or policy advantages to having fewer and more coherent laws in the area.

It is hard to imagine an area of law or policy more convoluted than the laws regarding harmful NIS, yet with great legal and knowledge gaps on key issues. This divergence framed the paradox noted at the beginning of this Article. Pressures have already been brought to bear recently on the array of plant pest and noxious weed acts—one important piece of the much larger harmful invasive species puzzle—which led to the enactment of a new Plant Protection Act and the supplanting of one set of prior statutes. But continued divergence across the broader, coherent range of issues that describe the harmful invasive species problem provides a strong argument in favor of adopting a “uniform” or “organic” or “model” act.

The alternative to conceptualizing a uniform NIS statute is to assess the amenability of current laws in force to particular problems. The difficulty of this exercise is proportional to the number of relevant laws, to their uncertain scope, and to the absence of some clear statement of goals or measures against which to test the current legal provisions. This Article has identified some of the typical gaps in current U.S. NIS laws. The OTA report and other publications have pointed to a variety of other gaps in federal and state law. This Article has also noted the possibility that the limits of current federal legal authority may be more likely to be tested given the promulgation of the new Executive Order No. 13112 that relies on all available legal authority to support its policy directives.

During the past decade, Congress and executive branch agencies have appeared willing to respond to particular NIS issues, most notably in Executive Order No. 13112, and in statutes such as the Plant Pest Act. States, to varying degrees, also seem to be directing increasing political attention to harmful NIS. Both the federal and state governments could continue along this path, adding specific legal authority when needs arise, and encouraging appropriate funding within program, agency, and budget lines that are already established.

One argument in favor of working only with the idea of modifying current legal authorities is that there are many programs in place and established understandings, under the existing laws. However, a new organic NIS law would not necessarily need to replace current authorities, but could address general goals and priorities, set presumptions, and fill the kind of large gaps noted in this Article, including various survey and reporting requirements that would help to increase the political and public awareness of NIS issues.¹⁵⁵ Such a core NIS law, for which there is no model currently in the United States, could dramatically help to increase awareness of NIS issues. A core law could also assist in ex-

plaining to Congress and state legislatures the funding priorities and demands for a wise response to harmful NIS.

A core NIS law could link pieces of the harmful NIS puzzle now left separate or unaddressed. It could link issues of intentional and accidental introduction on new NIS, assessment of NIS already released, and various control programs. A core NIS law could also assist in structuring NIS policies around ecological rather than political borders. In the area of intentional introductions, a core NIS law could provide a framework for considering and comparing the benefits and costs of introducing non-indigenous but naturally evolving species and those that are the product of genetic engineering.

An additional argument in favor of a new core NIS law is the growing evidence that the National Invasive Species Council has failed to demonstrate any substantial capacity to develop, implement, review and report on new policies that can make a difference. Indeed, it does not seem that the council has a sensible measure of “difference” it is trying to make. A locus of knowledge and policy on NIS is probably a good idea, but the political assumptions, authorities and hopes behind the creation of the council have not delivered sufficient progress. Don Schmitz and Daniel Simberloff have suggested the creation of a Center for Biological Invasions, an additional independent agency, modeled after the Centers for Disease Control, to address the massive knowledge and coordination problems raised by invasive species.¹⁵⁶

A new core NIS law would demand the attention of all the political branches, the many interested private industries and individuals, and the public, and would increase the chance that the threat from invasive species will be contained. Every senator and representative with a concern about some particular invasive species should now see that the problem is unlikely to be addressed well, and new problems avoided, without the larger context, structure, and knowledge that better laws and institutions could provide.

VI. Conclusion

Harmful NIS, and NIS generally, may present the single most important environmental issue overlooked, relative to its importance, in current law and policy. It may seem odd that an area of law that takes 50 pages to sketch and for which there is a “national plan” is an area strongly in need of new and better law. But that seems to be the case.

Even if lawyers might find the building blocks they need in current law to defend current or proposed government actions, no ecologist or policymaker would think a set of laws so fractured and designed for other purposes provides a wise foundation for NIS law and policy. Nor should any lawyer be satisfied with a legal framework that is so difficult to describe, understand, and apply. And no one, legislator, lawyer, scientist, or citizen, should be satisfied with the federal government’s record thus far in preventing, identifying, or responding to invasive species.

155. KEITH PITTS & MARC MILLER, INTERIM REPORT: POLICY AND REGULATION WORKING GROUP OF THE NATIONAL INVASIVE SPECIES COUNCIL (2000), available at <http://www.invasivespecies.gov/council/PR%20interim%20final%2020703.doc> (last visited June 2003).

156. Don Schmitz & Daniel Simberloff, Issues in Science and Technology Online, *Needed: A National Center for Biological Invasions* (2001), at <http://www.nap.edu/issues/17.4/schmitz.htm> (last visited June 10, 2003).

Appendix: Presidential Executive Orders on NIS

- a. Executive Order 11987 (May 24, 1977) (Jimmy Carter)
42 Fed. Reg. 26969
(E.O. 11987 was replaced by E.O. 13112).

Exotic Organisms

By virtue of the authority vested in me by the Constitution and the statutes of the United States of America, and as President of the United States of America, in furtherance of the purposes and policies of the Lacey Act and the National Environmental Policy Act of 1969, it is hereby ordered as follows:

Section 1. As used in this Order:

- (a) "United States" means all of the several States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, the Virgin Islands, Guam, and the Trust Territory of the Pacific Islands.
- (b) "Introduction" means the release, escape, or establishment of an exotic species into a natural ecosystem.
- (c) "Exotic species" means all species of plants and animals not naturally occurring, either presently or historically, in any ecosystem of the United States.
- (d) "Native species" means all species of plants and animals naturally occurring, either presently or historically, in any ecosystem of the United States.

Section 2.

(a) Executive agencies shall, to the extent permitted by law, restrict the introduction of exotic species into natural ecosystems on lands and waters which they own, lease, or hold for purposes of administration; and, shall encourage the States, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the United States.

(b) Executive agencies, to the extent they have been authorized by statute to restrict the importation of exotic species, shall restrict the introduction of exotic species into any natural ecosystem of the United States.

(c) Executive agencies shall, to the extent permitted by law, restrict the use of Federal funds, programs, or authorities used to export native species for the purpose of introducing such species into ecosystems outside the United States where they do not naturally occur.

(d) This Order does not apply to the introduction of any exotic species, or the export of any native species, if the Secretary of Agriculture or the Secretary of the Interior finds that such introduction or exportation will not have an adverse effect on natural ecosystems.

Section 3. The Secretary of the Interior, in consultation with the Secretary of Agriculture and the heads of other appropriate agencies, shall develop and implement, by rule or regulation, a system to standardize and simplify the requirements, procedures and other activities appropriate for implementing the provisions of this Order. The Secretary of the Interior shall ensure that such rules or regulations are in accord with the performance by other agencies of those functions vested by law, including this Order, in such agencies.

- b. Executive Order 13112 (February 3, 1999)
(William J. Clinton)
64 Fed. Reg. 6183

Invasive Species

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the National Environmental Policy Act of 1969, Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, Lacey Act, Federal Plant Pest Act, Federal Noxious Weed Act of 1974, Endangered Species Act of 1973, and other pertinent statutes, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause, it is ordered as follows:

Section 1. Definitions.

(a) "Alien species" means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

(b) "Control" means, as appropriate, eradicating, suppressing, reducing, or managing invasive species populations, preventing spread of invasive species from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions.

(c) "Ecosystem" means the complex of a community of organisms and its environment.

(d) "Federal agency" means an executive department or agency, but does not include independent establishments as defined by 5 U.S.C. §104.

(e) "Introduction" means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

(f) "Invasive species" means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

(g) "Native species" means, with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

(h) "Species" means a group of organisms all of which have a high degree of physical and genetic similarity, generally interbreed only among themselves, and show persistent differences from members of allied groups of organisms.

(i) "Stakeholders" means, but is not limited to, State, tribal, and local government agencies, academic institutions, the scientific community, nongovernmental entities including environmental, agricultural, and conservation organizations, trade groups, commercial interests, and private landowners.

(j) "United States" means the 50 States, the District of Columbia, Puerto Rico, Guam, and all possessions, territories, and the territorial sea of the United States.

Sec. 2. Federal Agency Duties.

(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

- (1) identify such actions;
- (2) subject to the availability of appropriations, and

within Administration budgetary limits, use relevant programs and authorities to:

- (i) prevent the introduction of invasive species;
- (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
- (iii) monitor invasive species populations accurately and reliably;
- (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
- (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and
- (vi) promote public education on invasive species and the means to address them; and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

Sec. 3. Invasive Species Council.

(a) An Invasive Species Council (Council) is hereby established whose members shall include the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Transportation, and the Administrator of the Environmental Protection Agency. The Council shall be co-chaired by the Secretary of the Interior, the Secretary of Agriculture, and the Secretary of Commerce. The Council may invite additional Federal agency representatives to be members, including representatives from subcabinet bureaus or offices with significant responsibilities concerning invasive species, and may prescribe special procedures for their participation. The Secretary of the Interior shall, with concurrence of the co-chairs, appoint an Executive Director of the Council and shall provide the staff and administrative support for the Council.

(b) The Secretary of the Interior shall establish an advisory committee under the Federal Advisory Committee Act to provide information and advice for consideration by the Council, and shall, after consultation with other members of the Council, appoint members of the advisory committee representing stakeholders. Among other things, the advisory committee shall recommend plans and actions at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order. The advisory committee shall act in cooperation with stakeholders and existing organizations addressing invasive species. The Department of the

Interior shall provide the administrative and financial support for the advisory committee.

Sec. 4. Duties of the Invasive Species Council.

The Invasive Species Council shall provide national leadership regarding invasive species, and shall:

(a) oversee the implementation of this order and see that the Federal agency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective, relying to the extent feasible and appropriate on existing organizations addressing invasive species, such as the Aquatic Nuisance Species Task Force, the Federal Inter-agency Committee for the Management of Noxious and Exotic Weeds, and the Committee on Environment and Natural Resources;

(b) encourage planning and action at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order, in cooperation with stakeholders and existing organizations addressing invasive species;

(c) develop recommendations for international cooperation in addressing invasive species;

(d) develop, in consultation with the Council on Environmental Quality, guidance to Federal agencies pursuant to the National Environmental Policy Act on prevention and control of invasive species, including the procurement, use, and maintenance of native species as they affect invasive species;

(e) facilitate development of a coordinated network among Federal agencies to document, evaluate, and monitor impacts from invasive species on the economy, the environment, and human health;

(f) facilitate establishment of a coordinated, up-to-date information-sharing system that utilizes, to the greatest extent practicable, the Internet; this system shall facilitate access to and exchange of information concerning invasive species, including, but not limited to, information on distribution and abundance of invasive species; life histories of such species and invasive characteristics; economic, environmental, and human health impacts; management techniques, and laws and programs for management, research, and public education; and

(g) prepare and issue a national Invasive Species Management Plan as set forth in section 5 of this order.

Sec. 5. Invasive Species Management Plan.

(a) Within 18 months after issuance of this order, the Council shall prepare and issue the first edition of a National Invasive Species Management Plan (Management Plan), which shall detail and recommend performance-oriented goals and objectives and specific measures of success for Federal agency efforts concerning invasive species. The Management Plan shall recommend specific objectives and measures for carrying out each of the Federal agency duties established in section 2(a) of this order and shall set forth steps to be taken by the Council to carry out the duties assigned to it under section 4 of this order. The Management Plan shall be developed through a public process and in consultation with Federal agencies and stakeholders.

(b) The first edition of the Management Plan shall include a review of existing and prospective approaches and authorities for preventing the introduction and spread of invasive species, including those for identifying pathways by which

invasive species are introduced and for minimizing the risk of introductions via those pathways, and shall identify research needs and recommend measures to minimize the risk that introductions will occur. Such recommended measures shall provide for a science-based process to evaluate risks associated with introduction and spread of invasive species and a coordinated and systematic risk-based process to identify, monitor, and interdict pathways that may be involved in the introduction of invasive species. If recommended measures are not authorized by current law, the Council shall develop and recommend to the President through its co-chairs legislative proposals for necessary changes in authority.

(c) The Council shall update the Management Plan biennially and shall concurrently evaluate and report on success in achieving the goals and objectives set forth in the Management Plan. The Management Plan shall identify the personnel, other resources, and additional levels of coordination needed to achieve the Management Plan's identified goals and objectives, and the Council shall provide each edition of the Management Plan and each report on it to the Office of Management and Budget. Within 18 months after measures have been recommended by the Council in any edition of the Management Plan, each Federal agency whose action is required to implement such measures shall

either take the action recommended or shall provide the Council with an explanation of why the Action is not feasible. The Council shall assess the effectiveness of this order no less than once each 5 years after the order is issued and shall report to the Office of Management and Budget on whether the order should be revised.

Sec. 6. Judicial Review and Administration.

(a) This order is intended only to improve the internal management of the executive branch and is not intended to create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any other person.

(b) Executive Order 11987 of May 24, 1977, is hereby revoked.

(c) The requirements of this order do not affect the obligations of Federal agencies under 16 U.S.C. §4713 with respect to ballast water programs.

(d) The requirements of section 2(a)(3) of this order shall not apply to any action of the Department of State or Department of Defense if the Secretary of State or the Secretary of Defense finds that exemption from such requirements is necessary for foreign policy or national security reasons.