

Noah's Farce: The Regulation and Control of Exotic Fish and Wildlife

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Of every clean animal, take with you seven pairs, a male and its mate; and of the unclean animals, one pair, a male and its mate; likewise of every clean bird of the air, seven pairs, a male and a female, and of all the unclean birds, one pair, a male and a female. Thus you will keep their issue alive over all the earth.¹

I. INTRODUCTION

Whether for economic, religious, or sentimental reasons, out of curiosity, or for other motivations, mankind has a history of moving animals and plants beyond their native ranges. The transfer and release of animals beyond their native ranges continues and may affect our most treasured and pristine environments. For example, anyone who has seen photographs of or visited the Olympic National Park has been touched by scenes of alpine grandeur and visions of the majestic mountain goat. Few persons realize, however, that the mountain goat is a non-native or exotic species, transferred by man to the park nearly three quarters of a century ago. Fewer persons realize that the mountain goat negatively impacts the native plants and the fragile alpine ecosystems for which the park is revered. The mountain goat exemplifies the dangers of unregulated importation, transfer, and release of exotic fish and wildlife into foreign habitats. This Comment examines the dangers inherent in exotic species and evaluates federal and Washington State efforts to regulate the introduction of exotic fish and wildlife.²

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1. *Genesis* 7:2-3 (King James).

2. "Introduction" of exotic fish and wildlife means the release, escape, or establishment of an organism into an ecosystem other than the one in which it occurs naturally or historically. Further, it should be noted that some commentators assert

Current federal and state law is poorly equipped to prevent the introduction of harmful exotic species or remedy damages caused by them. The laws governing exotic species should be changed through (1) the enactment of more stringent laws prohibiting or regulating the introduction of exotic species, (2) statutorily created rights to recover for natural resource damage caused by the introduction of exotic species, (3) private rights of action to recover for personal injury or property damage caused by the introduction of exotic species, and (4) national and international efforts to effectively deal with the problem.

Part II of this Comment explores the means by which an exotic species may be released or established into an ecosystem and surveys some of the typical effects of transferring species to foreign habitats. Part III surveys some of the current regimes governing exotic species' introductions, including federal and Washington State laws and regulations.³ Part IV critically evaluates the existing regulatory framework and, in particular, addresses the difficulties inherent to state-by-state regulation of exotic species' introductions. Part V of this Comment argues that only comprehensive national and even international approaches regulating the importation, transfer, and release of exotic species will be effective in controlling the ever increasing number of native species threatened with extinction. Part V also suggests how a national approach might be structured to better protect native fish and wildlife resources.

that labeling some species as "exotics" is arguably invalid because "all plants and animals were introduced at some point in time whether by man or by some other force of nature." Kyla Seligsohn-Bennett, *Mismanaging Endangered and "Exotic" Species in the National Parks*, 20 ENVTL. L. 415, 429 (1990). This proposition is flawed because it overlooks the fact that, for the most part, species coevolve over thousands of years. Thus, the sudden introduction of a novel organism is probably rare. More importantly, this position devalues biodiversity because it disregards the fact that exotic species have been responsible for the extinction and endangerment of many native species. Moreover, if it is in society's interest to postpone or prevent the acceleration of species' extinction, then the classification of exotic vis á vis native species is a relevant and rational classifying trait.

3. Although this Comment focuses on federal and state efforts to regulate exotic species, I have focused on Washington State's efforts to cure the problem. However, this does not mean that the problem is particularly devastating to Washington. It only reflects a familiarity with the effects of introduced exotic organisms in Washington.

II. EXOTIC FISH AND WILDLIFE: HOW DO THEY GET HERE AND WHAT ARE THEIR EFFECTS?

A. *How Do They Get Here?*

Exotic fish and wildlife are introduced into native ecosystems either intentionally or inadvertently. Deliberate introductions account for a large number of the exotic fish and wildlife found in the United States.⁴ Oddly enough, the agencies charged as stewards of native fish and wildlife resources have often been responsible for intentionally importing, transferring, and releasing exotic animals into new areas.⁵

One of the first documented introductions of an exotic fish into North America was the common carp, which was introduced from Europe into the Hudson River in the early 1830s.⁶ In 1877, the United States Fish Commission⁷ imported 345 carp from Germany and began culturing and distributing them throughout the nation.⁸ Although the carp was introduced as a food source, its disadvantages outweighed its benefits. By 1897, the damage was done, and carp were never to be eradicated because their introduction resulted in irretrievable and rapid reproduction and dissemination.⁹ Today, carp are distributed throughout the United States, including the lower Columbia River and many of Washington's freshwater lakes.¹⁰

Similarly, state agencies via railroad links intentionally introduced almost all of the common spiny-rayed freshwater fishes into Washington, such as largemouth bass, yellow perch, bluegill, and green sunfish.¹¹ Presumably, these entities did so to provide recreational opportunities within the state.¹² With

4. See, e.g., Peter B. Moyle, *Fish Introductions in California: History and Impact on Native Fishes*, 9 *BIOLOGICAL CONSERVATION* 101, 116 (1976).

5. *Id.*

6. Peter B. Moyle et al., *The Frankenstein Effect: Impact of Introduced Fishes on Native Fishes in North America*, in *FISH CULTURE IN FISHERIES MANAGEMENT* 415 (R.H. Stroud ed., 1984) [hereinafter *The Frankenstein Effect*].

7. The United States Fish Commission preceded the United States Fish and Wildlife Service.

8. PETER B. MOYLE, *INLAND FISHES OF CALIFORNIA* 207 (1976) [hereinafter *CALIFORNIA FISHES*].

9. *Id.*

10. RICHARD S. WYDOSKI & RICHARD R. WHITNEY, *INLAND FISHES OF WASHINGTON* 76-77 (1979).

11. *Id.*

12. See generally *id.* at 101-146 (noting that several nonnative fishes have been introduced into Washington).

the exception of salmon and trout, the spiny-rayed fishes supported much of the freshwater angling in Washington.

A more recent spiny-rayed fish introduced into Washington waters was the walleye, native to freshwater lakes and rivers of northeast North America. No one knows with certainty how the walleye was introduced into Washington's waters. Some theorists believe that it was intentionally introduced by agents of the federal government in the early 1960s.¹³ The walleye is now spreading throughout the Columbia River system.¹⁴

In another example, the Washington Department of Wildlife introduced several upland game birds, such as the Chinese pheasant, chukker partridge, Hungarian partridge, and Merriam turkey to provide hunting opportunities for sportsmen.¹⁵ These introductions occurred before concern developed for the effects of introduced species on native ecosystems.¹⁶

Mammals have been introduced as well. In the 1920s, game hunters transferred the mountain goat, native to Washington's Cascade range, to Washington's Olympic mountains.¹⁷ In addition, the nutria, a nonnative water rodent similar to beavers, were imported by individuals intent on raising them for their furs.¹⁸ The nutria were later released when the fur operations proved unprofitable.¹⁹ As a result, the nutria have established wild populations in Washington and have damaged agriculture.²⁰

From these few examples, it appears that the deliberate release of exotic fish and wildlife is a common mode of establishing these species in new ecosystems. Exotic species may also become established in new ecosystems by inadvertent release or mistake. Modern technological advances in transportation and

13. Telephone Interview with Douglas Fletcher, Resource Manager, Warm-Water Fisheries, Wash. State Dep't of Wildlife (Nov. 25, 1992).

14. *Id.*

15. Telephone Interview with Eugene S. Dziedzic, Chief (1951-1981), Habitat Management, Wash. State Dep't of Wildlife (Oct. 27, 1992).

16. CHARLES J. KREBS, *ECOLOGY: THE EXPERIMENTAL ANALYSIS OF DISTRIBUTION AND ABUNDANCE* 24-26 (2d ed. 1978).

17. See NATIONAL PARK SERV., U.S. DEP'T OF THE INTERIOR, *THE MANAGEMENT OF MOUNTAIN GOATS IN OLYMPIC NATIONAL PARK: SOME QUESTIONS AND SOME ANSWERS* 7 (n.d.); NATIONAL PARK SERV., U.S. DEP'T OF THE INTERIOR, *MOUNTAIN GOAT MANAGEMENT IN OLYMPIC NATIONAL PARK 12* (1987) [hereinafter *MOUNTAIN GOAT MANAGEMENT*].

18. EARL J. LARRISON, *WASHINGTON MAMMALS, THEIR HABITS, IDENTIFICATION, AND DISTRIBUTION* 115 (1970).

19. *Id.*

20. *Id.*

the growth in interstate and international trade in live fish and wildlife have facilitated the accidental introduction of exotic wildlife.²¹ For example, statistics reveal that in 1991 approximately \$160 million worth of live fish and shellfish, and over \$36 million worth of live ornamental fish were imported into the United States from over seventy countries.²² Anyone who has visited fishmongers' shops along our western coastline can usually see any number of live exotic animals: mussels from New Zealand, oysters from Australia, and blue crabs from the Chesapeake Bay. Although intended for home consumption, some of these animals eventually escape or are discarded into nearby receiving waters where they may subsequently become established.

The World Wildlife Fund reports that at least a half-million live birds, one million reptiles, and 250-300 million fish are legally imported into the United States each year.²³ Because of escape or liberation after lawful importation, some exotic species have become established in new ecosystems.²⁴ In Florida, for example, many freshwater tropical fishes escape from ornamental fish farms where fishes are bred and reared for sale in the aquarium trade.²⁵ Many of these introductions occur when dikes fail or when effluent screens prove to be nonexistent or ineffective.²⁶ In addition, Atlantic salmon have escaped the confines of net-pen aquaculture operations in Canadian waters and have established natural breeding populations elsewhere.²⁷ These fish may eventually enter Washington and Oregon and

21. *The Frankenstein Effect*, *supra* note 6, at 415.

22. NATIONAL MARINE FISHERIES SERV. FISHERIES STATISTICS DIV., U.S. DEP'T OF COMMERCE, U. S. IMPORTS 71-118 (1991 through Dec.) (Run 1, By Product and Country).

23. TRAFFIC (USA), U.S. ANNUAL IMPORTS OF WILDLIFE (Sept. 1992). Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC) is an international network that monitors the global trade of wildlife.

24. See, e.g., James T. Carlton, *Dispersal of Living Organisms in Aquatic Ecosystems as Mediated by Aquaculture and Fisheries Activities*, in *DISPERSAL OF LIVING ORGANISMS INTO AQUATIC ECOSYSTEMS* 13-46 (Aaron Rosenfield & Roger Mann eds., 1992).

25. Walter R. Courtenay, Jr. & C. Richard Robins, *An Unsolved, Complex Problem*, *BIOSCIENCE*, May 1975, at 306.

26. *Id.* at 309. Effluent screens, like fences, prevent organisms from escaping with the water that flows out of ponds, raceways, or other rearing facilities.

27. See Mark Hume, *Atlantic Salmon Showing up on B.C. Coast 50 Years Too Late*, *VANCOUVER SUN*, Jan. 14, 1993, at B5.

compete with endangered Columbia River Pacific salmon stocks.²⁸

Exotic pet enthusiasts may also tire of their pets and release them into the wild, whereupon the exotics can establish populations to the detriment of native species.²⁹ Ballast water³⁰ released from ocean-going vessels has also led to many notable introductions of exotic fishes, zooplankton, and bottom-dwelling invertebrates such as clams and mussels.³¹ Many of these introduced species have become well acclimated to their new homes. Their populations have grown to the point where they now dominate natural ecosystems. For example, in just a few years after its introduction, the Asian clam is now the most abundant benthic organism in San Francisco Bay. It reaches astonishing densities of 10,000 clams per square meter.³²

A well-documented accidental introduction of an exotic fish is the introduction of the lamprey into the Great Lakes.³³ The numerous ship canals and locks along the Great Lakes allowed the lamprey to bypass natural falls that otherwise prevented its migration into the lakes. The lamprey caused the catastrophic decline of important commercial and sport fisheries. It ultimately led to the formation of the Great Lakes Fishery Commis-

28. See, e.g., Designated Critical Habitat; Snake River Sockeye Salmon, Snake River Spring/Summer Chinook Salmon, and Snake River Fall Chinook Salmon, 58 Fed. Reg. 68,543 (1993) (to be codified at 50 C.F.R. § 226.22(a)-(k)).

29. See Courtenay & Robins, *supra* note 25, at 309.

30. Ballast water is water held in specialized tanks in large vessels and is used to stabilize and trim the vessel. The water is usually pumped out of the vessel during the loading and unloading process.

31. See, e.g., David J. Bederman, *International Control of Marine "Pollution" by Exotic Species*, 18 *ECOLOGY L.Q.* 677, 683-85 (1991); James T. Carlton & Jonathan B. Geller, *Ecological Roulette: The Global Transport of Nonindigenous Marine Organisms*, 261 *SCIENCE* 78-82 (1993); James T. Carlton, *Transoceanic and Interoceanic Dispersal of Coastal Marine Organisms: The Biology of Ballast Water*, 23 *OCEANOGRAPHY & MARINE BIOLOGY ANN. REV.* 313, 314-31 (1985); Joel W. Hedgpeth, *Foreign Invaders*, 261 *SCIENCE* 34-35 (1993).

32. F.H. Nichols et al., *Remarkable Invasion of San Francisco Bay (California, USA) by the Asian Clam Potamocorbula Amurensis. II. Displacement of a Former Community*, 66 *MARINE ECOLOGICAL PROGRESS SERIES* 95, 98 (1990); see also James T. Carlton et al., *Remarkable Invasion of San Francisco Bay (California, USA) by the Asian Clam Potamocorbula Amurensis. I. Introduction and Dispersal*, 66 *MARINE ECOLOGICAL PROGRESS SERIES* 81, 84 (1990).

33. See *Great Lakes Sea Lamprey Control Program: Hearing before the Subcomm. on Oceanography, Great Lakes and the Outer Continental Shelf, and the Subcomm. on Fisheries and Wildlife Conservation and the Environment of the House Comm. on Merchant Marine and Fisheries*, 102d Cong., 1st Sess. 1-3 (1991) [hereinafter *Lamprey Hearings*].

sion, an entity dedicated to the study of Great Lakes' fishes and fisheries and the means to control lamprey populations.³⁴

B. *The Effects of Introduced Species*

In some instances, the introduction of exotic organisms into native ecosystems result in tangible benefits such as increased fishing, hunting, or observational opportunities.³⁵ However, exotic organisms adversely impact the health and integrity of native fauna, flora, and ecosystems.³⁶

Introduced fish and wildlife cause, either directly or indirectly, other species to become threatened, endangered, or extinct.³⁷ For example, a large number of the fishes and plants listed as threatened or endangered under the Endangered Species Act³⁸ have become endangered by the effects of introduced exotic fish and wildlife.³⁹

34. *Id.* at 2-5.

35. See, e.g., WYDOSKI & WHITNEY, *supra* note 10, at 49. The introduced brook trout is "believed to be the easiest of all trouts to catch . . . Because of its beauty, excellent flavor, and vulnerability, it is one of the most popular game fishes in the United States, despite its relatively small size. In Washington it affords good fishing in mountain lakes." *Id.*

36. See generally *The Frankenstein Effect*, *supra* note 6, at 415-26.

37. See, e.g., Peter B. Moyle & Robert A. Leidy, *Loss of Biodiversity in Aquatic Ecosystems: Evidence from Fish Faunas*, in CONSERVATION BIOLOGY: THE THEORY AND PRACTICE OF NATURE, CONSERVATION, PRESERVATION AND MANAGEMENT 127 (Peggy L. Fielder & Subdoh K. Jain eds., 1992) (estimating that 20% of the world's freshwater fishes are either extinct or in severe decline and that a cause of the decline is the introduction of exotic species).

38. 16 U.S.C. §§ 1531-1544 (1988).

39. The U.S. Fish and Wildlife Service has listed at least eleven fishes, three plants, and one reptile as threatened or endangered because of the impact of exotic plants, fish, wildlife, or other organisms. See *Determination of Endangered Status for Three Species of Remya, a Genus of Hawaiian Plants*, 56 Fed. Reg. 1450 (1991) (codified at 50 C.F.R. § 17.12(h) (1992)) ("Predation by grazing and browsing feral and domesticated animals, degradation of habitat through trampling and rooting by these animals, and competition from naturalized exotic species of plants are the greatest immediate threats to the survival of these species."); *Razorback Sucker Determined to be an Endangered Species*, 56 Fed. Reg. 54,957 (1991) (codified at 50 C.F.R. § 17.11(h) (1992)) ("[T]he razorback sucker has declined substantially in the past 80 years because of . . . the introduction of many new species to the ecosystem."); *Emergency Determination of Endangered Status for the Mojave Population of the Desert Tortoise*, 54 Fed. Reg. 32,326 (1989) (codified at 50 C.F.R. § 17.42(e) (1992)) ("Native plant species are essential to meet the nutritional needs of the tortoise and are their favored forage. Exotic weedy plant species are out competing many native plant species."); *Determination of Endangered Status for Independence Valley Speckled Dace and Clover Valley Speckled Dace*, 54 Fed. Reg. 41,448 (1989) (codified at 50 C.F.R. § 17.11(h) (1991)) ("Both [species] are in jeopardy because of their extremely limited distribution, the sensitivity of their habitats to perturbation by irrigation practices, and introductions of non-native aquatic species."); *Determination of Threatened Species*

To understand the true impact of introduced exotic species, one must realize that listing a species as threatened or endangered often results in costly repercussions to society. Once a species is listed as threatened or endangered under the Endangered Species Act, a cascade of federal actions occur that result in great expense and inhibit land use. First, habitat critical to the species' survival may have to be purchased and set aside.⁴⁰ Second, actions authorized, funded, or carried out by federal agencies that adversely affect endangered species may be prohibited.⁴¹ Finally, the take, import, export, and possession of such species may be prohibited.⁴²

Once a species is listed, existing economic activities may also be curtailed. For example, the threatened status of the Sacramento River winter-run Chinook salmon⁴³ required that catch quotas in ocean salmon fisheries off California and Ore-

Status for the Blackside Dace, 52 Fed. Reg. 22,580 (1987) (codified at 50 C.F.R. § 17.11(h) (1992)) ("The southern redbelly dace . . . is not native to the upper Cumberland River basin but is now present in many basin streams [and] may have displaced the blackside dace to some degree."); Critical Habitat for the Railroad Valley Springfish, 51 Fed. Reg. 10,857 (1986) (codified at 50 C.F.R. § 17.11(h) (1992)) ("Primary threats to the species include the presence of exotic fishes . . ."); Determination of Endangered Status for *Hibiscadelphus Distans* (Kauai Hau Kuahiwi), 51 Fed. Reg. 15,903 (1986) (codified at 50 C.F.R. § 17.11(h) (1992)) ("Imminent threats to this species and its habitat exist from feral goat browsing, fire, competition with exotic species, and human disturbance."); To Determine the Sonora Chub to be a Threatened Species and to Determine Its Critical Habitat, 51 Fed. Reg. 16,042 (1986) (codified at 50 C.F.R. § 17.11(h) (1992)) ("It is threatened by the possible introduction of exotic fishes and their parasites into its habitat . . ."); Listing of Virgin River Chub as an Endangered Species, with Critical Habitat, 51 Fed. Reg. 22,949 (1986) (codified at 50 C.F.R. § 17.11(h) (1992)) ("The chub occurs in the Virgin River in Arizona, Nevada, and Utah and is threatened by . . . competition and predation by exotic fish species."); Determination of Threatened Status for the Spikedace, 51 Fed. Reg. 23,769 (1986) (codified at 50 C.F.R. § 17.11(h) (1992)) ("Survival of the species is also threatened by the introduction and spread of exotic predatory and competitive fish species."); Determination of Threatened Status for the Loach Minnow, 51 Fed. Reg. 39,468 (1986) (codified at 50 C.F.R. § 17.11(h) (1992)) ("The distribution and numbers of the Loach minnow have been reduced by habitat destruction . . . and the spread of exotic predatory and competitive fish species."); Determination of Endangered Status and Critical Habitat for the Modoc Sucker, 50 Fed. Reg. 24,526 (1985) (codified at 50 C.F.R. § 17.11(h) (1992)) ("Introduction of the brown trout reduced Modoc sucker numbers by predation.") (citation omitted); Determination of Threatened Status and Critical Habitat for the Desert Dace, 50 Fed. Reg. 50,304 (1985) (codified at 50 C.F.R. § 17.11(h) (1992)) ("Channel catfish and smallmouth bass have been introduced into [one of the] reservoir[s]. If these exotics should enter habitats occupied by the desert dace they could further reduce dace numbers.").

40. 16 U.S.C. § 1534 (1988).

41. *Id.* § 1536.

42. *Id.* § 1538.

43. See 50 C.F.R. § 17.11(h) (1992); 58 Fed. Reg. 33,212 (1993); 57 Fed. Reg. 27,416 (1992) (designating critical habitat for the Sacramento River winter-run Chinook salmon).

gon and in-river salmon fisheries in California be greatly reduced.⁴⁴ Moreover, the loss of a species is an irreversible process that results in the loss of raw genetic resources. These losses may have economic, moral, religious, scientific, and aesthetic consequences.⁴⁵

Exotic fish and wildlife adversely affect native species in varied and complex ways: (1) degradation or destruction of habitat critical to native species; (2) competition for limited resources; (3) introduction of exotic diseases or parasites, to which native species have little or no resistance; (4) predation by the exotic species on native species; and (5) hybridization of the introduced species with the native species, which results in the loss of the native population's unique characteristics.⁴⁶

The common carp exemplifies how an introduced exotic species can alter and degrade native habitat. The carp feeds on muddy bottoms where it picks up and expels silt from its mouth. This behavior destroys rooted aquatic plants that provide cover for other desirable fish and makes water bodies less hospitable to waterfowl.⁴⁷ Consequently, millions of dollars have been expended in an effort to control the carp's numbers throughout the nation's lakes and streams.⁴⁸

Introduced species also adversely affect native species by competing with them for limited and essential resources.⁴⁹ For example, where nonnative brown trout have been introduced in streams in North America, they compete and displace native brook trout from their preferred habitat, which reduces the brook trout's overall numbers.⁵⁰ Similarly, when nonnative

44. 16 U.S.C. § 1533(e) (1988) (providing that the Secretary may also list species as endangered that are similar in appearance to the endangered species). In the example of the Chinook salmon, the entire northern California salmon fishery was curtailed in part because fishermen could not distinguish the endangered wild stock from non-endangered hatchery stocks or other Chinook salmon stocks. Although the Secretary did not list the other species as endangered, the listing of the Sacramento River winter-run Chinook as endangered required wholesale protective measures with dire economic consequences for salmon fishermen and coastal communities. *See also* 58 Fed. Reg. 26,922, 26,924 (1993).

45. *See* 16 U.S.C. § 1531(a)(3) (1988) (finding that fish, wildlife, and plant species are of "aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people"); *see also* DAVID EHRENFELD, *THE ARROGANCE OF HUMANISM* 177-211 (1978).

46. *The Frankenstein Effect*, *supra* note 6, at 418.

47. CALIFORNIA FISHES, *supra* note 8, at 208.

48. Telephone Interview with Dr. Peter B. Moyle, Professor, Dep't of Wildlife and Fisheries Biology and Conservation, University of California, Davis (Mar. 2, 1993).

49. *The Frankenstein Effect*, *supra* note 6, at 416.

50. *Id.* at 418.

brook trout were introduced throughout North America in streams where rainbow trout were native, the rainbow trout were displaced from much of their native habitat.⁵¹

Introduced exotic species may also release novel and virulent pathogens into the environment, causing the demise of native species.⁵² The introduction of Atlantic salmon into Puget Sound was soon followed by outbreaks of a new and deadly fish disease, viral hemorrhagic septicemia.⁵³ Apparently common in Europe, this disease had never been seen in western North America, but now has been identified in two Puget Sound salmon hatcheries.⁵⁴ As a result, many eggs and young fish fry were destroyed in an attempt to confine the disease.⁵⁵

Further, introduced fish and wildlife often prey on the juvenile or adult stages of other valuable or highly regarded native species.⁵⁶ For example, the mountain goat, introduced to the Olympic range, browses on many native plants such as the milkvetch (an endangered plant), thereby eliminating the milkvetch from large portions of its endemic range.⁵⁷ The introduction of the walleye, smallmouth bass, and catfish into the Columbia River system now exacerbates already threatened and endangered stocks of Pacific salmon native to the Columbia River. These exotic fishes prey on young salmon smolts on the salmon's downstream migration to the ocean.⁵⁸

51. *Id.*

52. See, e.g., Jack Ganzhorn et al., *Dissemination of Microbial Pathogens Through Introductions and Transfers of Finfish*, in *DISPERSAL OF LIVING ORGANISMS INTO AQUATIC ECOSYSTEMS* 177 (Aaron Rosenfield & Roger Maris eds., 1992).

53. M.R. Montgomery, *Unbalanced Fisheries*, *BOSTON GLOBE*, Mar. 13, 1989, at Op-Ed 13.

54. Brad Matsen, *Salmon Farms: Worth the Risk?*, *NATIONAL FISHERMAN*, May 1989, at 6.

55. Montgomery, *supra* note 53, at Op-Ed 13.

56. See generally *The Frankenstein Effect*, *supra* note 6, at 418; H. Rosenthal, *Implications of Transplantations to Aquaculture and Ecosystems*, *MARINE FISHERIES REV.*, May 1980, at 4, 14.

57. MOUNTAIN GOAT MANAGEMENT, *supra* note 17, at 44.

58. Proposed Endangered Status for Snake River Sockeye Salmon, 56 Fed. Reg. 14,055, 14,066 (codified at 50 C.F.R. § 17.11(h) (1992)). The proposal states as follows: There are several causes of increased freshwater predation on juvenile salmonids. Non-native predatory species such as walleye (*Stizostedion vitreum*) have been introduced into the Columbia River system . . . Studies in John Day Reservoir indicated that . . . introduced predators such as walleye, smallmouth bass (*Micropterus dolomieu*), and channel catfish (*Ictalopus* [sic] *punctatus*) also took significant numbers of [salmon] smolts.

Id. at 14,066.

Introduced fish and wildlife can also interbreed with similar species, which results in two distinct problems. First, the exotic species can far outnumber the native species. Thus, the interbreeding dilutes or eliminates the native species' unique character and value. For example, because of habitat alteration, the Sacramento sucker extended its range and entered the Modoc sucker's habitat.⁵⁹ The two species interbred and the unique Modoc sucker gene pool was lost. This effect coupled with predation by the introduced brown trout are two key factors that resulted in the Modoc sucker's endangered status.⁶⁰

The second problem, referred to as "genetic pollution," is most conspicuous when hatchery-adapted stocks interbreed with wild stocks.⁶¹ Often, the resulting progeny are not well adapted to variant environmental conditions.⁶² As a result, these hybrid cross species suffer high mortality and may facilitate the elimination of native stocks or subspecies.⁶³

Exotic fish and wildlife can also severely disrupt the economy. For example, the introduced zebra mussel economically impacts the Great Lakes by encrusting and blocking municipal water supply and power plant water intake pipes.⁶⁴ The City of Monroe, Michigan anticipates spending \$6 million to design a drinking water system that will not be foiled by the zebra mussel and will spend \$2 million annually to control the encrustation of its intake pipes.⁶⁵

59. See Determination of Endangered Status and Critical Habitat for the Modoc Sucker, 50 Fed. Reg. 24,526, 24,527 (1985) (codified at 50 C.F.R. § 17.11(h) (1992)) ("Hybridization has occurred due to the elimination of waterfalls and other natural instream barriers to fish movement by erosion, sedimentation and channelization.").

60. *Id.* at 24,528.

61. See R. Reisenbichler & J. McIntyre, *Genetic Differences in Growth and Survival of Juvenile Hatchery and Wild Steelhead Trout, Salmo Gairdneri*, 34 J. FISHERIES RES. BOARD CAN. 123 (1977).

62. *Id.*

63. See, e.g., Reisenbichler & McIntyre, *supra* note 61; Michael L. Goodman, Comment, *Preserving the Genetic Diversity of Salmonid Stocks: A Call for Federal Regulation of Hatchery Programs*, 20 ENVTL. L. 111, 130-31 (1990).

64. See generally *Zebra Mussels and Exotic Species, 1990: Hearing on H.R. 4214 Before the Subcomm. on Oceanography and Great Lakes, Subcomm. on Fisheries and Wildlife Conservation and the Environment, and the Subcomm. on Coast Guard and Navigation of the House Comm. on Merchant Marine and Fisheries*, 101st Cong., 2d Sess. 22-23 (1990) [hereinafter *Zebra Mussel Hearing*].

65. *Id.* at 23 (statement of Wilfred Lepage, Water Plant Supervisor, Monroe, Michigan).

Zebra mussel populations may also create problems for two nuclear power plants operated by the State of New York.⁶⁶ Great sums are being expended for research on this problem. For example, from 1990 through 1993, over \$18 million in federal funds was spent for research and control measures aimed at reducing zebra mussel populations.⁶⁷ Governmental entities in and around the Great Lakes will spend approximately \$4 billion over the next ten years to control zebra mussel infestations.⁶⁸

In Washington, the Bonneville Power Authority may be required to make large-scale changes in the flow regime of the Columbia River to benefit endangered and threatened salmon stocks on the river. Such changes will result in reduced power generation and irrigation draw off.⁶⁹ One important factor causing the demise of Columbia River salmon stocks is introduced species. Their introduction has contributed to significant cost increases to all electric and water users in the Pacific Northwest.⁷⁰

One recent comprehensive policy analysis on the impact of exotic organisms concluded that from 1906 to 1991, seventy-nine exotic organisms caused documented losses of \$79 billion.⁷¹ Moreover, fifteen exotic species may result in cumulative losses of \$134 billion.⁷²

This overview demonstrates the terrible toll that exotic fish and wildlife levy on native fish and wildlife, on agriculture and industry, on land development and use, and on power generation. In view of the problems posed by exotic organisms, it is appropriate to review current laws and regulations available to

66. *Id.* at 23-24 (statement of Vincent Tobin, Director of Governmental Relations, New York Power Authority).

67. AQUATIC NUISANCE SPECIES TASK FORCE, U.S. FISH AND WILDLIFE SERV. & NATIONAL OCEANIC AND ATMOSPHERIC ADMIN., AQUATIC NUISANCE SPECIES PROGRAM 4-8 (Sept. 1992) [hereinafter AQUATIC NUISANCE SPECIES PROGRAM].

68. *Zebra Mussel Hearing*, *supra* note 64, at 171 (testimony of J.D. Snyder, Director, Office of the Great Lakes, Michigan Dep't of Nat. Resources).

69. Record of Decision on Water Management Actions in the Columbia River System to be Taken by the Bonneville Power Administration in 1993 for the Benefit of Snake River Salmon, 58 Fed. Reg. 40,002, 40,013 (1993) (noting that recommended flow augmentation would average \$83 million per year and range as high as \$430 million per year); Final Environmental Impact Statement; 1992 Columbia River Salmon Flow Measures Option Analysis, 57 Fed. Reg. 35,796 (1992).

70. See 56 Fed. Reg. 14,055 (1991).

71. OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, OTA-F-565, HARMFUL NON-INDIGENOUS SPECIES IN THE UNITED STATES 5-6 (1993).

72. *Id.*

control the flow of exotic animals and to remedy the harm caused by their introduction.

III. EXISTING REGIMES FOR CONTROLLING THE INTRODUCTION OF EXOTIC SPECIES

A. *Tort Law*

Existing tort law is an inadequate means by which to control or deter the risks associated with exotic species' introductions. Further, tort remedies inadequately compensate for the loss of or damage to natural resources or to individuals for personal injury or property damage caused by exotic species. Tort law is inadequate because (1) much of the damage caused by exotic species is irreversible and extremely costly; (2) the defendants do not have the financial resources to make compensation or recovery of damages to natural resources possible; and (3) the evidentiary burdens of tort law make claims difficult, if not impossible, to prosecute successfully.

The inadequacies of tort law and the recognition of the long-term problems associated with the introduction of exotic fish and wildlife has led to federal and state efforts to prevent and control such introductions. The following sections describe some of those efforts.

1. Potential Causes of Action

There are few, if any, instances where tort law has been applied to the introduction of exotic species. The law of torts, however, represents a potential means by which individuals, the states, or the United States government may deter the intentional and accidental introduction or release of exotic organisms.

Negligence, strict liability, and nuisance may apply to the problem of exotic species' introductions. The doctrine of negligence allows for the recovery of damages once a plaintiff has adequately demonstrated the elements of duty, breach, causation, and actual damages.⁷³ The Restatement (Second) of Torts section 507 provides the following:

- (1) A possessor of a wild animal is subject to liability to another for harm done by the animal to the other, his person, land or chattels, although the possessor has exercised the

73. W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 30, at 164-65 (5th ed. 1984).

utmost care to confine the animal or otherwise prevent it from doing harm.

(2) This liability is limited to harm that results from a dangerous propensity that is characteristic of wild animals of the particular class, or of which the possessor knows or has reason to know.⁷⁴

At first glance, the Restatement offers some hope of a potential remedy for injury caused by exotic animals. However, the Restatement is limited by its words to personal injury and property damage, not to those instances in which damages accrue to common property resources, such as fish and wildlife, possessed by no one and held in the public trust by the state.⁷⁵

Even where exotic animals may cause damage to personal property, the burdens of proving cause-in-fact and finding the responsible party may be very difficult for the plaintiff to overcome. For example, suppose that someone imports an exotic species carrying a disease that is transmitted to native species and exacts massive native wildlife mortality. Was the disease present but undetected in native wildlife? How does one prove that a particular person's animals were the source of the disease, particularly when there may be multiple populations of the exotic?⁷⁶

Moreover, where an exotic organism is intentionally introduced by government institutions or individuals, the doctrine of negligence has little relevance if they can invoke the doctrine of sovereign immunity to avoid liability.⁷⁷ And even if a plaintiff

74. RESTATEMENT (SECOND) OF TORTS § 507 (1977). See generally Bruce A. Levin & Michael Spak, *Lions & Lionesses, Tigers and Tigresses, Bears & . . . Other Animals: Sellers' Liability for Dangerous Animals*, 58 NOTRE DAME L. REV. 537 (1983); E.T. Tsai, Annotation, *Owner's or Keeper's Liability for Personal Injury or Death Inflicted by Wild Animal*, 21 A.L.R. 3d 603 (1968); James H. H. Henry, Annotation, *Liability for Injury to Property Inflicted by Wild Animal*, 57 A.L.R. 2d 242 (1968).

75. See, e.g., WILLIAM H. RODGERS, JR., HANDBOOK ON ENVIRONMENTAL LAW § 2.16, at 172-173 (1977) (noting that resources protected by the public trust doctrine include wildlife).

76. The doctrine of joint and several liability may be of some assistance. If the plaintiff can find one solvent defendant, the entire liability can be ascribed to that one party, even though other parties may be partially at fault. As a practical matter, however, joint and several liability is a two-edged sword and judges and juries may question a verdict for the plaintiff when one individual among many similarly situated defendants is brought before the court with the prospect of being held liable for all the resulting damages.

77. U.S. CONST. amend. XI ("The Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by Citizens of another State, or by Citizens or Subjects of any Foreign State."). See generally RODGERS, *supra* note 75, § 1.7, at 32-33 (noting that

can prove damages, many private parties who import or possess exotic animals lack sufficient capital to pay damages. Negligence actions, then, represent a theoretical means to recover damages caused by exotic organisms. However, they would hardly prove useful in protecting fish and wildlife resources.

There may be a basis to assert that strict liability should govern the importation and possession of exotic fish and wildlife.⁷⁸ Strict liability may apply where a condition or activity is abnormally dangerous because of its "non-natural" character.⁷⁹ Under this standard, strict liability would appear to apply to the importation and possession of exotic fish and wildlife. The Restatement (Second) of Torts also suggests that the risk associated with introduced exotic fish and wildlife may fall within the purview of the strict liability doctrine.⁸⁰

governments may avail themselves of sovereign immunity to avoid paying damages or where the remedy would interfere with public administration).

The Federal Tort Claims Act, 28 U.S.C. §§ 2671-2680 (1988), authorizes suits against the federal government under the local law of the place of the tort for negligent or wrongful acts or omissions of federal employees acting within the scope of their employment. *Id.* However, the Act and case law have established exceptions to liability for acts that are either discretionary or at the policy or planning level. *Id.* § 2680; see RODGERS, *supra* note 75, § 1.8, at 34. As such, under the doctrine of sovereign immunity, the federal government and federal employees are likely to be immune from suit for damages to natural resources or for ensuing property damage or personal injury resulting from acts of introducing exotic species.

78. See Levin & Spak, *supra* note 74, at 544-47; Tsai, *supra* note 74; Henry, *supra* note 74.

79. Rylands v. Fletcher, L.R. 3 H.L. 330 (1868) (English & Irish Appeals). In *Fletcher*, the court stated the following:

We think that the true rule of law is, that the person who for his own purposes brings on his lands and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and, if he does not do so, is prima facie answerable for all damage which is the natural consequence of its escape . . . this we think is established to be the law whether the things so brought be beasts, or water, or filth, or stench.

Id. at 339-40 (quoting *Fletcher v. Rylands*, L.R. 1 (Ex. 265) (1866)).

[T]he Defendants, not stopping at the natural use of their close, had desired to use it for any purpose which I may term a nonnatural use, for the purpose of introducing into the close that which in its natural condition was not in or upon it . . . and if in the consequence of their doing so, or in consequence of any imperfection in the mode of their doing so, the water came to escape . . . then it appears to me that that which the Defendants were doing they were doing at their own peril.

Id. at 339. Exotic organisms are likely to work mischief if they escape and the introduction of exotic organisms cannot be considered a natural use of one's land. Therefore, the doctrine of strict liability would appear to apply.

80. See RESTATEMENT (SECOND) OF TORTS § 520 (1976).

First, the threatened or endangered status of many species is caused by the impact of exotic species.⁸¹ Second, because the extinction of a species is irreversible, the harm associated with exotic species is great. Third, importing, holding, and propagating exotic species is arguably unnatural and may be deemed an inappropriate activity in the area where it occurs. Finally, the current knowledge and skill of detecting fish and wildlife pathogens and parasites are so rudimentary that the risk of adverse consequences may not be reduced by reasonable care.⁸²

Nonetheless, even if strict liability is applied to exotic fish and wildlife, several problems remain. First, as with negligence, proving cause-in-fact is still a very difficult burden to overcome. Second, once an exotic species is released and established, the damages incurred could be profound and widespread, making full recovery unlikely for the harm inflicted. Third, if the release or escape of an exotic species causes the extinction of a native species, it is difficult to accurately determine the value of the extinct native species. Finally, if an exotic species endangers the continued existence or causes the extinction of a native species, it is likely that the exotic will create other evils such as habitat degradation or overharvesting of the native species. Assessing liability under such circumstances is also problematic. Thus, strict liability, while apparently reasonable, remains fraught with problems when applied to exotic species.

The common law of nuisance also represents a potentially applicable legal doctrine for controlling exotic species' introductions.⁸³ A public nuisance is an unreasonable and substantial interference with a right common to the public.⁸⁴ A cause of action for public nuisance takes into account the following factors: (1) whether the conduct involves a substantial interference with the public health, the public safety, the public peace, the public comfort, or the public convenience; (2) whether the conduct is proscribed by a statute, ordinance, or administrative regulation; and (3) whether the conduct is of a continuing

81. In Arizona, where introduced fishes are common, 25 out of 30 species of native fishes are listed as either threatened or endangered. William K. Stevens, *River Life Through U.S. Broadly Degraded*, N.Y. TIMES, Jan. 26, 1993, at C1.

82. See *Maine v. Taylor*, 477 U.S. 131 (1986) (upholding a state's ban on the importation of out-of-state minnows, in part because of the lack of any reliable means to detect fish diseases and parasites until the species had been imported and released, by which time the damage would have occurred).

83. See generally RODGERS, *supra* note 75, § 2.11, at 143.

84. *Id.* § 2.2, at 102.

nature or has produced a permanent or long-lasting effect and, to the actor's knowledge, has a substantial detrimental effect on the public right.⁸⁵

The law of nuisance appears to apply to exotic species because exotic species, like pollution, adversely impact native fish and wildlife or ongoing economic enterprises. At least one commentator analogizes the introduction of exotic species via ballast water discharges to pollution of the environment.⁸⁶

Like negligence and strict liability, however, the law of nuisance is inapt to resolve the problems posed by exotic organisms. First, the courts' use of the standing doctrine makes it difficult, if not impossible, for private plaintiffs to bring an action to protect common property resources.⁸⁷ Second, the burdens of demonstrating cause-in-fact and of finding the responsible parties remain heavy burdens to overcome. Third, once an exotic species has been released and becomes established, eradication and control efforts may prove costly or ineffective.⁸⁸ Thus, even if a responsible defendant is found, it is doubtful that he or she would have the financial ability to pay for eradication or control efforts, or to pay for the value of depleted native fish and wildlife resources. Fourth, where the state or federal government officials introduce an exotic species, they can invoke the doctrine of sovereign immunity to avoid liability.⁸⁹ Nuisance law may, however, provide beneficial recourse where an action is brought to enjoin further possession, propagation, or release of exotic fish and wildlife. To sustain an

85. RESTATEMENT (SECOND) OF TORTS § 821B (1979).

86. See *Bederman*, *supra* note 31, at 687-89. The author notes that exotic species arguably fit the definition of marine pollution under the International Convention for the Prevention of Pollution from Ships of 1973 (MARPOL). In an attempt to define marine pollution, MARPOL defined "harmful substances" as "any substance which, if introduced . . . is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea." *Id.*

87. See *Lujan v. Defenders of Wildlife*, 112 S. Ct. 2130 (1992). In *Lujan*, the Court held that even where a statute creates a right of citizen's suit, a plaintiff must be able to demonstrate the following: (1) she suffered a concrete and particularized injury in fact, distinguishable from the general public; (2) the injury is fairly traceable to the act or actions complained of; and (3) the injury is subject to redress. *Id.* at 2136. The plaintiff was not able to meet the standing requirement because she, among other things, lacked a particularized interest in the specific endangered or threatened species allegedly jeopardized by a foreign development project. *Id.* at 2137-40.

88. See *supra* notes 35-72 and accompanying text. For example, remedial treatments to control or eliminate the lamprey began in 1958 and continue to this day at a cost of \$10 million per year. *Lamprey Hearings*, *supra* note 33, at 1-9.

89. U.S. CONST. amend. XI; see *supra* note 77.

injunction, a court must find that the injury complained of is actually threatened, not merely anticipated.⁹⁰ A plaintiff may appear unduly speculative by alleging that exotic organisms may escape and cause harm. If the plaintiff risks waiting until the exotic animals have escaped, eradication may be impossible or control costs astronomical.

In at least one instance, a state successfully relied on public nuisance law codified by regulations to enjoin a defendant from operating an exotic wildlife ranch and hunting operation.⁹¹ Similarly, courts generally uphold municipal ordinances prohibiting exotic wildlife as a public nuisance.⁹² Frequently, exotic animals are introduced by state agencies. In such instances, neighboring states could rely on federal common law.

2. Federal Common Law of Nuisance

The United States Supreme Court has held that federal common law should apply when disputes arise between states over interstate resources⁹³ such as air pollution,⁹⁴ water pollution,⁹⁵ and the apportionment of interstate waters.⁹⁶ The federal common law of nuisance also represents a means of recourse when one state is prepared to approve the release, to

90. *Wuillamey v. Werblin*, 364 F. Supp. 237 (D.N.J. 1973); *Applebaum v. St. Louis County*, 451 S.W.2d 107 (Mo. 1970); see also *RODGERS*, supra note 75, § 2.4, at 114.

91. In *Colorado Div. of Wildlife v. Cox*, 843 P.2d 662, 663 (Colo. Ct. App. 1992), the court held that under Colorado regulations (2 COLO. CODE REGS. §§ 406-408 (1992)), the Division of Wildlife may deem exotic wildlife a public nuisance if it finds that the exotic wildlife are illegally possessed or have escaped the owner's control and are determined to be detrimental to native wildlife, habitat, or other wildlife resources. *Id.* In addition, pertinent regulations provide that the owner shall be held liable for costs incurred in recovering and disposing of such wildlife and any damages to the state's wildlife resources under appropriate statutory and common law. *Id.*

92. See, e.g., *Jeffrey v. Clinton Township*, 489 N.W.2d 211 (Mich. Ct. App. 1992) (affirming township's right to enforce ordinance against exotic wildlife (cougar) in city limits); *Fairview Township v. Schaefer*, 562 A.2d 989 (Pa. Commw. Ct. 1989) (holding that a municipality may prohibit possession of a tiger as a public nuisance despite the petitioner's Pennsylvania Game Commission permit to keep a tiger).

93. *Texas Indus., Inc. v. Radcliff Materials, Inc.*, 451 U.S. 630 (1981) ("[F]ederal common law exists only in such narrow areas as those concerned with the rights and obligations of the United States, interstate and international disputes implicating the conflicting rights of States or our relations with foreign nations, and admiralty cases.").

94. *Georgia v. Tennessee Copper Co.*, 206 U.S. 230 (1907) (holding that Georgia, as a sovereign of the territory within its boundary, had standing to bring an action for nuisance against the defendant).

95. *Illinois v. City of Milwaukee*, 406 U.S. 91 (1972) (recognizing that environmental harm is often not susceptible to local solutions and that the federal common law of nuisance should displace state nuisance law); *Missouri v. Illinois*, 200 U.S. 496 (1906).

96. *Hinderland v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92 (1938).

release, or has released an exotic organism and a neighboring state's resources are adversely affected or potentially affected.

Recently, because of statutory enactments, federal courts have been reluctant to fashion federal common law to settle interstate disputes over water and air pollution.⁹⁷ However, because there is no comprehensive federal regulatory regime governing the release of exotic fish and wildlife, preemption of the federal common law of nuisance is not an issue. Therefore, federal courts should fashion federal common law to remedy the deleterious effects of exotic species.

In *Illinois v. City of Milwaukee*,⁹⁸ the Supreme Court rationalized its jurisdiction and authority to apply the federal common law of nuisance to the ecological rights of the states.⁹⁹ If the states have some right of ecological integrity and if the introduction of exotic organisms, like pollution, is harmful to biological integrity, then federal common law may be applied appropriately. In deciding whether to fashion a federal common law to remedy interstate pollution, the Court has been influenced by congressional acts that evince a policy of protecting "the quality of the aquatic environment as it affects the conservation and safeguarding of fish and wildlife resources."¹⁰⁰

By analogy, the Court should be as willing to entertain suits between states over the importation or release of exotic species. First, like interstate pollution, wild animals and fishes do not obey political boundaries and thus are interstate in

97. See *Arkansas v. Oklahoma*, 112 S. Ct. 1046 (1992) (holding that the Clean Water Act, by vesting authority in the Administrator of the EPA to approve discharge permits in all states, effectively preempted both the federal common law of nuisance and the state's common law); *Milwaukee v. Illinois*, 451 U.S. 304 (1981) (holding that the Clean Water Act preempted federal common law because the state had a forum and means to protect its interests in the absence of federal common law and Congress did not specifically preserve federal common law remedies), *cert. denied*, 469 U.S. 1196 (1985); *National Audobon Soc'y v. Dep't of Water*, 869 F.2d 1196 (9th Cir. 1988) (affirming lower court's holding that the Clean Water Act preempted federal common law of water pollution and holding that the Clean Air Act preempted the federal common law of nuisance for air pollution).

98. 406 U.S. 91 (1972).

99. *Id.* at 99-100. The Court reached its federal common law doctrine by stating: As the field of federal common law has been given necessary expansion into matters of federal concern and relationship . . . the ecological rights of a State in the improper impairment of them from sources outside the State's own territory, now would and should, we think, be held to be a matter having basis and standard in federal common laws and so directly constituting a question arising under the law of the United States.

Id. at 99-100 (citing *Texas v. Pankey*, 441 F.2d 236, 240 (5th Cir. 1971)).

100. *Id.* at 102.

nature. Second, Congress has shown a federal interest in preserving biodiversity and ecosystems through the enactment of the Endangered Species Act.¹⁰¹ Given that exotic organisms have been responsible for the demise of many native species, the Court should be willing to apply federal common law to give states a neutral forum to settle disputes, to protect federal interests, or both.

Nonetheless, until a test case arises, discussions regarding the application of federal common law are plagued by speculation. Given exotic organisms' potential to wreak havoc on valuable natural resources and the questionable ability of tort law to effectively deal with the problem, it is not surprising that federal and state regulatory efforts have been implemented to control the flow of exotics.

B. Federal Statutes and Executive Orders

1. The Lacey Act

The first bona fide federal effort to control the introduction and importation of exotic animals was the Lacey Act.¹⁰² Under the Act, Congress recognized that exotic fish and wildlife could pose a danger to humans, forestry, agricultural and horticultural interests, and the health and welfare of native fish and wildlife populations.¹⁰³ The Act makes it unlawful to import, export, transport, sell, or purchase fish, wildlife, or plants taken, held, or sold in violation of any law, treaty, or regulation of the United States.¹⁰⁴ In addition, and of great significance to the states, the Act makes it a federal offense to possess or to take fish or wildlife in violation of state laws or regulations.¹⁰⁵

Regulations implementing the Act state that the importation or transportation of live wildlife or eggs is injurious to the interests of the United States and is, therefore, generally prohibited.¹⁰⁶ Despite the explicit recognition that exotic fish and wildlife can be problematic, the Act's regulations are very narrow in scope because they prohibit importing only the most egregious exotic species. Under the regulations, any exotic species may be imported into the United States unless it is consid-

101. 16 U.S.C. § 1531(b) (1988).

102. Lacey Act, 16 U.S.C. §§ 3371-3378 (1988).

103. MICHAEL BEAN, *THE EVOLUTION OF NATIONAL WILDLIFE LAW* 105 (1983).

104. 16 U.S.C. § 3372(a) (1988).

105. *Id.*

106. 50 C.F.R. § 16.3 (1992).

ered "injurious wildlife."¹⁰⁷ This approach is sometimes referred to as the "dirty list" approach.¹⁰⁸ Even then, the injurious species does not receive complete *ferae naturae non grata* status and can still be imported with an injurious wildlife permit issued by the Director of the U.S. Fish and Wildlife Service.¹⁰⁹

As a practical matter, under the injurious wildlife approach, the Department of the Interior lists species as injurious only when it learns, through experience elsewhere, that the species represents a distinct harm to fish and wildlife or other interests.¹¹⁰ However, by the time a species is listed as injurious, it may have been imported and subsequently escaped or released into the ambient environment.¹¹¹

Despite the dangers of untold numbers of particularly harmful species, such as venomous snakes, the list of injurious wildlife is notably sparse.¹¹² The Act permits the importation,

107. *Id.* An "injurious wildlife" designation is typically reserved for species known for harmful characteristics such as large carnivorous animals with high reproductive rates (raccoon dog), or animals with the potential to exact harm on agricultural crops (fruit bats). See, e.g., 50 Fed. Reg. 17,439 (1990) (codified at 50 C.F.R. § 16.15 (1992)).

108. See Julianne Kurdila, *The Introduction of Exotic Species into the United States: There Goes the Neighborhood!*, 16 B.C. ENVTL. AFF. L. REV. 95, 104 (1988).

109. 50 C.F.R. § 16.22 (1992).

110. *Id.* § 16.11. The U.S. Fish and Wildlife Service utilized the Lacey Act when it discovered that entrepreneurs were already rearing the raccoon dog for the fur trade in the Great Lakes region. In listing the raccoon dog as injurious, the Service noted that the raccoon dog (1) had a high reproductive rate; (2) had the ability to thrive in much of North America's temperate forests; (3) had a broad diet with a particular focus on ground-nesting game birds; and (4) would be impossible to control or eradicate once it became established. 47 Fed. Reg. 56,360 (1982) (codified at 50 C.F.R. § 16.15 (1992)). The brown tree snake was added to the list of injurious wildlife after it was introduced to Guam where it became established, rapidly spread, devastated Guam's endemic bird populations, and threatened human health and safety. The Service noted that "[e]arly detection of newly established populations is critical to any attempt to eradicate or control this snake. Recently arrived snakes will be in the immediate vicinity, whereas dispersal into more isolated habitats will occur as time passes. Active eradication efforts will be necessary to prevent colonization." 50 Fed. Reg. 17,439 (1990) (codified at 50 C.F.R. § 16.15 (1992)).

111. For example, the brown tree snake was listed as injurious only after it had been established and widely distributed on Guam with attendant adverse effects. 50 Fed. Reg. 17,439 (1990) (codified at 50 C.F.R. § 16.15 (1992)).

112. 50 C.F.R. § 16 prohibits the transportation, importation, or acquisition in the United States of a number of exotic species. 50 C.F.R. § 16 (1992). Section 16.11 prohibits such mammals as fruit bats, mongoose, meerkat, European rabbits, Indian wild dog or dhole, multimammate rat or mouse of the genus *Mastomys*, and raccoon dogs. *Id.* § 16.11. Section 16.12 prohibits such birds as the pink starling, dioch, Java sparrow, and red-whiskered bul-bul. *Id.* § 16.12. Section 16.13 prohibits such fish, mollusks, and crustaceans as fish or eggs of the walking catfish, mitten crab eggs, or salmon eggs unless vouched for the absence of certain infectious fish diseases (Egtved

transportation, and acquisition of all other wildlife, including amphibians,¹¹³ on the mere filing of an import declaration with the District Director of the U.S. Customs Service.¹¹⁴ Thus, the Act's true impact on the importation of exotic fish and wildlife is very limited.

The Act also confines the federal role in regulating exotic species by delegating to the states the authority to release exotic fish and wildlife into the environment.¹¹⁵ Thus, other than the limited federal role in banning injurious wildlife, the importation and release of exotic species is a matter within the discretion of each state.

The Act is also notable in what it fails to do. First, it is an all-or-nothing approach. Other than the short list of injurious wildlife, the Lacey Act fails to prohibit the importation of many species that probably represent grave dangers to native fish and wildlife, as well as to human health and welfare.¹¹⁶

Second, the Act does not include any regulations to prevent the escape of exotic species into the wild. Third, outside of certain diseases known to afflict salmon, trout, and birds, the Act does not address the possibility that an imported exotic species will release viruses, diseases, or parasites that can adversely affect native fish, wildlife, or human populations. These concerns are left to the individual states.

Finally, although the Act explicitly recognizes the dangers of exotic species, it does nothing to inhibit other federal agencies and programs from facilitating the importation or introduction of exotic fish and wildlife.

The Act's shortcomings were apparent to some farsighted individuals, and efforts were made to improve its failings. As early as 1973, the Department of the Interior recognized that its limited approach was ineffective in regulating the importation of exotic fish and wildlife. As a result, it proposed regula-

and whirling diseases). *Id.* § 16.13. Section 16.14 prohibits certain amphibians or their eggs, and § 16.15 prohibits such reptiles as eggs or specimens of brown tree snakes. *Id.* §§ 16.14, .15.

113. *Id.* § 16.14.

114. 16 C.F.R. § 16.12cc (1992).

115. 50 C.F.R. § 16 (1992). ("[N]o live [wildlife] or any progeny thereof may be released into the wild except by the State wildlife conservation agency having jurisdiction over the area of the release or by persons having prior written permission for release from such agency . . .").

116. For example, numerous species of poisonous snakes that could be very detrimental to birds, mammals, other reptiles, and human populations are not listed. See *supra* notes 106-114 and accompanying text.

tions to prohibit the importation of all live wildlife except for a limited number of species that represented a low risk of injury to specific interests.¹¹⁷

The Department of the Interior dropped its efforts, however, following congressional hearings on the proposed regulations, intense lobbying pressure from the pet trade, which feared a complete ban on importations, and pressure from the zoological and scientific community, which feared burdensome permit procedures to import laboratory animals and zoological specimens.¹¹⁸ Although the Act addresses the substantive issue of dangers posed by exotic organisms, other acts that operate procedurally may be of greater significance in addressing these dangers.

2. The National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA),¹¹⁹ provides a mechanism that, if faithfully applied, may prevent the unwise intentional introduction of exotic organisms and, in some instances, prevent accidental or unintended introductions.

Through NEPA, the federal government is compelled to ascertain the environmental impact of proposed major actions that may significantly affect environmental quality.¹²⁰ Among other things, NEPA's overriding policy goal is to preserve our natural heritage by making each generation putatively responsible as a trustee of the environment for future generations.¹²¹ NEPA is largely a procedural statute and does not require agencies to meet substantive environmental quality standards. However, NEPA does require governmental entities to complete an "environmental impact statement" or so-called "detailed statement" that outlines the anticipated environmental impact of any major action that significantly affects the quality of the environment.¹²² Although no substantive result is required, NEPA may profoundly affect government plans and actions.

117. See 38 Fed. Reg. 34,971 (1973); see also BEAN, *supra* note 103, at 115-17.

118. BEAN, *supra* note 103, at 115-17. The U.S. Department of the Interior subsequently requested congressional clarification of its authority pursuant to the Lacey Act and no further action was taken in this regard. *Id.*

119. National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-4347 (1988).

120. *Id.* § 4332(C).

121. *Id.* § 4331(b)(1)-(4).

122. NEPA requires that

[A]ll agencies of the federal government shall . . . 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

NEPA has been described as a technology assessment statute.¹²³ Its purpose is to require the government to consider environmental factors and consequences before (1) project momentum is irresistible, (2) options are foreclosed, and (3) agency commitment and inertia are irreversible.¹²⁴

Because the introduction of nonnative fish and wildlife or other organisms has the potential to cause adverse irreversible consequences, or in the parlance of NEPA, an "irretrievable commitment of resources,"¹²⁵ state and federal agencies should be required to complete environmental impact statements on the likely effects of these introductions before (1) introducing nonnative organisms, (2) granting permits for the introduction of nonnative organisms, or (3) providing funding for the introduction of exotic organisms.¹²⁶

Indeed, NEPA assures full discussion of the alternatives to agency action and requires that an action's adverse consequences be minimized or mitigated.¹²⁷ If NEPA's process is completed prior to any intentional or accidental introduction, the risk of adverse effects on native species and other resources and activities should be revealed and adequately assessed prior to taking an adverse and irreversible or otherwise environmentally damaging action. To the extent that NEPA deters agencies from making intentional introductions or encourages agencies to take measures to prevent associated problems, such as screening, treating, or eliminating exotic pathogens and parasites, many of the problems attributed to the introduction of exotic species will be avoided. In this sense, NEPA could play

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. § 4332(C). It should be emphasized that agency approval of private action through a permitting process also qualifies as an action that potentially requires completion of an environmental impact statement. See *Sierra Club v. Morton*, 514 F.2d 856 (D.C. Cir. 1975), *rev'd on other grounds sub nom. Kleppe v. Sierra Club*, 427 U.S. 390 (1976).

123. See RODGERS, *supra* note 75, § 7.7 at 767.

124. *Id.*

125. 42 U.S.C. § 4332(2)(C)(v) (1988).

126. NEPA may also apply where an action is funded in whole or in part with federal funds. See *Alaska v. Andrus*, 591 F.2d 537, 540 (9th Cir. 1979); *Homeowners Emergency Life Protection Comm. v. Lynn*, 541 F.2d 814, 817 (9th Cir. 1976).

127. See RODGERS, *supra* note 75, § 7.5, at 738-50.

an important role in preventing the adverse consequences associated with the introduction of exotic organisms.

Despite NEPA, a more substantive approach was needed to address the problems associated with the introduction of exotic organisms. The President of the United States began efforts to address the issue.

3. Executive Order 11,987

On May 24, 1977, former President Jimmy Carter signed Executive Order 11,987.¹²⁸ The Executive Order authorized federal agencies to restrict the importation of exotic animals into the United States and to restrict their introduction into natural ecosystems on lands and waters possessed, leased, or held for purposes of administration.¹²⁹ The President appeared to recognize that multijurisdictional authority over the regulation of exotic species was a problem and attempted to ameliorate the problem by directing federal agencies to encourage the states, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems.¹³⁰

The President also recognized that all exotic fish and wildlife represented a potential danger to native fish and wildlife and human welfare.¹³¹ Thus, he authorized the Secretary of Agriculture and the Secretary of the Interior to provide exemptions from the general prohibition on importing exotic species only if the government entity could positively find that the species to be introduced or imported would not adversely affect natural ecosystems.¹³² In addition, the President recognized the need to assess the potential impact of introducing a species before it was actually introduced and released. For example, the preamble to the Executive Order cites that its aim is to further the purposes and policies of the Lacey Act and NEPA.¹³³

Given the substance of the Executive Order, the Carter administration clearly understood that exotic species' introductions had potential adverse consequences. Moreover, given the reference to NEPA, the Carter administration may have envisioned that an evaluation of the likely consequences of exotic

128. Exec. Order No. 11,987, 3 C.F.R. 116 (1977), *reprinted in* 42 U.S.C. § 4321 (1988).

129. *Id.*

130. *Id.*

131. *Id.*

132. *Id.*

133. *Id.*

species' introductions would be circumspect. Unfortunately, the President's bold proclamation fell on deaf ears and regulations to implement the Executive Order were never promulgated.¹³⁴ Instead, the states retain the authority to determine whether to allow the introduction of exotic species and to determine what regulations, if any, are appropriate to protect the states' welfare.¹³⁵ Many states, including Washington, have adopted regulations governing the introduction, release, and transfer of exotic fish and wildlife.¹³⁶

Other federal laws, including the Endangered Species Act, can provide a useful mechanism to control the introduction of exotic organisms or to monitor their eradication and control once released.

4. The Endangered Species Act

The Endangered Species Act¹³⁷ can serve to prevent the introduction of exotic fish and wildlife. The Act's purpose is to conserve species that are either threatened or endangered with extinction, and to conserve the ecosystems on which threatened and endangered species depend.¹³⁸ One of the Act's measures to conserve such species is to prohibit their import and export unless by permission from the Secretary of the Interior.¹³⁹

In addition, once a species is listed as threatened or endangered, taking that species is ordinarily prohibited.¹⁴⁰ The courts have broadly construed the term "take" to mean habitat destruction and alteration, which includes the introduction and impact of exotic species on habitats essential to the welfare of endangered species.¹⁴¹ Thus the Act may be used to prohibit

134. See Kurdila, *supra* note 108, at 102-03. It is not clear why regulations were never promulgated to implement Executive Order 11,987.

135. See *supra* notes 102-118 and accompanying text.

136. In 1984, a survey revealed that 24 states have enacted legislation regulating the importation, transfer, or release of exotic species. See Charles H. Hocutt, *Toward the Development of an Environmental Ethic for Exotic Fishes*, in *DISTRIBUTION, BIOLOGY AND MANAGEMENT OF EXOTIC FISHES* 374, 377 (Walter R. Courtenay, Jr. & Jay R. Stauffer, Jr. eds., 1984).

137. 16 U.S.C. §§ 1531-1544 (1988).

138. *Id.* § 1531(b).

139. *Id.* § 1538. This section generally prohibits the import or export of endangered species and also prohibits the import and export of nonendangered fish and wildlife, except for fish and shellfish intended for human consumption.

140. *Id.* § 1538(a)(1)(B).

141. See *Palila v. Hawaii Dep't of Land & Natural Resources*, 852 F.2d 1106 (9th Cir. 1988). In *Palila*, the court held that the presence of exotic feral animals, such as sheep, had destroyed and degraded the feeding and breeding habitat of an endangered

and regulate exotic animals, but only if a native organism is already deemed endangered or threatened. Unfortunately, by the time a native organism is deemed endangered, the damage to native species and ecosystems can be costly to remedy, or irreversible.

The continued harms inflicted by exotic species and the lack of any comprehensive regimes governing their intentional or accidental introductions have exacerbated existing problems. Recent attempts to address exotic species' introductions into the Great Lakes have led to ambitious congressional action.

5. The Nonindigenous Aquatic Nuisance Prevention and Control Act

The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990¹⁴² was enacted in response to the rapid invasion of the zebra mussel into the Great Lakes via merchant vessel ballast water.¹⁴³ The Act showed great potential for finally addressing problems associated with the accidental introduction of exotic organisms.

First, the Act recognized that ballast water discharges from ocean-going vessels significantly contribute to the unintentional introduction of "nonindigenous aquatic species."¹⁴⁴ Second, it directed the Secretary of Transportation to research and to issue regulations that safeguard against the release of exotic species into the Great Lakes via ballast water.¹⁴⁵ Third, it mandated a study detailing the effects of ballast water on native species and ecosystems throughout the nation and the

bird. *Id.* The court further found that the resulting indirect and significant harm to the species was a taking of the species in violation of the Act and ordered the State of Hawaii to remove the feral sheep. *Id.*

142. 16 U.S.C. §§ 4701-4751 (Supp. II 1990).

143. *Id.* § 4701(b).

144. *Id.* § 4712. The Act defines the term "nonindigenous aquatic species" as "any species or other viable biological material that enters an ecosystem beyond its historic range, including any such organism transferred from one country into another." *Id.* § 4702(9).

145. *Id.* § 4711(a)(1). Subsequently, the United States Coast Guard issued a final rule requiring all vessels that operate outside the U.S. Exclusive Economic Zone and enter the Saint Lawrence Seaway destined for U.S. ports to exchange ballast water at sea or to employ an environmentally sound alternative method of ensuring that ballast water will not contain live aquatic nuisance species. Ballast Water Management for Vessels Entering the Great Lakes, 58 Fed. Reg. 18,330 (1993) (to be codified at 33 C.F.R. § 151). The regulations also include mandatory reporting requirements and authority for Coast Guard personnel to inspect and sample ballast water for compliance with the regulation. *Id.*

methods of ameliorating such effects.¹⁴⁶ Fourth, it established a federal task force to work in cooperation with the states to implement programs to monitor, control, and eradicate exotic nuisance species, and to establish measures to minimize the risk of future inadvertent exotic species' introductions.¹⁴⁷ Fifth, the Act established a means to coordinate state management plans and actions with respect to controlling aquatic nuisance species,¹⁴⁸ and also established a federal grant program to support state efforts to control or eradicate exotic species.¹⁴⁹ Sixth, it recognized that solutions to the problems created by exotic species required international cooperation. The Act thus encouraged the Secretary of State to negotiate with other countries to prevent, monitor, or eradicate such species.¹⁵⁰ Finally, the Act directed the task force working with state, regional, and local institutions to submit a report to Congress that identified and evaluated approaches to reduce the risk of adverse consequences associated with the intentional introduction of aquatic organisms.¹⁵¹

The Act is particularly significant because Congress specifically focused on the problems created by exotic species and attempted to control a major source of their introductions. Federal regulations should provide even more protection to the Great Lakes. In addition, if the Act's studies find that ballast water is an important problem elsewhere, more encompassing federal regulations that require at-sea ballast water exchange for all international voyages may be promulgated. These regulations would be a significant step in protecting other estuarine ecosystems such as Puget Sound. The mandated studies may also recommend more comprehensive control of the intentional introduction of exotic organisms. Whether Congress implements or ignores these recommendations, however, remains to be seen.

Although the Nonindigenous Aquatic Nuisance Prevention and Control Act is one example of the federal efforts made to regulate exotic species' introductions, many states also have substantial regulations governing the introduction of exotic fish and wildlife.

146. 16 U.S.C. § 4712 (Supp. II 1990).

147. *Id.* § 4722.

148. *Id.* § 4724.

149. *Id.* § 4724(b).

150. *Id.* § 4726.

151. *Id.* § 4724.

C. State Statutes and Regulations

The states' sovereign authority over fish and wildlife found within their territorial borders has long been recognized and supported by the Supreme Court.¹⁵² Nonetheless, the Constitution clearly delegates to Congress the power to regulate interstate commerce.¹⁵³ The federal commerce powers, however, are not absolute, and the states retain authority under their general police powers to regulate matters of local concern.¹⁵⁴ Many states use this residual power to regulate the importation and introduction of exotic species.¹⁵⁵

1. Exotic Fish and Wildlife and the Commerce Clause

The Supreme Court in *Maine v. Taylor*¹⁵⁶ specifically addressed a state's authority to prohibit the importation of non-native minnows.¹⁵⁷ In upholding the authority to bar the importation of out-of-state minnows, the Court said that for a state regulation to withstand constitutional analysis, the state is required to show that the regulation serves a legitimate local purpose and that the purpose cannot be served as well by any less discriminatory means.¹⁵⁸

152. See *Martin v. Waddell*, 41 U.S. (16 Pet.) 367 (1842). Here the Court was faced with a private landowner who attempted to obtain exclusive use of tidelands. However, the Court held that when the United States took dominion of the land after the American Revolution, the states took the powers and prerogatives of a sovereign, including sovereignty over the navigable waters and land under them, and there could be no private grant of such lands and water. *Id.* at 420. The issue was explicitly settled in *Smith v. Maryland*, 59 U.S. (18 How.) 71 (1855), when the Supreme Court held that a state's sovereignty conferred with it the authority to regulate the taking of oysters [and hence all fish and wildlife]. See also *Kleppe v. New Mexico*, 426 U.S. 529 (1976) (recognizing that wildlife regulation within state territorial boundaries is a traditional state power, and in the absence of federal law to the contrary, a state is free to enforce its laws on lands within the state); BEAN, *supra* note 103, at 12-47.

153. U.S. CONST. art. I, § 8, cl. 3. ("The Congress shall have the Power . . . To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes.")

154. See, e.g., *Lewis v. B.T. Inv. Managers, Inc.*, 447 U.S. 27, 35 (1980).

155. See *Hocutt*, *supra* note 136.

156. 477 U.S. 131 (1986).

157. *Id.* But cf. *Hughes v. Oklahoma*, 441 U.S. 322 (1979). In *Hughes*, the Court struck down a statute that prohibited the export of minnows for sale outside of the state when caught by seine (net) within the state. *Id.* at 323-24. The state barred local residents who caught minnows from exporting them, but did allow out-of-state bait dealers to purchase in-state minnows. The Court saw the statute as protectionist legislation with no legitimate state purpose other than protection of the local bait industry. *Id.* at 338.

158. *Maine*, 477 U.S. at 140.

The State of Maine was able to meet the test. First, it pointed to the local purpose of preserving its fish stock and showed that nonnative minnows were likely to introduce exotic parasites and diseases. Such an introduction could result in the demise of Maine's fishes.¹⁵⁹ Second, the State showed that minnow shipments, as a matter of course, included other unwanted fish and aquatic species that would ultimately escape into Maine's waters and thereby "disturb Maine's aquatic ecology to an unpredictable extent."¹⁶⁰ Third, the State demonstrated that no reliable test was available to detect the presence of parasites and diseases.¹⁶¹ Finally, it showed that the appellee bait dealer's prior shipments contained nonnative species other than the minnows, and the presence of these species could not be assessed with any degree of assurance.¹⁶²

In holding that the State of Maine could bar minnow importation, the Supreme Court did not rest its decision on the State's proposition that the Lacey Act gave the states the authority to regulate interstate trade and, therefore, the dormant Commerce Clause analysis should not apply. Instead, the Court held that a state was immune from the implied limitations of the Commerce Clause only when Congress was "unmistakably clear" in giving the states an open playing field.¹⁶³

Moreover, the Court noted that the Lacey Act merely provides for federal enforcement of valid state and foreign wildlife laws and underscored Maine's failure to identify anything in the legislative history "to suggest Congress wished to validate state laws that would be unconstitutional without federal approval."¹⁶⁴ Thus, the Commerce Clause's central importance in protecting the unfettered flow of interstate trade required a more circumspect and rigorous analysis when it collided with the State's desire to prohibit the importation or sale of exotic species.

The Court's analysis of the Lacey Act and the Commerce Clause places a heavy burden on the states to ensure that legislation or regulations impeding the importation or trade of exotic species are carefully crafted to pass constitutional muster. In

159. *Id.* at 141.

160. *Id.*

161. *Id.*

162. *Id.*

163. *Id.* at 139 (citing *South-Central Timber Dev. v. Wunnicke*, 467 U.S. 82, 91 (1984)).

164. *Id.*

short, the state must be prepared to show that the threat to its native fish and wildlife is real and that a no less burdensome or discriminatory alternative is available. The State of Washington has adopted several statutes that give it the authority to regulate the introduction of exotic species.

2. Washington's Regulation of Exotic Fish and Wildlife

The Washington State Environmental Policy Act (SEPA)¹⁶⁵ and similar state laws¹⁶⁶ provide mechanisms nearly identical to NEPA that may be profitably used to curtail harmful introductions of exotic organisms.

SEPA compels state and local agencies to analyze the impact of proposed major actions that may significantly affect the environment.¹⁶⁷ SEPA's goal is to preserve the natural environment and heritage of the state's citizens by making each present generation the putative steward of the environment for the benefit of future generations.¹⁶⁸

SEPA is largely procedural in nature and does not require any particular outcome or result from agency analysis or deliberation, nor does it rely on any substantive environmental quality standards.¹⁶⁹ Instead, SEPA requires an environmental impact statement that predicts the impact that a major action will have on the environment.¹⁷⁰ Despite the lack of substan-

165. WASH. REV. CODE § 43.21C (1992).

166. By 1976, at least 30 states had adopted legislation requiring environmental impact statements that often apply to local government actions. See ROGERS, *supra* note 75, § 7.11, at 810.

167. WASH. REV. CODE § 43.21C.030 (1992). See generally RICHARD L. SETTLE, *THE WASHINGTON STATE ENVIRONMENTAL POLICY ACT, A LEGAL AND POLICY ANALYSIS* (1987 & Supp. 1993).

168. WASH. REV. CODE § 43.21C.020(2)(a), (d) (1992).

169. Washington case law has clarified that SEPA does not ensure that an action will be prohibited. Instead, it ensures full disclosure and consideration of environmental factors prior to a decision to take action. See *Sisley v. San Juan County*, 89 Wash. 2d 78, 569 P.2d 712 (1977).

170. SEPA requires that

[A]ll branches of government of this state, including state agencies, municipal and public corporations, and counties shall . . . include in every recommendation or report on proposals for legislation and other major actions significantly affecting the quality of the 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.

tive environmental quality standards, SEPA may effectively constrain government action and has been described as Washington's "most fundamental and pervasive environmental law."¹⁷¹ The force of this assertion may arise from the fact that SEPA infuses into all government decision making a regard for environmental consequences and directs all agencies to infuse environmental policy concerns in all plans, operations, and resource management.¹⁷²

Like NEPA, SEPA should apply to the introduction of exotic organisms whenever state or local government acts directly or indirectly to introduce an exotic organism.¹⁷³ If state and local agencies assiduously utilized SEPA prior to authorizing, permitting, or causing the introduction of exotic species, it is likely that the deleterious effects associated with the introduction of exotic organisms could be avoided. However, SEPA does not constrain purely private action. It is evident that unless substantive standards prohibiting private actions resulting in the introduction of exotic organisms are enacted, future costs and problems will continue to mount.

The Washington State Department of Wildlife regulates the introduction of exotic species in a manner similar to the Lacey Act's injurious wildlife approach.¹⁷⁴ Under the Washington Fish and Game Code, "deleterious exotic wildlife" means "species of the animal kingdom not native to Washington and designated as dangerous to the environment or wildlife of the state."¹⁷⁵ To designate a species as such, the Department of Wildlife Director must find that the species is dangerous to Washington's wildlife or environment.¹⁷⁶ The Director then requests that the Wildlife Commission make the appropriate

WASH. REV. CODE § 43.21C.030(2)(C) (1992).

171. See *SETTLE*, *supra* note 167, § 1, at 3-3.

172. WASH. REV. CODE §§ 43.21C.020, .030 (1992); see also *Sisley*, 89 Wash. 2d at 85, 569 P.2d at 718-19 (holding that under SEPA, an environmental impact statement is required when there is a reasonable probability that an action will have more than a moderate effect on the quality of the environment).

173. See *Sisley*, 89 Wash. 2d at 82-83, 569 P.2d at 715; *Eastlake Community Council v. Roanoke Assocs., Inc.*, 82 Wash. 2d 475, 491-93, 513 P.2d 36, 46-47 (1973) (holding that the mere granting by an agency of a permit may meet the threshold requirement of action requiring the completion of an environmental impact statement); *Pease Hill Community Group v. County of Spokane*, 62 Wash. App. 800, 816 P.2d 37 (1991).

174. See *supra* notes 102-118 and accompanying text.

175. WASH. REV. CODE § 77.08.010 (1992). Currently, this list of untouchables includes 16 species. WASH. ADMIN. CODE § 232-12-017 (1992).

176. WASH. REV. CODE § 77.12.020(7) (1992).

designation.¹⁷⁷ However, the Commission has discretion in making its determination.¹⁷⁸ The Department of Wildlife may also use its general emergency power to deem a species deleterious.¹⁷⁹ Once listed as deleterious, that species is prohibited from being imported, possessed, propagated, sold, or released, unless for scientific or zoological purposes.¹⁸⁰

Also, like the Lacey Act, Washington regulations prohibit the importation of live wildlife where contrary to federal, state, or local law or regulation.¹⁸¹ Additionally, live wild animals, including birds and game fish, may not be brought into the state without official certification that the animals are free from diseases.¹⁸²

Unlike the Lacey Act, however, other Washington regulations make it unlawful to import, transport, possess, or release within the state live fish and viable gametes without a permit from the Director of the Department of Fisheries.¹⁸³ Similar regulations apply with regard to so-called aquaculture products,¹⁸⁴ and even more stringent regulations apply to the transfer of oyster stocks.¹⁸⁵

However, because the Washington State resource agencies' approach is similar to the federal Lacey Act, it suffers from the same inadequacies. The state approach fails to properly evaluate and restrict the importation of many dangerous species and to recognize dangerous species until the species have already been released into the environment. The State of Washington has, however, attempted to cure these inadequacies.

The Washington Department of Wildlife used its emergency powers on June 19, 1992, to ban the importation, release, possession, propagation, sale, or transfer of several mammalian

177. *Id.*

178. *See id.* § 77.12.020.

179. *Id.* § 34.05.350 (authorizing administrative agencies to adopt regulations without undergoing notice and comment if necessary to preserve public health, safety, and welfare).

180. WASH. ADMIN. CODE § 232-12-017 (1992).

181. *Id.* § 232-12-064(2).

182. *Id.* The regulations require that a veterinarian or fish pathologist certify that the wildlife is disease free and that the area from which it is acquired has no history of wildlife disease that may pose a risk to wildlife. *Id.*

183. *Id.* § 220-20-039.

184. *Id.* §§ 220-77-040 to -070.

185. *Id.* §§ 220-72-002 to -094.

species of exotic wildlife.¹⁸⁶ This ban arose after the Department had learned that exotic mammals were being reared on several farms in Washington and that these mammals were infected with bovine tuberculosis. The Department was concerned that this disease and others could be transmitted to native wildlife and that the exotic mammals could escape to compete or hybridize with native wildlife.¹⁸⁷ The ban was challenged in federal court by an association of exotic animal ranchers in *Pacific Northwest Venison Producers v. Smitch*.¹⁸⁸ The plaintiffs alleged that their constitutional rights had been violated because (1) their property had been taken without due compensation, (2) they were denied due process of law, and (3) the ban violated the Equal Protection and Commerce clauses.¹⁸⁹

The court supported the State's interest in regulating exotic wildlife by granting all of the State's motions for summary judgment except for the ban on propagation of Sika deer.¹⁹⁰ The court noted that because this species was listed as endangered under the Endangered Species Act, the State was preempted from applying its regulations.¹⁹¹

Although *Smitch* was a step in the right direction, the court's exception regarding the Sika deer represents a grave threat to the state's ability to protect its native wildlife. In essence, the doctrine of federal preemption applies where state law conflicts with the Endangered Species Act. Under these cir-

186. *Pacific Northwest Venison Producers v. Smitch*, No. C92-1076WD (W.D. Wash. Sept. 2, 1992) (memorandum, decision, injunction, and order setting briefing schedule).

187. *Id.*

188. *Id.* at 5-6.

189. *Id.* at 2.

190. *Id.* at 15-16; *accord* *Palladio, Inc. v. Diamond*, 321 F. Supp. 630 (S.D.N.Y. 1970) (holding that the Endangered Species Act and the Lacey Act did not preempt state laws dealing with the prohibition or regulation of wild animals), *aff'd*, 440 F.2d 1319 (2d Cir.), *and cert. denied*, 404 U.S. 983 (1971).

191. *Smitch*, No. C92-1076WD at 1. The court did not identify the relevant provision or previous holdings that led to this conclusion. However, the court may have reached this conclusion based on a provision in the Endangered Species Act:

Any State law or regulation which applies with respect to the importation or exportation of, or interstate or foreign commerce in, endangered species or threatened species is void to the extent that it may effectively (1) permit what is prohibited by this chapter or by any regulation which implements this chapter, or (2) prohibit what is authorized pursuant to an exemption or permit provided for in this chapter or in any regulation which implements this chapter. This chapter shall not otherwise be construed to void any State law or regulation which is otherwise intended to conserve migratory, resident, or introduced fish or wildlife, or to permit or prohibit sale of such fish or wildlife.

16 U.S.C. § 1535(f) (1988).

cumstances, the State of Washington cannot act to prohibit the private possession and propagation of a federally listed exotic endangered species regardless of how serious a threat the exotic species may pose to native wildlife.

Rather, protection of the state's wildlife through state regulations can survive constitutional analysis only if the wildlife becomes endangered. Perhaps then the federal government might intervene to suspend permits that allow the exotic endangered species to be held. This scenario is ironic if not tragic. But what one state cannot accomplish alone may be remedied with the help of its neighbors.

3. Interstate Compacts: Can a Network Work?

An alternative to the state-by-state approach to regulating the introduction, importation, and release of exotic species is cooperation among the states through agreements by which states protect their regional interests. For example, Congress has approved several marine fisheries compacts¹⁹² such as the Atlantic States Marine Fisheries Commission,¹⁹³ the Gulf States Marine Fisheries Commission,¹⁹⁴ and the Pacific Marine Fisheries Commission.¹⁹⁵ These compacts authorize plans that manage coextensive stocks of marine fishes found in the states' territorial seas.

Although most interstate fishery compacts include provisions by which the states may delegate their fishery management authority to the interstate commissions, no state appears to have delegated such authority. Thus, adherence to interstate plans is voluntary. Although the congressionally approved interstate compacts are not mandatory, they have served as forums for developing uniform fishery management plans.

For example, the Atlantic States Marine Fisheries Commission is developing a plan to standardize procedures used to examine and move shellfish from one geographic area to another.¹⁹⁶ This plan is designed to prevent the spread of dis-

192. The United States Constitution provides that "[n]o State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State, or with a foreign Power." U.S. CONST. art. I, § 10, cl. 3.

193. Act of May 4, 1942, Pub. L. No. 77-539, 56 Stat. 267.

194. Act of May 19, 1949, Pub. L. No. 81-66, 63 Stat. 70.

195. Act of July 24, 1947, Pub. L. No. 80-232, 61 Stat. 419.

196. See Frederick G. Kern & Aaron Rosenfield, *Shellfish Health and Protection, in DISPERSAL OF LIVING ORGANISMS INTO AQUATIC ECOSYSTEMS* 322-23 (Aaron Rosenfield & Roger Mann eds., 1992).

eases now causing widespread economic losses to the East Coast shellfish industry.¹⁹⁷

Similarly, as a party to the Pacific Marine Fisheries Commission, Washington State has entered into a cooperative agreement regarding the interstate transfer of shellfish.¹⁹⁸ The pact's goal is to coordinate shellfish movements between states by private parties and to use uniform methods to detect shellfish pathogens, pests, predators, and parasites.¹⁹⁹ However, the cooperative agreement is vague and nonbinding, and decisions regarding the importation of mollusks are made unilaterally by each state.²⁰⁰ Other than these examples, neither regulations nor agreements pursuant to interstate compacts appear to affect the importation or release of exotic fish and wildlife.

This brief overview of federal and state efforts to control the introduction of exotic species demonstrates that the federal and state governments recognize that exotic species are a threat, but current regulations still fail to protect native wildlife and habitat.

IV. THE PATCHWORK HAS FAILED

The current patchwork of state and federal laws and regulations governing the importation and release of exotic species is fraught with many problems. First, the primary federal effort to control exotic species, the Lacey Act, is but a coarse

197. *Id.* The plan calls for the use of standard methods to examine shellfish for diseases prior to transfer and for uniform training programs to train individuals to detect pests, parasites, and pathogens. *Id.*

198. *Id.* The cooperative agreement specifically recognizes the increasing danger of introducing shellfish pests, predators, and diseases through the transfer of molluscan shellfish. *Id.* The states of Alaska, Washington, Oregon, California, and the Province of British Columbia, Canada agreed that (1) primary control of imports lies with the importing state; (2) states will use the same general procedures for identifying shellfish predators, pathogens, and parasites; (3) private industry should pay for all required testing procedures; and (4) available information on importation and pathogens, predators, and parasites will reside at the Pacific Marine Fisheries Commission. *Id.*

199. *Id.* The cooperative agreement reads as follows:

Because of the increasing danger of spreading shellfish pests, predators, and disease problems during the interstate transfer of shellfish (molluscan and crustacea) it is recognized that coordinated control is necessary. Therefore the states of Alaska, California, Hawaii, Oregon and Washington and the province of British Columbia, under the aegis of the Pacific Marine Fisheries Commission (PMFC), agree to the following operating policies and procedures. . . .

Id.

200. *Id.*

trap that prevents the importation of only a few of the worst exotic species.²⁰¹ Second, the wait-and-see approach to both the importation and intentional introduction of exotic species ignores the fact that once an exotic species is released or escapes into the wild, control or eradication of the species is at best impractical, at worst impossible, and always costly. Third, the state-by-state approach and resulting differences in each state's regulations makes the interstate commercial trade of fish and wildlife confusing and difficult. Furthermore, the current state-by-state approach to intentional releases of exotic species ignores the fact that live organisms and their associated parasites and pathogens do not recognize or obey political or territorial boundaries. Lastly, although interstate compacts are a hopeful and potential solution to some of the deleterious effects of exotic species' introductions, these agreements are voluntary and nonbinding.

Washington's regulations will now be examined as applied to some hypothetical situations. This analysis will underscore the problems associated with the state regulation of exotic species.

A. *Washington's Regulation of Exotic Fish and Wildlife*

Washington State's current laws and regulations governing the introduction of exotic fish and wildlife provide only limited protection to native species. Furthermore, they are ill-suited to adequately protect private and public resources from the negative impact of introduced exotic species for a number of reasons.

First, Washington's current system of listing deleterious exotic species is only as good as the list itself. Like the federal Lacey Act list, Washington's list contains very few species.²⁰² Moreover, the mechanism for listing deleterious species is retrospective and suffers from a lack of timely information.²⁰³ Washington's deleterious exotic wildlife list depends, in great part, on receiving information from individuals or other state or federal

201. See *supra* notes 102-118 and accompanying text.

202. See *supra* notes 112-114 and accompanying text.

203. Recent litigation over Washington's regulations occurred after exotic animals had already been imported and were being propagated in the state. The state promulgated regulations to prohibit the rearing of exotic as well as native mammals only after it received reports that bovine tuberculosis was present in a captive elk population and had also appeared in a fallow deer (exotic species) farm in Montana that had received shipments of elk from Washington. *Pacific Northwest Venison Producers v. Smitch*, No. C92-1076WD (W.D. Wash. Sept. 2, 1992) (memorandum, decision, injunction, and order setting briefing schedule).

agencies regarding an exotic species' ill effects.²⁰⁴ The problem with this form of communication is that by the time Washington receives information from an outside source about a deleterious species, that species has already made its way into the state. Thus, it is the introduction of an exotic species that often triggers the process of listing that species as deleterious. Once the species escapes, it may establish self-reproducing populations in native ecosystems or transfer diseases and parasites to native fish and wildlife. If the state acts after these events occur, repairing the damage done is very costly or, worse yet, impossible.

Second, as a practical matter, the states are ill-situated to enforce regulations banning the importation of exotic fish and wildlife. Washington Department of Wildlife officials indicate that compliance with current regulations banning the importation and possession of exotic species and requiring disease inspection is poor because individuals holding exotic animals comply only on request and after fines are levied.²⁰⁵ Moreover, the principal federal agencies that inspect U.S. imports, the U.S. Customs Service and the U.S. Fish and Wildlife Service, apply federal regulations to incoming articles.²⁰⁶ Washington State regulations regarding the importation of live fish or wildlife are typically applied only after the state learns that an exotic species is already within its boundaries.²⁰⁷

Third, to the extent that the deleterious species approach operates *ex post facto*, it is also fraught with political problems. Washington's current efforts to list several exotic wildlife as deleterious exotic species were made only after wildlife agents discovered that ranchers were rearing exotic wildlife for sale and human consumption.²⁰⁸ However, once someone establishes a viable economic operation, a potent political force can develop, making subsequent regulatory efforts difficult, if not

204. Telephone Interview with Marvene Rohr, Wildlife Biologist, Wash. Dep't of Wildlife (Mar. 12, 1993). Rohr stated that Washington began to curtail exotic wildlife importation and possession only after it received numerous inquiries from individuals interested in moving their exotic game farms to Washington to escape more stringent regulations in other states. *Id.*

205. Telephone Interview with Ron Peregrine, Assistant Chief of Enforcement, Wash. Dep't of Wildlife (Mar. 12, 1993).

206. *Id.*

207. *Id.*

208. See *Pacific Northwest Venison Producers v. Smitch*, No. C92-1076WD at 6 (W.D. Wash. Sept. 2, 1992).

impossible, to effectuate.²⁰⁹ If a pet enthusiast owns the exotic species, the owner may become very attached to his or her property and may vehemently resist efforts to control or take the pet. Further, once the right exists to possess such property, that property is, in theory, constitutionally protected.²¹⁰

Finally, current case law has not addressed whether parties responsible for the release or escape of exotic fish and wildlife and the diseases the species carry would be liable for damages that accrue to natural resources.²¹¹ Moreover, recovery under tort law is difficult. Securing monetary damages for the destruction of native fish and wildlife populations or damage to personal property caused by exotic species depends on proving the requisite tort elements and finding a solvent defendant. Aside from these specific problems associated with state regulation, there are strategic problems inherent in a state-by-state approach to regulating exotic species.

B. State-by-State Regulation: Without Cohesion There is No Control

Except for the few species that are prohibited under federal law from being imported, the states are free to determine whether to prohibit or regulate the importation and release of exotic wildlife and how to operate such a system. Unfortunately, such regulatory systems are bound to fail and, in many respects, have failed.

First, because wild organisms do not recognize or obey political or territorial boundaries, the species' distribution and

209. *Id.*

210. U.S. CONST. amend. V ("No person. . . shall be deprived of life, liberty or property, without due process of law; nor shall private property be taken for public use, without just compensation."); U.S. CONST. amend. XIV, § 1 ("nor shall any state deprive any person of life, liberty, or property without due process of law"). These considerations may require additional expenses to compensate the title holder, or if constitutional rights are violated, individuals of the state may face action for monetary damages under the Civil Rights Act, 42 U.S.C. § 1983 (1988). See, e.g., *Smitch*, No. C92-1076WD at 16 (granting the petitioners' motion for summary judgment on a claim of violation of due process and intimating that the Director of Wildlife may be subject to suit under 42 U.S.C. § 1983).

211. However, regulations recently promulgated by the Washington Department of Wildlife indicate that deleterious exotic species that escape or are released shall be considered a per se nuisance and should the deleterious exotic wildlife escape, the former possessor is liable for eradication and control costs, as well as damages to natural resources. Wash. St. Reg. 92-14-115 (to be codified at WASH. ADMIN. CODE § 232-12-017) (filed Jan. 17, 1991).

abundance is controlled by environmental factors.²¹² The environmental factors control the species' distribution and population by affecting their survival, growth, and reproduction.²¹³ Therefore, unless all of the states have similar laws regulating the introduction of exotic species, the state-by-state approach is ineffective. For example, suppose that Washington State bans, as it does, the importation or release of European red deer and that Idaho and Oregon do not. If the red deer is imported into Idaho or Oregon and escapes, or if it carries diseases, the red deer or associated exotic pathogens will find their way into Washington. Indeed, an animal's rapid and widespread distribution after introduction is common. The African honey bee is an example. It was originally released in Brazil, but quickly spread to Peru, Bolivia, Ecuador, and Mexico.²¹⁴ In another example, the starling was distributed over the entire United States and much of Canada within sixty years after its original release in New York.²¹⁵

Another problem with state-by-state regulation is the economic inefficiency inherent in its administration. Surveillance and administration are more efficiently accomplished under the auspices of a single entity rather than under several autonomous entities.²¹⁶

Finally, under the current state-by-state scheme, states fail to consider federal interests when they contemplate an introduction. For example, the United States government currently provides funds for states to operate several Columbia River hatcheries. The introduction of exotic fishes in the Columbia River Basin contributes to the threatened and endangered status of several stocks,²¹⁷ yet the federal government has no voice in determining whether to proceed with an introduction. Clearly, this situation, created by state-by-state regulation, impairs the federal government's ability to carry out its responsibilities pursuant to congressional mandates and trust responsibilities pursuant to Indian treaties.²¹⁸

212. See generally KREBS, *supra* note 16, at 85-129.

213. *Id.* at 20.

214. *Id.* at 18.

215. *Id.* at 24.

216. For example, it is probably much more efficient for one agency, such as the U.S. Customs Service, to inspect and screen imported articles than it is for each of the 50 states to be engaged in such efforts.

217. See KREBS, *supra* note 16, at 17-23.

218. See *Carson-Truckee Water Conservancy Dist. v. Clark*, 741 F.2d 257 (9th Cir. 1984) (holding that the Secretary of the Interior may allocate all water from a federal

C. Interstate Compacts

Interstate coordination of exotic species' introductions is a superior means of regulating species over the state-by-state approach because interstate compacts encourage cohesion rather than autonomy. However, under the interstate compact model, a regional regulatory approach also has significant drawbacks.

First, some species are potentially pandemic to the United States.²¹⁹ Therefore, it is unclear just how encompassing regional cooperation needs to be to prevent an adverse introduction and establishment of a given species. Because regional pacts can also fail to control a species' distribution, national regulation is needed.

Second, because a state's adoption and implementation of interstate regulations is voluntary, the federal government is sometimes forced to intervene to conserve natural resources commonly found within the territory or seas of the states.²²⁰ In addition, slight variations in interstate compacts' regulations, surveillance, and enforcement can lead to loopholes that prevent attaining the benefits of uniform regulations.²²¹

In summary, although interstate cooperation in regulating the importation and release of exotic species would considerably improve the current state of affairs, interstate compacts fail to provide the broad oversight necessary to address species' introductions because the states appear unwilling to delegate their legislative and regulatory authority to other entities. Furthermore, even if the states did delegate their authority, numerous interstate authorities would still fail to develop the national uniformity necessary to effectively regulate the introduction of exotic species.

reclamation project to protect endangered species in Pyramid Lake or fulfill trust responsibilities to the Pyramid Paiute Tribe, which depends for its livelihood on fishing in Pyramid Lake), *cert. denied*, 470 U.S. 1083 (1985).

219. See KREBS, *supra* note 16, at 18-24.

220. For example, despite the existence of a detailed interstate management plan pursuant to the Atlantic States Marine Fisheries Commission, congressional action for uniform management of Atlantic striped bass in the states' territorial seas was deemed necessary. "Because no single government entity has full management authority throughout the range of the Atlantic striped bass, the harvesting and conservation of these fish have been subject to diverse, inconsistent, and intermittent State regulation that has been detrimental to the long-term maintenance of stocks of the species and to the interests of fishermen and the Nation as a whole." Atlantic Striped Bass Conservation Act, Pub. L. No. 98-613, § (2)(a)(3), 98 Stat. 3187, 3190 (1984).

221. *Id.*

D. National Regulation of Exotic Fish and Wildlife

Although the national regulation of exotic species is, at this writing, largely nonexistent, the advantages of a comprehensive national approach are many. First, because many exotic species have the capacity to survive and migrate throughout the United States, a federal regulatory program could give each state an equitable voice in approving or disapproving exotic species' introductions. Although a species with the potential for pandemic colonization would not be adequately controlled by a state-by-state approach, arguably the species would be less likely to find its way into the United States under uniform national regulations.

Second, federal regulations governing the introduction and release of exotic species would better protect federal interests that might be adversely impacted by the introduction. Currently, decisions to purposefully introduce exotic species are left to the states, and such decisions may go forward without considerations of their potential effects on federal obligations pursuant to the Endangered Species Act or international fisheries and wildlife treaties.

Third, federal regulations would be more efficient and effective than the state-by-state or interstate approaches. For example, the U.S. Customs Service, U.S. Fish and Wildlife Service, and National Marine Fisheries Service currently inspect imported goods and articles for compliance with federal wildlife laws and regulations.²²² These federal agencies do not enforce each state's regulations of exotic fish and wildlife. Comprehensive national regulations on the importation of exotic fish and wildlife would thus use existing infrastructure and expertise, which would eliminate the duplicity created by the federal and state regulation of a species and would avoid piecemeal importation regulations, such as those adopted by the State of Washington.

Finally, federal regulations governing the introduction, transfer, and release of exotic species would overcome the states' inability to implement uniform regulations. The foregoing discussion illustrates that regulating the importation,

222. See, e.g., 19 C.F.R. § 12.26 (1993) (specifying how customs officials are to inspect imported articles pursuant to regulations of the U.S. Fish and Wildlife Service); *Id.* § 14.51 (1992) (authorizing Customs officers and U.S. Fish and Wildlife Service officers to detain packages and containers that may contain wildlife for either import or export).

transfer, and release of exotic fish and wildlife will be most effective when carried out under a national regime.

It is important to recognize, however, that a national approach to regulating the introduction of exotic fish and wildlife is also subject to several problems that would make enactment and implementation difficult. First, creating a national solution involves many political problems. Enacting a national approach would necessarily require state support as it would entail the surrender of some state authority and autonomy in regulating and controlling fish and wildlife introductions. State representatives may act to preserve their state's autonomy. Further, other politicians may be reluctant to adopt a national approach and instead be inclined to take a state's rights approach to this issue. This political problem could be addressed, however, by giving each state within the ultimate geographical range of an introduced species a voice in approving or rejecting an introduction.²²³

Second, implementing and administering a comprehensive national program would require substantial resources. In times of vast deficit spending, acquiring the needed appropriations for such a program would be difficult at best. On the other hand, the state-by-state approach to the regulation of exotic fish and wildlife has also been costly.²²⁴

Third, focusing congressional attention on introduced exotic fish and wildlife is not guaranteed. Congress may be willing to respond only when there is a pressing problem resulting from the introduction of exotic fish and wildlife, rather than addressing the issue before it rises to a problematic level.²²⁵ Although there are many political issues that make the enact-

223. For example, to approve the importation, introduction, or release of a given species, a state could use existing data to predict the species' range if it is released or if it escapes. If such information was unavailable, the state could then perform the appropriate studies. Once the species' ultimate range is predicted, the federal government and all states within the range must assent to the importation or release. If not, the importation or release would not be approved. If a state approved or otherwise introduced a species without the assent of other affected parties, that state may be liable for eradication efforts and ensuing damages caused by the introduced species.

224. See *supra* notes 64-72 and accompanying text.

225. This was largely the congressional response when it was learned that zebra mussels had been introduced into the Great Lakes. Congress addressed the introduction of exotic species largely as it related to ballast water introductions in the Great Lakes, although it was apparent that the problem was common to all freshwater and marine ports of call in the United States. See *supra* notes 142-151 and accompanying text.

ment of a national program problematic, the costs of inaction—more ecological disaster, negative economic impacts, and more species' extinctions—continue to mount.

Apart from the political hurdles that must be overcome, a national system of regulating the introduction of exotic species has another major drawback. Given that many species have the potential for distribution beyond national borders, international coordination is needed. This problem is essentially the same as that created by state-by-state regulation. For example, if the United States prohibited the introduction of an exotic species and either Mexico or Canada did not prohibit the introduction of the species, the species could be lawfully introduced into either Mexico or Canada and find its way into the United States. Clearly, the current state-by-state and federal regulatory patchwork is fraught with problems. A new national approach encompassing international concerns is the answer to regulating exotic species' introduction.

V. PROPOSED SOLUTIONS

A national program to regulate the intentional and accidental introduction of exotic species should include (1) a comprehensive list of exotic species whose importation should be prohibited; (2) an investigation into and proposed solution to correct the ways that exotic organisms are accidentally released into the environment; (3) a national protocol and risk assessment requirement that a state, individual, or other entity must meet to introduce a species into the ambient environment; (4) the imposition of strict liability for damages caused by those responsible for exotic species' introductions; (5) compacts between states effectuating uniform regulations; (6) educational programs to inform individuals of the dangers of releasing exotic organisms into the environment; and (7) efforts to achieve international accord on the importation and introduction of exotic fish and wildlife.

A. *Comprehensive List of Prohibited Exotic Species*

The Lacey Act and Washington State's approach to identifying deleterious exotic species and prohibiting their importation is a step towards creating a comprehensive list of prohibited species.²²⁶ There are numerous species that are so

226. See *supra* notes 102-118, 175-186 and accompanying text.

detrimental to native ecosystems that the risk of escape or release does not justify their importation.²²⁷

Unfortunately, the Lacey Act and Washington State regulations that ban the importation of certain species merely skim the surface of a huge reservoir of deleterious species. For example, neither list mentions numerous species of poisonous snakes that are detrimental to native fish, wildlife, and humans. In addition, the states have no meaningful mechanism to intercept imports at their entry point. Thus, the states must depend on ex post facto reporting, surveillance, and enforcement mechanisms to detect deleterious species. By the time the state finds these species, native fish and wildlife may have been exposed to pathogens, parasites, and viral agents carried by the exotic organisms, or worse yet, the exotic organism may have escaped into the ambient environment. For this reason, Washington State should seek to have its list of deleterious exotic species incorporated into the Lacey Act regulations. The new Lacey Act list would then be directly enforced by U.S. Customs and other federal resource agencies. In general, federal regulations prohibiting the importation of exotic fish and wildlife should be harmonized with state importation bans.

B. Assessment of Accidental Introductions

There appear to be few efforts by the states, including Washington, to analyze the mechanisms by which exotic organisms are unintentionally introduced. The Nonindigenous Aquatic Nuisance Prevention and Control Act has created a task force that analyzes the mechanisms by which exotic organisms are unintentionally introduced and the ways to ameliorate such introductions.²²⁸ The task force discovered, and Congress recognized, that the introduction of exotic organisms via ballast water is a significant problem.²²⁹ Steps are being taken to ameliorate this vector as a source of unintentional introductions in the Great Lakes.²³⁰

Additionally, the task force may recommend that prophylactic regulations be extended to merchant ships entering the rest of the nation's estuarine ports to further eliminate ballast

227. The black mamba, cobra, poisonous tree frog, raccoon dog, and piranha are examples. See *supra* notes 112-114 and accompanying text.

228. See *supra* notes 142-151 and accompanying text.

229. AQUATIC NUISANCE SPECIES PROGRAM, *supra* note 67, at 12.

230. See *supra* note 145.

water introductions.²³¹ Washington State should support these federal regulations or national legislation. Washington State has much at stake considering that Puget Sound is habitat to numerous native species and is home to several major ports of call.

C. *Risk Assessment and Conditional Permitting*

I noted in the beginning of this Comment that some introduced species benefit the people of the United States. For example, almost all of the cereal crops grown in the United States are introduced species.²³² However, these species are largely dependent on man for reproduction and cannot survive in the wild.²³³ On the other hand, some species have such detrimental characteristics that their importation, much less their release into the environment, should never be condoned.²³⁴

Given the wide variance in negative and positive traits of exotic wildlife and the wide variance in their potential for surviving, growing, reproducing, and spreading in the wild, it is not surprising that risk assessment protocols have been suggested as a means to screen the introduction of exotic fish and wildlife.²³⁵ These protocols weigh the potential benefits and risks posed by a particular exotic species and then determine whether to proceed with an introduction.²³⁶

Typically, these protocols attempt to determine (1) the life history of the species in question, (2) the physical factors that might control its abundance and distribution in the new environment, (3) the species' typical food requirements and potential for competition with native species should the exotic escape or be released, and (4) whether the species harbors any diseases

231. AQUATIC NUISANCE SPECIES PROGRAM, *supra* note 67, at 39-40.

232. See F.E. SHARPLES, PUB. NO. 2040, SPREAD OF ORGANISMS WITH NOVEL GENOTYPES: THOUGHTS FROM AN ECOLOGICAL PERSPECTIVE 10 (1982).

233. *Id.*

234. See *supra* note 110.

235. See, e.g., INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA, REP. NO. 159, CODES OF PRACTICE AND MANUAL OF PROCEDURES FOR CONSIDERATION OF INTRODUCTIONS AND TRANSFERS OF MARINE AND FRESHWATER ORGANISMS 77 (Gary E. Turner ed. 1988) [hereinafter CODES OF PRACTICE]; Christopher C. Kohler & Walter R. Courtenay, Jr., *American Fisheries Society Position on Introductions of Aquatic Species*, 11 FISHERIES 39 (1986). Both articles discuss elaborate protocols to assess the likelihood that a given species if it escapes or is released will survive, the likely geographic limits of its distribution, and the potential consequences for native ecosystems and species. Unfortunately, the protocols are recommendatory only and are not enforced by any regulatory authority.

236. CODES OF PRACTICE, *supra* note 235, at 5-12.

or parasites that are not native to its new environment.²³⁷ From this information, the degree of risk associated with the introduced species can be determined. If the danger is great, the introduction may be denied. If, however, risks posed by the species are few or permit conditions might alleviate the risk of harm, permission for importation, introduction, or release may be granted. For example, if someone wishes to raise an exotic species in enclosed areas, permit conditions on fence strength and height would minimize risk of escape. In addition, the permittee might also be required to post a forfeitable bond in the event that the introduced species escapes and causes any harm. Other requirements might include frequent inspections to ensure that the introduced species is disease and parasite free.

Washington does not use formal risk assessment techniques to approve or deny permission to import or introduce exotic species. Nonetheless, current Washington State regulations give the Director of Wildlife authority to specify the adequacy of enclosure requirements for deleterious exotic wildlife.²³⁸ It is not clear, however, what procedures would be followed if an individual requested permission to import a species not listed as deleterious exotic wildlife. Thus, Washington State regulations are inadequate because they fail to address exotic species other than deleterious exotic wildlife.

Washington should adopt regulations establishing a risk assessment requirement for all exotic imports. If such a risk assessment and conditional permitting program was applied to all nonnative fish and wildlife, it would better protect native fish and wildlife resources, especially where the risk posed by the introduction is low or can be minimized through permit conditions.

A national risk assessment and permit program would be better than the state-by-state approach. Currently, there is no mechanism by which federal and state interests can be adequately represented or protected because each state is free to regulate or not regulate the release of exotic fish and wildlife. National risk assessment and approval would give the states and the federal government a mechanism for protecting their interests.

237. *See id.*

238. *See* Wash. St. Reg. 92-14-015 (7), (8) (to be codified at WASH. ADMIN. CODE § 232-12-017) (authorizing the Director of Wildlife to determine the adequacy of holding facilities for deleterious exotic species and providing detailed fencing requirements for certain deleterious exotic organisms).

Congress expressed some interest in a national risk assessment and permit program when House Bill 5852²³⁹ was introduced in 1990.²⁴⁰ However, Congress took no legislative action subsequent to its introduction. Nonetheless, the Bill is worthy of discussion because it is a model for future legislation. Washington State and other states would do well to study the features of House Bill 5852 and support such legislation. It would give all states a means to control adjacent states' purposeful introductions when those introductions would likely affect the adjacent states.

First, the Bill would have created a national permit system for the intentional introduction of exotic fish and wildlife.²⁴¹ Second, the Bill would have directed the Secretary of the Interior, in cooperation with the National Marine Fisheries Service, to establish protocols to assess the risk posed by exotic species' introductions.²⁴² As part of the risk assessment protocol, the Secretary of the Interior would be required to project the ultimate range of any exotic species and notify all states within the projected range of this information.²⁴³ Those states within the projected range would have veto power over the issuance of a permit for introduction.²⁴⁴ Further, the Bill would have given the public an opportunity to comment prior to any introduction.²⁴⁵ Finally, the Bill would have authorized civil and criminal sanctions for violations of the Act.²⁴⁶

D. Strict Liability for Adverse Impact of Exotics

To ensure that exotic species are introduced only under the most controlled circumstances, sanctions for improper introductions should be commensurate with the gravity of harm such species can cause. Exotic fish and wildlife represent significant risks to native resources. Accordingly, Washington State

239. H.R. 5852, 101st Cong., 2d Sess. (1990).

240. *Id.*

241. *Id.* § 5.

242. *Id.* § 4. The protocols would require that (1) the introduction's objective be clearly stated; (2) scientific information be available for the species in question, which includes its likely effects on native fauna and ecosystems; (3) monitoring and control programs be developed; and (4) small-scale test introductions be in confined environments. *Id.*

243. *Id.*

244. *Id.* § 3(c) (stating that no permit for an introduction may be issued unless the states likely to be affected approve the introduction).

245. *Id.* § 5(b).

246. *Id.* § 6.

should establish statutes or regulations that clarify that persons or institutions importing and possessing exotic fish and wildlife are strictly liable for all damage caused by such species.

Washington officials have taken this step, but only through deleterious exotic wildlife regulation.²⁴⁷ Under current Washington law, whether strict liability would apply to exotic species other than deleterious exotic wildlife is questionable. Legislation enforcing strict liability should be promoted at the national level. This would obviate the uncertainty of whether the federal courts may fashion appropriate remedies under federal common law. Additionally, if federal statutes imposed strict liability for harms caused by exotic organisms, individuals adversely affected by another state's activities could avail themselves of unitary federal law rather than the vagaries of the offending state's common law.²⁴⁸

E. Interstate Compacts

Neither fish nor fowl obey political boundaries. Like water and air, exotic organisms can expand their range over thousands of miles. For this reason alone, state-by-state regulation of exotic species will not adequately protect Washington's native fish and wildlife resources. Greater protection of Washington's native fish and wildlife resources could be achieved through interstate compacts effectuating uniform and comprehensive regulations. An interstate program for uniform risk assessment and conditional permitting would provide added protection to native fish and wildlife and still allow valuable economic activity to flourish. But because some organisms have the potential to achieve pandemic distribution after their introduction, interstate compacts need to be national in scope to ade-

247. Wash. St. Reg. 92-14-115 (to be codified at WASH. ADMIN. CODE § 232-12-017) (filed Jan. 17, 1991). Current regulations now provide the following:

Escaped deleterious exotic wildlife will be considered a public nuisance. The department or any peace officer may seize, capture, or destroy deleterious exotic wildlife that have escaped the possessor's control. The former possessor may be responsible for costs incurred by the department in recovering, maintaining, or disposing of such animals, as well as any damage to the state's wildlife or habitat.

Id.

248. See *International Paper Co. v. Ouellette*, 479 U.S. 481 (1987). In *Ouellette*, the Court held that the Clean Water Act preempted federal common law and that a state affected by pollution could not apply its common law of nuisance to the polluting state. *Id.* at 493-97. However, the complaining party may avail itself of the polluting state's laws or a federal court sitting in diversity may apply the polluting state's common law. *Id.* at 497-98.

quately deal with the introduction of exotic fish and wildlife. Thus, a national approach encompassing the regulation of exotic fish and wildlife is a more optimal resolution to this problem.

F. Educational Programs

Several authors have noted that educational programs effectively alert citizens to the dangers of releasing unwanted exotic pets into the environment.²⁴⁹ Washington State should establish programs to advise pet owners, hunters, fishermen, and aquaculturists of the dangers posed by transferring and introducing exotic fish and wildlife into the environment. One author has noted that numerous exotic species are commonly available from around the world within days of placing a telephone order.²⁵⁰ Federal and state enforcement and surveillance resources simply cannot keep pace with an individual's ability to wreak long-lasting harm through thoughtless actions. Educational programs, however, could prevent inadvertent introductions and should be considered as part of any overall program to control the introduction of unwanted exotic fish and wildlife.

G. National Regulation of Exotic Fish and Wildlife

National regulation of introduced exotics would give states a voice in decisions that may substantially and adversely affect their natural resources. Federal efforts are beginning to take shape that will address the problem of exotic organisms. Significant steps are already being taken to address the problem of the unintentional introduction of exotic fish and wildlife via ballast water.²⁵¹ The states, including Washington State, would benefit from federal regulations governing the intentional introduction of exotic organisms and should support such regulations or legislation.

249. See, e.g., Courtenay & Robins, *supra* note 25, at 312.

250. See Carlton, *supra* note 24, at 20 (noting that the 1989 *Aquaculture Magazine* Buyer's Guide lists over twenty-five species of marine and freshwater invertebrates, over fifty species of fish, four species of macroalgae, and three species of microalgae ready to be shipped around the world within days).

251. See *supra* notes 142-151 and accompanying text.

H. International Measures

Individual citizens and government institutions of Washington State and British Columbia can introduce any number of exotic species. Those species can find their way into other sovereign territories. Given its interest in protecting natural resources, the United States should enter into bilateral discussions with Canada and Mexico to determine whether there is mutual interest in uniformly regulating the introduction of exotic fish and wildlife. Moreover, the United States should enter into accords with its bordering nations to formalize joint programs and regimes governing the introduction of exotic organisms. Given the geographical proximity to Canada and exotic species' ability to migrate and spread disease, Washington State should encourage the State Department to sponsor international discussions with Canada on this topic.

VI. CONCLUSION

Washington's current laws and regulations governing the introduction of exotic organisms are far better than no law at all. However, the current deleterious exotic wildlife approach is only designed to prevent the worst species from being introduced into Washington. Without a comprehensive screening mechanism in place, Washington's natural resources will continue to be adversely affected. Washington should adopt and implement one of the many protocol systems that utilizes risk assessment techniques to screen proposed introductions, and condition permits to minimize the unintended effects of introduced fish and wildlife.

Moreover, routes and vectors of accidental introductions should be identified, assessed, and addressed with a view towards eliminating or minimizing the possibility of inadvertent introductions. In addition, the State of Washington should attempt to coordinate its efforts to screen and prevent the introduction of exotic fish and wildlife with neighboring states. Clearly, the most effective approach to regulating exotic fish and wildlife is through a comprehensive national program because (1) exotic fish and wildlife do not obey political boundaries; (2) state regulations governing exotic species vary from state to state; (3) states do not possess the infrastructure and resources that are available to the federal government to inspect exotic animal introductions; and (4) federal interests are

not adequately protected or considered when each state controls the introduction of exotic species.

Thus, Washington State officials should advocate comprehensive federal legislation on the subject of exotic fish and wildlife introductions. Lastly, international accords should be promoted between the United States and its North American neighbors to ensure that mutual interests are identified and common goals are attained regarding the importation, introduction, and release of exotic fish and wildlife. It is only through these measures that we can ensure the preservation of native wildlife and the rich habitats of the Pacific Northwest.