NOTE

AMERICA'S INVADERS: THE NILE MONITOR AND THE INEFFECTIVENESS OF THE REACTIVE RESPONSE TO INVASIVE SPECIES

By
William K. Norvell III*

In response to an ever increasing level of environmental devastation caused by invasive species and the resultant concerns for ecological preservation, both the state and federal governments have passed legislation to combat this pressing issue. In this Note, the author evaluates the effectiveness of these reactive and proactive policies in the United States. The author also analyzes the successful, proactive invasive species legislation from Australia, the United Kingdom, and New Zealand, and then contrasts them to the failing, mainly reactive laws found in the United States. Despite these shortcomings, the author concludes that it is entirely possible for the United States to transition from a reactive approach to a proactive one and recommends it do so—before it is too late.

* © William K. Norvell III is a law student at Nova Southeastern University working toward his Juris Doctorate. He would first like to thank his wife, Lauren, for all the love and support she has given him in this transition from middle school history teacher to law student. He would like to thank his family for always telling him to go for his dreams. Lastly, he would like to acknowledge his friend, marine biologist, Jodie Gless, who was very helpful in locating the scientific articles and reports regarding the Nile monitor and for being the person who first introduced him to the threat of invasive species to our native wildlife.

I. INTRODUCTION

The United States is at war. This country is rapidly being invaded by illegal immigrants who are coming to this country's shores and devastating its native plant and animal populations. Invasive species are a major environmental threat to the U.S.[1] While there are numerous invasive threats such as the Burmese python, the Asian carp, the European starling, and kudzu,[2] the modern implications of this problem are evident from the recent onslaught of the Nile monitor on the native wildlife and threatened species in the state of Florida.[3] The spread of the Nile monitor in Florida shows that current legislation and the reactive 'dirty list' approach of the U.S. are not effective in stopping the invasive species threat.

This Note begins by discussing the current threat posed by an invasive lizard, the Nile monitor, to the native environment of Florida.[4] It will use this lizard to illustrate the current causes and impacts of the invasive species threat in the U.S. The Note then explores the current legislation of the U.S., concentrating on the reactive and proactive policies in use to halt the spread of invasive species in the country. It evaluates the effectiveness of both methodologies and legislation, discussing their effectiveness to date in attempting to quell the problem at hand. That analysis is followed by a review of the invasive species legislation of Australia, the United Kingdom, and New Zealand which considers the success of their respective programs and legislation with

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[1] Robert Brown, *Exotic Pets Invade United States Ecosystems: Legislative Failure and a Proposed Solution*, 81 IND. L.J. 713, 713 (2006).

[2] *Id.* at 714; David A. Strifling, *An Ecosystem-Based Approach to Slowing the Synergistic Effects of Invasive Species and Climate Change*, 22 DUKE ENVTL. L. & POL'Y F. 145, 155 (2011); Nancy E. LaFleur et al., *Invasive Fruits, Novel Foods, and Choice: An Investigation of European Starling and American Robin Frugivory*, 119 WILSON J. ORNITHOLOGY 429, 429 (2007); Tyler R. Kartzinel et al., *Heterogeneity of Clonal Patterns Among Patches of Kudzu, Pueraria montana var. lobata, An Invasive Plant*, 116 ANNALS OF BOTANY 739, 740 (2015).

[3] Brown, *supra* note 1, at 715.

[4] *Id.*

a focus on the success of a proactive system and the shortcomings of a reactive system. Finally, it recommends how the U.S. should proceed to control the invasive species menace in this country and to turn the tide against the Nile monitor before it is too late for Florida's native wildlife.

II. THE NILE MONITOR AND INVASIVE SPECIES IN FLORIDA

A. Invasive Species in Florida and Their Impact on the Environment

The state of Florida is being invaded. This invasion has been slow and systematic, but is nonetheless a significant threat to the state. The invasion began in 1538 when Hernando de Soto brought with him a group of European pigs to be used to bargain with the local Floridian natives.[5] Some of these pigs would eventually find their way into the wild and would become the first documented invasive species in the state of Florida.[6] Currently over 400 species of non-native fish and wildlife have been observed in the wild in Florida.[7]

Today the three main causes of invasive species introduction in the U.S. are purposeful government introduction, such as carp being introduced to the U.S. river system by the U.S. Fish Commission; by accident, with the species sneaking into the country via ship or crate, similar to the rats carried over by ancient explorers; and through importation in the exotic pet trade, which could be either legal or illegal depending on the species.[8]

The exotic pet trade is a major reason that Florida's ecosystem has been suffering from invasive species.[9] The U.S. is the largest importer of exotic species.[10] The illegal pet trade is second only to the drugs and weapons trade in profit, earning $10 billion to $20 billion a year.[11] In Florida, pet importation is a major industry ($300 million as of 2007), which leads to a high number of species brought into the state annually.[12] Because Florida has some of the nation's major ports of entry for legal exotic wildlife species, the state has created a perfect storm for an invasion of a multitude of exotic animals into this part of the country from all over the world.[13] Moreover, in view of the occasional

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[5] Scott Hardin, *Managing Non-Native Wildlife in Florida: State Perspective, Policy and Practice*, *in* MANAGING VERTEBRATE INVASIVE SPECIES: PROCEEDINGS OF AN INTERNATIONAL SYMPOSIUM 43, 43 (G.W. Witmer et al. eds., 2007).

[6] *Id.*

[7] *Id.*

[8] Brown, *supra* note 1, at 713–14.

[9] *Id.* at 713.

[10] Jane Cynthia Graham, *Snakes on a Plain, or in a Wetland: Fighting Back Invasive Non-Native Animals—Proposing a Federal Comprehensive Invasive Non-Native Animal Species Statute*, 25 TUL. ENVTL. L.J. 19, 27 (2011).

[11] *Id.*

[12] Hardin, *supra* note 5, at 43.

[13] Richard Engeman et al., *The Aggressive Invasion of Exotic Reptiles in Florida with a Focus on Prominent Species: A Review*, 57 CURRENT ZOOLOGY 599, 599 (2011).

lost or escaped pet, the deliberate release of animals by dealers, and the destructive hurricanes that can release pets on a massive scale, it becomes easy to understand the onslaught Florida has faced from the many invasive species seeping into the ecosystem.[14]

Additionally, the state's climate and biodiversity are working against the native species. Florida has a tropical and subtropical climate, which is different from the rest of the continent; consequently, the native species in this state typically originate in the southeastern U.S. with Florida being at the southern extreme of their range.[15] This means that the native populations are relatively low when compared to most subtropical regions, thus opening the door for invasive species to take over the region.[16] With these factors all contributing, as of 2008, "Florida has more introduced animals than any other region of the U.S. and also ranks high . . . globally."[17]

Out of the over 400 invasive species identified in the state of Florida, scientists have labeled approximately 123 as "established."[18] In order for a species to be classified as established, it has to reproduce in the wild for five or more years.[19] Roughly, three-quarters of the introduced, invasive reptiles are now established, and the number of breeding, non-native lizard species exceed the number of native species 3 to 1.[20] This is most problematic for the native wildlife that now not only must compete for food, but have also fallen prey to these invasive lizards, such as the Nile monitor.[21]

B. The Nile Monitor

The longest lizard on the continent of Africa, an adult Nile monitor can measure up to a maximum of 7 feet, 9 inches in length.[22] Common descriptions of the temperament of the Nile Monitor (*Varanus niloticus*) include dagger-like claws and an ill-temper.[23] In the African wild, these carnivorous lizards are able to kill, dismember, and swal-

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[14] *Id.* at 599, 603, 607.

[15] *Id.*

[16] *Id.* at 599–600.

[17] *Id.* at 600 (citing S. FLA. WATER MGMT. DIST., EXECUTIVE SUMMARY 2008 SOUTH FLORIDA ENVIRONMENTAL REPORT 28 (Mar. 1, 2008), http://my.sfwmd.gov/portal/page/portal/pg_grp_sfwmd_sfer/portlet_prevreport/executive_summary_1.pdf (accessed Jan. 26, 2015)).

[18] Hardin, *supra* note 5, at 43, 44.

[19] *Id.* at 44.

[20] Hardin, *supra* note 5, at 44; Engeman et al., *supra* note 13, at 599.

[21] *See* Engeman et al., *supra* note 13, at 599, 604 ("The Nile monitor can rapidly outgrow many, if not most, potential predators, and this large-bodied carnivore is capable of eating a wide variety of vertebrate prey, potentially impacting a number of threatened and endangered species in the process.").

[22] Kyle Szczepaniuk, *Varanus nilocitus*, ANIMAL DIVERSITY WEB, http://animaldiversity.org/accounts/Varanus_niloticus/ [https://perma.cc/HU5J-45SG] (2011) (accessed Jan. 26, 2016).

[23] *Exotic Update: The Nile Monitor*, 3 THE SENTINEL, no. 6 (Fla. State Agric. Response Team, Fla.), June 2007, at 8, http://www.flsart.org/newsletter/sent-07-06.pdf [https://perma.cc/CY4N-77RL] (accessed Jan. 26, 2016).

low large prey and are known to consume a wide range of animals, including birds, bird eggs, reptiles, mammals, and crocodile eggs.[24] Nile Monitors densely populate their native habitat (forty to sixty per square kilometer), and locals exploit them for their food and leather because of their abundance and ability to procreate steadily (a major issue as an invasive species).[25] Commonly sold by exotic pet retailers, the Nile Monitor is the second most commonly sold African monitor in the U.S.[26]

Frequent observations of this lizard in the Florida wilderness allowed the government to classify the Nile monitor as an "established" species in the U.S. as early as the 1990s.[27] The most common theory of their relatively quick emergence in the wilderness of the Florida coastal region is that they were released by ill-equipped pet owners who were no longer able to care for the large lizards after they had grown beyond the confines of their cages and had begun to show the aggressive behavior that accompanies their maturity.[28] Another theory on why there are so many lizards roaming freely in Florida in such a relatively short time period is the belief that reptile dealers, who were looking to establish a local breeding population, may have released them in order to recapture the animals and avoid the heavy fines associated with importation of the exotic lizard.[29] Regardless of the manner in which they were released, Nile monitor lizards in Florida densely populate the Cape Coral area (with a reported estimate of over 1,000 in the coastal area alone).[30] Numerous reports also document the spread of the species to other parts of South Florida, including multiple sightings in Miami–Dade, Broward, and Palm Beach counties, marking the Nile monitor threat as a statewide issue.[31]

A new species, especially a predator, can be devastating to an ecosystem's balance.[32] The devastation that the Nile monitor can cause to the environment of Florida comes from the massive number of native species that the lizard consumes. In its native habitat, the Nile monitor eats aquatic animals, birds, eggs, and hatchlings from other

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[24] TODD S. CAMPBELL, ERADICATION OF INTRODUCED CARNIVOROUS LIZARDS FROM THE CAPE CORAL AREA 2 (2005), http://www.chnep.wateratlas.usf.edu/upload/documents/MonitorLizardEradication_CampbellUnivTampa.pdf [https://perma.cc/MD2M-GF4Z] (accessed Feb. 13, 2016).

[25] *Id.*

[26] Kevin M. Enge et al., *Status of the Nile Monitor (Varanus niloticus) in Southwestern Florida*, 3 SE. NATURALIST 571, 572 (2004).

[27] *Id.* at 577.

[28] *Id.* at 572.

[29] *Id.*

[30] CAMPBELL, *supra* note 24, at 1.

[31] *Id.*; *see also* FLA. FISH & WILDLIFE CONSERVATION COMM'N, *Non-natives—Nile Monitor*, http://myfwc.com/wildlifehabitats/nonnatives/reptiles/nile-monitor/ [https://perma.cc/45PP-LGH8] (accessed Jan. 26, 2016) (illustrating confirmed sightings of Nile monitors with an updated map).

[32] Graham, *supra* note 10, at 24.

larger vertebrates.[33] In Florida, the Nile monitor eats the eggs of the gopher tortoise, a listed threatened species, as well as the eggs of mature burrowing owls, another threatened and protected species in the state.[34]

Even more significant is the toll the Nile monitor is having on the eggs and hatchling populations of the American crocodile.[35] As recent as 2007, the Florida population of American crocodile rebounded so greatly that the National Park Service downgraded the species from 'endangered' to 'threatened.'[36] However, the continued widespread presence of the Nile monitor poses a risk to the recovering American crocodile population.[37] Due to the harmful consequences the Nile monitor poses to many endangered and threatened species in Florida, it is now more imperative than ever to stop the spread of this non-native species on a sensitive environment. Non-native species have contributed to the addition of approximately 42% of the species protected under the Endangered Species Act (ESA).[38] "The negative impacts inflicted by exotic species on native species and ecosystems may only be exceeded by human-caused habitat destruction."[39]

III. THE LAWS AND REGULATIONS IN THE UNITED STATES TO COMBAT THE INVASIVE SPECIES EPIDEMIC

The invasive species problem traces back to European settlers exploring and colonizing the world in the 1500s. However, the United States has only begun to address the issue in the last 115 years, beginning with the Lacey Act in 1900.[40] Since then, the legislation in the country has taken a mostly reactive approach to address the invasive species issue with some recent proactive measures implemented throughout the past twenty years.[41] However, when both current methods are examined, I will show that neither tactic has been particularly effective due to the government's inability to implement the goals outlined in the legislation.[42]

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[33] Campbell, *supra* note 24, at 20.

[34] *Id.*

[35] Enge et al., *supra* note 26, at 578.

[36] Brian Handwerk, *U.S. Crocodiles Shed "Endangered" Status*, NAT'L GEOGRAPHIC NEWS, http://news.nationalgeographic.com/news/2007/03/070321-crocodiles.html [https://perma.cc/Q5ER-V3RS] (Mar. 21, 2007) (accessed Jan. 22, 2016).

[37] Enge et al., *supra* note 26, at 578.

[38] Engeman et al., *supra* note 13, at 600.

[39] *Id.*

[40] David A. Strifling, *An Ecosystem-Based Approach to Slowing the Synergistic Effects of Invasive Species and Climate Change*, 22 DUKE ENVTL. L. & POL'Y F. 145, 163 (2011).

[41] Graham, *supra* note 10, at 39.

[42] *Id.* at 49.

A. Reactive Measures Taken

1. The Lacey Act

The Lacey Act (LA) was first developed in 1900 and is considered the first federal wildlife protection law.[43] The initial design of the law was to prohibit the introduction of invasive bird species and to combat the demand for bird feathers used in women's clothing, which was causing a scarcity of some native birds.[44] The original law was used as a federal backing to any state laws in existence and was markedly careful to "respect the concept of federalism and state's rights."[45] In 1935, Congress amended the LA to include various modern forms of transportation used in importation, such as the car and airplane.[46]

The next amendments to the LA in 1969 expanded the scope of the law to include protections for mammals, reptiles, amphibians, fish, mollusks, and crustaceans.[47] In addition, the mens rea requirement for criminal action under the law was strengthened to "knowingly and willfully," ensuring that only criminals and not the unknowing person would be convicted under the Act.[48] In 1981, the LA was extended to protect plants, and the mens rea requirement was again dropped to just "knowingly," which would allow for more criminal convictions under the Act.[49] However, the statute required the predicate that another law be violated for a conviction.[50] Then in 2008, the LA received its most recent amendments, the most ground-breaking of which was that the predicate law that would allow for a conviction could now be a foreign law or regulation, vastly expanding the scope of the LA from the original inception.[51]

The two main statutory sections of the current version of the LA are 16 U.S.C. §§ 3371–3377 and 18 U.S.C. § 42.[52] Under 16 U.S.C. § 3372 (Title 16), it is illegal to import, export, or transport any fish, wildlife or plant, which is made illegal by any law, treaty, regulation, Indian tribal law, or any state or foreign law.[53] The law has a two-step process: First, there must be a predicate violation of law, and if the predicate violation exists, then the affected species is thought to be

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[43] *Lacey Act*, U.S. FISH & WILDLIFE SERV., http://www.fws.gov/international/laws-treaties-agreements/us-conservation-laws/lacey-act.html [https://perma.cc/8MQU-VCPT] (accessed Jan. 26, 2016).

[44] C. Jarrett Dieterle, *The Lacey Act: A Case Study in the Mechanics of Over-Criminalization*, 102 GEO. L.J. 1279, 1286 (2014).

[45] *Id.* at 1288.

[46] *Id.*

[47] *Id.* at 1289.

[48] *Id.*

[49] *Id.* at 1290–91.

[50] Strifling, *supra* note 40, at 163.

[51] Dieterle, *supra* note 44, at 1298.

[52] Graham, *supra* note 10, at 36.

[53] 16 U.S.C. § 3372(a)(1) (2012).

"tainted."[54] Second, a person must import, export, or transport the tainted species in order for there to be a Title 16 violation.[55] It is important to note that Title 16 is limited because a single act cannot give rise to a violation, it must have both a predicate and transport element.[56] Title 16 does, however, allow for any law or regulation, including foreign laws, to serve as a predicate for the enforcement of the Act, which means that the statute is very broad in scope.[57] The other section of the LA is 18 U.S.C. § 42 (Title 18), which lists a number of species that can only be imported into the U.S. under special conditions, such as a permit from the U.S. Fish and Wildlife Service (FWS).[58] Potentially, the FWS could enforce Title 18 on its own without state law support. However, in practice this would be very difficult because the burden would be too great on the agency, and the states already have an interest in maintaining control of their own interstate boundaries.[59]

In addition, the problem with the 'forbidden species' list (also called a "dirty list") as outlined in Title 18, is that it takes an incredible amount of time to get a species added to the list through the murky government process.[60] In fact, as of 2007, the average time it took a new species to be added to the list was over four years, and only one species had been added in the decade prior to that year.[61] This brings the list to less than twenty-five organisms, even though the Act had been in place over a hundred years by then, meaning that only the worst 'offenders' are on the list—presumably after the damage is done.[62] Furthermore, just because a species is listed, that does not mean the population will decrease; some species have even continued to spread to other states well after being listed.[63] In addition to the problem with the slow implementation of adding species to the 'dirty list,' Congress still maintains that they consider the LA as a federal tool to aid the states in enforcing their own state laws concerning wildlife protection.[64] This can cause a problem when the introduced, invasive species crosses a state or national border from an area that permits the species without any regulation to an area that has put the species on their harmful species list, since the animal does not pay

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[54] Rachel White & Stephanie Showalter Otts, *Preventing the Spread of Zebra and Quagga Mussels: The Role of the Lacey Act*, 3 ARIZ. J. ENVTL. L. & POL'Y 85, 87 (2013).

[55] *Id.*

[56] *Id.*

[57] *Id.* at 36; *Permits*, U.S. FISH & WILDLIFE SERV., http://www.fws.gov/permits/instructions/obtainpermit.html [https://perma.cc/772U-T6S6] (accessed Feb. 5, 2016).

[58] 18 U.S.C. § 42(a)(1)–(3) (2012).

[59] White & Otts, *supra* note 54, at 98.

[60] Graham, *supra* note 10, at 38.

[61] *Id.* at 38.

[62] Strifling, *supra* note 40, at 163–164.

[63] Graham, *supra* note 10, at 40.

[64] S. REP. NO. 97-123, at 2 (1981), *reprinted in* 1981 U.S.C.C.A.N. 1748, 1749.

attention to boundary lines, and some have been known to spread after establishing themselves and breeding.[65]

Furthermore, because no single federal agency exclusively oversees the LA, multiple agencies must administer it.[66] This results in a quagmire of bureaucracy that blocks implementation that might otherwise yield a positive, rapid response.[67] This arrangement tends to cause agency turf wars, lack of communication, and a duplication of effort.[68] The shortcomings of the LA deprive it of its usefulness as an adequate prevention of the invasive species problem. Since a species already has to be a serious problem to be listed, the law is reactionary at best. It can only attempt to stall an issue that has already been identified. This can be seen in the Nile monitor threat. While agencies have identified the species as a harmful invasive species, it could take months for an agency to get the government backing and funding through the LA to even begin a process of removal.[69] Because the LA does not require all states to adopt the same policy, even though Florida banned the Nile monitor, the neighboring states of Georgia and Alabama may not have the same regulation, which could lead to the inadvertent spread of the species from one of those states.[70] Even if the federal government does acknowledge the Nile monitor as a serious threat, it could take years for the lizard to appear on the 'dirty list,' a situation that would not help any of the threatened species in Florida.

2. Endangered Species Act

The Endangered Species Act (ESA) is a statute that possesses a very wide range of adaptability to allow for the regulation of invasive species.[71] In its most basic form, the ESA authorizes certain government agencies to create a list of "threatened" or "endangered" species and then provides an avenue for the government to protect the natural habitat as well as from any "harm" that may befall an identified species.[72] The ESA has two sections that can potentially be used to combat the invasive species problem in the U.S. The first is § 1536, which allows federal agencies to take action in the prevention of factors "likely to jeopardize the continued existence" of a listed species that could result in "the destruction or adverse modification" of the species'

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65 Strifling, *supra* note 40, at 163.

66 *Id.* at 164.

67 *See id.* ("When a single statute is administered by multiple agencies, inefficiencies often arise.")

68 *Id.*

69 *See id.* ("The onerous and lengthy nature of the listing process ensures that the Lacey Act typically regulates only the *worst* offenders, and often after the damage is done.").

70 *See* White & Otts, *supra* note 54, at 98 ("Generally, states maintain border checkpoints, rather than the federal government, and states often have more compelling reasons to control interstate boundaries than federal regulators (who are often more focused on international borders and trade).").

71 *Id.* at 172.

72 *Id.*

habitat.[73] In order for any actions to take place, a biological assessment must first take place, and it must be determined if an invasive species is the cause of the harmful effect.[74] Unfortunately, the widespread ability to implement § 1536 as a way to fight the invasive species problem is hindered by the fact that a listed species must prove to be harmed or potentially harmed by an invasive species.[75]

The second section of the ESA that could aid in the invasive species problem, § 1538, actually provides a way to punish people for their actions that resulted in the harm of a listed species.[76] This section allows for civil and criminal punishments for "taking" a listed species (a habitat modification, like the introduction of an invasive species, may amount to a taking).[77] In 2009, the Coalition for a Sustainable Delta argued against the enforcement of regulations protecting the non-native striped bass population in the Sacramento–San Joaquin Delta.[78] Even though the court ruled against the Coalition, the argument was sound—the plaintiff just lacked adequate scientific evidence.[79] However, with unrefuted scientific evidence, the ESA could be used to punish and act as a prevention mechanism to those who are sustaining the invasive species problem.[80] The National Invasive Species Information Center has also acknowledged the potential use of power granted to the FWS under the ESA to "eradicate" the invasive species threat.[81] However, the main problem with the use of the ESA is that it is limited to invasive species that threaten a listed species.[82] This means that since there must be proof of a threat to a listed species before the FWS can take action, they cannot prevent a species from being introduced into the ecosystem, and thus, the ESA is solely a reactive law.[83]

As of 2016, the Nile monitor is a relatively new threat and there has not been sufficient study done to show if they were having a significant impact on a listed species, like the American crocodile,[84] and because of this the ESA would not be a sufficient regulation to help with the problem. Also, it would require considerable labor and funding to gather the evidence that the Nile monitor is eating threatened and en-

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[73] 16 U.S.C. § 1536(a)(4) (2012).

[74] Graham, *supra* note 10, at 54.

[75] *Id.* at 56.

[76] 16 U.S.C. § 1538(a)(1) (2012).

[77] Graham, *supra* note 10, at 56; Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or., 515 U.S. 687, 690 (1995).

[78] Coal. for a Sustainable Delta v. Koch, No. 1:08–CV–00397 OWW GSA, 2009 WL 2151842, at *1 (E.D. Cal. July 16, 2009).

[79] *Id.*

[80] Graham, *supra* note 10, at 57.

[81] Strifling, *supra* note 40, at 173.

[82] *Id.*

[83] *Id.*

[84] *See* Enge et al., *supra* note 26, at 578 (discussing the Nile monitor as a threat to the American crocodile).

dangered species, which is simply not provided for under the ESA.[85] Now the most likely option for ESA intervention, provided enough scientific evidence is obtained, is the criminalization of the release of Nile monitors into the wild.

3. State and Local Case by Case Statutes

The LA was designed to aid state-created legislation that would address the problem of invasive species.[86] There is a disparity between the various laws that the states have enacted[87]: over the years most states have drafted laws that react to each situation as it arises.[88] These reactive laws tend to be very specific and are based on a single subset of species, such as aquatic nuisance programs, aquatic plant programs, aquatic animal programs, exotic pest eradication programs, and weed boards.[89] One example of this type of state legislation is "Pet Amnesty Day," a program created by the Florida Fish and Wildlife Conservation Commission. This annual event allows owners of exotic pets to turn the animals in to their local zoo rather than release them into the wild.[90] As of 2015, the Florida "Pet Amnesty Day" program brought in a total of 2,530 exotic animals that could have potentially been released in the wild, with an average of 333 pets surrendered each year over the past five years.[91]

These state laws and programs can, however, be problematic since enforcement depends on funding from the individual states, which can be sporadic at best. For example, in January 2011, Ohio Governor Theodore Strickland issued an executive order adopting a rule to prevent new private ownership of wild animals that are dangerous to human health and safety.[92] Later, the newly elected Governor Kasich stalled enforcement of this executive order due to concerns about the funding, legal authority, safety, and the overall feasibility of being able to enforce it.[93] In October 2011, because of the confusion surrounding this order, an Ohio man freed dozens of his pet lions, tigers, bears, and

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[85] Andrew A. Smith et al., *The Endangered Species Act at Twenty: An Analytical Survey of Federal Endangered Species Protection*, 33, NAT. RESOURCES J. 1042, 1043–45 (1993).

[86] Dieterle, *supra* note 44, at 1286, 1288.

[87] Robert B. McKinstry, Jr. et al., *Legal Tools that Provide Direct Protection for Elements of Biodiversity*, 16 WIDENER L.J. 909, 923–24 (2007).

[88] *Id.* at 933.

[89] *Id.* at 934.

[90] *Exotic Pet Amnesty Program*, FLA. FISH & WILDLIFE CONSERVATION COMM'N, http://myfwc.com/media/2778705/pet_amnesty_program.pdf [https://perma.cc/XJ9M-LNL9] (2014) (accessed Feb. 12, 2016); *Upcoming Amnesty Day Events*, FLA. FISH & WILDLIFE CONSERVATION COMM'N, http://myfwc.com/wildlifehabitats/nonnatives/amnesty-program/events/ [https://perma.cc/8BKV-CG4L] (accessed Feb. 5, 2016).

[91] *Exotic Pet Amnesty Program*, FLA. FISH & WILDLIFE CONSERVATION COMM'N, http://myfwc.com/wildlifehabitats/nonnatives/amnesty-program [https://perma.cc/X2UH-UXFZ] (accessed Feb. 5, 2016).

[92] Ohio Exec. Order No. 2010-17S (Jan. 6, 2011), LEXIS 2010 Bill Text OH E.O. 42.

[93] Graham, *supra* note 10, at 66.

other animals into the wild, resulting in the death of forty-nine exotic animals, which could have been prevented if there had been a clear and concise law concerning the legislation.[94] Differences in opinion among states and individual actors have led to an assortment of laws and enforcement in this country.[95] If a federal statute provided uniformity to these laws, enforcement would be clearer and more effective.[96]

The problem with reactive regulations and laws lies in the very fabric of the law itself. By the time the government has identified the problem and allocated the funds for the program, it is already too late. The invasive species, like the Nile monitor, has already taken hold and will be nearly impossible to eradicate. Invasive species need to be taken care of before they have a chance to enter the country and do damage. For example, of the seven species that were listed on LA's 'dirty list' before they had a chance to enter the country, not a single one was able to establish a population in the U.S. wilderness, thus showing that a more proactive approach might be the better solution.[97]

B. Proactive Measures Taken

1. The Non-Indigenous Aquatic Nuisance Prevention Control Act and the National Invasive Species Act

The Non-indigenous Aquatic Nuisance Prevention Control Act (NANPCA) was primarily intended as a proactive measure to stop the spread of European zebra mussels into the Great Lakes primarily from ships' ballast.[98] In 1996, Congress amended NANPCA through the National Invasive Species Act (NISA).[99] However, despite its name, NISA simply expands NANPCA beyond its initial limit of the Great Lakes region to all U.S. territorial waters.[100] The NISA has a number of problems in its implementation, the first being that compliance is voluntary.[101] The U.S. District Court for the District of Minnesota explained: "The plain language of these NISA sections imposes no limitation on the Coast Guard's discretion to enforce its ballast water regulations. Nor does this language provide meaningful substantive standards."[102] If the Coast Guard decides not to enforce its own ballast regulations, there is no remedy. Second, while NISA aims to reduce the spread of aquatic nuisance species, the law has no impact on non-aquatic invasive species, such as mammals, reptiles, or birds.[103] Thus,

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[94] *Id.* at 66–67.
[95] *Id.* at 66.
[96] *Id.* at 67.
[97] *Id.* at 40.
[98] 16 U.S.C. § 4701 (2012).
[99] *Id.*
[100] Strifling, *supra* note 40, at 168.
[101] 16 U.S.C. § 4711 (2012).
[102] Save Lake Superior Ass'n v. Napolitano, No. 08–CV–1173 (JMR/RLE), 2009 U.S. Dist. LEXIS 19739, at *11 (D. Minn. Mar. 12, 2009).
[103] Graham, *supra* note 10, at 46.

while NANPCA is a step in the right direction, as far as being a proactive method, it is far too limiting to have any effect on the larger issue of the invasive species epidemic.

2. Executive Order 13,112

In 1977, President Jimmy Carter signed Executive Order 11,987 in an attempt to regulate the problematic introduction of exotic species.[104] Order 11,987, signed in the wake of the Environmental Protection Agency's enactment,[105] would have directed federal agencies to restrict the importation and introduction of exotic species into property controlled by the federal government.[106] However, Order 11,987 lacked support, and ultimately the failure of federal agencies to enforce Order 11,987 made it ineffectual.[107]

In 1999, President Bill Clinton issued Executive Order 13,112 (Order), revoking Order 11,987, which was intended to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause."[108] The Order did make some positive steps toward useful and proactive federal legislation. First, the Order comprehensively defined "invasive species" which alone was an encouraging step to unify the various federal agencies' differing conceptions of what exactly constituted an "invasive species."[109] The Order also imposed four primary duties on federal agencies: 1) agencies are to identify actions likely to "affect the status of invasive species;" 2) the agencies must prevent the introduction and establishment of invasive species in native ecosystems, and once they are established they are to restore native species and habitats that have been invaded, conduct research directed at controlling invasive species, and advance public education efforts related to invasive species control; 3) agencies are to avoid funding or authorizing actions that they believe "are likely to cause or promote the introduction or spread of invasive species;" and 4) agencies are directed to coordinate their activities with the National Invasive Species Council (NISC).[110]

The Order does have its problems though. First, the Order still relies heavily on the reliability of state based programs, an approach

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104 Brown, *supra* note 1, at 722.

105 "Born in the wake of elevated concern about environmental pollution, [the] EPA was established on December 2, 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting and enforcement activities to ensure environmental protection." *EPA History*, U.S. ENVTL. PROTECTION AGENCY, www.epa.gov/aboutepa/epa-history (accessed Feb. 12, 2015).

106 Exec. Order No. 11,987, 42 Fed. Reg. 26,949 (May 24, 1977).

107 Brown, *supra* note 1, at 722.

108 Exec. Order No. 13,112, 64 Fed. Reg. 6183 (Feb. 3, 1999).

109 Strifling, *supra* note 40, at 175.

110 *Id.*

that has already been shown to be ineffectual.[111] Second, while the Order is helpful for the coordination and management purposes of the various agencies and regulations, it is only a procedural and not a substantive tool.[112] The lack of legal redress available, as detailed in the Order, underlines its inability to be a catalyst for change.[113] Third, the Order is "subject to the availability of appropriations, and within administration budgetary limits," which means that invasive species control efforts may fall victim to budget cuts.[114] Thus, while the Order does seem to put the nation on the right track with a national proactive approach to the invasive species issue, it still falls short.

In 2002, several of the NISC Invasive Species Advisory Committee members explained that it would be helpful if they were backed by legislative authority, as opposed to an Executive Order.[115] They reported that the authority that accompanies legislation would make it both politically and financially easier for agencies to make implementing a plan to control invasive species a higher priority.[116] Clearly, the Order is still not enough on its own to act as legislation to guide and focus the effort to prevent invasive species.

3. State Preventative Actions

Several states, such as Hawaii, have developed comprehensive invasive species programs or have created invasive species task forces or invasive species councils—as of 2005, sixteen states had comprehensive state invasive species councils.[117] These councils and task forces typically involve a variety of parties, which vary depending on the state. These councils can include members from state wildlife, natural resources, and agriculture agencies; governors' offices; interstate coordinating committees; universities; trade associations; and other nongovernmental organizations.[118] "Oregon's Invasive Species Council, for example, works with agencies that are involved [with] invasive species to identify and fill in gaps, and provides information about invasive species to state agencies that do not yet deal with invasive species."[119]

Other states have developed programs that are specific to single animal groups. Minnesota and South Dakota, for example, have elaborate bio-control distribution and application programs for the problem-

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111 *See id.* at 176 ("The Order, as with all executive orders, only directs federal agencies to implement existing [State] law; it does not direct them to fill the gaps that already exist.").

112 Graham, *supra* note 10, at 44.

113 *Id.*

114 Strifling, *supra* note 40, at 176.

115 *Id.* at 178–79.

116 *Id.*

117 McKinstry, Jr. et al., *supra* note 87, at 933–34.

118 *Id.* at 933.

119 *Id.*

atic Purple Loosestrife.[120] California has numerous species-specific programs including the water hyacinth control program, the *Egeria densa* control program for the Sacramento–San Joaquin Delta area, and the Mediterranean fruit fly exclusion program for San Diego County.[121] Many states do not have programs or specific activities for dealing with invasive species. Instead, they respond to invasive species problems on a case-by-case basis through such activities as monitoring, containment, and removal.[122]

However, the effectiveness of these laws is mixed. It can be beneficial for states to pass laws that address an identified problem, such as Florida's python ownership ban, yet the lack of uniformity among states' laws is causing the trouble.[123] As noted, an animal could be legally released into the environment in one state, breed, and create populations that spread to other states.[124] For example, Georgia does not require a permit to own pythons.[125] Thus, an owner of a Burmese python could legally release the python close to the Florida border. This python could slither into Florida and create populations that eventually move farther south into the Everglades, adding to the massive destruction the snakes are causing in that area. Thus, any of the current efforts to ban and eradicate these snakes in Florida would be undermined by an uncontrolled source north of the border.[126] This is similar to the issue that Florida is facing concerning most exotic reptiles that are kept as pets, especially the Nile monitor.

Hawaii's program, which has been suggested as a model piece of legislation among the states, is exceptional in that its program provides a comprehensive authority to take a unified approach to invasive species.[127] Hawaii is home to more endangered and threatened species than any other state, and many of these species owe their threatened and endangered status to alien, invasive species.[128] Hawaii's invasive species laws include a ban on the importation of animals unless they have been first evaluated and permitted, or at least conditionally permitted.[129] Hawaii's program also requires the state Department of Agriculture to maintain constant vigilance to spot developing infestations of specific "noxious weeds," keep control of those weeds and prevent infestation, investigate methods to eradicate or control these monitored infestations, notify landowners whose lands are the site of infestations, and then either enter into a cooperative agreement with the

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120 *Id.*; MINN. STAT. ANN. § 84D.02 (West 2014); S.D. CODIFIED LAWS § 38-24A-6 (2015).

121 McKinstry, Jr. et al., *supra* note 87, at 936; CAL. HARB. & NAV. CODE § 64(a) (West 2015); CAL. FOOD & AGRIC. CODE § 6306 (West 2015).

122 McKinstry, Jr. et al., *supra* note 87, at 935–36.

123 Graham, *supra* note 10, at 65.

124 *Id.*

125 *Id.* at 65–66.

126 *Id.* at 66.

127 McKinstry, Jr. et al., *supra* note 87, at 934.

128 *Id.*

129 *Id.*; HAW. REV. STAT. § 150A-6 (2015).

landowner to eradicate the infestation, or undertake eradication themselves.[130] Hawaii's method is the most proactive and, consequently, the most effective used among the states.

Regardless of the method chosen by each state, without a federal framework, the states' laws lack uniformity. Even though regimentation does not exist, the fact that virtually all states have developed programs or activities to deal with the growing problem of invasive species shows there is a major national issue that should not be ignored by the federal government.[131] Only a strong federal entity can fix the issues that are plaguing the state programs, such as the high inconsistency across the country, the accountability of the numerous agencies, and funding. As the problem grows, state programs are undergoing significant and rapid changes designed to try to address their previous shortcomings, and the federal government needs to be working with the states.[132] For, without the help of the federal government to hold the states' laws accountable at a national scale, the states will continue to face problems with invasive species infestation, and the problems will only get worse.

IV. FOREIGN NATIONS

No country has a clean slate when it concerns invasive species; they all have to start from a position that some species has, in some form or another, already "established" a population.[133] In order to determine how the U.S. should approach the problem from the best angle and what the states and national government can do to eradicate problems like the Nile monitor, it is helpful to explore the policies and legislations of other similar countries. The three countries that have been selected for comparison are Australia, the United Kingdom, and New Zealand because of their parallels in culture, economic wealth, and history of exotic animal importation. Like the U.S., the countries in Oceania (Australia and New Zealand) are having a significant problem with invasive species first carried over with the explorers from Europe and the impact they are having on an ecosystem previously separated from the rest of the world.[134] The United Kingdom, on the contrary, adds the perspective of an island nation in the 'old world,' and this Note will explain some of the struggles they have had in an

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130 McKinstry, Jr. et al., *supra* note 87, at 934; HAW. REV. STAT. § 152-6 (2015).

131 McKinstry, Jr. et al., *supra* note 87, at 931.

132 *Id.* at 931–32.

133 Sophie Riley, *Peak Coordinating Bodies and Invasive Alien Species: Is the Whole Worth More than the Sum of Its Parts?*, 35 LOY. L.A. INT'L & COMP. L. REV. 453, 454 (2013).

134 John P. Rafferty, *Invasive Species*, ENCYCLOPÆDIA BRITANNICA, http://www.britannica.com/science/invasive-species [https://perma.cc/TJ6U-M6ZD] (Nov. 25, 2015) (accessed Feb. 5, 2016).

already barraged ecosystem and what the nation is doing to preserve what little natural biodiversity they still possess.[135]

A. Australia

In order to understand the legislation of Australia it must first be observed that the country is a constitutional monarchy with a federal system of government, where the law-making powers are shared between the Federal, State and Territory Parliaments.[136] The majority of powers available to the federal government are the "concurrent powers," set out in section fifty-one of the Australian Constitution.[137] Any matters not referred to in the Australian Constitution are known as the "residual powers," which are exercisable solely by the states and territories, and this includes environmental laws.[138] Thus until the early 1980s, environmental regulation was a residual power vested in the State and Territory Parliaments.[139]

Over the years, Australia has established a more proactive approach to invasive species. As far back as 1908, the Federal Parliament enacted the Quarantine Act, whose intention is to prevent or control the introduction of pests, diseases, and invasive species.[140] Throughout the last 100 years, the Quarantine Act has been supported by regulations and proclamations that further prohibit the entry of animals, plants, and their products into Australia, unless they are already on an authorized list (or 'dirty list'), or have been assessed and granted a permit for their importation.[141] However, the Quarantine Act is used only as a form of border control and does not have any power to deal with permitted species that develop into invasive species; if a species in Australia does become problematic, then the states and territories are on their own to implement preventative and reactionary measures.[142]

The states and territories have established ways to eradicate and control declared invasive animals and weeds, and have developed methods for regulation of species that have an impact on the natural environment.[143] Some states, such as New South Wales, have even gone so far as to draft specific Invasive Species Plans.[144] In other areas legislation provides for listing the deleterious impacts of invasive spe-

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135 Sarah J. Manchester & James M. Bullock, *The Impacts of Non-native Species on U.K. Biodiversity and the Effectiveness of Control*, 37 J. APPLIED ECOLOGY 845, 847 (2000).

136 Riley, *supra* note 133, at 457.

137 *Id.*; *Australian Constitution* s 51.

138 Riley, *supra* note 133, at 457.

139 *Id.*

140 *Id.* at 463.

141 *Id.*

142 *Id.*

143 *Id.* at 465.

144 NSW DEP'T OF PRIMARY INDUS., NEW SOUTH WALES INVASIVE SPECIES PLAN 2008–2015 1 (2008).

cies as a threatening process; however, not all Australian States (Western Australia, Northern Territory, South Australia, Tasmania, and Queensland) have a legislative listing method to deal with invasive species.[145]

In 1999, Australia adopted the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC), which was designed to satisfy Australia's international obligations under various international instruments.[146] One of these international instruments is Article 8(h) of the Convention on Biological Diversity (CBD) (Australia ratified the CBD in 1992).[147] "Th[e] article stipulates that parties are under obligation to prevent or control the introduction of species that threaten biodiversity."[148] The EPBC was able to comply with that provision by listing the harmful impacts of invasive species as a "key threatening process."[149] Then, once a threatening process has been listed, the Minister must prepare a "threat abatement plan" if they consider that such a plan is a "feasible, effective and efficient way to abate the process."[150]

"The consequence of this assortment of instruments is that while Australian policy highlights the importance of establishing an effective [invasive species] regime, the regime itself operates in a piecemeal, fragmented, and inconsistent manner."[151] This problem is very similar to the federal and state problems in the U.S. Both countries have considerable legislation that allows for 'dirty lists,' or a list of animals that are banned, but have not developed legislation that successfully addresses the ultimate goal of fixing the problem.[152] While for the most part, the Australian method seems to be in the same reactive predicament that the U.S. system finds itself, it is not much of a system to reflect on as beacon on the hill. The major advantage for Australia is that it is an island and, unlike the U.S., is in total control of its borders.[153] Thus, the Quarantine Act was the major difference for the success 'down under' when compared to the Americas where a total border shutdown is impractical. With the Quarantine Act, Australia has a clear method for the ultimate protection of its borders. While not as finite as the New Zealand system, examined later, if the Quarantine Act could change from a 'dirty list' mentality to what is known as a

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145 Riley, *supra* note 133, at 465–66.

146 *Id.* at 463.

147 *Id.* at 463–64.

148 *Id.* at 464.

149 *Id.* (citing the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) sub-div 188(4) (Austl.)).

150 *Id.* at 464; *Threat Abatement Plans*, AUSTL. GOV'T DEP'T OF THE ENV'T, http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans [https://perma.cc/ARX7-XWYH] (accessed Jan. 22, 2016).

151 Riley, *supra* note 133, at 466.

152 *Id.*; *Environmental Protection and Biodiversity Conservation Act* 1999 (Cth) s 301A (Austl.).

153 DANIEL SIMBERLOFF, INVASIVE SPECIES: WHAT EVERYONE NEEDS TO KNOW 164 (2013).

'clean list' method, or an initial ban of every species that is not on an accepted list, Australia could turn the tide in their border war.

B. The United Kingdom

The United Kingdom (U.K.) is a constitutional monarchy, with its constitution found in various sources such as treaties, legislation, judicial pronouncements, and formative instruments, including the Magna Carta.[154] The U.K. tends to operate under multiple layers of governments, agencies, and departments throughout the nation.[155] Therefore, even though it is smaller in physical territory, the nation's regulators face similar problems to those found in the U.S., particularly with respect to coordinating policies, activities, and competing values across a range of institutions, which is the crux of current invasive species law.[156] Furthermore, since 1997, the U.K.'s government has followed a decentralization policy, which consequently has generated a devolution of law-making powers, although not on matters 'reserved' for the U.K. government, such as currency, national security, and foreign policy.[157] This process has transferred legislative power on to a Scottish unicameral Parliament that now legislates on matters including the environment.[158]

1. Great Britain

Similar to the U.S., Great Britain's method of controlling the invasive species problem consists of a mix of border controls and internal regulation.[159] Border controls in Great Britain are maintained by the Department for Environment, Food, and Rural Affairs (DEFRA), and are shaped by directives outlined by the European Union, whose aim is preventing the introduction and spread of pests and diseases.[160] In addition, Section 14 of the Wildlife and Countryside Act of 1981 (WCA) was the main legislative instrument dealing with invasive species in Great Britain.[161] The section initially created offenses with respect to keeping or releasing prohibited species listed in Schedule 9 of the WCA, such as: allowing listed animals which were not ordinarily residents, or a regular visitor to Great Britain, to escape into the wild; releasing these animals into the wild; allowing such animals to escape from captivity; and planting or causing a listed plant to grow in the wild.[162] Over the years, Section 14 was amended on an informal basis,

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154 Riley, *supra* note 133, at 461.
155 *Id.* at 462.
156 *Id.*
157 *Id.* at 461–62.
158 *Id.*
159 *Id.* at 473.
160 Riley, *supra* note 133, at 473.
161 *Id.* at 474.
162 Wildlife & Countryside Act 1981, c. 69, § 14(1)–(2) (Eng.).

either to comply with European Union directives, or to fulfill recommendations following internal reviews of non-native species.[163]

Yet for the most part, regulation in Great Britain is based on a proactive "dirty list" approach, which is similar to the systems in Australia and the U.S.[164] However, the country has yet to fully control the invasive species with established populations.[165] In 2008, after various studies were conducted, Great Britain used the conclusions and recommendations from various reports and created the Invasive Non-native Species Framework Strategy for Great Britain.[166] This strategy emphasized the need for effective coordination of policy and measures across the entire nation, and in particular for the establishment of a coherent and proportionate legislative framework to tackle the invasive species concern.[167] This has been a step in the right direction for the country, but it could have the same issues as Executive Order 13,112 and fall short of the mark for not having the necessary legislative and monetary backing needed to make a real change, showing that even a smaller nation has the same political problems that the U.S. is facing with its own legislation.

2. Scotland

Recently in Scotland, the government diverged from the rest of the U.K. by initiating programs that would update the ineffective WCA.[168] Of the numerous acts that Scotland passed, the most proactive change made to handle the invasive species menace was the Wildlife and Natural Environment (Scotland) Act of 2011 (WNEA).[169] The WNEA takes a significant, proactive stance that 'dirty lists' are counterproductive because the species will usually only be listed "once they have proved invasive."[170] Instead, the WNEA operates on a "general no-release approach," not allowing anyone to release potentially harmful plants or animals into the wild that could develop a breeding population and become "established."[171]

Scotland still operates with a list of species that are prohibited, but the system was intended to "operate without a detailed list of banned species; and banning orders will only be used where crucial,

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163 Riley, *supra* note 133, at 474.

164 *Id.* Although the phrase "black list" is used by Riley, for the purposes of this Note the phrase "dirty list" is used to refer to the same thing.

165 *See id.* at 473–75 (showing the many unsuccessful attempts to deal with established populations of invasive species leading up to the Invasive Non-native Species Framework Strategy for Great Britain).

166 *Id.* at 475.

167 *Id.*

168 *Id.* at 476.

169 Riley, *supra* note 133, at 476.

170 *Id.*

171 *Id.* at 476–77; *see* Wildlife & Natural Environment (Scotland) Act 2011, (ASP 6) § 14(2)(a) (outlining the ways in which an offense is constituted by releasing non-native species).

and even then, only after consultation."[172] The WNEA allows the Scottish Minister to notify property managers and the authorities equipped to handle invasive species of the presence of an invasive plant or animal, which then triggers a "rapid response mechanism" that authorities use to prevent a minor contamination from developing into a major, widespread one and at the same time providing a level of accountability missing from most other legislation.[173] "The Scottish legislature has thus placed its . . . [invasive species] . . . regulation under the umbrella of a robust and unifying statute."[174]

The invasive species legislation in Great Britain is very similar to that of the U.S. in that the country only tends to react when they have identified the threat to the native plants and animals.[175] While it is good that the country has any invasive species prevention program at all, similar to the U.S.'s problem, the reactive approach is too little and too late, and is not enough to prevent the harm that a banned species has already caused.[176] Scotland has clearly arrived at that same conclusion. With an ecosystem as fragile in some ways as that of Oceania and the Americas, Scotland adapted the United Kingdom legislation already in place to serve a more proactive role.[177] The idea of initially banning all animals and then allowing them on a case-by-case basis was not developed by Scotland, but the country demonstrates how a country can adjust from the reactive to the proactive. The main lesson from Scotland is that developing a proactive system within national legislation is not impossible. If each state were to follow the Scottish approach with the WNEA, the U.S. could have a rather effective plan to deal with the invasive species problem that would be operative on the smaller, local level and could control a species like the Nile monitor from spreading before it can have a major negative impact.

C. New Zealand

New Zealand is an island country, separated from any kind of mainland over 80 million years ago, remaining in geographic and ecological isolation ever since.[178] This isolation has allowed New Zealand to develop an ecosystem so unique that there are plants and animals found in the country that cannot be found anywhere else in the world.[179] Due to the isolation of the environment, the invasive species that arrived with the European explorers and settlers had a devastat-

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172 Riley, *supra* note 133, at 477; Wildlife & Natural Environment (Scotland) Act 2011, (ASP 6) §§ 14(2)(a), 14(4)(a)–(c).

173 Riley, *supra* note 133, at 478.

174 *Id.*

175 *Id.* at 474.

176 *Id.* at 476.

177 *Id.*

178 Flynn Boonstra, *Leading by Example: A Comparison of New Zealand's and the United States' Invasive Species Policies*, 43 CONN. L. REV. 1185, 1207 (2011).

179 *Id.*

ing effect on the native population.[180] In the last twenty-five years, New Zealand has changed its approach to protect the ecosystem from invasive species and developed one of the most comprehensive and proactive invasive species strategies on the planet.[181] This "biosecurity" strategy has three focus points to take care of the invasive species problem.[182] The first focus point is the prevention and exclusion of pests and unwanted organisms from entering New Zealand; the second is to detect and quickly respond to pests and unwanted organisms present in the country, thus maximizing eradication; and the last focus is the management of invasive species already established in the country.[183]

Based on these focus points New Zealand implemented the Biosecurity Act of 1993 (BSA).[184] The BSA is the main legislation that oversees various smaller acts and orders that allow the BSA to accomplish its four main biosecurity issues.[185] These four main issues are as follows: 1) the regulation and control of the passage of goods across the New Zealand border;[186] 2) the post-entry quarantine of organisms that are entering the country;[187] 3) the monitoring and surveillance of pests and unwanted organisms that are currently in New Zealand;[188] and 4) management of the control and eradication of established or introduced invasive species.[189]

The execution of the act is accomplished through the establishment of the Minister of Biosecurity who is responsible for coordinating the implementation of the BSA, including the gathering and consolidation of the assorted reports of suspected new invasive species, and then managing appropriate responses to each such report.[190] Even though the Minister does not have a staff, his position allows him to utilize various assets throughout the country to aid him in his goals.[191] This position is one of the main reasons that the BSA is effective when compared to other systems, since one person, under the BSA, is ultimately responsible for the success of the programs and methods used to accomplish the BSA's goals during the Minister's time in office.[192] Under the BSA, accountability is not hidden among the bureaucratic agen-

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180 *Id.*

181 *See* DEP'T OF CONSERVATION, THE NEW ZEALAND BIODIVERSITY STRATEGY 80 (2000) (detailing New Zealand's invasive species strategy).

182 TIAKINA AOTEAROA, PROTECT NEW ZEALAND: THE BIOSECURITY STRATEGY FOR NEW ZEALAND 5 (2003).

183 *Id.* at 10.

184 Biosecurity Act 1993, s 1 (N.Z.).

185 Boonstra, *supra* note 178, at 1210.

186 Biosecurity Act 1993, s 25 (N.Z.).

187 *Id.* s 41.

188 *Id.* s 42.

189 *Id.* s 54.

190 *Id.* s 8.

191 Boonstra, *supra* note 178, at 1209.

192 *Id.* at 1216.

cies. Instead there is a clear national authority on the governance of this environmental concern.

In 1996, New Zealand implemented the Hazardous Safety and New Organism Act (HSNO), which provided a regulatory blueprint for the "intentional introduction of new organisms into New Zealand."[193] This Act requires the Environmental Protection Authority (EPANZ)[194] to approve any new organism[195] being imported into New Zealand, and then EPANZ must conduct a risk assessment at the expense of the applicant that desires to bring the species in to the country.[196] The EPANZ is then required to consider a list of factors—such as the dislocation of any native species from its natural habitat, potential deterioration of natural habitats, or any adverse effect to New Zealand's inherent genetic diversity—before an organism can enter the country.[197] Approval is then only granted if the EPANZ determines after the assessment that the positive effects of the organism outweigh the adverse effects.[198] In other words, New Zealand has effectively implemented the use of a 'clean list,' or the automatic refusal of entry to any animal not on the list of accepted organisms.[199]

Coining the term *biosecurity*, the country has created an overall authority that oversees any legislation enacted by the country and makes sure that the numerous agencies are working together towards the common goal of species control.[200] New Zealand has created a clear and logical method for dealing with the invasive species threat, allowing for ownership and accountability in areas concerned with the invasive species problem.[201] This process is unlike that of the other countries, including the U.S., that do not have an overseer to make sure the legislation passed is being carried out, and to work with the other acts, orders, and organizations to ensure there is no unnecessary

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193 *Id.* at 1212; Hazardous Substances and New Organisms Act 1996, s 4 (N.Z.).

194 *See* Environmental Protection Authority Act 2011, ss 30–35 (N.Z.) (transferring the duties of enforcing the Hazardous Safety and New Organism Act (HSNO) from the Environmental Risk Management Authority (ERMA) to the Environmental Protection Authority (EPANZ)).

195 Hazardous Substances and New Organisms Act 1996, s 2A(1) (N.Z.) ("A new organism is—(a) an organism belonging to a species that was not present in New Zealand immediately before 29 July 1998: (b) an organism belonging to a species, subspecies, infrasubspecies, variety, strain, or cultivar prescribed as a risk species, where that organism was not present in New Zealand at the time of promulgation of the relevant regulation: (c) an organism for which a containment approval has been given under this Act: (ca) an organism for which a conditional release approval has been given: (cb) a qualifying organism approved for release with controls: (d) a genetically modified organism: (e) an organism that belongs to a species, subspecies, infrasubspecies, variety, strain, or cultivar that has been eradicated from New Zealand.")

196 Boonstra, *supra* note 178, at 1212.

197 Hazardous Substances and New Organisms Act 1996, s 36 (N.Z.).

198 Boonstra, *supra* note 178, at 1213.

199 *Id.*

200 *Id.* at 1209.

201 *Id.*

overlap.[202] Furthermore, the New Zealand utilization of a proactive 'clean list' approach—by examining each species before it enters the country[203]—allows New Zealand, to the best of its ability, to prevent any future species from becoming established and creating additional negative impacts on the native ecosystem. Accountability and proactivity in its operations gives New Zealand the edge in the battle against invasive species that each country is waging. This 'biosecurity' system is one that should be adapted in some way to any modern country that is serious about the invasive species threat.

V. CONCLUSION

The U.S. is a large country with many borders. It is very difficult to regulate the commercial traffic between each of the states and along the thousands of miles of the nation's borders. But, if the U.S. wants to get serious about stopping the influx and establishment of invasive species it needs to do two things: create an overall regulative entity and switch from a 'dirty list' reactive approach to that of a proactive 'clean list.'

If the U.S. were to give one official the authority to coordinate the plethora of state and national agencies, and focus them all on working together toward a common goal, the invasive species threat would start to decline. The U.S. has a lot of legislation that has the potential to make a real impact on the problem. However, its statutes and regulations do not always harmonize in operation as might otherwise be desired. If Executive Order 13,112 were to be reinforced by legislation and given the power to direct the efforts of not only the federal laws such as the LA and the ESA, but also the oversight to coordinate the efforts of the state agencies, redundancy could be reduced and so could the cost of carrying out the actions that need to be done. The problem of the Nile monitor would likely bring together the ESA and the Florida Fish and Wildlife Commission to work together to eradicate the 'established' populations. Then, add to that cooperative effort the Port Authority and the Florida Department of Agriculture to deter any new species from illegally being released or imported, and the Nile monitor would not be able to harass the native, threatened species of Florida for much longer. Following the Scottish plan would be the most practical approach, allowing for the use of current agencies and organizations already in the field to simply fall under a new directive.

The Nile monitor is, at this time, not on the U.S.'s 'dirty list.'[204] This lizard is already causing irreparable damage and is on its way to being as big of a nuisance to the state of Florida as the Burmese py-

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[202] *Id.* at 1200.

[203] *Id.* at 1213.

[204] *Species Listed as Injurious Wildlife Under the Lacey Act*, U.S. FISH & WILDLIFE SERV., http://www.fws.gov/injuriouswildlife/pdf_files/Current_Listed_IW.pdf [https://perma.cc/XB5S-HFN4] (2012) (accessed Feb. 12, 2016).

thon.[205] Yet under the current system, it could take years for the LA to recognize the threat of the species. If the U.S., or even each state, were to adopt the use of a proactive 'clean list' when dealing with new species, then the work, cost, and damage of eradicating the invasive threat would be lessened considerably. If the government had to conduct a profile of the Nile monitor prior to allowing it to enter the country as a pet, they would have found that these lizards are aggressive, grow to almost 8 feet long, and can breed out of control.[206] If this process had been in place, it is possible that the nation's Atlantic reefs would not be overrun by lionfish[207] and the southern forest would not be currently strangled with kudzu.[208]

The Nile monitor is spreading throughout Florida.[209] Soon its population will irreversibly affect the native wildlife.[210] Without a serious change in how the U.S. attacks the problem, the condition will only repeat itself with one species after another. The U.S. is at war with invasive species, and with better governmental organization we may have a better chance of winning that war.

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[205] Brown, *supra* note 1, at 714.

[206] David R. Wetzel, *Nile Monitor Lizards: Invasive Species in Florida Threatens Native Species*, DECODED SCI., http://www.decodedscience.org/nile-monitor-lizards-invasive-species-in-florida-threatens-native-species/1962 [https://perma.cc/JU3Y-JZEP] (July 13, 2011) (accessed Jan. 19, 2016).

[207] *Why Are Lionfish a Growing Problem in the Atlantic Ocean?: Invasive Lionfish Threaten Native Fish and the Environment in U.S. Atlantic Coastal Waters*, NAT'L OCEAN SERV., http://oceanservice.noaa.gov/facts/lionfish.html [https://perma.cc/GJ3W-R57D] (updated Jan. 19, 2016) (accessed Feb. 6, 2016).

[208] *Invasive Plants*, SOUTHERN FORESTS FOR THE FUTURE, http://www.seesouthernforests.org/case-studies/invasive-plants [https://perma.cc/84EJ-8BLY] (accessed Feb. 6, 2016).

[209] Brown, *supra* note 1, at 715.

[210] *Id.*