

THE EFFECTIVENESS OF BIODIVERSITY LAW

JOHN COPELAND NAGLE*

I.	INTRODUCTION	203
II.	JUDGING THE ENDANGERED SPECIES ACT	204
III.	ASIAN BIODIVERSITY LAW	214
	A. <i>China</i>	215
	B. <i>Vietnam</i>	228
	C. <i>Malaysia</i>	233
	D. <i>Cambodia</i>	242
	E. <i>Summary of Southeast Asian Biodiversity Law</i>	247
III.	COMPARING THE EFFECTIVENESS OF THE ENDANGERED SPECIES ACT AND ASIAN BIODIVERSITY LAW	248

I. INTRODUCTION

The Endangered Species Act (ESA) is broken, say its opponents. No, it is a spectacular success, respond its champions. Perhaps the law works well but is ill-advised, or conversely, perhaps it has not achieved its ends, but for reasons that are beyond its control. Such is the debate about the law that everyone agrees is one of the most powerful environmental laws ever enacted by Congress.¹

Meanwhile, since the enactment of the ESA in 1973, biodiversity protection has received growing attention in the nations of Southeast Asia. Several biodiversity hotspots are located in the region; the panda is an international symbol of wildlife conservation, ecotourism has boomed along Malaysia's coral reefs, and BBC's "Planet Earth" portrayed exotic birds-of-paradise on Borneo. At the same time, Southeast Asia has experienced unprecedented economic growth, often rocky transitions to new political institutions, and ongoing struggles in simultaneously working to develop basic institutions to implement a rule of law. So far, biodiversity

* John N. Matthews Professor, Notre Dame Law School; nagle.8@nd.edu. I am grateful for the opportunity to present this article at the Florida State University College of Law and to present an earlier version at the University of Malaysia Sarawak's Institute of Biodiversity and Environmental Conservation. Jolene Lin provided thoughtful comments on an earlier draft. Annalee Jenke provided valuable research assistance. I am also indebted to Dao Xuan Lai for providing me with a copy of the draft *Vietnam Biodiversity Law* discussed at pages 27-28.

1. See, e.g., Ike C. Sugg, *Caught in the Act: Evaluating the Endangered Species Act, Its Effects on Man and Prospects for Reform*, 24 CUMB. L. REV. 1, 2 (1994) ("The Endangered Species Act of 1973 (ESA) is widely considered to be the most powerful environmental law in the nation."). The debate concerning the ESA appears in countless sources, including an excellent series of articles that appeared in a symposium celebrating the thirtieth anniversary of the law. See *Symposium: The Endangered Species Act Turns 30*, 34 ENVTL. L. 287 (2004).

law has not been exceptionally effective in protecting Southeast Asian biodiversity from habitat loss, commercial exploitation, and other threats. The region's biodiversity is "in crisis," according to one recent study.² Even so, biodiversity law in Southeast Asia has not faced the heated debate that characterizes discussions of the ESA in the United States.

This Article considers the effectiveness of the ESA and of biodiversity laws in Southeast Asia. Whether or not a law is working seems like a basic question that a legal system should be able to answer. Even though recent scholarship offers a framework for considering the effectiveness of a law, surprisingly little attention has been paid to such questions.³ Part I considers the debate regarding the success or failure of the ESA, focusing on the mixed record of the law in meeting its stated goals. Part II describes the efforts of four Southeast Asian nations—China, Vietnam, Malaysia, and Cambodia—to employ laws to protect their biodiversity. Part III analyzes the contrasting reactions to the achievements of the ESA and the biodiversity laws of those four Southeast Asian nations. Success, I conclude, is best judged based upon what one expects of the law.

II. JUDGING THE ENDANGERED SPECIES ACT

The ESA itself contains the most obvious way of evaluating its effectiveness. The text of the statute identifies three purposes, so the initial inquiry is to ascertain whether the law has achieved those purposes. The ESA first says that its purpose is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."⁴ This is "[t]he central purpose of the ESA," according to J.B. Ruhl and other writers.⁵ Judging by those criteria, the law has been rather unsuccessful. The ESA's provisions related to ecosystem preservation have been the target of complaints voiced by supporters and opponents of the law alike. The ESA's first step is to list those species that are endangered or threatened, based upon the threats to the species and existing protection of their habitat. Listing itself does not regulate habitat: instead, listing triggers the other regulatory provisions of the ESA. Until recently, the Fish and Wildlife Service

2. See NAVJOT S. SODHI & BARRY W. BROOK, *SOUTHEAST ASIAN BIODIVERSITY IN CRISIS* (2006).

3. See *infra* Part II.

4. 16 U.S.C. § 1531(b) (2006).

5. J.B. Ruhl, *Cities, Green Construction, and the Endangered Species Act*, 27 VA. ENVTL. L.J. (forthcoming fall 2009). See also Federico Cheever, *The Road to Recovery: A New Way of Thinking About the Endangered Species Act*, 23 *ECOLOGY L.Q.* 1, 14 (1996) (agreeing that such conservation is the "primary purpose" of the ESA).

(FWS) paid little attention to overall habitat conservation in making listing decisions, but the agency championed a 2008 proposal to list several Hawaiian species as a more calculated effort to employ the species listing provisions for ecosystem conservation.⁶

Of the ESA's provisions specifically addressing ecosystem conservation, the critical habitat requirement has been especially controversial. As illustrated by *Tennessee Valley Authority v. Hill*,⁷ section 7 of the ESA provides that all federal agencies are prohibited from taking any action (in *Hill*, the completion of a dam) that would jeopardize the critical habitat of a species (in *Hill*, the snail darter).⁸ But there have been relatively few instances in which significant areas of habitat have been conserved thanks to section 7. Nonetheless, the FWS has resisted the designation of critical habitat for listed species.

Section 4 of the ESA requires the FWS to designate the critical habitat of a species when the agency lists a species as endangered or threatened, unless it is not practicable or prudent to do so.⁹ Whether it is imprudent to designate a critical habitat has been the subject of much litigation in recent years. The FWS blames this litigation for diverting scarce resources from more pressing priorities, but environmentalists insist that litigation is necessary to secure the protections afforded by the formal designation of a critical habitat. Both sides would agree that the current critical system has failed to yield an effective means whereby ecosystems are conserved.

The "take" prohibition of section 9 reaches a limited amount of habitat modification. Section 9 makes it illegal to "take" an endangered species,¹⁰ which includes "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."¹¹ The FWS has further defined "harm" to mean "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."¹² The Supreme Court has upheld this definition as a permissible interpretation of the ESA.¹³ The regulatory effects of the "take" pro-

6. See Listing 48 Species on Kauai as Endangered and Designating Critical Habitat, 73 Fed. Reg. 62,592 (Oct. 21, 2008) (to be codified at 50 C.F.R. pt. 17).

7. 437 U.S. 153 (1978).

8. *Id.* at 173 (1978); 16 U.S.C. § 1536(a)(2).

9. 16 U.S.C. § 1533(a)(3)(A)(i).

10. *Id.* § 1538(a)(1)(B) ("take" prohibition).

11. *Id.* § 1532(19) (defining "take").

12. 50 C.F.R. § 17.3 (2008).

13. See *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687, 708 (1995).

hibition are loudly lamented by private property owners, but they are typically localized in effect. The threat of section 9 regulation prompted the development of habitat conservation plans (HCPs), which have played a significant role in preserving the habitat of listed species. The amount of actual habitat protected by HCPs remains modest as well, and the trade-off is that some land that is occupied by a listed species will not be protected at all.

Section 5 of the ESA authorizes the federal government to acquire land needed for the preservation of listed species.¹⁴ The Congress that passed the ESA thought that this authority would play the primary role in conserving the ecosystems upon which endangered species depend.¹⁵ Instead, section 5 has produced relatively modest accomplishments. "Land acquisition," explains Robert Fischman, "does quietly hum along at a respectable magnitude of tens of millions of dollars per year but is nowhere near the centerpiece of species recovery."¹⁶ The Land and Water Conservation Fund has earned William Rodgers' praise as the most significant environmental statute ever enacted,¹⁷ but the land acquisition authorized by that fund still falls far short of preserving the ecosystems upon which all listed species depend.

The combined effects of the ESA's habitat preservation provisions have been modest. In 2008, the West Virginia northern flying squirrel became the first species to be removed from the ESA's list of protected species based upon the restoration of the species' habitat.¹⁸ Previous delistings resulted from the elimination of hunting,

14. See 16 U.S.C. § 1534(a) ("The Secretary, and the Secretary of Agriculture with respect to the National Forest System, shall establish and implement a program to conserve fish, wildlife, and plants, including those which are listed as endangered species or threatened species pursuant to section 4 of this Act. To carry out such a program, the appropriate Secretary—(1) shall utilize the land acquisition and other authority under the Fish and Wildlife Act of 1956, as amended, the Fish and Wildlife Coordination Act, as amended, and the Migratory Bird Conservation Act, as appropriate; and (2) is authorized to acquire by purchase, donation, or otherwise, lands, waters, or interest therein, and such authority shall be in addition to any other land acquisition authority vested in him.").

15. See *Babbitt*, 515 U.S. at 727 (Scalia, J., dissenting) ("[T]he Senate and House floor managers of the bill explained it in terms which leave no doubt that the problem of habitat destruction on private lands was to be solved principally by the land acquisition program of § [5]."); see also Robert L. Fischman, *Predictions and Prescriptions for the Endangered Species Act*, 34 ENVTL. L. 451, 473 (2004) ("It seems quaint now that the Endangered Species Preservation Act of 1966 anticipated that we could recover endangered species solely by purchasing habitat for the national wildlife refuge system.").

16. Fischman, *supra* note 15, at 458-59.

17. William H. Rodgers, Jr., *The Seven Statutory Wonders of U.S. Environmental Law: Origins and Morphology*, 27 LOY. L.A. L. REV. 1009, 1010 (1994).

18. See Final Rule Removing the Virginia Northern Flying Squirrel (*Glaucomys sabrinus fuscus*) from the Federal List of Endangered and Threatened Wildlife, 73 Fed. Reg. 50,226, 50,241 (Aug. 26, 2008) (to be codified at 50 C.F.R. pt. 17) (delisting the squirrel because "the threat posed by past habitat loss has been largely abated across most of the [squirrel's] range").

commercial exploitation, pesticides, or other threats.¹⁹ Much of the ecosystem preservation that has occurred since the enactment of the ESA in 1973 is the result of actions outside the scope of the ESA. Other federal laws (such as the National Forest Act, the National Park Service Organic Act, and even pollution control statutes such as the Clean Air Act and the Clean Water Act) have been responsible for significant ecosystem preservation. State laws have also protected many other ecosystems. Private organizations, such as the Nature Conservancy, account for a significant proportion of protected ecosystems.²⁰ Even so, the habitat of most listed species is shrinking. Thus it is difficult to conclude that the ESA has achieved its first purpose.

The ESA's second stated purpose is "to provide a program for the conservation of . . . endangered species and threatened species."²¹ The law has created such a program, so in a strict sense, it has accomplished this purpose. Whether this program actually succeeds in conserving endangered and threatened species is a different question. The ESA defines "conservation" as "the point at which the measures provided pursuant to this chapter are no longer necessary."²² Put differently, the ESA is intended to help species recover.²³ That has not happened, for the vast majority of the listed

19. Holly Doremus & Joel E. Pagel, *Why Listing May Be Forever: Perspectives on Delisting under the U.S. Endangered Species Act*, 15 CONSERVATION BIOLOGY 1258, 1263-65 (2001) (explaining that all past and pending delistings were for reasons unrelated to habitat conservation).

20. See The Nature Conservancy, About Us, <http://www.nature.org/aboutus/?src=t5> (last visited June 13, 2009).

21. 16 U.S.C. § 1531(b) (2006); see also *Nat'l Ass'n of Home Builders v. Defenders of Wildlife*, 127 S. Ct. 2518, 2526 (2007) ("The [ESA] . . . is intended to protect and conserve endangered and threatened species and their habitats."); *Bennett v. Spear*, 520 U.S. 154, 175 (1997) (describing "species preservation" as the "overarching purpose" of the ESA).

22. 16 U.S.C. § 1532(3).

23. See *Threatened And Endangered Species Recovery Act of 2005: Hearing on H.R. 3824 Before the House Comm. on Res.*, 109th Cong. 12 (2005) [hereinafter *2005 Hearing*] (statement of Craig Manson, Assistant Secretary of the Interior) ("A key purpose of the ESA is to provide a program for the conservation of endangered and threatened species so as to bring them to the point at which measures under the Act are no longer necessary."); *id.* at 29 (statement of M. Reed Hopper, Pacific Legal Foundation) (referring to the ESA's "primary goal of recovery of species"); Federico Cheever & Michael Balster, *The Take Prohibition in Section 9 of the Endangered Species Act: Contradictions, Ugly Ducklings, and Conservation of Species*, 34 ENVTL. L. 363, 367 (2004) ("[T]he ESA, as a whole, is about the conservation of species—in other words, the recovery of populations that interbreed and persist over time."); Zygmunt J.B. Plater, *Endangered Species Act Lessons Over 30 Years, and the Legacy of the Snail Darter, a Small Fish in a Pork Barrel*, 34 ENVTL. L. 289, 293 (1994) (describing "species recovery" as the "fundamental goal" of the ESA); J.B. Ruhl, *Is the Endangered Species Act Ecopragmatic?*, 87 MINN. L. REV. 885, 937 (2003) ("[T]he central goal of the ESA [is] that of recovering species."); U.S. Fish & Wildlife Serv., Endangered Species, <http://www.fws.gov/Pacific/ecoservices/endangered/recovery/index.html> (last visited June 13, 2009) ("[R]ecovery . . . is the cornerstone and ultimate purpose of the endangered species program."); see generally CHARLES C. MANN & MARK L. PLUMMER, *NOAH'S CHOICE: THE FUTURE OF ENDANGERED SPECIES* (1995). But see Ruhl, *supra* note 5 ("[P]romoting the recovery of species is nowhere required by the statute.").

species are still endangered or threatened with extinction.²⁴ Even delisting is not synonymous with recovery, for a 2008 study found that only five of the eight species delisted between 2000 and 2007 met their stated recovery criteria and that “some recovery criteria were outdated or otherwise not achievable” for the other three species.²⁵ Mary Christina Wood has thus concluded that the statute has a poor record of achieving the recovery of threatened species, which is its central purpose.²⁶

But environmentalists contest this interpretation of the purpose of the law. Holly Doremus and Joel Pagel have argued that “[d]elisting is not an appropriate measure of the extent to which the ESA is fulfilling the goal of protecting species.”²⁷ Another response is that while listed species have not recovered to the point where the protections of the ESA are no longer needed, the protections have nonetheless helped many species move toward recovery.²⁸ Kieran Suckling, head of the Center for Biological Diversity, agrees that “[a] more sensible measure of recovery would be to examine the number of actual recoveries in relationship to the number predicted by federal recovery plans.”²⁹ Using that standard, Suckling found that seven of the eleven northeastern species that were expected to recover by 2005 had done so. The National Wildlife Federation cites the FWS as saying that the conditions of sixty-eight percent of listed species are stable or improving.³⁰ Two economists who studied the data concluded that “[t]he results show that listing does have a significant effect on species recovery.”³¹ Michael Bean provides a tangible example when he questions the Pombo committee report’s listing of the bald eagle, Kirtland’s

24. See *2005 Hearing*, *supra* note 23, at 9 (statement of Sen. Inhofe) (arguing that few listed species have recovered).

25. Robin M. Nazzaro, Dir. of Natural Res. & Env’t, Testimony before the Committee on Natural Resources, House of Representatives 7 (2008).

26. Mary Christina Wood, *Protecting the Wildlife Trust: A Reinterpretation of Section 7 of the Endangered Species Act*, 34 ENVTL. L. 605, 606 (2004).

27. Doremus & Pagel, *supra* note 19, at 1260.

28. Daniel J. Rohlf, *Section 4 of the Endangered Species Act: Top Ten Issues for the Next Thirty Years*, 34 ENVTL. L. 483, 507 (2004) (“[T]he ESA’s ultimate goal [is] actually improving the status of listed species.”).

29. KIERAN SUCKLING, CENTER FOR BIOLOGICAL DIVERSITY, MEASURING THE SUCCESS OF THE ENDANGERED SPECIES ACT: RECOVERY TRENDS IN THE NORTHEASTERN UNITED STATES 6 (Feb. 2006); see also EDWARD HUMES, ECO BARONS: THE DREAMERS, SCHEMERS, AND MILLIONAIRES WHO ARE SAVING OUR PLANET 93-168 (2009) (profiling Suckling’s work).

30. See Nat’l Wildlife Fed’n, *Endangered Species Act By the Numbers*, <http://www.nwf.org/wildlife/pdfs/esabythenumbers.pdf> (last visited June 13, 2009).

31. Christian Langpap & Joe Kerkvliet, *Success or Failure? Ordered Probit Approaches to Measuring the Effectiveness of the Endangered Species Act 8* (2002) (unpublished manuscript), available at <http://ageonsearch.umn.edu/bitstream/19713/1/sp02la02.pdf>; see also Martin F.J. Taylor, Kieran F. Suckling & Jeffrey J. Rachlinski, *The Effectiveness of the Endangered Species Act: A Quantitative Analysis*, 55 BIOSCIENCE 360 (2005) (agreeing that listing and the implementation of the ESA’s provisions enhances the recovery of a species).

warbler, and the whooping crane as evidence of the ESA's 99.99% failure rate.³² "It is a peculiar notion of failure," says Bean, "given that all three are at their highest levels in more than half a century."³³ Bean adds that "[a]n approach that recognizes only two categories for each listed species—success or failure—doesn't address the complex reality of wildlife recovery."³⁴ Doremus and Pagel go even further, "expect[ing] that the majority of currently listed species . . . will need the protection of the ESA in perpetuity. Far from demonstrating the shortcomings of the ESA, we believe that this fact emphasizes the ESA's unique role in species conservation."³⁵

The third statutory purpose of the ESA is "to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of [the] section."³⁶ The referenced treaties and conventions are as follows:

(A) migratory bird treaties with Canada and Mexico; (B) the Migratory and Endangered Bird Treaty with Japan; (C) the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere; (D) the International Convention for the Northwest Atlantic Fisheries; (E) the International Convention for the High Seas Fisheries of the North Pacific Ocean; (F) the Convention on International Trade in Endangered Species of Wild Fauna and Flora; and (G) other international agreements.³⁷

Each of these laws has a similar, yet distinct purpose. The purpose of the Migratory Bird Treaty with Canada is "to adopt some uniform system of protection which shall effectively accomplish" the "saving from indiscriminate slaughter and . . . insuring the preservation of such migratory birds as are either useful to man or are harmless."³⁸ Noticeably similar, the Migratory and Endangered Bird Treaty with Japan aims "to cooperate in taking measures for the management, protection, and prevention of the extinction of certain birds," noting that "many species of birds of the Pacific islands have been exterminated, and that some other species of birds

32. MICHAEL J. BEAN, ENVIRONMENTAL DEFENSE CENTER FOR CONSERVATION INCENTIVES, *THE ENDANGERED SPECIES ACT: SUCCESS OR FAILURE?* 4 (2005).

33. *Id.*

34. *Id.* at 5.

35. Doremus & Pagel, *supra* note 19, at 1261; *see also* Holly Doremus, *Delisting Under the Endangered Species Act: An Aspirational Goal, Not a Realistic Expectation*, 30 ENVTL. L. REP. 10434, 10434-35 (2000) (describing delisting as "an aspirational goal, not a realistic expectation"); Rohlf, *supra* note 28, at 550 (agreeing with Doremus).

36. 16 U.S.C. § 1531(b) (2006).

37. *Id.* § 1531(a)(4).

38. Convention Between the United States and Great Britain (for Canada) for the Protection of Migratory Birds, U.S.–Gr.Brit., Aug. 16, 1916, 39 Stat. 1702.

are in danger of extinction.”³⁹ The Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere intends

to protect and preserve in their natural habitat representatives of all species and genera of their native flora and fauna, including migratory birds, in sufficient numbers and over areas extensive enough to assure them from becoming extinct through any agency within man's control; and . . . to protect and preserve scenery of extraordinary beauty, unusual and striking geologic formations, regions and natural objects of aesthetic, historic or scientific value, and areas characterized by primitive conditions . . . ; and . . . to conclude a convention on the protection of nature and the preservation of flora and fauna to effectuate the foregoing purposes.⁴⁰

The International Convention for the Northwest Atlantic Fisheries has resolved to promote “the investigation, protection and conservation of the fisheries of the Northwest Atlantic Ocean, in order to make possible the maintenance of a maximum sustained catch from those fisheries.”⁴¹ The International Convention for the High Seas Fisheries of the North Pacific Ocean aims “to ensure the maximum sustained productivity of the fishery resources of the North Pacific Ocean, and that each of the Parties should assume an obligation, on a free and equal footing, to encourage the conservation of such resources.”⁴² Finally, the Convention on International Trade in Endangered Species of Wild Life Fauna and Flora (CITES) intends to protect the “wild fauna and flora in their many beautiful and varied forms [that] are an irreplaceable part of the natural systems of the earth . . . for this and the generations to come.”⁴³

These purposes recite a variety of appeals for conservation, preservation, and protection of various species located in certain parts of the world. The most ambitious statement appears in the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, whose 1940 call “to protect and preserve in

39. Convention Between the Government of the United States of America and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction, and Their Environment, U.S.-Japan, Mar. 4, 1972, 25 U.S.T. 3329.

40. Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere pmb., Oct. 12, 1940, 56 Stat. 1354, 161 U.N.T.S. 193.

41. International Convention for the Northwest Atlantic Fisheries, Feb. 8, 1949, 1 U.S.T. 477, 157 U.N.T.S. 157.

42. International Convention for the High Seas Fisheries of the North Pacific Ocean, U.S.-Can.-Japan, May 9, 1952, 4 U.S.T. 380.

43. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 27 U.S.T. 1087, 993 U.N.T.S. 243.

their natural habitat representatives of all species and genera of their native flora and fauna, including migratory birds, in sufficient numbers and over areas extensive enough to assure them from becoming extinct through any agency within man's control" sounds long before its time.⁴⁴ In fact, the express reference to "sufficient number[] and over areas extensive enough to assure them from becoming extinct" is arguably more ambitious than the ESA itself.⁴⁵ Generally, though, the Convention appeals for habitat preservation and for the prevention of extinction, and those two purposes have already been discussed in the context of the more specific provisions of the ESA.

The fact that the ESA states only three purposes has not prevented others from attributing additional purposes to the law. The most common claim, as Holly Doremus and Joel Pagel put it, is that "[t]he primary intent of Congress in adopting the ESA was to prevent extinction."⁴⁶ Happily, only nine listed species have gone extinct.⁴⁷ Because ninety-nine percent of the species placed on the Endangered Species List have avoided extinction, some claim that "the Endangered Species Act has worked so well."⁴⁸ Moreover, several of the species listed initially may have already been extinct by the time they were listed under the law. We still do not know the status of one famous species, the ivory-billed woodpecker. It was listed as endangered in 1967, declared extinct around 2000, and then possibly rediscovered in 2004.⁴⁹ As the evidence is not conclusive, some scientists are skeptical, which illustrates the difficult task of monitoring each species. The remainder of the 1932 listed species remains alive. Moreover, one study suggested that 192 spe-

44. Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, *supra* note 40, pmbl.

45. *Id.*

46. Doremus & Pagel, *supra* note 19, at 1261; *see also* Fischman, *supra* note 15, at 455 (writing that "[t]he aim of the ESA" is "to prevent extinction").

47. U.S. Fish & Wildlife Serv., TESS: Threatened & Endangered Species System, http://ecos.fws.gov/tess_public/DelistingReport.do (last visited June 13, 2009) [hereinafter TESS Delisting Report] (identifying nine species that were delisted because they went extinct).

48. *2005 Hearing*, *supra* note 23, at 23 (statement of Sen. Clinton); *see also id.* at 31 (statement of Jamie Rappaport Clark, Executive Vice President, Defenders of Wildlife) (noting the ninety-nine percent figure as well). Actually, comparing the nine extinct listed species to the 1,952 species that have either recovered or are still listed, the percentage of species avoiding extinction is 99.54%. *Compare* U.S. Fish & Wildlife Serv., TESS: Summary of Listed Populations and Recovery Plans, http://ecos.fws.gov/tess_public/TESSBoxscore (last visited June 13, 2009) [hereinafter TESS Summary] (stating that there are 1,952 species listed as endangered or threatened under the ESA), *with* TESS Delisting Report, *supra* note 47 (identifying nine species that were delisted because they are extinct).

49. *See* TIM GALLAGHER, THE GRAIL BIRD: THE REDISCOVERY OF THE IVORY-BILLED WOODPECKER (2006); PHILLIP HOUSE, THE RACE TO SAVE THE LORD GOD BIRD (2004); JEROME A. JACKSON, IN SEARCH OF THE IVORY-BILLED WOODPECKER (2006).

cies would have gone extinct between 1973 and 1998 but for the ESA.⁵⁰

Yet ecologists say that species go extinct all the time, including many since the enactment of the ESA in 1973.⁵¹ The ESA was never employed to try to save them, and in that sense, the program failed to achieve the goal of conserving endangered and threatened species. Judge Craig Manson claimed that “the ESA is not designed to save every single species that goes extinct everywhere in the world for any particular reason.”⁵² But the ESA does apply to species throughout the world. Thirty percent of species now listed as endangered live outside the United States.⁵³

The ESA fares well under some of these interpretations of its purpose and not so well under others. Yet that is not the end of the debate. Many supporters of the law admit that it has not achieved its goals, but they blame other factors instead of the ESA itself. The failure to fund or enforce the ESA’s requirements is a common complaint of those who defend the ESA against its perceived shortcomings.⁵⁴ For example, John Kostyack of the National Wildlife Federation insists that “[f]or reasons unrelated to the [ESA], it will take decades before the conditions are right for most of these species to be delisted.”⁵⁵ He argues that better management, extra funding, and more time for the reparation of ecological processes are needed. Furthermore, the ESA should not be blamed for failing

50. Mark W. Schwartz, *Choosing the Appropriate Scale of Reserves for Conservation*, 30 ANN. REV. OF ECOLOGY & SYSTEMATICS 83, 87 (1999).

51. See STATE OF THE WORLD’S BIRDS: INDICATORS FOR OUR CHANGING WORLD, BIRDLIFE INTERNATIONAL 4 (2008) (reporting that eighteen birds have gone extinct in the past quarter century and three more birds are thought to have gone extinct since 2000); Philip Shenon, *Agency’s Flaws Linked to Extinction of Endangered Species*, N.Y. TIMES, Oct. 18, 1990, at A18, available at <http://www.nytimes.com/1990/10/18/us/agency-s-flaws-linked-to-extinction-of-endangered-species.html> (citing a report by the Inspector General of the Department of the Interior concluding that thirty-five species had gone extinct between 1980 and 1990); Press Release, Global Amphibian Assessment, Amphibians in Dramatic Decline; Up to 122 Extinct Since 1980 (Oct. 14, 2004) (observing that at least nine, and as many as 122, amphibians have gone extinct since 1980); see also BILL BRYSON, A SHORT HISTORY OF NEARLY EVERYTHING 573 (2004) (citing estimates ranging from 1,150 extinctions during the past 400 years to more than 1,000 extinctions each week); Cheever & Balster, *supra* note 23, at 364 nn.1-3 (reciting additional estimates of species extinction rates).

52. 2005 Hearing, *supra* note 23, at 18 (statement of Craig Manson, Assistant Secretary of the Interior).

53. See TESS Summary, *supra* note 48 (indicating that 574 of the 1893 listed species live outside the United States).

54. See THE KEYSTONE CENTER, THE KEYSTONE WORKING GROUP ON ENDANGERED SPECIES ACT HABITAT ISSUES 14 (2006) (“Many participants identified inadequate funding as a central limiting factor for the ESA as currently written and implemented.”); Fischman, *supra* note 15, at 472 (criticizing “[t]he squalid state of ESA funding”).

55. 2005 Hearing, *supra* note 23, at 27 (statement of John Kostyack, Senior Counsel, National Wildlife Federation); accord SUCKLING, *supra* note 29, at 1 (concluding that the recovery plans for species in eight northeastern states “expected recovery to take 42 years”); BEAN, *supra* note 32, at 1 (“Congress understood that recovering severely depleted species would require a sustained effort over a prolonged period.”).

to prevent species from becoming endangered or threatened in the first place.⁵⁶ By contrast, many opponents of the law admit that it has achieved some of its goals, but they worry that it has done so at too great a cost. In 1998, one writer argued that “the ESA negatively affects the species it hopes to protect as well as the people who could best assist in their preservation,” citing the Act’s flawed approach to private land use regulation and lack of sound science.⁵⁷ The debate can be portrayed like this:

	Achieved Its Purposes	Not Achieved Its Purposes
Good Law	Many environmentalists	Environmentalists who object to inadequate funding and enforcement
Bad Law	Property rights advocates and federal budget hawks	Property rights advocates

Compare the success of the ESA in achieving its purposes to how other federal environmental statutes have achieved their purposes. The objective of the Clean Water Act (CWA) “is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁵⁸ The CWA has done a good job of restoration and maintenance by most measures. The law has not, however, come close to eliminating the discharge of pollutants into navigable waters by 1985, which is its stated national goal.⁵⁹

The difficulty in judging a law’s effectiveness is also seen in the Emergency Economic Stabilization Act, which Congress enacted as the economy slipped in 2008. The Act seeks to “restore liquidity and stability to the financial system of the United States.”⁶⁰ This is no small feat. Furthermore, it aims make certain that authority and facilities are used to “protect[] home values, college funds, re-

56. 2005 Hearing, *supra* note 23, at 32 (statement of John Kostyack, Senior Counsel, National Wildlife Federation); *see also id.* at 27 (statement of Sen. Lautenberg) (stating that the ESA is designed “to identify species as risk of extinction”).

57. Alexander F. Annett, *Reforming the Endangered Species Act to Protect Species and Property Rights*, The Heritage Foundation Background Executive Summary (1998); *see also* THE KEYSTONE GROUP, *supra* note 54, at 14 (“Participants generally agreed that transactional inefficiencies can be a key pitfall for the ESA.”). *But see* Michael C. Blumm, Erica J. Thorson & Joshua D. Smith, *Practiced at the Art of Deception: The Failure of Columbia Basin Salmon Recovery Under the Endangered Species Act*, 36 ENVTL. L. 709, 810 (2006) (“Anyone in Congress who thinks the ESA is a draconian measure favoring listed species over competing economic concerns has not studied the lessons of the ESA and Columbia Basin Salmon, where NOAA has discovered enormous ESA flexibility to accommodate economic concerns.”).

58. 33 U.S.C. § 1251(a) (2006).

59. *Id.* § 1251(a)(1).

60. Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343, § 2(1), 122 Stat. 3765, 3766 (2008) (to be codified at 12 U.S.C. § 5201).

tirement accounts, and life savings.”⁶¹ It intends to “preserve[] homeownership and promote[] jobs and economic growth,” and it is also designed to increase tax returns and provide public accountability.⁶² I look forward to seeing whether my retirement account is protected and whether these other purposes are accomplished. The ongoing debate regarding the success of this law will illustrate the challenges in deciding whether or not a law should be judged a success by its accomplishments.

III. ASIAN BIODIVERSITY LAW

Unprecedented economic, political, scientific, and ecotourism growth has occurred in Southeast Asia over the past decades. Southeast Asia is home to astounding biodiversity and equally astounding economic growth. The combination of the two means that many of the most endangered species in the world are found in Southeast Asia.⁶³ The rapid population and economic growth has produced even greater habitat loss and pollution threats to biodiversity than those experienced in the United States. Furthermore, it is acceptable in many Southeast Asian cultures to directly exploit native biodiversity.⁶⁴ The relatively new governments of Southeast Asia have had to address this challenge while simultaneously developing their own legal systems. These legal systems have incorporated both the development of some new unique approaches, along with mimicking some of the steps taken by American biodiversity law.⁶⁵ I consider the biodiversity preservation efforts of four nations here: China, Vietnam, Malaysia, and Cambo-

61. *Id.* § 2(2)(A).

62. *Id.* § 2(2)(B)-(D).

63. See Jolene Lin, *Tackling Southeast Asia's Illegal Wildlife Trade*, 9 SING. Y.B. INT'L L. 191, 195 (2005) (“Nine out of ten of the most endangered species on the [World Wildlife Fund's] 2004 list [of species that have suffered the most from commercial trade] are found in Asia . . . [including] the Asian tiger and elephant, the Great White Shark, the Irawaddy dolphin, the Pig-nosed turtle and the Asian Yew tree.”).

64. See TRAFFIC, WHAT'S DRIVING THE WILDLIFE TRADE? A REVIEW OF EXPERT OPINION ON ECONOMIC AND SOCIAL DRIVERS OF THE WILDLIFE TRADE AND TRADE CONTROL EFFORTS IN CAMBODIA, INDONESIA, LAO PDR AND VIETNAM, at ix (2008) (“South-east Asia is both a centre for the consumption of wildlife products, and also a key supplier of wildlife products to the world.”).

65. See *id.* at x (“A wide range of interventions has been employed to date in efforts to halt the illegal and unsustainable wildlife trade in south-east Asia. These range from more conventional ‘command and control’ measures (which tighten the laws, regulations, enforcement and penalties restricting wildlife harvesting and trade), through attempts to secure more sustainable sources of wildlife products (such as through the domestication of key species, or the introduction of more sustainable resource management and harvesting techniques), to more innovative mechanisms that aim to tackle the broader conditions that encourage people to participate in the wildlife trade (such as supporting development of alternative livelihood options).”).

dia. I review them in order of their population and then summarize some of their common experiences.

A. China⁶⁶

China offers the best and the worst of biodiversity protection. China is a vast, varied nation that hosts an incredible range of ecosystems and species. “China’s biodiversity ranks eighth in the world and first in the northern hemisphere.”⁶⁷ Over 100,000 species of animals and nearly 33,000 plant species exist in 460 different types of ecosystems. Those ecosystems include forests, grasslands, deserts, wetlands, seas and coastal areas, and agricultural ecosystems. China hosts 212 different types of bamboo forests alone. China also has an unusual number of ancient and relic species because of its protection from historic geologic events such as the movement of glaciers. Most famously, it is the only home of the giant panda, the symbol of many efforts to protect biodiversity throughout the world today. Such species and ecosystem diversity is complemented by an unsurpassed collection of genetic diversity. “The richness of China’s cultivated plants and domestic animals are incomparable in the world. Not only did many plants and animals on which human survival depend originate in China, but it also retains large numbers of their wild prototypes and relatives.”⁶⁸ A 2005 report estimated that China’s biodiversity is valued at nearly five hundred billion dollars.⁶⁹

China is also the home for more than 1.25 billion people. The rapid economic growth that China has experienced since 1980 strains the nation’s ability to preserve ecosystems, species, and genetic resources. But the biodiversity of China has encountered countless threats for thousands of years, including the cultivation of more and more land for agriculture and the consequences of numerous wars. During the Great Leap Forward of 1958 to 1960,

66. Much of this discussion of China’s biodiversity is taken from JOHN COPELAND NAGLE & J.B. RUHL, *THE LAW OF BIODIVERSITY AND ECOSYSTEM MANAGEMENT* 1039-49 (2d ed. 2006). That excerpt, in turn, relies upon two publications that the Chinese government prepared with the help of the United Nations Environment Programme (UNEP). STATE ENVTL. PROTECTION ADMIN. P.R.C., CHINA: BIODIVERSITY CONSERVATION ACTION PLAN (Charlotte Maxey & Julia Lutz eds. 1994) [hereinafter CHINA: BIODIVERSITY CONSERVATION ACTION PLAN]; STATE ENVTL. PROTECTION ADMIN. P.R.C., CHINA’S BIODIVERSITY: A COUNTRY STUDY (1997), available at <http://www.chinagate.cn/english/2036.htm>; see generally GERALD A. MCBEATH & TSE-KANG LENG, *GOVERNANCE OF BIODIVERSITY CONSERVATION IN CHINA AND TAIWAN* (2006) (providing another helpful overview of China’s biodiversity).

67. CHINA’S AGENDA 21: WHITE PAPER IN CHINA’S POPULATION, ENVIRONMENT, AND DEVELOPMENT IN THE 21ST CENTURY 171 (1994).

68. Development Gateway: The Richness and Uniqueness of China’s Biodiversity, <http://en.chinagate.cn/english/2029.htm> (last visited June 13, 2009).

69. See CHINA: BIODIVERSITY CONSERVATION ACTION PLAN, *supra* note 66.

Mao Zedong targeted the “Four Pests”: rats, sparrows, flies, and mosquitoes. The attack on sparrows enlisted schoolchildren to knock down nests and to beat gongs so that the sparrows could not find a place to rest. Only after sparrows were virtually eliminated throughout China did the country’s leaders recognize the value of the birds in controlling insects. China faces many of the same threats as biodiversity in other countries, with the notable addition of the country’s notorious air pollution. Habitat loss is the biggest threat to biodiversity in China. As in many other countries, rapid economic development and continued population growth exert relentless pressure on previously undeveloped areas that offered habitat to a diversity of wildlife and plants. The overgrazing of rangelands, erosion, and the adverse effects of tourism and mining further compromise the condition of ecosystems and species throughout China.

Forests have suffered an especially devastating toll throughout China. Mark Elvin describes “[t]he destruction of the old-growth forests that once covered the greater part of China” as “the longest story in China’s environmental history.”⁷⁰ The story unfolded because “the original core of classical Chinese culture was hostile to forests, and saw their removal as the precondition for the creation of a civilized world.”⁷¹ Trees were cut for fuel, to provide building materials, and as obstacles to farms and other human projects. But the disappearance of the forests caused other, albeit predictable, problems. Deforestation increased erosion, which resulted in huge amounts of sediment collecting along the coasts and the sides of lakes and rivers. Wood became scarce as early as 600 B.C. in some parts of the country. By the nineteenth century, a writer lamented that “[t]hese days, people have used their axes to deforest the mountains.”⁷² During the twentieth century, China encouraged the wholesale destruction of forests for their timber—which was the country’s primary fuel until coal recently replaced it—or simply the removal of trees to facilitate agricultural crops. Trees were cut indiscriminately in a planned effort to generate revenue for local education, health and infrastructure needs. As one villager remembered:

When I was a child, there were jackals and foxes in the woods, but after the big trees were cut to fuel furnaces during the [Great Leap Forward], there wasn’t even a rabbit. New trees grew, but then it was time to ‘learn from Dazhai.’ In fact, we didn’t need terraces in our area, because the

70. MARK ELVIN, *THE RETREAT OF THE ELEPHANTS* 23 (2004).

71. *Id.* at 12.

72. *Id.* at 78.

population was sparse. But our per-*mu* production was considered low. So we had to cut the trees. Whoever cut the most got the most political points, and the most grain.⁷³

Fires and pests further degraded forest ecosystems. The result was that forest cover in the lush provinces of southwest China declined from thirty percent of the land in 1950 to thirteen percent by 1999. The loss of forests, in turn, caused deadly flooding along the Yangtze River and devastated the natural ecosystems and the species within them. Tigers, for example, “stalk their prey from the cover and the shadows provided by forests. The relationship is pretty simple: no forests, no tigers.”⁷⁴ Forests continue to disappear at an alarming rate, with the remaining forests often broken into smaller, fragmented areas.⁷⁵

Other types of ecosystems confront similar threats. Overgrazing, farming, and plagues of rodents have caused the grassland steppes that account for one-third of China’s total area to lose up to half of their grass yields in the past twenty years. Over seven million hectares of wetlands were reclaimed during the past thirty years. Once known as a “province of thousand lakes,”⁷⁶ Hubei Province now has only 326 lakes and rivers left. Lime mining and handicraft production by local residents have damaged eighty percent of the coral reefs along the coast of Hainan Island. The overall result is that “continued destruction and deterioration of ecosystems has now become one of the most serious environmental problems in China.”⁷⁷ Furthermore, invasive species have begun to exact a heavy toll on China’s biodiversity as well.⁷⁸

China’s notorious pollution affects many of the country’s ecosystems. China routinely places multiple cities in the lists of the world’s most polluted cities, and air pollution damages croplands, fisheries, and other ecosystems. China’s fisheries suffered \$130 mil-

73. JUDITH SHAPIRO, *MAO’S WAR AGAINST NATURE: POLITICS AND THE ENVIRONMENT IN REVOLUTIONARY CHINA* 109 (2001).

74. ROBERT B. MARKS, *TIGERS, RICE, SILK, AND SILT: ENVIRONMENT AND ECONOMY IN LATE IMPERIAL SOUTH CHINA* 323 (1998).

75. See ZHU CHUNQUAN, RODNEY TAYLOR & FENG GUOQIANG, *CHINA’S WOOD MARKET, TRADE AND THE ENVIRONMENT* 12-13 (2004); *THE ROOT CAUSES OF BIODIVERSITY LOSS* 153-82 (Alexander Wood, Pamela Stedman-Edwards & Johanna Mang eds., 2000) (describing the loss of biodiversity in the forested areas of Deqin County in northern Yunnan Province and Pingwu County in northern Sichuan Province); Sylvie Démurger, Martin Fournier & Guozhen Shen, *Forest Conservation Policies and Rural Livelihood in North Sichuan Tibetan Areas*, at 2 (2005) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=876870.

76. See [China.org.cn, Province View](http://www.china.org.cn/english/features/ProvinceView/155792.htm), <http://www.china.org.cn/english/features/ProvinceView/155792.htm> (last visited June 13, 2009).

77. CHINA: *BIODIVERSITY CONSERVATION ACTION PLAN*, supra note 66, at 10.

78. See Yuhong Zhao, *The War Against Biotic Invasion—A New Challenge of Biodiversity Conservation for China*, 24 *UCLA J. ENVTL. L. & POL’Y* 459, 465 (2005-2006).

lion in losses from 941 water pollution incidents in 2004 that affected 211,000 hectares of freshwater ecosystems. A November 2005 factory explosion that polluted the Songhua River required the temporary termination of water supplies in the northwestern city of Harbin and had untold consequences for the freshwater ecosystem. The quantity of water is often a problem for biodiversity as well. Efforts to move freshwater to places where it is scarce, such as Beijing, include such controversial projects as the Three Gorges Dam in central China, which many environmentalists believe will destroy many of the nearby ecosystems. Further south, the planned damming of the Mekong River could destroy a lot.⁷⁹

Biodiversity is also threatened by the direct exploitation of many species. "Plants are cut for fuel, building materials, food and medicine. Birds, mammals, reptiles, fish and many invertebrates are hunted and fished virtually everywhere they are available."⁸⁰ Commercial trade in wildlife is another serious threat. China is the world's largest exporter and a leading user of endangered species. Enforcement becomes even more difficult because of the huge demand for products derived from endangered species. Traditional Chinese medicine uses tiger bones (for arthritis and rheumatism), rhino horns (for fevers), and bear gall bladders. Nearly every tiger part is used as a tonic, an aphrodisiac, gourmet delicacies or some other purpose. Chinese pharmaceutical factories use 1,400 pounds of rhino horns annually, the product of about 650 rhinos. Panda pelts sell for as much as \$10,000, tiger bones are priced at \$500 per pound, and a rhino horn can earn as much as \$45,000. Villagers can earn ten years income from one tiger.⁸¹

These pressures are evidenced in the placement of three native Chinese species among the World Wildlife Fund's list of the top ten most endangered species in the world. The giant panda is the most famous of those three species. Only one thousand pandas are left in the wild, and their numbers are still declining, albeit at a reduced rate. The threats to their survival include the loss of bamboo and habitat, a relatively small number of young pandas, genetic inbreeding, inability to survive in captivity, and poaching, and the earthquake that devastated Sichuan Province in April 2008. The second species—the black rhinoceros—has suffered a ninety-five percent drop in population since 1970 so that only two thousand are alive today. The third species—the Indo-Chinese tiger—is the most

79. See MILTON OSBORNE, RIVER AT RISK: THE MEKONG AND THE WATER POLITICS OF CHINA AND SOUTHEAST ASIA 40-45 (Lowry Inst. Paper 02, 2005), available at <http://www.lowyinstitute.org/Publication.asp?pid=160>.

80. *Id.* at 13.

81. See generally Charu Sharma, *Chinese Endangered Species at the Brink of Extinction: A Critical Look at the Current Law and Policy in China*, 11 ANIMAL L. 215 (2005).

endangered. Estimates of the number of Indo-Chinese tigers alive in the wild range from fifty to five hundred, and with two of the four native Chinese tiger species already extinct, many fear that this tiger could disappear by the end of the century. The disappearance of native species is obvious in other ways as well. The town of "Wild Yak Gully now has no wild yaks; Wild Horse Sands, no wild horses,"⁸² and the Town of Moose and the Town of Gazelle have no moose or gazelles. Other notable Chinese species that are endangered include the Yangtze alligator, the crested ibis, and certain Mongolian horses.

China's primary response to the threat to its biodiversity has been the creation of nature reserves. The Dinghushan National Natural Reserve was the first such reserve, established in 1956 in Guangdong Province to protect the subtropical evergreen forests and accompanying rare plants and animals. By 2005, 2,200 reserves covered 14.8% of China's land. More than a dozen of those reserves were for pandas, and the population of pandas in the wild increased from 1,114 in 2000 to 1,596 in 2005. Another reserve covers 45,000 square kilometers and protects sixty endangered animals and 300 rare plants. The newest reserves include 100 square kilometers in northwestern China that contains an untouched Euphrates poplar forest. By contrast, efforts to establish a tiger reserve have failed to date because of the huge amount of land required by wild tigers, the lack of acceptable sites, and the ignorance about the precise needs of tigers. Forest ecosystems are well represented in the nature reserves. Wetland and coastal ecosystems have been included in reserves since the 1970's, while the creation of reserves for grassland and desert ecosystems is a new priority for the government.

Nature reserves, however, do not solve all of the problems faced by China's biodiversity. Consider the Zhalong Nature Reserve in northeastern China's Heilongjiang Province which is home to nine of the fifteen species of cranes in the world. In recent years it has suffered from a severe drought, extensive fires, and housing developments built within its borders, which now provides habitat for 60,000 people as well as for thousands of cranes.⁸³ The droughts

82. CHINA: BIODIVERSITY CONSERVATION ACTION PLAN, *supra* note 66, at 15.

83. See NE China Reserve Sees Record Number of Migrating Cranes, People's Daily Online, Oct. 29, 2007, <http://english.people.com.cn/90001/90782/6292613.html>; Red-crested Crane Habitat Flame in NE China, People's Daily Online, Mar. 24, 2005, http://english.peopledaily.com.cn/200503/24/eng20050324_178001.html; Siberian Crane Wetland Project: Zhalong National Nature Reserve, <http://www.scwp.info/china/zhalong.shtml> (last visited June 13, 2009); Liu Quan, *Research on Spatial-Temporal Evolution of Wetland Water Resource in Zhalong Nature Reserve*, 7 IEEE INT'L 4686 (2004). Cf. Haigen Xu et al., *Design of Nature Reserve System for Red-Crowned Crane in China*, 14

have reduced the wetlands from 36,000 hectares to less than 6,000 hectares, and the government worries that the area could become a “sea of sand” if conditions are not reversed.⁸⁴ Another wetland reserve in northern China was seriously polluted by oil that leaked from a passenger airplane crash in 2004. Most reserves are simply no hunting zones, not affirmative wildlife management areas. For example, over 15,000 people live in ninety villages within Xishuangbanna Nature Reserve in southwestern Yunnan Province, where “they engage in agriculture, forestry, animal production, fisheries, and small-scale retailing and commercial activities.”⁸⁵ More generally,

[s]ome engineering projects go on even in the core areas of nature reserves. In other reserves or scenic spots, tourism is promoted to develop the local economy, and while tourism can assist conservation when it is carried out properly, the prospects for quick profits may lead to abuses of the natural systems and species which the reserves protect.⁸⁶

Additionally, “illegal hunting and poaching of endangered animal and plant species occurs frequently” in reserves.⁸⁷ There is no general law regulating the operation of nature reserves. Management difficulties and inadequate funding also threaten many reserves. Reserve administrators and employees are often untrained to protect the species in their care. Most reserves do not even possess a list of species that live there.

The Chinese government is aware of these shortcomings, though, and it has charted an ambitious program to improve the effectiveness of nature reserves in protecting the country’s biodiversity. Proposed actions include restrictions on free access to sensitive reserves, better pay and living conditions for reserve personnel (including allowances for families to live in nearby cities), efforts to “improve relations with local people and find ways for them to make a living without depleting the natural resources,” and the establishment of new nature reserves “in regions with urgent need of biodiversity conservation,” such as the coral reefs of Dongshan Island and seven proposed reserves to conserve wild rice, soybeans,

BIODIVERSITY & CONSERVATION 2275 (2005) (noting that there are thirty-three nature reserves protecting 3.1 million ha of red-crowned crane habitat in China).

84. Xinhua New Agency, Draught Causes China’s Wetland Nature Reserve to Shrink, Aug. 10, 2005, http://www.redorbit.com/news/science/203155/drought_causes_chinas_wetland_nature_reserve_to_shrink/index.html.

85. CLEM TISDELL, BIODIVERSITY, CONSERVATION AND SUSTAINABLE DEVELOPMENT: PRINCIPLES AND PRACTICES WITH ASIAN EXAMPLES 147-48 (1999).

86. CHINA: BIODIVERSITY CONSERVATION ACTION PLAN, *supra* note 66, at 21

87. *Id.*

and other agricultural crops.⁸⁸ Likewise, in 2005, Sichuan Province “closed 78 mines and polluting companies in the giant panda’s habitat to provide a better home for the endangered species.”⁸⁹

The nature reserves are joined by zoos, botanical gardens, and scientific study institutes. China’s twenty-eight zoological gardens and 143 zoological exhibition sites contain more than 600 species of animals. Over 13,000 species of plants are contained in more than 100 botanical gardens. Over 1,000 scientists work together through the Chinese Research Network of Ecosystems to study and monitor ecosystem diversity. Genetic diversity is protected by “the world’s largest resource bank of different varieties of crops, a number of gene and cell banks and 25 germ-plasm nurseries, which hold a total of 350 thousand specimens of germ-plasm for various species of trees and crops.”⁹⁰

Educational campaigns serve as another primary feature of China’s efforts to protect its biodiversity. China has traditionally relied on exhortational campaigns to change people’s conduct. China’s biodiversity conservation action plan begins with an emphasis on the need “[t]o enhance the nation’s awareness of the critical importance of our biodiversity and its conservation is our urgent task of the highest priority.”⁹¹ Such an educational focus appears in China’s Agenda 21 plan, which calls for media teaching about biodiversity, the promotion of public events such as Earth Day and Bird Loving Week, and the use of a traveling Panda Exhibition. China also held a National Program for Environmental Education and Publicity that drew upon the resources of such organizations as the government’s environmental departments, the Ministry of Broadcasting and Television, and the Chinese Communist Youth League. One recent program to protect the 5,000 remaining *grus nigricollis*—a rare type of crane—is designed to “make the youth conscious of animal protection before they become poachers.”⁹² “Such efforts have helped convince 99% of the Chinese people that environmental pollution and ecological destruction are at least ‘fairly serious’ is-

88. *Id.* at 36-40. See also Zhang Ming-hai & Wang Shuang-ling, *Co-Management: Transformation of Community Affair Model in Chinese Nature Reserves*, 15 J. FORESTRY RESEARCH 313 (2004) (explaining how co-management “guarantees biodiversity conservation by coordinating nature reserve management with local social and economic activities”).

89. Xinhua News Agency, *Panda’s Home Reducing Pollution*, May 11, 2005, <http://www.china.org.cn/english/2005/May/128551.htm>

90. CHINA’S AGENDA 21: WHITE PAPER IN CHINA’S POPULATION, ENVIRONMENT, AND DEVELOPMENT IN THE 21ST CENTURY, *supra* note 67, at 173.

91. CHINA: BIODIVERSITY CONSERVATION ACTION PLAN, *supra* note 66, at ii.

92. John Copeland Nagle, *Why Chinese Wildlife Disappears as CITES Spreads*, 9 GEO. INT’L ENVTL. L. REV. 435, 444 (2007) (internal quotation marks omitted).

sues.”⁹³ In particular, anyone who harms a panda must face “the censure of an angry public.”⁹⁴

Yet all agree that more environmental education needs to be done. The greatest problem exists in rural areas where people ask why wild animals can no longer survive on their own and where menus proclaiming “Rare Wild Animals Are Served” still appear in restaurants and hotels.⁹⁵ The demand for the products of endangered species remains high. Years of teaching traditional Chinese medicine and delicacies is hard to reverse. How do you convince a billion people to take aspirin instead of rhino horn pills? “Many Chinese still believe that wildlife species are endowed with magical powers capable of curing a myriad of ills, and are angered by pressure from countries such as the United States to ban the sale of endangered species.”⁹⁶ Likewise, many still see tigers as pests, just as many ranchers fear the introduction of wolves and bears into the western United States. More generally, “[b]iodiversity conservation is a new technical term for many officials in the governments at all levels and for citizens who are lacking basic knowledge on biodiversity conservation.”⁹⁷

The biodiversity conservation action plan reveals a keen understanding of the importance of gaining public support for the task at hand:

In general, people want government policies that do not require them to change their lifestyles, provide material benefits and development, and provide benefits today that will be paid for later. Politics to conserve biodiversity would be the opposite, requiring fundamental changes in people’s relationship with the environment, restricting access to resources, foregoing material benefits, and paying today for abstract future benefits. Unless the public is convinced of the value of conserving biodiversity, and the government changes its policies accordingly, the chance of saving biodiversity is small.⁹⁸

Thus the Chinese government seeks to help the media better publicize the importance of biodiversity conservation,⁹⁹ “[w]ork with

93. *Id.*

94. *Id.* (internal quotation marks omitted).

95. *Id.* at 445.

96. Daniel C.K. Chow, *Recognizing the Environmental Costs of the Recognition Problem: The Advantages of Taiwan’s Direct Participation in International Environmental Law Treaties*, 14 STAN. ENVTL. L.J. 256, 299 (1995).

97. CHINA: BIODIVERSITY CONSERVATION ACTION PLAN, *supra* note 66, at 33.

98. *Id.* at 60.

99. *Id.* at 60-61.

local theater groups to write and perform plays with a biodiversity message,¹⁰⁰ and teach students of all ages about biodiversity in the nation's schools.¹⁰¹

Neither China's emphasis on nature reserves nor its use of educational campaigns actually regulates any conduct that threatens biodiversity. The development of Chinese wildlife law mirrors the development of Chinese environmental law (and indeed Chinese law) generally. Interest in the environment and interest in law both lagged until the 1970's, so not surprisingly, there was little Chinese environmental law. The People's Congress approved the Law on Environmental Protection—the first general Chinese environmental statute—in 1978. Article 15 of that law prohibits hunting and exploitation of rare wildlife. Then, in 1982, several provisions regarding environmental protection were added to China's constitution. Article 9 provides for state ownership of natural resources, ensures state protection of natural resources, and prohibits appropriation or damage of natural resources.¹⁰² Article 26 provides that “the State protects and improves the living environment and the ecological environment, prevents and remedies pollution and other public hazards.”¹⁰³ By 1994, China had enacted twelve national statutes, twenty national administrative regulations, over six hundred local laws and regulations, and three hundred other norms regulating the environment.

Chinese biodiversity law has developed in much the same fashion. To be sure, China's long history contains numerous examples of the law being used to protect the country's biodiversity. An edict issued in 336 A.D. stated that “[t]o take possession of the mountains, or to put the marshes under one's personal protection is tantamount to robbery with violence.”¹⁰⁴ The *Respectfully Determined Laws and Precedents of the Great Qing* prescribed that anyone who “thievishly cuts down the trunks of trees, removes soil or stones, opens kilns for charcoal . . . or starts fires to burn the mountains for short-term farming, *he shall be beheaded* as if he had stolen imperial vessels used for sacrifices to the gods.”¹⁰⁵ Today, the Forestry Law prohibits the hunting of animals in protected areas.¹⁰⁶ The Water Law provides that the government “shall protect water resources and adopt effective measures to pre-

100. *Id.* at 60.

101. *Id.* at 61-62.

102. XIAN FA art. 9 (1982) (P.R.C.)

103. *Id.* art. 26.

104. See ELVIN, *supra* note 70, at 55.

105. *See id.* at 294.

106. The Forest Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., Sept. 20, 1984), art. 25, LAWINFOCHINA (last visited June 13, 2009) (P.R.C.).

serve natural flora, plant trees and grow grass, conserve water sources, prevent and control soil erosion and improve the ecological environment.”¹⁰⁷ The Grassland Law directs the government to protect grassland ecosystems, vegetation, and rare plants, and it prohibits harmful reclamation and construction activities.¹⁰⁸

One recent law seeks to abate the transformation of once fertile grassland ecosystems into lifeless deserts. Nomadic herders have lived in the grasslands of what is now Inner Mongolia for countless generations, but the 1950s brought a wave of Chinese immigrants adding more livestock and seeking to cultivate the naturally arid land bordering the Gobi Desert. Today, expanding desertification claims 2,500 square kilometers at a cost of \$6.5 billion to China’s economy each year. The effects of the dust have been seen as far away as Colorado, where particulate concentrations rose above permissible levels in April 2002 after the jet stream carried the dust all the way from China. In March 2002, another dust storm dumped 30,000 tons of dirt on Beijing, even as billboards around the city trumpeted the “Green Olympics” to be held there in 2008. The resulting international publicity prompted local television newscasters to affirm the government’s resolve to “outwit” the dust storms. The first law to try to match wits with the dust was enacted by the National People’s Congress (NPC) in August 2001. The law against desertification states that land occupants have a duty not only to prevent desertification but also to restore areas that have already become desert; promises unspecified preferential policies, tax breaks, subsidies and technical support to offset the cost of this unfunded mandate; creates a new class of protected areas off-limits to development and calls for farmers and herders to be removed from those areas; and authorizes local governments to grant land-use rights of up to seventy years to desertified areas if the landholder promises to undertake restoration efforts.¹⁰⁹ As Qu Geping, the chair of the NPC Environment and Resources Committee, explained, the anti-desertification law was designed to prevent the frequent dust storms that have sounded “a warning bell from nature.”¹¹⁰

107. Water Law of the People’s Republic of China (promulgated by the Standing Comm. Nat’l People’s Cong., Aug. 29, 2002, effective Oct. 1, 2002), art. 9, LAWINFOCHINA (last visited June 13, 2009) (P.R.C.).

108. See generally Wang Canfa, *Chinese Environmental Law Enforcement: Current Deficiencies and Suggested Reforms*, 8 VERMONT J. ENVTL. L. 159, 187-93 (2007) (summarizing China’s legislation regarding natural resource protection, nature conservation, and biodiversity conservation).

109. See Law of the People’s Republic of China on Desert Prevention and Transformation (promulgated by the Standing Comm. Nat’l People’s Cong., Aug. 31, 2001, effective Jan. 1, 2002) LAWINFOCHINA (last visited June 13, 2009) (P.R.C.).

110. U.S. EMBASSY BEIJING, CHINA ADOPTS LAW TO CONTROL DESERTIFICATION (2001).

Endangered wildlife is also protected by Chinese law. The Ministry of Forestry established the first list of Rare and Precious Species of China in 1969. In 1988, the National People's Congress enacted the Wild Animal Conservation Act (WACA), which "charges the state to ensure the protection of wild animals and their habitats, organize regular field surveys of wildlife resources, and to improve ecological impact assessment for construction projects."¹¹¹ Regulations promulgated pursuant to the WACA prohibit hunting, fishing, and collecting of key wild species.

The existence of such laws is one thing; their actual implementation is another. To be sure, there are examples of very stringent enforcement of wildlife laws in China. The government has imposed the death penalty for killing endangered pandas.¹¹² In 1995, nineteen hotels and restaurants on Hainan Island were closed and fined \$34,000 for serving bear's paw, monkey brains, and other wildlife. China has promised to step up such efforts to punish those who kill endangered species for financial gain.¹¹³ China has also acted to prohibit patented medicines from containing ingredients taken from endangered species.¹¹⁴ A fishing ban on the Xiaolangdi Reservoir in central China soon resulted in the rediscovery of the copper cyprinid, a species that had been thought to be extinct. Most recently, China's state forestry agency charged a multinational paper corporation with illegally logging tens of thousands of acres of timber in Yunnan Province, apparently aided by local officials. But the Chinese government admits its failure to adequately enforce the existing laws protecting biodiversity.

While many laws and regulations intended to protect biodiversity exist, in practice they are often not enforced or enforced strictly, or when the violators are apprehended, the court system treats them very leniently. As a result, illegal hunting and collection of endangered animal and plant species is very widespread, and disputes arise continuously between management of nature reserves and local residents, hindering biodiversity conservation efforts.¹¹⁵

Alex Wang of the National Resources Defense Council (NRDC) has described the enforcement of China's environmental protection

111. MCBEATH & LENG, *supra* 66, at 70; *see also* Sharma, *supra* note 81, at 226-28 (explaining the law).

112. *See* Sharma, *supra* note 81, at 240-41.

113. *See generally id.* at 239-43 (2005) (describing additional cases).

114. *See* Nagle, *supra* note 92, at 435.

115. CHINA: BIODIVERSITY CONSERVATION ACTION PLAN, *supra* note 66, at 32.

laws as “extremely weak.”¹¹⁶ Wang Canfa, the director of the Center for Legal Assistance to Pollution Victims (CLAPV), blames the failure to consider enforcement issues when legislation is drafted, the inability to promulgate regulations to implement statutes, the tendency of local governments to “pursue economic benefits while overlooking environmental protection,” and the failure to consider public opinion.¹¹⁷ Jerome Cohen, the dean of America’s Chinese law scholars, adds that “even in China, the central government’s writ does not run very far. It doesn’t have the financial resources because of an inadequate tax system.”¹¹⁸ Corruption is another major impediment to the implementation of the rule of law in China.¹¹⁹

Non-governmental organizations (NGOs) have played a growing role in China’s efforts to preserve biodiversity. The Nature Conservancy is active in Yunnan Province, which hosts abundant biodiversity along the border with Vietnam, Myanmar, and Tibet. One of the organization’s projects supports ecotourism, operates a community conservation development fund, and established a comprehensive fisheries management plan in the Lashi Lake watershed that serves as habitat for the endangered black-necked crane. Other projects target ecosystems that are home to snow leopards, the Yunnan golden monkey, Asiatic black bears, red pandas, and thousands of acres of forests and alpine ecosystems. “In collaboration with the State Environmental Protection Agency (SEPA), the State Forestry Administration (SFA), and the Chinese Academy of Sciences,” The Nature Conservancy has been active in supporting biodiversity protection in Yunnan Province, and it is advising and assisting the Chinese government as it revises its national biodiversity conservation action plan.¹²⁰ Even so, “China’s leaders . . . have been careful to circumscribe both the number of NGOs and the scope of their activities, so the role that such groups will be able to play in preserving the country’s biodiversity remains uncertain.”¹²¹

116. Alex Wang, *The Role of Law in Environmental Protection in China: Recent Developments*, 8 VT. J. ENVTL. L. 195, 203 (2007).

117. Wang Canfa, Keynote, *Special Functions of Promoting Public Participation in Environmental Protection in Aiding Pollution Victims*, 8 VT. J. ENVTL. L. 379, 386-87 (2007); accord Wang Canfa, *Chinese Environmental Law Enforcement: Current Deficiencies and Suggested Reforms*, 8 VT. J. ENVTL. L. 159 (2007) [hereinafter Canka, *Chinese Environmental Law Enforcement*].

118. Jerome Cohen, Keynote, *An Introduction to Law in China*, 8 VT. J. ENVTL. L. 379, 402 (2007).

¹¹⁹ See C. FRED BERGSTEN ET AL., CHINA’S RISE: CHALLENGES AND OPPORTUNITIES 91-104 (2008).

120. The Nature Conservancy, China: How We Work, available at <http://www.nature.org/wherewework/asiapacific/china/strategies/>.

121. ELIZABETH C. ECONOMY, THE RIVER RUNS BLACK: THE ENVIRONMENTAL CHALLENGE TO CHINA’S FUTURE 130 (2004).

A final part of China's biodiversity strategy is its active participation in international efforts to protect biodiversity. In 1980, China joined the Convention on International Trade in Endangered Species (CITES). In 1992, it signed the Ramsar Convention for the protection of wetlands. That year also saw China become one of the first nations to ratify the Convention on Biological Diversity that was negotiated in Rio de Janeiro. China then launched a "China Biodiversity Conservation Plan" in 1994, and it discussed the measures needed to protect biodiversity in its white paper documenting China's efforts to further its Agenda 21 environmental commitments. The Agenda 21 strategy states that "[t]he policy for biodiversity conservation in China is 'laying equal stress on both the development and utilization and the conservation and protection of natural resources' and 'he who develops, conserves; he who utilizes, compensates; he who destroys, restores.'"¹²²

But critics question China's resolve to end its trade in endangered species. China resisted international calls for the destruction of existing rhino horn stocks. It declined to become a member of the Global Tiger Forum established by twelve Asian countries in 1994 to protect endangered tigers throughout Asia. It advanced a proposal that would create a farm to raise tigers in order to satisfy the demand for tiger parts, though that idea was withdrawn after environmentalists objected. China's limited efforts to stop that trade have subjected it to international criticism. For example, in 1993 the United States and other countries threatened to sanction China for failing to control the trade in tiger and rhino parts. That the United States decided not to penalize China was viewed as an exercise in diplomacy unrelated to China's actual progress in enforcing the treaty. China's efforts to protect its ecosystems suffer from similar limitations on resources and political will. As one observer writes, China's solid national biodiversity policy "has made very little difference to the peoples of southwest China, where many of the reserves lack staff, funds, infrastructure, or a management plan. The international conservation community has focused on the panda at the expense of other endangered species."¹²³

The ultimate success of these measures remains uncertain. China's State Council admitted in 1995 that "[t]he environmental

122. CHINA'S AGENDA 21: WHITE PAPER IN CHINA'S POPULATION, ENVIRONMENT, AND DEVELOPMENT IN THE 21ST CENTURY, *supra* note 67, at 171-72; *see also* Canka, *Chinese Environmental Law Enforcement*, *supra* note 117, at 163 (noting that "China has joined 48 international conventions on environmental protection").

123. John Studley, *Environmental Degradation in SW China*, P.R.C. REV., Spring 1999, at 28, 30.

situation remains extremely grim.”¹²⁴ Many scholars agree.¹²⁵ Yet the attention that China receives, due both to its economic prowess and its remarkable biodiversity, ensures that China’s natural heritage will not disappear quietly.

B. Vietnam

Vietnam hugs the eastern side of a peninsula that juts into the Eastern Sea, which is a bay of the Pacific Ocean. According to a recent book on the world’s great wildlife reserves, “[n]ature’s resilience is nowhere better seen than in this tiny war-ravaged country, pocked with 20 million bomb craters, sprayed with dioxin and chemical defoliants that denuded millions of forest acres—yet still home to spectacular wildlife.”¹²⁶ Vietnam is enriched with a variety of ecosystems, including “tropical rainforests and monsoon savannah, marine life and mountainous sub-alpine scrubland.”¹²⁷ The country stretches more than a thousand miles from north to south but is only thirty miles from east to west at its narrowest point.¹²⁸ Not surprisingly, the Vietnamese have long depended upon the abundant natural resources along the coast and in the sea. Those resources have been strained as Vietnam’s economy and population have grown rapidly in recent years. Over eighty-five million people live in Vietnam, making it the thirteenth most populous country in the world.¹²⁹ Vietnam also boasts “one of the fastest growing economies in the world.”¹³⁰

Vietnam’s biodiversity has suffered greatly amidst the country’s economic growth. Vietnam’s forests and “once vast wetlands” have decreased substantially as they have been harvested and

124. Wang, *supra* note 116, at 201 (translating the *Decision on Implementation of Scientific Development and Strengthening on Environmental Protection* issued by China’s leading executive body, the State Council, in December 2005).

125. See Edward H. Ziegler, *China’s Cities, Globalization, and Sustainable Development: Comparative Thoughts on Urban Planning, Energy, and Environmental Policy*, 5 WASH. U. GLOBAL STUDIES L. REV. 295, 301 (2006) (“China’s environmental record is one of the worst in the world.”); see also Canfa, *supra* note 108, at 164 (“Although progress exists in the protection of ecosystems, the Chinese environment is deteriorating as a whole, even with localized areas of improvements.”).

126. LAURA RILEY & WILLIAM RILEY, NATURE’S STRONGHOLDS: THE WORLD’S GREAT WILDLIFE RESERVES 307 (2005).

127. GOV’T OF THE SOCIALIST REPUBLIC OF VIETNAM, BIODIVERSITY ACTION PLAN FOR VIETNAM, at i (1994).

128. *Id.*

129. TRAFFIC, *supra* note 64, at 9.

130. THE WORLD CONSERVATION UNION IN VIET NAM, IUCN VIET NAM STRATEGIC FRAMEWORK 2007-2010: FINDING THE BALANCE IN A CHANGING WORLD 9 (2007) [hereinafter IUCN].

converted to other uses.¹³¹ Other threats to Vietnam's biodiversity include infrastructure construction, urbanization, industrialization, and environment pollution.¹³² Twenty-eight percent of Vietnam's mammals face extinction, including the tiger, the Javan rhinoceros, and the Asian elephant.¹³³ Furthermore, ten percent of the country's birds and twenty-one percent of its reptiles and amphibians are in peril as well.¹³⁴ At the same time, new species continue to be discovered. The saola (or Vu Quang ox) was known only to villagers living near the mountainous rainforests of northern Vietnam until 1992 when a British biologist made the largest, new mammal discovery identified by scientists in fifty years.¹³⁵

Commercial exploitation continues to devastate rare wildlife. Jolene Lin reports that "[i]n the last forty years, Vietnam has lost some two hundred bird species and approximately one hundred and twenty species of other animals to the illicit trade."¹³⁶ Lin adds "that smugglers have turned to neighbouring Laos and Cambodia to supply animals which are usually captured by poor indigenous peoples to eke out a living."¹³⁷ Vietnam now plays a central role in the illegal wildlife trade as a conduit for animals caught elsewhere to be sent to satisfy China's demands, which is in direct conflict with the constitution of Vietnam.¹³⁸ Habitat destruction is now added to the devastation. The mangrove forests that once occupied 400,000 hectares along the Vietnamese coast accounted for only 250,000 hectares by 2001.¹³⁹ Pollution from Vietnam's new manufacturing industries is "a great threat to the life of sea creatures," especially because those industries rely upon outdated technologies.¹⁴⁰ Plus, Vietnam's coastal position makes it especially vulnerable to climate change.

"The role of law in Vietnam today is unclear: it is perhaps best described as in flux, with various contending views as to the role

131. *Id.* at 25; see also GOV'T OF THE SOCIALIST REPUBLIC OF VIETNAM, *supra* note 127, at iii ("Between 1943 and the present, Vietnam's forest cover shrank from forty-four percent of the total land area to under twenty-five percent.").

132. IUCN, *supra* note 130, at 9.

133. CHINA: BIODIVERSITY CONSERVATION ACTION PLAN, *supra* note 66, at ii.

134. *Id.*

135. RILEY & RILEY, *supra* note 126, at 307. Besides the saola, the Vu Quang Nature Reserve has also seen the recent discovery "of at least two new fish species, a new rabbit, squirrel, and warbler, possibly another new kind of deer, and Vietnamese warty pigs, last recorded in 1892 and long considered extinct." *Id.* at 311.

136. Lin, *supra* note 63, at 203; see also TRAFFIC, *supra* note 64, at 5 (concluding that hunting and wildlife trade are primarily responsible for the extinction or near extinction of twelve large animals in Vietnam during the past forty years).

137. Lin, *supra* note 63, at 203.

138. Hiến pháp Cộng hòa Xã hội Chủ nghĩa Việt Nam [Constitution] art. 29 (Vietnam), available at <http://home.vnn.vn/english/government/constitution/>.

139. VŨ TRUNG TANG, THE EASTERN SEA: RESOURCES AND ENVIRONMENT 39 (2001).

140. *Id.* at 178.

law ought to have.”¹⁴¹ Imperial Chinese, colonial French, Cold War Soviets, and twenty-first century Americans and Europeans have all left their mark on the Vietnamese legal system. “Confucianism . . . and Marxist moral influences affect the place of law in contemporary Vietnam,” and Communist “[p]arty policy continues to be as influential as law.”¹⁴² Perhaps the best description of Vietnam’s legal transition is that it is about twenty years behind China’s similar efforts to embrace the rule of law.

Vietnam’s environmental law is based on its constitution, which provides that

[a]ll state offices, armed forces units, economic establishments, social organizations and every citizen have to observe State regulations on the appropriate utilization of natural resources and on environmental protection. All acts resulting in depletion and destruction of the environment are strictly prohibited.¹⁴³

Beginning with the Law on Environmental Protection in 1993, Vietnam has enacted a wide variety of laws and decrees on conservation issues. These include decrees regulating wastewater, controls on businesses creating environmental damage, the 2003 Land Law (which reforms land use by providing a central registration system regulated by the Ministry of Natural Resources and Environment (MNRE)), and the Decree on the Conservation and Development of Wetlands (which allows wetlands to be regulated by the MNRE).¹⁴⁴ Appendix III of the Decree on Protection of the Environment details rare and precious flora and fauna, and a related decree determines methods for regulating their protection and management.¹⁴⁵

Forestry protection is essential to Vietnam’s environmental scheme. The Law on Forestry Protection and Development establishes a ranger system, an administrative fine system for those violating regulations, and three forest classifications: protection, conservation, and production.¹⁴⁶ Other forestry strategies state

141. Penelope (Pip) Nicholson & Nguyen Hung Quang, *The Vietnamese Judiciary: The Politics of Appointment and Promotion*, 14 PAC. RIM L. & POL’Y J. 1, 3 (2005).

142. *Id.* at 4-5; see The Australian Government’s Overseas Aid Program, *Viet Nam: Legal and Judicial Development* (Working Paper No. 3, 2000) (reviewing another insightful discussion of Vietnamese law).

143. Hiến pháp Cộng hòa Xã hội Chủ nghĩa Việt Nam [Constitution] art. 29 (Vietnam).

144. See Alan Khee-Jin Tan, *Environmental Laws and Institutions in Southeast Asia: A Review of Recent Developments*, 8 SING. Y.B. INT. L. 177, 188 (2004).

145. See Tannetje Bryant & Keith Akers, *Environmental Controls in Vietnam*, 29 ENVTL. L. 133, 154 (1999).

146. See *id.*

that forest must cover forty-three percent of the land, and that natural reserves should be increased.¹⁴⁷ As a result of its efforts, Vietnam has increased its forest cover greatly in the past ten years.

Most recently, in 2008, Vietnam drafted a new Biodiversity Law. The drafted law asserts that “[i]ndividuals, organizations, and the whole society shall be responsible for conservation and sustainable development of biodiversity.”¹⁴⁸ The law lists a sweeping number of prohibited acts:

1. Hunting and exploiting wild species, encroaching upon land, destroying landscape, deteriorating ecosystem in the conservation area, developing, cultivating the invasive alien species in the conservation.

2. Building houses, facilities in the very strict protective functional section of the conservation area, except the works servicing for the purposes of national defense and public security; Building houses, facilities illegally in the ecological restoration section belong to the conservation area.

3. Surveying, investigating, exploring, exploiting minerals, breeding cattle, poultry at concentrated scale, cultivating aquatic products at industrial scale, freeing to come in, settle and pollute environment in the very strict protective functional section and in the ecological restoration section belong to the conservation area.

4. Hunting, exploiting, killing the wild species belong to the List of Species for Exploitation enclosing conditions in the nature, also including species in the List of prior species for protection; exploiting illegally species belong to the List of species for exploitation enclosing conditions.

5. Reproducing species belonging to the List of prior species for protection to exploit the parts of their body, slaughter, consume; advertising, marketing, consuming the products having origin from species belong to the List of prior species for protection.

6. Importing, and freeing illegally into the environment the GMOs and GMO’s genetic specimens without having the bio-safety license.

7. Importing and developing the invasive alien species to environment.¹⁴⁹

147. See Khee-Jin Tan, *supra* note 144, at 189.

148. Biodiversity Law, No. QH12, art. 4(1) (draft Sept. 16, 2008) (Vietnam).

149. *Id.* art. 6.

The law further prescribes biodiversity conservation planning at the national and provincial levels, the listing and protection of endemic or “precious” species, and state ownership of genetic resources.¹⁵⁰

Protected areas play a central role in Vietnam’s biodiversity efforts. As of 2006, Vietnam had designated 128 forested protected areas, sixty-eight wetlands of national importance, and fifteen marine protected areas, which collectively encompassed seven percent of the nation’s land.¹⁵¹ A 2006 study involving national and international experts concluded that “[m]uch has been achieved over the past two decades” with respect to the protected areas, but the study identified numerous serious challenges.¹⁵² Forty percent of the protected areas lack “active and efficient conservation management” simply because they “have no management boards.”¹⁵³ Most areas “are chronically under-funded, and rely on a narrow and uncertain funding base,” with more than half of their budgets devoted to infrastructure development instead of conservation.¹⁵⁴ “More than eighty percent of protected areas have people living inside them, and populations are increasing”; the people “living inside protected areas are involved in illegal activities such as logging and hunting for subsistence and commercial purposes, often promoted by third parties.”¹⁵⁵ Roads, dams, and tourism threaten the biodiversity within the protected areas.¹⁵⁶ Much of Vietnam’s most important biodiversity lives outside of protected areas because those protected areas are “small and isolated.”¹⁵⁷

The struggle to protect Vietnam’s protected areas reflects the broader challenges regarding the enforcement of the country’s biodiversity laws. For example, penalties for noncompliance in the environmental impact assessment (EIA) process are unclear, and the EIA structure is often inadequate. Province-approved plans are frequently subjected to standards that are less demanding than national standards.¹⁵⁸ Vietnam also lacks professional forestry personnel.¹⁵⁹ Corruption and nepotism further challenge conservation progress. Vietnam’s 1995 Biodiversity Action Plan emphasizes the need for both better trained, disciplined, and paid law en-

150. *See id.* arts. 7-14, 37, 58.

151. *See* PARC, POLICY BRIEF: BUILDING VIET NAM’S PROTECTED AREAS SYSTEM—POLICY AND INSTITUTIONAL INNOVATIONS REQUIRED FOR PROGRESS 3, 5 (2006).

152. *Id.* at 3.

153. *Id.* at 5.

154. *Id.* at 14.

155. *Id.* at 10.

156. *See id.* at 12.

157. *Id.* at 7.

158. *See* Tan, *supra* note 144, at 189; IUCN, *supra* note 130, at 9 (“EIA . . . effectiveness remains low due to a lack of enforcement mechanisms and incentives for compliance.”).

159. *See* Tan, *supra* note 144, at 189.

forcement officers, as well as “the people’s direct participation in forest conservation and environmental protection at all levels.”¹⁶⁰ Yet the plan recognizes that timber continues to be felled “even though there is now a strong limit on the forest areas which are legally exploitable,” and more generally, “[t]he large-scale exploitation of energy is hard to control and poses the biggest threat to the biodiversity in many countries.”¹⁶¹ Vietnam established the MNRE in 2002, and since then it has sought to establish province-level offices to insure consistent enforcement of law and policy.¹⁶² Even so, reconciling central government conservation goals with provincial government goals remains an issue.¹⁶³

The most dramatic failure of enforcement surrounds the country’s traffic in rare wildlife. A 2007 report prepared by TRAFFIC, the international wildlife trade monitoring network, found that the consumption of wildlife products was increasing in Hanoi despite the existing laws prohibiting the practice.¹⁶⁴ Some of the results were especially troubling. “Affluent and highly educated people are more likely to use wild animal products than those with less money and education.”¹⁶⁵ Additionally, “[w]ild animal food and products are status symbols enjoyed especially by businesspeople and government officers.”¹⁶⁶ One-third of Hanoi’s government officials have actually used—and usually eaten—the very wildlife that the law charges them to protect.¹⁶⁷

C. Malaysia

Malaysia is one of twelve “megadiversity” countries that collectively contain nearly sixty percent of the world’s species,¹⁶⁸ though much of the nation’s biodiversity remains unknown. The country is divided into two parts: Peninsular Malaysia, which occupies the Malay Peninsula down to the city-state of Singapore; and East Ma-

160. GOV’T OF THE SOCIALIST REPUBLIC OF VIETNAM, *supra* note 127, at v.

161. *Id.* at 8.

162. Tan, *supra* note 144, at 187.

163. *Id.* at 187-88.

164. See TRAFFIC, A MATTER OF ATTITUDE: THE CONSUMPTION OF WILD ANIMAL PRODUCTS IN HA NOI, VIETNAM 12 (2007) (“Residents of Ha Noi believe that the use of wild animal products is popular, fashionable, increasingly affordable, and on the rise in the nation’s capital. The majority of Ha Noi residents are not aware of key legislation that protects endangered animal species and their habitats.”).

165. *Id.*

166. *Id.*

167. See *id.* at 13; see also *id.* at 18 (“Government officials mainly buy ornamental products in supermarkets, followed by specialty wild animal shops.”).

168. See M.T. Abdullah, Andrew Alek Tuen & Faisal Ali Anwarali Khan, *Universiti Malaysia Sarawak Contributions Towards Biodiversity and Protected Area Management*, in PROCEEDINGS OF THE SEVENTH HORNBILL WORKSHOP ON PROTECTED AREAS AND BIODIVERSITY CONSERVATION 273 (2005).

Malaysia, which consists of the states of Sabah and Sarawak on the northern side of the island of Borneo.¹⁶⁹ The nation gained its independence from Great Britain in 1957, and for two years, until it became an independent city-state, it included Singapore at the southern tip of the Malaysian peninsula. About twenty-three million people live in Malaysia, and approximately a third of those people reside in or near the capital city of Kuala Lumpur in the middle of the Malaysian peninsula.¹⁷⁰

Nearly twenty million acres of forests cover sixty percent of Malaysia's land.¹⁷¹ Malaysia's mangrove forests support a broad variety of flora and fauna. There are 1.54 million hectares of peat swamp forests, most of which are in Sarawak, that comprise seventy-five percent of Malaysia's wetlands and host such rare species as the orangutan, proboscis monkey, and Sumatran rhinoceros.¹⁷² But this biodiversity faces several serious threats. Malaysia quickly evolved from a nation with no manufacturing industry at the time of its independence in 1957, to a leading provider of petroleum, palm oil, forest products, and rubber by the beginning of the twenty-first century.¹⁷³ Unsustainable timber extraction, along with the conversion of forests and other lands to agricultural and industrial uses, are probably the greatest threats. Hunting, forest fires as a land use tool, expanded tourism, marine pollution, destructive fishing techniques, and the lowering of groundwater tables affect biodiversity as well. Attitudes toward biodiversity are changing in light of these threats. Malaysia's mangrove forests were considered "a wasteland" as recently as the 1980s; now they are regarded as ecologically valuable.¹⁷⁴ The famed naturalist Alfred Russell Wallace shot seventeen orangutans in Sarawak in 1855; now the primates are the subject of determined protection.¹⁷⁵

169. See CHEN HIN KEONG, *TRAFFIC, A MALAYSIAN ASSESSMENT OF THE WORLD LIST OF THREATENED TREES 1* (2004).

170. KEONG, *supra* 169 note, at 1.

171. See CHEN HIN KEONG, *A MALAYSIAN ASSESSMENT OF THE WORLD LIST OF THREATENED TREES 2* (2004).

172. See U.N. DEV. PROGRAMME, *MALAYSIA'S PEAT SWAMP FORESTS: CONSERVATION AND SUSTAINABLE USE 9-10* (2006); see also Alexander K. Sayok et al., *Management of Peat Swamp Forest: Case Study of Loagan Bunut National Park, Sarawak, Malaysia*, in *PROCEEDINGS OF THE SEVENTH HORNBILL WORKSHOP ON PROTECTED AREAS AND BIODIVERSITY CONSERVATION 90* (2005) [hereinafter *SEVENTH HORNBILL WORKSHOP*]; Detailed studies of other species appear in *PROCEEDINGS OF THE EIGHTH HORNBILL WORKSHOP ON PROTECTED AREAS AND BIODIVERSITY CONSERVATION 7-158* (2006) [hereinafter *EIGHTH HORNBILL WORKSHOP*].

173. See KEONG, *supra* note 169, at 1.

174. Paul Chai P.K., *Management of the Mangrove Forests of Sarawak*, in *SEVENTH HORNBILL WORKSHOP, supra* note 172, at 89.

175. See Paul Sing Tyan, *History of Orangutan Research in Sarawak*, in *EIGHTH HORNBILL WORKSHOP, supra* note 172, at 170-74.

Malaysia's goal is to become a world leader in conservation, research, and sustainable utilization of tropical biodiversity by 2020.¹⁷⁶ Toward that end, the country has enacted a spectrum of legislation aimed at protecting biodiversity, a trend that began when the country was still under British rule. The first administration to govern Malaysian environmental law was the British-enacted Federal Land Development Agency, which was replaced by the National Land Council when Malaysia became independent. Both agencies were initially concerned more with administration, rural development, and poverty alleviation than ecological conservation, but Malaysia's biodiversity and conservation laws have evolved from them.¹⁷⁷ The National Forestry Policy and the National Wildlife Act were passed in 1972.¹⁷⁸ The National Wildlife Act allows states to designate forests protected by the National Forest Policy as either wildlife reserves or wildlife sanctuaries.¹⁷⁹ Reserves offer more general environmental protection, while sanctuaries target biodiversity more specifically by defending individual species in addition to offering the general protections.¹⁸⁰ In 1980, the National Parks Act amended the National Wildlife Act to establish national parks for the protection of wildlife and areas of historical and cultural importance.¹⁸¹ The Act has never been applied in West Malaysia, which has only one national park that was established by the British in 1939.¹⁸² Adding to this wildlife protection, Malaysia passed the Wildlife Protection Ordinance in 1958, which banned the commercial sale of wildlife and wildlife products.¹⁸³ The law contains exceptions that allow aboriginals and rural communities to continue to rely on wildlife meat for their own sustenance. The law also fails to regulate the destruction of the habitat of endangered species.¹⁸⁴

The National Forestry Policy regulates "replanting, enrichment planting, extraction methods, and proper planning schedules for concessions."¹⁸⁵ It also outlines plans for local communities to "obtain control of exploitation rights, and to restrict trade in non-

176. See MINISTRY OF SCI., ENV'T & TECH., MALAYSIA'S NATIONAL POLICY ON BIOLOGICAL DIVERSITY 1 (1998) [hereinafter MALAYSIAN NATIONAL POLICY].

177. See Robert M. Hardaway, Karen D. Dacres & Judy Swearingen, *Tropical Forest Conservation Legislation and Policy: A Global Perspective*, 15 WHITTIER L. REV. 919, 935 (1994).

178. *Id.*

179. *Id.*

180. *See id.*

181. *See* National Parks Act, 1980 (Malay.).

182. *See* Hardaway, Dacres & Swearingen, *supra* note 177, at 937.

183. *See* MALAYSIAN NATIONAL POLICY, *supra* note 176, at 15.

184. *See id.* at 14 ("[S]pecies endangered due to habitat destruction are not protected by way of a national law for endangered species.").

185. Hardaway, Dacres & Swearingen, *supra* note 177, at 935-36.

timber forest produce.”¹⁸⁶ At the same time, the policy tries to regulate land use and its environmental impact by balancing the rights of aboriginal forest dwellers on the one hand and the need for stronger protection on the other. Stronger protection has come in the form of regulating urban expansion policy, establishing national parks, and greater conservation of water courses.¹⁸⁷ But many of the states oppose what they perceive as an encroachment on their territory, and as of 1994, Sarawak refused to be a signatory to the policy.¹⁸⁸

The National Forestry Act was passed in 1984 to bolster the Forestry Policy, setting aside funds for the Forest Development Fund and classifying forests into major categories: production, protection, recreation, wildlife, research, and federal.¹⁸⁹ One of the problems with this system has been that Malaysia assumes unclassified forests to be in the “production” category, and thus open for timber exploitation.¹⁹⁰ Because the logging and timber industry is very profitable, the government has little incentive to re-classify production forests as protection forests when new endangered species or environmental threats appear.¹⁹¹ At present, the law provides an excellent framework for ecological conservation, but because of the profit of the timber industry, the classification system lacks the power to effectively adapt to the forests’ changing environmental needs.

Malaysia has also enacted several other laws and policies targeted toward protecting biodiversity. The Environmental Quality Act of 1974 provides an extensive framework for Malaysia’s environmental law.¹⁹² Other laws and policies include the Fisheries Act of 1985, a National Policy on Biological Diversity, and the Sarawak Biodiversity Ordinance of 1997.¹⁹³ The biodiversity policies outline goals for preserving various ecosystems, providing funding and research, and tying Malaysia’s biodiversity to its unique culture and heritage.¹⁹⁴ The 1998 National Policy on Biological Diversity listed twenty-six federal and state laws that are relevant to the protection of Malaysia’s biodiversity.¹⁹⁵ Yet that same policy lamented the lack of “single comprehensive legislation in Malaysia which

186. *Id.* at 936.

187. *Id.*

188. *Id.*

189. *Id.* at 937.

190. *Id.*

191. *Id.*

192. Azmi Sharom, *Ten Years After Rio: Implementing Sustainable Development*, 6 SING. J. INT’L & COMP. L. 855, 863 (2002).

193. *Id.* at 875.

194. MALAYSIAN NATIONAL POLICY, *supra* note 176, at 3.

195. *Id.* at 15.

relates to biological diversity conservation and management as a whole.”¹⁹⁶

Malaysia’s unique federal system affects biodiversity protection too. The two states of Malaysian Borneo, Sabah and Sarawak, enjoy significant autonomy, including autonomy over natural resources. The Sarawak Biodiversity Regulations promulgated in 2004 focus on biodiversity in protected areas.¹⁹⁷ One regulation, for example, makes it illegal to “enter and collect or take away any biological resources from a State land forest, forest reserve, protected forest, national park, nature reserve, or Wild Life Sanctuary without a permit issued” to facilitate research.¹⁹⁸ Sarawak relies upon the Sarawak Forestry Corporation, created by the state legislature in 1995, to manage and conserve its forests. The idea of a separate corporation arose

when the International Tropical Timber Organisation (ITTO) mission to Sarawak identified a number of weaknesses that must be identified if the State is to sustainably manage its forests. The ITTO recommended a new model, independent of the civil service be given this task, as the Department of Forests has many constraints and limits to effectively achieve sustainable forest management.¹⁹⁹

The corporation is also responsible for managing Sarawak’s eighteen national parks, four wildlife sanctuaries, and five nature reserves, totaling over 500,000 hectares.²⁰⁰

One of those parks, Bako National Park was established in 1957 and is located just west of Sarawak’s capital city of Kuching. Bako is small but “probably the best place in Sarawak for wildlife experience.”²⁰¹ The park contains seven different ecosystems, ranging from mangrove forests, to grasslands, to a peat swamp forest. It also contains a number of remarkable species of animals and plants, such as the Borneo bearded pig, and six types carnivorous pitcher plants. Bako is most famous for its population of 150 proboscis monkeys, extremely odd-looking creatures that live only on

196. *Id.* at 14.

197. See Sarawak Biodiversity Center Ordinance, 1997, LVIX SARAWAK GOV’T GAZ. 97 (2004), available at http://www.sbc.org.my/downloads/reg_2004.pdf.

198. *Id.* at 103.

199. Sarawak Forestry Corp., About Us: FAQ, <http://www.sarawakforestry.com/html/aboutus-faq.asp> (last visited June 13, 2009).

200. Sarawak Forestry Corp., National Park, <http://www.sarawakforestry.com/html/snp.asp> (last visited June 13, 2009).

201. See Bako National Park, <http://www.forestry.sarawak.gov.my/forweb/np/np/bako.htm> (last visited June 13, 2009) (“The park has been a protected area since 1957, so the animals are less wary of humans.”).

Borneo.²⁰² A guide to the park boasts that “[t]otal and effective protection of these attractive animals in the park means that they no longer feel threatened by people and are readily visible along trails near the Park Headquarters.”²⁰³ Bako was Malaysia’s first “totally protected area,” which means that conservation is the primary management objective, while secondary objectives include recreation, research, education, and monitoring of visitor activities.²⁰⁴ Yet park officials cite inadequate information, insufficiently trained personnel, dying mangrove stands, a lack of research funding, and even the possibility of poaching as threats to the management of the unknown number of proboscis monkeys living in Bako.²⁰⁵ More ominously, in other parts of Sarawak, proboscis monkeys are vulnerable to habitat loss and illegal hunting; the state created a buffer zone of other protected areas to protect the monkeys in Bako since the park is too small to sustain a viable population.²⁰⁶ Altogether, Malaysia has protected almost thirty-one percent of its land as national parks, nature reserves, or wilderness areas, far more than the world average of roughly eleven percent.²⁰⁷

202. See HANS P. HAZEBROEK & ABANG KASHIM BIN ABANG MORSHIDI, *A GUIDE TO BAKO NATIONAL PARK: SARAWAK, MALAYSIAN BORNEO 1* (2006) (“An encounter with long-nosed Proboscis monkeys in their natural habitat is for many people the highlight of their trip to Sarawak.”); *id.* at 31-32 (describing the monkey as “one of the world’s most wonderful primates” and “one of the most unusual animals in the world”); Bako National Park, *supra* note 201 (“A jungle encounter with a group of proboscis is likely to be the highlight of your trip to Bako.”); see also Simon Elegant, *Sarawak: A Kingdom in the Jungle*, N.Y. TIMES, July 13, 1986, at p. 19. (reporting that “some of nature’s most unusual and flamboyant creations” flourish in Bako).

203. HAZEBROEK & MORSHIDI, *supra* note 202, at 5. My visit to Bako confirmed this claim: I saw dozens of proboscis monkeys, silvered-leaf monkeys, long-tailed macaques, a cluster of *Nepenthes rafflesiana* pitcher plants, a venomous Wagler’s pit viper, and a green vine snake during two days in March 2008.

204. See Desmond Dick Cotter, *Wetlands Management in Sarawak*, in SEVENTH HORNBILL WORKSHOP, *supra* note 172, at 73 (noting that Bako’s status as the first Totally Protected Area); Jin anak Iman Nelson, *Protection of Totally Protected Areas in Sarawak*, in SEVENTH HORNBILL WORKSHOP, *supra* note 172, at 230; see also Charles Leh M.U., *Biodiversity of Mangrove Forests*, in SEVENTH HORNBILL WORKSHOP, *supra* note 172, at 168 (citing Bako as the best example in Sarawak of efforts to develop mangrove forests as a tourist attraction); A. Manap Ahmad, *The Bako National Park Customer Service Excellence Initiative*, in SEVENTH HORNBILL WORKSHOP, *supra* note 172, at 308; Cynthia L.M. Chin, Susan A. Moore & Tabatha J. Wallington, *Ecotourism in Bako National Park, Borneo: Visitors’ Perspectives on Environmental Impacts and Their Management*, 8 J. SUSTAINABLE TOURISM 20, 22 (2000) (citing L. GOOD, BAKO NATIONAL PARK: A MANAGEMENT PLAN (1988)) (indicating that seventy-nine percent of the visitors to the park support more conservation education and sixty percent would limit the number of visitors).

205. See Mohammad Kasyfullah bin Zaini & Siali anak Aban, *Study on Proboscis Monkeys at Bako National Park (Past, Present and Future) and Its Implications for Park Management*, in SEVENTH HORNBILL WORKSHOP, *supra* note 172, at 225. The estimates of the proboscis monkey population in Bako range from 106 to 275. See *id.* at 223.

206. See HAZEBROEK & MORSHIDI, *supra* note 202, at 36-37.

207. See World Resources Institute, <http://earthtrends.wri.org/text/biodiversity-protected/country-profile-114.html> (last visited June 13, 2009).

Commercial exploitation is a key component of Malaysia's approach to biodiversity. According to one commentator, "[t]he genetic material contained in Malaysia's abundant tropical plant species is a potential source of commercially valuable pharmaceutical products, and the richness of Malaysia's forest and marine environments offers some of the finest nature-based tourism opportunities in the world."²⁰⁸ Malaysia's National Policy on Biological Diversity adds that "[w]ith the right strategy, Malaysia could capture a large slice" of the lucrative floriculture industry, thanks to the "great potential for promoting indigenous flowers from our forests."²⁰⁹ Ecotourism also features prominently in Malaysia's efforts to conserve its biodiversity.²¹⁰

The enforcement of laws governing biodiversity remains a challenge. On the positive side, the designation of forest reserves has halted commercial logging in many protected areas.²¹¹ The Deramakot Forest Reserve in Sabah has been especially successful, thanks to fifty-four field personnel responsible for implementing a management plan that combines sustainability and multiple-use principles.²¹² A 2007 study of that reserve credited the forest's management for yielding denser population of endangered large animals, such as Asian elephants, while also emphasizing the importance of "political commitment from state leaders."²¹³ But enforcement lags in other contexts. The National Policy on Biological Diversity admitted that "most development plans relegate the notion of conservation to a low priority status."²¹⁴ Budgets for government enforcement of the laws are limited.²¹⁵ Marine parks suffer water pollution from unregulated activities that occur on the

208. Peter W. Kennedy, *Managing Biodiversity: Policy Issues and Challenges 1* (Oct. 1999) (unpublished manuscript), available at <http://web.uvic.ca/~pkennedy/Research/biodiversity.pdf>.

209. MALAYSIAN NATIONAL POLICY, *supra* note 176, at 5.

210. See Victor Luna Amin, *Park Guiding: The Way Forward*, in SEVENTH HORNBILL WORKSHOP, *supra* note 172, at 254-65 (describing how park guides can interpret biodiversity for visitors); Oswald Braken Tisen, *Conservation and Tourism: A Case Study of Longhouses Communities In and Adjacent to Batang Ai National Park, Sarawak, Malaysia*, in SEVENTH HORNBILL WORKSHOP, *supra* note 172, at 296-307.

211. See U.N. DEV. PROGRAMME, *supra* note 172, at 22 ("No commercial logging has taken place within the Klias peat swamp boundaries since its designation as a forest reserve.").

212. See Peter Lagan, Sam Mannan & Hisashi Matsubayashi, *Sustainable Use of Tropical Forests by Reduced-impact Logging in Deramakot Forest Reserve, Sabah, Malaysia*, 22 ECOLOGICAL RES. 414, 415 (2007).

213. *Id.* at 420.

214. MALAYSIAN NATIONAL POLICY, *supra* note 176, at 10.

215. See Melvin Gumal, Keynote Address, *TPA Management and Communities: Conserving Totally Protected Areas With Rural Communities Living in and Around Those Areas*, in EIGHTH HORNBILL WORKSHOP, *supra* note 172, at 229 (noting that the number of Totally Protected Areas grew by ninety-two percent between 1992 and 2000, but the management budget increased by only fifty-nine percent); Wildred S. Landong & Oswald Braken Tisen, Keynote Address, *Biodiversity Conservation—The Way Forward*, in EIGHTH HORNBILL WORKSHOP, *supra* note 172, at 329 (citing funding constraints).

adjacent shore.²¹⁶ TRAFFIC complains that Malaysia's forest departments lack the legal authority and the training to combat the illegal timber trade.²¹⁷ Sarawak Forestry itself admits that it is incapable of arresting the "element of organized crime whereby local gangsters are employed to extract timber illegally from Park areas."²¹⁸ A 2006 report prepared by the Department of Wildlife and National Parks in Peninsular Malaysia identified "[a] worrying trend" involving the discovery of "vast quantities" of clouded monitors, "presumably for smuggling activities."²¹⁹ The same report noted that the number of wildlife cases prosecuted in court (as opposed to administratively) jumped from twenty-five to sixty in one year, though "there were no high penalties imposed on any of the offenders brought to the court."²²⁰ Possession of 2,390 clouded monitors resulted in a fine of \$429, while possession of six birds of paradise earned six months in prison.²²¹

Malaysia struggles with the relationship between biodiversity and the needs of indigenous communities. Its National Policy on Biological Diversity proclaims that "[t]he role of local communities in the conservation, management and utilisation of biological diversity must be recognized and their rightful share of benefits should be ensured."²²² Nonetheless, one scholar has argued that government officials, both during colonial times and since independence, view local uses of natural resources as "unacceptable and in need of state intervention, while extra-local uses and abuses of natural resources have been protected."²²³ For example, while local uses of the forest are strictly regulated, forestry department officials "plan to introduce rabbits into the [Similiu] forest reserve so that the forest officers [can] hunt while on retreat."²²⁴ Even when the law protects them, indigenous communities and local biodiversity are harmed by unregulated develop-

216. See Sharom, *supra* note 192, at 876.

217. CHEN HIN KEONG & BALU PERUMAL, IN HARMONY WITH CITES? AN ANALYSIS OF THE COMPATIBILITY BETWEEN CURRENT FORESTRY MANAGEMENT PROVISIONS AND THE EFFECTIVE IMPLEMENTATION OF CITES LISTING FOR TIMBER SPECIES IN MALAYSIA 1, 18 (2002).

218. Nelson, *supra* note 204, at 236.

219. DEPT. OF WILDLIFE AND NAT'L PARKS IN PENINSULAR MALAY., 2006 ANNUAL REPORT 55 (2006) [hereinafter 2006 ANNUAL REPORT].

220. *Id.* at 57.

221. *Id.* at 174-75.

222. MALAYSIAN NATIONAL POLICY, *supra* note 176, at 2.

223. Amity A. Doolittle, *Powerful Persuasions: The Language of Property and Politics in Sabah, Malaysia (North Borneo), 1881-1996*, 38 MODERN ASIAN STUDIES 821, 844 (2004); accord EDA GREEN, BORNEO: THE LAND OF RIVER AND PALM 43 (1909) ("Fruit, bamboo and other trees belong to individuals, but there are frequent disputes about fruit-tree rights, and fallen fruit is common property. It has been said that the Dyaks are so honest that they never think of gathering the fruit of a tree belonging to some one else.").

224. Doolittle, *supra* note 223, at 840.

ment. The law governing Loagan Bunut National Park in central Sarawak gives designated indigenous groups the right to fish, hunt, or gather only within the park.²²⁵ But the combination of the pressure on the land caused by the increasing population in surrounding villages, and an absence of enforcement has “resulted in expansion of farming in the park and encroachment into additional high forest areas.”²²⁶ Perhaps it is not surprising that one-third of the residents near one important biodiversity area in Sarawak were not willing to surrender their customary land rights in exchange for conservation measures.²²⁷ Malaysia is aware of the problem, and it is taking numerous actions to involve indigenous communities in biodiversity conservation. In Sarawak, for example, the government has appointed 4,500 community leaders as Honorary Wild Life Rangers “to act as ‘ears and eyes’ of the government” and “to report illegal activities to the wildlife authorities or police.”²²⁸

The EIA process also complicates matters. Allowing states to have such a significant influence on forestry law is problematic, since focus has been “on administration [rather] than conservation.”²²⁹ There are frequent conflicts over whether the process is within the jurisdiction of the Malaysian national government or state governments.²³⁰ Furthermore, when the EIA falls under state control, there are wide disparities among the standards used. In fact, several sites have already fallen victim to poor state EIA planning, and now the federal government has been left to clean up the environmental fallout.²³¹ On a brighter note, however, the federal government is attempting to remedy these issues by amending the 1960 Land Conservation Act and the 1965 National Land Code and by making states more accountable for their mismanagement.²³²

Malaysia is actively involved in international ecological efforts. Malaysia is a party to the Convention on Biological Diversity, CITES, the Association of Southeast Asian Nations, the International Timber Organization, and a signatory to the International Timber Agreement of 1994 and the Ramsar Wetlands Conven-

225. See U.N. DEV. PROGRAMME, *supra* note 172, at 19-20; *see also* Sayok, *supra* note 172, at 95-99 (discussing the management of Logan Bunut National Park).

226. *Id.* at 20.

227. See Reuben Clements et al., *Limestone Karsts of Southeast Asia: Imperiled Arks of Biodiversity*, 56 *BIOSCIENCE* 733, 739 (2006).

228. Engkamat Lading, *Local Community Participation in the Management of Lanjak Entimau Wildlife Sanctuary*, in EIGHTH HORNBILL WORKSHOP, *supra* note 172, at 270.

229. See Hardaway, Dacres & Swearingen, *supra* note 177, at 935.

230. *See id.*

231. See Sharom, *supra* note 192, at 886-87.

232. MALAYSIAN NATIONAL POLICY, *supra* note 176, at 15.

tion.²³³ Additionally, Malaysia relies upon partnerships with foreign governments and non-governmental organizations (NGOs) around the world. The United Nations Development Programme and the Danish government, for example, jointly donated more than \$8.3 million to efforts designed to improve management of Malaysia's peat swamp forests.²³⁴ At the same time, Malaysia has opposed the expansion of some international environmental protections, such as the listing of certain timber species under CITES.²³⁵ More generally, some Malaysian officials resist pressure from developed countries to further protect the country's forests. A former prime minister once remarked that

while the developed countries had destroyed their forests, it was 'not fair for them to ask us to earn less from our forests. Malaysians and local non-governmental organizations should not get carried away with the so-called environmental consciousness of the foreigners until we are forced to sacrifice our forests' economic importance for their comfort.'²³⁶

On a more local level, Borneo has established so-called "peace parks," most of which are contiguous to other protected areas.²³⁷ Among them are "[t]he Lanjak-Entimau Wildlife Sanctuary in Sarawak[, which] is contiguous to Batang Ai National Park[,] and the Gunung Bentuang and Karimun reserves in Kalimantan."²³⁸ Unfortunately, despite this extra layer of protection, the forests are still threatened by deforestation and subsequent loss of biodiversity.

D. Cambodia

Cambodia is the smallest of the four Southeast Asian nations described here, both in terms of land area and population. The country is perhaps best known for its ancient Khmer Empire based at Angkor, which thrived from the ninth to the thirteenth centuries. Cambodia was part of French Indochina from 1863 to 1953, when it became an independent constitutional monarchy. During the 1970s, the Khmer Rouge slaughtered between 1.7 and 3 mil-

233. Malaysia Biodiversity Profiles, <http://life.nthu.edu.tw/~d868210/jpg/hwk2/content.html> (last visited June 13, 2009).

234. See U.N. DEV. PROGRAMME, *supra* note 172, at 16.

235. See KEONG & PERUMAL, *supra* note 217, at 12.

236. KEONG, *supra* note 169, at 4 (quoting Yang Amat Berbahagia Tun Dr Mahathir Mohamad's remarks at the launching of the Science, Technology and Environment Ministry's Silver Jubilee celebrations at Putra World Trade Center).

237. John Charles Kunich, *Fiddling Around While the Hotspots Burn Out*, 14 GEO. INT'L ENVTL. L. REV. 179, 228 (2001).

238. *Id.*

lion of their fellow Cambodians, as much as forty percent of the country's population. The current multiparty democracy under a constitutional monarchy has governed the nation since 1993. Cambodia borders Thailand, Laos, Vietnam, and the Gulf of Thailand. Its population is about 13.4 million. Its economy grew about ten percent per year between 2004 and 2007, thanks to the garment industry and tourism.²³⁹

Cambodia's tropical geography is dominated by the Mekong River, known as the Tonle Thom or "great river," and the Tonle Sap or "fresh water lake." The lake expands from about a thousand square miles during the dry season to over six thousand square miles during the wet season, or forty-four percent of the country's land.²⁴⁰ The Mekong River basin is one of the most biodiverse regions in the world, second only to the Amazon River basin. It has many species of animals still unidentified, including 1245 identified fish species alone.²⁴¹ Cambodia is home to several endangered species, including the freshwater Irawaddy dolphin, the Siamese crocodile, giant catfish, and marine turtles. But many Cambodian species—including half of the country's one hundred mammal species—may be threatened.²⁴² More generally, Cambodia's biodiversity is threatened by "increased population pressure."²⁴³ The biodiversity in many parts of Cambodia was undisturbed when civil unrest discouraged tourism, but the arrival of peace has opened those areas to settlement and visitation.

Cambodian law has struggled to develop since the end of the Khmer Rouge era.²⁴⁴ Nonetheless, the country has worked to pro-

239. See generally U.S. Dep't of State, Background Note: Cambodia, <http://www.state.gov/r/pa/ei/bgn/2732.htm> (last visited June 13, 2009) (providing general information about Cambodia).

240. See Ian J. Mensher, Note, *The Tonle Sap: Reconsideration of the Laws Governing Cambodia's Most Important Fishery*, 15 PAC. RIM L. & POL'Y J. 797, 800 (2006).

241. See ROYAL GOV'T OF CAMBODIA, MINISTRY OF ENV'T, NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN 13 (2002), available at <http://www.cbd.int/doc/world/kh/kh-nbsap-01-en.pdf>; L. Waldron Davis, *Reversing the Flow: International Law and Chinese Hydropower Development on the Headwaters of the Mekong River*, 19 N.Y. INT'L L. REV. 1, 15 (2006); Mensher, *supra* note 238, at 800-801; Tonle Sap Biosphere Reserve Environmental Information Database, Biodiversity, http://www.tsbr-ed.org/english/values_issues/biodiversity.asp (last visited June 13, 2009).

242. Davis, *supra* note 214, at 17.

243. *Id.* at 16. "Other threats include; ignorance, policies, global trading, inequity, lack of participation, natural disasters, man-made disasters, climate change, loss of habitat & overexploitation of biological resources, wildlife trade, pollution, modern agriculture, invasive alien species, and biotechnology." *Id.*

244. See Rebecca Povarchuk, Note, *Cambodia's WTO Accession: A Strenuous But Necessary Step for a Poor Nation Seeking Economic Prosperity*, 13 PAC. RIM L. & POL'Y 645, 650 (2004) ("Under the Khmer Rouge, law books were destroyed and judges, lawyers, prosecutors, and legislators were slaughtered. . . . After the U.N. intervention, the Cambodian bar formed with only thirty-eight members."); Jillian M. Young, Note, *Cambodia's Accession to the World Trade Organization and Its Impact on Agriculture*, 11 DRAKE J. AGRIC. L. 107, 121 (2006) ("One of the major problems facing Cambodia today is the lack of trained lawyers

tect its biodiversity. Cambodia's 2002 National Biodiversity Strategy and Action Plan asserts that "[n]ature protection in Cambodia has been a constant concern of both the King and Government always realizing the fragile nature of ecosystems owing to the socio-economic, physiogeographic and climatic conditions of the country."²⁴⁵ Cambodia's constitution provides that "[t]he State shall protect the environment and balance of abundant natural resources and establish a precise plan of management of land, water, air, wind, geology, ecological systems, mines, energy, petrol and gas, rocks and sand, gems, forests and forestial products, wildlife, fish and aquatic resources."²⁴⁶ Cambodia created an Environmental Secretariat in 1993 and enacted the framework for the Law on Environmental Protection and Natural Resources Management in 1996.²⁴⁷ Subsequently, the Ministry of Environment was created in 1998, which manages natural resources along with the Ministry of Water Resources and Meteorology and the Ministry of Land Use Management, Urbanization and Construction.²⁴⁸ Cambodia has continued to enact more environmental and conservation laws, including the Water Resources Law, Forestry Law, Fisheries Law, Wildlife Law, Law on Protected Area Management, the 2001 Land Law, and the 2002 Forestry Law. The Community Forestry Sub-Decree of 2003, which followed the Statement of the Royal Government on National Forest Policy of 2002 that "designated Cambodia's remaining forest resources as Permanent Forest Estates to be maintained in perpetuity."²⁴⁹ Additionally, in 1993, Cambodia implemented the National Protected Areas System, which established "seven national parks, ten wildlife sanctuaries, three protected landscapes, and three multiple-use areas" that together comprise 17.6% of the country's land.²⁵⁰

Enforcement of these laws is problematic. Cambodia's Biodiversity Plan names "a lack of planning and law enforcement in natural resources management" as one of "[t]he main threats to biodiversity."²⁵¹ It adds that "[d]espite its illegality, hunting is widely spread."²⁵² Cambodia still struggles with illegal logging issues even in protected areas.²⁵³ Despite the Forestry Law's man-

and judges and the concentration of these professionals in Phnom Penh, the capital of Cambodia, far from the majority of the population.").

245. ROYAL GOV'T OF CAMBODIA, *supra* note 241, at 3.

246. The Constitution of the Kingdom of Cambodia art. LIX, <http://www.embassy.org/cambodia/cambodia/constitu.htm> (last visited June 13, 2009).

247. *See* ROYAL GOV'T OF CAMBODIA, *supra* note 241, at 3.

248. *See id.*

249. Tan, *supra* note 144, at 186.

250. Kunich, *supra* note 237, at 250-51.

251. ROYAL GOV'T OF CAMBODIA, *supra* note 241, at 16.

252. *See id.* at 31.

253. Tan, *supra* note 144, at 186-87.

dates that EIAs and Strategic Forest Management Plans be produced, the government has undermined these protections by tolerating illegal logging and accepting environmental reports of extremely low quality.²⁵⁴ Further, logging companies often subvert the Forestry Law by claiming they are merely reforesting planted forests when they are really destroying natural forests and replacing them with “fast-growing (but often alien) trees.”²⁵⁵ In fact, from the 1990s to 2006, Cambodia “lost ten percent of its forest cover, representing a reduction from 13 million hectares to 11.2 million hectares.”²⁵⁶ Also, although the Forestry Law protects certain wildlife, it fails to protect fish and aquatic life.²⁵⁷ The Department of Fisheries has achieved limited success in preventing illegal fishing because of a “lack of technical capacity, inadequate equipment and budget constraints.”²⁵⁸ A shortage of financial and technical resources only adds to the ineffectiveness of Cambodia’s efforts, and a legacy of internal strife has resulted in agencies staffed by feuding political factions, making progress toward conservation goals difficult. Thus, the Ministry of the Environment has minimal influence over the sustainability of Cambodian forests, and it will fail to achieve environmental sustainability unless illegal logging is curtailed.²⁵⁹

The Mekong River and Tonle Sap basin have been especially affected by the failure of the law. The 2001 Land Law sets few boundaries on development even in the Tonle Sap basin, so pollution and run-off threaten the biodiversity of the area.²⁶⁰ The 1987 Fisheries Law narrowly regulates “subsistence and mid-scale fishing operations” without checking operations by large, industrial fisheries, which exploit the Tonle Sap and Mekong River without regulation.²⁶¹ China’s plan to build several hydropower dams along the upstream reaches of the Mekong River is causing a biodiversity crisis.²⁶² Normally, the annual flooding of the Tonle Sap basin by the Mekong River sustains the area with fish, provides water for

254. *Id.* at 186.

255. *Id.* at 187.

256. Mensher, *supra* note 208, at 810.

257. *Id.*

258. ROYAL GOV'T OF CAMBODIA, *supra* note 241, at 37.

259. Tan, *supra* note 124, at 187.

260. Mensher, *supra* note 241, at 809.

261. *Id.* at 811.

262. The Cambodian government itself has proposed the construction of three hydroelectric dams within Virachey National Park, which is located within Cambodia’s mountainous forests. The park is “one of Cambodia’s most biologically diverse protected areas” and is an area in which no people live. RAPID ASSESSMENT PROGRAM & CONSERVATION INTERNATIONAL – CAMBODIA, PRELIMINARY REPORT: VIRACHEY NATIONAL PARK RAP 2007, at 3 (2007), available at http://www.conservation.org/Documents/Virachey_NP_Preliminary_report_hirez2.pdf.

rice paddies, and supports a complex ecosystem.²⁶³ In addition to creating water temperature fluctuations that result in severe declines in commercial fish supplies (the fish catch dropped by almost fifty percent in 2004), changes to the Mekong River and Tonle Sap have caused a “critically endangered megafauna” epidemic, including the Mekong giant catfish (thought to be the largest freshwater species in the world), the freshwater Irrawaddy dolphin, and the Siamese crocodile.²⁶⁴

A TRAFFIC study of Stung Treng Province along the Laotian border in northeastern Cambodia offers another illustration.²⁶⁵ Stung Treng is a very rural area covered by forests, rice paddies, and rivers, and it is home to about 77,000 people. The TRAFFIC study indicates that fish are the most important natural resource to the people in Stung Treng, so when trading fish became more valuable, and thus more popular, the people of the region were concerned about the declining fish populations.²⁶⁶ There are numerous laws regulating the fishery, which seem to have little effect; villagers suggest that some of the illegal fishing methods were continued by those with access to the necessary equipment.²⁶⁷ The wildlife trade continues even though it “is widely recognised as illegal.”²⁶⁸ A village chief explained that people sold wildlife in Laos once it became illegal to consume it in Cambodia, which the TRAFFIC report observes “was the opposite effect of the law.”²⁶⁹ Prominent wildlife traders are known to be friends of local government officials, and “the ability of the police and army to carry guns means that villagers often associate them with wildlife hunting, whether or not this is the case.”²⁷⁰

There are other obstacles to enforcement, too. Corruption in Cambodia reduces the effectiveness of laws protecting biodiversity.²⁷¹ Rural residents who live in areas of abundant biodiversity,

263. Mensher, *supra* note 241, at 800.

264. *Id.* at 801.

265. See SARINDA SINGH ET AL., TRAFFIC, TRADE IN NATURAL RESOURCES IN STUNG TRENG PROVINCE, CAMBODIA: AN ASSESSMENT OF THE WILDLIFE TRADE (2006).

266. See *id.* at 8-9.

267. *Id.* at 21.

268. *Id.* at 27.

269. *Id.* at 28.

270. *Id.*

271. See ROYAL GOV'T OF CAMBODIA, *supra* note 241, at 70 (“[T]he enforcement of existing legislation is somehow deficient in the country because of unacceptable behavior and lack of accountability by some government representatives.”); Povarchuk, *supra* note 244, at 651 (referring to “[w]idespread judicial corruption”); Young, *supra* note 244, at 122 (“The newly developed legal and judicial professions are plagued with corruption.”); Conservation International, Cambodia, <http://www.conservation.org/explore/asia-pacific/cambodia/Pages/issues.aspx> (last visited June 13, 2009) (“[T]he Cambodian government lacks the manpower and will to enforce the rules. Bribery of officials is rampant, and corruption chokes the legal and justice systems. Judges know little about wildlife laws, and in most instances, cases are tossed out and poachers escape prosecution.”); Transparency International, Corruptions Per-

and who rely upon that biodiversity to sustain them, are often unaware of the laws protecting biodiversity.²⁷² Furthermore, the pressure on Cambodia's biodiversity increases as traders begin to turn to Cambodia more and more once they eliminate the resources in neighboring countries such as Vietnam.²⁷³

E. Summary of Southeast Asian Biodiversity Law

Overall, the biodiversity laws of China, Vietnam, Malaysia, and Cambodia have achieved some impressive results in recent years. The very enactment of laws protecting biodiversity is a significant step forward for countries that are still struggling to develop their legal systems. Each nation has established important wildlife refuges. The region has also experienced some success in regulating trade in wildlife.

But there are obvious failures to match each success. Enforcement remains the largest problem, whether it is in China's nature reserves, Hanoi's wildlife shops, or Cambodia's logging. "Laws and regulations stand little chance of success unless they are effectively implemented and enforced, and wider issues of governance are also tackled"²⁷⁴ An October 2008 study conducted by TRAFFIC indicates that ninety percent of the local experts who were surveyed believe that wildlife products continue to be harvested from protected areas, and half of respondents believe that applicable wildlife quotas are being exceeded.²⁷⁵ TRAFFIC concluded "that current enforcement levels remain woefully inadequate."²⁷⁶ Moreover, each nation complains that it lacks the funds to protect the biodiversity within its borders; biodiversity preservation is overwhelmed by the rapid economic development that has occurred in Southeast Asia during the past thirty years. Even in Malaysia, there seems to be a trend toward viewing the environment in terms of an asset to be exploited, rather than focusing on what needs to be protected.²⁷⁷ Perhaps the most dramatic illustration of the failure of biodiversity protection in Southeast Asia occurred in China's famed Yangtze River, where the freshwater

ceptions Index 2008, http://www.transparency.org/policy_research/surveys_indices/cpi/2008 (last visited June 13, 2009) (ranking Cambodia 166 out of 180 nations in perceptions of corruption).

272. See ROYAL GOV'T OF CAMBODIA, *supra* note 241, at 70.

273. See SINGH ET AL., *supra* note 265, at 2; Lin, *supra* note 63, at 203.

274. TRAFFIC, *supra* note 64, at xiv.

275. See *id.* at 32.

276. *Id.* at 33 ("Less than forty percent of respondents believed that the likelihood of detection, prosecution, sentencing and penalties had been effective in controlling trade."); see also *id.* at 64 (describing inadequate enforcement as "an overriding problem," though acknowledging that it has been improving).

277. See Tan, *supra* note 144, at 182.

Yangtze River dolphin appears to have gone extinct early in the twenty-first century thanks to the combined effects of water pollution, overharvesting, dam construction, and rapid economic development—despite an intensive international effort to save the species.²⁷⁸

III. COMPARING THE EFFECTIVENESS OF THE ENDANGERED SPECIES ACT AND ASIAN BIODIVERSITY LAW

The Southeast Asian experience of employing the law to preserve biodiversity has suffered from many more failures than has the American ESA. In fact, the FWS has formally determined that the laws of Cambodia, China, and Vietnam are not adequate to preserve the countries' rare wildlife. The adequacy of existing regulatory mechanisms is one of the ESA's criteria for determining whether a species is endangered or threatened. Consider the giant ibis, which the FWS listed as endangered in 2008.²⁷⁹ The giant ibis is native to Cambodia and Vietnam,²⁸⁰ so the efficacy of Cambodian and Vietnamese law helped to decide whether the species should be listed under the American ESA. The FWS found that while several Cambodian laws protect the giant ibis from habitat destruction and hunting, those laws "are ineffective at reducing those threats."²⁸¹ At the Tonle Sap Great Lake protected area, the FWS praised Cambodian efforts that "have begun to improve the conservation situation there," but the FWS also noted that "several management challenges remain, including overexploitation of flooded forests and fisheries; negative impacts from invasive species; lack of monitoring and enforcement; low level of public awareness of biodiversity values; and uncoordinated research, monitoring, and evaluation of species' populations."²⁸² The FWS found evidence that "great strides have been made in training rangers and combating poaching."²⁸³ The FWS also found, though, that the country's wildlife protection office

278. See SAMUEL TURVEY, WITNESS TO EXTINCTION: HOW WE FAILED TO SAVE THE YANGTZE RIVER DOLPHIN (2008).

279. See Final Rule To List Six Foreign Birds as Endangered, 73 Fed. Reg. 3146 (Jan. 16, 2008) (to be codified at 50 C.F.R. pt. 17).

280. See *id.* at 3158 ("The giant ibis' current range is the mix of dry forest and freshwater swamp forest ecosystems of Cambodia, Lao PDR, and Vietnam; it is considered extirpated from Thailand."); see also *id.* at 3160 ("In 2005, the giant ibis was declared the national symbolic bird in Cambodia.").

281. *Id.* at 3163 ("[R]eports of severe hunting pressure within the giant ibis' habitat and illegal poaching of wildlife in Cambodia continue . . . [for example,] '[h]unters and dealers freely display[] the illegal materials and readily provide[] any details requested,' indicating a lack of wildlife laws awareness or inadequate law enforcement.").

282. *Id.* at 3164.

283. *Id.*

lacks the staff, technical ability and monetary support to conduct systematic surveys on the giant ibis. This, in turn, leads to ineffective monitoring and enforcement, and, consequently, resource use goes largely unregulated. Thus, the protected areas system in Cambodia is ineffective in removing or reducing the threats of habitat modification . . . and hunting . . . faced by the giant ibis.²⁸⁴

Likewise, the FWS found that the giant ibis is on Vietnam's list of endangered species and that "Vietnam's wildlife, including birds, continues to be susceptible to domestic consumption" despite a ban on hunting.²⁸⁵ Moreover, the FWS concluded that while Yok Don National Park provides habitat for the giant ibis, the park "apparently lacks specific regulations governing activities within the Park, and it is unclear what tangible protections, if any, are afforded the species in this area."²⁸⁶ "Furthermore, there are continued external threats to the biological resources in the park (*e.g.*, the proposed Ea Tung dam) . . . and hunting," which has been reported to be "a problem for wildlife within the Yok Don National Park."²⁸⁷ "Thus, the measures in place are ineffective at reducing the threats to this species."²⁸⁸

The FWS had the occasion to consider the efficacy of China's biodiversity laws when it listed the Tibetan antelope in 2006.²⁸⁹ The Tibetan antelope lives in China's Tibetan Plain, as well as small parts of India, and perhaps Nepal. "In China, the Tibetan antelope is a Class 1 protected species under the Law of the People's Republic of China on the Protection of Wildlife (1989), which prohibits all killing except by special permit from the central government."²⁹⁰ The FWS concluded that "[a]lthough China has expended considerable effort and resources in an attempt to control poaching, it has been unable to do so because of the magnitude of the poaching, the extensive geographic areas involved, and the high value of shahtoosh, which gives poachers great incentive to continue their illegal activities."²⁹¹

The FWS's recent ESA listings of the giant ibis and the Tibetan antelope demonstrate the inadequacy of biodiversity protection in

284. *Id.*

285. *Id.*

286. *Id.* at 3165.

287. *Id.*

288. *Id.*

289. See Final Rule To List the Tibetan Antelope as Endangered Throughout Its Range, 71 Fed. Reg. 15,620 (Mar. 29, 2006) (to be codified at 50 C.F.R. pt. 17).

290. *Id.* at 15,626.

291. *Id.*

Cambodia, China, and Vietnam.²⁹² The listings do not, however, prove that the ESA is more effective than the parallel Asian laws. But criticisms about funding, enforcement, corruption, and regulatory scope all point toward the conclusion that the ESA is a greater success than the laws in these four Southeast Asian nations.

The shortcomings of the ESA pale in comparison to the struggles of Asian nations to achieve the goals of their biodiversity laws. Inadequate funding is a chronic complaint about the administration of the ESA. The ESA is an unusual law whose scope depends upon funding. There are a number of cases regarding the effects of funding limits on listing species and critical habitat. The amount allotted may be inadequate to achieve the purposes of the ESA, but it is far greater than the money spent by China, Vietnam, Malaysia, and Cambodia.

Complaints that the ESA has failed to achieve habitat protection seem misplaced when compared to Asian biodiversity law. The effects of snowmobiling on endangered wildlife in Yellowstone National Park has elicited outrage and endless legal disputes.²⁹³ But the effects of snowmobiles are trivial compared to the housing developments that were built at the center of the Zhalong Nature Reserve, one of China's most important wetlands and the home to numerous species of rare cranes. Furthermore, the ESA's modest success in protecting biodiversity on privately-owned lands is far more impressive when compared to Asian nations, which do not provide any legal protection against activities that threaten ecosystems and habitats outside of the modest number of specifically protected areas. Malaysia's biodiversity policy, for example, expressly admits "that species endangered due to habitat destruction are not protected by way of a national law for endangered species."²⁹⁴ Americans worry that sprawl will eliminate biodiversity in Southern California, Florida, and a few other locations, but land is being developed far more rapidly in many parts of China, Malaysia, and Vietnam.

A similar pattern emerges in the respective allegations of corruption involving biodiversity law. Consider Julie McDonald, the Deputy Assistant Secretary of the Interior who was responsible for the administration of the ESA, who allegedly "bullied, insulted, and harassed" FWS employees whose scientific judgments sup-

292. See Final Rule to List 10 Foreign Mammals as Endangered Species, and Withdrawal of 1 Species, 49 Fed. Reg. 2779 (Jan. 23, 1984) (codified at 50 C.F.R. pt. 17) (showing that no Malaysian species has been listed under the ESA since the Singapore roundleaf horseshoe bat in 1984).

293. See *generally* Greater Yellowstone Coal. v. Kempthorne, 577 F. Supp. 2d 183 (D.D.C. 2008) (summarizing the Yellowstone National Park snowmobile dispute).

294. MALAYSIAN NATIONAL POLICY, *supra* note 176, at 14.

ported more aggressive listing and protection of species.²⁹⁵ McDonald's actions are troublesome, but they are trivial in comparison to the actions of Vietnamese local officials who not only refuse to enforce their country's laws, but actually *eat* the rare wildlife that those laws try to protect.

In each instance, the ESA is far more successful in preserving biodiversity than its Asian counterparts. But we *expect* our laws to be far more successful. Numerous scholars have explored the expectations that people have of the law. This research into "legal consciousness" posits that different people have different understandings and expectations of the law in different contexts. Scholars have concluded that "the law's power depends on the values, beliefs, and behavior of individuals."²⁹⁶ They have also found that "the law defines and constrains our choices and actions, but rarely does it directly determine them."²⁹⁷ Turning to specific instances, Frank Munger's study of legal consciousness in Thailand found that environmental law has developed there both because of increased exposure to environmental harms and because of a greatly expanded middle-class.²⁹⁸ In China, Mary Gallagher identified an "informed disenchantment" resulting from "raised legal consciousness in terms of knowledge about the law and feelings of greater efficacy and understanding of legal strategy with a concomitant sense of disappointment and frustration about inequities and dysfunctional aspects of China's developing legal system."²⁹⁹ But in the United States, anthropologist Sally Engle Merry sees much higher expectations of the law:

The consciousness of legal entitlement and the consequent turning to the law are profoundly democratic, radically egalitarian, and fundamentally American. This legal entitlement is an outgrowth of faith in the law, a faith observed early by Tocqueville and other commentators on the

295. OFFICE OF INSPECTOR GEN., DEP'T OF THE INTERIOR, INVESTIGATIVE REPORT ALLEGATIONS AGAINST JULIE McDONALD, DEPUTY ASSISTANT SECRETARY FISH, WILDLIFE AND PARKS 2 (2007); *see also* W. Watersheds Project v. U.S. Forest Serv., 535 F. Supp. 2d 1173, 1188 (D. Idaho 2007) (overturning the FWS's refusal to list a species because "McDonald had extensive involvement in the sage-grouse listing decision, used her intimidation tactics in this case, and altered the 'best science' to fit a not-warranted decision"); J.B. Ruhl, *Reconstructing the Wall of Virtue: Maxims for the Co-Evolution of Environmental Law and Environmental Science*, 37 ENVTL. L. 1063, 1078 (2007) (offering a perceptive analysis of the charges against McDonald).

296. Anna-Maria Marshall & Scott Barclay, *In Their Own Words: How Ordinary People Construct the Legal World*, 28 LAW & SOC. INQUIRY 617, 622 (2003).

297. *Id.* at 623.

298. *See* Frank Munger, *Constitutional Reform, Legal Consciousness, and Citizen Participation in Thailand*, 40 CORNELL INT'L L.J. 455, 470-72 (2007).

299. Mary E. Gallagher, *Mobilizing the Law in China: "Informed Disenchantment" and the Development of Legal Consciousness*, 40 LAW & SOC'Y REV. 783, 785-86 (2006).

American scene. Cultural values of autonomy, self-reliance, individualism, and tolerance have led local courthouses to become the nearest moral authority for dealing with family and neighborhood problems. The roots of this legal consciousness lie, I believe, in the historical American demand for tolerance and pluralism, which pressed toward a public life governed by codes of law and science rather than by religion or local morality.³⁰⁰

So the real question is not whether our laws have succeeded, but whether our expectations of the law are appropriate. What are the values of biodiversity? How does the importance of biodiversity compare to economic development, health care, and education? What trust do we place in the law to preserve biodiversity? What is the role of government enforcement of the law, as opposed to the symbolic importance of the law? What role do private actions, such as habitat acquisition and education, play in biodiversity preservation?

Americans are likely to answer many of these questions differently than the residents of Southeast Asia. Americans turn to the law to address most societal problems. Chinese, Vietnamese, Malaysians, and Cambodians have less of a legal tradition to rely upon, and they have a historical tradition of employing educational campaigns and social norms to achieve desired changes. The United States also enjoys more financial, technical, and professional resources than the developing countries of Southeast Asia, as well as less acute poverty that competes for limited resources. One could not expect a Chinese court, for example, to block a dam project because biodiversity must be protected "whatever the cost."³⁰¹ And biodiversity is less likely to be perceived as a resource to be exploited itself in the United States than in Southeast Asia. Such factors influence what different peoples expect of the laws governing biodiversity.

300. SALLY ENGLE MERRY, GETTING JUSTICE AND GETTING EVEN: LEGAL CONSCIOUSNESS AMONG WORKING-CLASS AMERICANS 181 (1990).

301. *Tenn. Valley Auth. v. Hill*, 437 U.S. 153 (1978).