

World Heritage in Danger in the Hotspots[†]

JOHN CHARLES KUNICH*

I. INTRODUCTION	619
II. THE BIODIVERSITY HOTSPOTS AND OTHER SYSTEMS FOR SETTING CONSERVATION PRIORITIES.....	620
A. <i>Listing the Hotspots</i>	620
B. <i>Alternative Approaches to Biodiversity Preservation</i>	628
III. THE WORLD HERITAGE CONVENTION AS A PART OF THE SOLUTION TO THE BIODIVERSITY CRISIS.....	634
IV. ADVANTAGES AND ENHANCEMENTS OF THE WORLD HERITAGE CONVENTION APPROACH	646
V. CONCLUSION	656

I. INTRODUCTION

The world's biodiversity is under siege. As with other sieges from history, the threatened areas are of quite limited geographical expanse, and the invading forces encroach from all sides. Time is short, and is on the side of the enemy, not those under siege. But there are differences between this siege and more familiar ones as well.

The current siege directly menaces living things other than humans; people are indeed threatened too, but more indirectly. And this is a siege in which the defenders are mostly unarmed. There is very little opposition to the forces choking off the besieged areas. They are slowed chiefly by their own whims, and limited mostly by the bounds of their own appetites for destruction and conquest.

In two previous articles and a book I have established the dearth of effective legal protection for the planet's biodiversity hotspots. There is no comprehensive, efficacious, enforceable legal mechanism in place, not in terms of United States legislation,¹ nor in international law or the laws of the various nations that are home to the hotspots.² This is a disastrous state of affairs, because the hotspots are the sole repository of an immense share of all remaining life on earth. If they are lost, countless species will vanish with them.³

In this Article, I will focus on the one international agreement that currently offers the greatest potential for safeguarding the hotspots. The World Heritage Convention could become an effective tool in the struggle to save the Earth's biodiversity, given

[†] Copyright 2002 John Charles Kunich. All rights reserved.

* Associate Professor of Law, Roger Williams University School of Law, Bristol, Rhode Island. B.S. 1975, University of Illinois at Chicago; M.S. 1979, University of Illinois at Chicago; J.D. 1985, Harvard Law School; LL.M. 1993, George Washington University School of Law. The author thanks his wife, Marcia Vigil, and their daughters, Christina Laurel Kunich and Julie-Kate Marva Kunich, for their love and support.

1. John Charles Kunich, *Preserving the Womb of the Unknown Species with Hotspots Legislation*, 52 HASTINGS L.J. 1149 (2001).

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

3. See generally JOHN CHARLES KUNICH, *ARK OF THE BROKEN COVENANT: LEGAL PROTECTION OF THE WORLD'S BIODIVERSITY HOTSPOTS* (forthcoming 2003).

the right concatenation of circumstances and decisions.

I will begin by summarizing the criteria used to identify hotspots, and listing the regions usually included. I will also describe the main alternatives to hotspots in terms of establishing optimal priorities for conservation efforts. Then I will examine the World Heritage Convention in detail, and discuss the shortcomings in the way it is now utilized. I will conclude with a discussion of the potential of this convention to transcend its past and become at least a considerable portion of a comprehensive antidote to the hotspots' peril.

II. THE BIODIVERSITY HOTSPOTS AND OTHER SYSTEMS FOR SETTING CONSERVATION PRIORITIES

A. Listing the Hotspots

I will now list the regions selected by the originator of the hotspot concept, Norman Myers, as well as those subsequently chosen by Conservation International ("CI"), the leading international nongovernmental environmental organization in the realm of hotspots preservation. The following is a summary and harmonization of those two lists. Myers identified ten hotspots in his 1988 study,⁴ and eight more in his 1990 work.⁵ CI has adopted or incorporated most of these, and added several more in consultation with Dr. Myers.

As the hotspots concept has evolved, the criteria are now as follows. To be considered a hotspot, the region must exhibit at least 0.5% of total global vascular plant species endemic to the area, based on an estimate global total of approximately 300,000 vascular plant species (revised upward from the previous estimate of 250,000 based on recent data).⁶ That means a region must contain roughly 1500 endemic species of vascular plants to qualify as a hotspot. The sheer numbers of such species (species diversity) are also considered. Secondly, there should be a significant extent of endemism and diversity among "nonfish vertebrates," that is, birds, mammals, reptiles, and amphibians, of which there are some 27,298 worldwide; where available, invertebrate data also should be evaluated.⁷

Vascular plants are used as a major indicator of overall biodiversity in the hotspots approach, as well as in some other prominent methods of priority-setting to be discussed later in this section of the Article, because they are found throughout the regions and habitats of the planet. They have dispersed and diversified to fill virtually every niche, and so are there to serve as barometers of biodiversity. They are comparatively well known as to their distribution and range, with reasonably reliable information as to their conservation status.⁸ They are also obviously linked to very

4. Norman Myers, *Threatened Biotas: "Hot Spots" in Tropical Forests*, 8 ENVIRONMENTALIST 187-208 (1988).

5. Norman Myers, *The Biodiversity Challenge: Expanded Hot-Spots Analysis*, 10 ENVIRONMENTALIST 243-56 (1990).

6. RUSSELL A. MITTERMEIER ET AL., HOTSPOTS: EARTH'S BIOLOGICALLY RICHEST AND MOST ENDANGERED TERRESTRIAL ECOREGIONS 29 (2000) [hereinafter HOTSPOTS].

7. *Id.* at 29-30.

8. See Myers, *supra* note 5, at 244.

many other life forms, because they are the primary fixers of solar energy and the food source for all herbivores as well as an important nutrient source for many omnivores; as such, plants are essential to the survival of most other organisms. They are also connected to many other species through the processes of pollination and seed/fruit dispersal. And, because of the large number of described species of vascular plants, there is a statistically reliable basis for data-driven analysis of rates of endemism and other key attributes.

Endemism is the main criterion, as complemented by species diversity and ecosystem diversity, because endemic species are often the first to be driven into extinction by human activities.⁹ Also, endemic species clearly highlight the importance of a region, because, by definition, they are found nowhere else; their survival is directly linked to the hotspot in question, with no room for equivocation.¹⁰

Hotspots analysis supplements vascular plant data with similar information regarding nonfish vertebrates and, where available, invertebrates. Many of these are, like the higher plants, among the better-known, more well-understood life forms, and provide a useful additional window into the overall biodiversity of any given region. The analysis is primarily species-based (species endemism and species diversity), as is the case with most but not all of the alternative approaches discussed hereinafter, because species are the most basic, recognizable taxa that lend themselves to biodiversity analysis. However, hotspots methodology also acknowledges the importance of considering phyletic or higher-taxa diversity, usually at the family level, as well as beta/ecosystem diversity, and such information is used in concert with the other data where available.¹¹

In addition to these biological criteria, there is a criterion pertaining to the degree of threat to the area, that is, whether it has already lost 75% or more of its original primary natural vegetation cover.¹² The biological criteria are used to arrive at a first-cut list of regions, which is then refined using degree of threat during a second level of analysis.¹³ Social, economic, and political factors combine to influence the degree of threat, with the most severely imperiled regions garnering the most urgent attention, all else being equal. As a secondary analytical layer, consideration of these factors is useful in determining the appropriate conservation strategy, but the biological criteria are always paramount in hotspots analysis. In other words, no area should be left out on the basis of political difficulty or a judgment that it is futile to intervene in light of so much prior devastation.¹⁴

Scientific difficulty is another matter. Thus far, hotspots analysis has remained focused on terrestrial rather than marine habitats. Philosophically, there is no reason not to include marine regions, even the depths of the ocean, within the global list of key biodiversity centers. Whether there is currently sufficient scientific information about the marine realm to enable us to assess with some confidence the relative importance of its vast, multitudinous habitats is a matter open to vigorous debate. We

9. See Stuart L. Pimm & Robert A. Askins, *Forest Losses Predict Bird Extinctions in Eastern North America*, 92 PROC. NAT'L ACAD. SCI. U.S. AM. 9343, 9347 (1995).

10. HOTSPOTS, *supra* note 6, at 27.

11. *Id.*

12. *Id.* at 29.

13. *Id.* at 29-31.

14. *Id.* at 29.

do know, of course, that human-induced threat is more direct, intense, and immediate in the terrestrial regions, at least insofar as there are no people living in, and comparatively few working in, the marine portions of the planet. Oil spills and other forms of pollution, overharvesting of commercially valuable fish and other species, and other forces do, of course, take a heavy toll on marine biodiversity. Undoubtedly, the deep oceans are among the last true frontiers of the globe, largely unexplored, and the repositories of some of the greatest secrets of life among their presumably legion unknown species. Consequently, over time, key marine regions may in fact be added to the hotspots list. Indeed, CI has begun to focus on "key marine areas" in addition to the terrestrial hotspots.¹⁵

The following list of hotspots is the result of years of analysis along the lines we have outlined. The list is presented in no particular hierarchical order.

(1) *Madagascar*. Myers (1988) identified the eastern rainforest region, while CI includes all of the large island of Madagascar plus the nearby Indian Ocean islands, including the Seychelles, as part of one hotspot.¹⁶ Most of the plant and animal species in Madagascar evolved apart from the rest of the world and are unique to the island, similar to the situation in Australia, New Zealand, Papua New Guinea and other major islands.¹⁷ This hotspot features spectacular endemism not only at the species level but also in the genus and family categories.¹⁸ It has been called "a unique evolutionary experiment, a living laboratory unlike any place else on Earth."¹⁹ "Of the estimated 10,000-12,000 species of flowering plants, more than 80%" are endemic to Madagascar,²⁰ and a stunning total of 260 genera and ten families are also endemic.²¹ This spectacular hotspot also features 250 endemic species of diurnal butterflies, 78 endemic mammals, 115 endemic birds, 274 endemic reptiles, and 176 endemic amphibians.²² The extraordinary insects of Madagascar are of particular interest to this author, because of my extensive experience in entomology;²³ some of the most unusual and beautiful insect species in the entire world are found only on this island, including the Sunset Moth and the Comet Moth.

(2) *Atlantic Coast Brazil/Atlantic Forest Region*. Myers (1988) focused on the coastal lowlands portion of Brazil's Atlantic rainforest.²⁴ CI expands this hotspot to include the interior portions of the Atlantic forest, especially the mountains of the Serra

15. For recent CI efforts to identify and evaluate some of the world's key marine areas, see http://www.conservation.org/xp/CIWEB/strategies/marine_ecosystems/marine_ecosystems.xml.

16. HOTSPOTS, *supra* note 6, at 189-200.

17. *Id.* at 189.

18. *Id.*

19. *Id.*

20. *Id.*

21. *Id.* at 190.

22. *Id.* This means that Madagascar contains as endemics 2.8% of all the nonfish vertebrates of the world. Only the Tropical Andes, the Caribbean, and Mesoamerica have a higher percentage. *Id.*

23. See generally BERNARD K. GREENBERG & JOHN CHARLES KUNICH, ENTOMOLOGY AND THE LAW: FLIES AS FORENSIC INDICATORS (2002). The author here has found respite from the somewhat grotesque throes of forensic entomology in the stunningly beautiful butterflies and moths of the world, such as those of Madagascar.

24. HOTSPOTS, *supra* note 6, at 30.

do Mar and associated ranges inland from the coast, plus western extensions of the Atlantic forest into eastern Paraguay and the Province of Misiones in Argentina.²⁵ This is one of the two major rainforest areas within Brazil, and can be ranked among the top five of all hotspots on a wide variety of factors; its plant diversity alone includes some 6000 endemics.²⁶ "Geographically isolated from the Amazonian forests to the north and west," this is one of the greatest centers of biodiversity in the world.²⁷ Of the region's 280 amphibian species, 253 are endemic—an incredible 90.4% endemism rate.²⁸

(3) *Western Ecuador/Choco-Darien-Western Ecuador*. Myers (1988) identified the lowland rainforests, which CI expanded to include the dry forests, as well as the continuation of these forests into northwestern coastal Peru and the Choco region of Colombia, the latter of which was considered a separate hotspot by Myers.²⁹ "The [great] variety of ecosystem types present in such a limited geographic area has given rise to high levels of diversity and endemism."³⁰ The forested regions of the lowlands and foothills of Ecuador west of the Andes once contained about 10,000 plant species, but have been almost totally deforested, bringing this area to an extreme crisis situation.³¹

(4) *Western Amazonia Uplands/Tropical Andes*. Myers (1988) highlighted the enormous importance of this hotspot, terming it "a kind of global epicenter of biodiversity."³² CI calls this region "the Tropical Andes" and expands it to include higher-altitude areas as well as several Andean outliers such as the Sierra de la Macarena and the Sierra Nevada de Santa Maria, plus portions of the northern Venezuela montane.³³ This one hotspot alone is home to at least 45,000 plant species (15-17% of the world's total),³⁴ of which 20,000 are endemic (7.4% of the global total)—by far the highest of any hotspot.³⁵ This "means that nearly 7% of all the vascular plants worldwide are endemic to just the 0.8% of the planet's land surface represented by the Tropical Andes."³⁶ There is also an amazing degree of diversity and endemism among amphibians, reptiles, and birds; overall, this hotspot harbors 3389 known species of nonfish vertebrates, of which 1567 (46.2%) are endemic.³⁷ It should be obvious why this has been called "the richest and most diverse biodiversity hotspot on Earth."³⁸

25. *Id.* at 30, 137-44.

26. *Id.* at 137.

27. EDWARD O. WILSON, *THE DIVERSITY OF LIFE* 264-66 (1992).

28. *See* HOTSPOTS, *supra* note 6, at 137.

29. *Id.* at 30, 123-30. CI calls the combined hotspot Choco-Darien-Western Ecuador. *Id.*

30. *Id.* at 124.

31. *See* WILSON, *supra* note 27, at 264.

32. HOTSPOTS, *supra* note 6, at 30.

33. *Id.* at 30, 69-82.

34. *Id.* at 73.

35. Russell A. Mittermeier et al., *Biodiversity Hotspots and Major Tropical Wilderness Areas: Approaches to Setting Conservation Priorities*, 12 *CONSERVATION BIOLOGY* 516, 518 (1998).

36. HOTSPOTS, *supra* note 6, at 73.

37. *Id.* at 73-74. As a point of comparison, these vertebrate numbers are 530 more total species and 408 more endemics than are found in the next richest hotspot. *Id.* at 74.

38. *Id.* at 69.

(5) *Eastern Himalayas/Mountains of South-Central China*. Myers's (1988) hotspot was divided by CI into two hotspots, the Mountains of South-Central China³⁹ and Indo-Burma.⁴⁰ CI also added much more territory to both.⁴¹ As defined by CI, the Mountains of South-Central China include about 3500 species of endemic vascular plants, as well as great diversity and endemism among vertebrates and other taxa.⁴²

(6) *Peninsular Malaysia/Northern Borneo/Sundaland*. Myers's (1988) hotspot was combined by CI with the large islands of western Indonesia and East Malaysia to form one very large hotspot, which they call Sundaland.⁴³ Sundaland defies precise estimates of biodiversity, but reasonable extrapolations from available data indicate that this is one of the hottest of the hotspots. A conservative estimate is that Sundaland is home to 15,000 endemic vascular plant species, 115 endemic mammals, and very high endemism rates in other taxa as well.⁴⁴

(7) *Philippines*. Myers (1988) and CI agree that the islands that constitute the 7000-plus islands of the Philippines, in their entirety, should be considered a hotspot.⁴⁵ This is undoubtedly one of the preeminent hotspots, featuring 518 endemic species of nonfish vertebrates, approximately 50% endemism among its 8000-plus species of plants, and 352 endemic butterfly species.⁴⁶ The biodiversity of the Philippines is especially amazing in light of its relatively small land mass. "It is by far the smallest of the top nine hotspots that have within their borders at least 2% of higher plants and/or 2% of nonfish vertebrates, [worldwide], as endemics."⁴⁷ Tragically, this hotspot is "at the edge of a full-scale biodiversity collapse."⁴⁸

(8) *New Caledonia*. As with the Philippines, Myers (1988) and CI concur in deeming the entire entity a hotspot.⁴⁹ Island-derived extinction rate predictions should apply. One of the smallest of the hotspots, this region features some of the highest levels of endemism, particularly among plants. It contains 3322 vascular plant species, of which an amazing 2551 (76.8%) are endemics, and there are five entire families of plants endemic to this hotspot—truly impressive considering the smallness of the geographical area.⁵⁰

(9) *Southwestern Ivory Coast/Guinean Forests of West Africa*. Myers (1990) focused on the Tai Forest, while CI adds all of the Guinean Forests of West Africa, plus four islands in the Gulf of Guinea.⁵¹ The islands alone contain large numbers of

39. *Id.* at 30, 339-50.

40. *Id.* at 30, 319-34. As defined by CI, the Indo-Burma hotspot is an area of great unknowns, but a conservative estimate is that the hotspot contains about 13,500 species of vascular plants, with an endemism rate of 51.9%. The vertebrate fauna is also very diverse. *Id.* at 321.

41. *Id.* at 30.

42. *Id.* at 341. See also WILSON, *supra* note 27, at 267.

43. HOTSPOTS, *supra* note 6, at 30, 279-90.

44. *Id.* at 282. See also WILSON, *supra* note 27, at 268.

45. HOTSPOTS, *supra* note 6, at 30, 309-15.

46. *Id.* at 310-11.

47. *Id.* at 311.

48. WILSON, *supra* note 27, at 268.

49. HOTSPOTS, *supra* note 6, at 30, 367-76.

50. *Id.* at 367.

51. *Id.* at 30, 239-49.

endemic species, and the endemism rate overall for this hotspot is very high.⁵² The forest is severely threatened, with "extreme habitat fragmentation and degradation throughout most of the region."⁵³

(10) *Eastern Arc Mountains and Coastal Forests of Tanzania/Kenya*. CI expands Myers (1990) by including the Coastal Forests of Tanzania and neighboring portions of Kenya.⁵⁴ This hotspot contains 13% of all mainland tropical Africa's 30,000 plant species in just 0.1% of the region's expanse, along with a 35% endemism rate among its 1400 plant species.⁵⁵

(11) *Western Ghats of India and Sri Lanka*. CI modifies the work of Myers (1990) by combining this area with Sri Lanka and considering the resulting region a single hotspot.⁵⁶ As defined by CI, the combined hotspot contains at least 4780 species of vascular plants, of which about 2180 (45.6%) are endemic.⁵⁷

(12) *Cape Floristic Province of South Africa*. Myers (1990) and CI concur on the global importance of this hotspot.⁵⁸ This region boasts the greatest extratropical concentration of higher plant species on the planet, with 8200 species, 5682 of which are endemic. There is also a phenomenal endemism rate at the genus and family levels, equaled only by Madagascar and New Caledonia.⁵⁹

(13) *Southwestern Australia*. CI slightly expands Myers (1990) as to this hotspot.⁶⁰ Millions of years of isolation have produced extremely high levels of endemism, including 79.2% of plant species (4331 endemics out of a total of 5469).⁶¹

(14) *California Floristic Province*. Myers (1990) and CI agree as to the importance of this hotspot.⁶² This Mediterranean-type ecosystem is one of the few that are situated mainly within the borders of a developed country. It is home to 4426 species of higher plants of which 48% are endemic, as well as more than 30% of all known insect species in North America north of Mexico.⁶³ It also contains about 25% of all the plant species found in the United States and Canada combined.⁶⁴

(15) *Central Chile*. Myers (1990) limited this hotspot to the Mediterranean-type area of Central Chile, while CI includes the Winter Rainfall Desert region as well.⁶⁵ It contains 3429 identified species of plants of which 46.8% are endemic.⁶⁶

(16) *Hawaii/Polynesia/Micronesia*. Myers (1988) recognized the significance of this region, and CI has included it in the larger Polynesia/Micronesia hotspot.⁶⁷ The

52. *Id.* at 240.

53. *Id.* at 247. See also WILSON, *supra* note 27, at 266.

54. HOTSPOTS, *supra* note 6, at 30, 205-13.

55. *Id.* at 205.

56. *Id.* at 30, 353-63.

57. *Id.* at 354-57. See also WILSON, *supra* note 27, at 267-68.

58. HOTSPOTS, *supra* note 6, at 30-31, 219-26.

59. *Id.* at 219.

60. *Id.* at 31, 405-14.

61. *Id.* at 407.

62. *Id.* at 31, 177-84.

63. *Id.* at 177-78.

64. See WILSON, *supra* note 27, at 261.

65. HOTSPOTS, *supra* note 6, at 31, 161-71.

66. *Id.* at 161.

67. *Id.* at 31, 391-401. As defined by CI, the entire Polynesia/Micronesia hotspot includes about 6557 species of vascular plants of which 3334 (51%) are endemics. *Id.* at 392.

Hawaiian Islands alone contain 386 wetlands.⁶⁸ The biodiversity in Hawaii is under intense pressure and has already experienced severe losses.⁶⁹ Overall, the combined Polynesia/Micronesia hotspot boasts 3334 endemic species of plants out of a total of 6557 (an endemism rate of 50.8%), and 223 endemic nonfish vertebrates of a total of 342 (a 65% rate).⁷⁰

(17) *Mesoamerica*. This hotspot was added, in its entirety, by CI.⁷¹ This hotspot includes "all tropical and subtropical natural plant formations from the Panama Canal west and north through Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, and Belize, and extending into southern and central Mexico . . . as far as the middle of the Sierra Madre Oriental."⁷² In terms of global biodiversity, it is one of the most significant of all the hotspots, ranking with the Tropical Andes and Sundaland.⁷³ There are an estimated 24,000 vascular plant species, of which about 5000 (21%) are endemic, and 521 mammal species, with an extremely high 210 (40.3%) endemic.⁷⁴ Overall, this hotspot harbors 2859 nonfish vertebrate species, of which an astonishing total of 1159 (40.5%) are endemic.⁷⁵

(18) *Caribbean*. This hotspot was also added by CI.⁷⁶ It encompasses all of the Greater and Lesser Antilles, the Bahamas, the Turks and Caicos Islands, plus subtropical Florida from Lake Okeechobee south through the Everglades and into the Florida Keys.⁷⁷ Island-derived extinction rate predictions should apply. Plant diversity and endemism are both very high, with an estimated 7000 endemic species out of a total of 12,000 (58% endemism).⁷⁸ For nonfish vertebrates, 779 out of 1518 species are endemic (51%), including 164 of 189 amphibians (86.7%).⁷⁹

(19) *Brazilian Cerrado*. This hotspot was also added by CI.⁸⁰ Occupying the central Brazilian plateau, this is the only hotspot that consists mostly of savanna, woodland/savanna, and dry forest ecosystems.⁸¹ Total plant diversity has been estimated at 10,000 species, with 44% endemic to this hotspot.⁸²

(20) *Mediterranean Basin*. Added by CI. This is a huge hotspot, encompassing all of Cyprus and most of Greece, Lebanon, and Portugal, as well as smaller parts of France, Algeria, Libya, Spain, Israel, and Morocco.⁸³ The Mediterranean Basin hotspot features some 13,000 endemic plant species (4.8% of the global total) and 25,000 species of plants overall.⁸⁴

68. *Id.* at 392.

69. *See id.*

70. *Id.* at 37.

71. *Id.* at 31, 87-102.

72. *Id.* at 87.

73. *Id.*

74. *Id.* at 88-89.

75. *Id.* at 89.

76. *Id.* at 31, 109-20.

77. *Id.* at 109.

78. *Id.* at 111.

79. *Id.* at 37.

80. *Id.* at 31, 109-20.

81. *Id.* at 31, 149-55.

82. *Id.* at 149-51.

83. *Id.* at 31, 255-65.

84. Mittermeier et al., *supra* note 35, at 518.

(21) *Caucasus*. This hotspot was also added by CI.⁸⁵ It includes portions of Azerbaijan, Georgia, Chechenia, Ingushetia, Northern Osetia, Kabardino-Balkaria, Karachai-Cherkesia, and Adigea Autonomous Republics, plus northeastern Turkey and a small part of northwestern Iran.⁸⁶ About 6300 plant species have been recorded in this hotspot, with at least 1600 of them endemic.⁸⁷

(22) *New Zealand*. This hotspot was also added by CI.⁸⁸ This large island is the only hotspot that encompasses the entire land area of a developed nation.⁸⁹ Although the absolute numbers of species are relatively modest for both plants and vertebrates, there are extremely high endemism rates. At least 2085 species of plants (approximately 61-68% endemism) are found here and nowhere else,⁹⁰ as are 136 nonfish vertebrates (62.7% endemism).⁹¹

(23) *Succulent Karoo of South Africa*. This hotspot was also added by CI.⁹² This is the only hotspot that is entirely arid.⁹³ It is home to 4849 species of vascular plants, of which 1940 (40%) are endemic. It is also a center of diversity for many kinds of invertebrates and reptiles.⁹⁴

(24) *Wallacea*. This hotspot was also added by CI.⁹⁵ It includes the large island of Sulawesi, the various islands to the east of Sulawesi (generally known as the Moluccas or Spice Islands or Maluku), and the "Banda Arc" of islands, the Lesser Sundas or Nusa Tenggara, situated to the south of Sulawesi and the Moluccas.⁹⁶ This hotspot consists mostly of tropical rainforest, inhabited by 201 mammalian species with an endemism rate of at least 61.2%. Wallacea also features 697 species of birds with a 35.7% endemism rate.⁹⁷

(25) *Indo-Burma*. Modified and expanded by CI from Myers's Eastern Himalayas hotspot (1988). This consists of tropical Asia east of the Indian subcontinent, excluding the Malesian region. It encompasses the nations of Vietnam, Cambodia, Laos, Thailand, and Myanmar/Burma, inter alia.⁹⁸ There are approximately 13,500 species of higher plants here, of which some 7000, or 51.9%, are endemic.⁹⁹ The non-marine vertebrate fauna is also very diverse, with 73 species and eight genera of endemic mammals, 1170 species of birds, 484 species and 143 genera of reptiles, and a host of others.¹⁰⁰ This region is not well studied, and, because of the large amounts of heavily forested territory, there may be many species yet to be identified.

85. HOTSPOTS, *supra* note 6, at 31, 109-20.

86. *Id.* at 31, 269-73.

87. *Id.* at 270.

88. *Id.* at 31, 109-20.

89. *Id.* at 31, 379-87.

90. *Id.* at 380.

91. *Id.* at 37.

92. *Id.* at 31, 109-20.

93. *Id.* at 31, 229-34.

94. *Id.* at 229.

95. *Id.* at 31, 109-20.

96. *Id.* at 31, 297-304.

97. *Id.* at 298-300.

98. *Id.* at 319.

99. *Id.* at 321.

100. *Id.*

Taken in the aggregate, these twenty-five hotspots encompass *all* of the remaining habitats of 133,149 identified plant species (44% of the world's total) and 9645 nonfish vertebrate species (35% of the world's total).¹⁰¹ These endemic species are crowded into an aggregate expanse of 2.14 million square kilometers, or only 1.44% of the Earth's land surface, while at one time they occupied 17.4 million square kilometers, 11.8% of the planet's land surface.¹⁰² The hotspots' remaining global area is roughly equivalent to that of Alaska and Texas combined.¹⁰³ They have already lost 88% of their primary vegetation and are likely, absent greatly increased conservation efforts, to lose much more in the foreseeable future.¹⁰⁴

These hotspots feature a great diversity of habitat type. Most contain some tropical forest, which appears in fifteen of the hotspots. Nine are mainly or entirely made up of islands, and almost all tropical islands belong in a hotspot. Sixteen hotspots are in the tropics, three consist of temperate forest and grasslands, and five are in Mediterranean-type zones.¹⁰⁵

Ecologists generally place a great deal of emphasis on degree of endemism as the principal criterion for hotspot status, because endemics are entirely dependent on a single area for survival.¹⁰⁶ Endemics, because of their restricted ranges, are often among the most vulnerable species in any ecosystem and are most in need of swift and effective conservation action. The hotspots listed here contain around 44% of all plant species identified as endemics—an enormous number of which are found only in the hotspots *and nowhere else*.¹⁰⁷ Also, 53.8% of all known species of amphibians, 37.8% of reptiles, 29.2% of mammals, and 27.8% of birds are entirely limited to the hotspots.¹⁰⁸ The hotspots are home to 81.6% of endangered bird species and 57.5% of endangered mammal species.¹⁰⁹ If we develop, contaminate, or otherwise damage the 1.44% of the Earth's land surface on which these hotspots cling to life, we can expect the concomitant loss of incredible numbers of species.

B. Alternative Approaches to Biodiversity Preservation

As I have mentioned, the hotspots concept has only been part of the debate since 1988. There are certainly other scientifically valid methods of setting priorities for biodiversity preservation, and the hotspots approach must be considered within this broader context. Some of these alternatives are briefly summarized here; there is a large body of scientific literature within which the relative strengths and limitations of the various priority-setting approaches have been examined in depth, and I cite some examples.

101. Norman Myers et al., *Biodiversity Hotspots for Conservation Priorities*, 403 NATURE 853, 855 (2000).

102. *Id.*

103. HOTSPOTS, *supra* note 6, at 34.

104. Myers et al., *supra* note 101, at 855.

105. *Id.*

106. Mittermeier et al., *supra* note 35, at 517.

107. *Id.*

108. HOTSPOTS, *supra* note 6, at 37.

109. *Id.* at 58. These data include species listed as either critically endangered or endangered by the International Union for Conservation of Nature and Natural Resources.

All of the area-based (as opposed to single-species) approaches to assessing priorities involve either explicit or implicit judgments about the relative importance of several attributes of biodiversity within any given region. These include the richness of the region, that is, how many different species live within it; the representativity, or how well it holds the key habitats and species that are representative of a wider area; the uniqueness, as in the number of endemic species present or the number of limited-extent ecosystems; the degree of threat, as often expressed in numbers of endangered and threatened species present and/or the extent to which original habitat has been reduced; its genetic contribution, as reflected in some calculation of the taxonomic distinctiveness of the species present; and its population value, as demonstrated by the numbers of individuals present for the species contained in the region.¹¹⁰

The World Wide Fund for Nature ("WWF") and the World Conservation Union ("IUCN") have cooperated to develop a list of "centers of plant diversity" ("CPDs").¹¹¹ This list of the most vital concentrations of plant species on a global basis is the result of a massive project involving numerous experts and workshops, including many on a national/local level. A total of 234 centers of plant diversity have been identified by WWF and IUCN, worldwide.¹¹² Of these, six are located in North America (apart from Mesoamerica, which has twenty), nine in Europe, fourteen in Australia and New Zealand, twenty-one in China/East Asia, thirty in Africa, forty-one in Southeast Asia/Malaysia, and forty-six in South America, among others.¹¹³

The criteria for a CPD are principally that a given area is evidently species-rich in plants, even though the number of species present may not be accurately known, and that the area is known to contain a large number of endemic plant species.¹¹⁴ In addition to these criteria, consideration is also given to the degree and imminence of threat to the site of large-scale devastation, and the extent to which the site contains: an important gene pool of plants of current or potential value to humans; a diverse range of habitat types; and/or a significant proportion of plant species adapted to special conditions.¹¹⁵ Plants were chosen as indicators of global biodiversity mainly because they are virtually ubiquitous across the entire range of terrestrial habitats in all regions of the world, and they constitute the "background habitat" for vast numbers of other species, serving as a food source for most, and interacting with many in pollination and fruit/seed dispersal.¹¹⁶

A similar method along the general lines of the centers of plant diversity, and another significant alternative to the hotspots approach, has been advanced by BirdLife

110. See ALISON J. STATTERSFIELD ET AL., ENDEMIC BIRD AREAS OF THE WORLD: PRIORITIES FOR BIODIVERSITY CONSERVATION 16-18 (1998).

111. 1-3 CENTRES OF PLANT DIVERSITY: A GUIDE AND STRATEGY FOR THEIR CONSERVATION, (Stephan D. Davis et al., eds. 1994-97). Volume 1 (1994) covers Europe, Africa, Southwest Asia, and the Middle East. Volume 2 (1995) examines Asia, Australasia, and the Pacific. Volume 3 (1997) deals with the Americas.

112. 1 *id.* at 3-7.

113. 1 *id.* at 7. The CPDs are presented, in tabular form, 1 *id.* at 10-36, with a summary of information pertaining to each.

114. 1 *id.* at 6.

115. 1 *id.* at 6-10.

116. 1 *id.* at 1. These same factors are why the hotspots approach relies heavily on endemism rates and diversity of vascular plants in arriving at first-order lists of possible hotspots.

International.¹¹⁷ This organization focuses on “restricted-range” bird species, the approximately 2623 species (27% of all birds) that have breeding ranges of less than 50,000 square kilometers.¹¹⁸ In other words, these are birds endemic to fairly limited regions. Birds are considered valuable indicators of biodiversity because they have dispersed to and diversified in all of the world’s regions and nearly all types of terrestrial habitats, are the best known and documented major taxonomic group, are represented by a manageable number of species (about 10,000 avian species worldwide as compared to at least 250,000 species of vascular plants), are sensitive to environmental disturbance, and enjoy widespread popular appeal, thereby making good flagship species for rallying public support.¹¹⁹

BirdLife International has used a multistep method to compile a list of 218 Endemic Bird Areas (“EBAs”) of primary importance which are home to about 93% of the restricted-range bird species, as well as 138 Secondary Endemic Bird Areas of somewhat lesser importance, and to rank the overall priority of EBAs as critical, urgent, or high according to numerical scores for biological importance and current threat level.¹²⁰ The EBAs are located throughout the world, but 77% are in the tropics and subtropics and the dominant habitat is forest (83%).¹²¹ The top countries for EBAs, with more than ten each, are Indonesia, Mexico, Brazil, Peru, Colombia, Papua New Guinea, and China.¹²²

A third prominent alternative is posited by the World Wildlife Fund and the World Wide Fund for Nature, which have published the “List of Global 200 Ecoregions.”¹²³ The Global 200 list attempts to include representatives of significant biome types, both terrestrial and aquatic, including marine areas. The WWF list of 200 priority areas includes 136 terrestrial, 36 freshwater, and 61 marine zones or ecoregions.¹²⁴ The central idea behind this “representation” approach is that by conserving the broadest variety of the world’s habitats, we can conserve the broadest variety of the world’s species and most endangered wildlife, as well as higher expressions of life on the Earth—whole communities and ecosystems, wherever they might be situated. The inclusion of marine ecoregions sets Global 200 apart from hotspots analysis and the other main paradigms outlined herein.

The Global 200 approach differs from that reflected in the hotspots and other

117. See STATTERSFIELD ET AL., *supra* note 110, at 50. About 70% of the centers of plant diversity overlap in some way with endemic bird areas, and 60% of endemic bird areas overlap with centers of plant diversity. However, only about 10% actually match, and the most common relationship is one of only partial overlap. *Id.*

118. *Id.* at 21-23.

119. *Id.* at 45.

120. *Id.* at 19-38, 39-43.

121. *Id.* at 10-11, 29-31.

122. *Id.* at 10, 36-38. In terms of the highest numbers of threatened restricted-range bird species, the list is topped by Philippines, Indonesia, Brazil, Colombia, Peru, Ecuador, China, United States, Madagascar, and Mexico.

123. David M. Olson & Eric Dinerstein, *The Global 200: A Representation Approach to Conserving the Earth's Most Biologically Valuable Ecoregions*, 12 CONSERVATION BIOLOGY 502 (1998).

124. *Id.* at 509. Ecoregions are defined as relatively large units of land or water containing a characteristic set of natural communities that share a large majority of their species, dynamics, and environmental conditions. *Id.* at 502.

methods already mentioned here in another key respect as well, in that it emphasizes breadth of genetic variation and representation of outstanding examples of each major habitat type ("MHT") (such as coral reefs, tropical dry forests, large lakes, etc.),¹²⁵ rather than the greatest concentrations of endemic species, total numbers of species, and/or the most threatened areas. Within each MHT and biogeographic realm, these factors do play a role, as ecoregions are classified on the basis of their biological distinctiveness, as determined by species richness, endemism, taxonomic uniqueness, unusual ecological or evolutionary phenomena, and global rarity of MHT.¹²⁶

Global 200 is guided by the idea that it may be more important to preserve the widest possible range of taxonomic variation as opposed to the most species, and that, at a minimum, we should ensure that all major ecosystem and habitat types are represented within our conservation strategies. The concept is that, in terms of protecting and possibly using genetic resources, saving representatives of many different species, genera, and families evolutionarily adapted for life within well-chosen representatives of the various MHTs could be of more value than focusing largely on tropical ecosystems that might contain numerous endemic species, but not necessarily an extraordinary number of higher taxa.¹²⁷ This method is designed to integrate the goal of maintaining species diversity with another level of conservation action, that is, the preservation of distinct ecosystems and ecological processes.

Some researchers have advanced the concept of "complementary areas" as an aid to selecting high-priority areas for conservation.¹²⁸ The idea is that, where the identities of species or other biodiversity surrogates are known, we should select areas that, in combination, have the highest representation of diversity.¹²⁹ Complementary analysis attempts to determine the most efficient methods of including substantially all of a given set of species within a particular network of protected areas; that is, it attempts to represent a maximum of diversity in the minimum number of sites.¹³⁰ Several

125. *Id.* at 502. Researchers in this field have identified twelve MHTs in the terrestrial realm, three in the fresh water, and four in the marine realm, which have been further subdivided by biogeographic realm. *Id.*; see also DAVID M. OLSON ET AL., GLOBAL 200 ECOREGIONS MAP (World Wildlife Fund) (1997), available at <http://www.worldwildlife.org/wildworld>.

126. Olson & Dinerstein, *supra* note 123, at 509. Biological distinctiveness is used to evaluate the relative importance and rarity of each ecoregion and estimate the urgency of conservation action based on the opportunities for saving distinct areas around the world. Ecoregions are classified as either globally outstanding, regionally outstanding, bioregionally outstanding, or locally important. *Id.*

127. *Id.* For a comparison of BirdLife International's EBAs and the Global 200 ecoregions, see STATTERSFIELD ET AL., *supra* note 110, at 48.

128. See, e.g., Paul H. Williams, *Key Sites for Conservation: Area-Selection Methods for Biodiversity*, in CONSERVATION IN A CHANGING WORLD 211 (Georgina M. Mace et al. eds., 1998); Peter C. Howard et al., *Complementarity and the Use of Indicator Groups for Reserve Selection in Uganda*, 394 NATURE 472 (1998); R.L. Pressey et al., *Beyond Opportunism: Key Principles for Systematic Reserve Selection*, 8 TRENDS ECOLOGY EVOLUTION 124 (1993); C.R. Margules & R.L. Pressey, *Systematic Conservation Planning*, 405 NATURE 243 (2000).

129. See, e.g., Blair Csuti et al., *A Comparison of Reserve Selection Algorithms Using Data on Terrestrial Vertebrates in Oregon*, 80 BIOLOGICAL CONSERVATION 83 (1997); R.I. Vane-Wright et al., *What to Protect?—Systematics and the Agony of Choice*, 55 BIOLOGICAL CONSERVATION 235 (1991).

130. R.L. Pressey & A.O. Nicholls, *Efficiency in Conservation Evaluation: Scoring Versus*

computerized algorithms have been developed to perform this analysis on any scale, usually by first choosing the most diverse area and then the area with the largest number of selected species not included within the first area, and so on, until all applicable species are represented.¹³¹ This is related to "gap analysis," wherein additional conservation areas are chosen to fill gaps in biodiversity representation left by other protected areas.¹³²

There are other notable alternatives as well, advocated by the Nature Conservancy, the World Resources Institute, the British Natural History Museum,¹³³ and other organizations.¹³⁴ Each of these approaches has value, and each looks at somewhat different factors on the road to arriving at somewhat different conclusions and recommendations. There is certainly room for considerable disagreement as to which areas qualify for top priority in conservation efforts, and what the boundaries of those areas should be.

Differences in approach notwithstanding, there is a fair degree of similarity between the results yielded by hotspots analysis and those from the other main alternatives. For example, of the 234 Centers of Plant Diversity, 192 are either partially or entirely within the hotspots as defined herein, as are 144 of the 218 Endemic Bird Areas and 69 of the 138 Secondary Endemic Bird Areas.¹³⁵ Similarly, 79 out of 136 Global 200 ecoregions overlap to some extent with the hotspots.¹³⁶ This suggests that there is some

Iterative Approaches, 50 *BIOLOGICAL CONSERVATION* 199 (1989).

131. STATTERSFIELD ET AL., *supra* note 110, at 17; Ana S. Rodrigues et al., *Flexibility, Efficiency, and Accountability: Adapting Reserve Selection Algorithms to More Complex Conservation Problems*, 23 *ECOGRAPHY* 565 (2000); see also Kevin J. Gaston et al., *Complementary Representation and Zones of Ecological Transition*, 4 *ECOLOGY LETTERS* 4-9 (2001) (identifying some shortcomings in minimum representation sets, and recommending an alternative that incorporates viability concerns); Ana S.L. Rodrigues et al., *Robustness of Reserve Selection Procedures Under Temporal Species Turnover*, 267 *ROYAL SOC'Y BIOLOGICAL SCI.* 4 (2000) (same); Ana S.L. Rodrigues et al., *Using Presence-Absence Data to Establish Reserve Selection Procedures that Are Robust to Temporal Species Turnover*, 267 *ROYAL SOC'Y BIOLOGICAL SCI.* 897 (2000) (same).

132. See, e.g., Michael D. Jennings, *Gap Analysis: Concepts, Methods, and Recent Results*, 15 *LANDSCAPE ECOLOGY* 5 (2000); A. Ross Kiestler et al., *Conservation Prioritization Using GAP Data*, 10 *CONSERVATION BIOLOGY* 1332 (1996); J. Michael Scott et al., *Gap Analysis: A Geographic Approach to the Protection of Biological Diversity*, 123 *WILDLIFE MONOGRAMS* 1-41 (1993). The Gap Analysis Program in the United States currently uses a form of complementarity.

133. The Natural History Museum uses an online map of the world (the "Worldmap") to highlight various priority areas for biodiversity conservation. It shows the distribution of some of the most highly valued terrestrial biodiversity worldwide (mammals, reptiles, amphibians, and seed plants), using family-level data for equal-area grid cells. It implements the complementarity principle to find a priority sequence of regions that will represent all taxa by identifying the maximum increment of unrepresented biodiversity possible at each step. PAUL WILLIAMS ET AL., *WORLDMAP* (Natural History Museum) available at <http://www.nhm.ac.uk/science/projects/worldmap>. See Vane-Wright et al., *supra* note 129.

134. See generally, The Nature Conservancy, *Designing a Geography of Hope: Guidelines for Ecoregion-Based Conservation* (The Nature Conservancy, Arlington, VA, 1997); G.M. Mace, *It's Time to Work Together and Stop Duplicating Efforts*, 405 *NATURE* 393 (2000).

135. *HOTSPOTS*, *supra* note 6, at 65-66.

136. *Id.* at 66.

merit and validity to each approach, as well as opportunities for further scientific advancement in evaluating conservation priorities.

Scientists can and do differ as to which factors are most appropriate in determining the optimal regions for expenditure of scarce conservation resources, as well as how much emphasis to place on the various factors that are considered.¹³⁷ Are birds the best species to choose as indicators of overall biodiversity, or are vascular plants preferable? Is a higher-taxa approach (perhaps focusing on families) or a habitats-based analysis better than any method that focuses on numbers and distribution of species?¹³⁸ What are the most important criteria to use in making hard choices about what areas to protect?

It is not the purpose of this Article to resolve these and other related—and complex—questions, but only to examine in detail one credible approach to biodiversity preservation. I do not suggest, with quasi-religious zeal, that the hotspots are the one and only true way to salvation for life on the Earth but only that they are one way deserving further attention. The proposal I set forth hereinafter is flexible enough to accommodate the divergent strands of scientific thought, whether on the hotspots as currently understood, or on some other alternative, or on a new variation that borrows from the best options. The bottom line, and a sad one it is, remains that the Earth's biodiversity is facing a mass extinction crisis of historic dimensions, and the law is doing virtually nothing to help. However we choose to evaluate the relative merits of the planet's myriad habitats, we must act quickly to alter the legal status quo—because that situation has spelled death to an appalling number of species already with the imminent, dire prospect of many more extinctions.

As I established in my previous articles, there is no shortage of internal domestic laws, nation by nation, that touch on biodiversity preservation. Most hotspots nations have some form of endangered species law, as well as laws providing for the establishment and management of some system of national parks, forests, wildlife refuges, wilderness areas, and the like.¹³⁹ There are several international and regional treaties and conventions that also have some relevance, and again, they focus primarily on either some aspect of individual imperiled species or on certain types of habitats, such as wetlands.¹⁴⁰ But this entire agglomeration of laws, whether in isolation or in

137. See, e.g., Colin J. Bibby, *Selecting Areas for Conservation*, in CONSERVATION SCIENCE AND ACTION 176 (William J. Sutherland ed., 1998); Norman Myers, *Global Biodiversity Priorities and Expanded Conservation Policies*, in CONSERVATION IN A CHANGING WORLD 273 (Georgina M. Mace et al. eds., 1998); Ashbindu Singh, *Application of Geospatial Information for Identifying Priority Areas for Biodiversity Conservation*, in NATURE AND HUMAN SOCIETY: THE QUEST FOR A SUSTAINABLE WORLD 276 (Peter H. Raven ed., 1997); Williams, *supra* note 128; Christopher J. Humphries et al., *Measuring Biodiversity Value for Conservation*, 26 ANN. REV. ECOLOGY & SYSTEMATICS 93 (1995); David C. Lees et al., *A Null Model for Species Richness Gradients: Bounded Range Overlap of Butterflies and Other Rainforest Endemics in Madagascar*, 67 BIOLOGICAL J. LINNEAN SOC'Y 529, 529-54 (1999).

138. Paul H. Williams et al., *Mapping Biodiversity Value Worldwide: Combining Higher-Taxon Richness from Different Groups*, 264 PROC. ROYAL SOC'Y BIOLOGICAL SCI. 141 (1997); Paul H. Williams & Kevin J. Gaston, *Measuring More of Biodiversity: Can Higher-Taxon Richness Predict Wholesale Species Richness?*, 67 BIOLOGICAL CONSERVATION 211-17 (1994).

139. Kunich, *supra* note 2, at 213-52.

140. *Id.* at 186-206 (discussing, inter alia, the Convention on Biological Diversity, the Ramsar Convention, Convention on International Trade in Endangered Species of Wild Fauna

concert with as much synergy as it can muster, has been a failure in the most vital test of its merit. The global epicenters of life, the only habitats on earth for hundreds of thousands of species, have suffered execrable losses and are continuing to vanish at an astonishing rate amid this veritable forest of laws. This should tell us that something is very wrong with this picture.

Undoubtedly, the many statutes and treaties listing and protecting endangered and threatened species, one by one, have done some good in saving individual species from extinction. They are often inefficient, and sometimes create perverse incentives that actually damage the cause of biodiversity preservation, but in certain cases they have probably had a positive effect.¹⁴¹ Similarly, various types of protected-area laws are laudable in theory, but in actuality they have frequently protected that which needs no protection (because no one would want to develop or exploit it and because it is of little biodiversity value) and failed to protect that which needs it (because the richest centers of biodiversity are too valuable to forego development and exploitation). The low-hanging fruit is often picked for parks and refuges while more important areas are left unprotected or only protected in part. Moreover, many "protected areas" are only safeguarded on paper. There is lax enforcement of applicable restrictions on development and exploitation, whether due to inadequate conservation resources or personnel, deliberate neglect, or overwhelming opposition forces.¹⁴²

Immense amounts of effort have been devoted to drafting, enacting, and implementing all of these national and international laws. By no means has that effort been wasted. Something is almost always better than nothing. But it would be a grievous error indeed to conclude that the status quo is satisfactory. Even a cursory glance at the scientific data regarding the hotspots is enough to prove that, whatever the merits of our current panoply of laws at various levels, it is not the cure for what is killing the hotspots. We are still losing too much of their remaining territory every year, in too many places, with no amelioration in sight. At stake are *at least* hundreds of thousands of species, endemic only to the rapidly shrinking hotspots.¹⁴³ There is a pressing need for something different from the status quo. But what?

I will now examine the international legal instrument that, in my opinion, constitutes the best hope now in place for arresting the hemorrhaging of the hotspots. Although there are a few other treaties and conventions that arguably could be useful,¹⁴⁴ there is one that stands out as a particularly propitious option.

III. THE WORLD HERITAGE CONVENTION AS A PART OF THE SOLUTION TO THE BIODIVERSITY CRISIS

The Convention Concerning the Protection of the World Cultural and Natural

and Flora, and the Bonn Convention, plus several regional international treaties).

141. *Id.*

142. *Id.*

143. Kunich, *supra* note 1, at 1156-57 (discussing the uncertainty as to how many species remain to be described, in addition to the 1.75 million that have been named). Even the most conservative scientifically respectable estimates place the number of still-unknown species in the millions, and most of these would be endemic to the hotspots, in all likelihood, just as with the known species. *Id.*

144. Kunich, *supra* note 2, at 186-206.

Heritage (the "World Heritage Convention" or "WHC")¹⁴⁵ was adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization ("UNESCO") in 1972. The WHC provides an international framework for the protection of natural and cultural areas of "outstanding universal value."¹⁴⁶ To date, some 176 countries have adhered to the WHC out of the 189 Member States of the United Nations, including key hotspots nations.¹⁴⁷

The Preamble states with clarity the core principles relevant to the preservation of all resources that are locally situated yet have global significance. Although neither the term "biodiversity hotspot," nor any of the alternative means for establishing biodiversity conservation priorities (for example, Global 200, Endemic Bird Areas, Centres of Plant Diversity, WORLDMAP), specifically appear anywhere in the WHC, the vexing challenges that assail such natural treasures are nonetheless recognized in the Preamble:

[T]he cultural heritage and the natural heritage are increasingly threatened with

145. Convention for the Protection of the World Cultural and Natural Heritage, Nov. 23, 1972, *entered into force* Dec. 17, 1975, 27 U.S.T. 37, 11 I.L.M. 1358, 1037 U.N.T.S. 151, available at <http://www.unesco.org/whc/nwhc/pages/doc/main.htm> [hereinafter World Heritage Convention].

146. *Id.* art. 1.

147. For a current list of all States Parties to the WHC, including date of ratification, accession, or succession, see <http://whc.unesco.org/wldrat.htm>. The following are the States Parties to the WHC as of September 28, 2002: Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Cape Verde, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Costa Rica, Cote D'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Democratic People's Republic of Korea, Democratic Republic of the Congo, Denmark, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea, Estonia, Ethiopia, Fiji, Finland, Former Yugoslav Republic of Macedonia, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Grenada, Guatemala, Guinea, Guyana, Haiti, Holy See, Honduras, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Lebanon, Liberia, Libyan Arab Jamahiriya, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Niue, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Rwanda, Saint Christopher and Nevis, Saint Lucia, Samoa, San Marino, Saudi Arabia, Senegal, Seychelles, Slovakia, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Thailand, Togo, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Yugoslavia, Zambia, and Zimbabwe. More countries continue to be added; three nations, Barbados, Liberia, and Marshall Islands, signed and ratified in early 2002, and two more, Vanuatu and Palau, signed in mid-2002. For Vanuatu and Palau, the Convention came into force on September 13, 2002 and September 11, 2002 respectively.

destruction not only by the traditional causes of decay, but also by changing social and economic conditions which aggravate the situation with even more formidable phenomena of damage or destruction . . . deterioration or disappearance of any item of the cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world . . . protection of this heritage at the national level often remains incomplete because of the scale of the resources which it requires and of the insufficient economic, scientific, and technological resources of the country where the property to be protected is situated . . . existing international conventions, recommendations and resolutions concerning cultural and natural property demonstrate the importance, for all the peoples of the world, of safeguarding this unique and irreplaceable property, to whatever people it may belong . . . parts of the cultural or natural heritage are of outstanding interest and therefore need to be preserved as part of the world heritage of mankind as a whole . . . in view of the magnitude and gravity of the new dangers threatening them, it is incumbent on the international community as a whole to participate in the protection of the cultural and natural heritage of outstanding universal value, by the granting of collective assistance which, although not taking the place of action by the State concerned, will serve as an efficient complement thereto . . . [and] it is essential for this purpose to adopt new provisions in the form of a convention establishing an effective system of collective protection of the cultural and natural heritage of outstanding universal value, organized on a permanent basis and in accordance with modern scientific methods.¹⁴⁸

Building on this philosophical and factual predicate, the WHC establishes, as its centerpiece, a list of specific places in the world that meet its overarching criterion of "outstanding universal value." The World Heritage List is the compendium of sites, in either the "natural heritage"¹⁴⁹ or "cultural heritage"¹⁵⁰ category, that have been recognized formally according to the terms of the WHC.

The WHC defines the type of natural or cultural sites which can be considered for inclusion in the World Heritage List, and sets forth the duties of States Parties in identifying potential sites and their roles in protecting them. Specifically with regard to "natural heritage" sites, the WHC supplies the following criteria:

[N]atural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view; geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and

148. World Heritage Convention, *supra* note 145, preamble.

149. As defined in *id.* art. 2.

150. As defined in *id.* art. 1. Article 1 provides for three types of cultural resources: (1) monuments, which are defined as "architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;" (2) groups of buildings, defined as "groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;" and (3) sites, which are "works of man or the combined works of nature and of man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view." *Id.*

plants of outstanding universal value from the point of view of science or conservation; natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.¹⁵¹

The Convention, in Article 4, places the primary "duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage" sites on the World Heritage List with the nation that is host to each site.¹⁵² Each host nation is to "do all it can to this end, to the utmost of its own resources."¹⁵³ Additionally, where appropriate, each host nation may also draw upon "any international assistance and co-operation, in particular, financial, artistic, scientific and technical, which it may be able to obtain."¹⁵⁴ More detailed requirements are delineated in Article 5, which unfortunately prefaces its worthy mandates with the multilayered qualifier that each State Party "shall endeavour, in so far as possible, and as appropriate for each country":

(a) to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes; (b) to set up within its territories, where such services do not exist, one or more services for the protection, conservation and presentation of the cultural and natural heritage with an appropriate staff and possessing the means to discharge their functions; (c) to develop scientific and technical studies and research and to work out such operating methods as will make the State capable of counteracting the dangers that threaten its cultural or natural heritage; (d) to take the appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage; and (e) to foster the establishment or development of national or regional centres for training in the protection, conservation and presentation of the cultural and natural heritage and to encourage scientific research in this field.¹⁵⁵

This is an ambitious agenda, but one rendered hostage to the whims of the leadership within each State Party. Nations that are predisposed to take effective action to preserve their natural and cultural heritage will do so, and perhaps would do so even absent Article 5 of the WHC. Those that lack this predisposition will find ample room for discretion and exception in the introductory clause to justify a very comfortable inaction. As a result, the efficacy of these provisions is questionable even within the confines of Article 5 itself. Other, more overarching, problems with the WHC have further impaired the Convention in its implementation and enforcement, as will be discussed shortly.

Article 6 is at the core of the WHC, insofar as it is a potential source of succor for the hotspots of the world, because it declares that the World Heritage List sites are indeed a world heritage, which the entire international community has a duty to protect

151. *Id.* art. 2.

152. *Id.* art. 4.

153. *Id.*

154. *Id.*

155. *Id.* art. 5a-5e.

in a cooperative effort. But, as with Article 5, it also begins with an important caveat:

Whilst fully respecting the sovereignty of the States on whose territory the cultural and natural heritage . . . is situated, and without prejudice to property right provided by national legislation, the States Parties to this Convention recognize that such heritage constitutes a world heritage for whose protection it is the duty of the international community as a whole to co-operate.¹⁵⁶

Article 6 provides further details, including that signatories undertake “to give their help in the identification, protection, conservation and preservation of the cultural and natural heritage [sites on the World Heritage List or the List of World Heritage in Danger] if the States on whose territory it is situated so request,”¹⁵⁷ and “not to take any deliberate measures which might damage directly or indirectly the cultural and natural heritage [sites on the World Heritage List] situated on the territory of other States Parties to this Convention.”¹⁵⁸ Presumably, the omission of the at-risk sites on the List of World Heritage in Danger¹⁵⁹ from the last clause was not intended to condone the deliberate damage of those sites, because all of those sites would necessarily be on the primary World Heritage List as well.

The WHC includes the well-intentioned but controversial concept of transitional zoning, or “buffer zones.” The idea is that listed World Heritage sites should be surrounded by concentric regions of graduated restrictiveness to provide a margin of safety around the sites themselves. Whenever necessary for proper conservation, “an adequate ‘buffer zone’ around a property should be provided and should be afforded the necessary protection. A buffer zone can be defined as an area surrounding the property which has restrictions placed on its use to give an added layer of protection.”¹⁶⁰ Of course, by expanding the territory subject to increased regulation beyond the actual formal boundaries of a listed site, such as a national park, wildlife refuge, or wilderness area, the buffer zone principle can be seen as an encroachment on the private property rights of individual landowners. This then contributes to the disputatious nature of many WHC listing proposals, as citizens fight to defend their property interests from indirect erosion.¹⁶¹

The application for a site to be inscribed on the World Heritage List must come from the country the site is located within.¹⁶² Moreover, no site may be placed on the List without the consent of the nation concerned.¹⁶³ An application for listing also must include a plan detailing how the site is already managed and protected in national legislation, including a demonstration of “full commitment” as evidenced by

156. *Id.* art. 6(1).

157. *Id.* art. 6(2).

158. *Id.* art. 6(3).

159. See generally discussion *infra* notes 167-74 and accompanying text.

160. Daniel L. Gebert, Note, *Sovereignty Under the World Heritage Convention: A Questionable Basis for Limiting Federal Land Designation Pursuant to International Agreements*, 7 S. CAL. INTERDISC. L.J. 427, 436 (1998).

161. See *id.* at 436-38.

162. World Heritage Convention, *supra* note 145, art. 3.

163. *Id.* art. 11(3).

legislation, staffing, and plans for management and funding.¹⁶⁴ There is also a requirement that all nonfederal owners of the site concur in the nomination for listing. The World Heritage Committee¹⁶⁵ meets once a year and examines the applications on the basis of technical evaluations. These independent evaluations of proposed cultural and natural sites are provided by two advisory bodies, the International Council of Monuments and Sites ("ICOMOS") and the World Conservation Union ("IUCN"), respectively.¹⁶⁶

The World Heritage List has grown to a formidable size. As of September 2002, the list included 730 sites of "outstanding universal value" in 125 nations.¹⁶⁷ Of these 730 sites, 563 are denominated as "cultural," 144 as "natural," and 23 as "mixed."¹⁶⁸ One of the thirty-one new sites added to the World Heritage List in December 2001 was an area within the Brazilian Cerrado hotspot consisting of the Chapada dos Veadeiros and Emas National Parks,¹⁶⁹ which, although certainly not encompassing the entirety of this important hotspot, is a positive development illustrative of the potential for the WHC to assist in hotspot identification and preservation.

The World Heritage List includes other sites that fall within the hotspots, albeit sites that usually amount to only a small fraction of the territory that each hotspot actually embraces on the basis of the scientific evidence alone. Notably, given the prominent representation of tropical forests in the hotspots, the list features forty-one separate tropical forest sites, which in the aggregate encompass 30.6 million hectares of territory.¹⁷⁰ Of these sites, twenty-three are national parks within their respective nations, and over a dozen more are reserves or sanctuaries of one type or another. In this way, the WHC has often functioned to lend some degree of additional support to areas that had previously been identified and set apart by the host nation as an important natural property.

There is a World Heritage Fund established under Article 15 that provides limited financial support to nations in furtherance of the WHC's purposes. The Fund, which is set up as a trust fund, is to receive compulsory and voluntary contributions from the WHC signatories, as well as from several other sources.¹⁷¹ Specifically, Article 15(3) provides, in pertinent part:

The resources of the Fund shall consist of: (a) compulsory and voluntary contributions made by the States Parties to this Convention; (b) contributions, gifts or bequests which may be made by: (i) other States; (ii) the United Nations

164. See Operational Guidelines for the Implementation of the World Heritage Convention, para. 6(v), at <http://www.unesco.org/opgulist.htm> (last visited Oct. 26, 2002).

165. World Heritage Convention, *supra* note 145, art. 8.

166. *Id.* art. 14(2). The IUCN was initially called the International Union for Conservation of Nature and Natural Resources. For an example of the type of detailed scientific assessment that serves as a predicate to consideration of natural sites for World Heritage listing, see Steven L. Chown et al., *World Heritage Status and Conservation of Southern Ocean Islands*, 15 CONSERVATION BIOLOGY 550-57 (2001).

167. See The World Heritage List, at <http://whc.unesco.org/nwhc/pages/doc/main.htm> (last visited Oct. 26, 2002). For a complete list of sites on the World Heritage List, see *id.*

168. See *id.*

169. See *id.*

170. See *id.*

171. World Heritage Convention, *supra* note 145, art. 15(3).

Educational, Scientific and Cultural Organization, other organizations of the United Nations system, particularly the United Nations Development Programme or other intergovernmental organizations; (iii) public or private bodies or individuals; (c) any interest due on the resources of the Fund; (d) funds raised by collections and receipts from events organized for the benefit of the fund; and (e) all other resources authorized by the Fund's regulations, as drawn up by the World Heritage Committee.¹⁷²

This enables the World Heritage Fund to receive contributions from a wide range of donors, including private individuals, nongovernmental organizations, and any nation. The WHC also directs States Parties to "consider or encourage the establishment of national, public and private foundations or associations whose purpose is to invite donations for the protection of the cultural and natural heritage"¹⁷³ as defined in the WHC. The overarching concept is to broaden the scope of possible funding sources and to empower the WHC to employ innovative and unconventional ideas to augment the funds available for preservation of the natural and cultural resources it seeks to safeguard. Although this is at present still largely untapped potential, the potential is spelled out in the WHC nonetheless, which sets the foundation for future progress.

The World Heritage Committee determines the acceptable uses for the Fund's resources, and "may accept contributions to be used only for a certain programme or project, provided that the Committee shall have decided on the implementation" of such an initiative.¹⁷⁴ "No political conditions may be attached to contributions made to the Fund."¹⁷⁵ In other words, interested individuals and groups, including nongovernmental organizations ("NGOs"), have some ability to target their donations to certain favored projects, such as the preservation of a particular sector of a hotspot. This could be a useful tool for harnessing the power and money of activists, philanthropists, and public interest groups in the WHC's efforts to assist certain sites on the World Heritage List.

With regard to the signatories to the WHC, the amount of "compulsory" contributions to the Fund is discussed in Article 16, paragraph 1:

Without prejudice to any supplementary voluntary contribution, the States Parties to this Convention undertake to pay regularly, every two years, to the World Heritage Fund, contributions, the amount of which, in the form of a uniform %age applicable to all States, shall be determined by the General Assembly of States Parties to the Convention, meeting during the sessions of the General Conference of the United Nations Educational, Scientific and Cultural Organization. This decision of the General Assembly requires the majority of the States Parties present and voting, which have not made the declaration referred to in paragraph 2 of this Article. In no case shall the compulsory contribution of States Parties to the Convention exceed 1% of the contribution to the Regular Budget of the United Nations Educational, Scientific and Cultural Organization.¹⁷⁶

172. *Id.*

173. *Id.* art. 17.

174. *Id.* art. 15(4).

175. *Id.*

176. *Id.* art. 16(1).

However, Article 16, paragraph 2, allows Parties to issue a declaration that they will not be bound to contribute to the World Heritage Fund in the manner provided by paragraph 1. The United States is one of the nations that has exercised the option to excuse itself from contributing to the World Heritage Fund under Article 16(2). Strangely, paragraph 4 directs that contributions from Parties that have made this declaration "shall be paid on a regular basis, at least every two years, and should not be less than the contributions which they should have paid if they had been bound by the provisions of paragraph 1 of this Article."¹⁷⁷ In any event, sanctions for nonpayment of either "voluntary" or "compulsory" contributions are quite limited: "Any State Party to the Convention which is in arrears with the payment of its compulsory or voluntary contribution for the current year and the calendar year immediately preceding it shall not be eligible as a Member of the World Heritage Committee . . ."¹⁷⁸

Requests for international assistance for the preservation of WHC properties are made under Article 19, and the funds are to be granted only for duly listed sites, pursuant to Article 20. There is also technical assistance and training available,¹⁷⁹ which, if offered in conjunction with sufficient levels of financial aid, might be instrumental in effecting meaningful protection for World Heritage Sites. Article 22 specifies that assistance to sites on the World Heritage List may take the form of any of the following: "studies concerning the artistic, scientific and technical problems raised by the protection, conservation, presentation and rehabilitation"¹⁸⁰ of the site; "provision of experts, technicians and skilled labour to ensure that the approved work is correctly carried out"¹⁸¹; "training of staff and specialists at all levels in the field of identification, protection, conservation, presentation and rehabilitation"¹⁸² of the site; "supply of equipment which the [nation] concerned does not possess or is not in a position to acquire"¹⁸³; "low-interest or interest-free loans which might be repayable on a long-term basis"¹⁸⁴; and "the granting, in exceptional cases and for special reasons, of non-repayable subsidies."¹⁸⁵

Could the quantum of assistance provided under the WHC suffice to make an outcome-determinative difference for any site, including a hotspot? The language of the Convention is characteristically vague:

International assistance on a large scale shall be preceded by detailed scientific, economic and technical studies. These studies shall draw upon the most advanced techniques for the protection, conservation, presentation and rehabilitation of the natural and cultural heritage and shall be consistent with the objectives of this Convention. The studies shall also seek means of making rational use of the

177. *Id.* art. 16(4).

178. *Id.* art. 16(5).

179. *Id.* art. 22.

180. *Id.* art. 22(a).

181. *Id.* art. 22(b).

182. *Id.* art. 22(c).

183. *Id.* art. 22(d).

184. *Id.* art. 22(e).

185. *Id.* art. 22(f).

resources available in the State concerned.¹⁸⁶

The text does not define the key terms “large scale,” “detailed” studies, and “most advanced techniques.” The imprecision of the standards leaves important decisions on the appropriate degree of help to the discretion of the World Heritage Committee. Similarly, the restriction in Article 25 to the effect that “only part of the cost of work necessary shall be borne by the international community” and that the nation benefiting from international assistance shall contribute “a substantial share of the resources devoted to each programme or project,” is not a firm, objective standard.¹⁸⁷ Moreover, any limitation on aid or mandate for host nation contribution implicit in Article 25 is overcome by its concluding escape hatch, “unless [the host nation’s] resources do not permit this.”¹⁸⁸ Very often, of course, the host nations for hotspots are in desperate economic straits, which is a primary reason why their natural resources are imperiled in the first place. Pressures to develop and exploit nature are most acute when there are few, if any, alternatives for a nation and its people, who are struggling in many cases even to maintain a bare subsistence level of income.

In prescient anticipation of a shortfall of available rescue resources and a surplus of pressing and competing needs, the WHC reflects an attempt to set forth a system for setting priorities:

The Committee shall determine an order of priorities for its operations. It shall in so doing bear in mind the respective importance for the world cultural and natural heritage of the property requiring protection, the need to give international assistance to the property most representative of a natural environment or of the genius and the history of the peoples of the world, the urgency of the work to be done, the resources available to the States on whose territory the threatened property is situated and in particular the extent to which they are able to safeguard such property by their own means.¹⁸⁹

A key feature of the WHC in terms of hotspots preservation centers on the measures it prescribes when sites are imperiled. The World Heritage Committee is supposed to be alerted—by individuals, NGOs, or other groups—to possible dangers to a site. If the alert is justified, and the problem serious enough, the site will be placed on the List of World Heritage in Danger, which is provided for by Article 11(4) of the WHC.¹⁹⁰ The List of World Heritage in Danger is reserved for those sites already inscribed on the primary World Heritage List “for the conservation of which major operations are necessary and for which assistance has been requested” under the WHC.¹⁹¹ The list is to contain an estimate of the costs of any such operations. Furthermore,

[t]he list may include only such property forming part of the cultural and natural heritage as is threatened by serious and specific dangers, such as the threat of disappearance caused by accelerated deterioration, large-scale public or private

186. *Id.* art. 24.

187. *Id.* art. 25.

188. *Id.*

189. *Id.* art. 13(4).

190. *Id.* art. 11(4).

191. *Id.*

projects or rapid urban or tourist development projects; destruction caused by changes in the use or ownership of the land; major alterations due to unknown causes; abandonment for any reason whatsoever; the outbreak or the threat of an armed conflict; calamities and cataclysms; serious fires, earthquakes, landslides; volcanic eruptions; changes in water level, floods and tidal waves.¹⁹²

This List of World Heritage in Danger, consisting of imperiled cultural and natural resources, is designed to call the world's attention to natural or man-made conditions which threaten the characteristics for which the site was originally included in the main World Heritage List.¹⁹³ In theory, inclusion on the "Danger" list increases the likelihood that funds will be deemed available within the priority-setting triage scheme of Article 13(4) to make a difference in the survival of the resources in question. For this reason, I chose to incorporate the name of the list in the title of this Article. It neatly captures the essence of the hotspots crisis.

The List of World Heritage in Danger included only thirty-three sites as of September 2002.¹⁹⁴ Many of the sites on this list are cultural or historical resources rather than natural resources, but it is open to both categories. The United States currently has two sites inscribed on the list, the Everglades and Yellowstone National Parks.¹⁹⁵ Several parks and nature preserves are on the list, including the Srebarna Nature Preserve in Bulgaria; the Manovo-Gounda St. Floris National Park in the Central African Republic; the Mount Nimba Nature Reserve in the Ivory Coast/Guinea; the Virunga, Garamba, Kahuzi-Biega, and Salonga National Parks and Okapi Wildlife Reserve, all in the Democratic Republic of the Congo; the Sangay National Park in Ecuador; the Rio Platano Biosphere Reserve in Honduras; the Manas Wildlife Sanctuary in India; the Air and Tènèrè Natural Reserves in Niger; the Djoudj National Bird Sanctuary in Senegal; the Ichkeul National Park in Tunisia; and the Rwenzori Mountains National Park in Uganda.

The hotspots should be extensively represented on the List of World Heritage in Danger, on the basis of the confluence of core criteria for inclusion in both categories. If there were broader recognition and comprehension of the hotspots concept worldwide, their representation on the List of World Heritage in Danger would be far more extensive than it is now. By definition, the hotspots are both supremely vital repositories of much of the Earth's biodiversity, and drastically under attack from a variety of destructive or developmental forces. They belong on the List of World Heritage in Danger, if anything does.

Unfortunately, the act of inscribing a site on either the World Heritage List¹⁹⁶ or the

192. *Id.*

193. See Introduction, The List of World Heritage in Danger, at <http://whc.unesco.org/nwhc/pages/doc/main.htm> (last visited Oct. 26, 2002).

194. See The List of World Heritage in Danger, at <http://whc.unesco.org/nwhc/pages/doc/main.htm> (last visited Oct. 26, 2002).

195. See United States, World Heritage List in Danger, at <http://whc.unesco.org/nwhc/pages/doc/main.htm> (last visited Oct. 26, 2002). For a list of all sites on the List of World Heritage in Danger, see World Heritage List in Danger, at <http://whc.unesco.org/nwhc/pages/doc/main.htm> (last visited Oct. 26, 2002).

196. See Ben Boer, *World Heritage Disputes in Australia*, 7 J. ENVTL. L. & LITIG. 247, 258-75 (1992) (describing several disputes arising out of World Heritage listing proposals in Australia).

List of World Heritage in Danger can be very controversial. When Yellowstone National Park was placed on the List of World Heritage in Danger in 1995, there was much political furor arising out of claims that United States sovereignty had been impinged, merely because the WHC had influenced in part President Clinton's decision to issue executive orders providing buffer zones around the park and enhancing its protection against a nearby mining operation.¹⁹⁷ A cynic might be forgiven for opining that this is evidence of the validity of the maxim, "No good deed goes unpunished."

One additional feature of the WHC could be useful under the right circumstances, albeit indirectly. Article 27 focuses on educational and informational initiatives to inform the citizenry as to the importance and fragility of World Heritage sites:

1. The States Parties to this Convention shall endeavour by all appropriate means, and in particular by educational and information programmes, to strengthen appreciation and respect by their peoples of the cultural and natural heritage defined in Articles 1 and 2 of the Convention.
2. They shall undertake to keep the public broadly informed of the dangers threatening this heritage and of activities carried on in pursuance of this Convention.¹⁹⁸

The evident intent is to educate the people, at all levels, within the nations that are home to the various World Heritage sites. The drafters of the WHC recognized the importance, indeed the indispensable nature, of widespread public knowledge and support of conservation efforts, particularly with regard to key natural and cultural treasures. If the people "on the ground" in these nations do not know the value of the sites with which they may interact, and are uninformed as to the dangers threatening the continued existence of the sites, they cannot be expected to hold them in high esteem personally. They cannot be expected to refrain from exploiting and damaging the sites when it is in their financial self-interest to do so, let alone voluntarily devote their own time, effort, and money to the preservation of the sites. And absent this type of grassroots commitment of the citizenry, there is very little real protection that can be imposed on sites from the top down. Thus, the spirit of Article 27 is in tune with a very real and persistent problem that has plagued conservation globally, and at a minimum, it reflects an attempt to ameliorate the situation by using understanding and information as the best antidotes to apathy and antipathy.

Unfortunately, the WHC lacks any true enforcement mechanisms. This has vitiated many of the potentially useful provisions in the Convention. If a signatory fails to fulfill its obligations under the Convention, it risks having its sites deleted from the World Heritage List, but this is not a sufficient deterrent for a nation that fails to

197. See Gebert, *supra* note 160, at 427-29; Matthew Machado, *Mounting Opposition to Biosphere Reserves and World Heritage Sites in the United States Sparked by Claims of Interference with National Sovereignty*, 1997 COLO. J. INT'L ENVTL. L. & POL'Y Y.B. 120, 124-25.

198. World Heritage Convention, *supra* note 145, art. 27(1)-27(2). Similarly, Article 28 requires nations which receive international assistance for a World Heritage site to "take appropriate measures to make known the importance of the property for which assistance has been received and the role played by such assistance."

demonstrate the requisite level of commitment to the principles of the WHC. Despite its terms that purport to obligate parties to refrain from undertaking acts that might directly or indirectly damage a designated resource, the WHC does not address whether sanctions may be taken against countries that violate its terms and conditions.¹⁹⁹ Also, while signatories are required to submit reports regarding domestic measures taken in furtherance of WHC aims,²⁰⁰ there is no provision whereby a party can be penalized or sanctioned for failing to provide requested information or for submitting inaccurate or false information. As a result, reports have been less than satisfactory in many cases.²⁰¹ The WHC does not provide a dispute settlement process either.²⁰²

Philosophically, the WHC is quite compatible with the concept of hotspots preservation, and may provide some assistance toward this aim as it has in other areas.²⁰³ Among the criteria for consideration as a "natural heritage" site is that an area be of "outstanding universal value from the point of view of science or conservation."²⁰⁴ This definition is tailor-made for hotspots. And, as we have seen, the factors that determine eligibility for inclusion in the top-priority subsidiary list, World Heritage in Danger, are also entirely consonant with the very definition of a hotspot.

However, this philosophical fit is spoiled by the lack of meaningful "teeth" to enforce its provisions; loss of WHC listing of a nation's resources is the only sanction for noncompliance.²⁰⁵ This is akin to punishing someone who beats his pet dog by telling him his dog will no longer be allowed to have a license. Moreover, the WHC leaves it up to individual nations to recommend their own resources for inclusion in the World Heritage List in the first place and prohibits inclusion without the consent of the host nation. A nation that is disinclined to preserve its hotspot would be unlikely to nominate it for the list, and would probably veto any attempt by outsiders to inscribe it. After all, is it true that there are merely thirty-three places (whether cultural or natural) in the entire world that properly qualify for the List of World Heritage in Danger? If

199. See SIMON LYSTER, *INTERNATIONAL WILDLIFE LAW: AN ANALYSIS OF INTERNATIONAL TREATIES CONCERNED WITH THE CONSERVATION OF WILDLIFE* 301-02 (1985) (criticizing the WHC as having "proved relatively ineffectual" because, inter alia, it failed to establish "a system of administration to monitor and oversee" enforcement).

200. World Heritage Convention, *supra* note 145, art. 29(1) (providing that upon the request of a specified United Nations committee, a party "shall . . . give information on the legislative and administrative provisions which they have adopted and other action which they have taken").

201. See Edith Brown Weiss, *The Five International Treaties: A Living History*, in *ENGAGING COUNTRIES: STRENGTHENING COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL ACCORDS* 104 (Edith Brown Weiss and Harold K. Jacobsen, eds. 1998).

202. See Brad L. Bacon, Note, *Enforcement Mechanisms in International Wildlife Agreements and the United States: Wading Through the Murk*, 12 *GEO. INT'L ENVTL. L. REV.* 331, 354-55 (1999).

203. Weiss, *supra* note 201, at 93-105, 125-35.

204. World Heritage Convention, *supra* note 145, art. 2.

205. While the WHC itself only mentions the listing of sites, the Operational Guidelines provide that Parties may delist a site if a host country fails to protect it. See Procedure for the Eventual Deletion of Properties from the World Heritage List, Operational Guidelines for the Implementation of the World Heritage Convention, at <http://whc.unesco.org/opgulist.htm> (last visited Oct. 26, 2002).

not—if there are many more that deserve that designation—then there must be powerful disincentives at work that have artificially depressed the number of treasures thus inscribed.

Coupled with the low level of financial assistance currently available for preservation efforts, these core features of the WHC have rendered it, in its present form, ineffective in protecting the hotspots. However, the potential is there for the WHC to make a meaningful contribution. In the following section of this Article, I will identify some measures that could realize this potential.

IV. ADVANTAGES AND ENHANCEMENTS OF THE WORLD HERITAGE CONVENTION APPROACH

There is a great deal of merit in the WHC as it currently exists, even absent any amendments. In this section, I will focus on the salient features that could render the WHC a formidable instrument in the struggle to save the hotspots, given the right concatenation of conditions.

One key virtue of the WHC is that it can serve as a visible, high-profile vehicle to identify hotspots, one by one, as globally important natural properties. Even if it did nothing more, this would further a laudable purpose by helping to focus public attention on the hotspots in the international community. Heightened public awareness, fostered by what should be widely considered a great honor—recognition as a World Heritage Site—could be a significant step toward more substantive legal measures. Indeed, one of the indirect benefits of listing lies in the potential for increasing tourism; many countries now include their World Heritage listings in their advertising to attract foreign tourists, including eco-tourists.²⁰⁶ As governments reap the gains in tourism money from their inscribed sites, they will likely develop a greater appreciation for the wisdom of conserving them. At bottom, the plight of the hotspots can be traced to widespread ignorance as to their value and meaning, not only at the level of the citizenry but also at the decisionmaking levels of government where policy and legal measures are developed.

This ignorance, unfortunately, has manifested itself in a dazzling spectrum of different ways, a veritable rainbow of cluelessness. One outstanding example is the failure to inscribe any of the hotspots even as World Heritage sites, let alone to include them on the List of World Heritage in Danger. Not one of the twenty-five or so primary hotspots has received World Heritage recognition in its entirety, although portions of some have. This is a threshold problem of considerable magnitude, because it proves that much education and persuasion must take place just to get the hotspots listed under the only international legal instrument capable of affording them comprehensive protection. Actually effecting meaningful conservation measures within the WHC context would be a separate, and probably more formidable, challenge, but the threshold must first be crossed.

World Heritage Site designation, once achieved, would generate considerable publicity concerning the merits of any given hotspot, within the host nation and on a global scale. Simply by directing the spotlight on the issue, the WHC could supply a potent antidote to the deadly toxin of epidemic ignorance. Public debate, informed by

206. See Boer, *supra* note 196, at 256.

documented scientific evidence, would educate at least some people as to the primacy of hotspots, as well as the nature and magnitude of the local threats to their survival, and that would be all to the good. If enough top-echelon discussion takes place on these points, over a protracted period, the message will become increasingly clear to increasingly sizable numbers of people, even in countries where the local hotspot had traditionally been taken for granted as nothing more than a resource to be freely exploited.

Success in garnering World Heritage site designation for one or more hotspots could tend to breed further success in listing others. It may be that inscribing the first hotspot under the WHC will be the most difficult of all, and that once a precedent is established, more hotspots will be designated in relatively short order. The educational and information-sharing functions of the WHC could alert people in many nations as to the primacy of the hotspots, as the initial debate unfolds and the first one or two hotspots are listed.

Would sufficient numbers of hotspots-cognizant people translate into meaningful conservation action? As the time-hallowed epigram holds, "It couldn't hurt!" Some may remain unpersuaded, albeit better-informed, whether for reasons of overwhelming personal self-interest, philosophical opposition to conservation, or a process of ratiocination that concludes with a judgment call that the host nation would be better served by exploitation than preservation. Anyone who has ever been in a law school classroom understands that unanimity of opinion on an issue—any issue—is the rarest of phenomena, irrespective of the weight of evidence and the clarity of the facts. But knowledge is power, and as some minds change, some other things might eventually change too.

In this way, designation as a World Heritage site, and especially placement on the List of World Heritage in Danger, could be helpful irrespective of any direct tangible aid under the Convention. It could facilitate the listing of other hotspots, as both decisionmakers and the citizens who might influence them learn more about the significance of the hotspots as the global crown jewels of life. And the private concern generated by such high-profile listings could be used to leverage significant fundraising activities for hotspots preservation by NGOs. This money could be funneled into the WHC system and earmarked for a particular purpose,²⁰⁷ or used apart from the formal WHC apparatus in purely private conservation initiatives. There is much good that can be achieved by harnessing private sector energy and wealth, and by tapping into the extensive trove of NGO expertise and commitment. NGOs and unaffiliated, dedicated citizens have immense freedom, flexibility, and power to raise money, mobilize workers, organize teams of volunteers, and pressure public officials.

Unfettered by the manifold layers of bureaucracy and institutional inertia that afflict many or all governments, these private sector forces can move in ways that official agencies cannot. The sheer numbers of citizens that could be galvanized into action by the right concatenation of events dwarf the legions of even the largest government's conservation workers, and their collective wealth, drive, and passion can be unrivaled. But it takes a catalyst to make this happen, and the WHC process can provide it. This is an intangible and largely unpredictable advantage of the WHC, but that does not vitiate its power.

207. World Heritage Convention, *supra* note 145, art. 15(4).

An international legal instrument such as the WHC, buttressed by numerous signatories the world over, has the elusive if not unique capability to confer upon particular hotspots the imprimatur of official recognition as a World Heritage resource in danger. Indeed, this is one of the chief virtues of international law—the capacity to apotheosize a previously obscure cause, transforming it into a cause célèbre. It is this aura of official status and legitimacy, coupled with ready access to news media, that vests the WHC with the power to transform the collective will of the people, more so than most books, articles, speeches, paid advertisements, or television programs. And once the engine of private dynamism is started, it can become a veritable juggernaut, unstoppable and indomitable.

Furthermore, once a given site is added to the List of World Heritage resources, Article 27 of the WHC would provide additional impetus to efforts by the host nation's government to educate its people about the site's importance. Of course, absent an effective enforcement mechanism, this and other provisions of the Convention might be ignored with impunity, but at least there would be a formal requirement in effect. This could be the predicate for pressure from other nations, or from conservationist factions within the nation. And at least some signatories would voluntarily comply with the Article 27 strictures, thereby furthering the level of awareness of hotspots issues locally and stoking the fires of private initiative first ignited by World Heritage recognition. Here again, the WHC can be a potent stimulus for action by NGOs and private citizens, as well as by government.

A complement to the general education value of the current WHC is its capacity to spur useful research into the hotspots. Article 24's demand of "detailed scientific, economic and technical studies" as a prerequisite for major financial assistance could advance the state of the art as to the contents and significance of each hotspot as well as the optimal means of shepherding these resources.²⁰⁸ In light of the dismal amount of information available about many of the hotspots, anything that prods further research is welcome. As incremental progress is made as to our knowledge of the biota residing within each hotspot, particularly their present utilitarian value to humankind, there will be a more robust and pragmatic argument for taking steps to protect the habitat. In this way, information can beget further protection. Of course, adequacy of funding for such studies will be a persistent issue; if host nations had the resources and the inclination to conduct these studies, they probably would not need outside assistance to protect their hotspots. Thus, we have sort of a "Catch-22" in Article 24—or perhaps we should call it a "Catch-24."

This highlights another "good news/bad news" aspect of the WHC. The Convention is potentially capable of diverting resources from the haves to the have-nots for purposes of preserving key treasures such as the hotspots. As I have pointed out, this is a phenomenon that must take place much more often, in far greater amounts, and in many more nations than ever before if the hotspots are not to burn out. The WHC has the virtue of actually obligating its signatories, under some set of circumstances, to put their money where their ink is and pay for preservation of global treasures. This is more than any other legal instrument does, at present, and for that reason alone the WHC is worthy of the attention of anyone who cares about the plight of the Earth's biodiversity. It formalizes the duty of States Parties to bear some of the burden of

208. *Id.* art. 24.

preserving globally important resources in nations other than their own. What a concept! Global help to save global treasures. This is a vital first step, at least, toward a more enlightened and comprehensive view of what it means—or should mean—to each nation to share the same planet with all other nations.

But we have seen that the Convention's obligations are undermined by caveats, qualifications, ambiguities, reservations, and other legal loopholes. The net result is that the WHC is only as effective in spurring nations to contribute money where it is needed as the nations are willing, voluntarily, to contribute on their own. The WHC might supply some structure to the process, as by identifying areas of special need, but it cannot compel signatories to devote more money than they wish to spend, nor to send it anywhere they would prefer not to send it. Compliance with its terms is essentially voluntary.

Of course, it is also entirely voluntary for nations to become signatories to the WHC or any other international legal instrument in the first place. This is one of the fundamental problems inherent in the international law approach to challenges like the hotspots crisis. It is a variant of the old aphorism, "For those who understand, no explanation is necessary. For those who do not understand, no explanation will suffice." If the leaders and citizens of a nation are inclined to help on any particular issue, and do not believe that the disadvantages of an applicable treaty outweigh the advantages, they will be apt to sign and ratify. Otherwise, they will not. No nation can be forced to commit to any treaty. These international agreements are voluntary affairs, akin to a come-as-you-are party open to anyone who is interested. Guests cannot be dragged in off the street; at most, other partygoers can try to persuade and entice reluctant newcomers with charm, peer pressure, and promises of good times to come. Even nations that may be philosophically sympathetic to a given issue may refuse to sign a treaty that they judge to be fatally flawed, unfair, biased, counterproductive, or otherwise impolitic. You can lead a nation to a treaty, but you cannot make it sign.

For the nations that do not sign the WHC, or that do sign but fail to live up to their commitments thereunder, does the Convention serve any purpose? It still can play the role of an information source, periodically reminding nonsignatories of the need to designate additional deserving sites and to provide increased protection for sites already inscribed. Anyone who has ever been nagged by a parent, a spouse, or a significant other (or who has taken the more active role of the nagger) knows that sometimes persistently importuning someone will eventually lead to capitulation. Sometimes it has the opposite effect, of hardening resistance, but at least the recipient of such pleas is kept apprised of recent developments, new discoveries, and other significant news related to the issue. In this manner, WHC reports and news releases can periodically inform nonparties of any progress made in safeguarding listed sites, and notify them of any new areas of concern. Such information might lead a nation's leaders to reconsider their decision not to sign, or motivate them to take other action to help, independent of the Convention.

It would be facile to propose that the WHC be amended to plug its loopholes. Like piles of dirt, accumulated over many years and swept under a carpet, problems continue to pop up elsewhere every time you step on a mound. To amend, the signatories must consent, but they will not consent if they view the changes as contrary to their own interests, and other nonsignatories will not sign on if the requirements are too onerous. As Lerner and Loewe (of Broadway musical fame) might have written in their play *My Fair Lady*:

All is want is a Convention,
Armed with teeth and no exceptions,
No more reservations,
Oh, wouldn't it be lovely?²⁰⁹

It would be very nice indeed if one could wave a magic wand and make the WHC (1) applicable to all nations of the world, or at least all that contain hotspots; (2) enforceable with action-provoking levels of sanctions; (3) devoid of ambiguities and discretionary clauses that vitiate the effectiveness of key provisions; and (4) free of crucial reservations and exceptions. While we are wishing upon this star, we might as well also ask that, once the WHC is thus fortified, the crucial decisionmakers be moved to nominate and approve each hotspot for designation as a World Heritage site, and then add them to the List of World Heritage in Danger. I would add my personal petition, if I may, to wit that the Chicago Cubs win a World Series during my lifetime.²¹⁰

There have been some attempts to remedy the lack of teeth in the WHC. For example, in light of massive destruction of important cultural property during the conflict in the former Yugoslavia, the Italian government proposed that U.N. inspectors monitor the world's cultural heritage, and that the international community share responsibility for cultural sites on the World Heritage List.²¹¹ Italy suggested that UNESCO be given powers similar to those of the inspectors of the International Atomic Energy Agency, including the power to enter sovereign territory, so as to monitor compliance with the WHC.²¹² However, the Italians withdrew the proposal when it was vigorously opposed by some members of the Executive Board of UNESCO, who indicated that their countries were unwilling to give up authority over their own territory or cultural treasures.²¹³ This type of nonmilitary, protective international regulatory agency with the internationally recognized right to enter, inspect, recommend, and implement protective action for World Heritage sites would be a partial solution to the WHC's flaws. The failure of the idea to advance beyond the proposal stage is a classic example of the difficulty of making international agreements such as the WHC into truly effective, enforceable legal instruments.

Even if the WHC could be amended to tighten up its internal loopholes and supply it with meaningful enforcement provisions, that would not solve the problem that nations must voluntarily sign on to be bound. In fact, it would exacerbate it. Many current signatories would not agree to such significant amendments, and would not remain if they were effectuated. Nations that are not now States Parties would probably be even less likely to sign on. This, naturally, was a major factor in shaping the way the WHC was written. In order to attract and retain respectable numbers of signatories, the text had to be softened and qualified, with capacious wiggle room for nations to evade

209. With apologies to Alan Jay Lerner and Frederick Loewe, the authors of the immortal musical play *My Fair Lady*, and the song therein, "Wouldn't It Be Lovely."

210. The Chicago National League Baseball club most recently won a World Series in 1908, although the Cubs have been to a World Series as recently as 1945. Enough is enough.

211. See M. Catherine Vernon, Note, *Common Cultural Property: The Search for Rights of Protective Intervention*, 26 CASE W. RES. J. INT'L L. 435, 444 (1994).

212. *Id.*

213. *Id.*

onerous provisions. The drafters of treaties and conventions do not inadvertently riddle them with fuzzy language, unknowingly allow many exceptions and reservations, and simply forget to build in real enforcement tools. These are added to the mix during the negotiation process to entice reticent nations to come on board. They are the price of admission, except paid by the ones throwing the party, not by the guests.

A proponent of Critical Legal Studies ("CLS") theory²¹⁴ would argue that the WHC or any legal instrument, be it domestic statute or international treaty, is in and of itself of at best minimal utility as an outcome determining factor. The aforementioned realities are consistent with CLS thought, because they spotlight the impotence of the WHC to (1) compel nations to sign and ratify, and to (2) induce signatories to take actions which they are not otherwise willing to take. Nations may sign on to the WHC for reasons very divergent from the purposes of the Convention, for example, to curry favor with other nations, to appease political factions at home, or to use the treaty as an instrument to extract benefits from other nations. Once a State Party, a nation may comply with the provisions of the WHC to a greater or lesser extent along a broad continuum, but it will not do so because the Convention compels this outcome. Rather, it will take actions in some degree consistent or inconsistent with the WHC's strictures because it deems it in the nation's self-interest to do so. This can be because its leaders fear the disapproval of other nations, because they expect more resources to flow into their nation than out of it, or because they see intangible benefits to their nation arising from a public perception of it as a good global citizen.

CLS theory questions whether rules or laws actually decide cases even when they have apparently clear, precisely defined meaning and effective teeth—that is, vigorous enforcement mechanisms with real penalties for noncompliance. There is often, perhaps always, a way around the rule for a judge or jury looking for a different answer from the one the rule seems to mandate.

The judge or jury can decide, either explicitly or *sub rosa*, that the key terms are not so clearly defined after all. There could be legal precedent external to the text of the law or rule that must be superimposed on its terms, whether from the common law of other cases or from other codified laws. Maybe there are multiple provisions of the same law in conflict, requiring a creative solution that harmonizes the competing sections. Or the unique facts of the instant case (and the facts are always unique to each case, in some detail or another distinguishable from all other cases no matter how superficially similar) must be dealt with on their own merit, because they implicate concerns unanticipated by the text itself. Perhaps the rule is clear, but under the circumstances of the case public policy requires that an exception be carved out. Or the rule was created too long ago and/or under conditions significantly different from those that confront us today, and thus the law must bend and change with the times, lest the dead hand of the past rule us from the grave. This incantation of excuses could be extended indefinitely, but further examples are not needed; one gets the picture.

214. See generally ROBERTO MANGBEIRA UNGER, *THE CRITICAL LEGAL STUDIES MOVEMENT* (1983); *CRITICAL LEGAL STUDIES* (James Boyle ed., 1992). The CLS view, in a nutshell, is that rules do not decide cases or determine legal outcomes. Rather, the key stimuli are political power, hierarchical disparities in wealth and influence, the personal self-interest and predilections of the decisionmakers, and other similar factors relating to the domination of some individuals, groups, and nations by others. Or, as I have phrased it, the "Four Ps": power, purse, politics, and prejudice.

These ideas, which have considerable validity even as to the internal domestic law of a given nation-state, are even more powerful when applied to the international law context. In international law, there is no sovereign with the power to dictate particular policies or procedures or to attempt to ensure they are followed. There is no universally recognized judicial body empowered to decide disputes and impose enforceable outcomes on unwilling litigants. There is no standing army or functional police force charged with and capable of enforcing the law and punishing malefactors. Unlike the states of the Union with regard to federal law, the nations of the world are able to determine unilaterally whether a particular treaty applies to them, by deciding whether to become and remain a State Party. And although there is a concept of customary international law analogous to the common law of an individual nation, absent an efficacious judicial and enforcement system it is quite difficult to remedy violations.

Attempts to rectify some of these shortcomings have been sporadic, controversial, and of dubious efficacy. The recent experience with the International Criminal Court ("ICC") is illustrative. The United States has refused to agree to allow its citizens to be subject to ICC jurisdiction, partially out of fears that American military servicemembers could be brought before the ICC for politically motivated prosecutions arising out of the proper performance of their duties outside the United States. As a result, the United States has decided not to play the ICC game, and there is little or nothing that the other nations of the world can do about it, individually or collectively. It is as if the Governor and state legislature of Wyoming decided that its citizens would not be bound by the decisions of the federal district court in that state, and then got away with it.

The United Nations and its subsidiary units are an ineffectual surrogate for a true sovereign body. The U.N. serves useful functions as a forum for international debate and conflict resolution, and as a framework for information flow worldwide. It can also offer some symbolic and actual support in times of crisis, as with the commitment of U.N. peacekeeping forces, and it provides a vehicle for shaping the behavior of nations through the mechanisms of sanctions and resolutions. But it is heavily dependent on money from a few industrialized nations (most notably, the United States). It does not have a true military or police force of its own, apart from those contributed from time to time by some of its member nations. And, while many nations would prefer not to be exposed to the obloquy and burden of U.N. disapproval or sanctions, these are of limited efficacy in reining in truly obdurate nations determined to pursue a belligerent, destructive, predatory, abusive, and/or genocidal course of action.

Even to arrive at a stage where sanctions are possible, or where U.N. forces can be committed, the U.N. must engage in considerable consensus building. Key entities such as the Security Council can put the brakes on effective action, where even one intractable member can block measures deemed urgently needed by most other nations. And deep animosities, sometimes rooted in centuries or even millennia of religious, cultural, tribal, and national conflict, often play out in shaping which steps are approved and which are squelched. It is tempting to liken the U.N. action-taking process to trying to herd cats, but that may be unfair to cats.

Is there a solution to the conundrum, a Viagra for the problem of international legal impotence, a Britney Spears for the Bob Dole of global legal dysfunction? Sadly, there is, but it is not a pretty option. It looks nothing like Ms. Spears.

World government is not a new idea. The dream of uniting the entire planet under one unified, comprehensive, consistent form of rule is as old as humanity. Our history

has recorded noteworthy examples of people who actually attempted to reify this dream. Often, great leaders justified the steps they took by asseverating that world government, with them as the head, was necessary to effectuate such lofty stated ambitions as ending war, spreading civilization to all peoples, bringing the true religion to all unbelievers, and facilitating prosperity and peace across the globe. Some may have used such rationales as rationalization, mere window dressing for the ugly truth, but others evidently held these beliefs very sincerely and were convinced that they were on the side of the angels in their work.

And what work it was! The utopian ideal of One World, united and peaceful, harmonious and Edenic, has in reality only been seriously pursued by running the rapids in rivers of blood.

Alexander the Great came as close as anyone to unifying the whole world, at least that part of it that was known to him. Schooled by no less a teacher than Aristotle, he explained that his goal was brotherly love and enlightened civilization for all. But his phenomenal successes in bringing many peoples together under one ruler (that is, Alexander the Great himself) were achieved through conquest, not conciliation. With sword and spear, bristling phalanxes and brilliant tactics, extraordinary personal courage and much good luck, he annihilated far larger armies, repeatedly, methodically, and brutally. Mighty Persia and many other nations fell to him and joined, involuntarily, his brotherhood of love. Alas, his unsurpassed military triumphs were counterbalanced by his paranoia, megalomania, delusions of divinity, and cruelty. The world government he established did not long outlive its founder's very brief but eventful lifetime.

To a greater or lesser extent, Alexander the Great's example was followed by a succession of others who had visions of a united world. Julius Caesar, Saladin, Napoleon Bonaparte, and Adolf Hitler are among those who longed for the good (as they saw it) that could be done in a world ruled by a single overarching government. The millions of human lives lost or ruined in the process were seen by them as a price that must be paid for such a pearl. Whether one views these people as heroes, villains, or something else depends on one's perspective, but two things are clear. All of the most notable efforts to create One World were extremely bloody. And all of them ultimately failed at some point, despite some remarkable victories along the way.

If there could be a world government today, one might envision it as a global version of the American experiment, with a republican form of government, free and open elections, a system of "federalism" extrapolated to a worldwide scale that allowed for some diversity of approach from nation-state to nation-state, the universal rule of law, and vigorous protection of fundamental human rights for all people. Peace would be maintained by a single military under one leader, albeit with troops drawn from all over the planet. Compliance with the law would be enforced through a global police force under the overall direction of one person.

Under such a world government, the applicability of legal instruments such as the WHC would no longer be hostage to the voluntary choices of nations to sign, or to comply after signing. Once enacted into law, they would apply universally, and would be enforced with real force. If there were disputes as to the meaning of a term, or the proper way to interpret a requirement, they would be resolved by a body with the jurisdiction and authority to ensure that its judgments are followed.

But reality continues to intrude upon our dreams, and wishful thinking is often heavy on the wishful and light on the thinking. It is likely that all serious attempts to unite the world will be violently launched in the time-honored fashion by bloodthirsty,

ruthless lunatics, fanatics, and racists, not by peace-loving, biodiversity-hugging, global versions of Mister Rogers who stroll together into the woods and rainforests to hold hands and sing “Kumbaya.” Even if, somehow, the nations could be brought together, how could they be kept together for long? Powerful, ancient centripetal forces of nationalism, tribalism, and core differences in religion, culture, race, ethnicity, language, and political tradition would constantly pull on the components, prying them apart again. Absent an unprecedented transformation in the nature of the world and its people, what could possibly bind the nations together beyond the near term? The greatest empires of the world’s history eventually crumbled (often very quickly, as with Alexander’s vast conquests), and brute force cannot be the permanent bond that overcomes our fragmentational propensities.²¹⁵ And so, we are left again with hordes of incalcitrant cats to herd, if we can.

It may be discomfiting for some people to contemplate the powerlessness of law to direct the most momentous actions of the world’s nations. As young children, we were taught the importance of rules—rules set for us by our parents, rules to playground games, rules to games that came in a box, schoolroom games, God’s commandments—and the very real consequences of disobeying them. We chafed and resisted at times, but there was a sense of comfort, certitude, predictability, and reliability that the rules provided for us. They made us feel safe. If we followed the rules, everything would be fine. This aura of security made life more manageable and less threatening. Certainty was a palliative for our fears.

But as we grew older we learned that some, perhaps all, rules were less clear and less predictable than we had first been taught. We discovered that sometimes we could get away with breaking our parents’ rules, and that the rules to our playground games could be altered on the fly by the consent of the players. We even found that people could disagree about what the rules meant and what they required in any particular situation. Unless there was an ultimate authority (such as our mother, or God), disputes over rule interpretation could become an impasse that halted the entire enterprise. Without a definitive, powerful arbiter, the rules were subject to as many divergent interpretations as there were individuals involved.

We learned, eventually, that the rules called “laws” by adults had many of the same features as the other rules in our lives. Laws were not the unquestioned and unquestionable, omnipotent, for-our-own-good, never-to-be-broken Laws with a capital “L” that we were first taught they were. They could be unfair, unclear, contradictory, difficult to enforce, and inconsistently interpreted or applied by judges and police officers. And there were some things that laws (now with a lower-case “L”) could not do, no matter how hard people tried to make them do it, and regardless of how much we longed for a *deus ex machina* to solve our worst problems. Laws could not end violent crime, stop all drug abuse, or make people be good to one another. The world became a much more challenging, frustrating, frightening, uncertain, and unsafe place for us.

It seems wrong that the law should not be able to protect the hotspots. We have so many laws, in so many nations, all devoted to tackling a piece of the problem! There

215. The Roman emperor Caligula had a favorite aphorism, “Oderint dum metuant.” In English, this means, “Let them hate, so long as they fear.” But this philosophy did not provide an enduring principle of success for him, and there is no reason to think it would be more effective now.

are entire treaties and conventions, like the WHC and the Convention on Biological Diversity,²¹⁶ that are specifically intended to save living treasures such as the hotspots. Why have all these laws and all the people who wrote them and live with them been unable to do more to stop the devastation of our planet's most vital living jewels? Why, we have international laws with the very words "biological diversity" in their title! We have many statutes, and many police officers and park rangers, in many countries, all pointing at the problem and commanding it to go away! What is wrong?

What is wrong is that reality has crashed our party. Laws, in individual nations and in great aggregations of nations, have not been capable of saving the hotspots. Neither have they ended war, eliminated starvation, banished genocide, swept away terrorism, wiped out all slavery, stamped out religious persecution, or halted the brutal degradation of women throughout the world. If we no longer expect our parents' rules to be the final word in our lives, why do we persist in our childlike faith that laws can be a panacea to the world's greatest tragedies? Although we often speak of "the rule of law," it is not truly law that rules—it is people, power, and politics, all fueled by money. Law can guide, inform, inspire, and place some limits on each of these forces, but it cannot rule in and of itself.

Top-down, command-and-control, stick-wielding laws can be effective under some limited circumstances, if they are clearly and unambiguously written, free of escape hatches, vigorously enforced by sufficiently numerous, vigilant, and powerful people, and subject to the final interpretative rulings of an authoritative and power-laden ultimate judge. This situation might present itself at times in some individual nations or empires—unfortunately, often ones markedly low on the civil liberties scale. It does not and cannot ever happen on a global scale, at least not unless and until the world is drastically transformed. And if it takes another Alexander the Great to do the job, with world government and its laws imposed at the point of a sword, we are much better off with things as chaotic as they are.

This does not mean that laws are worthless. It does not mean that the WHC should be discarded. It only means that we must use laws, including the WHC, in whatever way they can be most useful. If the WHC can teach people to value the hotspots, and shape world opinion as to the significance of hotspots preservation, that will be a very real, very valuable contribution. We should not be chagrined, as disillusioned children, to learn that the law cannot solve all our problems. We can be realists, and use the law as one instrument that, along with many others, can make a difference.

The WHC, in its current form, still has value as one tool for hotspots preservation. But, as we have seen, it is primarily a tool of education and motivation, not a tool of direct action. It is more akin to a pointer than a billy club. And, as Jerry Seinfeld might say, "Not that there's anything wrong with it."²¹⁷ By offering the prospect of official, highly visible, international recognition of the hotspots as some of the most precious natural treasures of the entire planet, by prodding further scientific and technical research into them, and by facilitating targeted fundraising for their rescue, the WHC can do more to save the hotspots than any other extant international law. It is by no means a perfect, all-encompassing solution, but neither is it inconsequential. For want

216. Convention on Biological Diversity of the United Nations Conference on the Environment and Development, June 5, 1992, 31 I.L.M. 818 (entered into force Dec. 29, 1993).

217. *Seinfeld: The Outing* (NBC television broadcast, Feb. 11, 1993).

of anything better, and with no *deus ex machina* in sight, it is a place to begin.

I have argued elsewhere for a United States statute, tentatively called the Vital Ecosystems Preservation Act, that could effectively deal with the hotspots crisis better than more conventional international legal means.²¹⁸ But my proposal faces formidable practical obstacles no less daunting than those in the path of using the WHC to guide more progressive international preservationist actions. At least for the near term, the WHC is the best we have. If we can use it to help teach people about the value of the hotspots and change minds, we might succeed in changing the gloomy fate that now awaits so many of these global treasures. We cannot afford to let the perfect be the enemy of the good, for perfection in the law is as impossible as resurrecting from extinction the species we have already lost as the hotspots dwindle away.

V. CONCLUSION

How could roughly half of all life on earth slip through the cracks of humanity's collective legal system? How could effective protection for numberless hosts of species and their habitats remain elusive amidst the thicket of domestic and international laws of the many nations that are hosts to the biodiversity hotspots? It is only a partial answer that the hotspots remained unrecognized even within the scientific community until 1988. There were other means of setting conservation priorities before the hotspots concept was posited, and yet the legal world failed to take up the cause of any of them. The remainder of the answer is in multiple parts.

First, the general public as well as the leaders of each nation, virtually without exception, continue to be oblivious to the fact that this planet's life is anything but evenly distributed around the globe. Citizens at all levels in all nations do not know that 44% of all plant species and 35% of all nonfish vertebrates live in, and only in, 1.44% of the Earth's land surface.²¹⁹ There is an appalling lack of cognizance of this phenomenal concentration of endemic species.

It is as if a person owned a 100-acre plot of land,²²⁰ and there was information publicly available proving half of that person's wealth was hidden somewhere within a specific one-and-a-half acre parcel of the plot, yet the owner did not bother to notice. Why not? Maybe the information was not sufficiently publicized, and had not worked its way into the realm of common knowledge. Or maybe the owner did not know enough even to ask the right questions, never dreaming that there could be such a disproportionate share of riches in so tiny a parcel. Likewise, on a global scale, the scientific literature is certainly seldom read and even more seldom understood by the leaders and average citizens of any nation. Until or unless a scientific idea attracts significant attention beyond the perimeters of the specialized journals, it might as well exist in a parallel universe; laypersons will not be aware of it.

Second, people tend to be vaguely aware that there are laws in effect aimed at

218. Kunich, *supra* note 1, at 1212-17, 1226-39; *See generally* Kunich, *supra* note 3.

219. *See supra* notes 101-110 and accompanying text.

220. It may be helpful to conceptualize this parcel as the famous Hundred Acre Wood inhabited by such extraordinary creatures as Winnie the Pooh, Tigger, Eeyore, Owl, and Piglet. If the owners of such a 100-acre plot fail to check, who can say whether there might be living therein a small population of highly evolved endemic life forms capable of human speech and bipedal locomotion?

preserving endangered species and setting aside land for parks, preserves, national forests, and wildlife refuges—and they might assume that these laws have taken care of whatever needs might exist. To return to our 100-acre hypothetical, the owner might have complacently presumed that the existing laws were sufficient to protect everything on the land, irrespective of any imbalance that may obtain in the distribution of wealth from acre to acre. If, as the saying goes, ignorance is bliss, people may understandably derive comfort from remaining unaware of the gaps and flaws in the safety net of laws supposedly protecting them. To the limited extent that citizens, and even political leaders, are cognizant of the various laws that touch on living things, it is natural for them to gravitate to the default option of concluding that everything is under control. After all, there are so many laws, and so many words on so many pages—surely they must add up somehow to effective protection for something as valuable and irreplaceable as half of all life.²²¹

It can be quite discomfiting to learn that something we have relied on is unreliable. Such a revelation can provoke a crisis of confidence and shake a person's faith in the system. Moreover, when it requires considerable scientific and legal effort to discern the problem, it is far easier to relax and trust that all is well. Why go to all that trouble only to discover that we have a huge problem on our hands? If we do expend the effort to uncover the problem, we may also find out one of the reasons why it has not been solved: It is extremely difficult to do so.

This is the third part of the answer to the puzzle of legal neglect of the hotspots. For natural resources that are spread over so many nations, often very poor, developing nations, there are powerful local forces pushing for their exploitation, while the countervailing preservationist forces are weaker and more remote. If an impoverished nation chooses to develop its forests and fields to feed its people, how can other nations, alone or in concert, effectively intervene?

The World Heritage Convention is the international legal instrument that most closely approximates a potential partial solution to the hotspots crisis. In this Article, I have adumbrated the features of the Convention that confer upon it this potential power. The definitional prerequisites for recognition as a World Heritage site are an excellent fit for the hotspots, although no hotspot has been explicitly denominated as such to date. The WHC also provides for some financial and technical assistance from the broader community of nations for the preservation of listed sites. And it can serve as a useful tool to leverage private contributions to hotspots protection, in part through its information-sharing and educational provisions.

This Article has also noted that the WHC is burdened with serious shortcomings. It lacks an enforcement mechanism. Its language in key sections is so vague and amenable to multiple interpretations as to be incapable of supplying clear guidance. There are caveats and contingencies hanging onto its "requirements," further emptying them of action-forcing power. And signatories are allowed reservations and exceptions, over and above these other loopholes. Beyond all other defects is the threshold problem that the Convention only applies to nations that voluntarily sign and ratify it. It is discretionary to become a State Party, discretionary to remain a State Party, and to

221. Devotees of the comedy film *Airplane!* may here insert their own footnote, along the lines of the following: "They don't. And don't call me Shirley." AIRPLANE! (Paramount Pictures 1980).

a great extent discretionary as to what a signatory does to abide by its terms while it is a State Party.

Despite these formidable flaws, the WHC is the best legal instrument currently in existence for saving the hotspots. I have averred that the WHC could become a vehicle for focusing the world's attention on these comparatively tiny, badly endangered pockets of overflowing life. Designation of each hotspot as a World Heritage site, and especially inclusion on the World Heritage in Danger list, could send a powerful message to people in all nations that the hotspots are global treasures desperately in need of global protection. The WHC is designed to further educational and information-dissemination goals, and if it is used to the fullest in this regard, it could indirectly lead to substantially enhanced private sector and public assistance and support for hotspots preservation. It could be a potent antidote to the very ignorance that has thus far consigned the hotspots to their dire state of legal neglect.

Of course, it requires both knowledge and will to use the WHC this way. But if even one hotspot, as such, can be designated under the WHC, this could be the catalyst for the kind of global awakening that must take place to save the hotspots. Public attention, WHC funds for further research, debate about other hotspots and their possible eligibility for World Heritage recognition—these are not the traditional mechanisms for top-down command-and-control regulation of vital natural resources. But those methods have been tried, and have failed. This Article has argued that the real key to saving this planet's imperiled biodiversity is knowledge, and in that regard the World Heritage Convention can do much to help.