The Global 200: A Representation Approach to Conserving the Earth's Most Biologically Valuable Ecoregions

The current extinction crisis requires dramatic action to save the variety of life on Earth. Because funding for conservation action is limited, governments, donors, and conservation groups must be strategic and earmark the greatest amount of resources for protecting the areas richest in biodiversity. Most conservation biologists recognize that, although we cannot save everything, we should at least ensure that all ecosystem and habitat types are represented within regional conservation strategies (Hummel 1989; Caldecott et al. 1996; Krever et al. 1994; Noss & Cooperrider 1994; BSP (Biodiversity Support Program) et al. 1995; Dinerstein et al. 1995; United Nations Environmental Programme 1995; Ricketts et al. in press).

The "representation" approach has been applied at a number of geographical scales, from single watersheds to entire continents (Hummel 1989; Nicoll & Langrand 1989; Bedward et al. 1992; Cox et al. 1994; MacKinnon 1994; Pressey & Logan 1994; Caicco et al. 1995; Pressey et al. 1994; Dinerstein et al. 1995; Fearnside & Ferraz 1995; Johnson 1995). Here we introduce the Global 200, the first attempt to achieve representation of habitat types on a global scale. Our primary objective is to promote the conservation of terrestrial, freshwater, and marine ecosystems harboring globally important biodiversity and ecological processes. The Global 200 addresses this goal by identifying the world's most outstanding examples within each major habitat type (e.g., tropical dry forests, large lakes, coral reefs).

The representation approach, accepted by a growing number of conservationists, is soundly based in conservation biology. It integrates the goal of maintaining species diversity—the traditional focus of biodiversity conservation—with another level of conservation action, the preservation of distinct ecosystems and ecological processes. Although more than half of all species are likely to occur in the world's tropical moist forests, the other 50% of all species are found elsewhere. To conserve that half, a full representation of the world's diverse ecosystems must be the goal.

Tundra, tropical lakes, mangroves, and temperate broadleaf forests are all unique expressions of biodiversity. Although they may not support the rich communities seen in tropical rainforests or coral reefs, they contain species assemblages adapted to distinct environmental conditions and reflect different evolutionary histories. To lose examples of these assemblages, and the ecological processes and evolutionary phenomena they contain, would represent an enormous loss of biodiversity.

Although conservation action typically takes place at the country level, patterns of biodiversity and ecological processes (e.g., migration) do not conform to political boundaries. Thus, we used the ecoregion as the unit of analysis in creating the Global 200. We define an ecoregion as a relatively large unit of land or water containing a characteristic set of natural communities that share a large majority of their species, dynamics, and environmental conditions (Dinerstein et al. 1995; The Nature Conservancy 1997). Ecoregions function effectively as conservation units at regional scales because they encompass similar biological communities and because their boundaries roughly coincide with the area over which key ecological processes most strongly interact (Orians 1993; Noss 1996).

To maintain representation of biodiversity at a global scale, we first stratified ecoregions by realm (terrestrial, freshwater, and marine) and then further divided realms by major habitat types (MHTs), which describe different areas of the world that share similar environmental conditions, habitat structure, and patterns of biological complexity (e.g., beta diversity) and that contain communities with similar guild structures and species adaptations. The MHT classifications are roughly equivalent to biomes. We identified 12 MHTs in the terrestrial realm, 3 in the freshwater realm, and 4 in the marine realm (Table 1). Each MHT was further subdivided by biogeographic realm (e.g., Nearctic, Indian Ocean) in order to represent unique faunas and floras of different continents or ocean basins. Finally, we identified ecoregions within each biogeographic realm that represent the most distinctive examples of biodiversity for a given MHT (Table 1).

The boundaries of terrestrial ecoregions for the Global 200 are taken from intensive regional analyses of biodiversity patterns across five continents undertaken by the World Wildlife Fund (WWF) Conservation

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Table 1. The Global 200 ecoregions organized by terrestrial, freshwater, or marine realm; major habitat type; and biogeographic realm.[a]

Realm and ecoregion	*Biogeographic realm*[b]	*Conservation status*[c]
Terrestrial ecoregions		
Tropical and subtropical moist broadleaf forests	Neotropical	
	1. Atlantic forests—Brazil, Paraguay, Argentina	CE
	2. Northern Andean montane forests—Ecuador, Colombia, Venezuela, Peru	CE
	3. Andean Yungas—Ecuador, Colombia, Venezuela, Bolivia, Peru	V
	4. Coastal Venezuela montane forests—Venezuela	CE
	5. Greater Antillean moist forests—Haiti, Cuba, Dominican Republic, Jamaica, Puerto Rico	CE
	6. Chocó-Darién moist forests—Colombia, Panama, Ecuador	V
	7. Varzea flooded forests—Peru, Brazil, Venezuela	CE
	8. Talamancan and Isthmian Pacific forests—Costa Rica, Panama	V
	9. Napo moist forests—Ecuador, Colombia, Peru	RS
	10. Rio Negro-Juruá moist forests—Colombia, Brazil, Peru, Venezuela	RS
	11. Southwestern Amazonian moist forests—Peru, Brazil, Bolivia	RS
	12. Guayanan forests—Venezuela, Brazil, Guyana, Suriname, French Guiana	RS
	Afrotropical	
	13. Madagascar moist forests—Madagascar	CE
	14. Guinean moist forests—Ghana, Guinea, Côte d'Ivoire, Liberia, Sierra Leone, Togo	CE
	15. Eastern Arc montane forests—Tanzania, Kenya	CE
	16. East African coastal forests—Tanzania, Kenya, Mozambique, Somalia	CE
	17. Albertine Rift highland forests—D.R. Congo, Rwanda, Uganda, Burundi, Tanzania	CE
	18. East African highland forests—Kenya, Tanzania, Uganda	CE
	19. Seychelles and Mascarene Islands forests (e.g., Mauritius, Seychelles, Comoros, Reunion, Rodrigues)	CE
	20. Gulf of Guinea Islands forests—São Tomé and Príncipe, Equatorial Guinea,	CE
	21. Macaronesian forests (Azores, Madeira, Canary, Cape Verde Islands)	CE
	22. Congolian coastal forests—Cameroon, Gabon, R. Congo, Nigeria, Equatorial Guinea, Benin	CE
	23. Western Congo Basin forests—Central African Republic, Cameroon, R. Congo, Gabon, D.R. Congo, Equatorial Guinea	RS
	24. Northeastern Congo Basin forests—D.R. Congo, Central African Republic, Sudan, Uganda	RS
	25. Southern Congo Basin forests—D.R. Congo, Congo, Angola	RS
	Indo-Malayan	
	26. Annamite Range moist forests—Laos, Vietnam, Thailand	V
	27. Western Ghats moist forests—India	CE
	28. Sri Lankan moist forests—Sri Lanka	CE
	29. Kayah-Karen/Tenasserim moist forests—Thailand, Myanmar, Malaysia	RS
	30. Peninsular Malaysian lowland and montane forests—Malaysia, Thailand	CE
	31. Sumatran-Nicobar Islands lowland forests—Indonesia, India	CE
	32. Sumatran montane forests—Indonesia	V
	33. Central Borneo montane forests—Indonesia, Malaysia, Brunei	RS
	34. Northern Borneo-Palawan moist forests—Malaysia, Indonesia, Philippines, Brunei	CE
	35. Philippines moist forests—Philippines	CE
	36. Sulawesi moist forests—Indonesia	RS
	37. Moluccas moist forests—Indonesia	RS
	38. Northern Indochina subtropical moist forests—Myanmar, Thailand, Laos, Vietnam, China	V
	39. Southeast China subtropical forests—China	CE
	40. Northeastern India and Myanmar hill forests—India, Myanmar, Bangladesh	RS
	41. Andaman Islands forests—India	V
	42. Taiwan montane forests—Taiwan	V
	43. Hainan Island forests—China	CE
	44. Nansei Shoto Archipelago forests—Japan	CE
	Australasian	
	45. New Caledonia moist forests—New Caledonia, France	CE
	46. New Zealand tropical forests—New Zealand	CE
	47. Queensland tropical forests—Australia	V
	48. New Guinea montane forests—Papua New Guinea, Indonesia	RS
	49. New Guinea lowland forests—Papua New Guinea, Indonesia	RS

continued

Table 1. (continued)

Realm and ecoregion	*Biogeographic realm*	*Conservation status*[b]
	50. New Guinea outer islands/Solomons moist forests—Papua New Guinea, Solomon Islands	RS
	51. Lord Howe and Norfolk Island forests—Australia	CE
	Oceanian	
	52. Hawai'i moist forests—United States	CE
	53. South Pacific Islands forests—Fiji, Tonga, Samoa, I Sisito, American Samoa	CE
Tropical, subtropical dry, and monsoon broadleaf forests	Neotropical	
	54. Bolivian lowland dry forests—Bolivia, Brazil	CE
	55. Tumbesian and North Inter-Andean Valleys dry forests—Ecuador, Peru, Colombia	CE
	56. Southern Mexican dry forests—Mexico	CE
	Afrotropical	
	57. Madagascar dry forests—Madagascar	CE
	58. Maputaland-Pondoland dry forests—South Africa, Swaziland, Mozambique	CE
	Indo-Malayan	
	59. Eastern Indochina dry and monsoon forests—Vietnam, Laos, Thailand, Cambodia	V
	60. Lesser Sundas dry and monsoon forests—Indonesia	V
	61. Eastern Indian monsoon forests—India	V
	Australasia	
	62. New Caledonia dry forests—New Caledonia, France	CE
	Oceanian	
	63. Hawai'i dry forests—United States	CE
Tropical and subtropical conifer forests	Neotropical	
	64. Mexican pine-oak forests—Mexico, United States	CE
	65. Greater Antillean pine forests—Haiti, Cuba, Dominican Republic	CE
Temperate conifer and broadleaf forests	Nearctic	
	66. Klamath-Siskiyou coniferous forests—United States	CE
	67. Appalachian and mixed mesophytic forests—United States	CE
	68. Pacific temperate rainforests—United States, Canada	CE
	69. Sierra Nevada conifer forests—United States	CE
	70. Southeastern conifer and broadleaf forests—United States	CE
	Neotropical	
	71. Valdivian temperate rainforests—Chile, Argentina	CE
	Palearctic	
	72. Russian Far East temperate forests—Russia, China	V
	73. Altai-Sayan montane forests—Russia, Kazakstan, Mongolia, China	RS
	74. Caucasus and Northeast Anatolia temperate forests—Georgia, Azerbaijan, Turkey, Russia, Iran, Armenia	V
	75. Middle Asian mountains temperate forests and steppe—Kyrgyzstan, Turkmenistan, Afghanistan, Uzbekistan, Kazakstan, Tajikistan, Pakistan, India, Mongolia, China, Iran	V
	76. Western Himalayan temperate forests—Pakistan, India, Nepal	CE
	77. Southern European montane forests—Bulgaria, Greece, Spain, Italy, France, Andorra, Switzerland, Austria, Slovenia, Poland, Slovakia, Hungary, Czech Republic, Germany, Romania, Ukraine, Yugoslavia	CE
	78. Central China temperate forests—China	CE
	79. Eastern Himalayan broadleaf and conifer forests—Bhutan, India, Nepal, Myanmar, China	V
	Australasian	
	80. Eastern Australia temperate forests—Australia	V
	81. Tasmanian temperate rainforests—Australia	CE
	82. South Island temperate rainforests—New Zealand	RS
Boreal forests and taiga	Nearctic	
	83. Canadian boreal taiga—Canada	RS
	84. Northern Cordillera boreal forests—Canada	RS
	Palearctic	
	85. Central and Eastern Siberian boreal forests and taiga—Russia	RS
	86. Ural Mountains boreal forests and taiga—Russia	RS
	87. Kamchatka boreal taiga and grasslands—Russia	RS

continued

Table 1. (continued)

Realm and ecoregion	*Biogeographic realm*	*Conservation status*[b]
Arctic tundra	Nearctic and Palearctic	
	88. Alaskan North Slope coastal tundra—United States, Canada	V
	89. Low Arctic tundra—Canada	RS
	90. Chukotsky coastal tundra—Russia	RS
	91. Taimyr coastal tundra—Russia	RS
	92. Scandinavian alpine tundra and taiga—Norway, Sweden, Finland	V
Temperate grasslands, savannas, and shrublands	Neotropical	
	93. Patagonian steppe and grasslands—Argentina, Chile	V
	Nearctic	
	94. Tallgrass prairies—United States	CE
	Palearctic	
	95. Eastern Himalayan alpine meadows—Bhutan, Nepal, India, Myanmar, China	RS
	96. Tibetan Plateau steppe—China, India	RS
	97. Daurian steppe—Mongolia, Russia, China	RS
Tropical and subtropical grasslands, savannas, and shrublands	Neotropical	
	98. Llanos savannas—Venezuela, Colombia	V
	99. Cerrado woodlands and savannas—Brazil, Bolivia, Paraguay	V
	100. Beni savannas—Bolivia	V
	Afrotropical	
	101. Angolan Escarpment woodlands—Angola	CE
	102. Zambezian woodlands and savannas—Zambia, Tanzania, Malawi, Zimbabwe, Mozambique, Angola, Namibia, Botswana, D.R. Congo, Burundi	V
	103. Sudanian savannas—Central African Republic, Chad, Uganda, Ethiopia, D.R. Congo, Cameroon, Sudan, Nigeria, Eritrea	V
	104. East African acacia savannas—Kenya, Tanzania, Sudan, Ethiopia, Uganda	V
	Indo-Malayan	
	105. Terai-Duar savannas and grasslands—Nepal, India, Bhutan, Bangladesh	CE
	Palearctic	
	106. Arabian fog woodlands and shrublands—United Arab Emirates, Oman, Yemen, Saudi Arabia	V
	107. Red Sea fog woodlands—Egypt, Sudan, Djibouti, Eritrea	CE
	Australasian	
	108. Northern Australia and Trans-Fly savannas—Australia, Papua New Guinea, Indonesia	RS
Flooded grasslands and savannas	Neotropical	
	109. Pantanal flooded savannas—Bolivia, Brazil, Paraguay	V
	110. Everglades flooded grasslands—United States	CE
	Afrotropical	
	111. Sahelian flooded savannas—Mali, Chad, Niger, Nigeria, Cameroon, Senegal, Mauritania	V
	112. Zambezian flooded savannas—Botswana, Namibia, Angola, Zambia, Malawi, Mozambique	CE
	113. Sudd flooded grasslands and savannas—Sudan, Ethiopia	V
Tropical montane grasslands and savannas	Neotropical	
	114. North Andean paramo—Ecuador, Venezuela, Colombia, Peru	V
	Afrotropical	
	115. East African moorlands—Kenya, Tanzania, Uganda, D.R. Congo, Rwanda	RS
	116. Ethiopian Highlands—Ethiopia, Somalia, Eritrea, Sudan	CE
	117. Zambezian montane savannas and woodlands—Zimbabwe, Mozambique, Malawi, Zambia, Tanzania	CE
	118. South African montane grasslands and shrublands—South Africa, Lesotho, Swaziland	CE
	Indo-Malayan	
	119. Mt. Kinabalu montane and alpine scrub and forest—Malaysia	RS

continued

Table 1. (continued)

Realm and ecoregion	*Biogeographic realm*	*Conservation status*[b]
	Australasian	
	120. Maoke Range alpine heathlands—Indonesia	RS
Deserts and xeric shrublands	Neotropical	
	121. Sonoran and Baja Deserts—Mexico, United States	V
	122. Chihuahuan and Tehuacán Deserts—Mexico, United States	V
	123. Galápagos Islands scrubs—Ecuador	V
	124. Atacama Desert—Chile	CE
	Afrotropical	
	125. Namib and Karoo deserts and shrublands—South Africa, Namibia	CE
	126. Kaokoveld Desert—Namibia, Angola	V
	127. Madagascar Spiny Desert—Madagascar	CE
	128. Horn of Africa deserts—Somalia	V
	129. Socotra Island Desert—Yemen	V
	Palearctic	
	130. Central Asian deserts—Turkmenistan, Kazakstan, Uzbekistan, Tajikistan	CE
	Australasian	
	131. Sandy Australian deserts and central ranges—Australia	RS
Mediterranean shrublands and woodlands	Neotropical	
	132. Chilean matorral—Chile	CE
	133. California chaparral and woodlands—United States, Mexico	CE
	Afrotropical	
	134. Fynbos—South Africa	CE
	Palearctic	
	135. Mediterranean shrublands and woodlands—Portugal, Spain, France, Italy, Monaco, Greece, Yugoslavia, Bosnia and Herzegovina, Croatia, Albania, Turkey, Libya, Lebanon, Israel, Morocco, Algeria, Tunisia, Malta, Cyprus, Macedonia, Bulgaria, Egypt, Syria, Jordan, Slovenia, Gibraltar	CE
	Australasian	
	136. Southwest Australian shrublands and woodlands—Australia	CE
Freshwater ecoregions		
Small rivers and streams	Nearctic	
	137. Mississippi piedmont rivers and streams—United States	
	138. Southeastern rivers and streams—United States	
	139. Pacific Northwest coastal rivers and streams—United States	
	140. Gulf of Alaska coastal rivers and streams—United States, Canada	
	Neotropical	
	141. Guayanan highlands freshwater ecosystems—Venezuela, Brazil, Guyana, Colombia	
	142. Greater Antillean streams—Cuba, Jamaica, Haiti, Dominican Republic	
	143. Upper Amazon and Orinoco Rivers and streams—Ecuador, Venezuela, Colombia, Peru, Brazil, Bolivia	
	144. Upper Paraná River—Brazil, Paraguay	
	Afrotropical	
	145. Madagascar freshwater ecosystems—Madagascar	
	146. Gulf of Guinea rivers and crater lakes—Gabon, Equatorial Guinea, Cameroon, Nigeria, Benin, Togo, Congo, D.R. Congo, Central African Republic, Ghana	
	147. Congo Basin piedmont rivers and streams—D.R. Congo, R. Congo, Angola, Zambia, Central African Republic	
	Indo-Malayan	
	148. Sri Lankan rivers and streams—Sri Lanka	
	149. Sundaland rivers and swamps—Malaysia, Indonesia, Brunei	
	150. Western Ghats rivers and streams—India	
	Palearctic	
	151. Russian Far East rivers and wetlands—Russia, China, Mongolia	
	Australasian	
	152. New Guinea rivers and streams—Papua New Guinea, Indonesia	
	153. New Caledonia rivers and streams—New Caledonia, France	
	154. Eastern Australian rivers and streams—Australia	

continued

Table 1. (continued)

Realm and ecoregion	*Biogeographic realm*	*Conservation status*[b]
Large rivers	Nearctic	
	155. Colorado River—United States, Mexico	
	Neotropical	
	156. Varzea and Igapó freshwater ecosystems—Brazil, Peru, Colombia, Venezuela	
	157. Brazilian Shield Amazonian rivers and streams—Brazil, Bolivia	
	Afrotropical	
	158. Congo River—D.R. Congo, R. Congo, Angola	
	Indo-Malayan	
	159. Mekong and Salween Rivers—Cambodia, Vietnam, Laos, Myanmar, Thailand, China	
	160. Yangtze River and lakes—China	
Lake and closed basin freshwater ecosystems	Nearctic	
	161. Great Basin lakes and springs—United States	
	Neotropical	
	162. Chihuahuan rivers and springs—Mexico, United States	
	163. Mexican Highland lakes—Mexico	
	164. High Andean lakes—Chile, Bolivia, Argentina, Peru	
	Afrotropical	
	165. Rift Valley lakes—D.R. Congo, Uganda, Ethiopia, Tanzania, Kenya, Rwanda, Malawi, Mozambique, Burundi, Zambia	
	Palearctic	
	166. Lake Baikal—Russia	
	167. Yunnan lakes and streams—China	
	168. Lake Biwa—Japan	
	Indo-Malayan	
	169. Palawan and Mindanao streams and lakes (Lake Lanao)—Philippines	
	170. Lake Inle—Myanmar	
	171. Central Sulawesi lakes—Indonesia	
	Australasian	
	172. Lakes Kutubu and Sentani—Papua New Guinea, Indonesia	
Marine ecoregions		
Large deltas, mangroves, and estuaries	Nearctic	
	173. Chesapeake Bay and Delaware Bay—United States	
	Neotropical	
	174. Central American mangroves—Belize, Mexico, Honduras, Nicaragua, El Salvador, Panama, Guatémala, Costa Rica	
	175. Panama Bight mangroves—Ecuador, Panama, Colombia	
	176. Orinoco-Amazon mangroves and coastal swamps—Venezuela, Trinidad and Tobago, Guyana, Surinam, French Guiana, Brazil	
	177. Mexican mangroves—Mexico	
	Afrotropical	
	178. Senegal and Gambia river mangroves and wetlands—Senegal, Gambia, Guinea, Guinea-Bissau	
	179. Guinean-Congolian coast mangroves—Nigeria, Cameroon, Benin, Togo, Ghana, R. Congo, Ivory Coast, Liberia, Equatorial Guinea, Gabon, São Tomé and Príncipe, D.R. Congo, Sierra Leone, Angola	
	180. East African mangroves—Kenya, Tanzania, Somalia, Mozambique	
	Palearctic	
	181. Volga River Delta—Russia, Kazakstan	
	182. Mesopotamian Delta and marshes—Iraq, Iran, Kuwait	
	183. Danube River Delta—Romania, Ukraine, Moldavia	
	184. Lena River Delta—Russia	
	Indo-Malayan	
	185. Mekong River Delta mangroves—Vietnam, Cambodia	
	186. Sundarbans mangroves—India, Bangladesh	
	187. Sundaland and Eastern Indonesian archipelago mangroves—Indonesia	
	188. Indus River Delta and Rann of Kutch—Pakistan, India	
	Australasian	
	189. New Guinea mangroves—Papua New Guinea, Indonesia	

continued

Table 1. (continued)

Realm and ecoregion	*Biogeographic realm*	*Conservation status*[b]
Coral reef and associated marine ecosystems	Western Atlantic	
	190. Mesoamerican Reef—Belize, Guatemala, Honduras, Mexico	
	191. Southern Caribbean Sea—Panama, Colombia, Venezuela, Trinidad and Tobago, Netherlands Antilles	
	192. Greater Antilles and Bahamian marine ecosystems—Jamaica, Cuba, Haiti, Dominican Republic, Cayman Islands, Bahamas, United States, Turks and Caicos	
	Western Indian Ocean	
	193. East African marine ecosystems—Kenya, Tanzania, Mozambique, Somalia	
	194. Western Madagascar marine ecosystems—Madagascar	
	195. Red Sea marine ecosystems—Egypt, Israel, Saudi Arabia, Yemen, Eritrea, Djibouti, Sudan, Jordan	
	196. Agulhas Current marine ecosystems—Mozambique, South Africa	
	Northern Indian Ocean	
	197. Arabian Sea and Persian Gulf—Bahrain, Saudi Arabia, United Arab Emirates, Qatar, Oman, Iran, Pakistan, Yemen	
	198. Maldives, Lakshadweep, and Chagos marine ecosystems—Maldives, India, United Kingdom	
	199. Andaman and Nicobar Islands marine ecosystems—India	
	Eastern Indian Ocean	
	200. Western Australian marine ecosystems—Australia	
	Western Pacific Ocean	
	201. Isthmus of Kra marine ecosystems—Thailand, Malaysia	
	202. Nansei Shoto marine ecosystems—Japan	
	203. Sulu Sea—Philippines, Malaysia	
	204. Sulawesi Sea—Philippines, Indonesia, Malaysia	
	205. Banda-Flores Seas marine ecosystems—Indonesia	
	206. Northern New Guinea and Coral Sea marine ecosystems—Papua New Guinea, Indonesia, Solomon Islands	
	207. Micronesian marine ecosystems—Palau, Federated States of Micronesia	
	Eastern Pacific Ocean	
	208. Panama Bight marine ecosystems—Panama, Colombia, Ecuador	
	Southern Pacific Ocean	
	209. South Pacific marine ecosystems (Vanuatu, Fiji, New Caledonia, Samoa, Tonga, Tuvalu)	
	210. Great Barrier Reef—Australia	
	211. Eastern Polynesian Island marine ecosystems (particularly, Hawai'i, Marquesas, Easter Island, Societies and Tuamotus)	
	212. Lord Howe Island and Norfolk Island marine ecosystems—Australia	
Coastal marine ecosystems	Northern Atlantic Ocean	
	213. Icelandic and Celtic marine ecosystems—Iceland, France, Ireland, United Kingdom, Denmark	
	214. Grand Banks—Canada, United States	
	215. Wadden Sea—Denmark, Germany, Belgium, The Netherlands	
	Western Atlantic Ocean	
	216. Northeast Brazilian coast marine ecosystems—Brazil	
	Eastern Atlantic Ocean	
	217. Gulf of Guinea marine ecosystems—Equatorial Guinea, Gabon, R. Congo, D.R. Congo, Angola, Cameroon, Nigeria, Benin, Togo, São Tomé and Príncipe	
	218. Western Guinea current marine ecosystems—Senegal, Gambia, Guinea-Bissau, Guinea, Sierra Leone, Cape Verde, Liberia, Mauritania	
	Southern Atlantic Ocean	
	219. Benguela Current—Namibia, South Africa, Angola	
	220. Southwest Atlantic coast marine ecosystems—Argentina, Uruguay, Brazil	
	Mediterranean Sea	
	221. Mediterranean Sea	
	Western Pacific Ocean	
	222. Yellow Sea and East China Sea—China, North Korea, South Korea, Japan	
	Eastern Pacific Ocean	
	223. Californian Current—United States, Canada, Mexico	

continued

Table 1. (continued)

Realm and ecoregion	*Biogeographic realm*	*Conservation status*[b]
	224. Sea of Cortez—Mexico	
	225. Peru Current—Peru, Chile	
	226. Galápagos Islands marine ecosystems—Ecuador	
	227. Magellanic Marine ecosystems—Chile, Argentina	
	Southern Pacific Ocean	
	228. South temperate Australian marine ecosystems—Australia	
Polar and subpolar marine ecosystems	Antarctic Seas	
	229. Antarctic Peninsula and Weddell Sea	
	230. New Zealand marine ecosystems—New Zealand	
	Arctic Ocean and Seas	
	231. Bering and Beaufort Seas—Russia, United States, Canada	
	232. Sea of Okhotsk and Northern Sea of Japan—Russia, Japan	
	233. Svalbard/Franz Joseph Land marine ecosystems—Russia, Norway	

[a] *We anticipate that there will be some minor modification of the Global 200 list in the future as new information becomes available and ongoing analyses are finalized.*
[b] *Numbers of ecosystems correspond to Figs. 1 and 2.*
[c] *CE, critical or endangered; V, vulnerable; RS, relatively stable or intact.*

Science Program and others (Victor 1955; Freitag 1971; Zohary 1973; Miyawaki 1975; Yim 1977; Chinese Vegetation Map Compilation Committee 1979; New Zealand Department of Conservation 1987; Noirfalise 1987; Changchun Institute of Geography and Chinese Academy of Sciences 1990; Kurnaev 1990; Bohn 1994; Krever et al. 1994; WWF & World Conservation Union 1994, 1995, 1997; Dinerstein et al. 1995; Ecological Stratification Working Group 1995; Gallant et al. 1995; Hilbig 1995; Omernik 1995; Thackway & Cresswell 1995; Mongolian Ministry for Nature and the Environment et al. 1996; Ricketts et al. in press; Bohn & Katenina 1996; S. Gon, personal communication; Wikramanayake et al., unpublished data). These assessments were conducted in collaboration with hundreds of regional experts and included extensive literature reviews.

Freshwater ecoregions were based on several regional analyses and consultations with regional experts (Hocutt & Wiley 1986; Frest & Johannes 1993; World Conservation Monitoring Centre 1992; Maxwell et al. 1995; Kottelat & Whitten 1996; Abell et al. 1997; Olson et al. 1997). Marine ecoregions delineated by the Global 200 are nested within a large marine ecosystem framework, derived from several global and regional analyses (e.g., Hayden et al. 1984; World Conservation Union and World Conservation Monitoring Centre 1988; Sherman et al. 1990; Croom et al. 1992; Ray & Hayden 1993; Kelleher et al. 1995; Groombridge & Jenkins 1996; Sullivan & Bustamante 1996; Ormond et al. 1997).

Within each MHT and biogeographic realm, ecoregions are classified by their biological distinctiveness at one of four levels: globally outstanding, regionally outstanding (e.g., Nearctic), bioregionally outstanding (e.g., Caribbean), or locally important. Biological distinctiveness, as a discriminator, evaluates the relative importance and rarity of different units of biodiversity. It can be used to estimate the urgency of action based on the opportunities for conserving distinct units around the world. On a global scale, and within each biogeographic realm, we chose the set of ecoregions with the greatest biological distinctiveness based on the following parameters: species richness, endemism, taxonomic uniqueness (e.g., unique genera or families, relict taxa or communities, primitive lineages), unusual ecological or evolutionary phenomena (e.g., intact large vertebrate faunas or migrations, extraordinary adaptive radiations), and global rarity of MHT (Olson & Dinerstein 1997). We compared only the biodiversity value of ecoregions sharing the same MHT because the relative magnitude of parameters such as richness and endemism varies widely among MHTs. For ecoregions of equal biological distinctiveness in the same MHT and biogeographic realm, we selected the ecoregions that had more intact habitats and biotas based on assessments of their conservation status (Dinerstein et al. 1995; Ricketts et al. in press; E. Wikramanayake, unpublished data).

We identified 233 ecoregions whose biodiversity and representation values are outstanding on a global scale (Table 1, Figs. 1 & 2). They represent the terrestrial, freshwater, and marine realms, and the 19 MHTs nested within these realms. Among the 3 realms, 136 (58%) are terrestrial, 36 (16%) are freshwater ecoregions, and 61 (26%) are marine. Terrestrial ecoregions outnumber those of the other realms largely because there is more localized endemism in terrestrial than in marine biotas. Gaps in biogeographic information for freshwater and marine biodiversity also account for some of the variation.

The results of the analysis target a number of well-known biodiversity

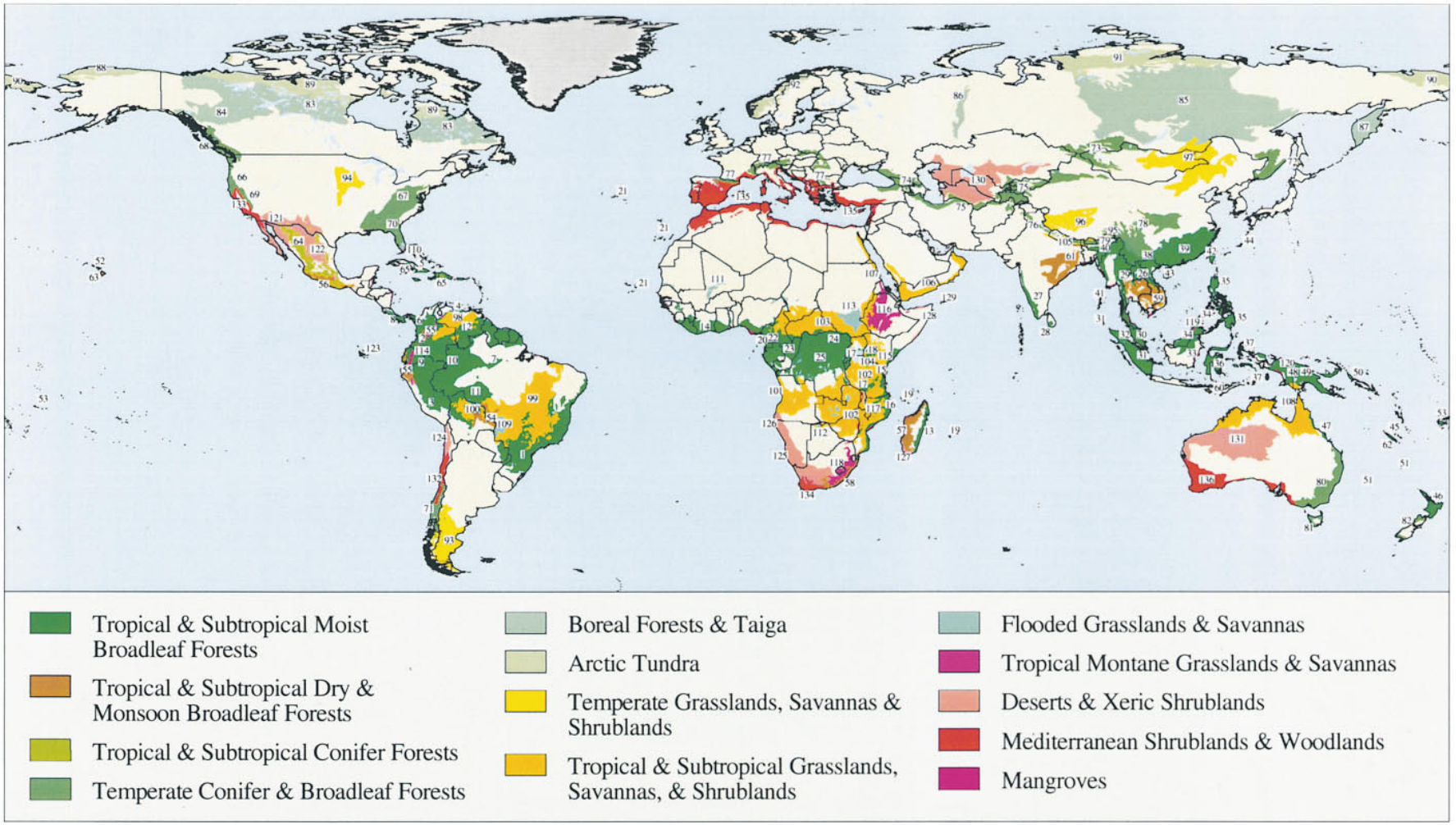

Figure 1. Terrestrial Global 200 ecoregions and their major habitat types. The Global 200 identifies outstanding and representative ecoregions of each major habitat type in each biogeographic realm where it occurs. The estimated original extent of ecoregions is shown, not the habitat that remains. Because many ecoregions have already been heavily altered, conservation activities are only feasible in much smaller areas than the original extent.

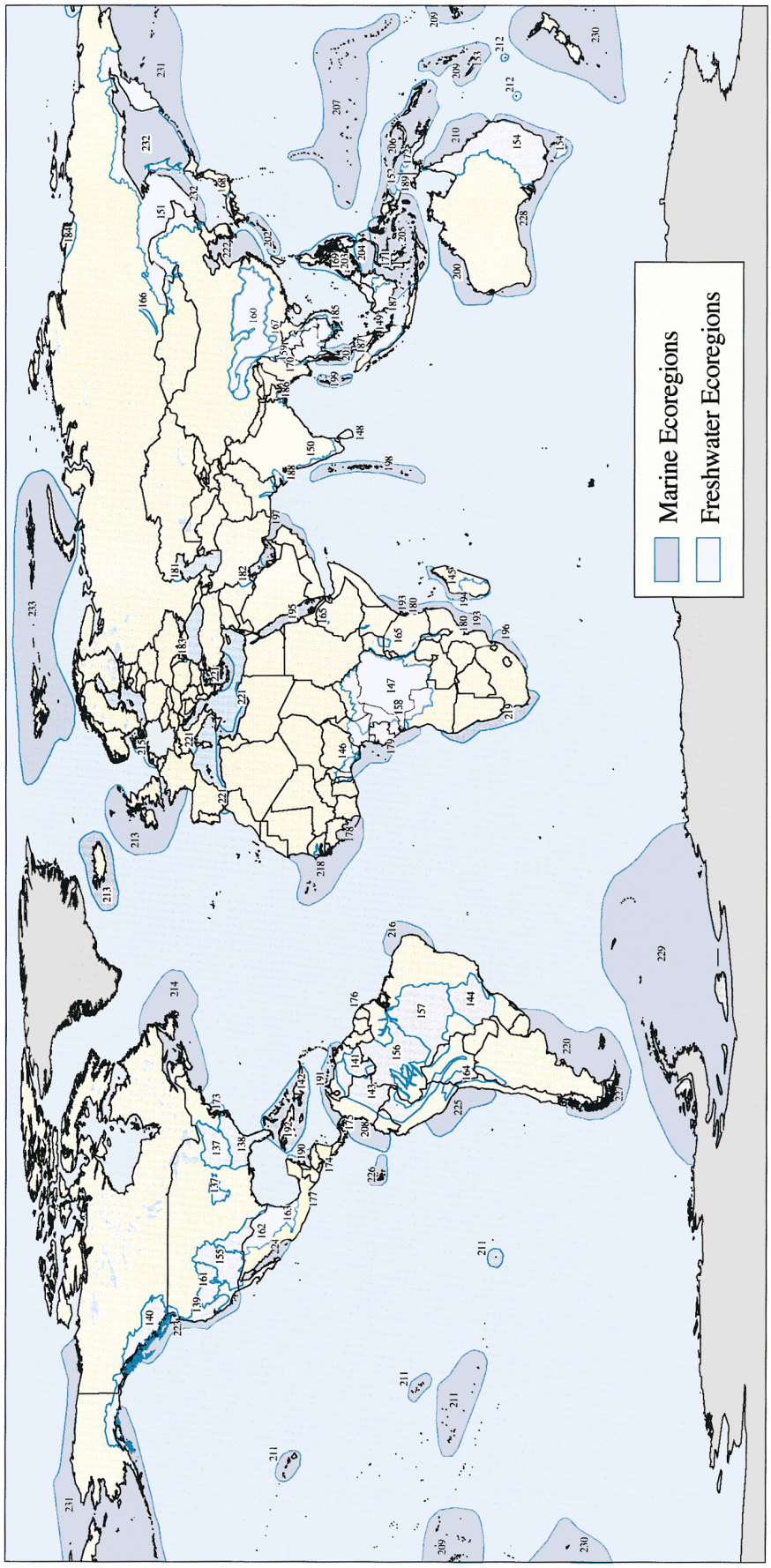

Figure 2. Freshwater and marine Global 200 ecoregions. Distinctive and representative freshwater and marine ecoregions were identified for each major habitat type in each terrestrial biogeographic realm or ocean basin. Freshwater and marine major habitat types are not shown.

priorities. For example, the Western Arc forests of the Amazon Basin, the Atlantic Forest ecoregion of Brazil, the Chocó-Darién ecoregion of northwestern South America, Peninsular Malaysia, and the northern Borneo forest ecoregions are among the richest tropical moist forests on Earth. Similarly, the forests of Madagascar and New Caledonia were also recognized as highly distinctive at global scales, partly because of the number of endemic higher taxa (e.g., families and genera). Other results highlight less well-known areas. For example, Mexico harbors both the world's richest and most complex subtropical conifer forests and the most diverse dry forests in the world; the moist forests of Sulawesi display some of the highest levels of mammal endemism in the Indo-Pacific region, and the Congolian Coastal forests are Africa's richest moist forests and exhibit pronounced narrow endemism. Results for marine and freshwater ecoregions also confirmed documented patterns and highlighted many less recognized priorities, such as the extraordinary temperate freshwater biotas of the streams of southeastern North America and the Yangtze River headwaters in central China, and the unusually high levels of endemism of temperate marine invertebrates in the South Australian coastal ecoregion.

Ecoregions vary greatly not only in their biological distinctiveness but also in their conservation status. Conservation status represents an estimate of the current and future ability of an ecoregion to maintain viable species populations, to sustain ecological processes, and to be responsive to short- and long-term environmental changes. We conducted conservation status assessments for the terrestrial Global 200 ecoregions based on landscape-level features, such as total habitat loss and the degree of fragmentation, and estimates of future threat and degree of protection. We drew heavily from regional conservation assessments to estimate conservation status (Krever et al. 1994; BSP et al. 1995; Dinerstein et al. 1995; Harcourt et al. 1996; MacKinnon & Bunting 1996; Bryant et al. 1997; Dinerstein et al. 1997; Dobson et al. 1997; Ricketts et al. in press; E. Wikramanayake, unpublished data). Terrestrial ecoregions were classified into one of three broad conservation status categories: critical/endangered, vulnerable, or relatively stable/relatively intact.

Among terrestrial Global 200 ecoregions, 47% are considered critical or endangered, 29% vulnerable, and 24% relatively stable or intact (Table 1). Terrestrial ecoregion boundaries approximate original extent, showing extensive habitat loss, fragmentation, and degradation within. In ecoregions that have been dramatically altered, characteristic species and communities survive in only a few remaining small blocks of habitat (Collar & Andrew 1988; Dinerstein et al. 1995). Among the terrestrial MHTs, ecoregions falling within the tropical dry forests, temperate grasslands, Mediterranean shrublands, and temperate broadleaf forests are the most threatened. Island ecoregions are projected to experience a wave of extinctions over the next two decades because of the fragility of island ecosystems, the sensitivity and endemicity of island species, and the severe threats native island biotas face worldwide from introduced species and habitat loss (Raven 1988; Wilson 1988, 1992; World Conservation Monitoring Centre 1992; Sujatnika et al. 1995; Brooks et al. 1997; Reaka-Kudla 1997; Stattersfield et al. 1998).

We have not completed an assessment of the status of freshwater and marine ecoregions, but preliminary analyses show that freshwater ecosystems, particularly seasonally flooded forests, cataracts, and freshwater communities in xeric areas, are endangered worldwide (Goulding et al. 1996; Abell et al. 1997; Olson et al. 1997). Moreover, most temperate freshwater biotas are threatened by invasion of exotics, pollution, dams, and habitat degradation. In marine MHTs, upwelling areas are heavily overfished, enclosed seas are degraded, and coral reefs and mangroves are severely affected by habitat destruction, degradation, and overfishing around the world (Sherman et al. 1990; Suchanek 1994; Bryant et al. 1995; Kelleher et al. 1995; Olson et al. 1996).

The Global 200 is an effective tool for (1) targeting distinctive biogeographic units of biodiversity and (2) promoting ecosystem-level representation at global scales. The Global 200 broadens the goals of conservation from a primary focus on preserving species diversity to an encompassing view of habitat diversity, ecological processes, evolutionary phenomena, and adaptations of species to different environmental conditions around the world. In some cases, it also distinguishes representative ecoregions that are more intact than others, highlighting the best opportunities for long-term conservation.

Like any effort to set priorities, the Global 200 cannot address all aspects of biodiversity conservation. The Global 200 does not explicitly target hemispheric-scale ecological phenomena such as migrations of marine mammals, sea turtles, birds, or fish; intratropical migrations of bats, birds, and insects; widespread and dynamic pelagic ecosystems; hydrothermal vent communities; abyssal ecosystems; cave and groundwater ecosystems; or global ecosystem dynamics such as carbon sequestration. More-detailed, fine-scale analyses are essential to identify important targets within ecoregions.

One tactical concern about the Global 200 is that it is too ambitious; that is, by focusing on 233 ecoregions rather than on a handful of conservation units we run the risk of placing less emphasis on the most diverse and distinct ecoregions. We argue that the broad geographic reach of the Global 200 makes almost every nation on Earth a stakeholder in a global conservation strategy. From the global scale to regional and national conservation strate-

gies, the Global 200 lends weight to shared priorities and provides a global perspective for lobbying efforts by local conservation groups. The Global 200 also can help major development agencies to better recognize and mitigate the effects of projects that result in land-use change or to forego development activities in particularly sensitive ecoregions. For these reasons we see the Global 200 as a map guiding conservation investments so that a comprehensive plan eventually can be achieved by the global conservation community and the nations of the world.

The widespread destruction of the Earth's biodiversity occurring today must be matched by a response an order of magnitude greater than currently exists. The Global 200 provides a necessarily ambitious template for a global conservation strategy.

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Note

This *Issues in International Conservation* piece summarizes a much more comprehensive document, "The Global 200: A Representation Approach to Conserving the Earth's Distinctive Ecoregions" by D. M. Olson and E. Dinerstein. This document is available on the Internet at http://www.world wildlife fund.org.

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