# 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

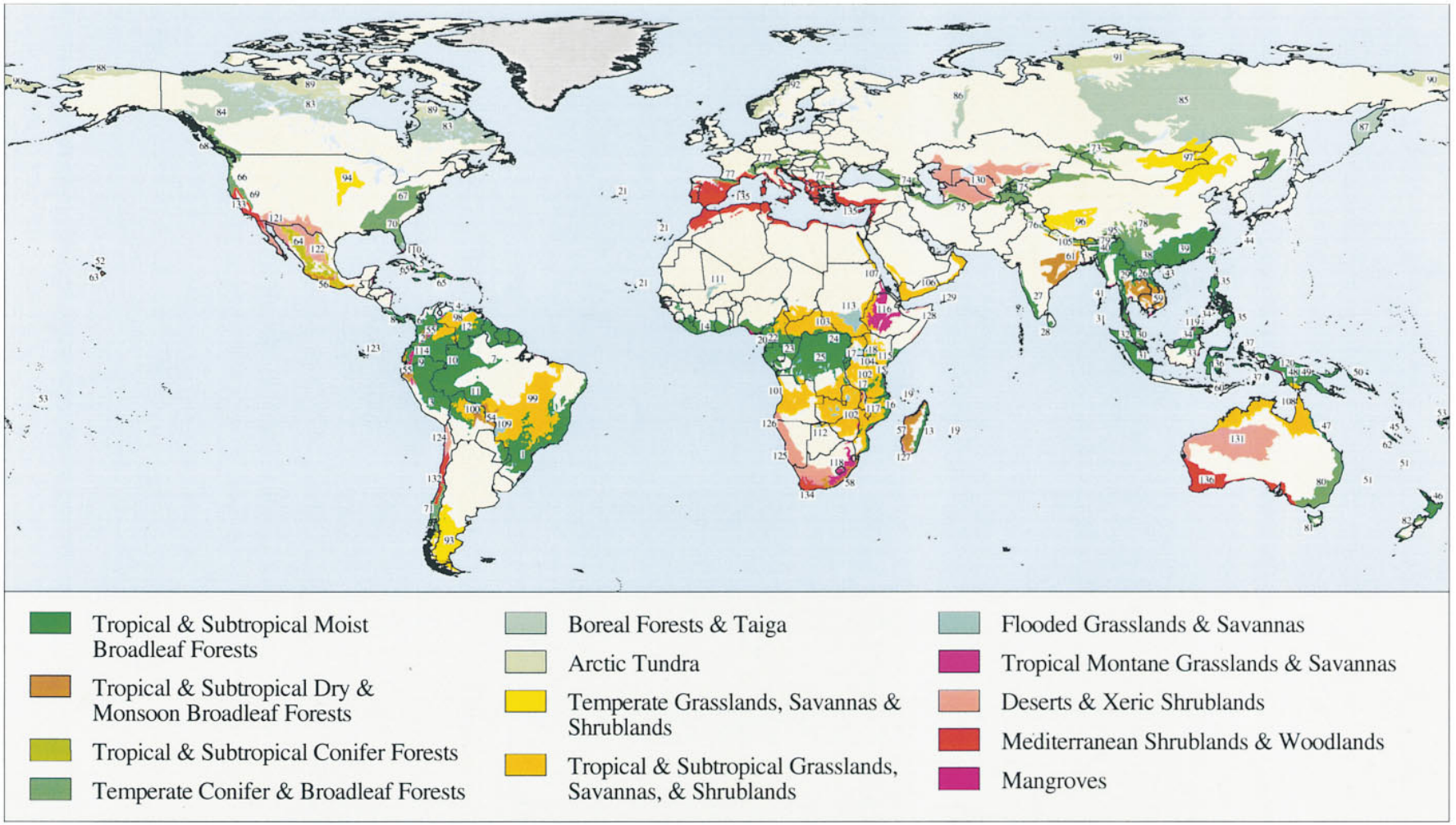


*Figure 1. Terrestrial Global 200 ecoregions and their major habitat types. The Global 200 identifies outstanding and representative ecoregions of each major habitat type in each biogeographic realm where it occurs. The estimated original extent of ecoregions is shown, not the habitat that remains. Because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

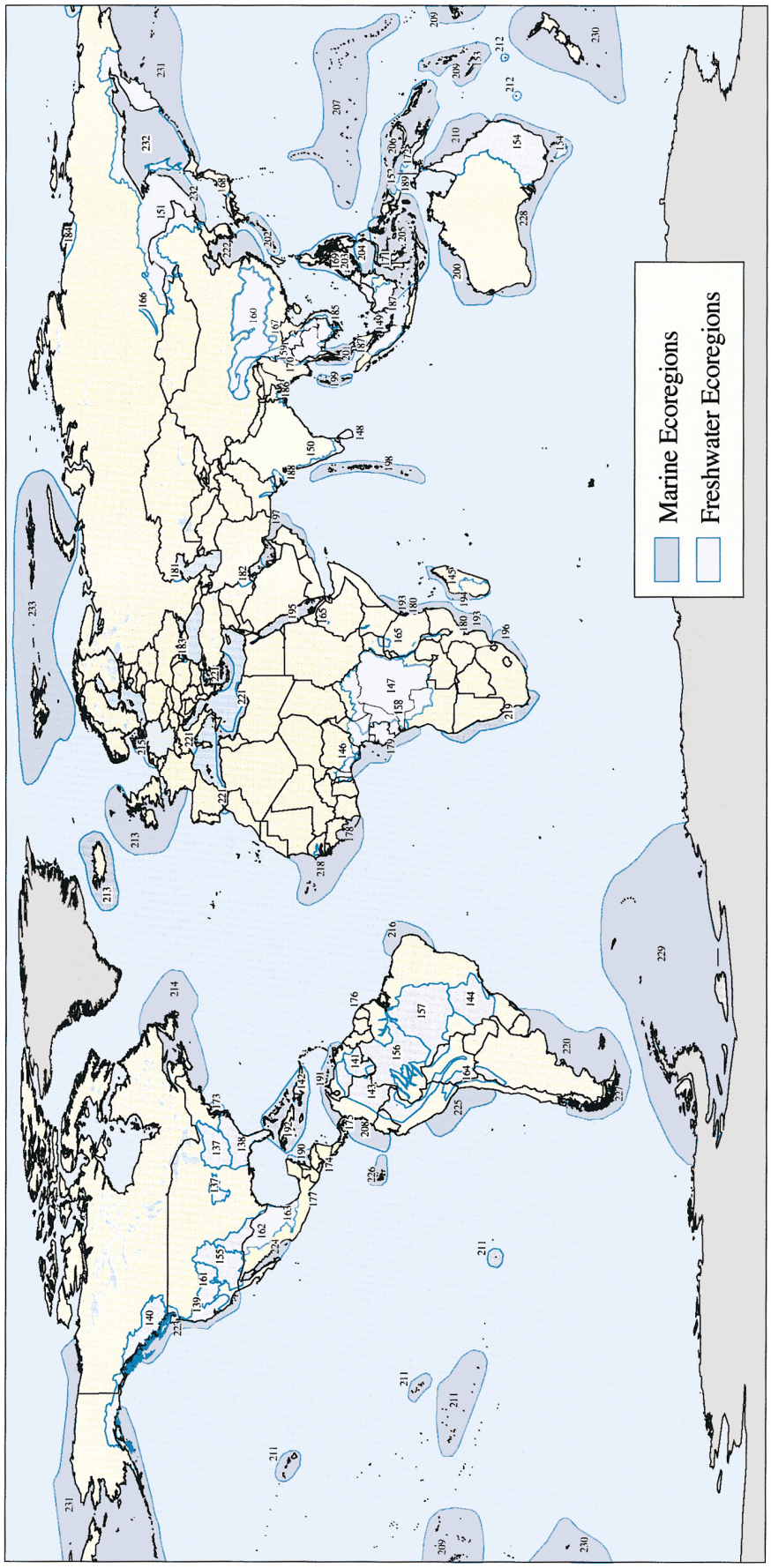


*Figure 2. Freshwater and marine Global 200 ecoregions. Distinctive and representative freshwater and marine ecoregions were identified for each major habitat type in each terrestrial biogeographic realm or ocean basin. Freshwater and marine major habitat types are not shown.*

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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