World Heritage and the 2010 Biodiversity Target

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Human survival depends on biological diversity. Together with ecosystems, this latter plays an important part in food production, soil formation, climate and disease regulation, and water purification. Biodiversity also underpins a wide range of support functions such as nutrient regulation and circulation. It provides the genetic resources that are the basis of agricultural development and the source of many of our medicines – 75 per cent of which are derived from plants, animals and microbiotic organisms.

The incomparable biodiversity of the Galápagos Islands, the first site to have been placed on the World Heritage List in 1978, is presently in need of greater protection. The Giant Tortoise is probably the best known of all Galápagos animals and even gave the archipelago its name – '*galápago*' means tortoise in Spanish.

Biodiversity is threatened by human activities around the world. Virtually all of the Earth's ecosystems have been dramatically transformed through human actions, and they continue to be converted for agricultural and other uses. The current loss of biodiversity and related changes in the environment are moving faster than ever before in human history, and there is no sign of this process slowing down. Many animal and plant populations have declined in numbers, geographical spread or both. Species extinction has always been a natural part of the Earth's history. Today, however, human activity has increased the extinction rate by at least 100 times the natural rate. The Millennium Ecosystem Assessment found that nearly two thirds of ecosystem services were in decline, and the average abundance of species has fallen by 40 per cent in only 30 years. Scientists speak of the largest wave of species extinctions since the dinosaurs.

The conservation of biodiversity, its sustainable use and the equitable sharing of its benefits were the chief objectives for the 1992 Earth Summit participants in Rio de Janeiro when they created the Convention on Biological Diversity (CBD). Today, this Convention is one of the international agreements that has won the broadest support worldwide, with 189 states and the European Commission having ratified it.

The 2010 target

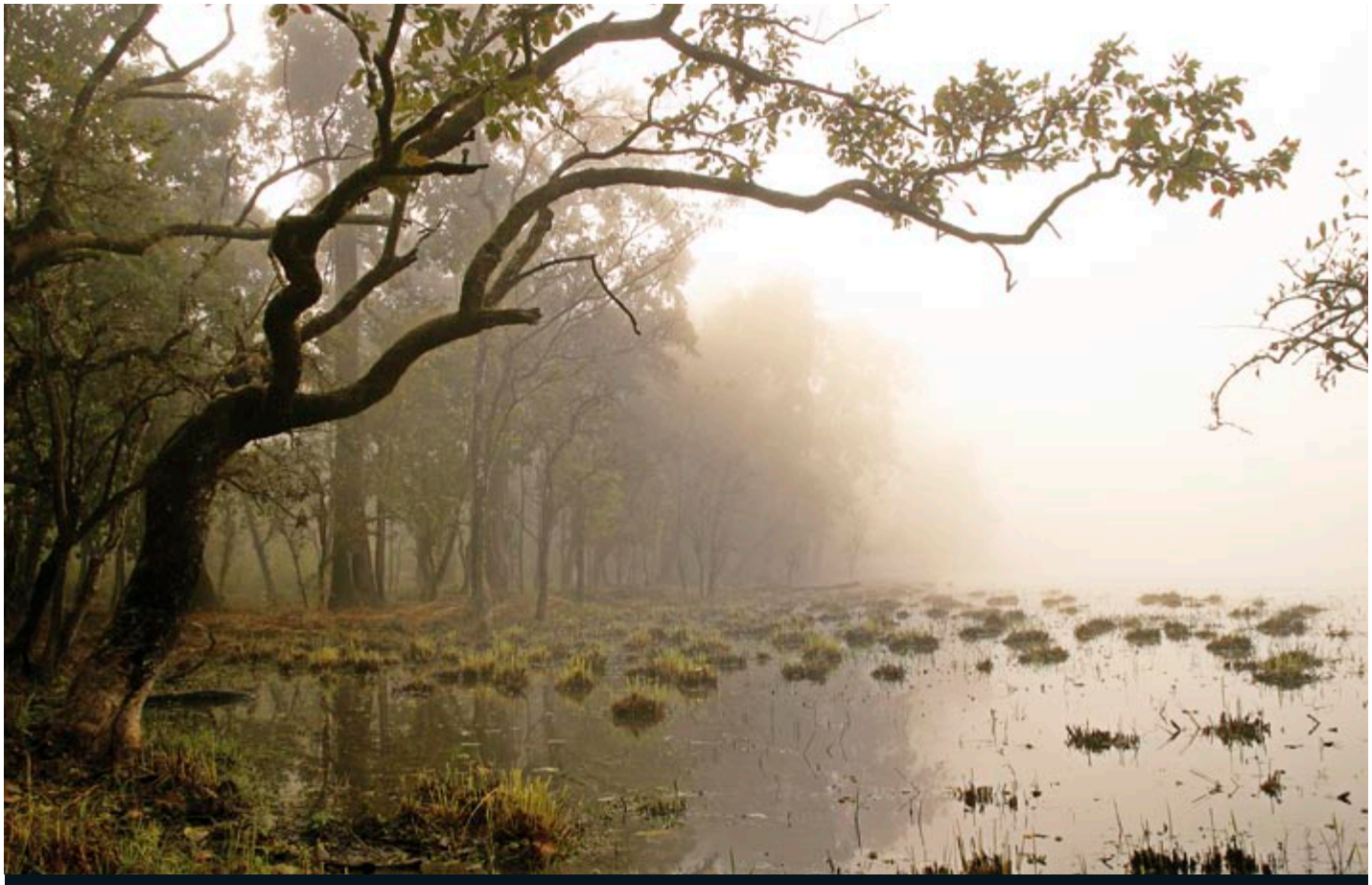
In 2002, during the World Summit on Sustainable Development, the international community decided to address the biodiversity crisis with increased vigour. They thus committed "to achieve, by 2010, a significant reduction of the current rate of biodiversity loss [...] as a contribution to poverty alleviation and to the benefit of all life on earth".

The contribution of biodiversity to the Earth's life support systems and to poverty reduction has been recognized at the highest international levels. In 2006, the United Nations General Assembly decided to include the 2010 biodiversity target in the Millennium Development Goals, as an intermediate step towards achieving the eradication of extreme poverty by 2015. 2010 has therefore been declared the International Year for Biodiversity.

The 7th Conference of the Parties (COP 7) of the Convention on Biological Diversity specified the following targets (CBD decision VII/30):

Factors driving biodiversity loss:

- habitat loss, such as the fragmentation of forests;
- invasive alien species that establish and spread outside their normal distribution;
- overexploitation of natural resources, for example fisheries;
- pollution, particularly by excessive use of fertilizers; and
- climate change.



Inscribed on the World Heritage List in 1984, Royal Chitwan National Park (Nepal) is one of the success stories of biodiversity conservation.

- conserve at least 10 per cent of each ecological region (in terms of area);
- stabilize species populations;
- address the main threats to biodiversity; and
- reduce unsustainable consumption.

In 2004, and with this in view, IUCN launched Countdown 2010. This initiative is a powerful network of organizations working together to reach the 2010 biodiversity target. In fact, Countdown 2010 recognized that governments alone could not be expected to reach this target, and therefore started building an active network of partners to support governments through conservation action. Ranging from local authorities to government agencies, businesses and civil society organizations, the network currently includes more than 400 partners around the world. The initiative has been widely recognized as a unique mechanism to stimulate action and monitor progress towards the 2010 target.

The 2010 biodiversity target is a hopeful sign for our life support systems and a rallying call for people around the world who care about nature. The World Heritage Convention clearly has a critical part to play in contributing to the achievement of the 2010 biodiversity target outlined here.

Indicators for biodiversity

"Unprecedented additional efforts will be needed"(1) to achieve the target at all levels. Realistically, it will only be achieved for certain indicators or in certain regions. One of the main challenges for 2010 will be to show both that decisive conservation action *has* made a difference for biodiversity, and *where* it has done so. These success stories can serve as guidance in defining the way forward from 2010. This is where the World Heritage Convention can be an active partner in profiling the natural and mixed sites inscribed on the World Heritage List.

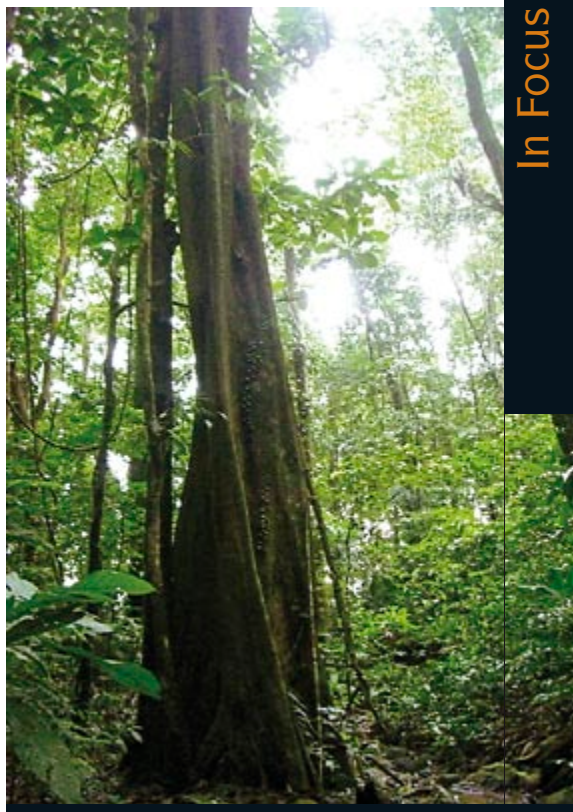
In addition, there is considerable need to improve and streamline biodiversity monitoring and indicators in order to measure progress more precisely and use the resulting knowledge to define policy interventions. A number of indicators were proposed by governments to measure progress towards the 2010 target (CBD Decision VII/30). These indicators are currently being further developed by a wide range of organizations worldwide, and are now at various stages of development and availability. The 2010 Biodiversity Indicators Partnership (2010BIP) is supporting the process of developing 22 biodiversity indicators framed around seven focal areas. It is favouring a more comprehensive and consistent monitoring and assessment of global biodiversity. By March 2009, the CBD expects governments to report back on their progress towards achieving the 2010 biodiversity target. Countdown 2010 is working closely with these processes to ensure that information is available on time. The initiative has therefore developed the Countdown 2010 Readiness Assessment, which focuses on policy response indicators. The first results will be available in May 2008.

The Convention and biodiversity conservation

The UNESCO World Heritage Convention was conceived to identify, protect and preserve cultural and natural heritage around the world that is acknowledged to be of outstanding value for humanity. This Convention explicitly defines natural heritage as (inter alia) "precisely delineated areas which constitute the habitat of threatened species of animals and plants of *outstanding universal value* from the point of view of science or conservation; and natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty" (World Heritage Convention, Art. 2). The formulation points to important elements of the definition of biodiversity given by the CBD. The very concept of World Heritage is thus clearly related to the aims of the CBD and the 2010 target.

Objectives of Countdown 2010:

- Gain maximum public attention for the challenge of saving biodiversity by 2010.
- Encourage and support the full implementation of all existing binding international commitments and necessary actions to save biodiversity.
- Demonstrate clearly the progress made by the world in meeting the 2010 biodiversity target.



Río Plátano Biosphere Reserve (Honduras).

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It contributes to them directly, in particular by ensuring the protection of natural heritage sites, and does so by encouraging States Parties to nominate sites for the World Heritage List. This requires them to: establish management plans and set up reporting systems on the state of conservation of their World Heritage sites; provide technical assistance and professional training; support States Parties' public awareness building activities; and provide emergency assistance for World Heritage sites in immediate danger. It thus encourages international cooperation in the conservation of natural heritage.

While all protected areas are important in terms of adequate biodiversity protection, natural World Heritage properties are the only protected areas to have reached the threshold of outstanding universal value, and consequently attract particular attention. Due to this, World Heritage sites clearly play an important role in raising awareness of threats to nature and biodiversity. By attracting media and public attention to issues related to biodiversity conservation, they contribute directly to the implementation of the CBD.

A Grey Whale calf in the El Vizcaino Whale Sanctuary (Mexico).

Criteria to assess the outstanding universal value with relevance for biodiversity conservation (Operational Guidelines, paragraph 77).

These sites must:

(ix) be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;

(x) contain the most important and significant natural habitats for *in-situ* conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

In recent years, the World Heritage Convention has established important relationships with the four other major biodiversity-related conventions: the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES); the Convention on Migratory Species (CMS); the Convention on Biological Diversity (CBD); and the RAMSAR Convention on Wetlands.

The World Heritage Convention and UNESCO Man and Biosphere programme (MAB) are also closely linked, since more than 80 sites are designated under both. This is the case of the Rio Platano Biosphere Reserve in Honduras, the Tai National Park in Côte d'Ivoire and many cultural landscapes, including the Dresden Elbe valley in Germany, the Neusiedler See in Austria and important wetlands such as the Danube river valley in Europe.

The World Heritage List currently includes 660 cultural, 166 natural and 25 mixed sites in 141 countries worldwide. While the distribution of cultural properties still leans heavily towards Europe (with more than 360 sites inscribed), natural properties are almost equally distributed in the five regions (with the exception of the Arab States region). This clearly indicates the relevance of the World Heritage concept for preservation of natural sites around the world. A closer analysis of the natural sites listed shows that only part of the sites inscribed are relevant to biodiversity: These mostly include sites inscribed under criteria (ix) and

The Sichuan Giant Panda Sanctuaries (China) protect not only the famous pandas, but also between 5,000 and 6,000 species of flora.

(x) – outstanding ecological/biological processes and sites relevant for *in-situ* biodiversity conservation.

Twelve of the 166 World Heritage sites relevant to one of the four natural criteria are inscribed solely under criterion (x), *in-situ* biodiversity conservation. These include the Sichuan Giant Panda Sanctuaries in China and the Whale Sanctuary of El Vizcaino in Mexico (see box). For 120 sites (including transboundary sites), the inscription is based on biodiversity criterion (x) in addition to one or more other criteria. There are many examples where criteria (ix) and (x) are applied in conjunction, reflecting the fact that properties representing biological processes of outstanding universal value are also likely to contain the most important habitats for conservation of biological diversity. This suggests that all sites inscribed under criterion (ix) are also highly important for biodiversity conservation, even if the World Heritage Committee does not consider them to meet criterion (x).

World Heritage sites around the world are particularly relevant as regards safeguarding such values of biodiversity as endemism, adaptation to specific (extreme) conditions of life, preservation of (habitats for) key threatened species, high biodiversity and ecosystem conservation. Moreover, the increasing number of serial and transboundary sites can facilitate the response to new challenges, including climate change and the need to establish biological networks and corridors.

How World Heritage sites contribute to biodiversity conservation

Endemism and adaptation to specific conditions

Inscribed under all four natural criteria, the Galápagos archipelago (Ecuador) is an excellent example of endemism and adaptation to specific conditions. In keeping with the general pattern of island biodiversity, the Galápagos have species that are relatively low in number, but with a very high level of endemism. The 625 native flora species and subspecies contain 230 endemic taxa of plants, including *Scalesia* forests and the giant cacti *Oputia echios and Jasminocereus thouarsi*. The fauna also demonstrates a

high ratio of endemic species, with 29 of 31 resident reptile species found only on this island group. These include both the marine iguana (*Amblyrhynchus cristatus*) – the only lizard found regularly at sea, grazing on the green and red algae that grow on submerged rocks – and the 14 subspecies of the Galápagos tortoise (*Geochelone nigra*). The few native mammal species include the critically endangered Rice Rat (*Oryzomys galapagoensis*) and the smallest and only tropical species of a subantarctic genus, the Galápagos fur seal (*Arctocephalus galapogoensis*). In terms of speciation, the island is famous for having inspired Charles Darwin's theory of evolution, leading to the publication of *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life* in 1859. Darwin's theory is widely accepted today and the Galápagos provides not only a 'showcase for evolution', but also a perfect environment in which to study the process of evolution. The best-known example of this are the 13 species of Darwin's finches that all evolved to occupy different environmental niches on the islands.

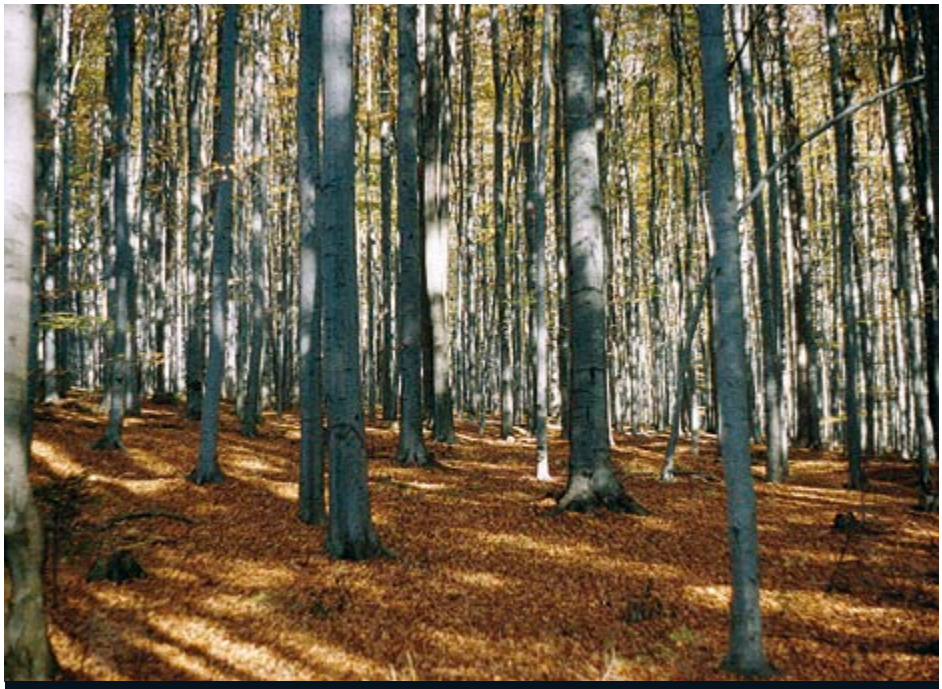
Key threatened species

The Sichuan Giant Panda Sanctuaries (China) is the largest remaining contiguous habitat of the giant panda, a relict from the paleo-tropic forests of the Tertiary that is home today to more than 30 per cent of the world's pandas, which are highly endangered. The sanctuaries also contain other globally endangered animals such as the Red Panda, Snow Leopard and Clouded Leopard. They are among the most botanically rich sites of any region in the world outside tropical rainforests, with between 5,000 and 6,000 species of flora in over 1,000 genera.

High level biodiversity

Manú National Park (Peru) is probably the most biologically diverse protected area in the world. It covers a vast range of ecological formations, with a huge number of niches providing a habitat for countless species of plants and animals. Almost all of the ecological formations of eastern Peru are represented, including tropical lowland forest, montane forest, cloud forest, stunted forest and Puna grasslands. Manú is famous for the diversity of its plant life, with 1,147 species having been identified within a small area in the last 10 years – with the total figure likely being far higher. Manú National Park is home to 15 per cent of all the bird species in the world, with 850 species known to be found within its borders. At least 18 species of macaws and parrots inhabit the lowland forests of Manú, including the globally threatened Spix's macaw (*Cyanopsitta spixii*) and the Red-Bellied macaw (*Ara manilata*). Approximately 12 species of reptile occur in the park, including the Black Caiman (*Melanosuchus niger*), currently classified as endangered on the IUCN Red List, and the Common Caiman (*Caiman crocodilus*). In addition, there is a

The living laboratory of East Rennell Island (Solomon Islands).



The Primeval Beech Forests of the Carpathians (Slovakia).

© Peter Fenda

huge diversity of mammalian fauna, with at least 200 species – over 50 per cent of all species known from Peru. The Amazon drainage basin is inhabited by an estimated 2,500-3,000 fish species, a figure two or three times higher than that of the next most species-rich river system, the Congo basin.

Ecosystem conservation

The Primary Beech Forests of the Carpathians in Slovakia and Ukraine – a serial site composed of 10 individual cluster sites – were inscribed on the World Heritage List in 2007. This was an acknowledgement that these areas represent undisturbed, complex temperate forests and exhibit the most complete and comprehensive ecological patterns and processes of pure strands of European beech across a variety of environmental conditions. Beech is one of the most important elements of forests in the Temperate Broadleaf Forest Biome, and represents an outstanding example of the

Macaws at a clay lick in Manú National Park (Peru).

© Chuck Burgess

Currently on the Tentative List, Korup National Park (Cameroon) has 1,700 species of plants, 30% of which are endemic, and an estimated 7,500 trees per hectare.

re-colonization and development of terrestrial ecosystems and communities after the last ice age, a process that is still ongoing.

World Heritage natural sites as living laboratories – their importance to science

East Rennell (Solomon Islands) includes the southern third of Rennell Island and is the largest raised coral atoll in the world. A major feature of the island is Lake Tegano, which was the former lagoon on the atoll. The lake contains many rugged limestone islands and endemic species. Rennell is mostly covered with dense forest, with a canopy averaging 20 m in height. Combined with the strong climatic effects of frequent cyclones, the site is a true natural laboratory for scientific study.

What makes World Heritage sites special?

In the international system of protected areas, sites inscribed on the World Heritage List represent areas selected under strict criteria, ensuring that they are of outstanding universal value and that their protection regime can serve as a model worldwide. Sites inscribed under one of the natural criteria must have adequate long-term legislative, regulatory and institutional protection. Furthermore, the requirements set out in the Convention and its operational guidelines (such as a national protection status, management plan, buffer zones and corridors) are jointly agreed upon by the international conservation community. The standards are set and monitored by IUCN as the Advisory Body and therefore meet international standards for protected areas. With its well-established systems of monitoring the state of conservation of World Heritage sites through reactive monitoring and the list of World Heritage sites in danger, and even the possibility to de-list those that fail to fulfil the requirements, the World Heritage Convention is a powerful tool for protecting biodiversity. Moreover, it plays an important role in contributing to the CBD's work programme on protected areas.

One of the World Heritage Convention's strengths in relation to biodiversity conservation, in contrast to most other conventions designating protected areas, resides in the fact that its concept is not limited to any one geographical region, biome, habitat or

A Capped Langur at the Manas Wildlife Sanctuary (India), a World Heritage site in danger.

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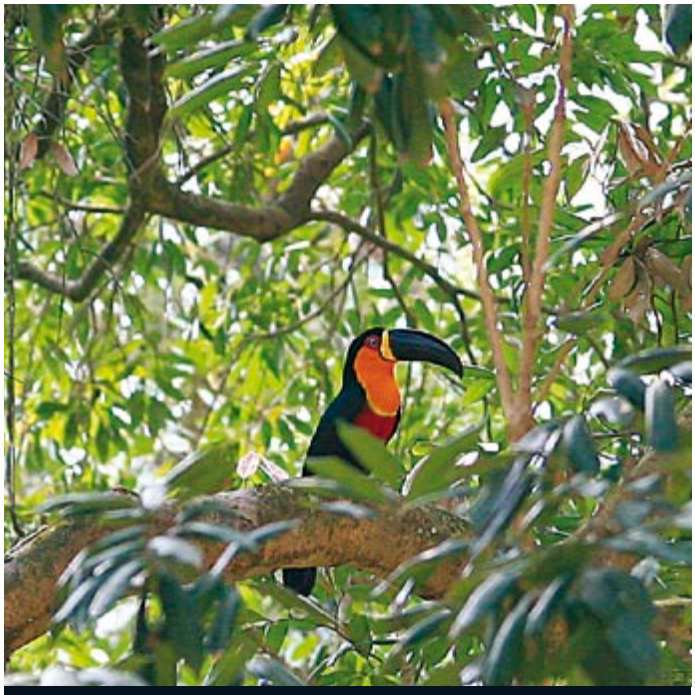


Channel-billed Toucan in the Central Amazon Conservation Complex (Brazil).

© Laszlo Ilyes

species group. It is therefore suitable for natural heritage areas worldwide.

Biodiversity hotspots conservation

Nature and food quality, a recent analysis published by the Dutch Ministry of Agriculture (2), has shown that the World Heritage regime clearly contributes to global biodiversity protection and to the 2010 goal. A comparison of the World Heritage concept with other approaches to the identification of biodiversity hotspots (such as Global 200 Ecoregions, Alliance for Zero Extinction and Conservation International's approach) revealed that close linkages exist between biodiversity hotspots identification concepts (based on scientific criteria and quantitative thresholds) and sites inscribed under World Heritage criterion (x). Global hotspots criteria mostly support this criterion. This means that biodiversity hotspots concepts may be used to identify potential World Heritage sites that satisfy criterion (x). With this approach, potential World Heritage sites can be identified in order to a) revise the national Tentative Lists, and b) help reach the 2010 target.

In a first regional case study, the Dutch analysis has shown that most World Heritage natural sites in Africa are part of a biodiversity hotspot and over 50 per cent of the sites on the African States Parties Tentative List are situated in threatened biodiversity hotspots. On the other hand, most inscribed sites and sites on Tentative Lists are far smaller than identified hotspots. This suggests that World Heritage should be combined with other instruments (designation of biosphere reserves, national protection instruments, etc.) in order to ensure a fully effective approach to counter biodiversity loss.

Conservation of forest biodiversity

Of the 166 natural World Heritage sites, those characterized by forests play an important role. At present, 96 sites contain forest ecosystems and their outstanding universal value is based on the forest values. They cover the four most important biomes – 50 per cent of World Heritage forest sites being tropical forests and about 10 per cent boreal forests. World Heritage forest sites are diverse: their surface varies from 18 ha (*Vallée de Mai, Seychelles*) to 8.8 million ha (Lake Baikal). Over 60 per cent of World Heritage forest sites are completely covered with forests. With a total surface of 75.4 million ha (of which 63.7 million ha are forests), World Heritage forest sites represent 13 per cent of the world's protected forest areas according to IUCN-categories I-IV (3). At present, eight World Heritage forest sites are listed on the List of World Heritage in Danger, thus demonstrating that forests are under immense threat.

All this clearly demonstrates that the World Heritage Convention is of special importance for the *in-situ* conservation of forests. Among the international conventions and programmes, the World Heritage Convention is the only instrument that enables strict monitoring of the protected sites on a supra-national level. The reactive monitoring and periodic reporting system leads to a powerful protection regime. CBD also has a special Programme of Work on forest conservation, and this will be one of the lead themes at the 9th Conference of the Parties in Bonn this year.

Success stories of biodiversity conservation

The importance of the Convention on the political scene is steadily increasing. So, too, is the number of new nominations (indicating rising awareness at the State Party level) and the interest of the media and broader public. Such public and media attention to the risks confronting these sites has put enormous pressure on decision-makers,

Intervention by the World Heritage Committee has helped protect Durmitor National Park (Montenegro) from debilitating infrastructure development.

leading to important progress in the conservation of sites and thus in the conservation of biodiversity. In turn, these have advanced the 2010 target globally and offered some encouraging success stories for the conservation of natural heritage worldwide:

- *the Durmitor National Park* (Montenegro). The construction of a dam that would have led to flooding of the park's canyon was stopped after the successful intervention of the World Heritage Committee;
- *the Royal Chitwan National Park* in Nepal. This Park provides refuge for about 400 greater One-horned Rhinoceros – a threatened species of South Asia. In the 1990s, the World Heritage Committee questioned the findings of the environmental impact assessment of the proposed Rapti River Diversion Project. The Asian Development Bank and Government of Nepal revised the assessment and found that the River Diversion project would threaten riparian habitats critical to the rhino inside Royal Chitwan. The project was thus abandoned and this World Heritage site was saved for the benefit of future generations;
- *the Whale Sanctuary of El Vizcaino* in Mexico. In 1999, the public and NGOs campaigned against a plan for enlarging an existing salt factory to commercial scale in Laguna San Ignacio in El Vizcaino Bay, the last pristine reproduction lagoon for the Pacific Grey Whale. The UNESCO World Heritage Committee informed the Mexican government of the threats posed by saltworks within the sanctuary to the marine and terrestrial ecosystems, the grey whales as key species, and the overall integrity of this World Heritage site. As a result, the Mexican government refused permission for the saltworks in March 2000.

Protecting cultural landscapes

Addressing biodiversity loss worldwide extends well beyond the sphere of natural and mixed World Heritage sites. Biodiversity

in cultural landscapes is an important aspect of biodiversity conservation. Since 1992, the World Heritage Convention has recognized cultural landscapes for the outstanding interaction they present between people and their environment. In such cases, human intervention (e.g. traditional agricultural or forestry practices) is an important factor in the preservation of biodiversity in cultural landscapes. Such landscapes often reflect specific techniques of sustainable land use based on both the characteristics and limits of the natural environment they are established in and a specific spiritual relation to nature. The protection of cultural landscapes can favour modern techniques of sustainable land use and maintain or enhance natural values in the landscape. The continued existence and protection of traditional forms of land use protect biological diversity in many regions of the world. Linking the World Heritage cultural landscapes and the Biosphere Reserves concept should be considered, particularly as some of these sites overlap.

Challenges for the future

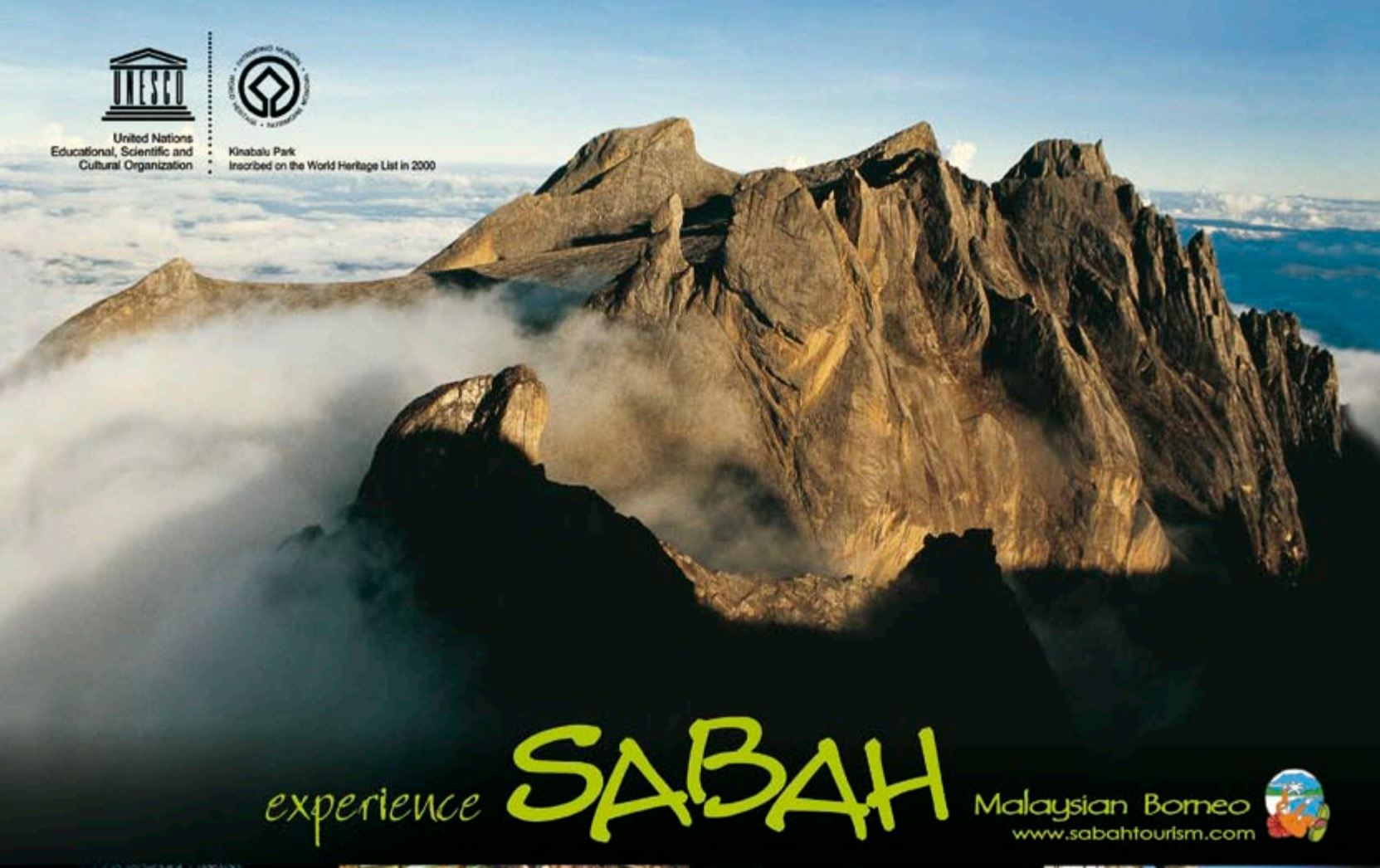
At present, 14 natural World Heritage sites from Africa, Asia, the Arab States and South America are inscribed on the List of World Heritage in Danger. Each of these sites was inscribed on the World Heritage List due to its outstanding values related to biodiversity. All of them were inscribed on the basis of criterion (x), with some having been on the danger list since the early 1990s. This analysis clearly showcases the importance of World Heritage sites for addressing threats to biodiversity conservation. A closer look at the threats prevailing in the danger-listed sites reveals the following pressures and illustrates the main threats to biodiversity:

- invasive alien species (e.g. Galápagos Archipelago, Ecuador);
- armed conflicts and poaching (e.g. the World Heritage sites in the Democratic Republic of Congo and Côte d'Ivoire);
- habitat destruction: trough road construction and population increase (e.g. Simien National Park, Ethiopia); and
- other human development pressures such as mining (Mount Nimba, Guinea and Côte d'Ivoire) or over-grazing (Simien National Park, Ethiopia).

Simien National Park (Ethiopia).

United Nations
Educational, Scientific and
Cultural Organization

Kinabalu Park
Inscribed on the World Heritage List in 2000



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Kinabalu Park, in the State of Sabah, is Malaysia's first "World Heritage Site" designated by UNESCO in 2000 for its role as one of the World's most important biological sites. Dominating the Park is Mt. Kinabalu (4,095 m), the highest mountain between the Himalayas and New Guinea. The Park is renowned for its rich and diverse biodiversity, supported by the myriads of habitat, microhabitats and ecological niches.

Kinabalu Park is reputed to have "the richest and most remarkable assemblage of plants in the world" ranging from 5,000 species of vascular plants, an estimated 1000 species of orchids - of which 711 species have been documented, 621 species of ferns, 9 species of Nepenthes (with 3 endemic), 29 species of Rhododendrons (9 endemics), 78 Fig species (13 endemics), 30 species of wild ginger species, 6 bamboo species, 52 palm species, and two species of Rafflesia (R. keithii and R. pricei).

The fauna of Kinabalu Park includes 90 species of lowland mammals, including 21 species of bats, 22 species of montane mammals, 326 species of birds (in 47 families and 180 genera), 61 species of toads and frogs, and a large proportion of the 850 species of butterflies occurring in Sabah.

Sabah Tourism Board, No 51, Jln Gaya, 88000 Kota Kinabalu, Sabah. Tel: +60 88 212121 Fax: +60 88 212075

Inscribed in 1981, the Great Barrier Reef (Australia) contains the world's largest collection of coral reefs.

On the basis of the ideas outlined by UNESCO in *Challenges for the Millennium* (4), we can sum up those most relevant to natural World Heritage as follows:

- natural heritage is still underrepresented on the World Heritage List and studies by IUCN show that important gaps remain. An ambitious target should be set to improve the representativity of the World Heritage List by filling in these gaps, such as underrepresented biomes or marine sites (see also article on page 56);
- by streamlining the monitoring process, World Heritage can serve as a model for the protected area system at the global, national, regional and local levels and improve the management of protected areas worldwide; and
- by improving the management of existing sites, ensuring their conservation (by developing adequate instruments for a timely response to upcoming threats and removing sites from the World Heritage List), it can contribute to an even greater extent to reaching the 2010 target.

Addressing biodiversity loss worldwide extends well beyond the sphere of natural and mixed World Heritage sites.

It is not too late to act on the 2010 biodiversity target. Thanks to the World Heritage Convention, we can learn more about biodiversity and share our knowledge more effectively. Moreover, the linkage of the World Heritage Convention to the other biodiversity-related conventions and international, regional and national systems of protected areas will clearly enhance efforts to reach the 2010 target.

For further reading

(1) Secretariat of the Convention on Biological Diversity (2006): *Global Biodiversity Outlook* 2. Montreal.

(2) The Netherlands, Ministry of Agriculture, Nature and Food Quality (2007): *The World Heritage Convention and the Protection of Biodiversity Hotspots*. Den Haag.

(3) Patry, Marc, Bassett, Clare and Leclerq, Benedicte (2006): *The State of Conservation of World Heritage Forests*. Proceedings of the 2nd World Heritage Forest Programme meeting, Nancy, France, March 11-13, 2005.

(4) UNESCO (2007): *World Heritage – Challenges for the Millennium*. Paris.