PM 308 RURAL LANDSCAPE PLANNING

ASSOC PROF. DR. ÖZGE ÖZDEN FULLER
DEPARTMENT OF LANSCAPE ARCHITECTURE
LECTURE 1 – LECTURE 2

PM 308 RURAL LANDSCAPE PLANNING

- RURAL AREAS
- LANDSCAPE PLANNING
- WILDLIFE CORRIDORS
- NATURAL LANDSCAPES
- SEMI NATURAL LANDSCAPES
- LANDSCAPE CONSERVATION
- CONSERVATION LEGISLATIONS

RURAL AREAS

- In general, a **rural area** is a geographic area that is located outside cities and towns.

- Typical rural areas have a low population density and small settlements.

- Agricultural areas are commonly rural, though so are others such as forests. Different countries have varying definitions of "rural" for statistical and administrative purposes.

RURAL AREAS

- Many traditional rural landscapes have a holistic and complex character that expresses a **unique sense of place**, and are the key component of identity of people.

RURAL AREAS

- Rural landscapes are encountering a growing interest and concern around the world.

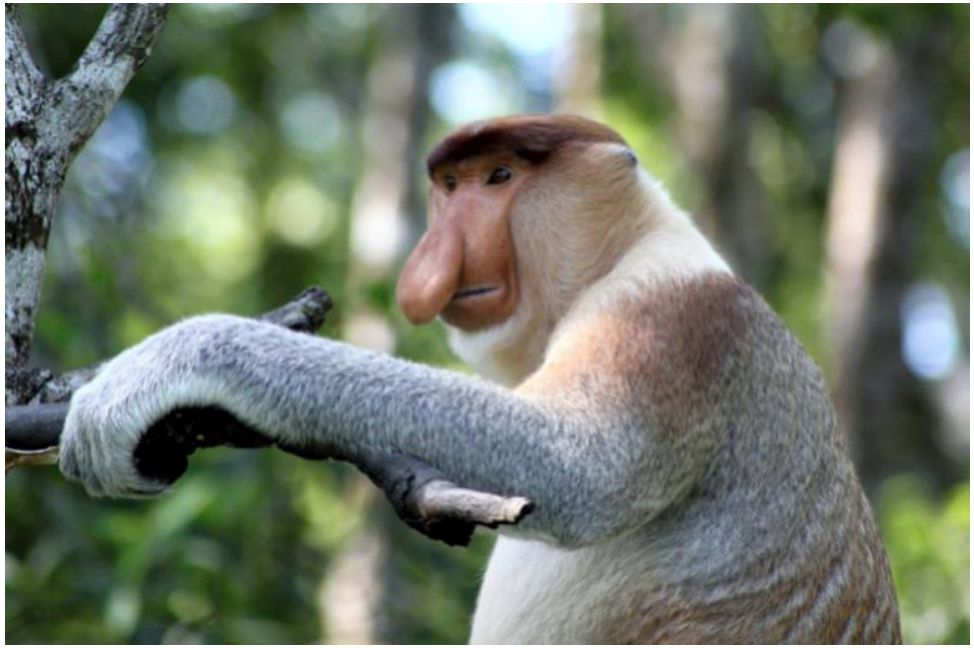
- Many initiatives are being carried out to understand, protect and enhance the tangible and intangible values.

RURAL AREAS FACING WITH PROBLEMS

- ABANDONMENT OF THE LAND
- INTENSIFICATIOIN OF AGRICULTURE
- LOSS OF TRADITIONAL KNOWLEDGE
- PRESSURE OF URBAN DEVELOPMENT

RURAL AREAS

- Rural landscapes practices respect the natural characteristics of the land they occupy, maintain the biodiversity and also keep the rich cultural diversity.



Malesia

WORLD RURAL LANDSCAPES

- The rural landscapes today is an economic and cultural resource for future generations and therefore, its careful protective management is crucial.

LANDSCAPE PLANNING

- It is a branch of landscape architecture.

- According to Erv Zube (1931-2002) landscape planning is defined as an acitivity concerned with reconciling competing land uses while protecting natural processes and significant cultural and natural resources.

LANDSCAPE PLANNING

- In China, landscape planning originated with Feng Shui, which is translated into English as 'wind and water' and is used to describe a set of general principles for the planning of development in relation to the natural landscape.

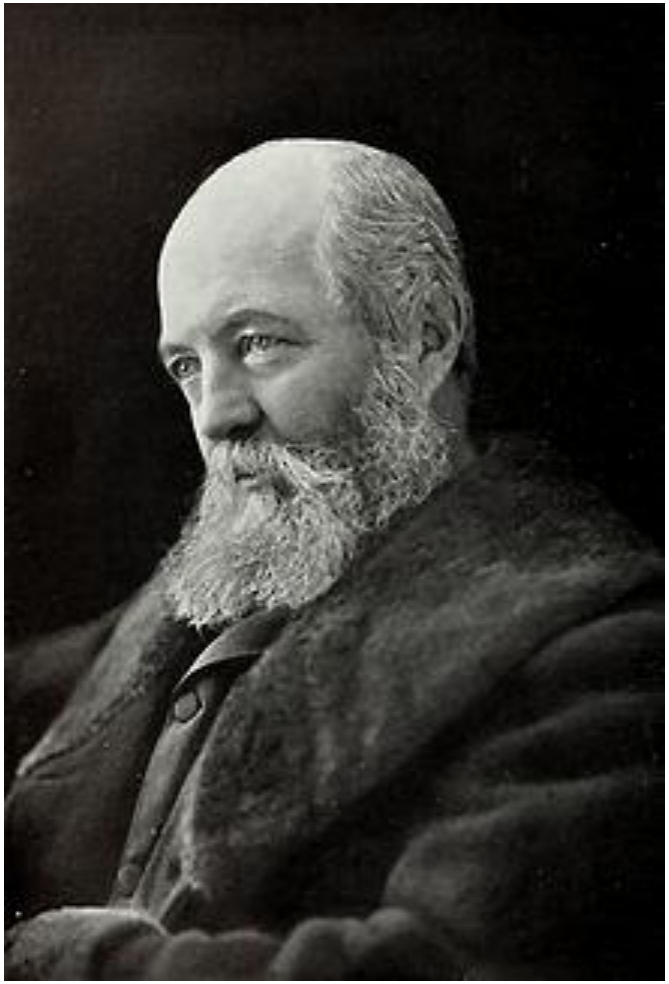
- The aim was to find the most auspicious environment possible, one sited in harmony with natural phenomena and the physical and psychological needs of man'

LANDSCAPE PLANNING

- Landscape architects in the United States of America are active in landscape planning. But, unlike Canada and Europe, the US does not have a national land use planning system.

- Frederick Law Olmsted and Ian McHarg are the most famous American landscape planners.

Frederick Law Olmsted



Frederick Law Olmsted (April 26, 1822 – August 28, 1903) was an American landscape architect, journalist, social critic, and public administrator. He is popularly considered to be the father of American landscape architecture.

Ian L. McHarg

- **Ian L. McHarg** (20 November 1920 – 5 March 2001) was a Scottish landscape architect and a renowned writer on regional planningusing natural systems. He was the founder of the department of landscape architecture at the University of Pennsylvania in the United States.

- His 1969 book *Design with Nature* pioneered the concept of ecological planning. It continues to be one of the most widely celebrated books on landscape architecture and land-use planning.

- In this book, he set forth the basic concepts that were to develop later in Geographic information systems.

EUROPEAN LANDSCAPE CONVENTION

- Known as the **Florence Convention**

- **Aim: The protection, management and plannng of al landscapes and raising awareness of the value of a living landscape.**

European Union

EUROPEAN LANDSCAPE CONVENTION

- Other aim:
- **To improve the quality of life for citizens.**

EUROPEAN LANDSCAPE CONVENTION

- **ITS CHARACTERISTICS:**
- **Democratic: It should be conducted in such a way as to ensure the participation of the people concerned and political representatives**
- **Comphrehensive: It should ensure the co-ordination of the various sectoral policies and integrate them in an overall approach**
- **Functional: It needs to take account of the existance of regional consciousness based on common values, culture and interests sometimes crossing administrative and terriotrial boundaries.**
- **Long-term oriented: It should analyse and take into consideration the long term trends and developments of economic, social, cultural, ecological and environmental phenomena.**

EUROPEAN LANDSCAPE CONVENTION

- Regional-Spatial Planning
- Ljublajana Declaration
- Slovenia

16-17 september 2003

- Sustainable Spatial Development

EUROPEAN LANDSCAPE CONVENTION

Sustainable Development:

1) Economic sustainability: Economic growth

2) Environmental Sustainability: Ecosysem integrity, carrying capacity, biodiversity

3) Social Sustainability: Equity, Accessibility

EUROPEAN LANDSCAPE CONVENTION

- **As a reflection of European identity and diversity, the landscape is our living natural and cultural heritage, be it ordinary or outstanding, urban or rural, on land or in water.**

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LECTURE 3

WILDLIFE CORRIDORS

- A **habitat corridor**, **wildlife corridor** or **green corridor** is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads, development, or logging).

- This allows an exchange of individuals between populations, which may help prevent the negative effects of inbreeding and reduced genetic diversity that often occur within isolated populations.

- Corridors may also help facilitate the re-establishment of populations that have been reduced or eliminated due to random events (such as fires or disease).

WILDLIFE CORRIDORS

- A habitat corridor could be considered as a possible solution in an area where destruction of a natural area has greatly affected its native species.

- Development such as roads, buildings, and farms can interrupt plants and animals in the region being destroyed.

- This may potentially moderate some of the worst effects of habitat fragmentation,

  where urbanization can split up habitat areas, causing animals to lose both their natural habitat and the ability to move between regions to use all of the resources they need to survive.

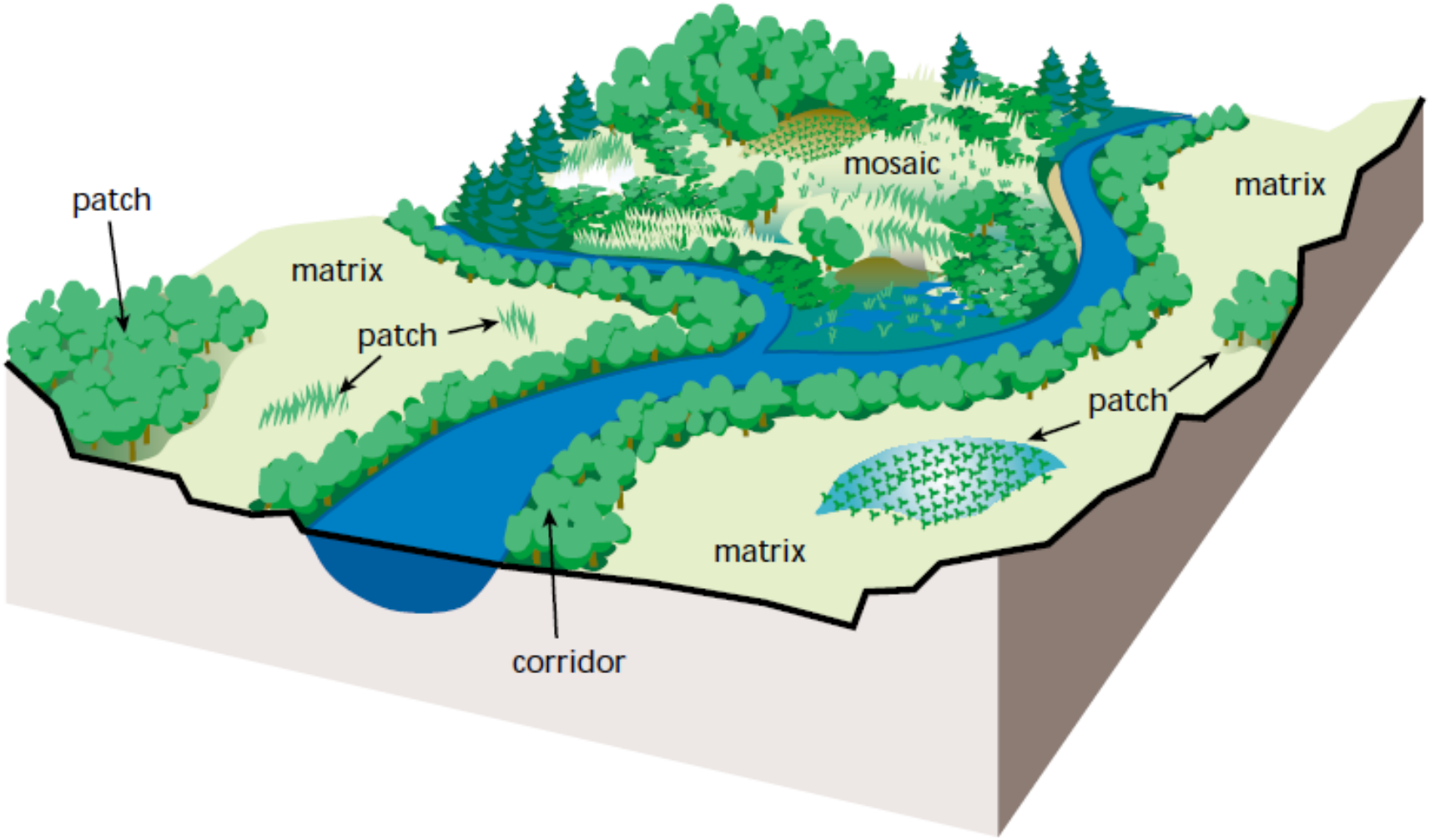
HABITAT FRAGMENTATION

- **Habitat fragmentation** describes the emergence of discontinuities (fragmentation) in an organism's preferred environment (habitat), causing population fragmentation.

- Habitat fragmentation can be caused by geological processes that slowly alter the layout of the physical environment or by human activity such as land conversion, which can alter the environment much faster and causes extinctions of many species.

The term habitat fragmentation includes five discrete phenomena:

- Reduction in the total area of the habitat
- Isolation of one habitat fragment from other areas of habitat
- Breaking up of one patch of habitat into several smaller patches
- Decrease in the average size of each patch of habitat


patch
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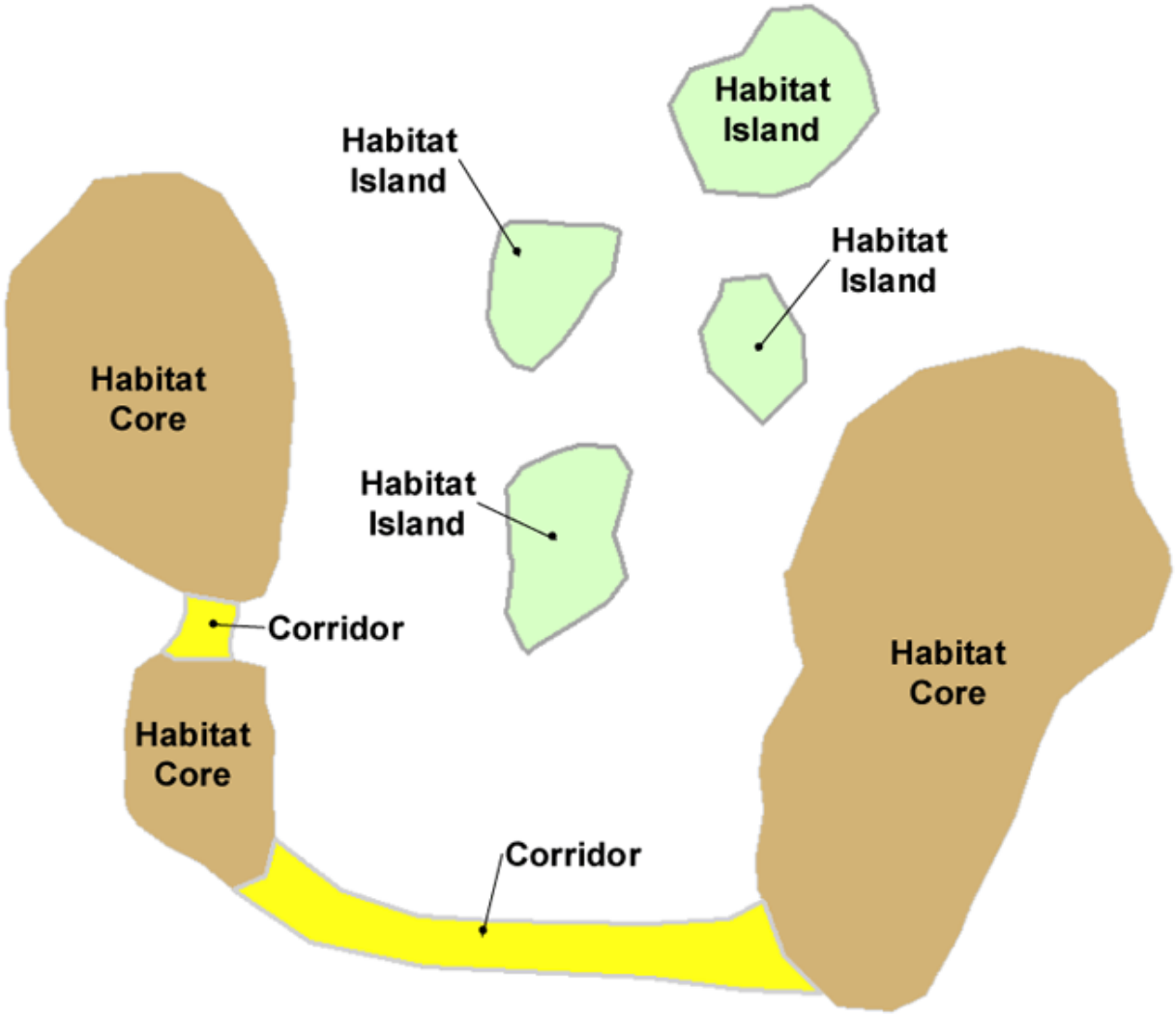
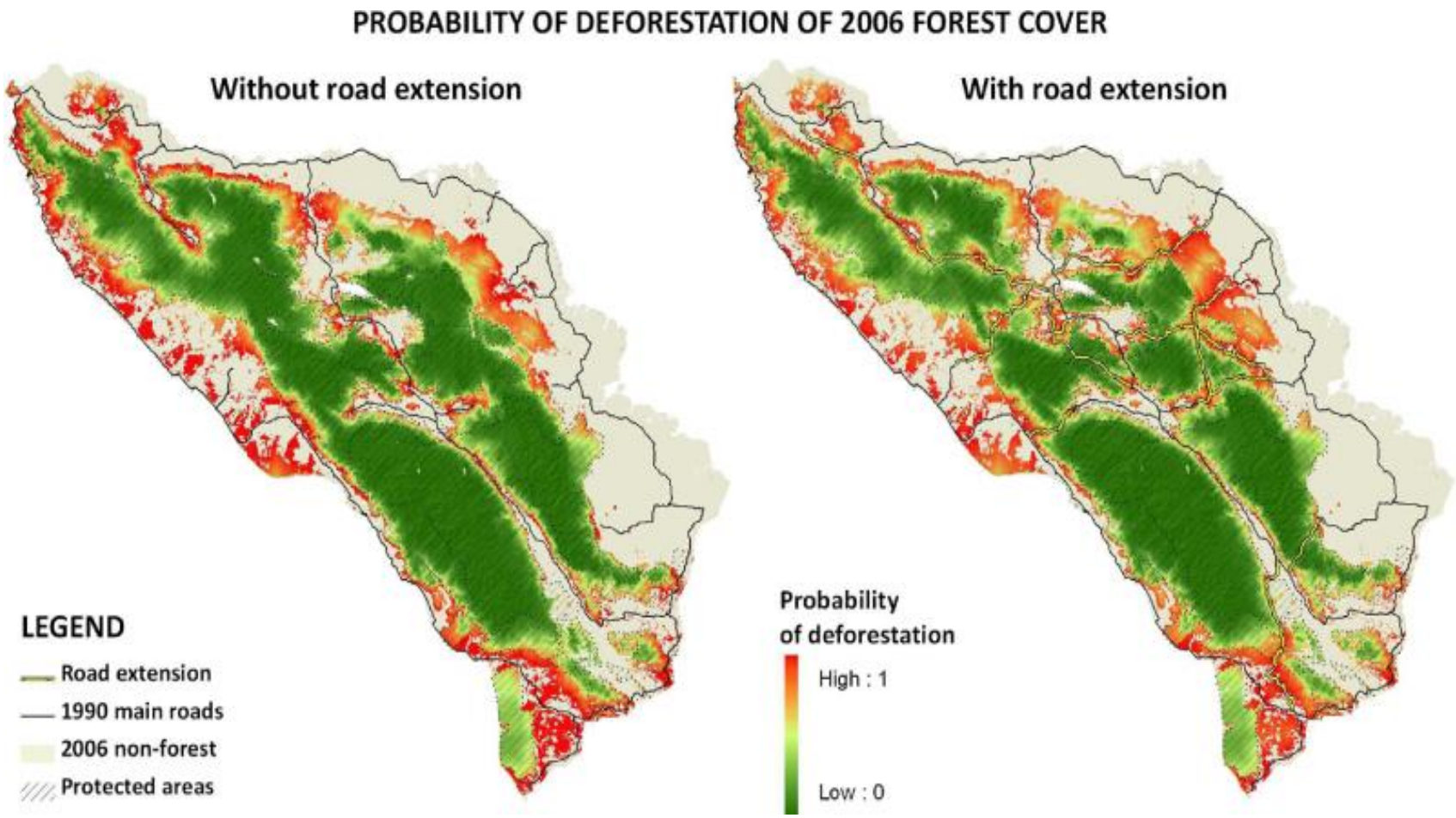
corridor


Habitat Island
Habitat Island
Habitat Island
Habitat Core
Habitat Island
Corridor
Habitat Core
Habitat Core
Corridor

HABITAT FRAGMENTATION

- Habitat fragmentation is frequently caused by humans when native vegetation is cleared for human activities such as agriculture, rural development, urbanization and the creation of hydroelectric reservoirs.

HABITAT FRAGMENTATION



URBANIZATION

- **Urbanization** is a population shift from rural to urban areas, and the ways in which society adapts to the change.

- It predominantly results in the physical growth of urban areas, be it horizontal or vertical.

- It is predicted that by 2050 about 64% of the developing world and 86% of the developed world will be urbanized.

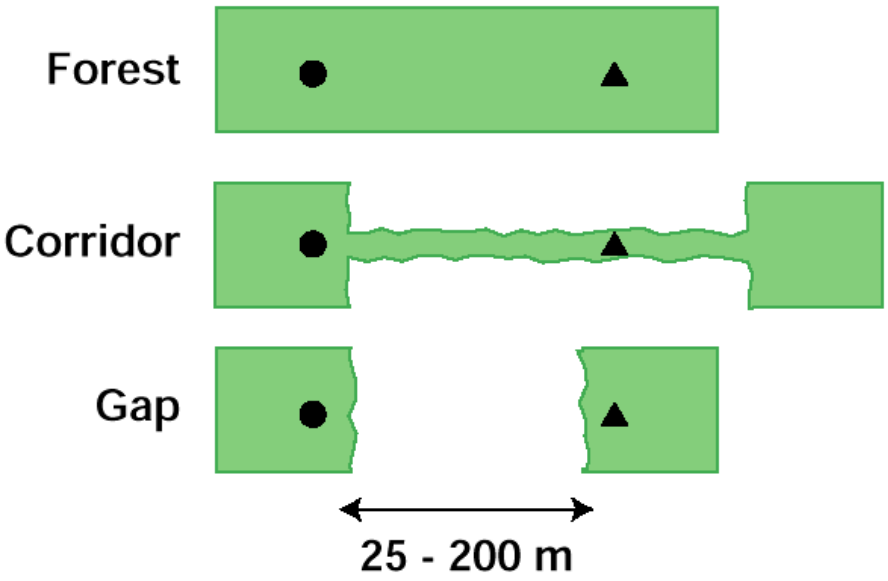
URBANIZATION

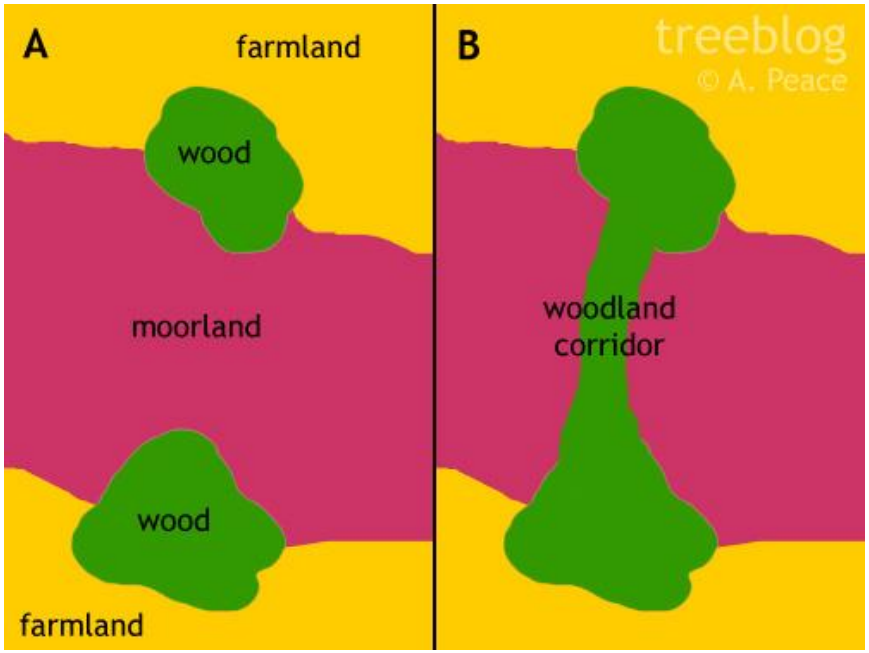
- Mumbai is the most populous city in India, and the fourth most populous city in the world, with a total metropolitan area population of approximately 23.9 million.

HABITAT CORRIDORS

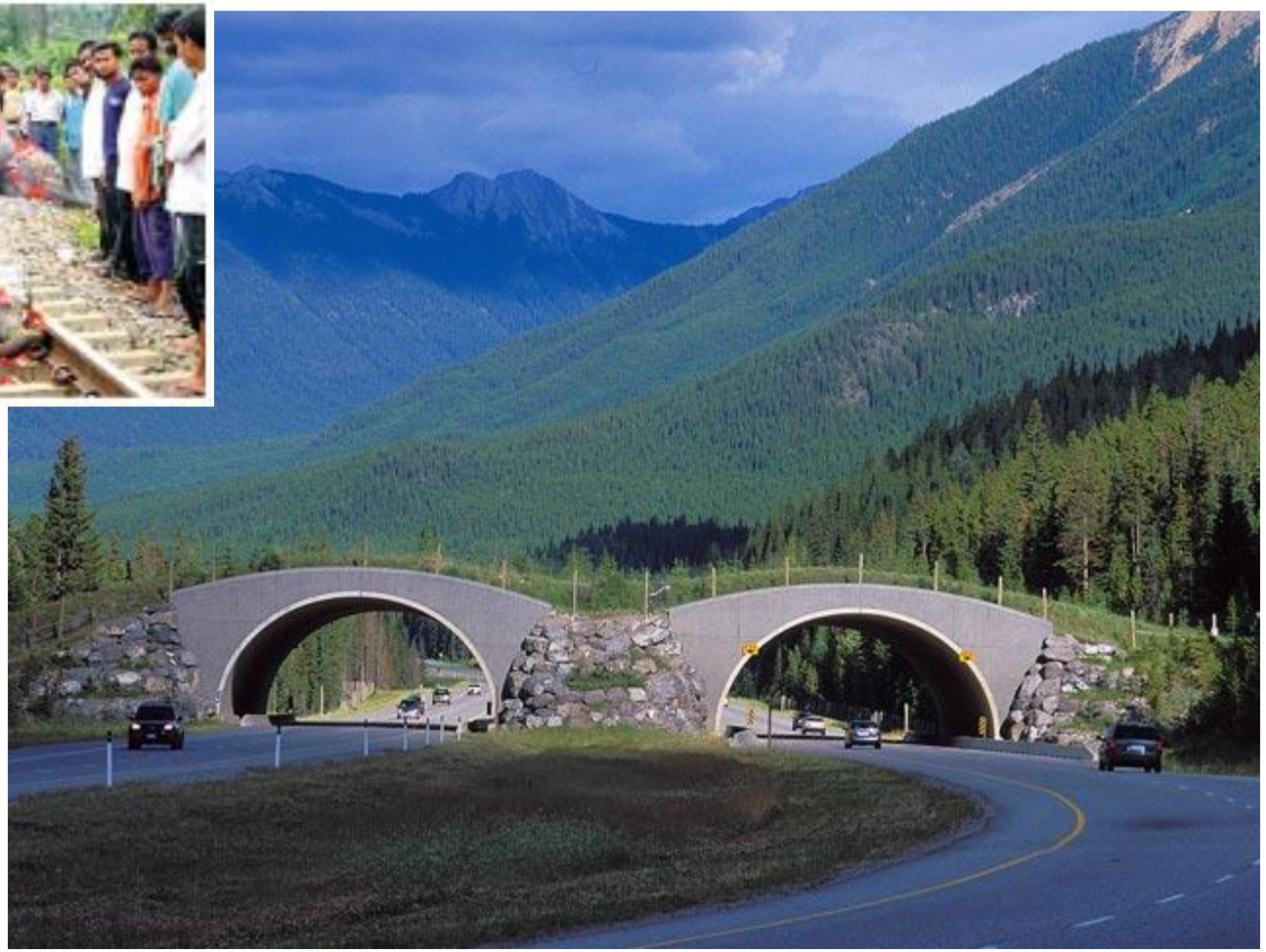
- The main goal of implementing habitat corridors is to increase biodiversity.
- When areas of land are broken up by human interference, population numbers become unstable and many animal and plant species become endangered.
- By re-connecting the fragments, the population fluctuations can decrease dramatically.

HABITAT CORRIDORS





HABITAT CORRIDORS



HABITAT CORRIDORS

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LECTURE 4

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Major Wildlife Corridors in the World

- **China-Rusia Tiger Corridor**
- **European Green Belt**
- **Siju Rewak Corridor**

China-Rusia Tiger Corridor

- **Russia has established a new corridor linking two critical Amur tiger habitats in the Russia Far East and northeastern China, allowing the animals to move easily between the national borders.**

AMUR TIGER

China-Rusia Tiger Corridor

- **The 72,700-hectare *Sredneussuriisky* (Sredne-Ussuriiskii) Wildlife Refuge in Primorsky Province, located on the Russia-China border, links Russia's Skhote-Alin mountain range with China's Wandashan mountain, which are both critical Amur tiger habitats.**

China-Rusia Tiger Corridor

- **With the establishment of this important ecological corridor, Russia has fulfilled another of its commitment on tiger conservation made in 2010 at the International Tiger Conservation Forum in St. Petersburg.**

China-Rusia Tiger Corridor

- **Russia along with the other 12 tiger range countries had committed to doubling the number of wild tigers by 2022 at the Forum, which is also known as the Tiger Summit.**

EUROPEAN GREEN BELT

- **The European Green Belt connects 16 EU countries, four candidate countries (Serbia, Montenegro, Macedonia, Turkey), two potential candidates (Kosovo, Albania) and two non-EU countries (Russia and Norway).**

- **Almost 150 governmental and non-governmental organisations from these countries have come together in the Green Belt Initiative.**

- **The European Green Belt Initiative was born in 2003, when various existing regional initiatives merged into one European initiative. Besides its extraordinary ecological importance, the initiative is a living example of how Europe and its diverse cultures can truly grow together.**

EUROPEAN GREEN BELT

EUROPEAN GREEN BELT

- **From the European Green Belt, we can learn that biological diversity goes hand in hand with cultural diversity. It is a symbol for transboundary cooperation and a Europe's shared natural and cultural heritage.**

EUROPEAN GREEN BELT

- **In 1970, satellite pictures showed a dark green belt of old-growth forest along the Finnish-Russian border. Cooperation between Finland and the Soviet Union in the area of nature conservation was begun in the 1970s with the signing of a scientific-technical cooperation agreement. The term "Fennoscandian Green Belt" was first used in 1992.**

EUROPEAN GREEN BELT

- **In 1975, the first observations of the inner-German border areas were made, though at the time these were possible only from the western side.**
- **A systematic ornithological survey, conducted in 1979 along a 140-kilometre stretch of the border by young conservationists from BUND (Friends of the Earth Germany), showed a richness of biodiversity. In 1989, BUND launched the Green Belt Germany project.**

Ornithological survey ?

Journal of Research in Biology

Journal of Research in Biology

An International Scientific Research Journal

Original Research

An ornithological survey in the vicinity of Agartala city of Tripura state, north-eastern India

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ABSTRACT:

North-east India is a part of Indo-Burma hotspot and among the richest bird zones in India. Tripura lies in the border of Indo-Burma global biodiversity hotspot area but is poorly covered by ornithological works. Avifauna of Tripura state is known by 277 species but there is lack of information about their distribution, particularly in and around Agartala city, which is the capital of Tripura state and is a tourist destination along the border of Bangladesh for its natural landscapes, inland water species, and strong presence of green flora. With a view to enhance its value for tourist attraction and naturalists, a study was conducted to record the species of birds that occur in and around the City. In the present study 73 bird species were recorded from Agartala city and its adjacent areas belonging to 41 families and 14 orders.

Keywords:
Avifauna, biodiversity hotspot, Agartala, Tripura, north-east India .

Article Citation:
Partha Pratim Bhattacharjee, Rahul Lodh, Dipten Laskar, Joydeb Majumder and Basant Kumar Agarwala.
An ornithological survey in the vicinity of Agartala city of Tripura state, north-eastern India.
Journal of Research in Biology (2013) 3(3): 852-860

Web Address:
http://jresearchbiology.com/documents/RA0328.pdf.

Dates:
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Siju Rewak Corridor

- ***The Siju-Rewak Corridor, located in the Garo Hills, India, protects an important population (thought to be approximately 20% of all the elephants that survive in the country), by addressing the problem of forest fragmentation which is a serious threat to the elephants' survival.***

LANDSCAPES

- **1. NATURAL LANDSCAPES**
- **2. SEMI NATURAL LANDSCAPES**
- **3. CULTURAL LANDSCAPES**

NATURAL LANDSCAPES

- **LAKES**
- **MOUNTAINS**
- **RIVERS**
- **NATURAL WATERFALLS**
- **MEADOWS**
- **COASTAL ZONES**

SEMI NATURAL LANDSCAPES

- **AGRICULTURAL ECOSYSTEMS**
- **FORESTRY AREAS**

CULTURAL LANDSCAPES

- **RURAL VILLAGES**
- **HISTORICAL TOWNS**

Cultural Landscapes

Morocco

Greece and Barcelona

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LECTURE 5
RAMSAR CONVENTION

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DEPARTMENT OF LANDSCAPE ARCHITECTURE

RAMSAR CONVENTION

- The Convention on Wetlands, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

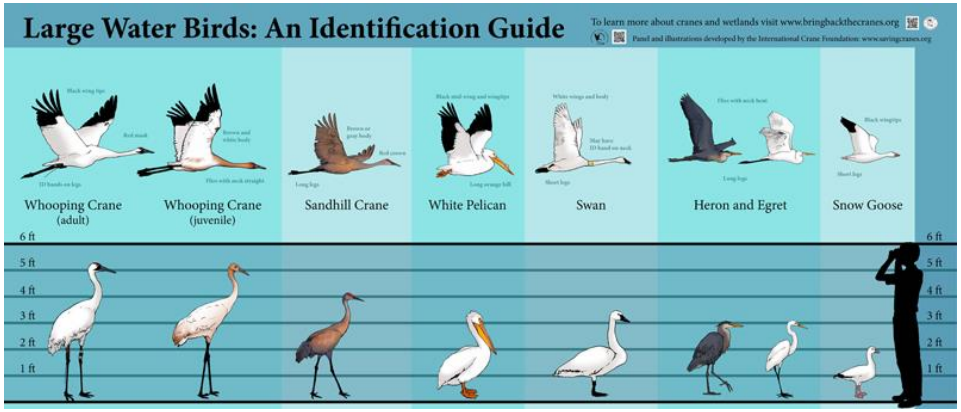
- Number of Contracting Parties: 168
- Number of Ramsar Sites: 2,193
- Total surface of designated sites: 208,843,802,.07 ha

RAMSAR CONVENTION

- **Ramsar Sites are designated according to nine criteria (PDF) – eight of these are biodiversity criteria, emphasizing the importance the Convention places on sustaining this diversity by designating and restoring wetlands.**

- **The Convention also provides the tools making the link between wetland biodiversity and ecosystem services such as fish, fruits, wood, medicines, etc., upon which people depend.**

- The Contracting Parties confirmed in 2005 that their vision for the Ramsar List is "**to develop and maintain an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and benefits/services".**



- This vision reflects the Millennium Ecosystem Assessment, which describes ecosystems as the complex of living communities (including human communities) and non-living environment (ecosystem components) interacting (through ecological processes) as a functional unit which provides, among other things, a variety of benefits to people (ecosystem services).

RAMSAR CONVENTION

- Ramsar is the oldest of the modern global intergovernmental environmental agreements. The treaty was negotiated through the 1960s by countries and non-governmental organizations concerned about the increasing loss and degradation of wetland habitat for migratory waterbirds.

- It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975.

RAMSAR CONVENTION

- February 2, 2014

- **World Wetlands Day on Wetlands and Agriculture is celebrated globally**: 822 activities are reported, with over 100,000 participants in 77 countries!

RAMSAR CONVENTION

- The Standing Committee of the Ramsar Convention oversees Convention affairs and the activities of the Secretariat. It represents the Conference of the Contracting Parties (the COP) between its three-yearly meetings, within the framework of the decisions made by the COP. The Contracting Parties established the Standing Committee at their third meeting in Regina, Canada in 1987.

RAMSAR CONVENTION

- In 2012, the 11th meeting of the Conference of the Contracting Parties (COP11) elected a new Standing Committee to oversee Convention affairs until COP12 in 2015. The next meeting of the Standing Committee will take place in June 2015.

RAMSAR CONVENTION

- The Secretariat does not operate on-the-ground conservation projects directly, but the Convention does maintain three funding assistance programmes for small projects (or parts of larger projects) for the conservation and wise use of wetlands.

- Where a Ramsar Site's ecological character is threatened, the Contracting Party can request a Ramsar Advisory Mission (RAM).

- This mechanism was formally adopted by Recommendation 4.7 in 1990.

- It enables both developed and developing countries to apply global expertise and advice to the problems and threats that could lead to a loss in ecological character to a wetland.

RAMSAR CONVENTION

- Between 1988 and 2013, the Ramsar Advisory Mission mechanism was applied at 76 Ramsar Sites or groups of Sites. Over the years the missions have become more formal and detailed, now often involving multi-disciplinary teams.

- Many have been carried out in collaboration with partners such as IUCN, the World Heritage Convention, and the Man and the Biosphere Programme.

RAMSAR CONVENTION

- The 12th Meeting of the Conference of the Contracting Parties to the Ramsar Convention on Wetlands (COP12) will be held in Punta del Este at the Conrad Resort, Uruguay, from 1 to 9 June 2015.

Please note that:

- the 49th meeting of the Standing Committee is planned on 1 June, and
- regional meetings will take place on 2 June
- The theme of the conference is ”*Wetlands for our Future*.”

PM 308
RURAL LANDSCAPE PLANNING

LECTURE 6
UNSECO WORLD HERITAGE

ASSOC PROF DR ÖZGE ÖZDEN FULLER

WORLD HERITAGE AND BIODIVERSITY:

HOW WORLD HERITAGE SITES CONTRIBUTE TO BIODIVERSITY CONSERVATION AROUND THE WORLD

From left to right: Great Barrier Reef (Australia) © *Tourism Queensland* ; Machu Picchu (Peru) © *UNESCO/F.Bandarin* ;The Dolomites (Italy) © *UNESCO/Emma Catherine* ; Rainforests of the Atsinanana (Madagascar) © *IUCN/Geoffroy Mauvais*; Wadi Al-Hitan (Egypt) © *UNESCO/Guy Debonnet*

UNESCO's World Heritage mission is to:

* encourage countries to sign the World Heritage Convention and to ensure the protection of their natural and cultural heritage;

* encourage States Parties to the Convention to nominate sites within their national territory for inclusion on the World Heritage List;

* encourage States Parties to establish management plans and set up reporting systems on the state of conservation of their World Heritage sites;

* help States Parties safeguard World Heritage properties by providing technical assistance and professional training;

* provide emergency assistance for World Heritage sites in immediate danger;

* support States Parties' public **awareness-building** activities for World Heritage conservation;

* encourage participation of the local population in the preservation of their cultural and natural heritage;

* encourage international cooperation in the conservation of our world's cultural and natural heritage.

There are 10 World Heritage criteria:

	Cultural criteria	Natural criteria
Operational Guidelines 2005	(i) (ii) (iii) (iv) (v) (vi)	(vii) (viii) (ix) (x)

Of which 4 criteria for natural sites:

(vii) "Contain superlative natural phenomena or areas of exceptional natural beauty..."
(viii) "Contain outstanding examples representing major stages of earth's history, including the record of life…
(ix) "Contain outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of ecosystems and communities..."
(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 or science or conservation".

Criteria (ix) and (x) are specifically biodiversity-related.

Examples of sites that represent natural heritage criteria:




From left to right: Wet Tropics of Queensland (Australia) [criteria (vii)(viii)(ix)(x)] © *Tourism Queensland* ; Pantanal Conservation Area (Brazil) [criteria (vii)(ix)(x)] © *M&G Therin-Weise* ; Waterton Glacier National Peace Park (Canada and USA) [criteria (vii)(ix)] © *UNESCO/Nomination File* ; Sichuan Giant Panda Sanctuaries - Wolong, Mt Siguniang and Jiajin Mountains (China) [criterion (x)] © *UNESCO/Yange Yong*.

Mixed sites are those that have both outstanding natural and cultural values. Since 1992, the significant interactions between people and the natural environment have been recognized as cultural landscapes. They demonstrate the relationship between people, nature and ecosystem, which shapes culture and identity, and enriches both cultural and biological diversity.

Examples include (from left to right): Historic Sanctuary of Machu Picchu (Peru) [criteria (i)(iii)(vii)(ix)] © *UNESCO/F.Bandarin* ; Meteora (Greece) [criteria (i)(ii)(iv)(v)(vi)(vii)] © *UNESCO/B.Doucin et L..Lalaité* ; Göreme National Park and the Rock Sites of Cappadocia (Turkey) [criteria (I)(iii)(v)(vii)] © *UNESCO/F.Bandarin* ; Uluru-Kata Tjuta National Park (Australia) [criteria (v)(vi)(vii)(viii)] © *UNESCO/G.Brehm*.

WORLD HERITAGE AND BIODIVERSITY / PROTECTION AND MANAGEMENT

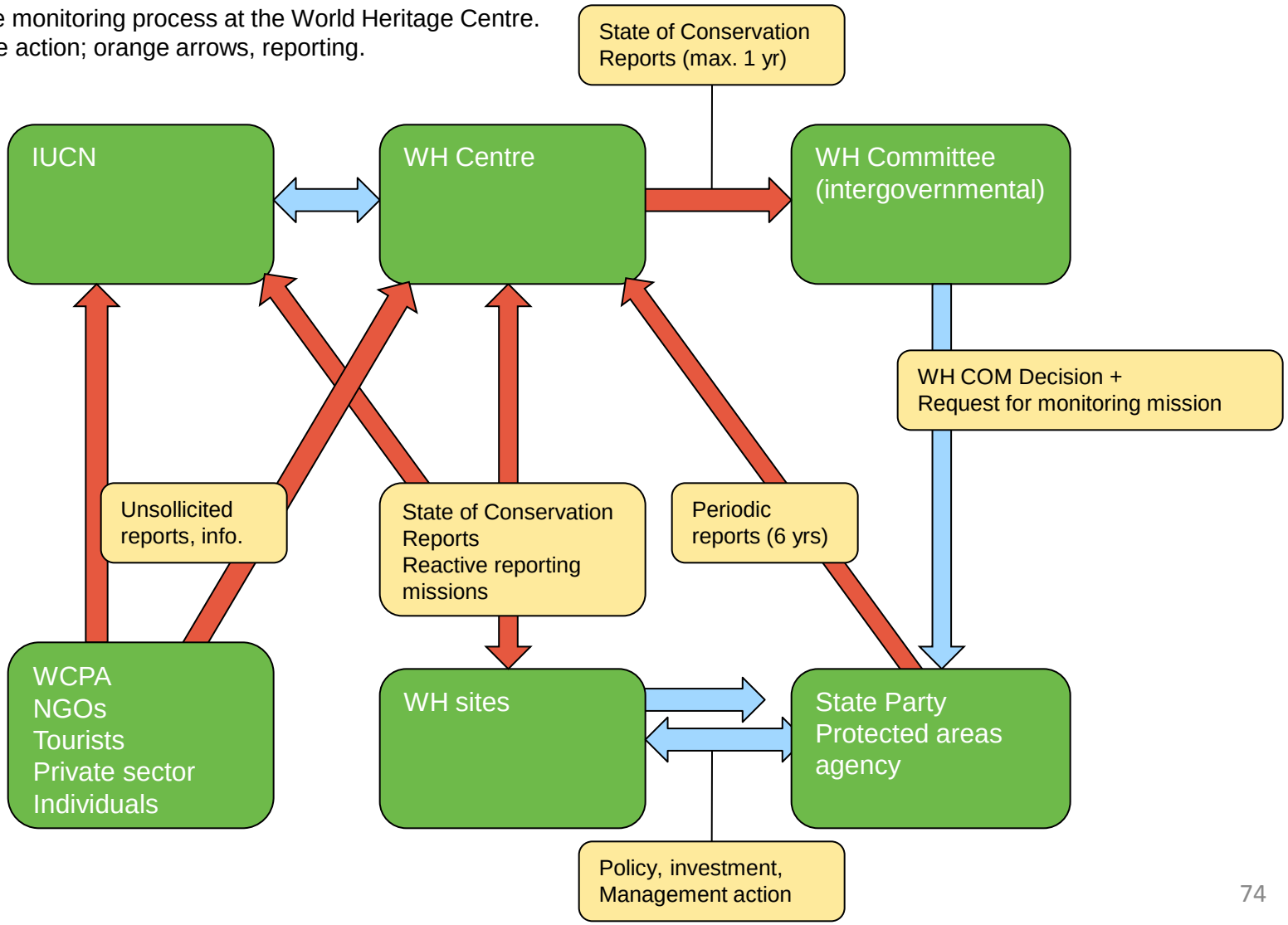
The World Heritage Convention is the only international legislative instrument that regularly monitors listed sites to ensure continued integrity, protection, and management. In terms of biodiversity protection, the World Heritage Committee has the intergovernmental mandate to intervene and plays an essential role in its contribution to the Convention on Biological Diversity (CBD) work on protected areas as well as within the global system of protected natural areas, which is a critical part of any strategy that seeks to conserve biodiversity *in situ*.

To achieve this mission the World Heritage Centre cooperates with governments, internationally recognized institutions, local NGOs, and private corporations in order to safeguard existing World Heritage sites as well as help identify other sites of outstanding universal value that are not yet listed.

Monitoring the increasing number of sites is a large part of the World Heritage Centre's tasks. The Centre acts on information gathered from monitoring missions, periodic reports, or even unsolicited reports to engage with national governments and help tackle the imminent threats to World Heritage sites.

WORLD HERITAGE AND BIODIVERSITY / MANAGEMENT AND MONITORING

Keeping track of the monitoring process at the World Heritage Centre.
Blue arrows indicate action; orange arrows, reporting.



Logo added in

The World Heritage Fund provides the financial assistance in times of need and can rapidly make emergency funds available; just one of the strengths of World Heritage listing. Emergency aid, whether financial or technical, can be quickly deployed to lessen the impacts of natural or human disasters. The Rapid Response Facility (RRF), working together with Fauna & Flora International (FFI) and the United Nations Foundation, can provide immediate assistance in the form of small grants to those sites that are in urgent need.

To date it has intervened in 16 situations in 14 natural World Heritage sites, responding to urgent conservation threats caused by natural disaster, armed conflict or sudden increases in illegal activity in these protected areas. Without such intervention years of conservation efforts could be lost in months, weeks or less.

RRF has just launched a new website: www.rapid-response.org.

Years of conservation efforts up in smoke. Fighting fires at the Emas National Park, Cerrado Protected areas (Brazil) thanks to RRF funding.
© Emas National Park/ Oreades/Rapid Response Facility

THE WORLD HERITAGE CONVENTION / INTRODUCTION

The 1972 Convention concerning the Protection of the World Cultural and Natural Heritage, widely known as the World Heritage Convention, is considered one of the most successful international instruments for the conservation of heritage sites around the world. It is certainly one of the most well known. It is the only Convention encompassing both natural and cultural heritage, and represents a unique and powerful link between the instruments dealing with cultural heritage, and those addressing issues of natural heritage conservation, biological diversity, endangered and migratory species, wetlands and climate change.

There are five strategic objectives (known as the 5 'Cs'):

1. Credibility
2. Conservation
3. Capacity-building
4. Communication
5. Communities

A range of communication and information materials are regularly produced by the World Heritage Centre.

Changed to new publications

THE WORLD HERITAGE CONVENTION / BIODIVERSITY LIAISON GROUP

In order to enhance coherence and cooperation in implementation, a liaison group has been established between the heads of the secretariats of the six biodiversity-related conventions. The Liaison Group of Biodiversity-related Conventions meets regularly to explore opportunities for synergistic activities and increased coordination, and to exchange information.

The group, known as the Biodiversity Liaison Group or BLG, was formed in June 2004 and includes:

* Convention concerning the Protection of World Cultural and Natural Heritage
* Convention on Biological Diversity
* Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
* Convention on Migratory Species of Wild Animals (CMS)
* Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar)

For more information: http://www.cbd.int/cooperation/related-conventions/blg.shtml

The 2010 Biodiversity Target was endorsed by the World Summit on Sustainable Development and the United Nations General Assembly at the 2005 World Summit and commits 192 countries (Parties to the CBD) to achieving by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth.

However, the findings released last year under the Millennium Ecosystem Assessment – an exhaustive analysis of the health of the planet's ecosystems undertaken by over 1,300 experts from 95 countries – show we have a long way to go with two-thirds of the world's products and services that humankind derives from nature in decline.

For more information on the 2010 Biodiversity Target:
http://www.cbd.int/2010-target/

For more information on the Millennium Ecosystem Assessment:
http://www.millenniumassessment.org/en/index.aspx

Biodiversity is life
Biodiversity is our life

The World Heritage List currently includes 890 natural and cultural properties of outstanding universal value in 148 countries.

As of July 2009, these include 689 cultural properties, 176 natural properties, and 25 mixed properties in 148 countries.

Currently 16 natural sites are on the List of World Heritage In Danger.

Natural World Heritage Site Occurrence by Continent / Region

Continent / Region	Natural	No. of WH mixed sites	Sites In Danger	Total
Asia	33	7	1	38
Africa	33	3	12	36
North America	25	0	0	20
South America	29	3	3	31
Europe	40	7	0	31
Oceania /Australasia	16	5	0	20
Total	**176**	**25**	**16**	**201**

World Heritage (regional & national) includes:

* 11% of the total protected area in Asia and the Pacific.

* 9% of the total protected area in Africa.

* 7% of the total protected area in Latin America and the Caribbean, Arab States and in Europe and North America.

* In 17 countries the extent of natural World Heritage sites is more than 25% of all protected areas.

* In 32 countries the extent of natural World Heritage sites is more than 10% of all protected areas.

The World Heritage List includes:

* 176 biodiversity World Heritage sites.

* 201 natural/mixed World Heritage sites in 81 countries protect over 177,000,000 ha of land and sea. That's half the size of Europe!

* 8% of the total area of the 110,000+ terrestrial (6%) and marine (21%) protected areas recorded in the World Database on Protected Areas.

* 0.5–1.0% of the total land area on Earth.

* 31 natural sites with significant marine components.

* 186 States Parties to the Convention

Cross-check figures?

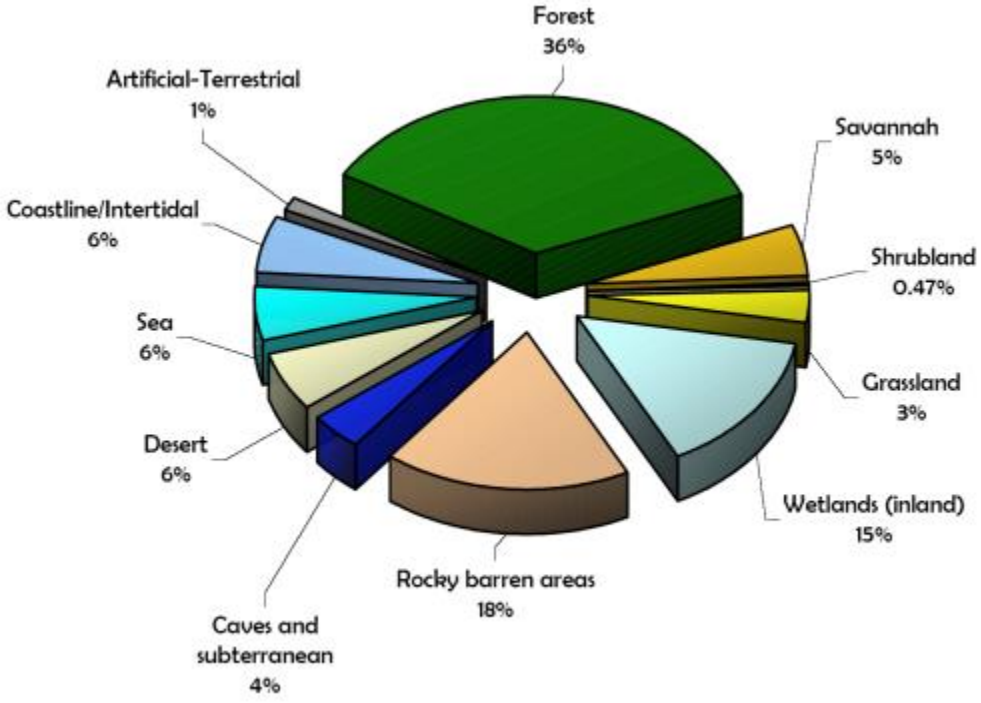
The List of World Heritage in Danger is one of the instruments used that has an effect on the preservation of sites as it can help raise the political profile at both national and international levels and lead to greater financial and technical investment in resolving issues. There are 16 natural sites on the List of World Heritage in Danger.

Examples include (from left to right): Mount Nimba Strict Nature Reserve (Côte d'Ivoire and Guinea) © *UNESCO/Guy Debonnet* ; Manas Wildlife Sanctuary (India) © *UNESCO/Rao Kishore* ; Simien National Park (Ethiopia) © *UNESCO/Guy Debonnet* ; Galápagos Islands (Ecuador) © *M&G Therin-Weise*

WORLD HERITAGE AND BIODIVERSITY / GLOBAL COVERAGE

The World Heritage Convention has already achieved a great deal since it came into force in 1975. There are currently 201 natural and mixed properties inscribed on the World Heritage List and they encompass many of the most important landscapes, ecosystems and habitats on the planet. The number of World Heritage sites covers almost two million square kilometres – equivalent to more than 9% of the total coverage of protected areas.

Global coverage of first level habitat types in World Heritage sites



Source: Review of the World Heritage Network: Biogeography, Habitats and Biodiversity
(need for a more detailed source)

Wetlands, mountains, and tropical forests are the dominant habitat types in existing World Heritage sites. Coastal and marine areas follow in relation to dominant habitat types, while sub-polar/polar tundra sites are the least common habitats.

Boreal forests appear to be less common in number, but this is compensated by their substantial size.

Three habitat types cover a far greater area than all others, together accounting for over 70% of the total area of the natural WH network:

* Forest: 474,000 km2
* Sea: 466,000 km2
* Desert: 310,000 km2

Added in picture

Fraser Island (Australia) © *UNESCO/Roger Franck*

There are only 12 World Heritage natural sites that are inscribed solely under criterion (x):

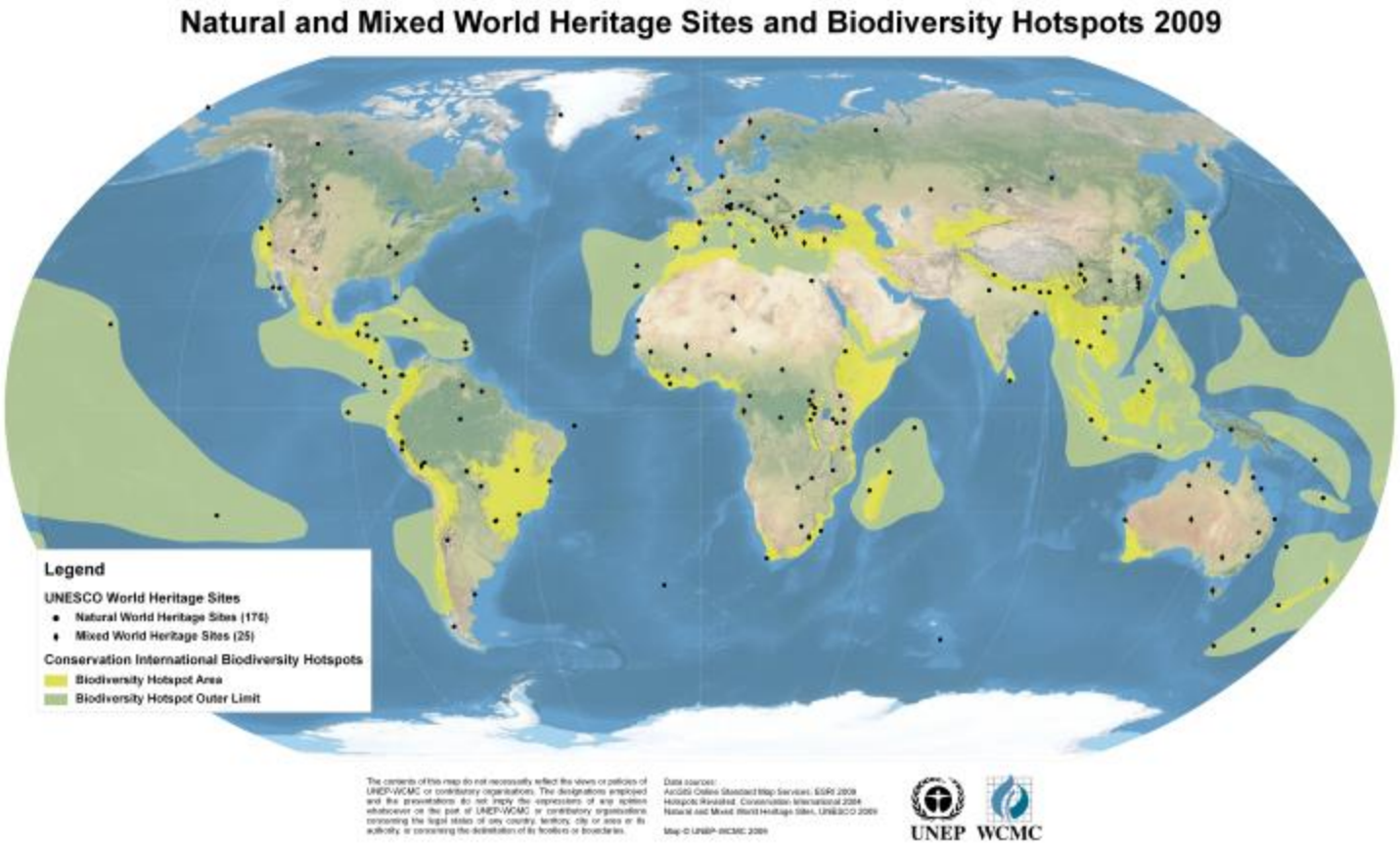
“Contain the most important and significant natural habitats for *in situ* conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view or science or conservation”.

of which:

* 5 have high diversity and charismatic megafauna.
* 2 includes areas of lower diversity but still represent outstanding biodiversity as well as flagship species.
* 3 sites were inscribed for conserving extraordinary waterfowl.
* 2 represent a mostly marine ecosystem with charismatic megafauna namely whales.

How do World Heritage sites fit into these conservation priorities? By identifying areas in the world that fit the criteria of natural World Heritage, and which are particularly species-rich. Three such categories used in identifying these areas include:

* Biodiversity hotspots
* Plant diversity
* Endemic Bird Areas



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Presence of World Heritage sites in the world's biodiversity hotspots and regions
© United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)

Overall coverage of Conservation International hotspots in World Heritage sites

Biodiversity Hotspot	Area in WH Sites (km²)	Total hotspot area (km²)	% of hotspot contained in WH Sites
Africa's Western Cape/Succulent Karoo	0	104,467	0.00
Atlantic Forest	35,820	1,482,983	2.42
Brazilian Cerrado	5,743	1,831,454	0.31
California Floristic Province	3,447	352,065	0.98
Caribbean	4,561	259,634	1.76
Caucasus	3,595	556,184	0.65
Central Chile	0	292,225	0.00
Choco-Darién-Western Ecuador	6,122	226,575	2.70
Eastern Arc Mountains & Coastal Forests	24,044	192,805	12.47
Guinean Forests of West Africa	4,533	881,111	0.51
Indo-Burma	8,836	2,287,772	0.39
Madagascar & Indian Ocean Islands	1,607	602,141	0.27
Mediterranean Basin	264	529,815	0.05
Mesoamerica	19,386	1,154,778	1.68
Mountains of S. Central China	21,505	557,495	3.86
New Caledonia	0	19,166	0.00
New Zealand	24,138	267,116	9.04
Philippines	50	295,855	0.02
Polynesia & Micronesia	726	48,106	1.51
South Africa Cape Floristic Region	0	75,000	0.00
Southwest Australia	4,495	308,623	1.46
Sundaland	1,787	1,497,444	0.12
Tropical Andes	17,643	1,405,808	1.26
Wallacea	530	339,089	0.16
Western Ghats & Sri Lanka	96	256,594	0.04
TOTAL	**188,929**	**15,824,302**	**1.19**

logo

Source: Review of the World Heritage Network: Biogeography, Habitats and Biodiversity

Endangered species in some World Heritage natural Sites: important sites for *in situ* biodiversity conservation.

From left to right: Garamba National Park (Democratic Republic of the Congo) © *Nuria Ortega* ; Sichuan Giant Panda Sanctuaries - Wolong, Mt Siguniang and Jiajin Mountains (China) © *UNESCO/Yange Yong* ; Royal Chitwan National Park (Nepal) © *UNESCO/ Francisco Gattoni* ; Serengeti National Park (United Republic of Tanzania) © *UNESCO/Marc Patry*

In the 1990s, concern about the rapid loss and degeneration of natural ecosystems and the urgent need to highlight botanical hotspots led to the IUCN/WWF initiative to identify Centres of Plant Diversity (CPD). As a result almost 250 priority sites for the global conservation of higher plants was recorded in *Centres of Plant Diversity: A Guide and Strategy for their Conservation (WWF* and IUCN, 1994–1995), and are sites of global botanical importance.

CPDs are likely to be:

* important genepools of plants of known value to humans or that are potentially useful
* sites with a diverse range of habitat types
* sites with a significant proportion of species adapted to local conditions, and/or
* threatened or under imminent threat of large-scale devastation.

According to the CPD GIS datasets, 74 World Heritage sites (43%) overlap with 57 Centres of Plant Diversity. The most comprehensive CPD, in terms of World Heritage, is the Afroalpine Region (East and North-east Africa), which has five World Heritage sites within it: Kilimanjaro, Mt Kenya, Rwenzori, Simien and Virunga.

Overall, 20.2% of CPDs, for which GIS data are available, occur in World Heritage sites.

Plant diversity is used as the biological basis for hotspot designation.

From left to right: Cape Floral Region Protected Areas (South Africa) © *OUR PLACE The World Heritage Collection* ; Tongariro (New Zealand) © *UNESCO/S.A.Tabbasum* ; Sangay National Park (Ecuador) © *OUR PLACE The World Heritage Collection* ; Laurisilva of Madeira (Portugal) © *UNESCO/Nomination file*

Endemic Bird Areas or EBAs cover approximately 2% of the world's land surface.

Some World Heritage sites have EBA's ranging from 100% to less than 1%.

Four EBAs (all islands or island groups) are completely included in World Heritage sites. These are:

* The Galápagos Islands in Ecuador harbouring 22 restricted range bird species.
* The Cocos Island in Costa Rica harbouring three restricted range species.
* The Auckland Islands (New Zealand Sub-Antarctic Islands) harbouring two restricted range species.
* Henderson Island harbouring four restricted range species.

* Most World Heritage sites (64) only overlap one EBA, but some cover more.
* Seventeen World Heritage sites cover two EBAs.
* Huascarán National Park in Peru covers parts of three EBAs.
* Sangay National Park in Ecuador covers parts of four EBAs.

Endemic Bird Areas represent important conservation priority areas.

From left to right: East Rennell (Solomon Islands) © *UNESCO/S. A. Tabbasum*; Galápagos Islands (Ecuador) © *Evergreen* ; Tubbataha Reefs Natural Park (Philippines) © *Toppx2 ;* Manú (Peru) © *UNESCO/K. Fubomichi*

Changed 2nd picture back to Evergreen – we have agreement
But not for the one you added in last

Check others?

WORLD HERITAGE AND BIODIVERSITY / IDENTIFIED GAPS

Closing the gaps in the World Heritage List will help achieve biodiversity targets in the future.

Grasslands
Sudd-Sahelian savanna and flooded grasslands (a WWF ecoregion in Central and Eastern Africa)
Sub-antarctic grasslands, including South Georgia
Sub-polar and arctic tundra

Wetlands
Flooded grasslands such as Okavango (Botswana)
Volga and Lena River deltas (Russia)
Western Ghats rivers (India)

Deserts
Succulent Karoo (Namibia and South Africa)
Namib desert (Namibia)
Central Asian deserts
Socotra desert (Yemen) – has since been inscribed

Forests
Madagascar moist forests
Forests in southern Chile and southern Argentina
Dry and moist forests in New Calendonia (France)
Western Ghats forests (India)

Marine
Red Sea corals
Andaman Sea (India, Indonesia, Myanmar, Thailand, etc.)
Benguela Current (marine) (includes South Africa, Namibia, Angola)
Marine sites within the following ecoregions: Fiji, Palau and Tahiti (Fiji, Palau, France)
Gulf of California (Mexico) – has since been inscribed
Maldives/Chagos atolls (Maldives, UK)

Source: Magin and Chape (2004)

THE WORLD HERITAGE CENTRE / PRIORITY AREAS OF WORK

The World Heritage Centre is at the heart of international efforts to conserve these unique sites. Whether actions involve emergency operations or long term conservation, the World Heritage Centre and its partners are proactive in their approach in seeking to develop innovative projects and activities that cover the range of pressing environmental issues such as climate change, deforestation or invasive species as well as in priority areas of work such as education and marine conservation.

Some priority areas of work

World Heritage Forest Programme
World Heritage Marine Programme
Small Islands Developing States
World Heritage Education Programme

Cross-cutting themes

Climate change
Cultural landscapes
Sustainable tourism