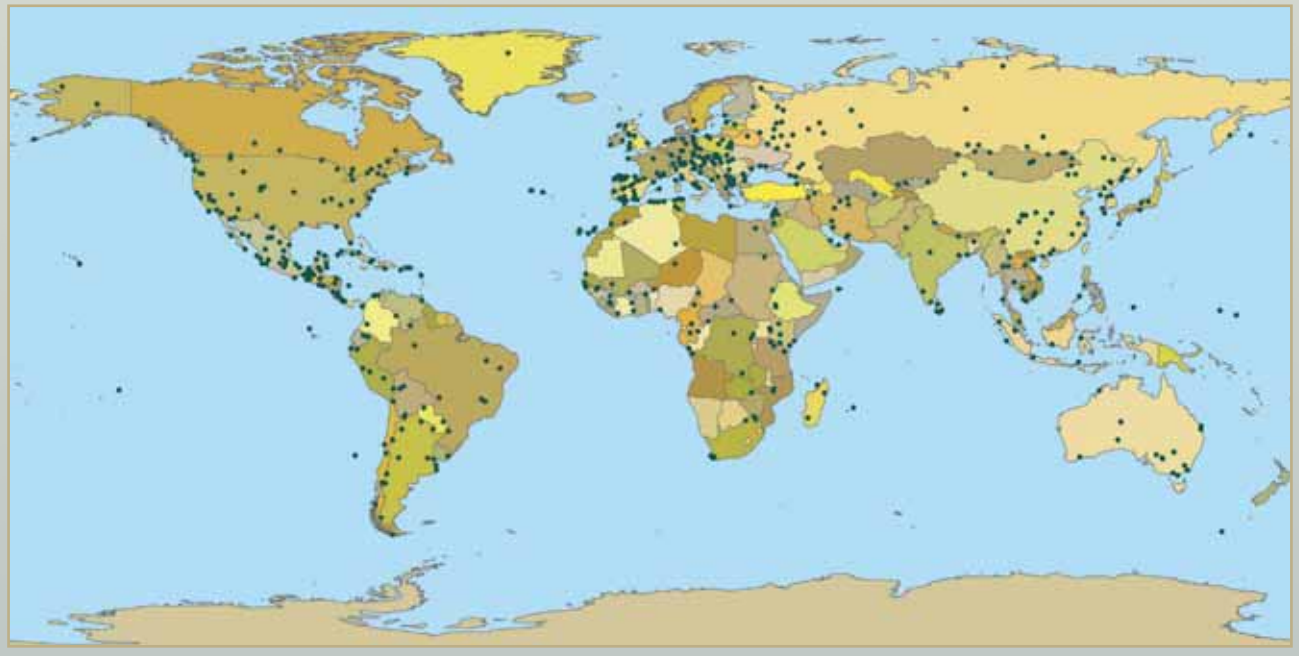
World Network of Biosphere Reserves 2010: Sites for Sustainable Development



United Nations Educational, Scientific and Cultural Organization
Man and the Biosphere Programme
GOBIERNO DE ESPAÑA
MINISTERIO DE MEDIO AMBIENTE Y MEDIO RURAL Y MARINO

Index

Foreword by Irina Bokova (Director-General of UNESCO)	3
Foreword by Rosa Aguilar (Minister of Environmental and Rural and Marine Affairs of Spain)	5
Introduction	7
Africa	9
Arab States	67
Asia and the Pacific	93
Europe and North America	209
Latin America & Caribbean	473
Transboundary Biosphere Reserves (TBR)	587

Foreword by Irina Bokova, Director-General of UNESCO

The World Network of Biosphere Reserves is a UNESCO flagship.

Numbering 563 sites in 110 countries across the world, these reserves stretch from terrestrial to coastal and marine ecosystems, from mountain peaks to the ocean abysses. On this 40th anniversary of the UNESCO Man and Biosphere Programme, this publication showcases the unique role of biosphere reserves for sustainable development.

The concept and practice of biosphere reserves have evolved since 1976 when the first sites were recognized. What were seen then as protected areas have become land and seascapes dedicated to exploring the principles and practice of sustainable development. Biosphere reserves are places today for people and nature to co-exist and to interact in ways that will guide sustainability into the future.

The Madrid Action Plan for Biosphere Reserves 2008-2013 called for more information and communication on the biosphere reserves. To this end, each biosphere reserve is presented here in an information sheet that outlines its natural ecosystems, human presence and activities. Information is provided also on the conservation, income generation and research and learning activities that highlight the role of each reserve in promoting the sustainable development of the surrounding region. As the International Co-ordinating Council of the Man and Biosphere Programme prepares for the mid-term evaluation of the Madrid Action Plan, this book provides new insight to the achievements and the limitations facing the World Network.

I wish to express deep gratitude to the Spanish Ministry for Environment and Marine and Rural Affairs with its Autonomous Organisation for National Parks for its longstanding support to the Man and Biosphere Programme. Without such backing from Member States, the World Network would not have come as far as it has today.

The 2009 UNESCO General Conference underlined the importance of the Man and Biosphere Programme and the World Network of Biosphere Reserves as platforms for learning about sustainable development. Ten to twenty new sites join the Network every year. Many have reviewed their status and made changes to their design and scope in order to meet the sustainable development priorities of the regions in which they are located. New proposals tend increasingly to be prepared by actors from within the nominated area that are deeply committed to sustainability.

Within the framework of the UN Decade of Education for Sustainable Development (2005-2014), I hope this publication will catalyse new case studies and research to develop educational resources for practitioners and policy-makers. To support this process, the Man and Biosphere Secretariat will update the publication every year, following the entry of new sites into the World Network.

This publication performs a great service in opening up UNESCO's World Network of Biosphere Reserves for all to see and to learn. These are sites for sustainable development in action. They hold important keys to our common future.

Irina Bokova

Foreword by Rosa Aguilar Rivero, Minister of Environmental and Rural and Marine Affairs of Spain

The "Man and the Biosphere (MaB)" Programme was established by UNESCO in 1971, and so in 2011 we are now celebrating its 40th anniversary. This year has also been declared "International Year of Forests" by the United Nations. The basic objective of the MaB Programme is to establish a new system of relationships between people and nature based on the understanding that humans are not alien to the Biosphere but part of it. Today's World is the result of a millenary relationship between people and their surroundings, however socioeconomic development must not imply degradation of the natural environment and loss of biodiversity that places in jeopardy the very viability of the development model. In this respect, the MaB Programme advocates the integration of social, economic and environmental components in what has been called "sustainable development."

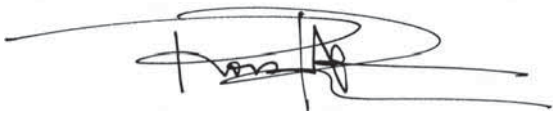
The World Network of Biosphere Reserves is the largest network of protected areas in the world, with a surface area of over five million square kilometres, approximately the equivalent of half Europe. By 2010, 110 countries had declared a total of 563 biosphere reserves on their territories. This network is very heterogeneous; some reserves are larger than countries such as the United Kingdom or Italy. They range from tropical ecosystems to deserts, high mountain ecosystems to wetlands, savannahs, etc. Practically all ecosystems and all biogeographical regions are represented in this network. However, as stated before, it is not only natural systems that have a prominent role in the reserves, the human factor, society and its relationship with nature are considered as an essential part of biosphere reserves and it is precisely this integrating approach that makes the concept different from other protection classifications.

In today's world where global climate change and other problems are questioning our development model, special emphasis must be placed on underscoring that biosphere reserves are ideal territories in which to launch pilot experiments implementing the MaB Programme's sustainability model. In order to provide a framework for these ideas, concepts, targets and actions, the world network relies on a basic tool, the Madrid Action Plan (2008-2013). This document was adopted in Madrid during the Third World Congress on Biosphere Reserves, establishing a route map to be followed by the World Network of Biosphere Reserves in order to achieve recognition by 2013 of biosphere reserves as key areas devoted to sustainable development in the twenty-first century.

In this context Spain, with forty designated biosphere reserves on its territory it is one of the top countries in number of reserves joinly with The United States, Russia and Mexico. Right from the start of the MaB Programme, Spain has been one of the most active countries within UNESCO, dedicating great efforts to the development of the MaB Programme. As proof of this involvement mention can be made of the two World Congresses held in Spain in 1995 and 2008.

Spain's great involvement with the MaB Programme is also reflected in its support of the IberoMaB Network, the network of MaB Committees and Focal Points in Ibero-America and the Caribbean, of which it has been permanent secretariat since 1997. Likewise, it carries out an important task supporting biosphere reserves in other parts of the world through the Autonomous National Parks Body of the Ministry of the Environment and Rural and Marine Areas' International Cooperation Programme which, through UNESCO, has invested over five million Euros between 2006 and 2010 to fund training and support projects in Ibero-American, North-East African and South-East Asian biosphere reserves.

The importance of the MaB Programme goes beyond simple conservation of cultures, landscapes and species. This guide presents a description of the territories covered by these biosphere reserves which are at the cutting edge of a scheme hoping to achieve, through the commitment of nations and the efforts of thousands of people, a more liveable planet, where conservation of biological and cultural diversity are the basis for a fairer and more lasting social and economic development.



Rosa Aguilar Rivero

Introduction

UNESCO'S MAB PROGRAMME

UNESCO'S Man and the Biosphere (MaB) Programme, launched in the early seventies, is aimed at developing the bases for sustainable use and conservation of biological diversity and for the improvement of relationships between people and their environment.

The MaB Programme promotes interdisciplinary research on natural and social sciences and capacity building for natural resource management, in particular regarding biodiversity conservation and sustainable use. Thus, MaB contributes not only to a better understanding of the environment but also to a greater commitment with the development of policies regarding the rational use of natural resources by science and scientists.

The MaB Programme also collaborates with other international organizations to promote concrete results related with diverse aspects of sustainable development (Convention on Biological Diversity, Ramsar Convention on joint and coordinated action for wetlands, International Scientific Research Programme on Biodiversity).

During its 40 years of operation, the MaB Programme has centred its actions on the biosphere reserve model. Presently, the priority aim of the MaB Programme is to promote operation of individual Biosphere Reserves and, above all, to boost the World Network of Biosphere Reserves. This Network is considered to be an efficient tool for the implementation of conservation and sustainable resource use projects, development of scientific programmes and integrated natural resources management, through the application of the biosphere reserve concept in the field.

Biosphere Reserves

- Biosphere Reserves should fulfil three functions in a comprehensive manner:
- Conservation of biological and cultural diversity;
- Environmentally sustainable economic and socio-cultural development

Logistic support to research, monitoring, environmental education and training

- Every Biosphere Reserve should include appropriate zoning to fulfil these three functions:
- Core area(s), covered by legal protection guaranteeing the conservation function of its most valuable or representative components and preservation of the environmental services they provide.

– Buffer zone(s), where activities must be compatible with the conservation of the core area(s) and contribute to research, education and conservation of traditional land use models.

Transition area(s), where activities specifically aimed at promoting the development of local populations take place in the framework of criteria and sustainable development strategies and models and where most of the demonstration activities will take place.

The participation of local communities and land planning and management agents is of particular importance in biosphere reserve operation.

The essence of this model is that it must incorporate conservation and development and contribute to network operation through participation, exchange, collaboration and communication. The Network involves a working methodology in the biosphere reserves enabling lessons learnt and knowledge to flow for the benefit of all members.

The World Network of Biosphere Reserves

The World Network of Biosphere Reserves includes territories from all over the world.

The incorporation of new biosphere reserves into the World Network by UNESCO is a result of a voluntary request made by the countries. Proposals must include certain requisites and certain commitments ensuring fulfilment of biosphere reserve functions.

Coordination among the Network's member reserves takes place through regional or sub-regional networks and thematic networks within an international context, without prejudice to other networks within a regional context. Mention can be made of ArabMaB (Arab countries), AfriMaB (African countries), EABRN (East Asia), EuroMaB (Europe, Canada and the United States), IberoMaB (Ibero-American, Portuguese and Spanish MaB National Committees and Biosphere Reserves), and REDBIOS (a thematic network comprising biosphere reserves from the East Atlantic and Macaronesian countries).

Guidelines for biosphere reserves and the Network are established at meetings of the World Network of Biosphere Reserves and subsequently adopted initially by the MaB Programme and later by the UNESCO General Conference.

In March 1995, at the second world meeting of biosphere reserves held in Seville (Spain), the biosphere reserve concept was further defined and strengthened, with the results set out in the Seville Strategy and the Statutory Framework for the World Network of Biosphere Reserves that are still valid today.

In February 2008, during the III World Congress on Biosphere Reserves held in Madrid, the Madrid Action Plan (MAP) was adopted, covering the period between 2008 and 2013. It consists of a series of objectives and actions underscoring the need to use biosphere reserves as demonstration sites offering efficacious answers to new challenges such as the loss of traditional knowledge and cultural diversity, demography, the loss of arable land, climate change, biodiversity and sustainable development. The premise is that biosphere reserves are sites that are able to mitigate and adapt to climate change, promote increased use of renewable energies, and harness ecosystem services and products to enhance human development and welfare.

This publication contains basic information on the 563 biosphere reserves forming part of the World Network in June 2010, nine of which are transboundary biosphere reserves.

Africa

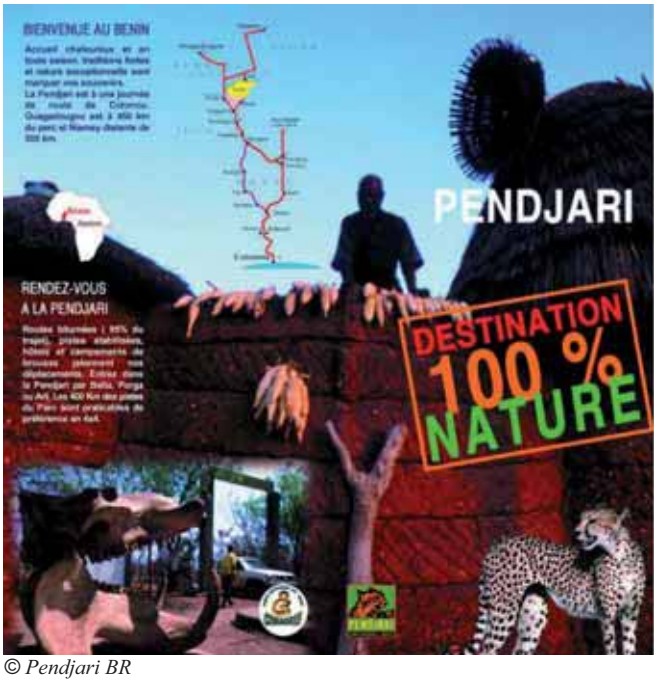
- Benin
- Burkina Faso
- Cameroon
- Central AFrican Republic
- Congo
- Democratic Republic of the Congo
- Ethiopia
- Gabon
- Ghana
- Guinea
- Guinea-Bissau
- Ivory Coast
- Kenya
- Madagascar
- Malawi
- Mali
- Mauritanius
- Niger
- Nigeria
- Rwanda
- Senegal
- South Africa
- Uganda
- United Republic of Tanzania
- Zimbabwe

Country	Biosphere reserve	Year of creation	Pag.
BENIN	Pendjari	1986	12
BURKINA FASO	Mare aux hippopotames	1987	13
CAMEROON	Waza	1979	14
	Benoué	1981	15
	Dja	1981	16
CENTRAL AFRICAN REPUBLIC	Basse-Lobaye	1977	17
	Bamingui-Bangoran	1979	18
CONGO	Odzala	1977	19
	Dimonika	1988	20
DEMOCRATIC REPUBLIC OF THE CONGO	Yangambi	1977	21
	Luki	1979	22
	Lufira	1982	23
ETHIOPIA	Kafa	2010	24
	Yayu Coffee Forest	2010	25
GABON	Ipassa-Makokou	1983	26
GHANA	Bia	1983	27
GUINEA	Massif du Ziama	1980	28
	Monts Nimba	1980	29
	Badiar	2002	30
	Haut Niger	2002	31
GUINEA-BISSAU	Boloma-Bijagós	1996	32
IVORY COAST	Taï	1977	33
	Comoé	1983	34
KENYA	Mount Kenya	1978	35
	Mount Kulal	1978	36
	Malindi-Watamu	1979	37
	Kiunga	1980	38
	Amboseli	1991	39
	Mount Elgon	2003	40
MADAGASCAR	Mananara Nord	1990	41
	Sahamalaza-Iles Ramada	2001	42
	Littoral de Toliara	2003	43
MALAWI	Mount Mulanje	2000	44
	Lake Chilwa Wetland	2006	45
MALI	Boucle de Baoulé	1982	46
MAURITIUS	Macchabee/Bel Ombre	1977	47
NIGER	Aïr et Ténéré	1997	48
NIGERIA	Omo	1977	49
RWANDA	Volcans	1983	50
SENEGAL	Delta du Saloum	1980	51
	Niokolo-Koba	1981	52
	Samba Dia	1981	53
SOUTH AFRICA	Kogelberg	1998	54
	Cape West Coast	2000 Extension 2003	55
	Kruger to Canyons	2001	56
	Waterberg	2001	57

Country	Biosphere reserve	Year of creation	Pag.
	Cape Winelands	2007	58
	Vhembe	2009	59
UGANDA	Queen Elizabeth	1979	60
	Mount Elgon	2005	61
UNITED REPUBLIC OF TANZANIA	Lake Manyara	1981	62
	Serengeti-Ngorongoro	1981	63
	East Usambara	2000	64
ZIMBABWE	Middle Zambezi	2010	65

Benin

Pendjari

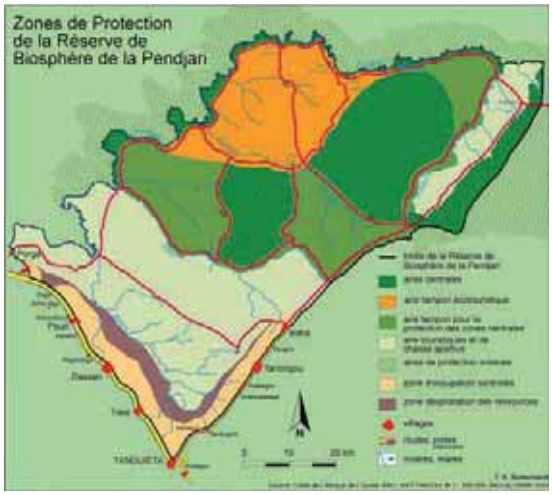


© *Pendjari BR*

Declaration date : 30 June 1986
Surface area : 480.000 ha
Administrative division : (Atacora Province)

Human activities :

Agriculture
Small-scale animal husbandry
Fishing

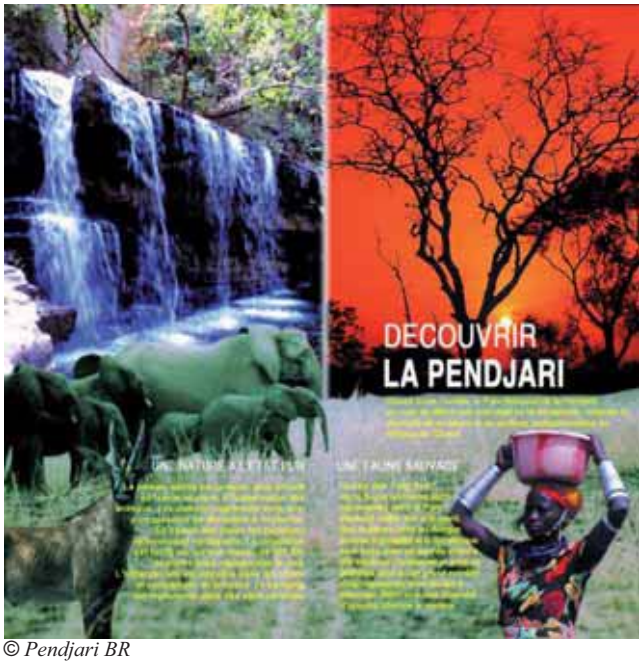


Ecological characteristics :

The Pendjari Biosphere Reserve covers a diversity of plant formations such as grassy, shrubby, woodland and forested savannahs, as well as open forests and gallery forests. These formations provide a varied habitat to the many species of fauna. Most of the large mammals living in this part of West Africa are to be found in the reserve.
Lions, elephants and buffalos are quite easy to see. Leopards are to be found but are harder to observe. Other species are the cheetah and the African wild dog. The reserve is also home to some ten species of antelopes, among them the topi and the sable antelope and other species including the hippopotamus. In addition to these mammal populations, the reserve hosts over 460 species of birds. The Nile crocodile is also to be found in the reserve.

Protection classification :

On a national level:
National park and hunting areas



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Tel. /Fax.: (229)23 83 00 65 pendjari@gmx.net

Burkina Faso

Mare aux hippopotames

© Mare aux hippopotames BR

Declaration date : 30 January 1987
Surface area : 19.200 ha
Administrative division: Région des Hauts Bassins, Province du Houet, Communes Rurales de Satiri et de Padéma

Human activities:

- Agriculture exerts strong pressure around the Reserve (market crops and domestic plantations) mainly based on cotton and corn.
- Artisanal fishing on the lake and along the River Mouhoun.
- Traditional animal husbandry with cattle, sheep and goats around the reserve.
- Traditional and modern bee-keeping inside and around the Reserve

Protection classification :

Classified forest, Biosphere Reserve and Ramsar Site
On a national level: Classified forest by ordinance n° 836 of 26 March 1937 with right of use by the riverside population for fishing, gathering fruit and flowers, leaves and resins, etc..., also the cutting of grass for forage and collecting dead wood.

Contact address :

BP 858 Bobo Dioulasso
Burkina Faso
Tel : 226 20 98 50 50 / 226 70 25 37 13

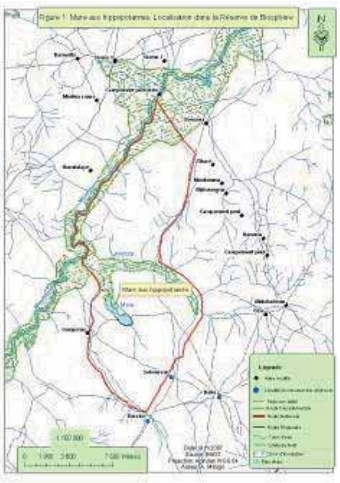
Ecological characteristics :

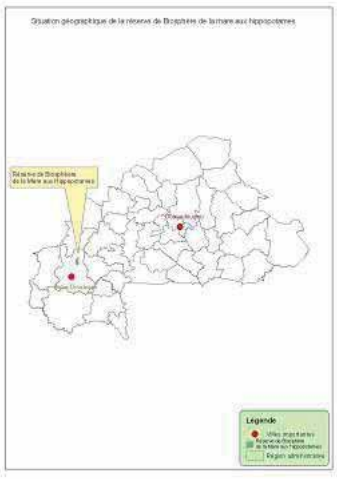
© Mare aux hippopotames BR

- Ferruginous tropical soils two thirds leached.
- Sudanese type climate with two distinct seasons (a dry season lasting 8 months and a rainy season lasting 4 months). Rainfall ranges from 800 to 1100 mm per year.
- Five types of vegetation: forests, wooded savannahs, vegetation on cuirasse formations and vegetation in aquatic and flood areas. The forests are well represented by four types of galleries along the River Mouhoun and the lake that extends over 660 ha, the reserve's main attraction. The flora includes 191 species with 136 genus and 52 families. Thirty-three species have been registered for the river galleries, some twenty in the flood and aquatic vegetation areas. The flora of the savannahs and open forests includes some hundred species, while the vegetation on the cuirasse comes close to 70 species and about 40 species in the fallow land. Fungi are also represented, with some edible species, as well as algae and lichen.
- Wild mammals include a population of 60 hippopotamus divided into three families, some fifty elephants, some large antelopes such as the sable antelope, numerous primates (Patas) and warthogs.

Birdlife is represented by 160 species of water fowl, mainly kingfishers, Dondrocygne and the golden breasted Jacana.

- The lake itself hosts 34 types of fish, represented mainly by Tilapia, Clarias and Gymnarchus.





Cameroon

Waza

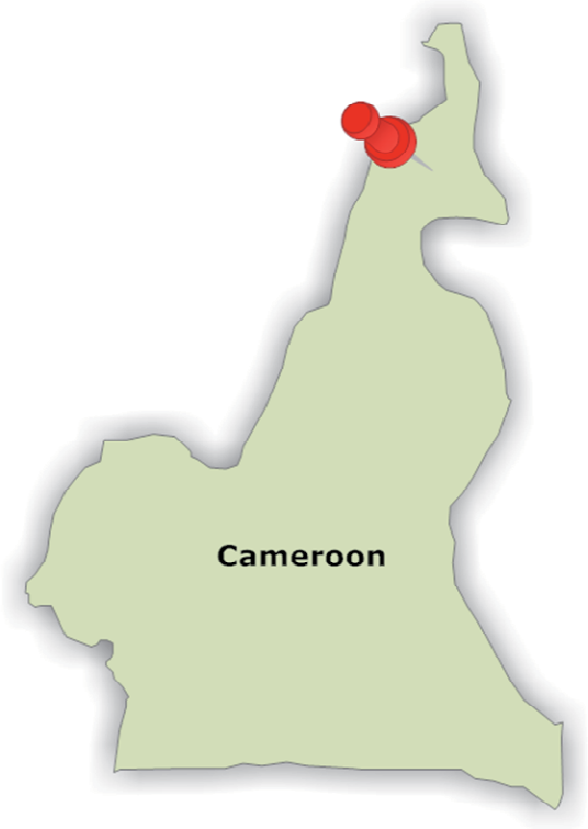
Declaration date: 2010
Surface area: 760.144.1 ha
Administrative division:
Kafa Zone Administration, in association with Chena Woreda, Decha Woreda, Gimbo, Woreda, Gewata Woreda, Adiyo Woreda, Bita Woreda, Bonga Town Administration Guanica

Human activities:

There are some villages in the park

Ecological characteristics:

This biosphere reserve is located in the Chad depression in the extreme north of Cameroon. The area of low relief does not have any permanent rivers. The rocky outcrops around Waza village rise to over 500 meters. Lake Chad once covered part of the area. The vegetation comprises open combretaceous shrub savanna, Anogeissus leiocarpus woodland on sandy soil, Lannea humilis open grass savanna and Acacia seyal tree savanna on black clay soils which are saturated with water in the rainy season. The latter vegetation type is slowly spreading as the area gradually dries out. The Yaéré floodplains with perennial grasses are vital to the carrying capacity of the Waza region. The fauna is rich and varied with large numbers of giraffe (Giraffa camelopardalis), elephant (Loxodonta africana), aardvark (Orycteropus afer) and warthog (Phacochoerus aethiopicus). Towards the end of the dry season, many animals move to the Yaéré plains.



Contact information:

Conservateur, Parc national de Waza
Tel (237) 75 02 40 37
Email: conservation@parcdewaza.com

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Cameroon

Benoué

Declaration date: 1981
Surface area: 180.000 ha
Administrative division: Parc National de la Benoué

Human activities:

The local population mostly depends on cotton and traditional cultivation, stock raising, hunting and fishing.

Contact information:

André Ndjidda
Parc national de la Benoué
Cameroon
Tel.: (237) 99 70 20 37
E-mail: ndjiddaandr@yahoo.fr

Ecological characteristics:

Benoué Biosphere Reserve is located on the Bénoué River plain, at the foot of the Adomaoua plateau in Cameroon. Mount Garoua (1,100 meters above sea level) represents the highest elevation in the area. Major ecosystems include tropical woodland savanna and dry open forests, comprising most wildlife associated with a sudano-guinean vegetation type. Mammals include elephant (Loxodonta africana), lion (Panthera leo), leopard (P. pardus), hippopotamus (Hippopotamus amphibius) and black rhinoceros (Diceros bicornis). The area is also designated as national park. The collection of firewood, poaching and bushfires are major threats to the biosphere reserve. Studies have been carried out on the flora and fauna of the national park as well as on land use systems and development potentials of the periphery zone of the area.

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Cameroon
Dja

Declaration date: 1981
Surface area: 526.000
Administrative division: Réserve forestière et de faune du Dja

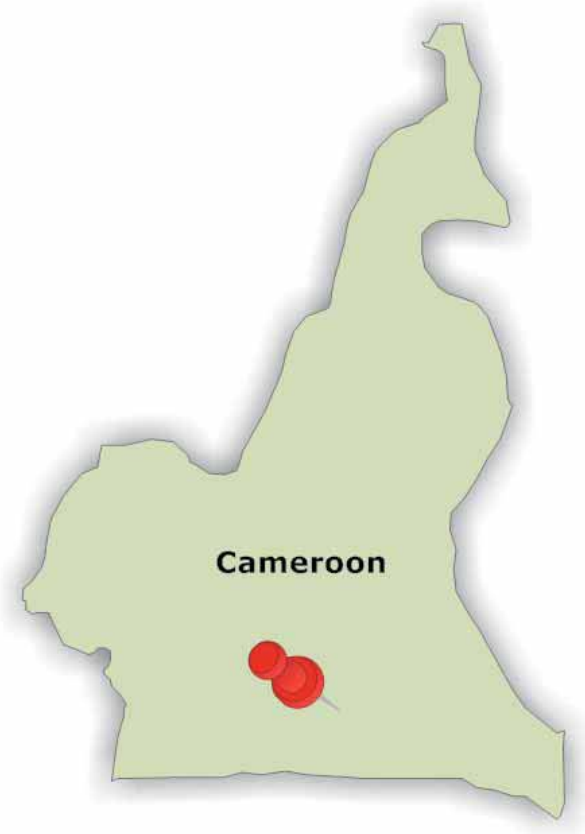
Human activities:

The Dja Biosphere Reserve covers an area of 500,000 hectares and includes 37 villages with approximately 6,000 people (1999). The harvest of plants for domestic or pharmaceutical use is a very important income source. Dja represents an ideal spot for commercial hunting supplying the capital of Cameroon with game meat. Apart from this, pressures on the biosphere reserve come from timber exploitation and a large population whose lands and traditional activities are situated within the core area.

Ecological characteristics:

The Dja Biosphere Reserve, located in the south of Cameroon, includes different geographic and climatic zones which contribute to its high biodiversity. The area comprises mainly dense evergreen Congo rainforest and is known to have a wide range of primate species. As the exploitation of timber resources increases, the Dja forest remains an important refuge for many plants and animal species, such as the moabi tree (Baillonella toxisperma). The ECOFAC Programme (Conservation et utilisation rationnelle des ECOsystèmes Forestiers d'Afrique Centrale) of the European Union, which started in 1993, supported studies on plant and animal biodiversity of Dja. It has also established an important training center for capacity building purposes and supplied equipment for the 'Case UNESCO-MAB' situated in the Mékas village. This 'case' is made available to NGOs in order to promote public awareness and the participation of local populations in the management of the biosphere reserve.

Dense evergreen Congo rainforest dominated by Sapotaceae including Afrostyrax lepidophyllus, Anopyxis klaineana and Anthonotha ferruginea; swamps; old secondary forest around villages; abandoned cocoa and coffee plantations; Gilbertiodendron dewevrei forest



Contact information:
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Yaoundé
Cameroon
Tel.: (237) 99 53 71 46
www.ecofac.org/Composantes/CamerounDja.htm

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Central African Republic

Basse-Lobaye

Declaration date : 1977
Surface area : 18.200 ha
Administrative division : Sous Préfecture de Bamingui

Human activities :

- Agriculture
- Hunting
- Fishing
- Gathering of non-woody forest products (NWFP)

Protection classification :

Biosphere reserve
At a national level : research on the activities of the Pygmies.

Ecological characteristics :

Dense semi-deciduous forest
Young forest with closed understory
Predominance of gallery forest
Scattered Pygmy camps
Predominance of non-woody forest products

Contact information :

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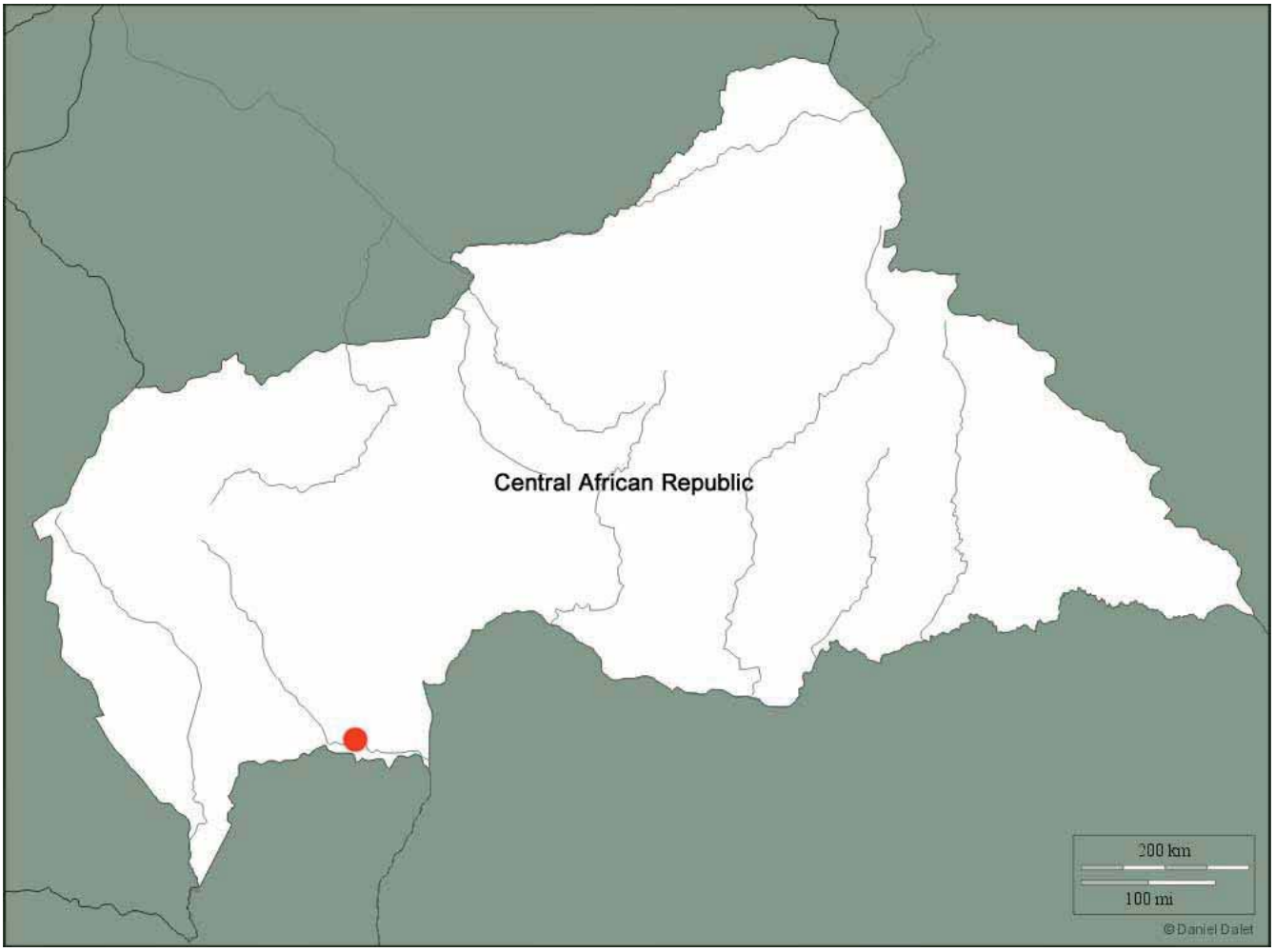


Central African Republic

Bamingui-Bangoran

Declaration date : 1979
Surface area : 1.622.000 ha
Administrative division : Sous Préfecture de Bamingui

Human activities :

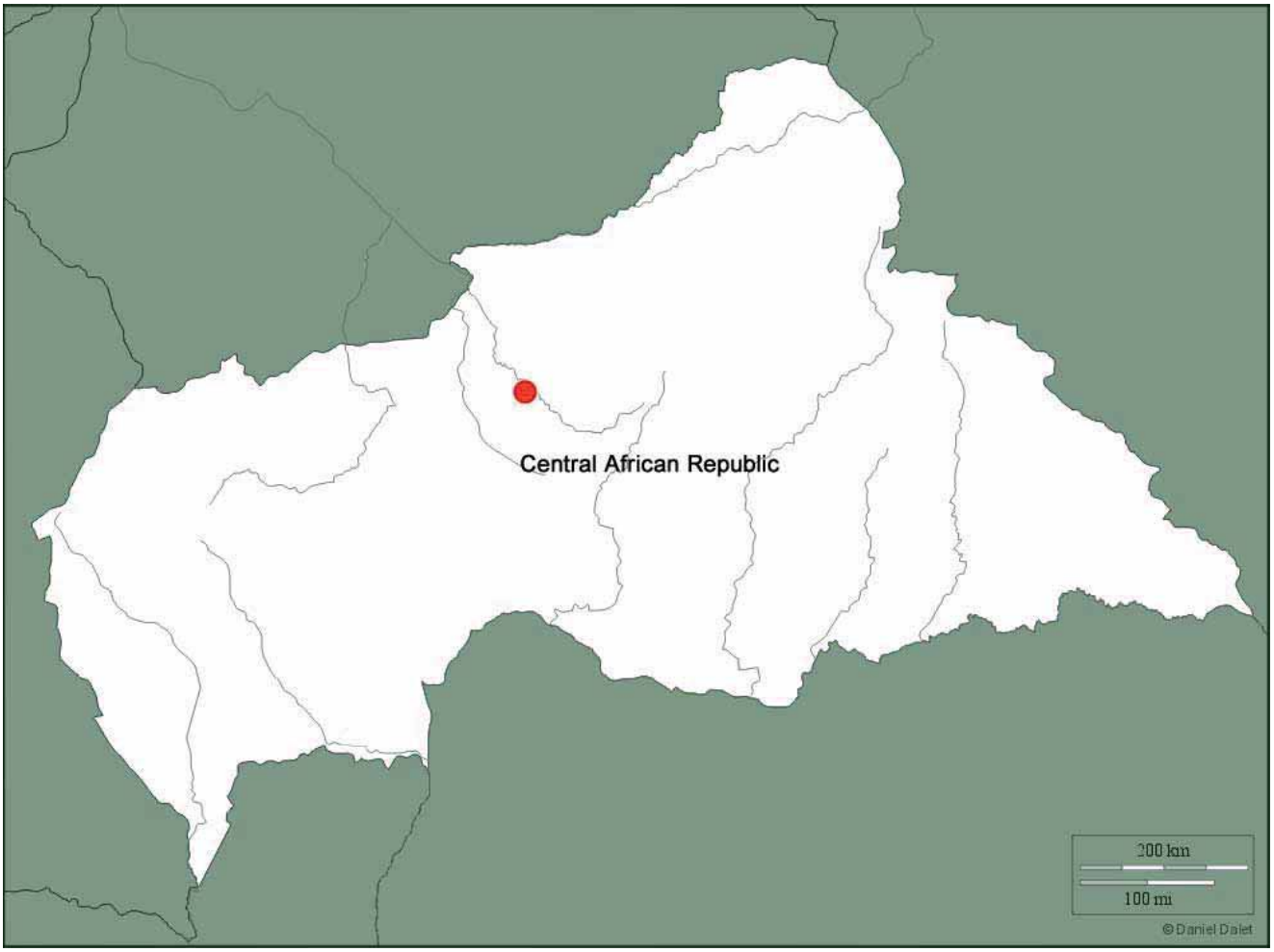
- Hunting
- Fishing
- Subsistence Agriculture
- Transhumance
- Gathering

Ecological characteristics:

Shrubby savannah and woodland savannah
Grassland savannah
Dry forest alternating with Kaga
Mining camps

Protection classification :

Comprehensive reserve



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Congo
Odzala

Declaration date: 1977
Surface area: 110.000 ha
Administrative division: Parc national d'Odzala

Human activities:

The biosphere reserve, which is also designated as national park, is not populated. However, three different ethnic groups (Mboko, Bakota and Mongombo) live contiguous to the area. Their main activities are traditional subsistence agriculture (manioc, corn), horticulture (bananas, sugar cane, etc.) and limited livestock raising.

Contact information:
Parc National d'Odzala
B.P. 2153
BRAZZAVILLE
Congo

Ecological characteristics:

Located in the north-west of the Republic of Congo and about 30 km east of the Gabon border, the Odzala Biosphere Reserve comprises an undulating plateau with the Blue Water Lake Moba and many natural saltpans. Odzala is characterized by a rich variety of habitats, including primary rain forest with a closed canopy (e.g. with *Entandrophragma utile, E. candollei* and *E. cylindricum*) and open understorey layer, forests dominated by dense formations of Marantaceae, forest clearings and savannas on the hilltops (e.g. with *Hymenocardia acida, Annona arenaria* or *Hyparrhenia diplandra*). Typical forest fauna includes leopard (*Panthera pardus*) the lion (*P. leo*), the spotted hyena (*Crocuta crocuta*), elephant (*Loxodonta africana*), the dwarf buffalo (*Syncerus caffer nanus*) and the great forest hog (*Hylochoerus meinertzhageni*).

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Congo
Dimonika

Declaration date: 1988
Surface area: 136.000 ha
Administrative division: Réserve de la biosphère de Dimonika

Human activities:

Compared to other rural areas of Congo, the Mayombe Mountains are densely populated. Many migrants from neighbouring regions, Angola and the Democratic Republic of Congo have settled within the biosphere reserve (19,000 inhabitants in the Sous-prefécture de M'Vouti in 1984). Their main activities are subsistence agriculture, hunting, fishing and gold extraction. The "Mayombe Project" aimed at improving the communication between local stakeholders, managers and scientists. In 1991, a survey was issued to determine perceptions and expectations of the biosphere reserve inhabitants. Research has been carried out on the impact of gold extraction on the biosphere reserve.

Ecological characteristics:

Dimonika Biosphere Reserve is located in the central Mayombe Mountain chain about 50 km from the Atlantic Coast. The Mayombe has a hot, humid climate, combining tropical and oceanic traits. A lowland guineo-congolese rainforest dominates the biosphere reserve together with savanna vegetation. The area is in the transition zone between semi-deciduous and evergreen forest. Of special scientific interest are various types of forest communities recolonising old areas of forest exploitation. The fauna within the biosphere reserve is divers and varied.

Contact information:

Ministère de la Recherche Scientifique des Eaux et Forêts
POINTE-NOIRE
Congo

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Democratic Republic of Congo

Yangambi

Declaration date : 1977
Surface : 235.000 ha
Administrative division : Province orientale

Human activities:

Although there are no figures on the number of inhabitants of the area, some economic activities take place within the biosphere reserve boundaries such as agriculture, hunting, fishing, the production of canoes as well as some gold extraction. Numerous soil, silviculture and climate studies as well as experiments on the regeneration of the vegetation cover have been carried out.

- Canoe-making
- Agricultural activities
- Hunting
- Residential development: village enclaves, agent camps, administrative city.
- Agronomic and forestry research
- Subsistence activities : gathering
- Illegal exploitation of natural resources

Protection classification :

Classified forest (Law n° 011/2002 of 29/08/02 regarding the Forest Code Forestier, Article 12)

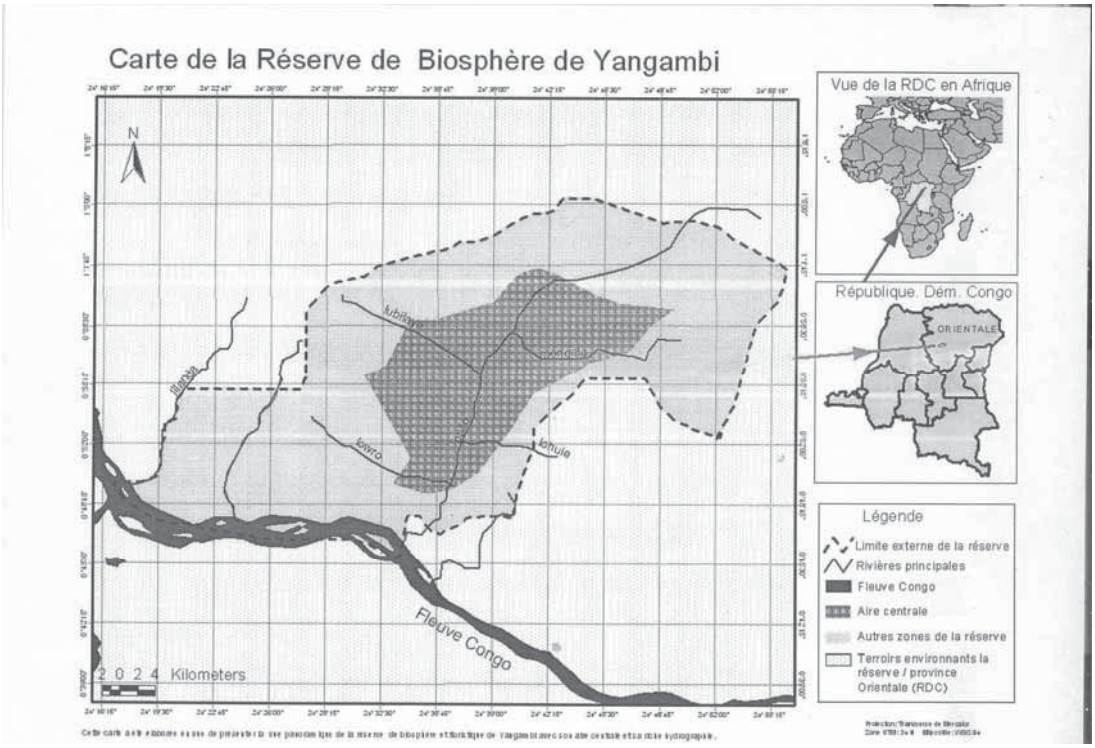
Ecological characteristics :

The Yangambi Biosphere Reserve is situated within the Congo River Basin west of the City of Kisangani in the Democratic Republic of Congo. Secondary forests with Pycnanthus angolensis and Fagara macrophylla, semi-deciduous secondary rain forests, rain forests with Gilbertiodendron dewevrei, climax forests with Brachystegia laurentii and marshland forests dominate the biosphere reserve. The site is very important from a biodiversity point of view since it hosts about 32,000 tree species. The elephant (Loxodonta africana cyclotis), the river hog (Potamochoerus porcus) and monkeys (Cercopithecus spp.) are among the most threatened species.

Forests:

- Climax with Brachistegia laurentii ;
- Rainforests with Gibertiodendron dewevrei ;
- Semi-deciduous with Scorodophloeus zenkeri ;
- Secondary degraded forests ;
- Marshland forests ;
- Post-agricultural secondary re-growth.

Forests in the valleys of the River Congo and its tributaries: wet meadows, flood vegetation, island forests.



Contact information : Bureau Projet—Terrain, MAB/Yangambi
E-mail : mabrdc@yahoo.fr, Tel : (00243) 99 99 97 669, (00243) 81 16 07 231, (00243) 81 53 93 048

Democratic Republic of Congo

Luki

Declaration date : 1979
Surface area : 33.000 ha
Administrative division : Province du Bas-Congo

Activités humaines:

- Agriculture
- Hunting / poaching
- Charcoal
- Illegal logging
- Subsistence activities

About 7,100 people live within the biosphere reserve and some 64,200 nearby (2002). The main economic activity is agriculture and agroforestry. However, the biosphere reserve faces problems due to illegal forest exploitation (e.g. for fuel wood and house construction), carbonisation, hunting and fishing. There is a great need for a plant and animal inventory of the biosphere reserve since many species disappear without being noticed. A guide to the sustainable development of the biosphere reserve's fauna has been developed recently (2002).

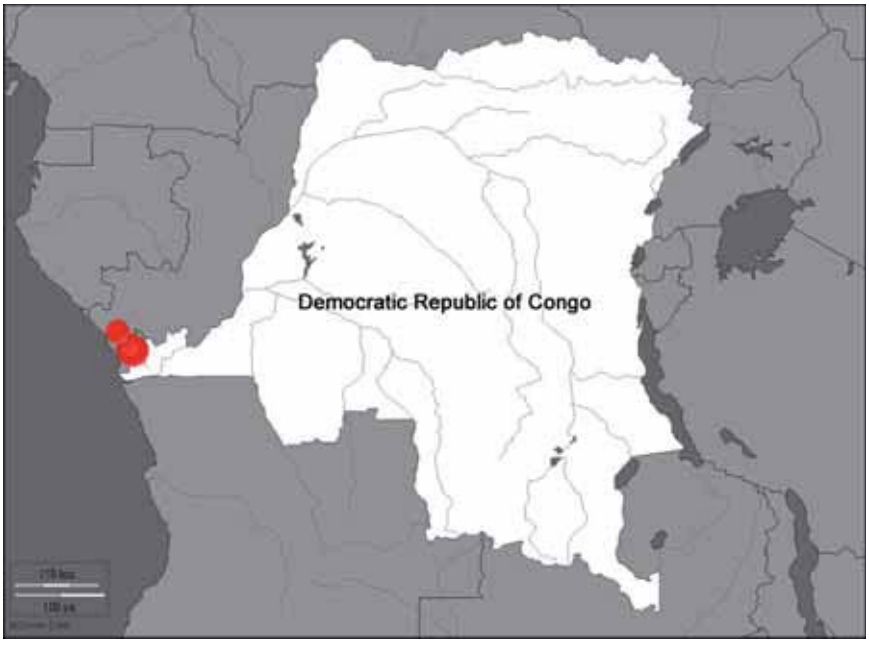
Protection classification :

Classified forest (Law n° 011/2002 of 29/08/02 regarding the Forest Code, Article 12)

Ecological characteristics :

Located in the south-west of the Democratic Republic of Congo and about 120 km east of the Atlantic coast, Luki Biosphere Reserve represents the humid tropical rainforest ecosystem. In former times, this area was reserved in order to protect its natural resources for colonial interests. In an altitude between 150 and 500 meters above sea level, many different habitats can be distinguished such as primary forests with *Gossweilerodendron balsamiferum*, *Gilletiodendron kisantuense* or *Terminalia superba*, secondary forests with *Terminalia superba*, woody and herbaceous savanna as well as agroecosystems and agroforestry systems. The plant resources of the area are used for both commercial purposes (e.g. palm oil, coffee, and cacao) and traditional nutrition (banana, taro, manioc, rice, corn, etc.).

- Primary forests of *Prioria balsamiferum, Chlorophora excelsa, Gilletiodendron kisantuensis*
- Secondary forests of *Terminalia superba*
- Woodland savannahs
- Grassland savannahs



Contact information :

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Democratic Republic of Congo

Lufira

Declaration date : 1982
Surface area : 14.700 ha
Administrative division : Province du Katanga

Human activities:

- Agriculture
- Hunting and fishing
- Charcoal
- Bee-keeping
- Subsistence activities : gathering

About 14,700 people live within the biosphere reserve (1998). The site is currently undergoing serious degradation due to timber exploitation, agricultural and fishing activities even in the core area.

Protection classification :

Classified forest (Law n° 011/2002 of 29/08/02 regarding the Forest Code, Article 12)

Ecological characteristics :

This biosphere reserve is located in the south-east of the Democratic Republic of Congo. It is the first miombo woodland to be designated as a biosphere reserve. Miombo woodland is the dominant vegetation type of the Central African plateau and comprises ecosystems in the seasonal tropics dominated for example by the tree genus Brachystegia laurentii. The biosphere reserve also includes grasslands on the periodically flooded lowlands and steppe-like vegetation on the top of the plateau. There is a dense and mature river system, marshlands and papyrus beds. The species diversity is extraordinarily high.

- Open « Niombo » forests, dominated by Brachystegis laurentii and Isoberlinia sp
- Periodically flooded plains
- Steppes

Contact information :

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Ethiopia
Kafa

Declaration date: 2010
Surface area: 760.144.1 ha
Administrative division:
Kafa Zone Administration, in association with Chena Woreda, Decha Woreda, Gimbo, Woreda, Gewata Woreda, Adiyo Woreda, Bita Woreda, Bonga Town Administration Guanica

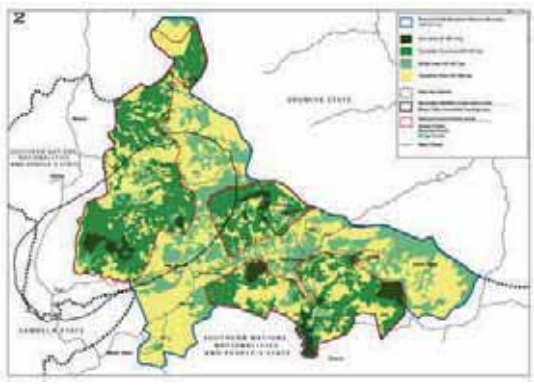
Human activities:

The Biosphere Reserve includes the East Afromontane Biodiversity Hotspot and other endemic agricultural crops such as *Ensete ventricosum* and *Eragrostis tef,* and a cultural and linguistic identity quite distinct from the rest of Africa. Furthermore, it includes a unique coffee culture that is deeply engrained in the Ethiopian economy and history. The area includes an array of rural settlements, traditional land-use patterns and sites of cultural and natural significance, which are home to approximately 608 227 people.
Main economic activities in the area are dominated by agriculture that contributes approximately 41% to the GDP, 80% of exports and 80% of the labour force. Other sectors include services and tourism, manufacturing and trade. Agriculture forms the backbone of the economy with most of the
other sectors (i.e. trade and tourism) being dependent on its strong backward and forward linkages.

The key management focal areas of the Biosphere Reserve include:
- coordination of conservation initiatives with the focus on the protection of the endemic and global important genetic resources of *Coffea arabica* and its associated ecosystems;
- provision of a sustained flow of high-quality water to adjoining regions; and the
- promotion of sustainable development in order to alleviate poverty and inequality.

Ecological characteristics:

The Kafa Biosphere Reserve is located in the Kafa Zone of Ethiopia approximately 460 km southwest of Addis Abba. The Bonga National Forest Priority Area (NFPA) partly forms the southern boundary of the Biosphere Reserve, whilst the eastern boundary follows the Adiyo Woreda with the Gojeb River and Gewata-Yeba (Boginda) NFPA forming the northern boundary.
The Saylem Woreda forms the northern part of the Biosphere Reserve and the western boundary constitutes the Gesha NFPA. The Kafa Zone contains more than 50% of the remaining montane forests in Ethiopia and it is the centre of origin and genetic diversity of wild *Coffea arabica*.



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Email sisay.nune@gtz.de;nune.sisay@gmail.com
www.kafa-biospher.com

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Ethiopia

Yayu Coffee Forest

Agricultural landscape

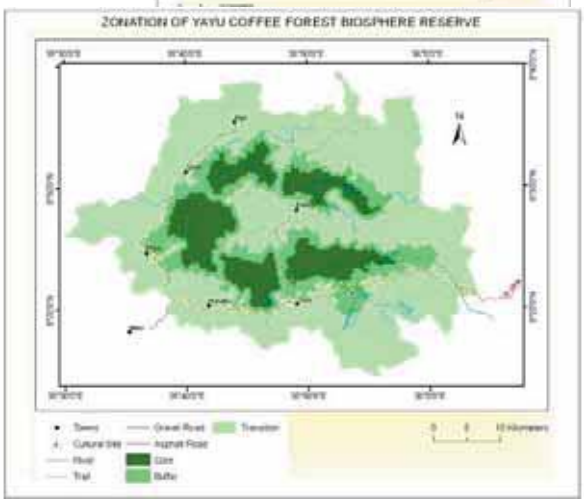
Declaration date: 2010
Surface area: 167.021ha
Administrative division:
Oromiya National Regional State, Oromiya Forestry and Wildlife Enterprise, Illubabor Branch, Illubabor Zone Land and Environmental Protection, Six Districts Administration, Oromiya Bureau of Land and Environmental Protection, Oromiya Forestry and Wildlife Enterprise, Oromiya Bureau of Agriculture and Rural Development and Ministry of Science and Technology

Human activities:

The transition area is found adjacent to the buffer zone and it is composed of agricultural land, wetland, grassland, settlement area and fragments of forest land. All the management units (core, buffer, transition) in the proposed biosphere reserve are contiguous; but there are five core areas. About 154, 300 permanent residents live in the biosphere reserve and mainly rely on agriculture. The designation as a biosphere reserve is expected to enhance ecologically sound and traditional agriculture, to foster ecotourism and to create new jobs in small businesses such as coffee, bee-keeping, spices and horticulture activities. Within the biosphere reserve framework, local communities are familiarized with the wise use of natural resources and sustainable development techniques, and the implementation of conservation projects. Currently, two projects funded by the German Federal Agency for Conservation and German Federal Ministry of Education and Research are being implemented in the proposed biosphere reserve: Conservation and use of the wild populations of Coffea arabica in the montane rainforests of Ethiopia and Public awareness and environmental education project.

Ecological characteristics:

The Yayu Coffee Forest Biosphere Reserve is situated in southwestern Ethiopia. The area plays a key role in the conservation of natural and cultural landscapes. The biosphere reserve includes Eastern Afromontane Biodiversity Hotspot and Important Bird Areas of international significance and one of the last remaining montane rainforest fragments with wild Coffea arabica populations in the world. The area is also of cultural and historical significance since it possesses many archaeological sites, ritual sites, caves and waterfalls. The core areas and buffer zone are considered as one of the Regional Forest Priority Areas (or Forest Conservation Area) and Forest Coffee conservation Site.



Contact information:

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Www.cofis.info

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Gabon

Ipassa-Makokou

Declaration date: 1983
Surface area: 15.000 ha
Administrative division: Ministère des Eaux et des Forêts

Human activities:

No people are living within the biosphere reserve. However, many villages are located along the southern bank of the Ivindo River. The main human activities include traditional agriculture, stock raising and the use of forest resources. The core area is exceptionally well studied since long-term monitoring plots have been set up in 1963. There is a functioning research station in the area. Studies have also been carried out on agroforestry.

Ecological characteristics:

Situated along the banks of the Ivindo River, Ipassa-Makokou Biosphere Reserve represents an example of the dense tropical rainforest of the Congo-Guinean phytogeographic region. The biosphere reserve is Gabon's only area where no forest exploitation takes place thus the core area is in a relatively pristine state. Within the 15,000 hectares of the biosphere reserve, more than 2,000 plant species and 600 species of mammals, reptiles, fish, amphibians and birds have been recorded. Among the most threatened plant species are *Ardisia belingensis* and *Rhaptopetalum belingensis*.

Contact information:
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Gabon
Tel.: (241) 07 38 07 00

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Ghana

Bia

© *Bia BR*

Declaration date: 1983
Surface area: 7.770 ha
Administrative division: Juaboso and Bia Districts in the Western Region in Ghana

Human activities:

- Snail picking in the Park
- Research activities
- A number of walking trails and roads lead into the reserves on which tourist can appreciate the beauty of the forest, the birds, forest elephants and other wild animals
- The site is surrounded by mixed farms, (cocoa, plantain, rearing of domestic animals).

Protection classifications:

A National Park and A Resource Reserve forming a Conservation Area.

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BIA CONSERVATION AREA,
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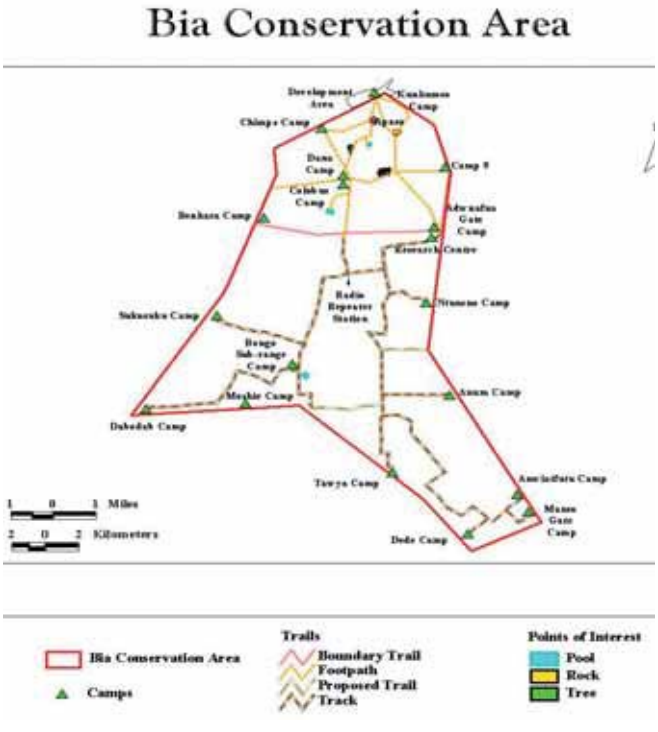
SEFWI-WIAWSO, W/R,
GHANA
(+233-243320704)
E-mail: roamanfo@yahoo.co.uk

Ecological characteristics:

The Bia National Park and Bia Resource Reserve constitute the twin conservation area and represents the best example of transitional zone between moist-evergreen and moist semi-deciduous forest types. The area is dominated by *Celtis-Triplochiton* associations, *Teighemella heckelii* and *Entadrophragma angolense*. The National Park is almost a virgin forest with almost no human interference (apart from snail picking). It is only pristine rainforest and the finest example of its type remaining in Ghana today. However, the Resource Reserve has been opened up due to the past logging at the area and regeneration is taking place. Annual average precipitation is in the range 1,500-1,700 mm. Sixty-one species of mammals have been recorded. These include 9 primates amongst which are the Black and White Colobus, the Oilve Colobus monkeys and chimpanzees; the area is one of the few areas in the country known to support the chimpanzees. The forest elephant and the highly threatened bongo are present. Over 200 species of birds have been recorded; they include the internationally endangered white-breasted guinea fowl. The forest is actually very rich with biodiversity.

© *Bia BR*



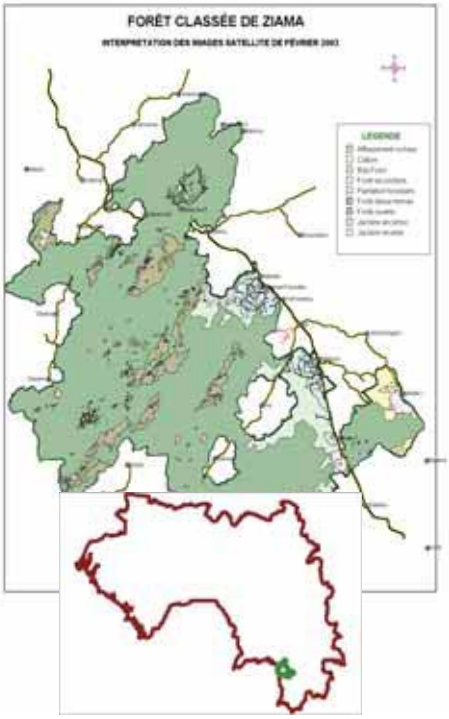
Guinea
Massif du Ziama

© *Massif du Ziama BR*

Declaration date : 1980
Surface area : 119.019 ha
Administrative division: Guinée Forestière in the South-east of the country, Gouvernorat de N'Zérékoré, Préfecture de Macenta

Human activities:

Essentially agro-pastoral activities with substance crops (rice, manioc, corn, niébé,…) and export crops (coffee, cacao, cola,…), Sheep, poultry, pigs and cattle. Also hunting and fishing.
Crafts are scantly developed. Wood is exploited for building in the surrounding areas.



Ecological characteristics :

© *Massif du Ziama BR*

Plant ecology : the forest is dense, evergreen or semi-evergreen. There are two vegetation layers: a bottom layer at altitudes of between 950 and 1,000 m. and a mountain layer overhanging the lower layer. This layer includes: umbrophilic, mesophilic, semi-xerophile swampy, riparian and gallery forests. They include important species such as: Niangon, lovoa, entandrophragmas, Dabema, Khaya, liroko, makoré, mamea, Bako, Popo, etc.…The reserve hosts 1306 species of plants, of which 654 are trees, bushes, lianas and 62 grasses (PGRR 1999).
Animal ecology: According to PROGESFOR (1991-1994) Ziama includes 124 species of mammals, among them: elephants, monkeys, buffalos, dwarf hippopotamus, chimpanzees, ungulates and carnivorous animals. There are also 31 species of bats, 36 species of rodents, 286 species of birds out of the 347 species present in the Region, 54 species of reptiles (41 species of serpents, 10 lizards, 2 tortoises, 1 crocodile) and 30 species of batrachians. Ziama forest is a refuge for several rare, vulnerable and threatened species. It is home to 22 species of mammals protected under CITES. In addition, the forest is one of the most important habitats for endemic species of the large upper Guinean forest block, between Sierra Leone, Liberia and Côte d'Ivoire.

Protection classification :

Natural State Domain, Forestry Code (1989) ; Art. 97 ; inalienable (Art. 101).
State Classified Forest
Biosphere Reserve

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Contact information :

Cécé Papa CONDE
Chef de Division Conservation Biodiversité Centre Forestier N'Zérékoré Rép. de Guinée Afrique de l'Ouest
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Guinea
Monts Nimba

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Declaration date : 10 February 1981
Surface area : 145.200 ha
Administrative division : Région administrative de N'Zérékoré, Préfecture de Lola, Sous Préfectures de Bossou et N'Zoo

Human activities:

Agriculture
Animal husbandry
Scientific research
Mining exploration
Industrial timber exploitation
Hunting
Trade
Crafts

Protection classification :

Comprehensive Natural Reserve

Ecological characteristics :

© Monts Nimba BR

The MNBR ecosystems host almost 85% of the species comprised in Guinean biological diversity, that is to say 2835 species of fauna, of which 107 are mammals, 72 birds, 58 species of reptiles, 45 species of amphibians, 38 species of fish, 38 species of molluscs, 2408 species of insects, 31 species of myriapods, 17 species of scorpions, 18 species of arachnids, 17 species of opiliones and 46 species of annelids (Bangoura 2001). The forest of Déré contains types of vegetation of great botanical diversity that have been relatively well preserved over a long period of time (Von Droste et al,. 1993). Many rare species of plants and animals, endemic or having practically disappeared from the Upper Guinea forest block because of clear cutting and hunting, are to be found in the MNBR where they have been preserved because of the rugged topography and, in some places, the lateritic soils. The Monts Nimba chain owes its unique character to the beauty and originality of its landscapes. It is exposed to a very contrasting range of climatic influences that arise from many different factors, where the geographical location, the topography and the orientation play an important role. All these factors and many others explain the successive classification of the Nimba chain as a comprehensive Natural Reserve in 1944, a Biosphere Reserve in 1980 and a World Heritage Site in 1981 and an endangered World Heritage Site in 1992. The biodiversity of the plains, hills and forests in the Nimba region provides the local people with food and energy, water, drugs, shelter, agricultural land, oxygen, etc. This biodiversity is considered to be a natural reservoir of resources that can encourage economic growth and ensure the welfare of the local population.

Contact information :

CISSE Abou
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Tel : (224) 60 58 84 19 ou (224) 64 76 51 59
Email : cisse_abou2@yahoo.fr
BP : 761 Conakry – Republic of Guinea

Guinea
Badiar

Declaration date : 16 December 2002
Surface area : 284.300 ha
Administrative division: Région Naturelle: Moyenne Guinée. Région Administrative Boké, Préfecture: de Koundara CRD: Sambailo

Human activities:

- Agriculture
- Fishing
- Hunting
- Livestock raising

Protection classification :

On a national level :
Natural managed reserve, designated Parc National du Badiar following ordinance no 124/PRG/SGG /of 30 May 1985 .

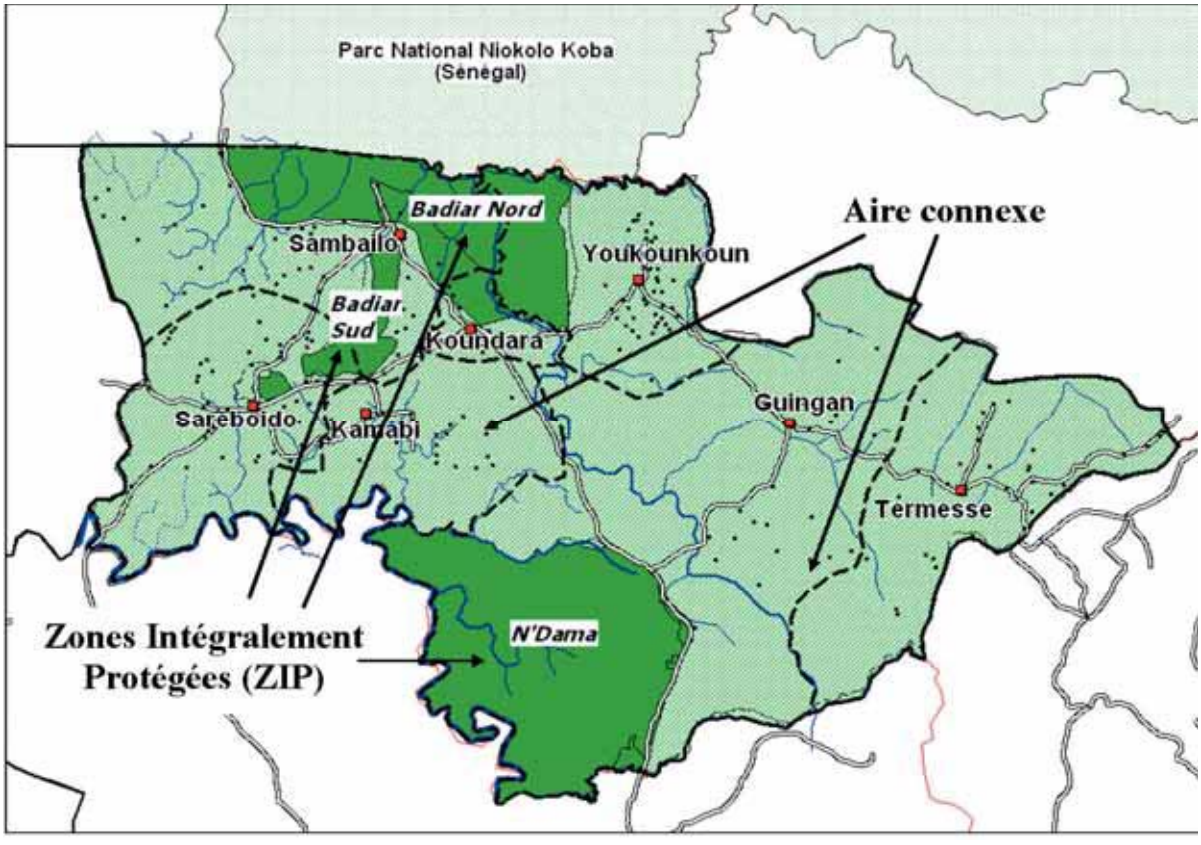
Contact information :

Direction Technique : Direction Nationale de la Diversité Biologique et des Aires Protégées (DNDBAP)
Réserve de Biosphère du Badiar
Tel.: 60- 27- 65 08 / 64 02-55-86

Ecological characteristics :

Main ecosystems: the reserve is a mosaic of 7 types of plain vegetation: plateaux, hills, grassland and shrubland savannahs, woodland savannahs, open forests, gallery forests, swampy grasslands. The Biosphere is a refuge for some 80 species of mammals, 330 species of birds, reptiles, fish, etc.
In the national and regional context, the aim of the Badiar N'Dama is to contribute to:

- the struggle against desertification;
- the conservation of the balance of the major Sudano-Sahelien rivers, particularly of the Gambie and Corubal rivers and their high watersheds;
- the conservation of ecosystems representing the Guinean Mosaic forest-savannah corresponding to the Guinea-Congo/Sudan Regional Transition described by White (UNESCO, 1983);
- the conservation of the biological and cultural diversity of the region;
- the sustainable development of the region.



Guinea

Haut Niger

Declaration date: 2002
Surface area: 647.000 ha
Administrative division: Mr. Bakary Magassouba, Conservateur du Parc National du Haut Niger

Human activities:

More than 4,000 people live in the biosphere reserve (2002) who mostly depend on agriculture, stock raising, hunting, gathering and fishing. The area has a high potential for eco-tourism development. A development plan (1999-2003) has been established in order to improve community participation in the management of the biosphere reserve. Social, tourist and forestry development projects will be carried out in close cooperation with the local communities.

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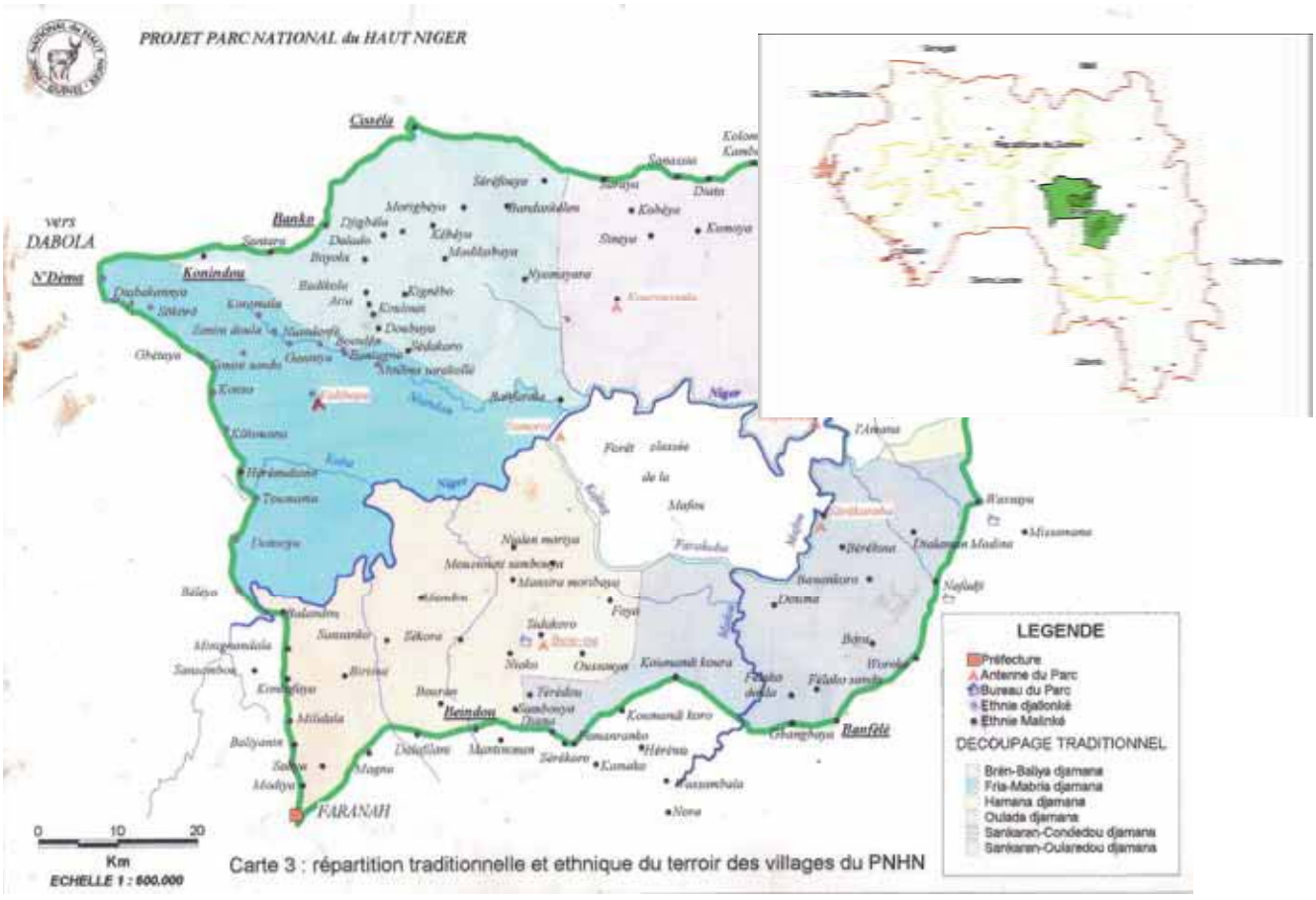
Conakry, Guinea
saidouconde@yahoo.fr

Ecological characteristics:

Situated in the Niger basin, this biosphere reserve is part of the Sudano-Guanese vegetation zone. The biosphere reserve plays an important role in protecting primary open dry forests which are believed to represent the last relicts in Guinea and probably in all western Africa. It covers open dry forests, gallery forests along the Niger River and its tributaries, woodland and herbaceous savanna, ponds, as well as agroforestry ecosystems. Among the scientific projects undertaken in the biosphere reserve are species inventories, a rehabilitation project for chimpanzees and the monitoring of the West African Manatee (*Trichechus senegalensis*) and the endangered endemic catfish Arius gigas. An ecomuseum and a botanical garden provide environmental education within the biosphere reserve.
Open dry forest with *Isoberlina doka*, *Khaya senegalensis*, *Cola cordifolia*, *Prosopis africana* etc.; gallery forests characterized by *Alchornea cordifolia, Pterocarpus santalinoides*, *Nauclea pobeguini* etc.; woodland savannah with *Daniellia oliveri*, *Khaya senegalensis, Afzelia africana* etc.; woodland/shrubby savannah characterized by *Parkia biglobosa, Vitellaria pardoxa, Pterocarpus erinaceus* etc.; grassland savannah with *Andropogon gayanus, A. amplectens, A. subamplectens, Imperata cylindrica* etc.; agroecosystems.



Carte 3 : répartition traditionnelle et ethnique du terroir des villages du PNHN

Guinea-Bissau

Boloma-Bijagós

© Boloma-Bijagós BR

Declaration dat : 16 April 1996
Surface area : 101.230 ha
Administrative division : Bolama Bijagos Region

Human activities :

Agriculture, forest exploitation, animal husbandry, fishing, shell gathering and ecological tourism are the main activities undertaken by the communities living in the islands.

Protection classification :

National classification

Contact information:

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Email: João.Corderio@iucn.org

Ecological characteristics :

© Boloma-Bijagós BR

The Bijagós archipelago has a considerable diversity of fauna. The wealth of the natural environment is mainly linked to the presence of the sea and the existence of mangroves and mud flats. The terrestrial environment includes palm groves, littoral woodland savannahs, and semidry forests.

A great diversity of mammals, reptiles, birds and fish are to be found. The archipelago has been recognized as the most important site in Africa for *Chelonia mydas* to lay their eggs, with nearly 10 000 adult females. Other protected or rare species are still relatively abundant, such as *Crocodylus niloticus* and *Crocodylus tetraspis tetraspis, Hippopotamus amphibius, Trichechus senegalensis, Sousa teuzsii, Tursiops truncatus.* Every year the archipelago is visited by close on 800 000 hibernating Palaearctic waders and also nesting species of birds from colonial waters.

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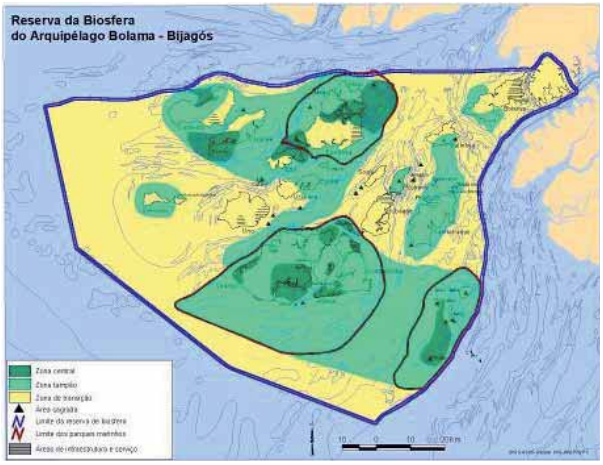


Ivory Coast

Taï

Declaration date: 1977
Surface area: 620.000 ha
Administrative division: La Direction de la Protection de la Nature (DPN) Le Projet Autonome de Conservation du Parc National de Taï (PACPNT)

Human activities:

About 160,000 people currently live in the biosphere reserve (1998). Today, indigenous people are a minority since most of the inhabitants are settlers and Liberian refugees. There is a very high population pressure which has a major impact on the destruction of the forest. Other main concerns in the biosphere reserve are poaching, logging, farming and illegal gold-mining. However, people also live from wild snail (Achatina achatina) and mushroom collection. Research has been carried out for many years and increased the awareness of the international community on the sensible ecosystem of the tropical forest.

Ecological characteristics:

The Taï Biosphere Reserve is located at the border to Liberia in the south-west of Ivory Coast, about 200 km south of Man and 100 km from the coast. It represents one of the last remnants of the primary tropical forest of Western Africa. Within the area, there is a gradation from north to south, with the southern third being the moistest and richest area, especially of leguminous trees. This humid tropical forest has a high level of endemism. Its high floral diversity and the occurrence of several threatened monkey species are of great scientific interest.

Dense evergreen forest with species such as the palm Eremospatha macrocarpa, ebony (*Diospyros mannii*), *Parinari chrysophylla, Chrysophyllum perpulchrum* and *Chidlowia sanguinea* on poorer soils; dense evergreen ("Sassandrian") forest dominated by water-demanding species such as ebony (*Diospyros* spp.) *and Mapania* spp.; swamp forest with *Gilbertiodendron splendidum*; agroecosystems.

Contact information:

Jérôme Ebagnerin Tondoh
Université d'Abobo-Adjamé
08 BP 109
ABIDJAN 08
Côte d'Ivoire
Tel.: (225) 21 25 73 36 (Office)
(225) 23 52 19 98 (Home)
Fax: (225) 21 25 73 36 (Office)

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Ivory Coast

Comoé

© Comoé BR

Declaration date : 1983
Surface area : 1 150 000 ha
Administrative division : It straddles 4 departments (Bouna, Nassian, Dabakala, Ferkéssedougou)

Human activities:

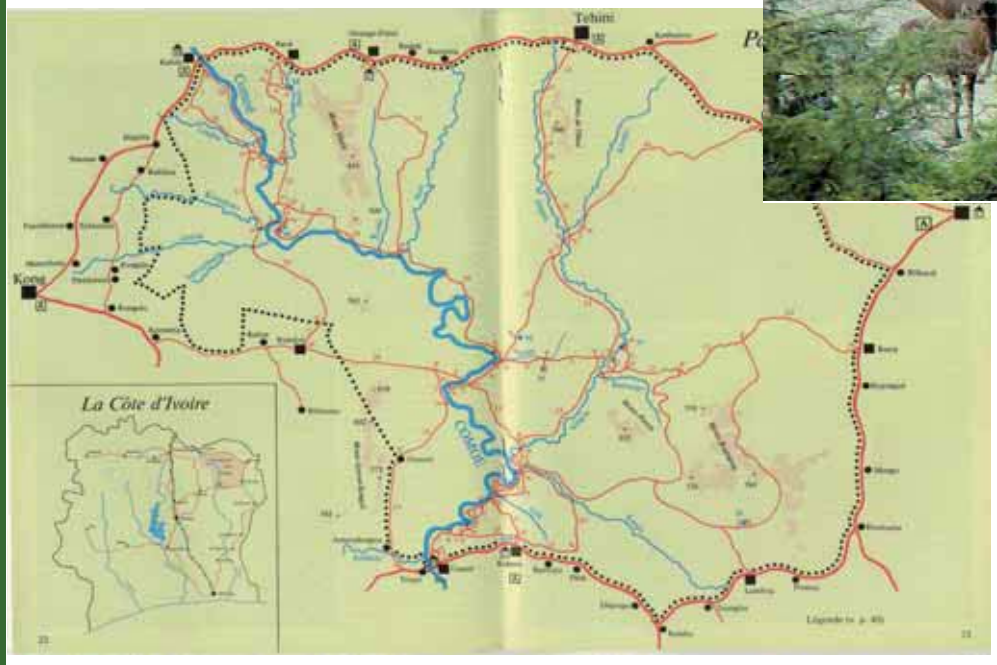
Agriculture
Gathering (karité nuts, honey)
Domestic livestock raising
Artisan fishing

Ecological characteristics :

The Comoé National Park is located in the northeast of the Côte d'Ivoire. Its extension and the diversity of ecosystems it contains have made it a reservoir of flora and fauna bio-diversity. It is the largest natural protected area in West Africa. Comoé Park belongs to the geographical region of the « northern plateaux », a vast low relief plain with an average altitude of 300 metres. This group of flattened gently rolling plateaux is locally dominated by some hills and green rock bars running from north to south with an altitude of between 500 and 600m. The climate is sub-humid tropical. The hydrographical network of Comoé National Park almost entirely involves the Comoé River from which it takes its name. Approximately 67% of the total area of the Park is drained by the Comoé River over a length of 200 kilometres from north to south. It is one of the country's ecological diagonals.

Protection classification :

On a national level: the Comoé Biosphere Reserve is a National Park with comprehensive protection where all human activities are banned.



Contact information :

Office Ivoirien des Parcs
et Réserves (OIPR)
06 BP 426 Abidjan 06
Tel : 225 20 30 12 12

Kenya
Mount Kenya

© Mount Kenya BR

Declaration date: 1978
Surface area: 71.759 ha
Administrative division: Mount Kenya Biosphere Reserve Kenya Wildlife Service

Human activities:

- Illegal logging
- Illegal grazing
- Farming around the park/Reserve boundary
- Tourist activities; game viewing and mountain hiking
- Honey gathering
- Research
- Collection of wood fuel

© Mount Kenya BR

Contact information:

Kenya Wildlife Service, Mt. Kenya National Park
P.O. Box 69-10105 Naromoru
Tel.: 020 3568763 / 0734 366782 / 0723 690482
mtkenya_nationalpark@yahoo.com

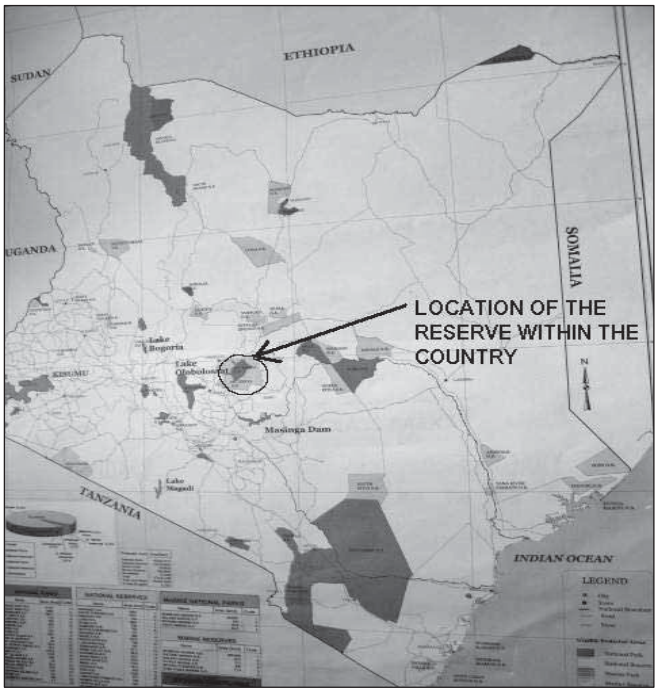
Ecological characteristics:

- Rain forest (mountain)
- Habitat for wildlife
- Water catchment area
- Afro Alpine vegetation characterized by tussock grass.
- Mixed indigenous and exotic trees.
- Endemic species.
- Endangered species

© Mount Kenya BR

Protection classifications:

Protected area under Wildlife Conservation Act.
Biosphere Reserve.
World heritage site.
Protected under Forest Act.



Kenya
Mount Kulal

Declaration date: 1978
Surface area: 700.000 ha
Administrative division: National Environment Secretariat

Human activities:

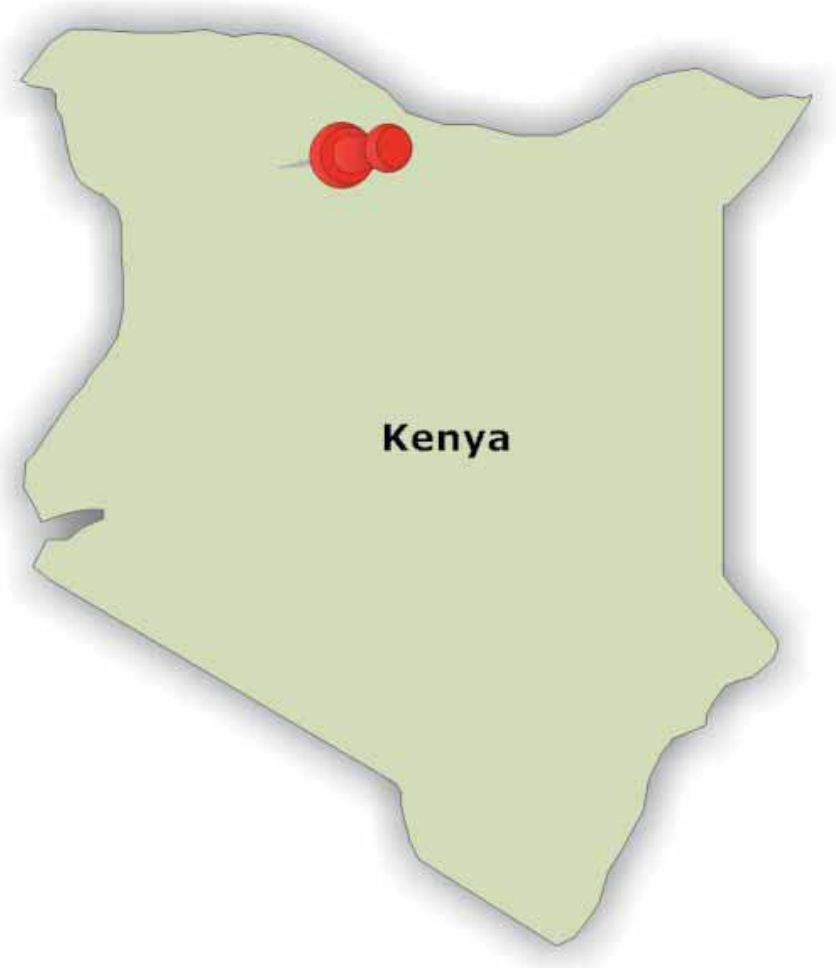
Apart from livestock raising and fishing, main human activities include tree felling in the area.

Contact information:

National Environment Secretariat
P.O. Box 67839
Nairobi
Kenya
Tel.: (254.02) 243 088

Ecological characteristics:

This biosphere reserve is situated on the eastern side and southern end of Lake Turkana, with Mount Kulal (2,416 meters above sea level) in its center. The area comprises a variety of landscapes and habitats, including brackish water at the southern end of the Lake, a volcanic landscape with lava flows, an extensive lava desert and a volcanic island within the lake, hot springs, the occasionally flooded Chalbi salt desert, sand dunes and seasonal water courses. Mount Kulal is a volcanic mountain with a deep crater, capped by rain and mist forest. The montane and submontane forests of Mount Kulal are subject to logging by pastoralists for fuel wood, building materials and for the construction of livestock enclosures. Forest regeneration is being reduced by the removal of the understorey in several areas. Grass fires, lit by pastoralists, erode the forest edge.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Kenya
Malindi-Watamu

Declaration date: 1979
Surface area: 19.600 ha
Administrative division: Two Marine National Reserves and two Marine National Parks

Human activities:

This region is one of the main recreational centers of Kenya and local communities benefit from tourism activities. Major attractions are boat trips, water sports, deep-sea fishing and coral viewing. Corals and shells have been exploited heavily by visitors and local tradesmen for souvenirs.

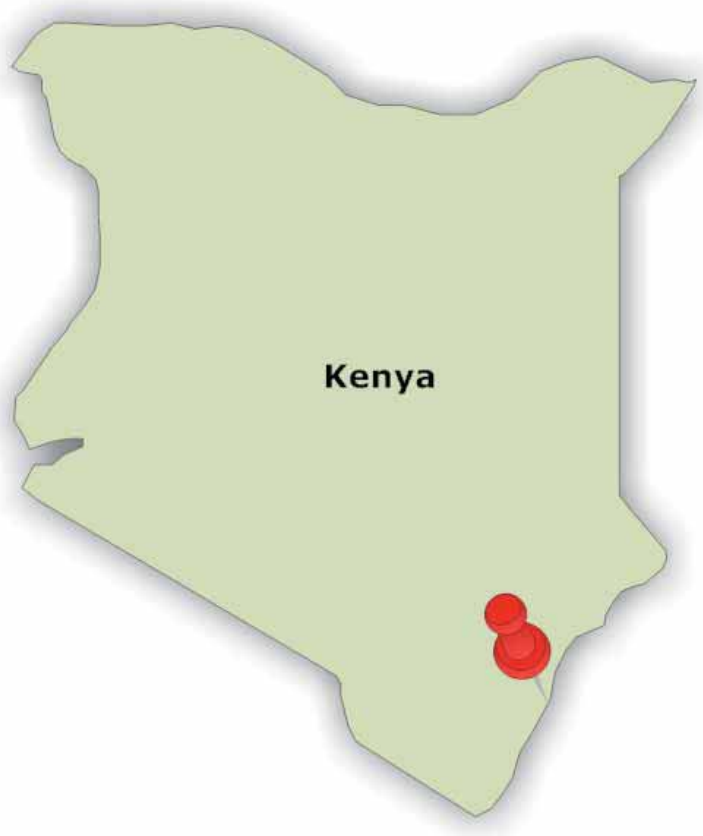
Contact information:

Malindi-Watamu Biosphere Reserve
Marine National Parks
PO Box 109, Malindi, Kenya
E-mail: kws@kws.org
Web site: http://www.kws.org/

Ecological characteristics:

Malindi-Watamu Biosphere Reserve is located on the coast of Kenya about 100 km north of Mombasa. Notable physical features of this biosphere reserve are rock platforms, cliffs and sandy beaches. Mida Creek comprises tidal mud flats with fringing mangrove swamps and the biosphere reserve area also includes coral reefs and sea-grass beds. The Wildlife and Conservation Department manages the site. The area is one of the best-known reef areas of the Kenyan coast as a number of university expeditions have used it as a study site. Recent research activities include studies on coral, marine turtles and sedimentation and there is some ecological monitoring.

Sub-littoral zone with microscopic marine plants; corals; intertidal sand and mud with marine angiosperms such as Cymodocea rotundata, Halodule wrightii, Thalassia hemprichii etc.; mangroves with Rhizophora mucronata, Bruguiera cylindrica and Ceriops sp.; intertidal rock zones with red algae such as Bostrychia spp. and Placophora binderi.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Kenya
Kiunga

Declaration date: 1980
Surface area: 60.000 ha
Administrative division: Kiunga Marine National Reserve Kenya Wildlife Service

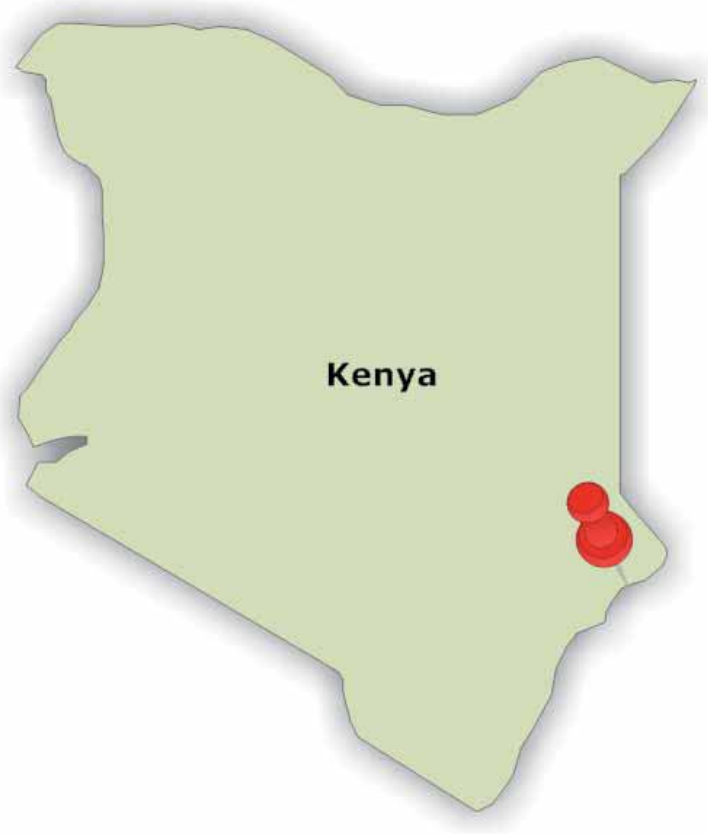
Human activities:

Within the marine reserve, only traditional fishing with approved methods is permitted. Human impacts on the environment derive from the collection of corals and shells, used in burning for lime. Poaching of green turtles and dugongs has also been reported.

Contact information:
Kiunga Marine National Reserve
Lamu District - P.O. Box 82
Kiunga, Kenya
E-mail: kws@kws.org
Web site: http://www.kws.org/

Ecological characteristics:

Kiunga Biosphere Reserve is located on the northernmost part of Kenya's coast, about 16 km south of the Somali border. On the coastal strip, there are sandy beaches with sand dunes and dry coastal shrubby forest. The coast consists of parallel lines of old and living reefs with one line situated 1,6-16 km offshore forming a chain of about 50 calcareous islands composed of coral and organic debris. In-between the islands and the coast, there are sheltered and calm water habitats. The biosphere reserve is important for nesting seabirds, green turtles (Chelonia mydas) and dugongs (Dugong dugon) and hosts relatively pristine mangroves. The World Wildlife Fund (WWF) and the Kenya Wildlife Service (KWS) are collaborating to enhance the management of the Kiunga Marine Reserve since 1996. Focus is on the conservation of the outstanding biodiversity, natural resources and ecology of the area through consensus-based management with the full participation of local communities. Research and monitoring is carried out on the status of coral reefs, their threats such as fishing, shell collecting, sedimentation, and pollution in the Kenyan marine reserves.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Kenya
Amboseli

Declaration date: 1980
Surface area: 483.206 ha
Administrative division: Amboseli National Park Kenya Wildlife Service

Human activities:

Presently, considerable income for local people comes from wildlife tourism. Groups of ranchers are generating revenue through leasing of campsites, sanctuary entry fees, cultural centers and leasing land for the construction of tented camps and tourist lodges. Community conservation areas such as the Selengei Conservation Area have created jobs for members of the local community, e.g. as game scouts, sanctuary managers or tourist guides. Livestock raising and crop production (maize and beans) are the two main agricultural activities carried out in Amboseli. However, also horticulture of onions and tomatoes is common. Pastoralism is the basis of the Maasai pastoralist community who keeps livestock such as the indigenous Zebu, cattle, sheep and goats and more recently donkeys and camels. Major constraints for livestock production are drought, low forage availability, overstocking, lack of water, predation, transmission of diseases from wildlife to livestock and thick borne diseases. The local community has been sensitized on the importance of adhering to sound habitat and animal management in order to prevent ecological degradation.

Ecological characteristics:

Amboseli Biosphere Reserve is located in the south of Kenya at the border to Tanzania. The Amboseli ecosystem consists of basement plains, saline plains with fresh water swamps and the volcanic slopes of the Kilimanjaro. The vegetation reflects the mainly semi-arid environment. The biosphere reserve was part of the UNESCO-MAB project 'Biosphere Reserves for Biodiversity Conservation and Sustainable Development in Anglophone Africa (BRAAF)' which had the objective to ensure the long-term conservation of biodiversity in including local population in its sustainable use.

Commiphora/Acacia bushland; saline/alkaline plains with Suaeda monoica and Salvadora persica; Acacia woodland with yellow-barked acacia (Acacia xanthophloea and A. tortilis); swampland supporting sedges (Cyperus spp.) including Cyperus papyrus; agroecosystems with tomatoes, onions, maize, bananas etc.

Contact information:

Amboseli National Park
P.O. Box 18
Namanga, Kenya
Tel.: (254.302) 22250 - Fax: (254.302) 22250
E-mail: kws@kws.org - Web site: http://www.kws.org/

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Kenya
Mount Elgon

Declaration date: 2003
Surface area: 208.821 ha
Administrative division: Kenya Wildlife Service Reports to the Ministry of Environment, Natural Resources and Wildlife

Human activities:

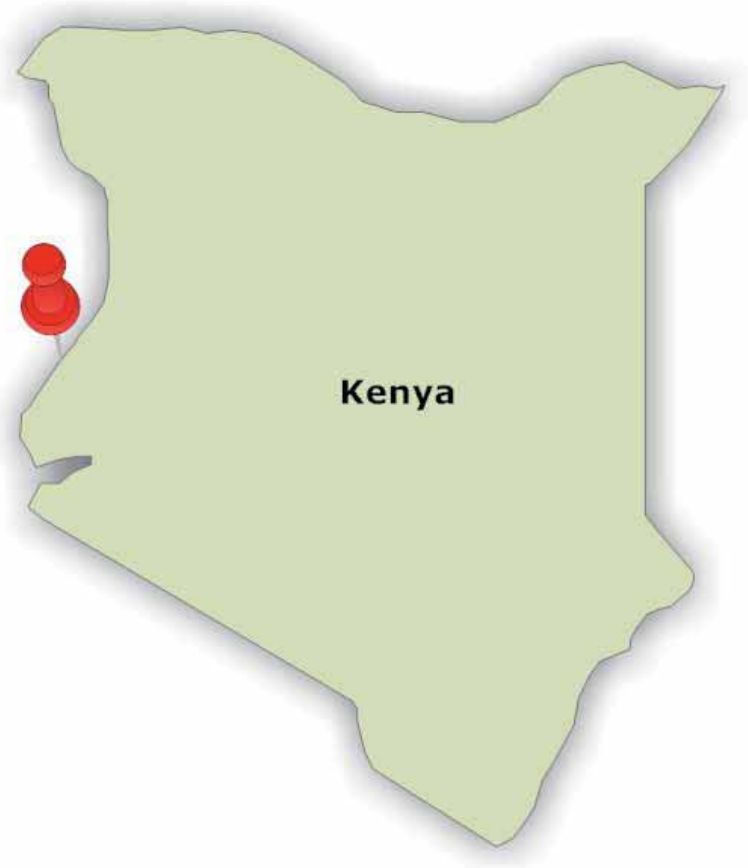
Over 100,000 people live here from subsistence and commercial cropping, pastoralism, and ecotourism. There are three research stations and many educational programmes for local communities and visitors.

Contact information:

Mount Elgon National Park
PO Box 753
Kitale, Kenya
Tel.: (254) 325- 310 456 / 7
E-mail: kws@kws.org
Web site: http://www.kws.org/

Ecological characteristics:

Mount Elgon itself is a volcanic massif, well known for its outstanding plant diversity, its role as a vital "water tower" for the region, and for its cultural significance. The Biosphere Reserve is providing a framework for coordinating the work of the Mount Elgon National Park (16,916 ha) which forms the core area ; the Mount Elgon Forest Reserve and Chepkitale National Reserve, together forming a buffer zone of 90,905 ha ; and a 10 km strip of intensively used land in the foothills of the mountain range, covering some 101,000 ha, making up the transition area. An Ecosystem Management Committee, drawing membership from all local stakeholders, has been set up to steer the implementation of an overall management plan. Community Conservation Teams and Community Action Plan Committees ensure community mobilisation, awareness creation and implementation of alternative income-generating activities such as sale of farm produce for hotels and agroforestry. Cooperation is already underway with Uganda to create a future transboundary biosphere reserve for the whole Mount Elgon ecosystem.



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Madagascar
Mananara Nord

© *Mananara Nord BR*

Declaration date : 1990
Surface : 140.000 ha
Administrative division : District of Mananara; 7 communes involved: Antanambe, Imorona, Mananara, Antananarivo, Sandrakatsy, Ambatoharanana, Antanambaobe

Human activities:

-Traditional fisheries (coral lagoons; destruction of coral by removal or trampling)
-Felling of mangroves
-Roving agriculture, slash and burn cultural practices: felling and burning of understory « tavy ».

Ecological characteristicas :

Marine ecosystem:
• Marine meadows: 32 species of algae
• reef: 132 species of corals, 64 species of shellfish, 16 species of anthropoids, 34 species of Echinoderms, 179 species of fish, 2 species of turtles, 2 species of mammals
Coastal ecosystem:
• Mangrove: 7 species of mangroves
• Forest isle: (riperian forest) 98 species of plants
Terrestrial ecosystem:
• Dense, low altitude humid forest: 3 endemic palm species « Dypsis antanamensis, Dypsis ramentacea,Dypsis anovensis »
• 12 species of lemurs
• 1200 species of plants

Protection classification :

National Terrestrial, Marine and Coastal Park

Contact information :

PNM-ANGAP/ Siège,
BP: 1424 Ambatobe 103
Antananarivo; MADAGASCAR
contact@angap.mg
Web site: www.parcs-madagascar.com

Direction Interrégionale de Toamasina,
BP: 548 Derrière Eglise Ste Thérèse
501 TOAMASINA MADAGASCAR;

PN Mananara nord,
BP 51 Mananara MADAGASCAR
Tel : +2610331269260,
e-mail : pnmnra@angap.mg – angaptmv@yahoo.fr

Madagascar
Sahamalaza-Iles Ramada

© *Shamalaza-Iles Ramada BR*

Declaration date : 2001
Surface area : 153.200 ha
Administrative division : straddled across the Région DIANA/Province Diego Suarez and SOFIA/Province de Majunga

Human activities:

Agriculture
Cattle raising
Fisheries, fish, crabs, holothuria, shrimps

Protection classification:

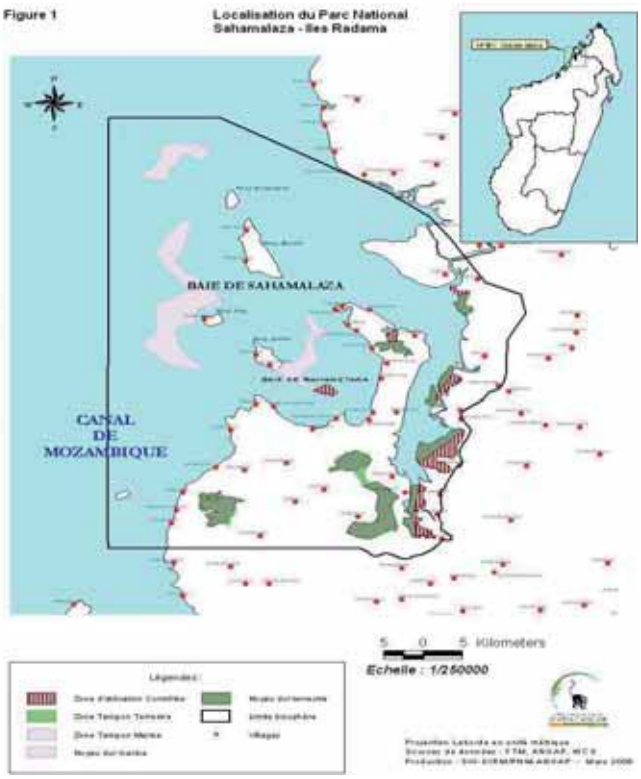
On a national level :
- Site of biological interest
- National Marine and Coastal Park

© *Shamalaza-Iles Ramada BR*

Ecological characteristics :

The Sahamalaza-Iles Radama Biosphere Reserve contains a diversity of habitats and ecosystems. The marine ecosystem, comprises coral reefs, sea grass beds, steep reefs, sandy-muddy sea beds and mud flats. It contains 216 species of corals and invertebrates, 168 species of fish, 3 species of marine mammals (Dolphins, whale). The Sahamalaza Biosphere Reserve also contains mangroves covering an area of 10 000 ha. The 8 species of mangroves known to Madagascar are represented. The mangroves are inhabited by mangrove crabs, fish, shell-fish that are exploited by the local population. The mangrove habitat is ecologically important for the conservation of 5 species of threatened birds including the Haliaeetus vociferoides or Madagascar Sea-Eagle. The third ecosystem comprises the low, dry coastal forest covering 11 100 ha, hosting local endemic species of lemurs in danger of extinction, such as the Eulemur macaco flavifrons and Hapalemur samalazensis

Figure 1 Localisation du Parc National Sahamalaza - Iles Radama



Contact information :

angapsml@yahoo.fr
angapmjg@yahoo.fr

Madagascar
Littoral de Toliara

© Littoral de Toliara BR

Declaration date : 2003
Surface : 200.470 ha
Administrative division : Atsimo andrefana

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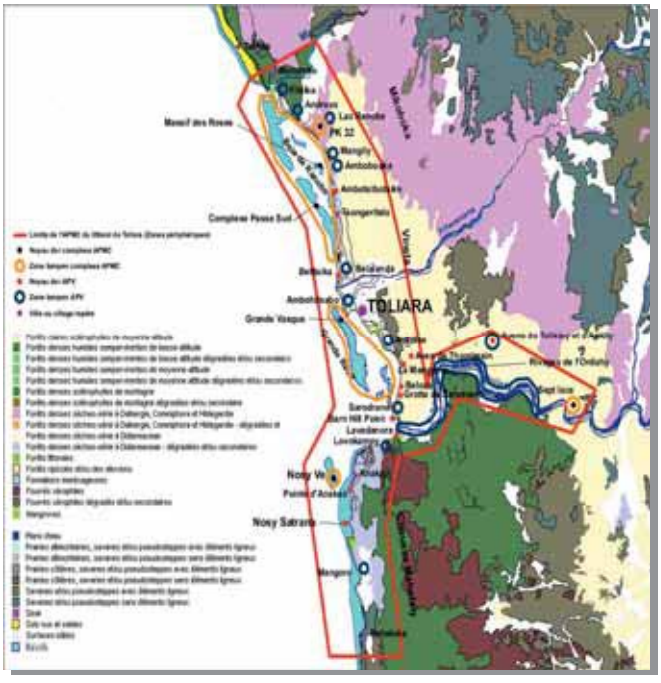
Human activities:

-Fishing activities: (fish, lobster, prawns...)
-Farming activities: corn…
-Tourist activities
-Mining activities



Ecological characteristics :

Forest habitats of dry, thorny forests with baobabs and Didiereaceae on red sand; thorny bush with Euphorbiaceae on limestone substrata, thorny dune bush, with white dunes and sands, riparian forests.
Degraded vegetation areas; savannahs, steppes.
Humid zones, lake systems, mangroves, phanerogamae grasslands.
Caves, underground rivers and springs (7 lakes region, caves around Sarodrano, coastal part of APMC
Natural and semi-natural salt swamps: on sand and salt alluvium behind the chains of dunes (Belalanda, Ankilibe)
Reefs, islands (Nosy Ve, Nosy Satrana)
Continental shelf and marine canyon: Large reefs and St Augustin's canyon.

Protection classifications :

No regulations yet for the whole Reserve. Application for temporary protection
7 lakes: transfer of management
Programme to establish 41 marine reserves within the Project for the Support of Fishing Communities (PACP)

© Littoral de Toliara BR

Contact information :

PNM-ANGAP/ Siège,
BP: 1424 Ambatobe 103
Antananarivo; MADAGASCAR
contact@angap.mg
Web site: www.parcs-madagascar.com

Direction Interrégionale de Toamasina,
BP: 548 Derrière Eglise Ste Thérèse
501 TOAMASINA MADAGASCAR;

PN Mananara nord,
BP 51 Mananara MADAGASCAR
Tel : +2610331269260,
E-mail : pnmnra@angap.mg – angaptmv@yahoo.fr

Malawi

Mount Mulanje

Declaration date: 2000
Surface area: 45.130 ha
Administrative division: Forestry Deparment, Government of Malawi

Ecological characteristics:

The Mount Mulanje Biosphere Reserve, which is the first in Malawi, is situated half way between the mountain chains and upland areas extending from the Ethiopian Highlands to South Africa. It has a rich biodiversity with a high level of endemism. The national tree of Malawi, the Mulanje cedar (*Widdringtonia whytei*) is very valuable in silviculture and for socio-economic development and its protection and sustainable use is of priority concern.

Montane evergreen forest including *Widdringtonia whytei, Podocarpus latifolius, Aphloia theiformis* etc.; dwarf montane forest, thicket and Ericaceous belt including Widdringtonia cupresoides (dwarf form of Mulanje cedar), *Philippia benguellensis, Myrica pilulifera* etc.; montane shrubland and grassland with shrubs such as *Aloe mawii, Blaeria kivuensis, Crassula sarcocaulis* etc.; submontane forest with *Chrysophyllum gorungosanum, Newtonia buchananii, Myrianthus holstii* etc.; fringing, mid-altidude forests with *Newtonia buchananii, Albizia adianthifolia, Funtumia africana* etc.; fringing low-altitude forests including *Khaya anthotheca, Newtonia buchananii, Pericopsis angolensis* etc.; Brachystegia woodland with *Bequaertiodendron magalismontanum, Erythrophleum suaveolens, Ficus exasperata etc.*

Human activities:

There are three main ethnic groups and several minorities living in the area. The land-use activities are agriculture and pastoralism, selective logging and extraction of medicinal plants and other non-timber forest products, as well as ecotourism. The mountain also has a cultural significance since it is believed to be the host for ancestral sprits. These sites are now used as shrines or for traditional rites.

Contact information:

K. Nyasulu
30048 Lilongwe 3
Malawi
Tel.: (265) 781 000
Fax: (265) 781 812
E-mail: sadcfstcu@malawi.net

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Malawi

Lake Chilwa Wetland

Declaration date: 2006
Surface area: 614.181.75 ha
Administrative division:
The Three District Assemblies of Phalombe, Machinga and Zomba.

Ecological characteristics:

Lake Chilwa wetland is located in the southern region of Malawi and borders with Mozambique to the East. Major topographic areas, including the catchment, are: the Chilwa plains, the open lake waters and mountainous areas (Zomba and Mulanje mountains and Chikala and Michesi hills). The lake is mainly underlain by lacustrine and alluvial deposits and is without an outlet. It has an area of 2400km2; its wetland is approximately 40 km from east to west and 60 km from north to south.

Human activities:

The lake Chilwa basin has a population estimated at 916,447 (Zomba 540,428; Phalombe 231,448; Machinga 144,571). About 77,000 live in the wetland itself. Yao is the dominant tribal group around the Lake Chilwa Wetland. Other tribal groups include: Sena, Lomwe, Chewa and Nyanja. All these tribes have brought their steadfast practice of initiation ceremonies and Manganje dances during school holidays. One conspicuous cultural impact of the Sena in the area is the introduction of Lobola (dowry) in the marriage.
Human settlements in the area are predominantly scattered. The dispersion of human settlements is greatly influenced by the extent of floods during the wet season. There is an obvious element of impermanence in settlement distribution, particularly in areas most affected by lake level fluctuations.
Economically, the wetland supports a vibrant small scale fishing industry, which at peak levels supports 6,000 fishermen. The fishery is valued at USD 17 million. Waterfowl are also trapped or shot and sold for food. Communities in the wetland are heavily dependent on natural resources for survival. When Lake Chilwa and its associated wetlands dried up completely in 1995 there was much suffering in the area and this dramatic event demonstrated how important the lake is to the riparian people.

Contact information:

Chairman, Malawi MAB National Committee
PO Box 280
Zomba
Malawi
Tel: + 265 1 524 222; +265 9 912 084
Fax: +265 1 524 046
Email: biology@chanco.unima.mw
esambo@chanco.unima.mw

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Mali

Boucle du Baoulé

Declaration date: 1982
Surface area: 2.500.000 ha
Administrative division: Opération Parc National de la Boucle du Baoulé (OPNBB)

Human activities:

Various ethnic groups live in the area: sedentary Kakolo, Sarkolés, Malinké and Bambara (farmers), the transhumant Peuhls and Maures and the Bozos (fishers). Depending on the season, between 78,300 and 150,000 people live in the biosphere reserve (1998). The land tends to be used for pastoralism in the north during the dry season and for agriculture throughout the area depending on the local rainfall conditions.

Ecological characteristics:

This biosphere reserve is situated in the West African Savanna, approximately 200 km northwest of Bamako in western Mali. The area (918,000 hectares) which is also designated as a national park comprises two biogeographic zones: the Sudano-Guinean zone to the south and the Sahelian zone to the north. Shrub savanna dominated by *Combretum* spp., changes into Isoberlinia savanna woodland in the south. Baoulé River is fringed by dense riverine forest. While vegetation in the south shows only few signs of degradation, vegetation in the north is suffering from effects of drought. One major threat to vegetation is also clearing for agricultural use. The area used to support many large mammal populations. However, they have been devastated due to heavy pressure from hunting and competition from livestock. In 1981, the livestock population was estimated to 13,500 zebus and 59,500 sheep and goats.

Contact information:

Bourama Niagate
Directeur, Parc National et Réserve de la Biosphère - Boucle du Baoulé
B.P. 275, Bamako, Mali
Tel.: (223) 222 24 98
E-mail: niagate@yahoo.fr

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Mauritius

Macchabee/Bel Ombre

Declaration date: 1977
Surface area: 3.594 ha
Administrative division: National Park and Conservation Service

Human activities:

No people live in the biosphere reserve. However, about 500,000 tourists spend annually their holidays in the area (1997). Within the national park an information center raises public awareness and provides environmental education through exhibitions, talks and seminars. Furthermore, environmental education is carried out in local schools by the National Parks and Conservation Service.

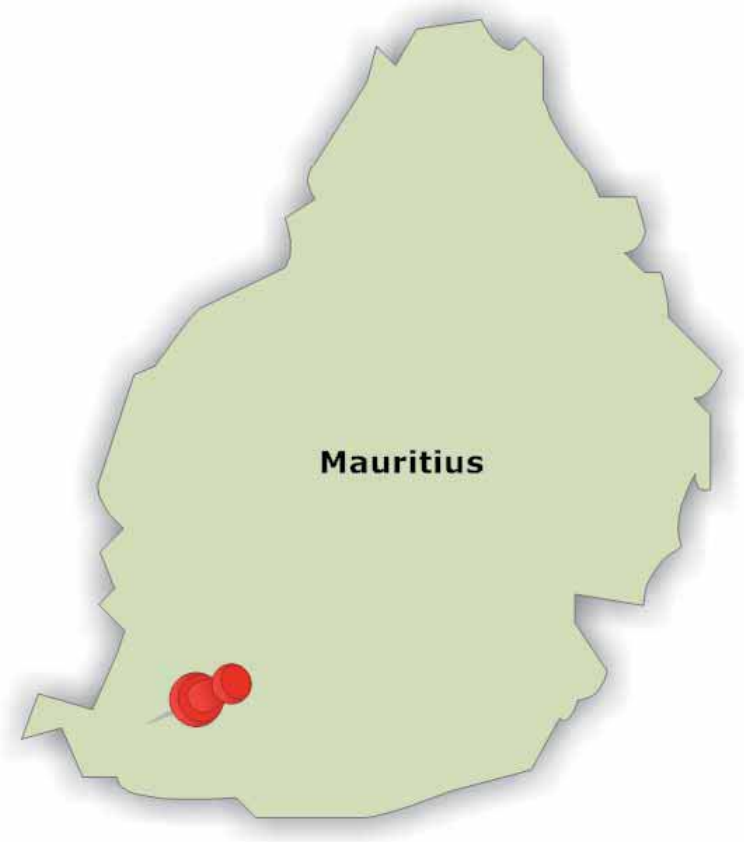
Contact information:

National Parks and Conservation Service
Reduit, Mauritius
Tel.: (230) 464 2993
Fax: (230) 465 1184
E-mail: npcsagr@intnet.mu

Ecological characteristics:

This biosphere reserve, located on Mauritius in the Indian Ocean, is important for the conservation of the last remnants of the islands' endemic vegetation, the tropical evergreen forest. About 25% of Mauritius flora and fauna is endemic to the island, but with the invasion of alien species the indigenous nature is at high risk. Being part of the Black River Gorges National Park, the biosphere reserve fosters in situ conservation through human intervention (e.g. weeding of exotic species, trapping introduced macaques) and ex situ conservation such as plant propagation and captive breeding of birds.

Marshlands characterized by Lycopodium spp., Pandanus spp., Sphagnum spp. etc.; Philippia/Phylica heath with Astelia hemichrysa, Coffea spp., Blechnum attenuatum etc.; tropical evergreen forest dominated by Myrtaceae, Rubiaceae and Sapotaceae including Sideroxylon grandiflorum, Ocotea cupularis, Tambourissa sieberi etc.; mid-altitude forest composed mainly of Labourdonnaisia glauca, Mimusops petiolaris and Diospyros spp.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Niger

Aïr et Ténéré

Declaration date: 1997
Surface area: 24.400.070 ha
Administrative division: Direction Faune Pêche et Pisciculture (DFPP), Ministère de l'Hydraulique et de l'Environnement

Human activities:

Depending on the season, up to 39,000 inhabitants live within the biosphere reserve boundaries (1997), who are depending on camel and goat raising, agriculture, small businesses and handicrafts., Plundering of archaeological sites by tourists and poaching are two of the main problems the biosphere reserve is facing today. Management structures, development projects and participation mechanisms for local people have been developed during the 'Projet de Conservation et de Gestion des Ressources Naturelles dans le Ténéré' (1988-1992) which was carried out with support from the Swiss and Danish governments and the IUCN.

Ecological characteristics:

Aïr et Ténéré Biosphere Reserve covers 24 million hectares in the north of Niger, in the Agadez region of the arid Saharan region. This area is one of the driest zones in the country and it encompasses two geographic regions. Aïr is a mountainous massif made of crystalline and volcanic rocks and was one of the first areas with metalworking by early mankind. Ténéré is made up of quaternary sands (fine alluviums, disc-shaped sands of aeolian origin and moving sand dunes). Several species of primates, such as olive baboon (*Papio anubis*), patas monkey (*Erythrocebus patas*), Cape Dassie (*Procavia capensis*) and carnivores (caracal, hyena) are relict populations of the area which date from the humid period of the Holocene era. Other species are in a precarious situation due to low population numbers, such as Loder's gazelle (*Gazella leptoceros*), Dama gazelle (*Gazella dama*), addax and ostrich. The flora comprises about 300 higher plants. The area is also renowned for its numerous archaeological and pre-historic sites, with rock engravings indicative of ancient human settlement.

Contact information:
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Ministère de l'Hydraulique, de l'Environnement et de la Lutte Contre la Désertification
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Fax: (227) 73 27 84 - (227) 73 80 26
E-mail: faune@intnet.ne - ucnpmedp@intnet.ne

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Nigeria
Omo

Declaration date: 1977
Surface area: 130.500 ha
Administrative division: Ijebu Province, Ogun State.

Human activities:

About 6,000 people live within the biosphere reserve boundaries (1998). Their major economic activities are taking place in the transition area: timber exploitation, fuelwood harvesting, cultivation of arable crops, establishing plantations of indigenous and exotic tree species, hunting and fishing. Loss of biodiversity and soil erosion are the main threats to the biosphere reserve. There are several research programmes in place such as climatic measurements and soil changes with different land use practices, bioproductivity studies, and indigenous knowledge and practise in hunting and fishing as well as the utilisation of non-timber forest products.

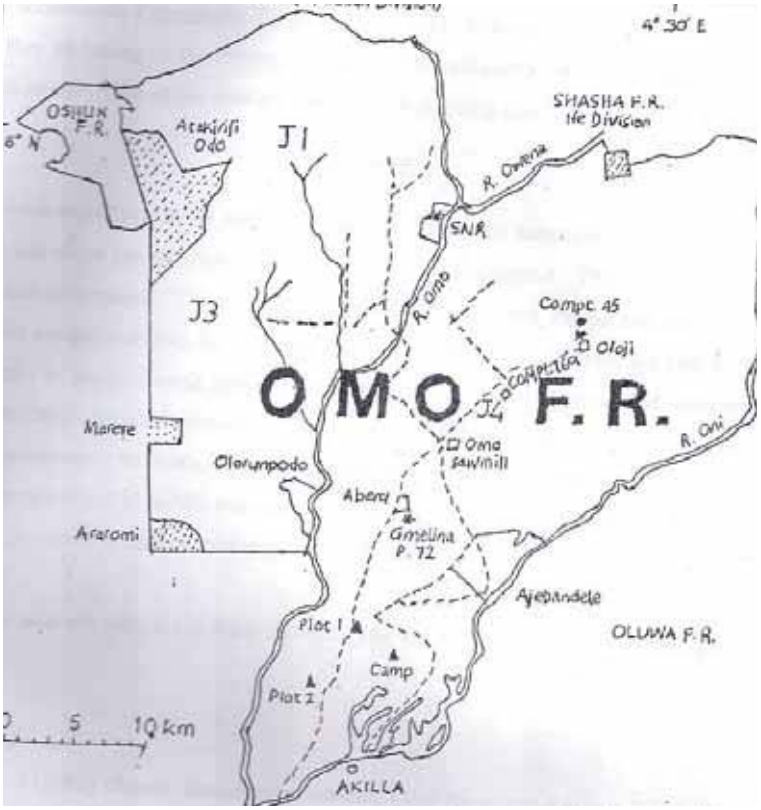
Protection classifications:

Federal Government Managed: Strict Nature Reserve. Only non-destructive scientific studies and controlled collection of reproductive research materials are allowed.

Ecological characteristics:

This biosphere reserve is situated about 135 km north-east of Lagos in the south of Nigeria. Major habitats are dry evergreen mixed deciduous forests in the north and wet evergreen forests in the south. However, plantations and agricultural land can also be found. Main plant species of the area are for instance Diospyros spp., Dracaena manni, Khaya ivorensis and Cordia millenii. Animal species include the grasscutter (Thryonomys swinderianus), the pangolin (Manis tetradactyla), the tree hydrax (Dendrohyrax arborea) and the elephant (Loxodonta cyclotis).

Vegetation: Mixed Moist semi-evergreen rainforest.
Climate: Falls within Tropical wet and dry climate characterized by two peaks separated by a relatively less humid period usually in the month of August. Annual rainfall is above 2000mm; Relative humidity of 80% – 95%; Mean hourly minimum temperature is 21 oCand mean maximum of 30.5 oC.
Soil: Ferruginous Tropical; Oxic Tropudalas & Rhodic paleudults; heavily leached.



Contact information:

Forestry Research Institute of Nigeria, Jericho, P. M.
B. 5054, Ibadan, Nigeria.
E-mail: solomonbadejo @yahoo.com

Rwanda

Volcans

Declaration date: 1983
Surface area: 12.500 ha
Administrative division: Office Rwandais du Tourisme et des Parcs Nationaux

Human activities:

Because of the political and economic situation in Rwanda, the biosphere reserve faces severe problems due to increasing population pressure and poverty. Expanding agricultural areas, poaching of gorillas, illegal wood and bamboo cutting and overgrazing constitute threats to the ecosystem.

Ecological characteristics:

Volcans Biosphere Reserve is located about 15 km north-west of the town of Ruhengeri in the Virunga Massif in north-west Rwanda. Covering an area of about15,000 hectares, it is part of the Volcanoes National Park and is contiguous to the Virunga National Park in the Democratic Republic of Congo and Gorilla Game Reserve in Uganda. The area is known for its mountain gorilla (Gorilla beringei beringei) population. The region contains Pleistocene volcanic peaks which form the watershed between the Nile and the Congo River systems. It also represents an important water catchment area for the surrounding agricultural lands. Vegetation varies considerably due to big elevation changes within the area. The lower mountain forest is mostly used for agriculture. In more elevated parts, there are Neoboutonia, bamboo (Arundinaria alpina) and Hagenia-Hypericum forests as well as grasslands and meadows.

Contact information:

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Kigali, Rwanda
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Fax: (250) 765 12
E-mail: rosetterwandatourism@rwanda1.com

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Senegal
Delta du Saloum

Declaration date: 1980
Surface area: 180.000 ha
Administrative division: Delta du Saloum La Direction des Parcs Nationaux

Human activities:

Grassroot village associations play a critical role in mangrove restoration programmes, including the establishment of nurseries and setting up of reforestation plots. Village community organizations also have a key function in combining traditional and modern practices in fisheries or to set up 'eco-guards'. In cooperation with the Direction des Parcs Nationaux, the IUCN regional office based in Dakar is working with the local communities and with national agencies and students of the University of Dakar on an integrated management plan for the Delta du Saloum Biosphere Reserve. This exercise is financed by the Dutch Embassy in Dakar, Senegal.

Ecological characteristics:

This biosphere reserve and national park is situated in the Delta of the seasonal Sine and Saloum rivers about 150 km south-east of Dakar. The biosphere reserve comprises 72,000 hectares marine areas, 23,000 hectares of flooded areas, and 85,000 hectares of terrestrial islands. Mangroves are dominant, but sand dunes, open forest on sandy soils, coastal waters and sand islands also characterize the area. The mangrove is principally made up of four species: Rhizophora racemosa, R. mangle, R. harrisonii and Avicennia nitida. There is a permanent threat to the mangroves by extension of rice culture and forest exploitation in the Fathala area. Other impacts on the environment include fires in the forest zone, excessive fishing, destruction of bird colonies and conflicts with industrial and agricultural development.

Estuarine habitat including banks of intertidal sand and mud flats thick; mangrove dominated by Rhizophora racemosa, R. mangle, R. harrisonii and Avicennia nitida; open flat areas ("tanns"); islands with halophile species such as Sesuvium portulacastrum, Philoxerus vermicularis and Paspalum vaginatum; dry forest; sand dunes; birds land: site of water breeding colonies of migratory water birds including over 30 000 pairs of ROYAL TERN (Sterna maxima).

Contact information:

Moustapha Mbaye
Commandant, Conservateur de la RB du
Delta du Saloum
Direction des Parcs Nationaux, BP : 5135
Dakar-Fann, Senegal

Senegal
Niokolo-Koba

Declaration date: 1981
Surface area: 913.000 ha
Administrative division: Parc National du Niokolo-Koba, la Direction des Parcs Nationaux

Human activities:

Rural communities surround the Niokolo Koba Park and form the transition area of the biosphere reserve. Here, major land uses are agriculture, pastoralism, honey gathering and craft activities. Some tourism also provides jobs for local people. A forest school has been established to train Senegalese and Guinean park rangers.

Ecological characteristics:

Situated in southeastern Senegal, Niokolo-Koba Biosphere Reserve straddles the border between the administrative regions of Senegal-Oriental and La Casamance, on the Gambia River and covers an area of 913,000 hectares. It is situated adjacent to the Badiar Biosphere Reserve in Guinea. Habitats include herbaceous savanna dominated by Andropogon gayanus, seasonally flooded grassland and dry forest, areas with bamboo, freshwater wetlands and gallery forests. Niokolo Koba Biosphere Reserve provides habitat for the Derby eland (Taurotragus derbianus, the largest of the antelopes), elephants, chimpanzees, lions as well as many birds, reptiles and amphibians. The Niokolo Koba Biosphere reserve participates in the UNESCO-MAB/UNEP-GEF regional project on 'Building Scientific and Technical Capacity for Effective Management and Sustainable Use of Dryland biodiversity in West African Biosphere Reserves'. Scientific and technical cooperation is very active with the Badiar Biosphere Reserve in Guinea.

Contact information:
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E-mail: sam_casa@yahoo.fr - dpn@orange.snfr

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Senegal
Samba Dia

© *Samba Dia BR*

Declaration date : 1981
Surface area : 752 ha
Administrative division : Fatick Region

Human activities:

The human activities identified in the surroundings and buffer zone are the following:
- agriculture
- stock raising
- harvesting fruit and medicinal plants
- activities in the nurseries and reforestation to enrich the ronier grove
- school visits
- fire-fighting by the forest service and the riparian population, organized in an inter-village forest management committee ;
- Monitoring and protecting the forest by the forest service and the inter-village committee against illegal logging of the roniers.

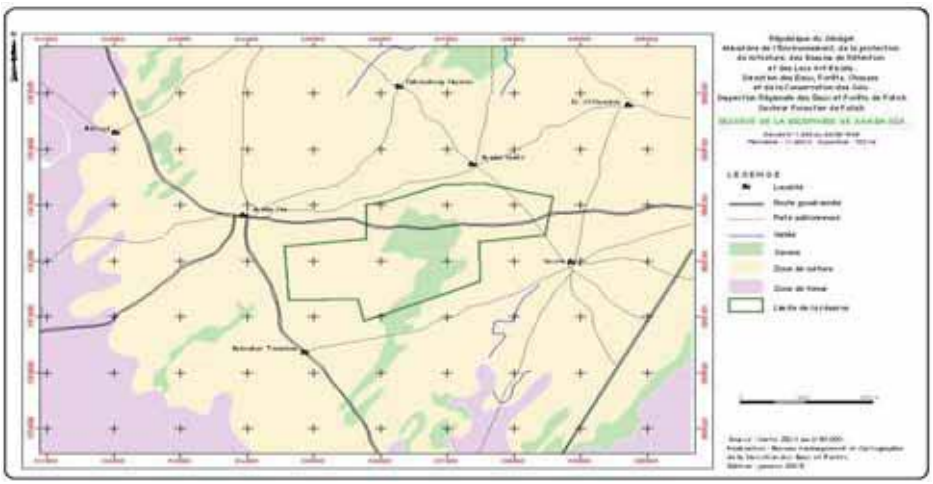
Ecological characteristics:

The Samba DIA Biosphere Reserve is a ronier palm grove of remarkable beauty. This ecosystem, in addition to the ronier palm, includes other local plant species such as Baobab, *Ficus, Acacia albida*, the locust bean and other exotic species such as *Prosopis,* the cashew tree, the neem, etc. This ecosystem has an annual precipitation ranging between 500 and 600 mm. The soil type is clayey-sandy. It is a very wooded formation, thanks to the vigorous natural regeneration of the roniers (in the central enclosed area), scattered with robust grassy patches essentially intended for feeding the livestock.

© *Samba Dia BR*

Protection classification:

Classified forest by ordinance n° 1536 of 30 June 1936, declared Biosphere Reserve in 1981.



Contact information :

Inspection Régionale des Eaux et Forêts (IREF) de Fatick.
Telephone : 33 949 13 72 ;
E-mail : mkidiera@yahoo.fr
E-mail : oipr@aviso.ci

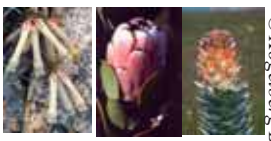
South Africa
Kogelberg

© *Kogelberg BR*

Declaration date: December 1998
Surface area: 100.000 ha (70.000 terrestrial; 30.000 marine)
Administrative division: Western Cape Province, South Africa

Human activities:

The area is of outstanding importance as a predominantly natural area with a core wilderness area so close to a large city (within 40 km from the centre of Cape Town). An exceptional diversity of natural environments characterizes the area ranging from marine and coastal environments, rare blackwater lakelets, marshes, estuaries, rivers, and mountains bordering on a narrow coastal plain. These natural features make the area a highly desirable destination for ecotourists and provide unparalleled opportunities for environmental education in this region.



© *Kogelberg BR*

Protection classifications:

At the national level:
The most extensive portion of the primary core area is the Kogelberg Nature Reserve. This is a proclaimed demarcated State Forest under the Forest Act, 122 of 1984.
The other portion of the primary core area is proclaimed mountain catchment area under section 2 of the Mountain Catchment Areas Act, 63 of 1970
The Betty's Bay Marine Protected Area that forms part of the core is proclaimed under the Marine Living Resources Act, 18 of 1998.

Contact information:

Kogelberg Biosphere Reserve Company
PO Box 200
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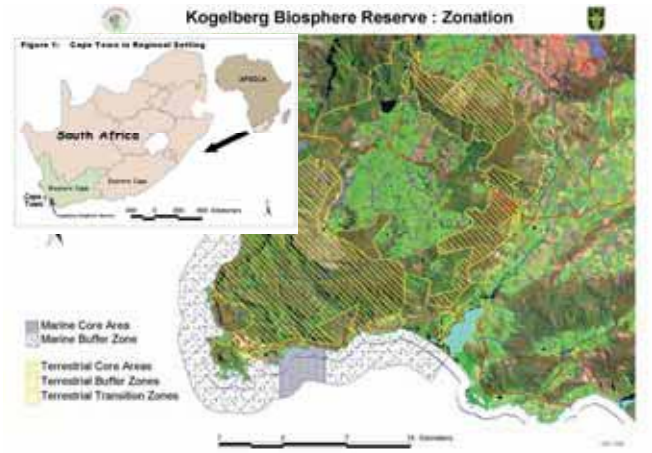
Tel: +27 28 271 4792
Business fax: +27 86 611 5900
Email: alisond@kingsley.co.za
Web site: http://www.kogelbergbiosphererereserve.co.za

Ecological characteristics:

The Kogelberg area is of exceptional conservation significance. It may be regarded as the floristic heart of the globally unique Cape Floral Kingdom since it appears to have the highest levels of plant species richness and endemism in the Fynbos Biome. More than 1 880 plant species are estimated to occur in the Kogelberg area of which ca. 150 taxa are estimated to be locally endemic. The remarkable floristic diversity of this area is also evident from the distribution patterns of a sample of 1 936 plant taxa from plant families and genera which are characteristic of the Cape Flora such as Proteaceae, Ericaceae, Restionaceae and Bruniaceae. The highest percentage occurrence of these taxa per quarter degree square (20 - 26%) is found in the Kogelberg area. This is twice the species density for these taxa in the northern parts of the Cape Floral Kingdom and more than three times the species density in the mountains of the southern and eastern parts of the region. The core of the biosphere reserve also includes 1700 ha of marine protected area. The lower 16 km of the Palmiet River within the core area of the Kogelberg Biosphere Reserve is the only large protected blackwater river in the southwestern Cape and is of particular conservation significance.



© *Kogelberg BR*

South Africa

Cape West Coast

© *Cape West Coast BR*

Declaration date: November 2000
Surface area: 378.000 ha
Administrative division: Cape West Coast Biosphere

Human activities:

Tourism: Development of a Biosphere Reserve trails and routes
- Environmental Education & Awareness Raising
- Dune and fynbos rehabilitation programme
- The only biosphere reserve to incorporate a nuclear power station, an oil refinery and a toxic waste site within its boundaries.

Contact information:

Cape West Coast Biosphere Reserve
P.O.Box 283, Darling, 7345
Western Province, Republic of South Africa
Telefax: +27 22 492 2750
E-mail: info@capebiosphere.co.za
Website: www.capebiosphere.co.za

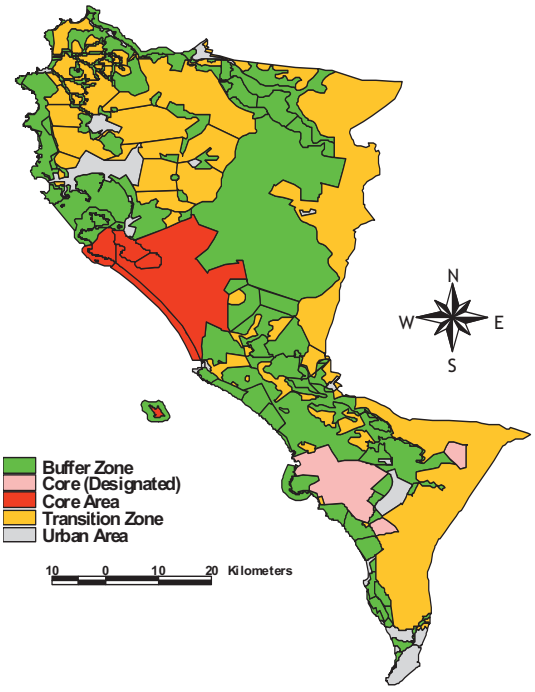
Ecological characteristics:

© *Cape West Coast BR*

Falls within the Cape Floral Kingdom one of the 6 floral kingdoms in the world restricted to the Southern and Western Cape region of South Africa. Identified by Conservation International as one of the global biodiversity hotspots. Unique Fynbos biome subdivided into Sandveld fynbos, Strandveld, Granite Renosterveld and other unites with more limited distribution. Spring flower displays. Langebaan Lagoon RAMSAR site is a breeding site for 55% of South African birds and hosts over 35,000 waders during summer and over 100,000 birds, including the Greater Flamingo during winter. The cold and deep Bengeula Current Large Marine Ecosystem is one the most productive ecosystems in the world. The confluence of warm and cold water provides a productive spawning area for sardine and anchovy. West Coast Fossil Park is one of the worlds' richest, 5 million year old fossil deposits declared a National Heritage Site. Bones of more than 200 different types of animals, many new to science, has been discovered.

Protection classifications:

The CWCBR has no formal conservation status but incorporates a variety of private as well as municipal nature reserves and the West Coast National Park. The West Coast National Park is the northern core zone of the biosphere.



South Africa

Kruger to Canyons

© Kruger to Canyons BR

Declaration date: October 2001
Surface area: 2.474 .700 ha
Administrative division: Limpopo

Human activities:

A high percentage of the biosphere is committed to national or provincial conservation objectives. High impact activities include tourism, mining, silviculture and commrcial agriculture. Subsistence agriculture and natural resource utilization has had severe localized impacts on the environment.

Ecological characteristics:

© Kruger to Canyons BR

The biosphere extends from the semi-arid to arid savanna of the loweld to the heights of the Transvaal Drakensberg Escarpment. Large river systems drain east from the escarpment towards the Mozambique Plain. Tropical grasslands & savanna, temperate grasslands and mixed mountain & highland systems are well represented within the Kruger to Canyons Biosphere, with tropical dry and decideous forest being marginally represented. The Transvaal Drakensberg Escarpment Forest is unique to the Biosphere, its conservation being of critical importance. Internal fences between protected areas have largely been removed. The Kruger To Canyons Biosphere thus provides a rare opportunity for species such as African Wild Dog, Elephant, Blue Wildebeest and Burchell's Zebra to move freely over large areas of savanna. The Kruger to Canyons Biosphere forms and integral part of a transfrontier area with Mozambique and Zimbabwe.

Protection classifications:

All core areas of the biosphere are protected under provincial or national legislation. There include a large portion of the Kruger National Park and 12 provincial Nature Reserves.

© Kruger to Canyons BR

Contact information:

Provincial level:
Community Environment Development
Department of Economic Development
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Biosphere level
The Chairperson
Kruger to Canyons Biosphere Reserve
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E-mail: info@bushveldconnections.co.za

KRUGER TO CANYONS
BIOSPHERE RESERVE

South Africa
Waterberg

© *Waterberg BR*

Declaration date: March 2001
Surface area: 417. 406 ha
Administrative division: Limpopo

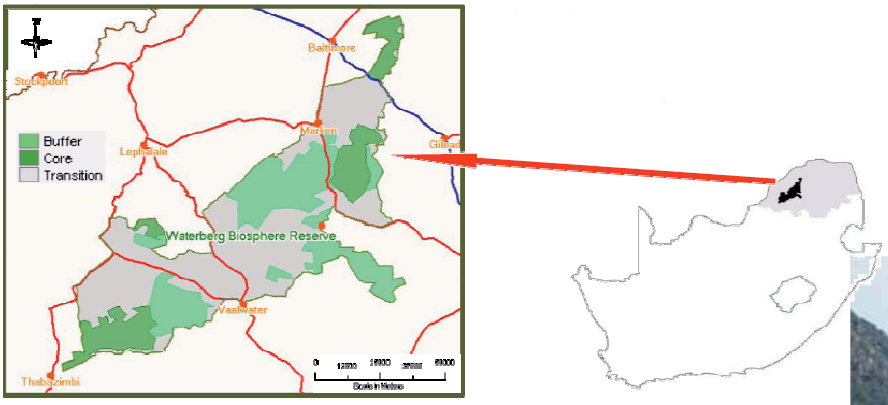
Human classifications:

- Commercial, irrigated cultivation, particularly along water courses
- Subsistence cultivation
- Tourism and hunting industries are expanding rapidly and may strain resources if left unmanaged.
- Mining occurs near the boundary of the Biosphere Reserve and this will impact on future zoning and management.

Ecological characteristics:

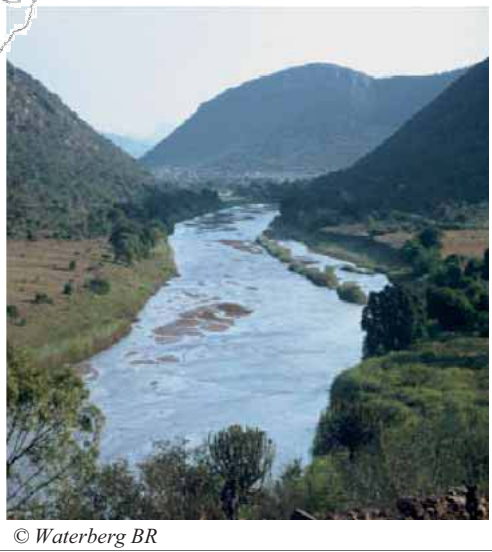
© *Waterberg BR*

The Waterberg owes its name to its importance as a water catchment area of national significance. The Waterberg Biosphere Reserve contains he greater portion of the Waterberg Moist Mountain Bushveld (Lowe & Robello 1996), a vegetaion type restricted primarily to the Waterberg. The Waterberg has unique rock formations, a result of the steep terrain, sandstone base rock and high rainfall in the area. Biodiversity is high and there are numerous endemic organisms. Habitats are also sufficiently represented to ensure that the current high biodiversity is maintained. Ongoing human occupation is a historical aspect of the Waterbeg and this can be seen in the widespread rock art. Tourism in this area is unique, given the large amount of unspoiled wilderness and open spaces. This makes the Waterberg Biosphere Reserve a key, strategic component of Limpopo's Mega Conservation Tourism Cluster.



Protection classifications:

Currently, only the core areas and certain buffer zone areas have legal protection status. The Marakele National Park and several provincial Nature Reserves are proclaimed under national or provincial legislation.



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Contact information:

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South Africa
Cape Winelands

Declaration date: 2007
Surface area: 322.030 ha
Administrative division: Cape Winelands District Municipality, in association with: • Stellenbosch Municipality • Drakenstein Municipality • Breede River Municipality • Witzenberg Municipality • Theewaterskloof Muncipality • Western Cape Nature Conservation Board (operating as CapeNature)

Human activities:

Main economic activities in the area include agriculture, manufacturing, tourism, forestry, real estate, and business services. Agriculture forms the backbone of the economy with most of the other sectors being dependent on its strong backward and forward linkages.

Contact information:

Executive Mayor
PO Box 100, Stellenbosch
7599 Western Cape Province
South Africa
Tel.: (27.23) 348 2301
Fax.: (27.23) 342 6768
E-mail: mayor@bolanddm.co.za

Ecological characteristics:

The Cape Winelands Biosphere Reserve is located in the Western Cape Province of South Africa approximately 40 km east of Cape Town. The Biosphere Reserve extends from the Kogelberg Biosphere Reserve in the south, northwards along the Cape Fold Belt Mountain Chain and the adjoining valleys constituting the Cape Winelands. The Biosphere Reserve incorporates key portions of the registered Cape Floral Region Protected Areas World Heritage Site. The Biosphere Reserve is characterised by a mosaic of diverse ecosystems and physiographic environments, and a gradation of land-uses and human settlement patterns associated with the world-renowned Cape Winelands viticultural landscape. The area includes an array of historic towns, hamlets and farmsteads, which are home to approximately 320 024 people.

The key management focal areas of the Biosphere Reserve include:
• coordination of conservation activities with the focus on protection of the Cape Floral Region Protected Areas World Heritage Site and its associated ecosystems;
• provision of a sustained flow of high-quality water to adjoining regions (including the Cape West Coast) and the City of Cape Town; and
• promotion of sustainable development in order to alleviate poverty and inequality.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

South Africa
Vhembe

Declaration date: 2009
Surface area: 30.701 ha
Administrative division:
Limpopo Provincial Government, Polokwane

Human activities:

Vhembe Biosphere Reserve is a favourite destination for eco-tourism, cultural tourism and related activities such as hunting amongst both the local and international visitors.
The area has a relatively large and rapidly growing human population with a high unemployment rate contributing to severe negative impact on natural resources, which are harvested unsustainably.
Within the VBR there are a large number of private game farms and agricultural farms creating an ideal opportunity for the unleashing the economic potential of the established VBR. The biosphere reserve will promote an integrated approach to sustainable development, ensuring that essential ecosystem services are maintained, education is improved, human development and wealth creation are stimulated through better communication and training while conserving the unique ecosystems, species and cultural resources of the region.

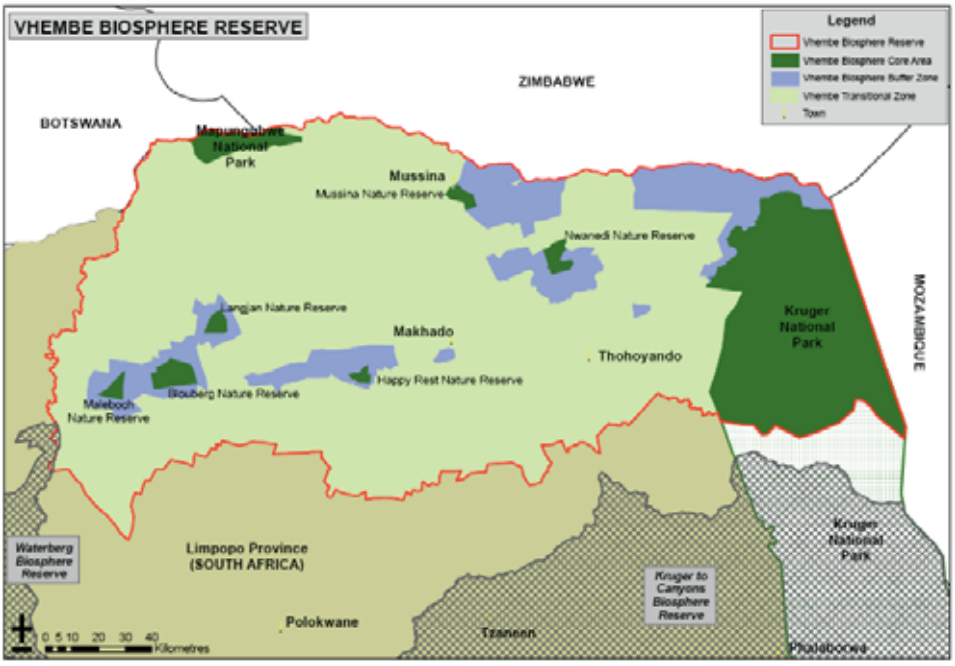
Contact information:

Jerzy Kruszelnicki / Grzegorz Wagner
Mazurski Park Krajobrazowy
Kruty11-712 Stare Kiebonki. Poland
Tel: (48.89) 742 1405
Email: mpkraj@box43.gnet.pl

Ecological characteristics:

The VBR include three biomes, namely savanna, grassland, and forest, four bioregions and twenty three different vegetation types or biotopes. Eight of these biotopes are endemic to South Africa. The area is also a biogeographical node, comprising of the Kalahari, Lowveld bioregions having temperate, tropical climatic conditions. This creates zones of ecologically important interactions, which need to be protected to ensure conservation viability.
The South African National Spatial Biodiversity Assessment (NSBA) has included the Blouberg and Soutpansberg complex as one of its nine priority areas for conservation action based on a combined analysis of species, ecosystems and ecological processes. The same area is also listed by Van Wyk and Smith (2001) as a hotspot of South African biodiversity and endemism.
Lake Fundudzi in the Soutpansberg Mountains is the only natural inland lake in Southern Africa. Several wetlands in the same mountain range contain peat which harbors information going back 12 000 years BP (before present).

The VBR includes the northern part of the Kruger National Park, the Mapungubwe National Park and World heritage site, several Provincial Nature Reserves, two recognized centers of biodiversity and endemism (the Soutpansberg and Blouberg) and the Makgabeng Plateau with more than 1000 rock art sites.



Uganda

Queen Elizabeth

© *Queen Elizabeth BR*

Declaration date: 1979
Surface area: 246.500 ha
Administrative division: Districts of Bushenyi, Kanungu, Kasese and Rukungiri

Human activities:

Tourism, fishing, agriculture and salt extraction.

Protection classifications:

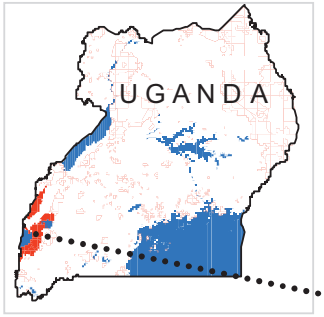
Core is national park.
Buffers are wildlife reserves.
Lake George wetlands are a Ramsar Site

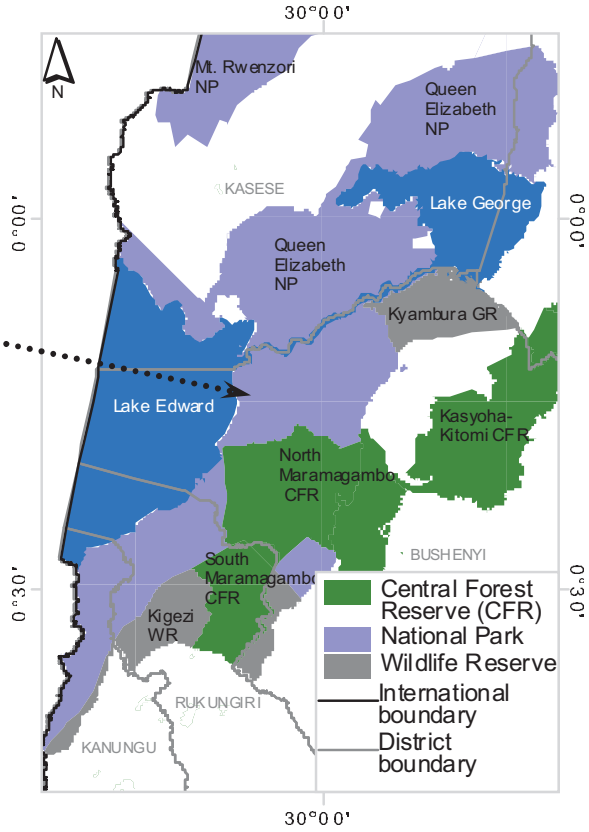
Contact information:

Uganda Wildlife Authority,
Plot 7 Kira Rd, Kamwokya,
P.O. Box 3530, KAMPALA.
E-mail: uwa@uwa.or.ug

Ecological characteristics:

QEBR is a diverse reserve with a wide range of ecosystems ranging from tropical high forest in the south east through woodland, wooded grassland to open grassland, wetlands and lakes (both fresh water and saline). Past volcanic activity is evident from the numerous craters in the area. Due to the variety of habitats, the Biosphere Reserve has a high animal diversity. For example, with 612 bird species, Queen Elizabeth ranks sixth globally, among protected areas, in terms of bird species richness. In the 1960s and early 70s, QE, had one of the highest large mammal biomasses in the world, mainly attributable to elephant, hippo and buffalo. This was reduced during the turbulent 1970s and 80s but populations are now recovering. The big decline in elephant numbers led to extensive woodland regeneration at the expense of open grassland. The Biosphere reserve is contiguous with the Democratic Republic of Congo's Park National des Virunga. Queen Elizabeth is famed for its "tree-climbing" lions in the Ishasha sector, south of the reserve as well as its high population of Uganda Kob, an antelope which displays "lekking" behaviour during the breeding season.





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Uganda
Mount Elgon

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Declaration date: 2005
Surface area: 208.821 ha
Administrative division: Mount Elgon Conservation Area

Human activities:

- Resource harvesting (Vegetables, medicinal plants, cultural sites, water, fodder etc)
- Tourism activities
- Restoration of degraded areas
- Research and Education
- Poaching, grazing
- Plantation management.

Contact information:

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Mob: +256-77-2-518342

Ecological characteristics:

- Trans-boundary Natural Water catchments area.
- Largest Caldera in the world with hot spring at over 4000m a.s.l.
- Habitat for over 300 bird species endemic to East Africa.

Protection classifications:

At the national level:
National Park status
Gazetted forest reserve in 1938 and its status lifted to National park to maintain its ecological values in 1993.

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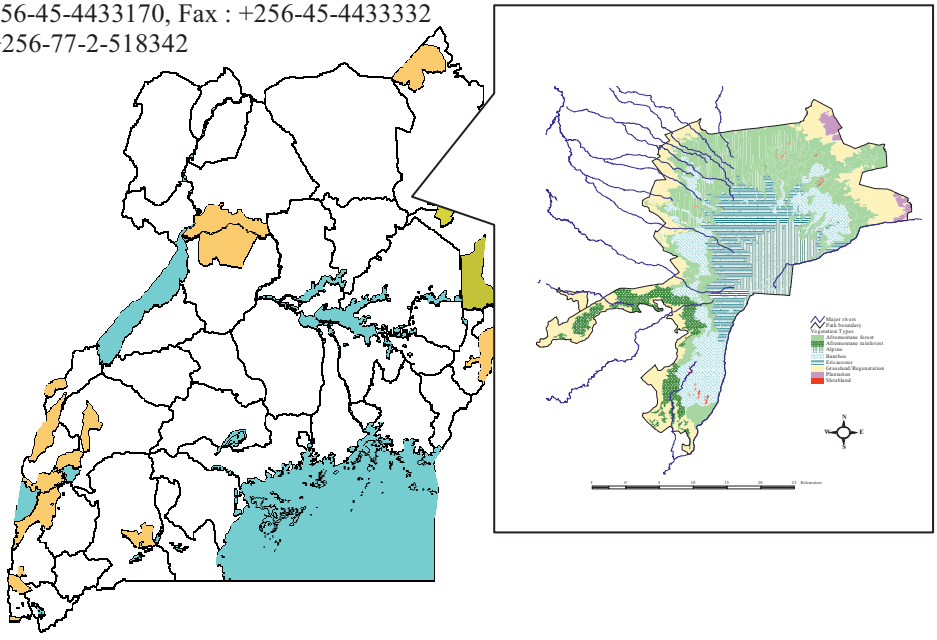

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United Republic of Tanzania

Lake Manyara

Declaration date: 1981
Surface area: 2.833.000 ha
Administrative division: in Arusha and Manyara Regions

Human activities:

The human population in the biosphere reserve is estimated to over 250,000 people (1999). With most indigenous people practising pastoralism and agriculture, these are the most important socio-economic activities in the area. Ethnic groups of the Lake Manyara region are the Maasai, the Iraq and the Barbaig. Most of the immigrants in the region depend on tourism. Poaching of wildlife for meat and trophies, illegal fishing, selling of firewood and charcoal constitute threats to the biodiversity in the biosphere reserve. The biosphere reserve was part of the UNESCO-MAB project 'Biosphere Reserves for Biodiversity Conservation and Sustainable Development in Anglophone Africa (BRAAF)' which had the objective to ensure the long-term conservation of biodiversity in including local population in its sustainable use. Several BRAAF projects aimed to promote income-generating activities such as bee keeping or to control the tick infestation in the livestock of the pastoralist communities.

Ecological characteristics:

This biosphere reserve is situated in the depression of the East African Rift Valley in the Lake Manyara Basin in northern Tanzania. Below the rift wall, perennial springs in the north support a ground water forest (characterized by Trichilia roka and Croton macrostachyus or the yellow fever tree (Acacia xanthophloea) but also riverine habitats, swamps, woodland and alkaline grasslands characterize the area.

Contact information:

Lake Manyara National Park
P.O. Box 12
Mto wa Mbu - Arusha
United Republic of Tanzania
manyarapark@tanapa.org

United Republic of Tanzania

Serengeti-Ngorongoro

Declaration date: 1981
Surface area: 2.305.100 ha
Administrative division: Tanzania National Parks Authority (TANAPA) and Ngorongoro Conservation Area (NCA) Authority

Human activities:

Ngorongoro Conservation Area has been used by man for hunting and pastures for a long time. Maasai still use parts of the region for livestock raising, leading to the overgrazing in some areas. Poaching is a serious problem in the biosphere reserve, while anti-poaching activities are hampered by lack of fuel and equipment. Serengeti has been a centre for research over the last decades.

Ecological characteristics:

This biosphere reserve covers 1,476,300 hectares of the Serengeti National Park and 828,800 hectares of the Ngorongoro Conservation Area in the north of Tanzania. The plains of the Serengeti are mostly formed by crystalline rocks overlaid by volcanic ash with numerous rock outcrops (kopjes). The open plain raises up to the crater highlands comprising the volcanic massifs with up to 3,587 meters above sea level. The Ngorongoro crater is a giant caldera some 16-19 km in diameter with the floor lying 400–600 meters below the rim. A variable climate and divers landforms have resulted in several distinct habitats. Serengeti's undulating plains are covered in grass but turn almost to desert during periods of severe drought. Some woodlands are found along the rivers. More elevated areas are covered by scrub, heath and remains of the montane forest, notably on the upper slopes within the Ngorongoro Conservation Area. The Serengeti and Ngorongoro regions are known for their vast herds of ungulates which migrate following the water supply. Most common are the Thomson's gazelle (Gazella thomsoni), wildebeest (Connochaetes taurinus), zebra (Equus burchelli), Grant's gazelle (Gazella granti) and buffalo (Syncerus caffer). The accompanying predators include lion (Panthera leo), leopard (Panthera pardus), cheetah (Acinonyx jubatus), jackal (Canis aureus, C. adustus) and wild dog (Lycaon pictus). There is a noteworthy black rhinoceros (Diceros bicornis) population. Ngorongoro is interesting from an archaeological perspective since many fossil remains, including those of early hominids, which makes it to one of the major areas in the world for research on the evolution of the human species. The area is therefore also inscribed on the UNESCO World Heritage List.

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Ngorongoro Conservation Area Authority
PO Box 1, Ngorongoro
United Republic of Tanzania
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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United Republic of Tanzania

East Usambara

© East Usambara BR

Declaration date: 9th Nov 2000
Surface area: 90.000 ha
Administrative division: Tanga Region extending from Muheza to Korogwe District

Human activities:

Peasant Agriculture
Large scale agricultural estates
Petty mining
Curving
Animal keeping
Some extent charcoal burning

© East Usambara BR

Protection classifications:

According to National classification of protected areas East Usambara Biosphere Reserve covers three classes
1. Productive forest Reserve (under Central Government)
2. Community based Forest Reserve
3. Private sector forest Reserve
4. Protective Catchment Forest Reserve (Under Central Government
5. Nature Reserve: (Under Central Government

Adresse de contact :

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Director of Forestry and Beekeeping Division
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Dar Es Salaam,
Tel.: 255222126844

Ecological characteristics:

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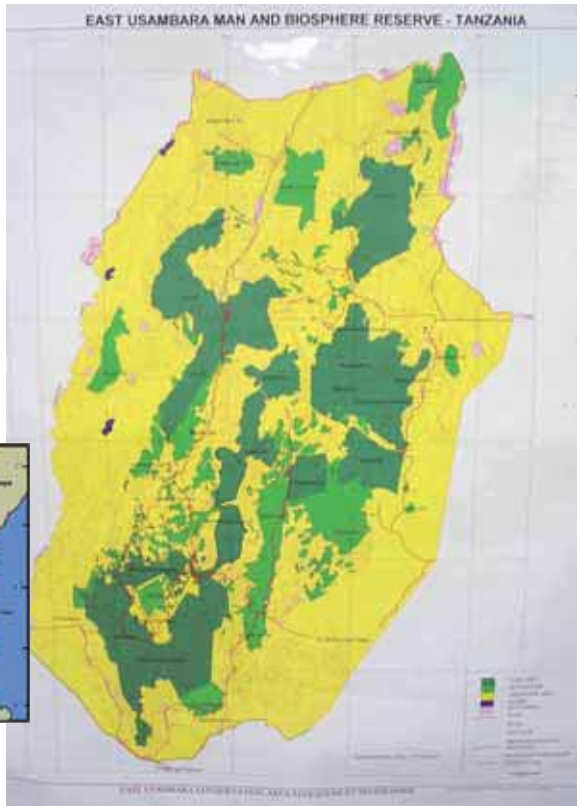
The Reserve is of evergreen Forest with luxuriant tall evergreen trees o submontane forests trees including Cephalosphaera usambarensis, Allnblackia stuhilmanii, Albizia gumifera, Beilschmedia Kweo, Scheflerodendron Usambarense, Englerodendron Usambarese, Ovariodendron usambarence and such other tall trees. The tree ferns and other luxuriant herbs dominate the wetlands.
The East Usambara Biosphere Reserve includes several blocks of forests some connected by corridors while others are in isolation as observed in the map. The East Usambara Biosphere reserve is of great ecological importance in terms ob biodiversity conservation, conservation of threatened, rare and endemic species both flora and fauna. It is homeland of many under story birds. On top of biological conservation value the area being close to the sea with drastic increase in elevation plays a great role in the hydrological cycle and precipitation.



Zimbabwe

Middle Zambezi

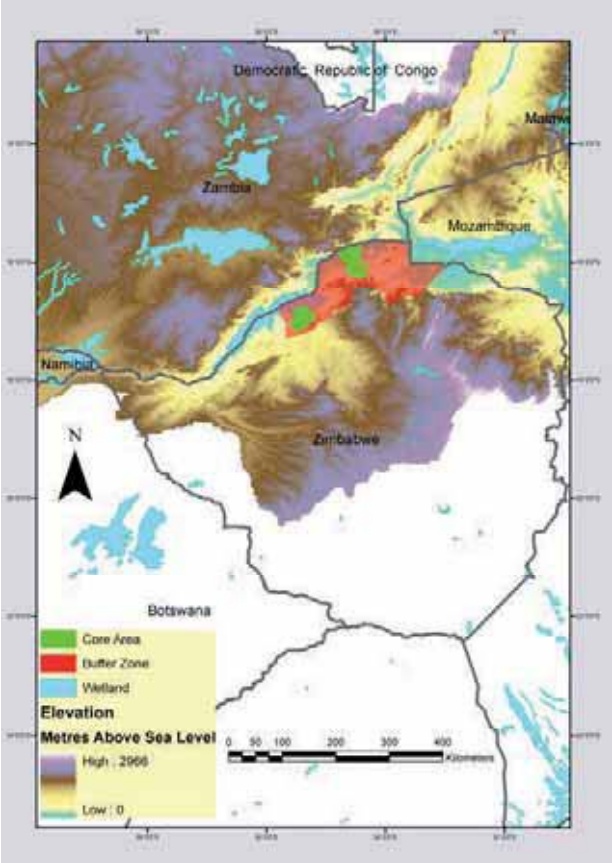
Declaration date: 2010
Surface area: 2.879.300 ha
Administrative division:
Parks and Wildlife Management Authority

Ecological characteristics:

The Zambezi valley is part of Region 54 of the African Terrestrial Ecoregions. It consists of Riverine, and terrestrial ecosystems unique to the subcontinent. Among threatened species found in the valley are the black Rhino (Diceros bicornis), the painted wild dog (Lycaon pictus) and the Nyala (Tragelaphus angasii). The flora consists of Colophospermum/Combretum/Terminalia woodland and the Zambezi riparian forest. At Mana Pools, it comprises the only flood plain ecosystem left in the Middle Zambezi.

Human activities:

The total human population is about 40600 habitants, with the major population in the urban area in the Biosphere Reserve and the CAMPFIRE buffer zones. The core zones have only Park staff people, while the safari areas contain at any time, less than 50 people, comprising mainly sport hunters and their hosts.
Land Management units comprise the two core areas and 11 buffer zone areas.



Contact information:

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Tel
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Web:

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Arab States

- Algeria
- Egypt
- Jordan
- Lebanon
- Morocco
- Qatar
- Sudan
- Syrian Arab Republic
- Tunisia
- United Arab Emirates
- Yemen

Country	Biosphere reserve	Year of creation	Pag.
ALGERIA	Tassili N'Ajjer	1986	69
	El Kala	1990	70
	Djurdjura	1997	71
	Chrea	2002	72
	Gouraya	2004	73
	Taza	2004	74
EGYPT	Omayed	1981 Extension 1998	75
	Wadi Allaqi	1993	76
JORDAN	Dana	1998	77
LEBANON	Shouf	2005	78
	Jabal Al Rihane	2007	79
	Jabal Moussa	2009	80
MOROCCO	Arganeraie	1998	81
	Oasis du sud marocain	2000	82
QATAR	Al Reem	2007	83
SUDAN	Dinder	1979	84
	Radom	1979	85
SYRIAN ARAB REPUBLIC	Lajat	2009	86
TUNISIA	Djebel Bou-Hedma	1977	87
	Djebel Chambi	1977	88
	Ichkeul	1977	89
	Iles Zembra et Zembretta	1977	90
UNITED ARAB EMIRATES	Marawah	2007	91
YEMEN	Socotra Archipelago	2003	92

Algeria
Tassili N'Ajjer

Declaration date: 1986
Surface area: 7.200.000 ha
Administrative division: Parc national de Tassili

Human activities:

The total population of the plateau was approximately 1,000 to 3,000 in 1986. The area is very sparsely inhabited by sedentary and nomadic Tuaregs who are living from stock rising and agriculture. Tourism has become an important source of income for the local population. However litter and the destruction of archaeological artefacts pose problems to the area.

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Algeria

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(213) 21 23 22 78
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(213) 21 23 28 62

Ecological characteristics:

This biosphere reserve is located in the south-eastern part of the Algerian Sahara close to the borders to Niger and Libya. The Tassili plateau (1,500 to 1,800 meters above sea level), forms part of the Ordovician and Devonian sandstone layer surrounding the Precambrian crystalline massif of the Hoggar. The plateau is hyper-arid, but there are subarid microclimates suitable for the survival of relict Mediterranean fauna and flora. The most notable tree species is the cypress 'tarout' *Cupressus dupreziana*, wild olive *Olea laperrini* and myrtle *Myrtus nivellei*. The site also hosts a rich inventory of fauna and archaeological, historical, cultural and geologic features - the reason for its designation as national park and world heritage site. Ancient cave paintings and rock engravings of large fauna such as hippopotamus and buffalo are of international importance.

Mountains supporting a relict flora with elements of Mediterranean, Sudano-Deccan and Saharo-Sindien species such as tarout cypress (*Cupressus dupreziana*), wild olive (Olea laperrini) and myrtle (*Myrtus nivellei*); wadis; permanent or temporary waterholes after rainfall ("gueltas"); river-bed habitats including *Trianthema pentandra, Silene kiliana, Lupinus pilosus* and *Convolvulus fatmensis*; humid valley including riverine species such as Typha spp., Juncus spp., *Phragmites* spp. and aquatic species such as *Chara* spp., *Myriophyllum* spp. and *Potamogeton* spp.; rocky and sandy habitats including *Mesembryanthemum gaussenii, Pseuderucaria clavata* and *Acacia scorpioides*; agroecosystems; pasture land.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Algeria
El Kala

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Declaration date : 17 December 1990
Surface area : 76.438 ha
Administrative division : Wilaya d'El Tarf

Human activities :

- Agriculture
- Extensive animal husbandry
- Apiculture
- Fishing and forest exploitation

© *El Kala BR*

Ecological characteristics :

© *El Kala BR*

- The largest National Park in the North of Algeria, covering 76384 ha.
- Last refuge of the Barbary Red Deer (*Cervus elaphus barbarus*).
- Very remarkable bird life, more than 60 000 migratory birds every winter.
- Lakes of international renown: lake Tonga, lake Oubaira, El Mellah Lagoon, listed by Ramsar as internationally important wetlands.
- A mosaic of marine, dune, lake and forest ecosystems.
- Marine strip rich in corals, *Posidonia* meadows and fish.

Fauna :

- Mammals : 29 species
- Birds : 195 species
- Reptiles : 17 species
- Amphibians : 07 species

Protection classification :

On a national level : National park established by decree n° 83-462 of 23 July 1983
Legal status: Public establishment of an administrative nature (EPA)

Contact information :

Bendjedid El Moncef
Directeur du Parc National d'El kala
Route des crêtes 36100/El Kala/El Tarf/Algeria
Tel./213 38660573
pnek2002@yahoo.fr

Algeria
Djurdjura

© *Djudjura BR*

Declaration date : 15 December 1997
Surface area : 18.550 ha
Administrative division : (Wilaya de Bouira and Tizi Ouzou)

Human activities :
Firstly :
- Subsistence agriculture
- Basic mountain silviculture
- Pasture

Secondly :
- Crafts
- Forest exploitation

Ecological characteristics :

The territory belongs to the Oro-Mediterranean bioclimatic layer; it represents the geo-climatic location par excellence for the Atlas cedar. It includes diversified and specific habitats related with the altitude (ecosystems above the tree-line) and substrata (Karst and sedimentary geology). Its flora includes some 1100 species and shows great similarity with the European Alps and its territory hosts one third of the national spontaneous flora. The number of rare and endemic species is very high and it is the only territory where species of *Pinus nigra mauritanica* and *Juniperus sabina* can be found. Its geomorphological landscapes, unique to Algeria are characterized by the abundance of escarpments, cliffs, caves, abysms, snow wells, etc. Its fauna is equally diversified, including the striped hyena, the Barbary Macaque, the European Barbastella bat, the griffon vulture, the bearded vulture, etc.

Protection classifications :

National park established by decree n° 83-460 of 23 July 1983. Legal status: Public establishment of an administrative nature (EPA)

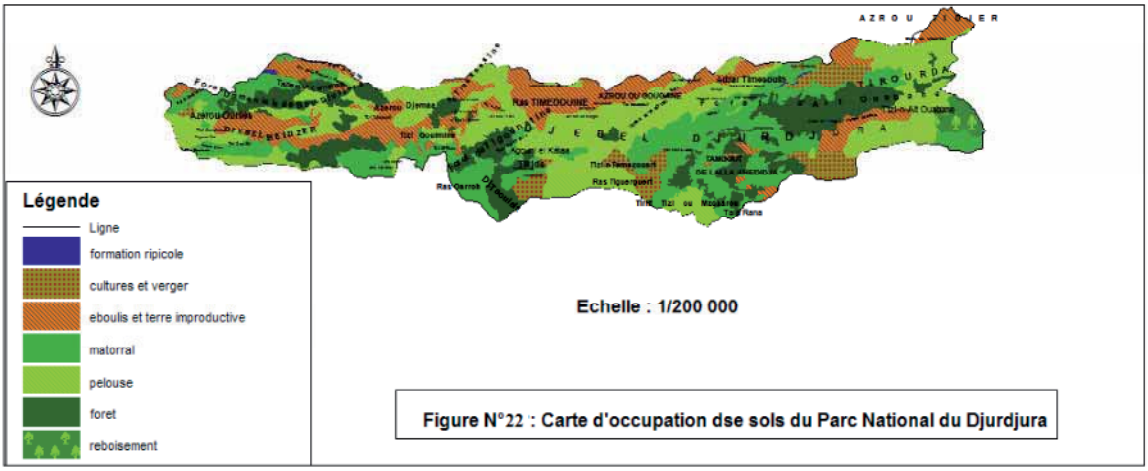

Figure N°22 : Carte d'occupation dse sols du Parc National du Djurdjura

© *Djudjura BR*

Contact information :

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Algeria
Chrea

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Declaration date : 16 December 2002
Surface area : 26.587 ha
Administrative division : Wilaya de Blida, Médéa, Ain Defla

Human activities :
Rural development: Mountain products reserve (berries, wild cherries, mushrooms, chestnuts, fruit…) supplying the center of the country.
Tourist activities
Sports : Ski, riding, traditional games, hiking.

Ecological characteristics :

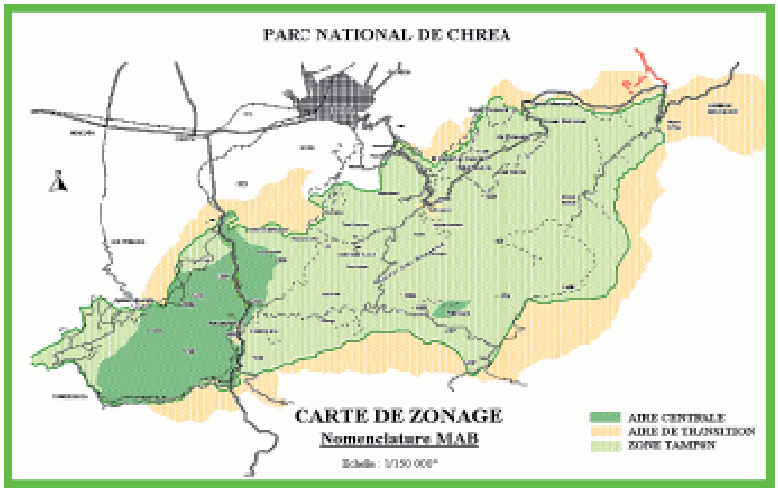
Mountain massif comprising central ridges of the Blidean Atlas. With the peak at an altitude of 1627 m at Koudiat Sidi Abdelkader, it overlooks the Algerian hinterland and its subsidence area.
Bioclimatic zones : humid warm, temperate humid fresh.
Flora: 794 species (722 autotrophic and 72 heterotrophic.
Fauna : 423 Arthropods, 25 Mammals, 08 Amphibians, 121 Birds, 09 Reptiles, 07 Myriapods, 02 Crustaceans, 11 Molluscs, 01 Annelid

Characteristics :

- It includes a mature cedar forest covering 1200 ha (*Cedrus atlantica*)
- Presence of yew and holly mixed with Atlas cedars, many hundred years old.
- Impressive gorges and cascades
- Presence of a rich and diversified wildlife, characterized by a large population of the Barbary Macaque, *Macaca sylvanus* .

Protection classification :

On a national level :
National park established by decree n° 83-461 of 23 July 1983. Legal status: Public establishment of an administrative nature (EPA)



© *Chrea BR*

Contact information :

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Blida Algeria
Tel. : (213) 025416363 – (213) 025416461
http: www.parcnationalchrea.dz

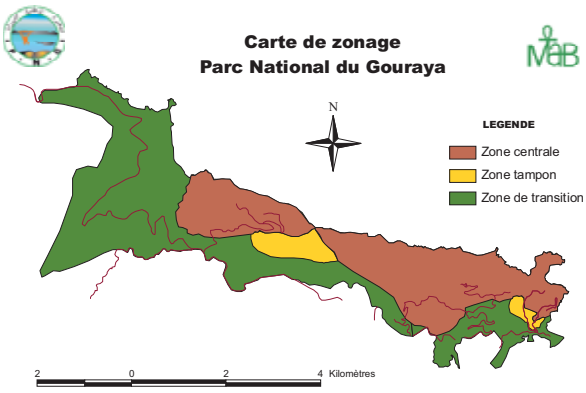
Algeria
Gouraya

© Gouraya BR

Declaration date : December 2004
Surface area : 2.080 ha
Administrative division : Wilaya de Bejaia

Human activities :

Subsistence agriculture: silviculture, market gardening, apiculture, poultry and small animal raising, crafts, tourism and traditional fishing.



© Gouraya BR

Ecological characteristics :

© Gouraya BR

The smallest Algerian biosphere reserve as to surface area, it includes several types of biologically interesting habitats.
- Forest and shrub-land: breeding areas for mammals and forest birds. It includes the *Euphorbia dendroïdes* station and populations of the Barbary Macaque (*Macaca sylvanus*).
- Cliffs : occurrence of endemic and rare flora (*Bupleurum plantagineum, lithospermum rosmarinifolium, sedum multiceps,* etc.)
- Marine habitats : it hosts 5 mammals and 08 species of remarkable flora listed in the IUCN red book (*Posidonia oceanica, Lithophylum lichenoïdes,* etc.)
- Lake habitats: they include a wealth of bird populations (water fowl and passerines) and two new species of algae for the African Continent: *Cosmarium subtumidum and Lepocinclis turbiniformis.*
- Miscellaneous : private lands (reforestation, vegetable gardens, water courses)

Protection classifications :

On a national level :
National Park established by decree n° 84-328 of 3 November 1984
Legal status: Public establishment of an administrative nature (EPA)

Contact information :

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pgouraya@yahoo.fr , Web site: png-dz.net

Algeria
Taza

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Declaration date : 29 October 2004
Surface area : 3.807 ha
Administrative division : Wilaya de Jijel

Human activities :

Agriculture, Apiculture, poultry and small animal husbandry
Forest exploitation and fishing
Crafts
Gathering of aromatic and medicinal plants

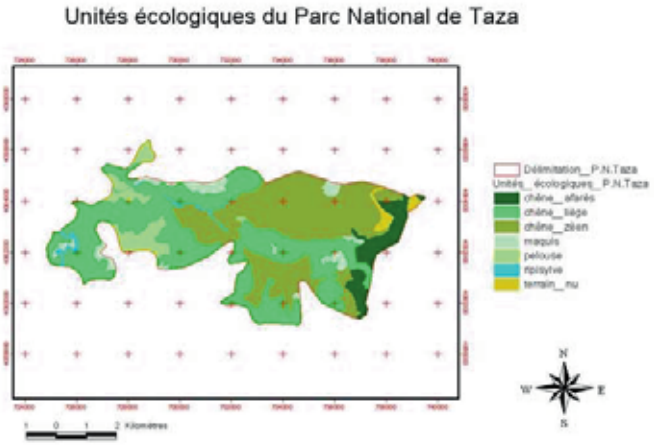
© *Taza BR*

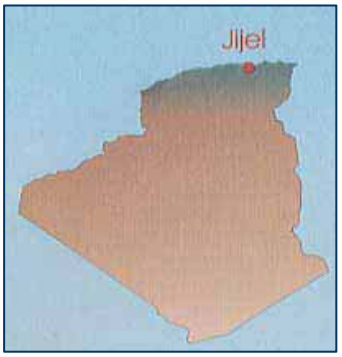
Ecological characteristics :

The National Park is characterized by a unique and specific diversity from the point of view of its biology, geology and landscape. It covers terrestrial mountain and marine ecosystems. The National Park is host to close on 1453 species of flora and fauna: 698 species of flora and 755 species of fauna, of which 77 are protected by law, such as the Barbary Macaque and the Algerian Nuthatch. The diversity of habitats and landscape is unlimited, with climax forests of oak (*Quercus faginea*, *Quercus afares* and *Quercus suber*), caves and a considerable Karst system together with remarkable sites along the Jijilienne cornice also known as the Sapphire Coast, leading us to a fantastic sub aquatic world.

Protection classifications :

On a national level: National Park established by decree n° 84-328 of 3 November 1984
Legal status: Public establishment of an administrative character (EPA)





Contact information :

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e-mail: dtaza.dz@caramail.com

Egypt
Omayed

Declaration date: 1981, extension 1998
Surface area: 75.800 ha
Administrative division: Egyptian Environment Affairs Agency (EEAA) Omayed Experimental Research Area

Human activities:

There are many different tribes in the area, which supports some 5,500 people (1997). Being a biosphere reserve, the area is expected to serve as a site for sustainable development of natural resources by rationalizing ecotourism, rangeland management, propagating multipurpose woody species, and promoting local industries. It also has an important function in long-term ecological monitoring.

Photo: Thomas Schaff

Ecological characteristics:

Omayed Biosphere Reserve is situated close to Alexandria and belongs to the biome of warm deserts and semi-deserts of the Western Mediterranean region. Low calcareous rocky ridges (ancient dunes) altering with depressions characterize the relief. Three major physiographic systems can be distinguished: coastal systems, ridges and depressions, and inland plateau systems. The Omayed Biosphere Reserve was extended to an area of 70,000 hectares in 1998. The Egyptian authorities wanted to change the objectives of the site from being just an 'experimental research area' to encompass all the main objectives of a biosphere reserve and in particular to represent the landscapes, ecosystems, species and genetic variation of the region.

Coastal calcareous dunes consisting of Ammophila arenaria, Euphorbia paralias, Pancratium maritimum etc.; inland ridges with skeletal shallow soils characterized by either Thymellaea spp. and Gymnocarpus decandrum communities or by associations of Plantago albicans and Asphodelus microcarpa; saline marshy depressions dominated by Salicornia fruticosa, Cressa cretica, Atriplex halimus etc.; non-saline depressions and inland plateau including species such as Artemisia monosperma and Hammada elegans associations (calcareous soils), Anabasis articulata and Hammada scorpia (shallow degraded soils) and Suaeda pruinosa and Salsola tetrandra communities (saline soils); pasture land, fig plantations; agroecosystems.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Egypt
Wadi Allaqi

Declaration date: 1993
Surface area: 2.380.000 ha
Administrative division: Egyptian Environmental Affairs Agency (EEAA)

Human activities:

Much of the formal management strategy in the transition zone is concerned with the promotion of pastoral land use, based on traditional, or indigenous, knowledge; the development of 'farms' of economically important plants, as an alternative to the exploitation of wild stocks; and the support of small-scale cultivation as a realistic and sustainable alternative to large-scale farms on the lake shores. The excavation of mineral resources has been directed to areas where mines cannot damage the environment or the landscape of the wadi. Ecotourism is another activity that is being explored as a realistic economic possibility in this zone.

Protection classifications:

Wadi Allaqi area received formal protected area status in 1989 by Egyptian Law and was designated as a Biosphere Reserve in 1993 within the UNESCO Man and Biosphere Program (MAB).

Ecological characteristics:

Wadi Allaqi itself is the largest wadi of the southern part of the Eastern Desert of Egypt, originating in the Red Sea Hills, some 200km to the south-east of where it meets the Nile valley. The Biosphere Reserve include all Wadi Allaqi basin in Egyptian side with total land size of 23100.00 km². Wadi Allaqi as a system spans four distinct ecological formations: the first is the Elba mountain group at the southern, upstream end, seen by some to be a 'coastal mist oasis' that receives orographic precipitation and provides habitats for a rich biodiversity; the second is the main reach of the wadi, extending over part of the 'rainless desert' of Nubia, where only occasional rain (or run-off flow) supports the biotic components of the ecosystem; the third is the ecotone habitat at the deltaic part of Wadi Allaqi where periodic inundation by the lake causes dense plant growth, including tamarisk bushes and herbs; and the fourth comprises that part of Lake Nasser which extends into the downstream part of Wadi Allaqi. Within the Biosphere Reserve, the Wadi Allaqi system still provides a livelihood habitat for its nomadic inhabitants. The pattern elsewhere in Egypt has been one of decline, as result of government policies of land ownership and sedentarization of nomads.

Contact information:

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Wadi Allaqi Research Project
The University of Faculty of Science
Aswan
Egypt

Jordan
Dana

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Declaration date: 1998
Surface area: 30.800 ha
Administrative division: Royal Society for the Conservation of Nature (RSCN) General Cooperation for Environmental Protection Ministry of Agriculture

Human activities:

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Dana Biosphere Reserve is about 300 square km spreads within Tafilah governorate, the population of villages & populated areas around the reserve is about 33.4 thousand people. During the last five decades, these villages especially the eastern & northern parts around reserve witnessed substantial development that contributed to the change of lifestyle of the locals from the nomadic, traditional farming and grazing lifestyle into a more settled style living in cement houses with electricity, water and infra structure that helped villagers reach schools and health services more easily. The locals around the reserve are originally from deferent clans and tribes; People in upper eastern & northern areas work on farming and depend mainly on jobs in the government and Cement, Phosphate factories, and Dana Reserve, in addition to livestock grazing. While Bedouins on western lower areas still depend on livestock grazing beside some jobs in Feynan ecolodge/Dana BR and farming activities.

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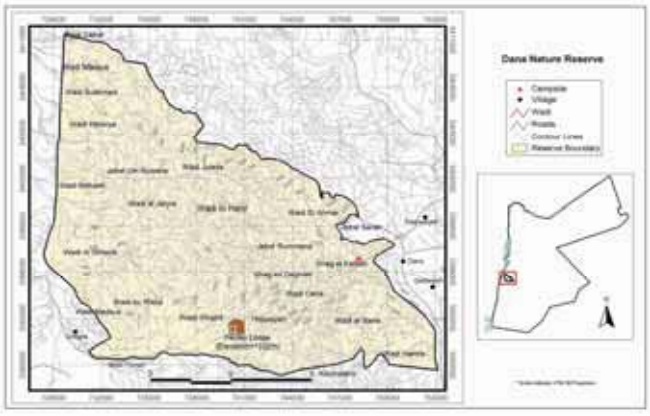
Ecological characteristics:

© *Dana BR*

Dana Biosphere Reserve (BR) was established in 1993 with a relatively large area of 300 square km. It holds a relatively large representation of biodiversity. This biodiversity includes 833 species of plants which represent one-third of the country's plant species. Out of this number, three species were considered new to science. A total of 215 species of birds were recorded in Dana BR which represent 50% of all the bird species in Jordan, and 38 species of mammals which also represent about 50% of the mammal species in the country. Moreover, Dana BR contains seven vegetation types of the thirteen vegetation types occurring in Jordan. These vegetation types support the existence of many plants, birds, and mammal species. Dana BR is characterized by four main biogeographical zones. These zones are: the Mediterranean bio-geographical zone, the Irano-Turanian biogeographical zone, the Sudanian biogeographical zone and the Suharo Arabian biogeographical zone. These zones extend in altitude from 100 meter below sea level up to 1,500 meter above sea level. A system of wadis and mountains mark the site, which extend from the top of the Rift Valley mountains down to the desert lowlands of Wadi Araba. It is truly a world of natural treasure.



Lebanon
Shouf

© *Shouf BR*

Declaration date: 2005
Surface area: 29.540 ha
Administrative division: Chouf Region - Lebanon

Human activities:

© *Shouf BR*

- 70,000 people living around the SBR, whose territory is shared by 24 different municipalities belonging to 3 different Districts.
- Rural Development: 70 different products made by members of the local community (mainly women) using traditional methods. Recipes are available on sale in the visitors centres managed by the Reserve.
- Ecotourism Management: Interpreter/guiding, visitor safety, eco-tourism activities, guest houses
- Environmental education

Protection classifications:

At national level, the area was declared as a nature Reserve in 1996
The Al-Shouf Cedar Nature Reserve is core zone of Shouf Biosphere Reserve

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Al-Shouf Cedar Nature Reserve
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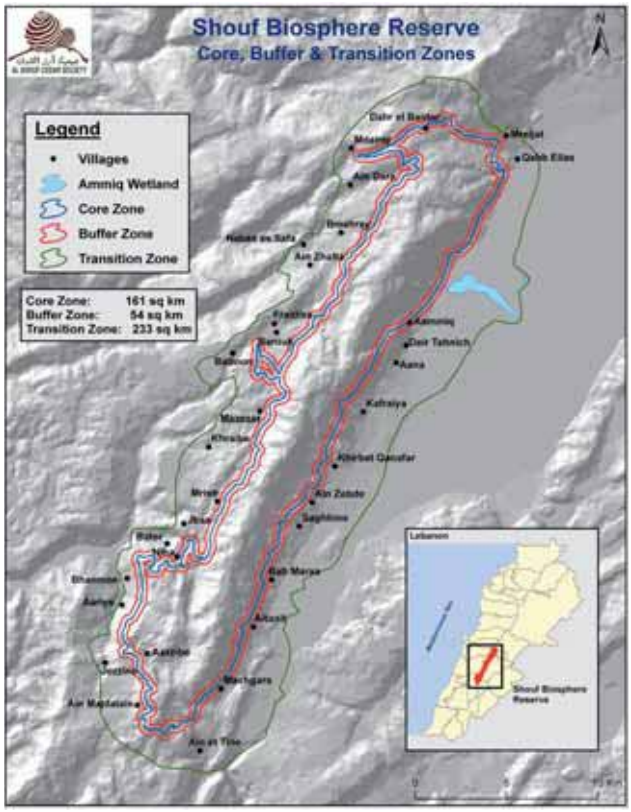
محمية أرز الشوف الطبيعية
Al-Shouf Cedar Nature Reserve

Ecological characteristics:

© *Shouf BR*

- Some of the highest mountains in the Middle East, providing a full wealth of ecosystem services including wild genes pool, freshwater storage, climate mitigation, hydro-geologic balance, and aesthetic/leisure value.
- The largest stands of Lebanese Cedars, one of the World's great tree icons.
- Rich flora and plenty of medicinal plants with high potential economic value.
- Interesting wildlife with a good potential for restoration through the reintroduction of charismatic species such as Ibex, Gazelle, Vultures etc
- A crossroads for bird migration, strategically located on the routes between Europe, Africa, and West Asia.
- 50,000 hectares of surface, which make SBR on of the largest protected areas in the Middle East and the East Mediterranean
- 620 hectares of Cedar forest - the largest expanse of this species in Lebanon and 25% of the remaining cedar forests in the country.
- 520 species of plants, 25 internationally and nationally threatened species, and 48 plants endemic to Lebanon Over 250 bird species recorded in the Biosphere Reserve, many of which are recorded from the Ammiq wetland.



Lebanon

Jabal Al Rihane

© *Jabal Al Rihane BR*

Declaration date: 2007
Surface area: 18.430 ha
Administrative division: Ministry of Environment

Human activities:

Generally, Jabal Al Rihane is a low populated (c.23476 individuals) biosphere reserve. In winter, this number drops down to about 12000 as the professional men and women, move to Beirut and its suburbs where jobs, better schools, and warmer weather are available.

© *Jabal Al Rihane BR*

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Web site: www.moe.gov.lb/ProtectedAreas/

Ecological characteristics:

© *Jabal Al Rihane BR*

The Jabal Al Rihane Biosphere Reserve (Latitude 33º 27' 01.17" N; Longitude 35º 33' 47.17"E) covers an area of 18430 ha. at an altitude ranging between 270 meters in the south, where the Litani River constitutes a natural boundary, and 1500 meters to the north, at Mzairaa south to the Jezzine and Niha villages; and extends along the ridge of the southern Mount Lebanon Chain overlooking both the Beqaa Valley (Rift Valley) to the east and the Mediterranean sea to the west. The Jabal Al Rihane Biosphere Reserve is a true mosaic of ecological systems broadly representing the "evergreen sclerophylic broussailles and forests" biogeographic region within a Mediterranean biome. A dominant feature of this biosphere reserve is the existence of many mountain peaks such as Jabal Safi, Jabal Sujud, Jabal Bir Kallab, and Jabal Bourqab that culminate at 1300, 1200, 1360 and 1300 meters respectively. This mountainous relief gives rise to a number of eco-zones. From a more aesthetic point of view, such a landscape, dominated by peaks and basins, offers wonderful limitless views. Stands of old oak trees (more than 500 years old) are recognized as outstanding scenic landscapes.

Lebanon

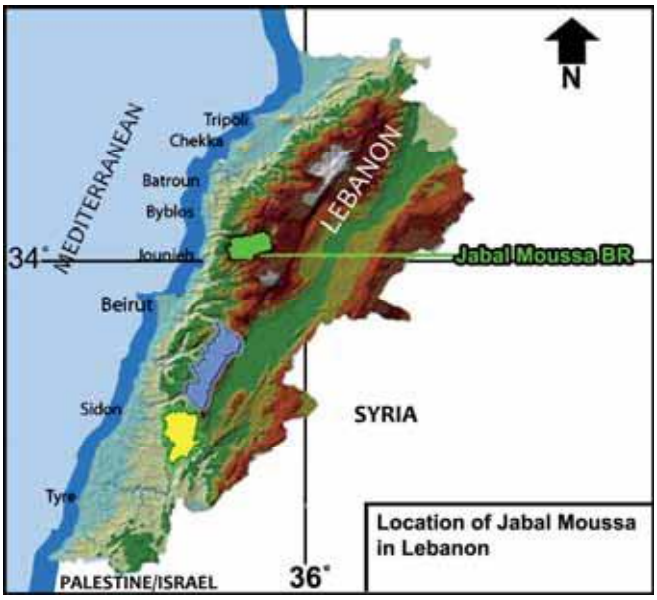
Jabal Moussa

© *Jabal Moussa BR*

Declaration date: 2009
Surface area: 6.500 ha
Administrative division: Kesrouan Region

Human activities:

The transition zone comprises about 54.5 % of the Jabal Moussa Biosphere Reserve, with the predominant land use being forest management, charcoal production, traditional agricultural activities, fruit trees plantation, grazing, quarrying and seasonal recreation. Within the low populated (c.8279 individuals) Jabal Moussa biosphere reserve., the local communities derive direct income from the sale of home made products. The local communities also derive direct incomes from rental of rooms or houses for visitors' overnight accommodation, cooking to supply healthy local food to participants of workshops that are conducted within villages, guiding tourists to visit the reserve, including the natural and historical monuments, and selling items frequently sought by tourists.



Ecological characteristics:

The Jabal Moussa Biosphere Reserve which overlooks the Mediterranean sea to the west is a true mosaic of ecological systems broadly representing the "evergreen sclerophylic broussailles and forests" biogeographic region within a Mediterranean biome. A dominant feature of this biosphere reserve is its pristine world of steep, verdant mountainsides rising from a river lined with cool, aromatic sycamore trees to reach summits of statue-like karstic rocks. The mountainous relief gives rise to a number of eco-zones, thus promoting diversity harbouring many species. The numerous valleys of Jabal Moussa generally run in a direction EN-WS. From a more aesthetic point of view, the various landscapes dominated by peaks and basins, offer wonderful limitless views that are not influenced by the geographical position alone but also by the variety of altitudes and the exposition of slopes in several directions. In the core area alone, it was possible to identify 14 phyto-ecologic groups and two agricultural types. In addition, Jabal Moussa is unique because it has not yet been touched by the uncontrolled urbanism, dissemination of roads, and quarries that have devastated other similar mountains.

© *Jabal Moussa BR*

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Morocco

Arganeraie

© *Arganeraie BR*

Declaration date : 1998
Surface area : 2.568.780 ha
Administrative division : Provinces of Tiznit, Agadir, Taroudant and Essaouira

Human activities :

- Animal husbandry with periods of transhumance, particularly for the herds of camels.
- Traditional agriculture combined with a vast highly capitalist modern sector in the plains.
- Processing of Argan berries, mainly for oils for multiple uses, particularly cooking, cosmetic and medicinal uses.
- Other income-generating activities :
  - Gathering of medicinal and aromatic plants,
  - Bee-keeping,
  - Small-scale trade,
  - Traditional and well-reputed jewel-making,
  - Considerable and varied tourism, including eco-tourism.

Protection classification :

National classification : 110 000 ha, of which 33 800 ha are comprehensively and effectively protected in the National Souss-Massa Park, and a further projected 76 200 ha.

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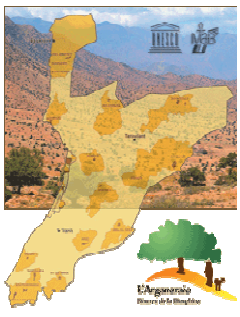

Ecological characteristics:

© *Arganeraie BR*

- The soils are mainly superficial and scantly evolved. The best soils are inherited calci-magnesic or ferrallitic soils.
- The climate is Mediterranean, semiarid to arid, known here as subtropical. The mean annual temperatures on the coast are about 18°C. The annual rainfall is 300 mm per year. The dry season lasts from 7 to 8 months.
- The region is of exceptional biotic interest. It is a Macaronesian crossroads for species from very diverse origins: tropical, Saharo-Sindian, Holarctic, Mediterranean or autochthonous.
- The Argan tree, as an absolute universal endemic species, effectively occurs here in an area that still covers nearly 800,000 ha. It can be recognized because of its floristic composition, based on euphorbia and it develops from sea level up to an altitude of almost 1500 m. Further up it is replaced by the Thuya and the Holm oak. Other species also of first class interest are the Carob tree and the Atlas cypress, also purely endemic and, very locally, the Dragon tree (*Dracaena draco*).

Morocco

Oasis du sud marocain

© Oasis du sud marocain BR

Declaration date : 10 November 2000
Surface area: 7.200.000 ha
Administrative division : Errachidia, Ouarzazate and Zagora Provinces

Human activities:

- Stratified oasis management around olive trees on relatively fresh higher altitudes and around date palms lower down, facing the Sahara. Another layer comprises varied Mediterranean fruits, above field crops. Essentially, the varieties of cereals, forage and fruit are specific to the region.

© Oasis du sud marocain BR

- Very intensive nursery agriculture around the oasis, with traditional species ranging from okra, cumin, to roses, henna or saffron.
- Extensive animal husbandry on the steppes, with a very prolific race of local cattle, the Demmane. Bee-keeping is taking place with the yellow Saharan bee…
- Varied tourism relies on the complementarities of the mountain and the Sahara, the landscape and the specific forms of local customs, crafts and festivities.

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benziane.m@gmail.com

Ecological characteristics :

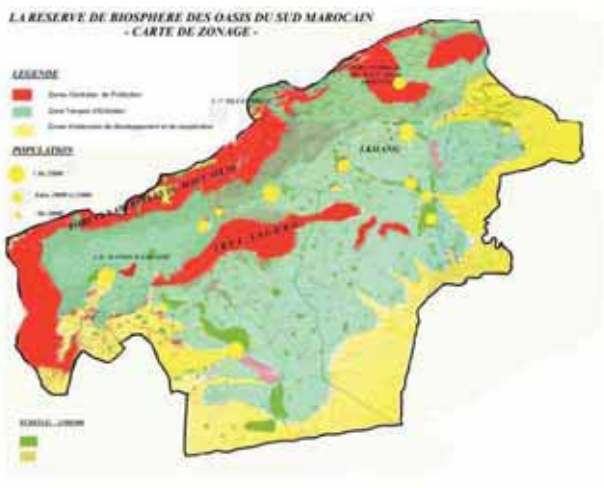
- This is a powerful link to the universal pre-Sahara, providing excellent protection to the Mediterranean zone from the aggressions of the Sahara.
- It is essentially a vast oasis space of extraordinary vitality, supported by the hydraulic surge of the southern slopes of the High Central Atlas, rising to over 4000 m above sea level. The great Atlas massif, majestically Karst and regularly covered in snow, has sunk the wedis as far as 200 km into de African Sahara.

© Oasis du sud marocain BR

- Its natural advantages, set off by a millenary "savoir faire," a life-size school of sustainability, have developed a true Arid Civilization.
- The biotic habitats, most certainly with difficulties, have managed to impose from Spanish Juniper, Cedar trees, Oak and Phoenician Juniper to the immense hyper-arid tracts, dominated by Acacias and Tamarisks.
- Although it hosts a great biodiversity of date palms (223 varieties and a million hybrids), they are decimated by disease and predators.
- The decrease in palm groves, due to the combined effects of drought and the needs of modern life, is a cause for concern.

Protection classification:

National classification: close on 900 000 ha are required for the RBOSM, however only 35 000 ha, have been effectively protected and integrated to the RBOSM from the 50 000 ha of the High Eastern Atlas National Park.



Qatar
Al Reem

Declaration date: 2007
Surface area: 118.888 ha
Administrative division: Supreme Council for the Environment and Natural Reserves

Human activities:

Major contemporary activities by local inhabitants of the Reserve include farming, tending herds of camels and flocks of sheep and goats (being one of the main components of economic development in the country, the agricultural sector in the Qatar is getting a lot of attention from the government, which has been working hard to remove natural obstacles that impede horizontal extension of agriculture by supporting farmers and encouraging national investments in the agricultural sector), artisanal fishing, small-scale trade and commerce, and working in the petroleum industry (since the 1950's oil has rapidly transformed Qatar into a developing country). Several small coastal villages are home to the fishing communities, while the majority of the pastoral/farming communities are located in the northeast of the Reserve. The petroleum industry is based in Dukhan, at the extreme southwest, and up parts of the Zekreet peninsula and all of the Al Ghariyah peninsula.

Communities residing within the Reserve have managed to preserve many of the cultural and religious traditions of the past, while experimenting with modern technology to further their agricultural and pastoral traditions. Large rotary boom water feeders and modern pumping systems bring fossil groundwater to irrigate alfalfa and other fodder materials, while modern veterinary centers promote health and survivorship of traditional camel and goat herds. Breeding centers are reintroducing native fauna such as the Oryx and Gazelles, alongside modern oil and gas pumping stations.

Ecological characteristics:

The Reserve constitutes one single land management unit, the Al Reem Biosphere Reserve. The landscape in the Reserve is generally flat to wavy with some prominent hills and the stark-relief mesas of the Zekreet peninsula. Land elevation ranges between 0m to 60m above sea level. Saline swampy mud flats are common along the coastal areas, while rocky elevations and gravel plains are mostly found in the inland parts of the reserve. Notable features include elevated limestone formations (the Dukhan anticline) along the west coast under which lies the Dukhan oil field. The Reserve has no rivers, and other than occasional rainfall, the primary source of fresh water is fossil ground water. Surface water is very limited and may be seen in depressions and wadis for a short time only after a good winter rainfall. At present the Reserve is home to a breeding center for native Gazelles and Oryx, and has pioneered reintroduction programmes in the Country. The Reserve offers unparalleled research opportunities for sustainable development and use of arid lands. Potential investigations include the use of saline water for irrigation of halophytes as animals' fodder, zonation for sustainable grazing, camel farming and culturally sensitive tourism, among others.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Sudan
Dinder

© Dinder BR

Declaration date: 1979
Surface area: 890 ha
Administrative division: Federal level

Human activities:

The human activities involved inside the reserve illegally are: livestock grazing by nomadic groups, hunting & poaching, honey collection, fishing & trees felling beside that there is people of mango living inside the reserve but they practices activities do not affect the environment, because their customs and rituals are very rich with myth related to wild animals.

Protection classifications:

In the Sudan protected areas are categorized into three levels :
1. National Parks (completely protected)
2. Game Reserves
3. Bird Sanctuaries
Dinder is a National Park

© Dinder BR

Contact information:

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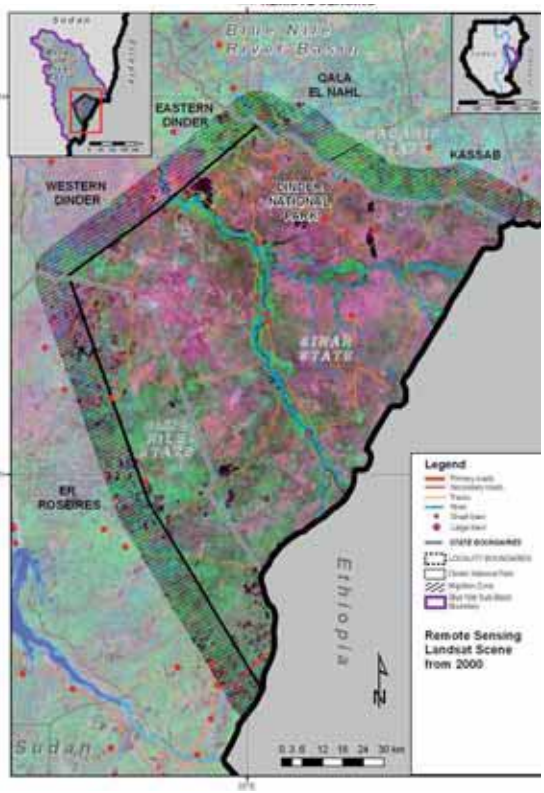
E-mail : oipr@aviso.ci

Ecological characteristics:

- Climate: The climate of Dinder Biosphere Reserve is characterized by tow seasons: the hot and humid rainy season (May-November) and cool and dry season (December-March). The mean annual rains is (600-800mm). The minimum temperature approximately is 20C & the maximum is 40C. The average Humidity approximately is 40-60%
- Soils: There are two types of soils in DBR the vertisols which are more extensive in the reserve, are dark, heavy clays soils .They crak deeply during the early dry season . the second is the entisols that dominate the eastern limits of the reserve towards the Ethiopian plateau and along the riverbanks
- Water Resources: The Rahad and Dinder rivers are the largest tributaries of the Blue Nile. River Rahad flows through the northern boundary of DBR ,while the Dinder River flows through the centre of the Reserve. The "Mayas" are wetland meadows found along the flood plains of the rivers.
- Habitat ecosystems: In DBR there ecosystems classified to three which are:-The Acacia seyal- Balanites Ecosystem is a woodland or wooded grassland .The Riverine Ecosystem with multilayered forest vegetations. The Mayas Ecosystem , the most striking feature of DBR is the presence of Mayas which serve as a good habitat for water fowl when become completely full with floodwater, there are about 40Mayas in the DBR.



Sudan
Radom

Declaration date: 1979
Surface area: 1.250.000 ha
Administrative division: Radom

Human activities:

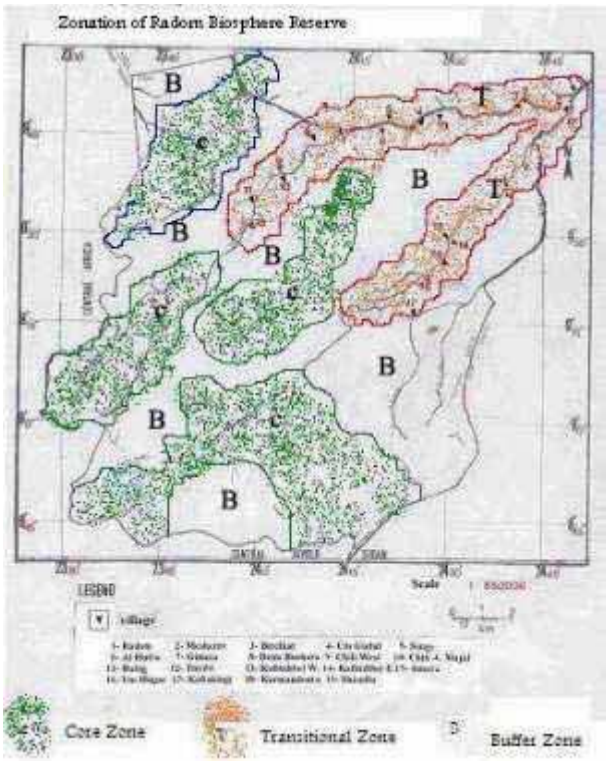
- Cultivation
- Redidents
- Fishing
- Livestock

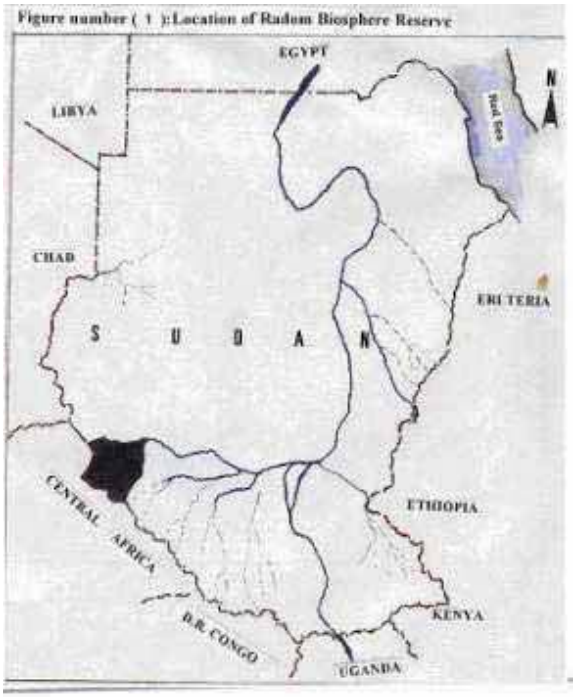
Protection classifications:

Biosphere Reserve

Ecological characteristics:

Radom Biosphere Reserve is located within the woodland Savannah region, in the south-western corner of Darfur adjacent to the border with the Republic of Central Africa known as Congo watershed system. The annual rainfall ranges between 1700-900 mm while the mean relative humidity ranges between 57% to 65%, the average annual temperature is between 16-27°C. The drainage system of the park composes of many seasonal rivers and valleys such as Adda, UmBlasha rivers, Diofo and Khadra valleys, in addition to other small strams and pools which replenishing the wildlife species in the dry season. The Park has also great varieties fauna, flora and avifauna.





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Syrian Arab Republic
Lajat

Declaration date: 2009
Surface area: 12.038 ha
Administrative division:
General Commission for Environmental Affairs Ministry of Local Administration and Environment

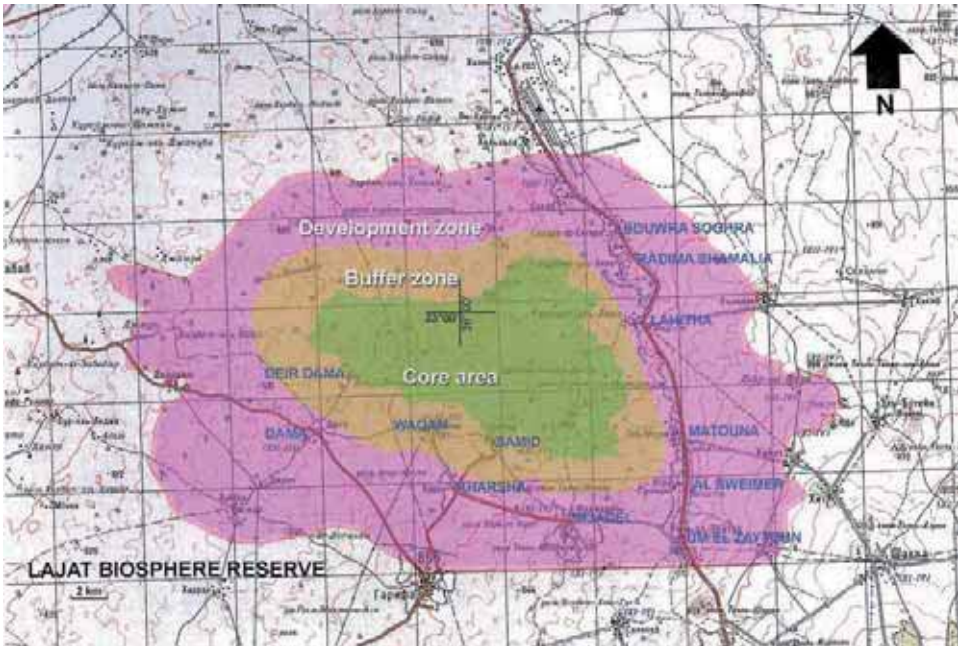
Human activities:

Most of the Lajat cultivated lands of the transition zone are growing mainly Koranic plant species such as barely, date palm, fig, garlic, grape, olive, onion, pomegranate and wheat, etc. (the Zaqqoom [the tree of hell] that grows in the desert of the port of Sudan, the ginger that was apparently imported from India, the Talh (banana) that requires less harsh conditions, and the thornless sidr (Lote) trees under which righteous will recline in the Paradise, are not included). In addition, the wild relatives of these koranic species are all provided in one place, the Lajat Plateau. Within this context, the Lajat can be considered a site of assistance to the Koranic botanical garden project of the Al-Reem Biiosphere Reserve in Qatar serving as such the article 3 of the Statutory Framework.

The total number of people found to be living within the Lajat Biosphere Reserve is about 16445 individuals. Of them 0.6% are on seasonal basis in the core area and 3.6% are permanently and seasonally in the buffer zone.

Ecological characteristics:

The Lajat Biosphere Reserve is composed of volcanic plateau with gentle hills extending from south to north and has a wonderful natural exposure to the Northern and Western parts of Syria, of which one can see Mount Hermon to the North and the green plains of Huraan to the West. It is rather a plateau with interspersing volcanic cones of basalt and pumice, and volcanic springs. It is located in Sweida Province, 60 km south to Damascus, at an altitude ranging between 600 and 900 metres asl. The landscape in the reserve is generally mountainous with hills looking north and uneasy accessed stony plains with earthen pockets of fertile soil. Due to the porosity of the basalt, water penetrates the porous rocks, forming underground springs or subterranean water sheets close to the surface. In areas where the basalt is from old formation dating back to the Jurassic, the water traced shallow wadis or "sub-wadis".
The Lajat is located at an intersection of two biogeographic regions (Temperate prairies and Hot desert and semi-desertic zones), thus occupying a "biogeographic crossroads" which is considered of high conservation priority (Sacha Spector, 2002). The habitats found in the Lajat Biosphere Reserve are then those found in an ecotone ranging from woods to continental steppes, rangelands and desert-like semi-arid plains intercepted with shallow basaltic wadis. The flora of the Lajat consists of Mediterranean species in the form of either mono-biogeographical region or bi-regional with the Irano-turanian phytogeographical elements. The phytogeographical origins of the Lajhat Biosphere Reserve explain the designation of Lajat and its immediate surroundings as a Mediterranean island by Zohary (1966).



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Tunisia

Dejebel Bou-Hedma

Declaration date: 1977
Surface area: 19.988 ha
Administrative division: Ministère de l'Agriculture Direction générale des forêts

Human activities:

The area has a largely stable sedentary population with about 1,400 people (1999).

Ecological chararcteristics:

The Djebel Bou-Hedma Biosphere Reserve and National Park is situated 85 km east of Gafsa along the southern Tunisian mountain ranges that are extensions of the Saharan Atlas. It consists of a limestone and marl mountain range with some travertine deposits and a gypsum and salt alluvium plain. The vegetation of Bou-Hedma has the typical Mediterranean semi-arid elements of Tunisia such as plant communities of permanent and seasonal watercourses as well as steppe communities resulting from degraded juniper forests. However, it is famous for its relicts from pre-Saharan savanna (for instance Acacia raddiana forests). The fauna is characteristic of the Sahara and arid Mediterranean regions including elements which have been destroyed elsewhere in Tunisia. Endangered species comprise the addax antelope (Addax nasomaculatus), Struthio camelus australis and Gazella dama mhorr. The biosphere reserve faces mainly problems of desertification and excessive livestock grazing, partial land clearance and ploughing and resulting effects such as soil erosion. Research in the Bou-Hedma region is especially concerned with the restoration of the original woodland cover to combat desertification, particularly by reafforestation of Acacia raddiana. An eco-museum has been

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Tunisia
Djebel Chambi

Declaration date: 1977
Surface area: 43.723 ha
Administrative division: Ministère de l'Agriculture Direction générale des forêts

Human activities:

About 8,000 people live in the biosphere reserve (1999). They live from stock raising, extensive cereal agriculture, beekeeping and tree plantations. Especially in low elevated areas, habitats are threatened by overgrazing and fuel wood collection by locals. An eco-museum has been established for the environmental education of both tourists and locals.

Ecological characteristics:

Djebel Chambi, the tallest mountain in Tunisia (1,544 meters above sea level) and an extension of the Atlas Mountains, is situated in the centre of the country. The park is part of the Mont de Tebessa forest massif that stretches between Kasserine and the Algerian frontier. There are no permanent rivers or streams in the park. Main habitats include mountainous areas with holm oak, *Stipa* spp. and Cotoneaster nummularia, pine forests (*Pinus halepensis*) with holm oak, juniper and *Rosmarinus officinalis*, steppe communities with *Stipa tenacissima* and agroecosystems with cereals. The area is one of the last refuges for the gazelle *Gazella cuvieri*.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Tunisia

Ichkeul

Declaration date: 1977
Surface area: 14.100 ha
Administrative division: Ministère de l'Agriculture Direction générale des forêts

Human activities:

This part of Tunisia has been settled and influenced by man over millennia. About 350 people live within the biosphere reserve (1999), largely employed in the local quarry industry. Fishing activities as well as cattle, sheep and goats raising also occur within the biosphere reserve. The surrounding area is densely populated and hosts intensive agriculture of ploughed land, orchards and pasture. An eco-museum and visitor centre has been established to inform visitors about this sensible ecosystem.

Ecological characteristics:

Ichkeul Biosphere Reserve is situated approximately 25km south-west of Bizerte in the north of Tunisia. The area consists of an isolated and wooded massif (Djebel Ichkeul) and a brackish water lake (Ichkeul Lake). Ichkeul wetland is one of the most important sites in the entire Mediterranean region for wintering Palaearctic waterfowl, with records of up to 300,000-400,000 birds present at one time. The site has a typically semi-arid climate and is dominated by pan-Mediterranean plant species. Its has been also designated as Ramsar wetland and national park. The restricted water supply has already led to the drying out of the marshes, with Scirpus maritimus (the principal food plant of wintering Anser anser) being replaced by invasive annual weeds. The digging of drainage canals has led to lowered lake water levels permitting grazing livestock to degrade formerly inaccessible reedbeds, while rising salinity restricts the growth of Potamogeton pectinatus.

Lake partly covered by fennel-leaved pondweed (Potamogeton pectinatus); marshes dominated by bullrush (Scirpus maritimus), together with S. lacustris, Juncus subulatus and Zannichellia palustris; communities around the lake with reeds (Phragmites communis), glasswort (Salicornia arabica) and seablite (Suaeda sp.); well-drained ridges dominated by Hordeum maritimum with Lolium multiflorum and Daucus carota or Nerium oleander and Zizyphus lotus; olive (Olea europaea) groves with Pistacia lentiscus and Smilax aspera, Euphorbia dendroides and Juniperus phoenicea; rocks providing habitat for falcons and eagles; agroecosystems; pasture land.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Tunisia

Iles Zembra et Zembretta

Declaration date: 1977
Surface area: 791 ha
Administrative division: Ministère de l'Agriculture Direction générale des forêts

Human activities: People have changed Zembra Island over many centuries, resulting in a degraded maquis landscape. However, today the area is strictly protected and no resource use takes place since only ten people live within the biosphere reserve (1999).

Ecological characteristics: This biosphere reserve is situated in the Gulf of Tunis close to the Cap-Bon peninsula. Zembra Island is a mountainous island with a peak of 435 meters, consisting mostly of a Mediterranean maquis with Olea europea, Pistacia lentiscus, Arbutus unedo and Erica multiflora as dominating species. The Zembretta Island is located between the Zembra Island and the Cap-Bon. This island is a large rock formation, 400 meters long and 50 meters wide, and characterized by halophytic vegetation. The rabbit Oryctolagus cuniculus is present on both islands although it does not occur on the African continent. In the waters, Delphinus delphis can frequently be observed. The area is rich in waterfowls and marine invertebrate life.

Islands; shrub vegetation of pistachio (Pistacia lentiscus) and olive (Olea europaea); maquis consisting of pistachio, olive, Erica arborea and Calycotome villosa including rare species such as Iberis semperflorens, Dianthus hermaensis and Poterium spinosum; marine vegetation of red algae (Rhodophyceae), including Phyllophora nervosa and Chondrus crispus, brown algae (Phaeophycae), including Laminaria rodriguezii and Dictyota dichotoma, and green seaweeds including Udotea petiolata and Caulerpa prolifera.

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United Arab Emirates

Marawah

© *Marawah BR*

Declaration date: 2007
Surface area: 425.500 ha
Administrative division: Environment Agency - Abu Dhabi Emirate, UAE

Human activities:

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The local community in the area practices traditional fishing using controlled non-destructive fishing gear. Fishing is only allowed in designated areas of the MMBR and is limited to traditional fishing methods that include fixed net (locally called Hadhra), shore net (locally called Al Sakkar), and seine nets (locally called Daffara). All of these traditional fishing activities were evaluated and modified to ensure that they are environmentally friendly.

Protection classifications:

Marawah MBR applies the concepts of integrated planning for sustainable development. Local communities are benefiting through involvement in all of the planned projects. The 3 core areas of MMBR represent 11% of the total area and are restricted to scientific research and non-destructive sampling only. Residential activities on islands and the main land part of the coast make up to the buffer areas that represent 67% of the total area. The transition zones represent 22 % of the total area where traditional fishing, an oil loading terminal and recreational activities are permitted and monitored.

Ecological characteristics:

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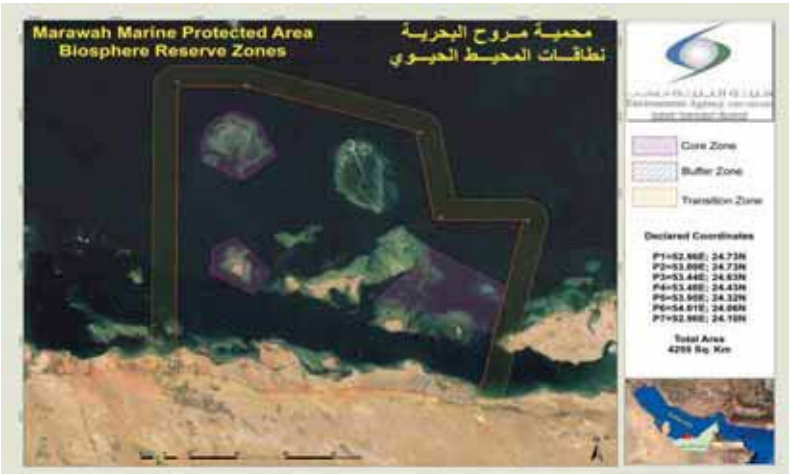
MMBR lies in the hot desert biome of the Middle East and Western Asia biogeographic region combined characteristics from both Arabian Desert and Palearctic bioregions). The surficial geology of the Marawah MBR region comprises of five mainly quaternary deposits, namely, sabkha, dune sands,, dune sands with inter-dunal sabkha deposits paleodune deposits and carbonate beach sand deposits. The Marawah MBR is significant in terms of biological diversity conservation since most of the marine and terrestrial species are present in the area. The total area of the MMBR also represents ca 4% of the total area of the country. The habitats within the MMBR are considered to be of national and regional importance. These habitats include seagrasses, mangrove, coral reefs, coastal sabkhas, rocky seashores, sandy seashores and rocky ridges. The MMBR is of global importance as a shelter and feeding ground for dugongs. The area also provides crucial nursery and spawning grounds for a wide variety of fish species and is regionally important as a foraging habitat for hawksbill and green turtles. Furthermore, the islands inside the protected area provide important nesting sites for hawksbill sea turtles and a number of migratory birds. The area is also of significance culturally and archeologically with more than 20 fossil and archeological sites recorded on various islands within the MBR dating back to the 16th century. In addition to that new evidence of a Neolithic settlement has been recorded on Marawah Island.



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Yemen

Socotra Archipelago

© *Socotra BR*

Declaration date: 2003
Surface area: 2.681.640 ha
Administrative division: The Socotra Archipelago is divided into two administrative districts, Hadibo and Qalansiya, which also includes the islands of Abdul Kuri, Darsa and Samhah. Both districts come under the administration of the Governor of Hadramaut in al-Mukalla, Yemen

Human activities:

- Controlling of extraneous species.
- Ecotourism Management :interpreter / guiding, clean up campaign, visitor safety, camping equipment rental.
- Environmental monitoring programs.
- Environmental education

Protection classifications:

National protected area & Zoning plan was developed

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Ecological characteristics:

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Socotra is the world's tenth richest island for endemic plant species. And the biggest island in the Middle East 125 kilometers in length and 45 kilometers across. The most significant feature of the island where there are about 900 plant species including 307 species of endemic plants such as dragon's blood trees (Dracaena cinnabari), or the tree of patience and other. Socotra's fauna is just as fascinating. Among the land birds Socotra Island is home to 180 species of birds 6 species are endemic. There on the island of Socotra about 14 species of mammals, including the types of wild and domesticated species, including pets, or is wild (civet cat). There are 190 species of butterfly and with a large number of endemics. The reptilian and insects fauna is also very rich 600 species of insects with 90% with high proportion of endemic. The reptilian fauna is also very rich with 19 out of a total of 22 species regarded as endemics. Socotra Island is home to more than 680 Species of fishes are comparable to those of the Red Sea. and about 230 species of hard corals (five are endemics) and 30 species of soft corals. In addition to 300 species of crustacean (nine are endemics), 490 species of mollusks, and 230 species of algae. Sea-turtles also nest on the north of the island. An endemic fresh-water crab, Potamon socotrensis, is common in the temporary water-courses.

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Asia and Pacific

- Australia
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- China
- Federated States of Micronesia
- India
- Indonesia
- Islamic Republica of Iran
- Japan
- Democratic Peoples Republic of Korea
- Republic of Korea
- Kyrgyzstan
- Malaysia
- Mongolia
- Pakistan
- Palau
- Philippines
- Sri Lanka
- Thailand
- Turkmenistan
- Uzbekistan
- Vietnam

Country	Biosphere reserve	Year of creation	Pag.
AUSTRALIA	Croajingolong	1977	97
	Kosciuszko	1977	98
	Macquarie Island	1977	99
	Prince Regent River	1977	100
	Unnamed	1977	101
	Uluru (Ayers Rock-Mount Olga)	1977	102
	Yathong	1977	103
	Fitzgerald River	1978	104
	Hattah-Kulkyne & Murray-Kulkyne	1981	105
	Wilson's Promontory	1981	106
	Riverland	1981 Originally Danggali Conservation Park, extended and renamed Bookmark in 1995. Renamed as Riverland in 2004.	107
	Mornington Peninsula and Western Port	2002	108
	Barkindji	2005	109
	Noosa	2007	110
	Great Sandy	2009	111
CAMBODIA	Tonle Sap	1997	112
CHINA	Baishuijiang	1978	113
	Fanjingshan	1978	114
	Changbaishan	1979	115
	Dinghushan	1979	116
	Wolong	1979	117
	Xilin Gol	1985	118
	Qomolangma	1988	119
	Bogeda	1990	120
	Shennongjia	1992	121
	Xishuangbanna	1993	122
	Yancheng	1993	123
	Maolan	1996	124
	Tianmushan	1996	125
	Jiuzhaigou Valley	1997	126
	Nanji Islands	1998	127
	Gaoligong Mountain	2000	128
	Huanglong	2000	129
	Shankou Mangrove	2000	130
	Baotianman	2001	131
	Saihan Wula	2001	132
	Dalai Lake	2002	133
	Wudalianchi	2003	134
	Yading	2003	135
	Foping	2004	136
	Chebaling	2007	137

Country	Biosphere reserve	Year of creation	Pag.
	Fenglin	2007	138
	Wuyishan	2007	139
	Xingkai Lake	2007	140
FEDERATED STATES OF MICRONESIA	Utwe	2005	141
	And Atoll	2007	142
INDIA	Nilgiri	2000	143
	Gulf of Mannar	2001	144
	Sunderban	2001	145
	Nanda Devi	2004	146
	Nokrek	2009	147
	Pachmarhi	2009	148
	Similipal	2009	149
INDONESIA	Cibodas	1977	150
	Komodo	1977	151
	Lore Lindu	1977	152
	Tanjung Puting	1977	153
	Gunung Leuser	1981	154
	Siberut	1981	155
	Giam Siak Kecil – Bukit Batu	2009	156
ISLAMIC REPUBLIC OF IRAN	Arasbaran	1976	157
	Arjan	1976	158
	Geno	1976	159
	Golestan	1976	160
	Hara	1976	161
	Kavir	1977	162
	Lake Oromeeh	1977	163
	Miankaleh	1977	164
	Touran	1977	165
	Dena	2010	166
JAPAN	Mount Hakusan	1980	167
	Mount Odaigahara & Mount Omine	1980	168
	Shiga Highland	1980	169
	Yakushima Island	1980	170
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	Mount Paekdu	1989	171
	Mt. Kuwol	2004	172
	Mount Myohyang	2009	173
REPUBLIC OF KOREA	Mount Sorak	1982	174
	Jeju Island	2002	175
	Shinan Dadohae	2009	176
	Gwangneung Forest	2010	177
KYRGYZSTAN	Sary-Chelek	1978	178
	Issyk Kul	1998	179
MALAYSIA	Tasik Chini	2009	180
MONGOLIA	Great Gobi	1990	181
	Boghd Khan Uul	1996	182
	Uvs Nuur Basin	1997	183

Country	Biosphere reserve	Year of creation	Pag.
	Hustai Nuruu	2002	184
	Dornod Mongol	2005	185
	Mongol Daguur	2007	186
PAKISTAN	Lal Suhanra	1977	187
PALAU	Ngaremeduu	2005	188
PHILIPPINES	Puerto Galera	1977	189
	Palawan	1990	190
SRI LANKA	Hurulu	1977	191
	Sinharaja	1978	192
	Kanneliya-Dediyagala-Nakiyadeniya (KDN)	2004	193
	Bundala	2005	194
THAILAND	Sakaerat	1976	195
	Hauy Tak Teak	1977	196
	Mae Sa-Kog Ma	1977	197
	Ranong	1997	198
TURKMENISTAN	Repetek	1978	199
UZBEKISTAN	Mount Chatkal	1978	200
VIETNAM	Can Gio Mangrove	2000	201
	Cat Tien	2001	202
	Cat Ba	2004	203
	Red River Delta	2004	204
	Kien Giang	2006	205
	Western Nghe An	2007	206
	Mui Ca Mau	2009	207
	Cu Lao Cham – Hoi An	2009	208

Australia
Croajingolong

Declaration date: 1977
Surface area: 101.000 ha
Administrative division: State Government; statuary cooperation between NSW National parks and Wildlife Service and Parks Victoria

Human activities:

The abundance of artefacts and middens within the biosphere reserve indicates a history of occupation by reasonably large populations of Indigenous communities, who most probably concentrated around the inlets, estuaries and wetlands. Mallacoota township, and smaller settlements known as Tamboon South, Peachtree and Furnell Landing are entirely surrounded by the National Park. With 1,249 inhabitants (2003) the town of Mallacoota is a popular domestic tourist destination generating most of its income from tourism and commercial fishing. The main economic activities adjoining the biosphere reserve are native forest timber harvesting, tourism, pastoral activities and commercial fishing.

Ecological characteristics:

The Croajingolong Biosphere Reserve and National Park (including Nadgee Nature Reserve) protects some of Victoria's most spectacular coastal environments as well as a significant representation of southeast Australia. The topography is particularly variable along the coast. Local out cropping of rocks in cliff-faces, often higher than 15 metres, break the long stretches of sandy beaches. The tidal, brackish inlets of the larger rivers add scenic and habitat diversity. The many freshwater lakes and swamps, which have been shaped behind coastal dunes and the associated complex islands add another dimension to the diversity. Large stands of warm temperate rainforests are present in the eastern part of Croajingolong. Coastal heathland and species diversity is comparable to that in the South African Heaths, which are regarded as one of the richest vegetation community in the world outside lowland tropical rainforests. Almost, 1,000 native plant species (90 species of orchids) and 315 animal species have been recorded within the biosphere reserve. Croajingolong Biosphere Reserve is managed not only for conserving biodiversity but also to provide nature based tourism opportunities. Research and monitoring is encouraged and permitted as long as it does not conflict with management objectives.

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Australia
Kosciuszko

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Declaration date: 1977
Surface area: 173.542 Hectares
Administrative division: New South Wales

Human activities:

- Kosciuszko is highly regarded for its recreation and tourism activities. It contains all of New South Wales snowfield recreation facilities. Other recreation opportunities include back-country hiking, fishing, mountain biking, horseriding, caving and canoeing.
- Ecotourism and environmental education.
- Water harvesting for hydro-electricity production. And irrigation
- Scientific research in a wide range of fields including Climate Change.

Ecological characteristics:

- Kosciuszko contains the highest mountains in the flattest and lowest of continents, Australia;
- The Main Range lakes are the only water bodies in Australia that have a regular winter cover of ice;
- It contains a wide range of vegetation communities associated with elevation, rainfall and soils, ranging from temperate rainforests, moist tall montane forests; woodlands , subalpine and alpine communities. 21 of the alpine species are endemic;
- Soils of high scientific value, including alpine humus and fossil soils;
- Wide diversity of reptile species, particularly above the treeline;
- Populations of 13 vertebrate species listed as either threatened or near-threatened, including the endangered Mountain Pygmy Possum, which is the only marsupial restricted to the alpine / subalpine zone and known to hibernate.

Protection classification:

Reserves of this type are protected at a state level. Parts of the area were first reserved in 1906. Additional reservation occurred in 1944 and the area has been reserved as a National Park since 1967. Kosciuszko is also part of the Australian Alps national parks system.

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South West Slopes Region
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Australia
Macquarie Island

Declaration date: 1977
Surface area: 12.785 ha
Administrative division: Tasmanian Department of Primary Industries, Water and Environment

Human activities:
The Macquarie Island Biosphere Reserve has no resident population and is remote from population centers, a factor common to all sub-Antarctic and Antarctic locations.

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Ecological characteristics:

Macquarie Island is a fully protected area under Tasmanian jurisdiction in the southern ocean/sub-Antarctic/Antarctic region. The terrestrial flora and fauna of the biosphere reserve, together with the marine flora and fauna of the surrounding ocean have similarities with species ranging in distribution from Antarctica through to the Australasian region. Its isolation and the short geological time (600,000 years) since its emergence above sea level demonstrate the colonization of a site by long distance dispersal and ongoing evolution with several endemic species. Many of the island's marine mammals and seabirds spend most of their lives at sea, in areas ranging from the Antarctica coast to the North Pacific Ocean. The Reserve together with other breeding sites provides a rare opportunity to monitor the status of these wide-ranging species, and indirectly the health of the oceans in which they forage. Programme are being carried out to monitor the status of albatross, penguin and seal species and to link findings with other remote breeding locations. Work is also being carried out to control and or eradicate exotic species in order to protect endemic species.

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Australia

Prince Regent River

Declaration date: 1977
Surface area: 633.825 ha
Administrative division: Western Australian Department of Conservation and Land Management

Human activities:

The area is mainly inhabited and is sporadically occupied by traditional groups. The Ngarinyin and Dambinangari, Australian aborigines, have left many culturally significant art and artifact sites. More than 1,000 tourists (2003) visit the Biosphere Reserve annually for fauna and flora studies, camping, hiking and sailing.

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Ecological characteristics:

The Prince Regent River Biosphere Reserve is located in the extreme North West of Australia and has a varied relief. In the southern part, the rugged, deeply dissected sandstones of an elevated plateau form a slop going from about 500 meters in the southeast to less than 100 metres around the St. George Basin. The latter site is a deep landlocked harbour bounded by steep cliffs with large expanses of tidal mud flats and mangroves, connected to the sea by a narrow strait. In contrast, the area to the north of the Roe River is underlain by volcanic rocks, interbedded with sandstones and has a subdued topography with rounded hills and deeper soils. Vegetation is diverse, although open tropical woodland covers extensive tracts. Vine thickets, fern gullies and mangroves occur in the area. Patches of rainforest are scattered throughout the biosphere reserve. Although small in size, these patches contain a diverse range of plant species, many of which are endemic. Mangroves cover extensive areas of tidal flats, especially in the King George Basin and Rothsay Waters. The native pine (Callitris intratropica) is widely distributed. Animal species as rock rinktail possum (Pseudocheirus peregrinus), scaly -tailed possum (Wyulda squamicaudata) and golden bandicoot (Isoodon auratus auratus) are threatened.

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Australia
Unnamed

Declaration date: 1977
Surface area: 2.132.600 ha
Administrative division: Department of Environment & Heritage South Australia

Human activities:

Some 200 people live within the Biosphere Reserve (2002), mainly engaged in hunting and foraging activities. Aboriginal communities hunt kangaroos and reptiles and some plants are used for traditional foods. More than 328 tourists (2002) visit the Biosphere Reserve between May and November for nature study. The main goal is to develop networking with other Biosphere Reserves and develop research and monitoring activities.

Ecological characteristics:

The Unnamed Biosphere Reserve is located in the central desert biogeographical region of Australia and includes part of the Great Victoria Desert. It is one of the least altered landscapes in the region and consists of a semi-desert dune system, which comprises low dunes up to 20 metres high up and up to 100 km long with clay pans, and saline areas in lakebeds. It is covered with open woodlands and scrublands of mallee, marble gum, mulga and black oak, with spinifex or a varied shrub and grassland understorey with *Triodia* spp., *Eucalyptus goniocarpa*, *E. oleosa*, and *E. transcontinentalis*. The majority of the Biosphere Reserve is identified as a core area managed by the Department of Environment and Heritage and Maralinga Tjarutja organization. Surrounding the core area, Aboriginal lands from Oak Valley, Tjuntjuntjara, Wataru and Yulata communities provide buffer zones.

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Australia

Urulu (Ayers Rock-Mount Olga)

Declaration date: 1977
Surface area: 132.550 ha
Administrative division: National: Environment Australia (Parks Australia North) Local: Board of Management

Human activities:

The Anangu people living within the biosphere reserve belongs to two main dialects: Pitjantjara and Yankunytjatjara which extend far beyond the boundaries of the reserve. They are engaged as managers, rangers, and tour guides and consultants in the area. Approximately 500,000 people (2003) visit the biosphere reserve each year. The management plan prepared by the Uluru Kata-Tjuta Board of management and the Director of National Parks and Wildlife Services, features input from traditional Aboriginal owners outlining joint responsibilities, management implementation and administration.

Ecological characteristics:

The Biosphere Reserve is dominated by two rock formations: Uluru and Kata Tjuta. The monolith Uluru rises 863 metres above sea level and is composed of feldspar rich in sandstone arkose. Kata Tjuta is 1,066 metres above sea level and is comprised of 36 steep-sided rock domes of Mt. Currie conglomerate. Surrounding these exposed rock features are very large areas dominated by sand dunes (tali), sand plains (pila) and woodlands (*Puti habitats*). They comprise of metamorphosed sedimentaries giving rise to smooth, hummocky hills and creek beds (*Karu habitats*) that flow from Kata Tjuta. The Mutitjulu community is the only settlement within Uluru-Kata Tjuta and has a population of around 350 people (2003). The Aboriginal use of the land for over one thousand generations is reflected throughout the Uluru - Kata Tjuta landscape, which is recognized as a World heritage cultural landscape area of outstanding universal value.

Australia
Yathong

Declaration date: 1977
Surface area: 107.241 ha
Administrative division: New South Wales National Parks and Wildlife Service (NPWS)

Human activities:

Since the area has been gazetted as a Nature Reserve, human activities have been reduced to the maintenance of access tracks, boundary fences and selected buildings. Tourism (500 visitors annually in 2003) is limited to scientific groups or individuals, or educational groups.

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Ecological characteristics:

The Biosphere Reserve is situated on the boundaries of two major biogeographic regions: the Cobar Peneplain and the Darling Depression of New South Wales. The topography is gently undulating with red sand dunes supporting old growth mallee in the west and open grassy flats with bimble box (*Eucalyptus populnea*) in the creek lines, and gentle rises supporting white cypress pines (*Callitris* spp), wilga (*Geijera parviflora*), kurrajongs (*Brachychiton populneus)* and belah (*Casuarina cristata*) in the east. The Merrimerriwa Range is a dominant feature, which crosses the southeast corner of the Biosphere Reserve. It rises about 200 metres above the surrounding plains and is composed of quartzite, conglomerate and sandstone. The varied geography of the reserve and its location in central New South Wales is reflected in the diverse plant and animal communities. There are at least six species of mallee. The reserve supports a rich variety of fauna including the wallarroo, (*Macropus robustus*) and insectivorous bats. The three major species of kangaroos in Australia: the eastern grey, (*Macropus giganteus*), western grey (*Macropus fuliginosus*) and red kangaroo (*Macropus rufus*) all occur in the biosphere reserve. Almost 130 bird species have been recorded. Yathong contains a number of Aboriginal sites including open campsites, art sites and scarred trees. These resources are significant in that they represent a regional pattern of changing land use and settlement for over a century.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Australia
Fitzgerald River

Declaration date: 1978
Surface area: 329.039 ha
Administrative division: Western Australian Department of Conservation and Land Management on behalf of the Conservation Commission of Western Australia

Human activities:

The human impacts that occur within the reserve are mainly related to tourism and the development of visitor facilities. Some 36,000 people (2003) visit the reserve each year. It is also affected by external land use practices. The reserve is surrounded by agricultural land.

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Ecological characteristics:

The Fitzgerald River National and Park Biosphere Reserve (330,000 ha) is situated between Bremer Bay and Hopetoun on the South Coast of Western Australia. It comprises upland plains, a marine plain deeply incised by several rivers creating large valleys and tablelands, and a chain of small isolated peaks running close to the coast forming the distinctive Barren Ranges. The highest peak reaches 450 metres above sea level, and rugged coastal cliffs are formed where the quartzite ranges meet the ocean. Sand dunes, inlets and rivers, swamps and lakes also occur on the gently sloping marine plain, drying up in summer. There is a rich diversity of plant species in the park and surrounding areas. This includes dry sclerophyllous woodland, coastal woodlands and heath. The reserve contains over 250 rare or geographically restricted plant and animal species, many of which are poorly known. Of the 2,000 vascular plants species native to this area, around 75% are endemic. Many watercourses within the reserve have their catchments within agricultural lands thus bi-products of agricultural land practices are washed downstream into the reserve. The principal goal of the reserve is the conservation of flora and fauna, particularly threatened species and the provision of appropriate visitor access and facilities. Substantial areas of the park are zoned for wilderness (~78,000 ha) and special conservation protection (~70,000 ha). Most of the mountain peaks in the wilderness zone are prohibited access to protect threatened flora and reduce the risk of dieback disease introduction and spread (*Phytophthora cinnamomi*). A complementary role is to conserve the biosphere reserve's landscapes free visible of human disturbance.

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Australia

Hattah-Kulkyne & Murray-Kulkyne

Declaration date: 1981
Surface area: 51.500 ha
Administrative division: Parks Victoria (Department of Conservation and Natural Resources)

Human activities:

More than 250 people live in the reserve (year), engaged in agriculture, fishing and stock raising. The area is the traditional home of the Latje-latje aboriginal tribe and contains numerous cultural sites. Some 90,000 people visit the area for camping, fishing, hiking and wildlife studies. Environmental education and public awareness programmes, as well as research activities are being developed.

Ecological characteristics:

This biosphere reserve is located in the southern schlerophyll and eastern grassland savanna biogeographical region in southeast Australia. It consists of a lake system and an extensive wetland with a complex flood hydrology operating on a two to seven year cycle within a semi-arid area connected to the Murray River. There are also dune fields, floodplains and saline flats. It is covered with savanna woodlands and saline shrubland with *Eucalyptus camaldulensis* and *Eucalyptus largiflorens* associated with *Stipa* spp., *Acacia stenophylla*. and *Muehlenbeckia cunninghamii*, which forms shrubby stands around some lakes. When flooded, the lakes become important breeding areas for herons, egrets, cormorants and spoonbills. The main goal of the Biosphere Reserve is to promote partnerships with local communities in regional planning, access to scientific expertise from individuals and institutions, and developing links with similar areas such as Bookmark.

Contact information:

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Australia

Wilson's Promontory

Declaration date: 1981
Surface area: 49.000 ha
Administrative division: Parks Victoria reporting to the State Government of Victoria

Human activities:

The reserve is highly significant to local Aborigines both culturally and spiritually. Local communities are active in establishing cultural and spiritual links with the Biosphere Reserve and in undertaking site based monitoring. More than 400,000 tourists (2003) visit annually for camping, fishing, boating, and research and monitoring. Numerous studies on flora, fauna, geology, geomorphology, archaeology, and history are taking place.

Ecological characteristics:

The Wilson Promontory Biosphere Reserve is located in the State of Victoria, south east Australia. It comprises a granite massif with prominent peaks, outcrops and headlands flanked by extensive swamps, dune deposits and beaches. Fifteen granite islands are also included. There are a great variety of open-forests (Eucalyptus spp.), heathlands, closed forest (Acmena smithii), coastal scrub and dune vegetation. More than 740 native vascular plant species have been recorded and more than 100 of these are regarded as either rare or threatened. Diverse and abundant mammal fauna (almost 296 species) including the rare swamp antechinus (Antechinus minimus), rat kangaroo (Potorous tridactylus), and new holland mouse (Pseudomys novaehollandiae) as well as the unique insular population of bushrat (Rattus fuscipes assimilis) and large breeding populations of short-tailed shearwaters (Puffinus tenuirostris) and the little blue Penguin (Eudyptula minor) are reported. Wilson's Promontory has an early history of Aboriginal occupation dating back at least 6,500 years.

Contact information:

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E-mail: jwhelan@parks.vic.gov.au

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Australia
Riverland

Declaration date: 1981
Surface area: 49.000 ha
Administrative division: Parks Victoria reporting to the State Government of Victoria

Human activities:

More than 17,000 people (2003) live in the area near the Murray River which is known as the Riverland. Almost 216,000 national and 4,600 tourists visit the reserve each year (2003). Ecotourism is becoming increasingly popular and show potential for future development. Commonwealth land in Bookmark Biosphere Reserve consists of Calperum and Taylorville Stations. These areas have been contracted to a private philanthropic environmental organisation, the Australian Landscape Trust (ALT). ALT matches funding made available by the Commonwealth government. The community "matches" the funding again through volunteered time and services. These resources are invested each year in activities at Calperum and Taylorville Stations and within other conservation programs in the community. In 2002 community members donated over 14,000 hours to land management, environmental and species restoration, revegetation, feral animal control, maintenance of infrastructure, research, monitoring, educational programs, biological surveys and experiments in sustainable development.

Ecological characteristics:

The Bookmark Biosphere Reserve consists of a typical floodplain of an ancient river with large associated wetlands, lakes and adjoining creeks. Whilst these wetlands would have naturally been alternately flooded and dry, the lakes are now mostly filled due to increased river levels caused by the influence of the locks and weirs built in the last century to make the river navigable and to maintain water for irrigation. Bookmark boasts one of the largest remaining continuous stands of ancient mallee (multi-stemmed tree-like Eucalyptus plants that originally grew in many semi-arid parts of Australia) left in the world. Because of this, it is home to a number of rare and endangered species, some of which are no longer found anywhere else on earth. Over 275 bird species, 843 plant species and 79 reptiles and amphibians are recorded. River life was once of great significance with turtles, fish, waterfowl and mollusks providing food sources for indigenous groups. Renmark, Paringa, Berri and Barmera are towns that have joined Bookmark Biosphere Reserve. Horticulture is the backbone of the districts economy and the current boom in wine grape production has boosted income considerably. Previously significant grazing, mainly sheep, and extensive woodcutting for fuel and construction denuded areas near the floodplain. Factors including irrigation, vegetation clearance, management of the River and land use patterns throughout the Murray Darling Basin have affected the floodplain and other low lying areas that are showing the effects of salination. The Local Action Planning Committees coordinate a number of projects in the biosphere reserve to protect remnant vegetation and establish more efficient irrigation practices. This includes fencing to keep stock out and controls on grazing pressure from introduced species.

Contact information:

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Australia
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Australia

Mornington Peninsula and Western Port

Declaration date: November 2002
Surface area: 214.200 hectares — 68% terrestrial, 32% marine
Location: Approximately 40 km from Melbourne, State of Victoria
Administrative divisions: Five local government areas — Mornington Peninsula Shire and parts of City of Frankston, City of Casey, Cardinia Shire and Bass Coast Shire

Human activities:

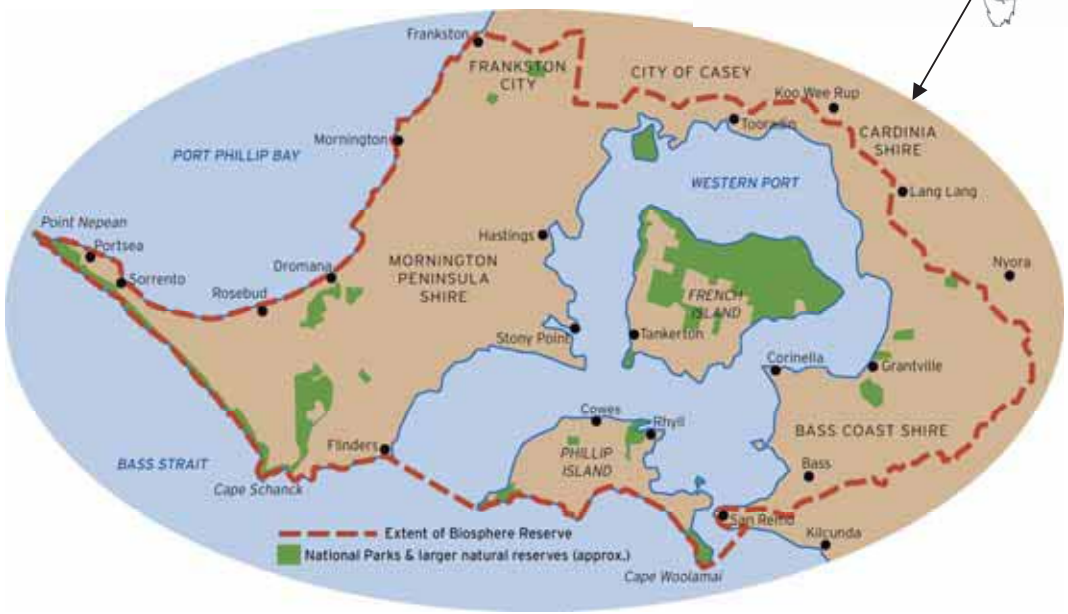
More than 180,000 permanent residents (2002); approximately 250,000 seasonally
Important region for industry, port operations, fishing, agriculture, tourism and urban growth

Ecological characteristics:

- Western Port — biologically diverse, Ramsar wetland of international importance
- French Island — relatively undisturbed, fox-free habitat, including a national park
- Nationally significant vegetation communities, including rare, threatened and vulnerable species
- Numerous sites of geomorphological significance
- Breeding colonies of the Little Penguin, Koala, Australian Fur Seal, Hooded Plover and Short-tailed Shearwater

Protection classification:

Core areas (4%) are national parks. Buffer areas (30%) are also publicly owned, managed by state or local government.



Contact information:

Mornington Peninsula and Western Port, Biosphere Reserve Foundation Ltd
Shop 4, 37-41 Victoria Street, Hastings, Victoria, PO Box 261, Hastings Vic 3915
Tel: (03) 5979 2167, Fax: (03) 5979 7563
Email: info@biosphere.org.au, Web site: biosphere.org.au

Australia
Barkindji

Declaration date: 2005
Surface area: 191.823 ha
Administrative division: Barkindji Biosphere Reserve Ltd.

Human activities:

The nearest towns are Mildura and Wentworth. The surrounding population includes Aboriginal people and people of a wide variety of European origin who are largely involved in agriculture, horticulture, viticulture and supporting industries. It is planned that the Biosphere Reserve projects will provide employment and training opportunities for local Aboriginal people. There are many sites of Aboriginal cultural heritage in the area and the Barkindji and Respected Elders will continue to be involved in the development of the Biosphere Reserve.

Contact information:

John Irwin, Barkindji Biosphere Reserve Ltd.
150 Pine Avenue, Mildura 3500
3052 Mildura, Victoria, Australia
Tel.: (61.3) 5018 9318 - Fax: (61.3) 5023 7560
E-mail: mir-john@ncable.com.au
Web site: www.barkindjibiosphere.org/

Ecological characteristics:

The Barkindji Biosphere Reserve is situated in south-eastern Australia, in the State of New South Wales, along the Murray River. It lies 550 km north-west of Melbourne and 400 km north-east of Adelaide. The Barkindji are the indigenous Aboriginal people from the north of the Murray River and permission has been sought to use the name. The Murray Darling catchment region in which the Biosphere Reserve is located lies within the Murray-Darling Basin and is shaped like a shallow bowl. The bedrock of the basin is over 350 million years old. Water has carved creeks and river channels through the mountains and plains of this dry continent. These seasonal water movements, swinging from flood to drought, cause unique plants and animals to evolve that depend on these patterns to breed, survive and grow, such as Murray cod (*Maccullochella peelii peelii)* and river red gums (*Eucalyptus camaldulensis*). The major topographic features of the area are the Murray River, floodplain and wetlands, sandplains, dunes and open plains. The area has a semi-arid climate with highly variable rainfall. There is enormous conservation value in the area both in terms of flora and fauna of riverine and semi-arid areas and from a geological, archaeological and cultural heritage perspective. More than 200 rare and endangered species of plants and animals are found within the area.

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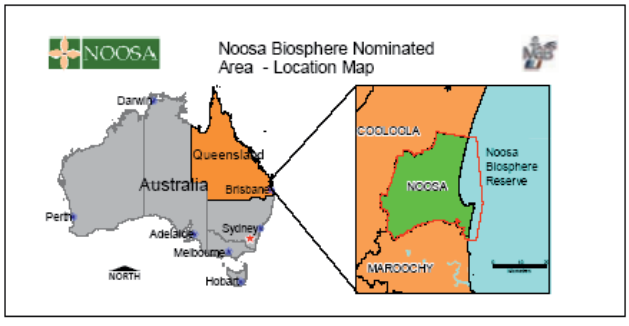
Australia
Noosa

© *Noosa BR*

Declaration date: 18 September 2007
Surface area: 8.300 ha
Administrative division: Sunshine Coast Regional Council, State of Queensland

Human activities:

Noosa Biosphere Reserve has coastal areas of quite intensive urban development. This urban development comprises a long narrow strip following the coastal dunes system from Peregian in the south of the Biosphere Reserve to Noosa Heads and along the lower Noosa River flood plain to the townships of Noosaville and Tewantin. 67 % of the Reserve's population lives and works within this coastal area. The coastal strip north of the Noosa River is very sparsely settled and over 93% (9240 hectares) of the lands in the North Shore area is managed for conservation and is either in public ownership or managed in trust. Much of the hinterland area of the Reserve has historically been a farming and forestry production area. It is dotted with small, well-defined towns and villages.



Contact information:

Ben McMullen, Manager
Environmental Services
Sunshine Coast Regional Council
PO Box 141
Tewantin QLD 4565

Ecological characteristics:

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Noosa Biosphere Reserve forms part of the region known biogeographically as the "Macleay - McPherson Overlap Zone", The area has exceptionally high biodiversity as the northern Torresian and southern Bassian fauna and flora of Australia meet and overlap here. As a consequence, the region has the richest fauna in Australia for birds, bats, amphibians and snakes.
Noosa has a diverse and robust mosaic of interconnected remnant ecosystems linked to large vegetated areas in adjoining municipalities such as Mapleton Forest, the Conondale Ranges and the balance of Cooloola section of Great Sandy National Park.
Noosa Biosphere Reserve also provides an altitudinal range of fauna habitats, which incorporate both east-west and north-south stepping stones for a range of fauna taxa. Habitats range from littoral rainforest and coastal dune heath and woodlands in the east, through riverine and lake systems, wallum heath, rising through woodlands and tall open forests of the Cooroy and other plateaux and mountains to the west and north-west. Interspersed across most of the altitudinal range are pockets and creek systems containing rainforest and ecotonal forests. Extinct Volcanic plugs (inslbergs) which rise in the west of Noosa such as Mt Cooroora, Mt Cooroy and Mt Cooran contain montane heaths.

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Protection classification:

At the national level
National Parks and other Conservation areas: 17,875 Hectares
Important Wetland Areas:
Lake Weyba Weltands 9945 Hectares
Noosa River Wetlands 2860 Hectares

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Australia
Great Sandy

© Great Sandy BR

Declaration date: 2009
Surface area: 1.242.216 ha
Administrative division: Queensland

Human activities:

© Great Sandy BR

- The Great Sandy Biosphere lies within the Wide Bay-Burnett Region in Queensland which contains substantial agricultural areas as well as internationally recognised tourism activities such as whale watching.
- Agricultural activities include sugar cane farming, horticulture, dairying and grazing and the total value of agriculture exceeds $1 billion.
- Timber production incorporates management of native hardwood forests and both hardwood and softwood plantations.
- With increasing population, manufacturing in the food processing, aviation and manufacturing has expanded however there has also been significant growth in the services sector as the tourism industry has developed.
- The region is one of the fastest growing regions in Queensland and Australia with a growth rate of 3% compared to 2% for the state of Queensland and 1% for Australia.

Contact information:

Burnett Mary Regional Group for NRM Inc
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Bundaberg QLD 4670

© Great Sandy BR

Ecological characteristics:

© Great Sandy BR

- The Great Sandy Biosphere contains one of the largest sand islands in the world that contains approximately 40% of the world's perched freshwater lakes.
- Ancient dune chronosequencing examples and the tallest and most complex rainforests growing on sand in the world
- Contains 96 discrete regional ecosystems with species biodiversity and numerous endemic species
- Adaptation of fish frogs and invertebrates to acidic conditions
- Major transitory point for humpback whales
- A major feeding and roosting location for migratory birds
- Highly significant Dugong populations and seagrass beds
- An effective biodiversity hotspot within the McPherson-McLeay Overlap
- Lying at the southern end of the Great Barrier Reef the region also contains significant fringing coral reefs and turtle nesting areas
- Over 4700 fauna and 2800 flora species identified in the region

Protection classification:

The Great Sandy Biosphere Reserve contains a mix of protection areas including a World Heritage Area, Ramsar Wetlands, national parks and marine parks. In addition private landholders have committed to conserving some critical habitat areas through voluntary conservation agreements.

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Cambodia
Tonle Sap

Declaration date: 1997
Surface area: 1.481.257 ha
Administrative division: Secretariat for Tonle Sap Biosphere Reserve administered by one secretary from CNMC (Cambodia National Mekong Committee) and three deputy secretaries: Mr. Neou Bonheur from the Ministry of Environment, Mr. Sam Neou from the Fishery Department, and Mr. Am Norin from the Ministry of Water Resources.

Human activities:

More than 1,000,000 inhabitants (2001) live mainly in the buffer and transition areas. Some sixty floating villages are found on the lake and lake edges in the buffer zone. Fishing is the main activity but the fertile, flood plain is also used to produce rice and vegetables. A management plan is currently being drawn up in consultation with local communities. The main goal of the reserve is to study and promote indigenous ecological knowledge and its incorporation in the management practices of the local communities.

Ecological characteristics:

The Tonle Sap Biosphere Reserve consists of a lake and its floodplain with three distinct zones: an open lake at its center, a freshwater swamp forest surrounding it and seasonally flooded grasslands at the margins, mainly in the eastern shore. The hydrological regime of the Mekong River which feeds the area is highly characteristic: the area underwater in the dry season is five times less than in the rainy season and the mass of flood water reverses direction between seasons. Swamp forest is the most characteristic habitat which is critical for the ecosystem productivity (fisheries) and biodiversity (particularly waterbirds and reptiles). Only 10% of the area is covered by tall-tree forest, mainly along streams and wetter places. The least disturbed and botanically most diverse areas have been gazetted as core areas: Prek Toal (Battaming Province), Moat Khla / Boeng Chhma (Siem Reap/Kompong Thom Provinces) and Stung Sen (Kompong Thom Province). The bird communities are the most striking natural feature , particularly in the dry season when they colonise every piece of open water. More than 400 species of fish have been identified, as well as many species of mammals and reptiles. This area is vital for the economy of Cambodia, since its fisheries provide 80% of the protein consumed within the country. The capital Angkor, situated 10 km from the northeastern edge of the lake at the edge of the biosphere reserve is a World Heritage site.

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China
Baishuijiang

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Declaration date: 1978
Surface area: 223.671 ha.
Administrative division: Gan Su

Human activities:

Eco-forestry and agro-forestry.

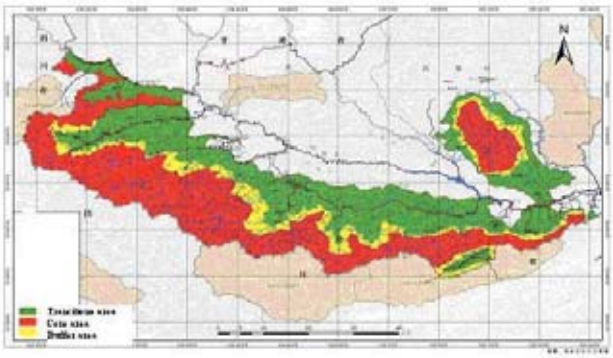
Protection classifications:

At the national level
1. *Ailuropoda melanoleuca*
2. *Rhinopithecus roxellanae*
3. *Budorcas taxicolor*
4. *Aquila chrysaetos*
5. *Lophophorus lhuysii*
6. *Neofelis nebulosa*

Ecological characteristics:

One of the primary aims of this biosphere reserve is the conservation of the Giant Panda (Ailuropoda melanoleuca), Baishuijiang is one of the regions with the highest Panda populations in China. The area is also important from a biodiversity perspective since it offers a large variance of elevations including evergreen broad-leaved forests and alpine meadows, e.g. Mixed mountain and highland systems There are 485 kinds of vertebrate in the reserve altogether , involving 273 genus, 98 families and 32 orders, including 77 species of beasts , 275 species of birds, 68 species of fishes, 65 species of amphibians and reptiles, and there are 2,138 species of insects and 195 species of spiders. Evergreen broadleaf forest and evergreen deciduous broadleaf mixed forest dominated by *Cinnamomum longepaniculatum*, *Lindera megaphylla, Populus adenopoda, Quercus acutissima* and *Q. engleriana*; deciduous broadleaf forest dominated by *Quercus spinosa*.

Zonation Map of Baishuijiang Biosphere Reserve



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China
Fanjingshan

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Declaration date: 1978
Surface area: 41.900 ha
Administrative division: Guizhou

Human activities:

In the transitional area: rice and high quality fruit and medical plants, firewood, agaric, bamboo shoot, tea, honey; ecotourism.

© *Fanjingshan BR*

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Ecological characteristics:

Located in the south of China in Guizhou Province, Fanjingshan is the main peak of the Wuling Mountain Range. The biosphere reserve is situated in the Chinese Subtropical Forest biogeographic region and its altitude ranges from 480 to 2,570 meters above sea level. It is known for its large protophyte forests, the only well-preserved primitive forest ecosystem on the same latitude in the world, as well as for its endemic golden monkey (Rhinopithecus brelichi) population. Sub-tropical and temperate rain forests; mixed mountain and highland systems. Evergreen broadleaf forest dominated by chinquapin (Castanopsis chunii), tanbark oak (Lithocarpus spp.), cinnamon, machilus etc.; mixed evergreen-deciduous broadleaf forest with Steward oak (Quercus stewardii), Engler oak (Q. engleriana) and sharp-dent oak (Cyclobalanopsis oxyodon) together with deciduous species.

© *Fanjingshan BR*

Protection classifications:

At the national level:
1. Rhinopithecus brelichi
2. Neofelis nebulosa
3. Panthera pardus
4. Abies fanjingshanensis
5. Davidia involucrata
6. Taxus chinensis

© *Fanjingshan BR*

China
Changbaishan

Declaration date: 1979
Surface area: 196.465 ha
Administrative division: Forest Ministry of the People's Republic of China Forest Department of Jilin Province Changbai Mt. National Nature Protective and Administrative Bureau

Human activities:

About 2,000 inhabitants live in the biosphere reserve (1997). Tourism has become a key activity. The biosphere reserve is working with local communities to diversify local economy, for instance through the cultivation of economic and medicinal plants. Several human activities infringe the biodiversity, for example tiger poaching and the collection of plants (e.g. Panax ginseng). The local population's low income and its poor education are thought to be the main threats to biodiversity. In order to increase public awareness, a Nature museum and an Information center have been established as dissemination points for environmental education.

Ecological characteristics:

Changbaishan Biosphere Reserve is located in the north-east of China at the border to the People's Democratic Republic of Korea. Vegetation within the area changes with its altitude (720 to 2,691 meters above sea level), covering deciduous forest, mixed coniferous-broadleaf forest with Korean pine (Pinus koraiensis), coniferous forest, dwarf-birch forest and alpine tundra. The plant species comprise European, Siberian and central Chinese species, and include 1,800 species of vascular plants. The biosphere reserve also provides habitat for the North East Asian tiger (Panthera tigris longipilis), the largest tiger subspecies in the world.

Mixed coniferous and broadleaved forest with Korean pine (Pinus koraiensis), Manchurian ash (Fraxinus mandshurica), Phellodendron amurense, Larix olgensis etc.; coniferous forest; Erman's birch (Betula ermanii) elfin woodlands; subalpine evergreen ericaceous shrub with Vaccinium uliginosum and Lycopodium alpinum; alpine tundra; hot springs with Ophioglossum vulgatum; agroecosystems; residential areas.

Contact information:
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E-mail: yanbianbhjfnb@sina.com

© Photo: Wang Ying

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China
Dinghushan

Buttress - Canarium album © Dinghushan BR

Declaration date: 1979
Surface area: 1.133 ha
Administrative division: Dinghushan Arboretum Dinghushan Coordinate Agency of Guangdong Province National administration bureau for the reserve

Human activities:

Mucuna birdwoodiana © Dinghushan BR

The biosphere reserve is also known as a major Buddhist center in South-East Asia. Its shrines attract up to 1 million visitors per year (1997) and many agencies have engaged in tourism in the area. The management of the increasing tourism has created both a challenge and chance for the biosphere reserve. Apart from several hundred seasonal residences, there are no permanent inhabitants within the biosphere reserve (1997). Within the nature reserve, research has been carried out since the 1950s and education programmes for students take place.

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Ecological characteristics:

Mucuna birdwoodiana © Dinghushan BR

Established in 1956, Dinghushan Natural Reserve is the first natural reserve in China and one of the three nature reserves of China accede to Biosphere Reserve Network of UNESCO in 1979. The reserve lies in Zhaoqing city of Guangdong province, covers an area of 1155 hm2, located at N 23°10′and E 112°31′. It is well known as "The green pearl of the arid zones near the Tropic of Cancer". The geological structure of Dinghushan belongs to Devonian period. The soil in this reserve consists mainly of lateritic red-earth, yellow-earth and mountain- shrubby- meadow soil. 86% of Dinghushan was covered by forests. There are various vegetation types. The lower subtropical typical evergreen broad-leaved forest existed over 400 years. Dinghushan houses a rich biodiversity. There are 1974 wild higher plant species and 534 cultivated species. In the reserve, Dinghushan Forest Ecosystem Research Station was set up in 1978, became one of the stations of Chinese Ecosystem Research Network (CERN) in 1992 and became a member of the Chinese national key field station in 2002.

© Dinghushan BR

China
Wolong

© *Photo: Wang Yanpeng*

Declaration date: 1979
Surface area: 200.000 ha
Administrative division: Protection division of the Ministry of Forestry Government of Sichuan Province Protection office of Ministry of Forestry of Sichuan Administration of Wolong Natural Reserve

Contact information:

He Xiaoping
Wolong Nature Reserve Administration
Wenchuan County
623006 Sichuan Province
China
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Fax: (86.837) 624 6614
E-mail: wolongxhb@126.com

Ecological characteristics:

This biosphere reserve is located in the Szechuan province about 150 km from Chengtu. Its altitude ranges from 1,200 to 6,250 meters above sea level and it is a center of biodiversity (e.g. 4,000 plant species). The occurrence of the world's largest giant panda (*Ailuropoda melanoleuca*) population within the area was the reason for the designation of the biosphere reserve. The protection of this umbrella species and its habitats assured the survival of all other species in the area. Past research within the biosphere reserve focused on the ecology and biology of the giant panda. However today, the ecosystem approach and the rehabilitation of bamboo and forest ecosystems play an important role as well.

Evergreen forest; evergreen deciduous broadleaf forest; mixed coniferous and broadleaf forest; coniferous forest mainly with *Abies* spp.; high mountain tundra; rocky habitats; agroecosystems.

Human activities:

While agriculture remains the major economic activity of local people (about 5,000 people in 1997), tourist activities are increasingly becoming sources of income. Apart from the construction of tourist facilities, impacts on the ecosystem come from a high human population pressure, causing for example the fragmentation of green corridors which are important for the survival of the giant panda population, as well as non-authorized firewood and medicinal plant collection. Some of the challenges of the biosphere reserve are to promote sustainable tourism and to develop alternative income opportunities, for instance through the cultivation of medicinal plants.

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China
Xilin Gol

© Xilin Gol BR

Declaration date: 1985
Surface area: 580.000 ha
Administrative division: Inner-Mongolia

Human activities:

Raising traditional animals of the grassland such as horses, sheep and goats, has been established to present alternative practices and means of animal husbandry to local herders.Vigorously developping the tourism.

© Xilin Gol BR

Protection classifications:

At the national level
Procapra gutturosa pallas
Ciconia nigra
Cygnus cygnus
Haliaeetus leucoryphus
Grus japonensis

Contact information:

Tel: 0086-0479-8252201
E-mail: huqin0479@163.com
Xilinhot, Inner-Mongolia, 026000 ,China

Ecological characteristics:

Xilin Gol Biosphere Reserve is situated in the Inner Mongolia Autonomous Region, about 600 km north of Beijing.The total area is 5,800 square kilometers. The coordinate geography: latitude 43’26’’ degrees north to 44’33’’, longitude 155’32’’ degrees east to 170’12’’. There are 6 core areas, the area is 58.089 hectares, the buffer area is 55.464 hectares. The area is extensively grazed by wild herbivores and domestic livestock managed mainly by sedentary herders. The main protective object is the meadow prairie, the typical prairie, the sand forest and the integrality of the river valley wetland ecosystem’s structure and function. We are making efforts to protect the diversity of wild animals, plants and fungus which live in each kind of ecosystem, implement the special protection to the endangered species. In the reserve there are 658 kinds of spermatophytes belonging to 299 genus,74 families, 74 kinds of bryophyte, 46 kinds of fungus, 129 kinds of lichen. There are 33 kinds of animals, belonging to 6 orders 15 families and 126 kinds of birds.

© Xilin Gol BR

China
Qomolangma

© *Qomolangma BR*

Declaration date: 1988
Surface area: 3.380.000 ha
Administrative division: Tibet

Human activities:

The reserve covers 4 counties, Dingri, Nielamu, Jilong and Dinkyi, with nearly 90,000 people. 90% of them are local residents. The main income resources are traditional agriculture and animal husbandry. Meanwhile, climbing and exploration are also important incomes to local people.

Protection classifications:

Feature of Qomolangma Reserve:
Mountain ecosystem including Everest and other peaks around; Himalayas Mountain original forest; Snow Leopard, and other 41 national protected animal species; Himalayas Yew and other 11 national protected plant species; Plateau lake and wetland ecosystem, such as Peigu Tso; History and culture heritage, such as Rongbuk Temple; Q4 Geologic heritage, such as hippi-rion fossil.

Ecological characteristics:

The Qomolangma Nature Reserve is covered with various types of landforms, consisting of high mountain ranges, flat and wide valleys, and high altitude lake basins. Affected by warm and wet current from the Indian Ocean, the south side of the Everest Mountain is dominated by rainfall-plenty ocean monsoon climate, while the north side of Everest is dominated by continental climate. Mountain forest ecosystem lies in the south side of Everest, while semi-arid shrub and grassland in the north. Peaks over 8,000m, i.e., Everest, Luozi, Cho-Oyo Makalu and Xixiabangma represent “the Third pole of the earth”.

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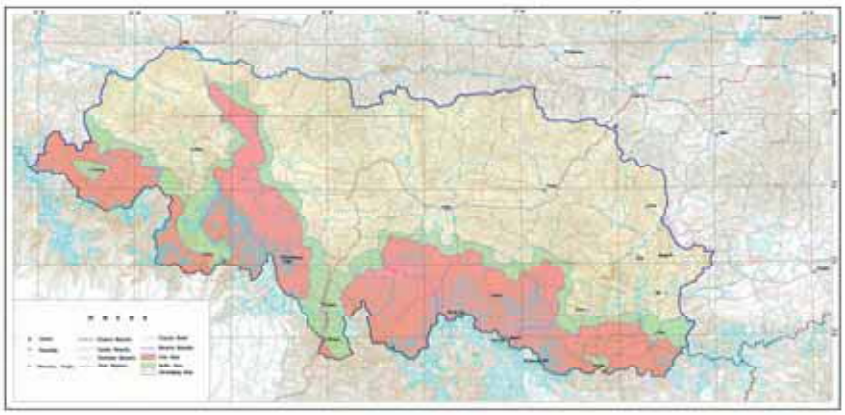
Map about Functional Areas of Qomolangma Reserve



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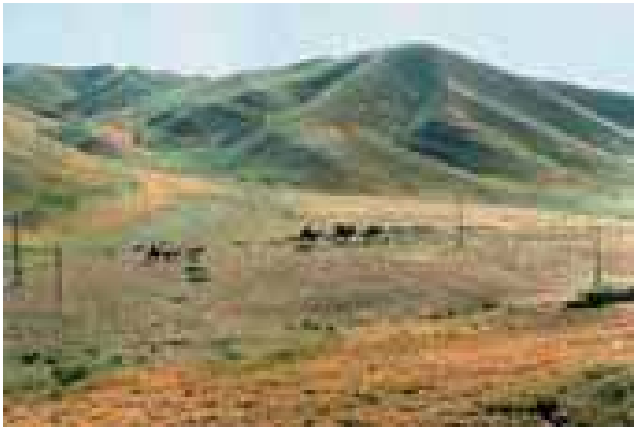
China
Bogeda



Declaration date: 1990
Surface area: 128.690 ha
Administrative division: Conservation bureau of Tianchi Nature Reserve, department of forestry of Xinjiang and Fukang government

Human activities:

Some 4,000 people are permanent residents of the core area, 10,000 people live in the buffer zone and 120,000 people in the transition area of the biosphere reserve (2001). People are living from livestock raising, the collection of medicinal plants, tourism, coal mining and small-scale industry. Some 350,000 tourists come to the biosphere reserve each year (2001), visiting for example a shrine of Taoism at Lake Tianchi in the core area.

Ecological characteristics:

Bogeda Biosphere Reserve is located in the east part of the Tianshan Mountains on the southern brim of the Kurbantungut desert of the Zhunger Basin. Ranging from its highest elevation at 5,445 meters and the lowest at 460 meters above sea level, this biosphere reserve encompasses glaciers, (sub-) alpine meadows, forests, steppes, deserts, sand dunes and alluvial plains. One habitat of special interest is the mid-mountain forest which prevents floods and erosion and represents an important water reservoir for the area. The well preserved Haloxylon spp. vegetation along the southern edge of the Kurbantungut desert is an important barrier preventing the spread of the desert.

Alpine glacier snow and cushion vegetation and scope belt above 3,100 meters; alpine and sub-alpine meadows (2,000 to 2,900 m) with *Kobresia capilliformis, Polygonum viviparum, Thalictrum alpinum* and *Potentilla gelida*; mid-mountain forest-meadow landscape (1,600 to 2,700 m) characterized by *Bromus inermis, Calamagrostis epigeios, Alchemilla erythropleura* etc.; needle-leaf forest with Picea tianshanica; hill steppe and desertified steppe (1,100 to 1,700 m) with *Stipa capillata, Festuca sulcata* etc.; erosion hill micro-semifrotex desert landscape (600 to 1,000 m) dominated by *Artemisia abrotanum*; upper alluvial plain; alluvial plain shrub desert zone dominated by *Reaumuria soongorica*; low plain lingo halophyte vegetation desert zone dominated by *Suaeda physophora, Kalidium caspicum, K. foliatum* etc.; sand dune and depressions; agroecosystems with wheat, water melon, rape etc.; forestry systems; pasture land; coal mine.

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China
Shennongjia

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Declaration date: 1992
Surface area: 70.467 hectare
Administrative division: HuBei

Human activities:

There are 7,246 people living in the transition region who plant rice, corn, potatoes, wheat, and other crops, breed pigs, cattle, sheep and other livestock, and pick mushrooms, fungus, herbs, etc. At the same time, they carry out eco-tourism, summer camps and educational activities in the transition area.

Protection classifications:

Animals: Rhinopithecus roxellanae, Pantherapardus, Aquila chrysaetos, Panthera tigris amoyensis, Moschus berezovskii, Ciconia ciconia.

Plants: Dravidian involucrata, Ginkgo biloba, Taxus chinensis, Metasequoia glyptostro boides,Chinese BIletschneidera

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Ecological characteristics:

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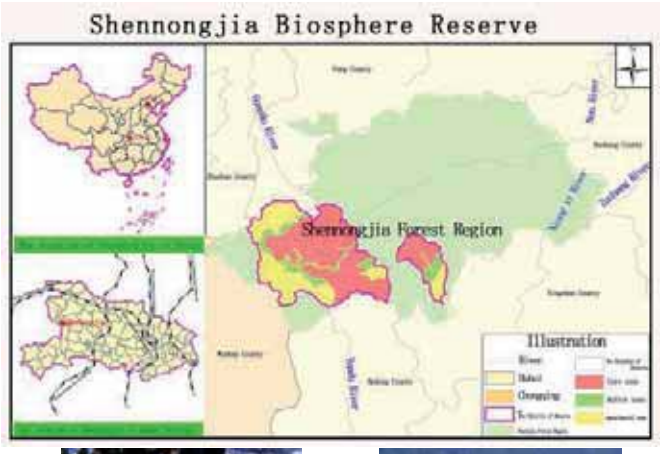
Shennongjia Forest Region, in the sub-region of the western mountain in the Central China and the transition region from subtropical zone to temperate zone, belongs to the monsoon area of the northern subtropical zone, with an average annual rainfall of 1584mm. From the east to the west, the climate is lower and lower, in a distribution of saddle. As one of the most completely persevered Cambrian shell in the world, there are geological relics of former Cambrian and quatemary glaciation in the Region, so it has become National Geological Park. There is complete primitive forest with rich ecology diversity, from low elevation to high elevation, there being subtropical evergreen broadleaved forest, evergreen and deciduous broadleaved mixed forest, deciduous broad leaved forest, evergreen and deciduous broad-leaved forests, and cold-temperate coniferous forests. The natural plants are coniferous forest, broad-leaved forest, bamboo grove, bush, mountain meadow and swamp. According to the recent survey, there are 3239 higher plants, 926 epiphyte and lichens, 493 vertebrates and 4143 insects.



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China
Xishuangbanna

Declaration date: 1993
Surface area: 241.700 ha
Administrative division: The Administration of Xishuangbanna State Nature Reserve is in charge of managing the biosphere reserve. The superior authority is the provincial forestry bureau and the state forestry administration

Human activities:

Apart from its biodiversity, it is also regarded as the richest ethnically diverse area.. Among the total population of 880,000, there are Dai, Ahka, Lahu, Jinuo, Yi, Yao, Bulan, etc. They have been living in this region for generations, keeping the similar religion, culture and language with adjacent countries like Laos, Myanmar, Thailand and Viet Nam. Most of them are still practicing their traditional slash and burn cultivation, which is one of the major threats to development due to low soil productivity. Currently, most ethnic groups receive cash income from paddy rice, tea, rubber plantations, fruits and some non-timber forest products (NTFP). In order to settle conflicts and promote economic development, Xishuangbanna Biosphere Reserve supports pilot villages to practice sustainable development models in searching for a strategy to combine sustainable community development and nature resource conservation.

Ecological characteristics:

Located in the south-west tip of Yunnan province, in south-west of China, Xishuangbanna Biosphere Reserve borders Laos to the east and Myanmar to the west (Mekong region or upper Mekong basin). Currently, it comprises the largest and most comprehensive tropical forest in China. Due to its unique geographic and climate aspect, it contains the richest biodiversity in China. Although the area occupies less than 1/5,000,000 of China, it comprises 4,000 vascular plant species, 102 mammal species, 400 bird species, 63 reptile species, 38 amphibian species and 100 fish species. Besides, more than 90% of China's wild elephant population is living in this region.

Tropical rainforest dominated by *Parashorea sinensis*, *Terminalia myriocarpa, Pometia tomentosa*, *Vatica xishuangbannaensis*, *Dipterocarpus turbinatus* and *Tetrameles nudiflora*; tropical monsoon rainforest mixed with tropical rainforest with *Ficus fulva*, *Erythrina stricta*, *Bauhinia variegata*, *Cleistanthus sumatranus* and *Tetrameles nudiflora*; monsoon broadleaf evergreen forest characterized by the genus *Lauraceae*, *Fagaceae*, *Magnoliaceae* and *Theacea*; mossy broadleaf evergreen forest dominated by *Cyclobalanopsis rex*, *Lithocarpus chinensis* and *Phoebe macrocarpus*; agroecosystems with rice, maize, sugar cane; forestry systems with rubber trees etc.

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China
Yancheng

Declaration date: 1993
Surface area: 280.000 ha
Administrative division: State Environmental Protection Administration Government of Yancheng City Administration of Yancheng Nature Reserve

Human activities:

Some 90,000 people live in the biosphere reserve and about 20,000 tourists visit the biosphere reserve each year (1991). The original coastal wetlands in the biosphere reserve, which used to be its habitat, are threatened with increasing demand of land for food production and economic development. Thus, reed plantations, farmland and aquaculture ponds continue to replace the original wetlands. While reed plantations and artificial ponds are tolerable as habitat for the crane, the decrease of biodiversity is unavoi-

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Ecological characteristics:

Yancheng Biosphere Reserve is located in the central part of the east coast of China in the transition area between the temperate and subtropical zones. The biosphere reserve consists of a coastal beach area extending over 582 km and covering a total area of 280,000 hectares. The main objective of the biosphere reserve, which is also designated as a Ramsar site, is to protect the red-crowned crane (*Grus japonensis*) and its habitats. Among the wintering sites for the crane, Yancheng is the most important since it hosts over a half of the world population. The integration of resource use and habitat protection will remain the major concern of the biosphere reserve in the future.

Grass and sedge marshes with *Scirpus planiculmis, S. triqueter, Carex scabrifolia, Cortaderia celloana and Panicum psilopodium*; saline marshes with goosefoot (*Suaeda salsa*); wetlands dominated by reed (*Phragmites australis*), pondweed (*Potamogeton crispus*) and water milfoil (*Myriophyllum spicatum*), tape-grass (*Ottelia alismoides*) and buckbean (*Nymphoides peltata*); grasslands inside the seawall dominated by Imperata cylindrica; plantations of black locust tree (*Robinia pseudoacacia), Metasequoia* sp., China fir (*Cunninghamia lanceolata*) etc.; agroecosystems with barley, wheat, peanuts, cotton etc.

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China
Maolan

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Declaration date: 1996
Surface area: 21.330 ha
Administrative division: Guizhou

Human activities:

agroecosystems with rice, rape, sweet potato and medicinal plants; forestry ecosystems with Dendrocalamus tsiangii and Galla chinensis.

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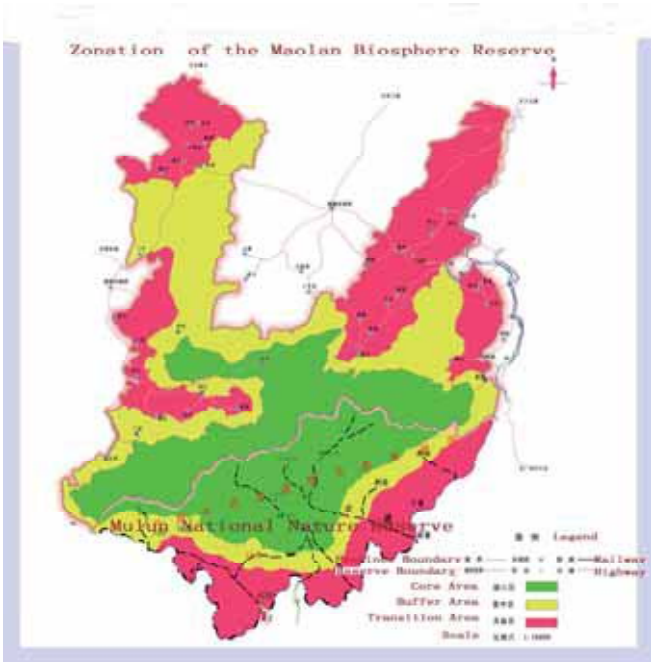
Ecological characteristics:

Maolan Biosphere Reserve is situated in the Guizhou Province in south-east China. The region is famous for its virgin forest that is well preserved on the karst landscape, in the middle subtropical zone of China. The main habitats include subtropical evergreen broadleaf forest, subtropical evergreen and deciduous broadleaf mixed forest, agroecosystems (with rice, rape, sweet potato and medicinal plants) and forestry ecosystems. The fauna is rich with many rare or endangered species including forest musk deer (Moschus berezovskii), rhesus monkey (Macaca mulata) and the south China tiger (Panthera tigris). The landscape with its Karst springs, streams and ponds attract about 60,000 visitors per year (1994). About 4,300 people of six ethnic origins (Shui, Buyi, Yao, Miao, Han and Zhuang) Subtropical evergreen broadleaf forest with Sapium rotundifolium, Carpinus lipoensis and Platycarya longipes, subtropical evergreen and deciduous broadleaf mixed forest.

Protection classifications:

Karst forest ecology, environment and karst function



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China
Tianmushan

Declaration date: 1996
Surface area: 4.284 ha
Administrative division: Tianmushan National Biosphere (Nature) Reserve Management Bureau in Zhejiang Tianmu Mountain reporting to local and National Forestry Administration

Human activities:

Only some 170 people live in the biosphere reserve (1994). Tianmushan has a long history of human activities dating back more than 2,000 years ago. Buddhism, Taoism and Confucianism were practiced over centuries and have contributed to the conservation of nature in the region.

Ecological characteristics:

Tianmushan Biosphere Reserve is located in the Zhejiang Province in the eastern coastal region of China, about 230 km south-west of Shanghai. Also known as the 'kingdom of big trees', the biosphere reserve protects the most ancient wild Ginkgo biloba communities. The vegetation in this area is very rich, covering evergreen and deciduous broadleaved forest, bamboo forest, coniferous forests, marshes and aquatic vegetation.

Subtropical evergreen broadleaf forest with Castanopsis sclerophylla, Cyclobalanopsis glauca and Schima superba; subtropical evergreen and deciduous broadleaf mixed forest with Phoebe chekiangensis, Ginkgo biloba and Emmenopterys henryi; coniferous forest with Cryptomeria fortunei, Pseudolarix kaempferi and Pinus taiwanensis; agroecosystems with rice, vegetables and maize; forestry ecosystems with bamboo, mulberry, medicinal plants and tea (Camellia sinensis).

© Photo: Wang Wenbin, Wang Zuliang

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China

Jiuzhaigou Valley

Declaration date: 1997
Surface area: 106.090 ha
Administrative division: The Jiuzhaigou Administration Committee takes charge The higher body is the Sichuan provincial government

Human activities:

The inhabitants (about 1,000 in 1997) are mainly Tibetan and Qiang, who live in nine villages located in the valley. The rapid growth of tourism has brought benefits to these communities but has also created threats to the natural environment. The local authorities are addressing these, for example by controlling the construction of new buildings.

Ecological characteristics:

This biosphere reserve covers 24,000 hectares on the southern slopes of the Minshan Mountains which is within the transition area between the Sichuan Basin and the Qinghai-Tibet plateau. The natural landscape includes snow-capped peaks, numerous waterfalls, forests, mountain streams and lakes. The altitude ranges from about 2,000 to 4,700 meters above sea level. There are more than 140 bird species and numerous threatened species of plants and animals such as the Giant Panda (Ailuropoda melanoleuca).

Mountain coniferous forest; mixed forest with Quercus liaotungensis and Acer davidiana; shrub vegetation with Lonicera spp., Spiraea sp. and Berberis sp.; mixed coniferous- broad-leaved forest with Pinus tabulaeformis, P. armandii, Tsuga spp. and maximowiczii; alpine scrub-meadow; Tulus vegetation up to snow line with Saussurea medusa, S. gnaphalioides and S. longifolia; lake ecosystem; agroecosystems with planted Brassica pekinensis, B. campestris, Zea mais etc.

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China
Nanji Islands

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Declaration date: 1998
Surface area: 20.106 ha
Administrative division: Zhejiang

Human activities:

In the NIBR, the local community traditionally conducts stow net fishing and collects shellfish and algae. In recent years, mariculture and tourism achieved rapid development. In 2006, the number of tourists was over 55,000. The gross output value of industry and agriculture was 8,201,700, in which 5,299,700 was generated by fishery and 2,902,000 was by service industry, primarily tourism. The average annual income of the local residents was 850.

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Ecological characteristics:

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The Nanji Islands Biosphere Reserve (NIBR) has been established to protect its rich mollusks, algae, and its unique marine ecosystem. The NIBR is located in subtropical zone. The coast of the NIBR consists of a combination of sandy beaches, mud flats, gravel beaches, and rocky shores. The convergence of Taiwan Warm Current and coastal currents of Jiangshu and Zhejiang around the Nanji Islands creates various currents and complicated frontal surfaces. The transparency of the seawater is good all year long. Such a heterogeneous physical environment serves as an ideal refuge for marine fauna and flora. Through years of systematic survey, 1,869 species of marine animals and plants have been recorded, including 421 species of mollusks, 178 species of benthic macroalgae, 459 species of nano and microalgae, 397 species of fish, 257 species of crustaceans, and 157 species from other classes. Worth to mention is that the number of species of mollusks and benthic macroalgae found in NIBR accounts for 30% and 25% of the country's total, respectively. The NIBR is found to be the northern or southern most habitat for 30% of its mollusk and benthic macroalga species; and 36 species of mollusks found in China are only recorded in the NIBR. As a result, the NIBR gains its name as the "kingdom of mollusk and alga", and has been concerned and valued by marine biologists in country and overseas.

Protection classifications:

S.nigrifoloides Tseng et Lu
Giffordia zhejiangensis S.B. Wang

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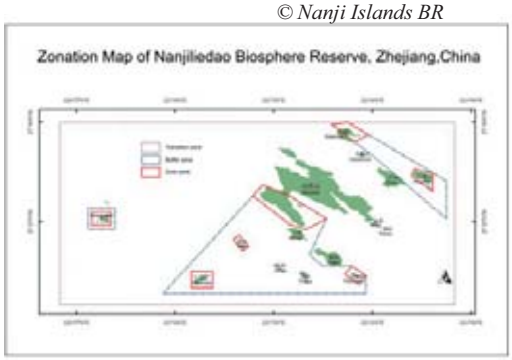

China
Gaoligong Mountain

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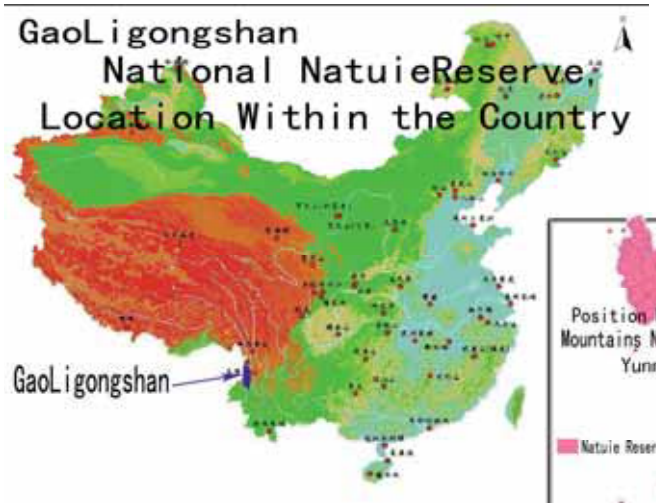
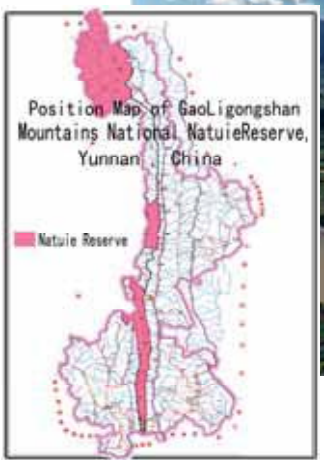
Declaration date: 2000
Surface area: 405.200 ha
Administrative division: Yunnan

Human activities:

In the buffer zone, with diverse topography and ecosystems, which create unique natural resources, people mainly cultivate rice, maize, wheat, cole, potato, pea, buckwheat and other crops. In lower altitude region, people cultivate sugarcanes, coffee, subtropical fruits, and tobaccos on large-scare. In mountainous area, locals cultivate teas, nuts and tung oil trees instead. Almost every family rears pigs and poultries and many families cultivate cattle, horses, goats and other livestock. Local people also collect non-timber products like medicinal and edible plants and mushrooms.





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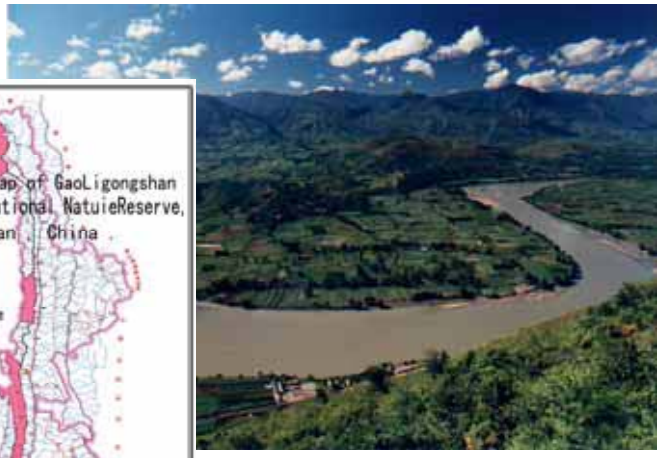
Ecological characteristics:

Gaoligongshan Biosphere Reserve (GNR), located in Yunnan Province, southwest China, stretched along the China-Myanmar borderline, the watershed of Nujiang (salween river) and irrawaddy river, is the biggest reserve in Yunnan province. Higher in the north and lower in the south is one main characteristic of its geographical position which ranges less than 210 meters in Yingjiang County, Yunan province to 5128 meters at the summit of Gawagapu, Gongshan county, Yunnan province. Gaoligongshan has evident vertical distribution patterns and it enjoys 10 different vegetation types. According to statistics, So far, 4897 native higher plant species and varieties(or subspecies) belonging to 1196 general in 256 families ,154 mammal species, 419 bird species, 21 amphibian species,56 reptile species and 49 fish species have been described. Gaoligongshan is truly one region with the richest biodiversity in China and well known as one of the world's biodiversity treasure houses. The middle-upper part of the mountain is designated as gaoligongshan nation-level reserve covering an area of 405,200 hectares. The location is 98°08′—98°50″E ,24° 56′—28°22′N. The major objective focuses on conservation of natural landscape, biodiversity, rare and endangered species.

Protection classifications:

There are 81 kinds of animals identified as 1st-class and 2nd-class-protected ones (key-protected ones of the national level) such as: Macaca assamensis, Macaca nemestrina, Presbytis phayrei, Nycticebus, Hylobates hoolock, Malay bear, Clouded Leopard, Leopard, Panthers tigris, Budorcas taxicolor, Moschus berezovskii, Ciconia nigra, Golden Eagles, Lophophorus sclateri, Syrmaticus humiae, Red panda, etc.



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China
Huanglong

Declaration date: 2000

Surface area: 138.000 ha

Administrative division: Huanglong Nature Reserve

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Ecological characteristics:

Huanglong Biosphere Reserve is situated in a mountainous area with peaks reaching up to 5,588 meters above sea level. The area has already been noted for its biodiversity hotspot, part of it being inscribed as a Natural World Heritage site in 1992. Major wild animals include the Giant Panda (Ailuropoda melanoleuca), Rhinopithecus roxellana and the leopard (Panthera pardus fusca). It is also remarkable from a scenic point of view since the biosphere reserve includes a system of 3,400 travertine pools that are linked by travertine shoals, rapids and waterfalls. The biosphere reserve is trying to find a scientific way to protect the natural resources in the area, but at the same time use them in a sustainable way. It is therefore considered important to cooperate with the local communities, and use existing traditional knowledge and local products for improving the economic situation of the population.

Human activities:

About 630 permanent residents live in the biosphere reserve (2000) who all live in Huanglong Township and who are composed of Han, Tibetans and Muslims. They mostly subside on farming and husbandry, however tourism also increases its importance in the local economy. The Huanglong Gorge is a holy site and there is an annual pilgrimage with people from different religions gathering there to worship.

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China
Shankou Mangrove

Declaration date: 2000
Surface area: 8.000 ha
Administrative division: Management Div. of Shankou National Mangrove Nature Reserve The State Ocean Administration and the Guangxi Ocean

Human activities:

Most of the local people (totalling some 34,000 in the transition area in 1998) are originally from the Fujian coast area (eastern China) and are descendants of Han nationality. Their main economic activities are rice and commercial crop cultivation as well as livestock husbandry, mariculture and shallow water fishing. Development opportunities include sustainable mariculture (mudflat and offshore mariculture, including pearl cultivation), further development of ecotourism, shoreline protection, duck-raising, bee-keeping, processing of edible fruits of the mangrove species Avicennia marina etc. Frequent visits by local and national officials provide scope for demonstration and improvement of protection and resource use strategies in China's marine coastal environment. Shankou Mangrove Biosphere Reserve also offers considerable potential for collaborative activities with other mangrove biosphere reserves in the region, such as Ranong Biosphere Reserve in Thailand and Can Gio Mangrove Biosphere Reserve in Vietnam.

Ecological characteristics:

This biosphere reserve is located in the Beiby Gulf Area of Guangxi Autonomous region in the southernmost part of China. It covers only 8,000 hectares, but given the fact that it supports several mangrove species endangered in China (Rhizophora stylosa, Bruguiera gymnorrhiza), as well as rare seagrass species and the sea mammal Dugong dugong, it is of major significance for biodiversity conservation. The biosphere reserve includes mangroves, salt marshes and seagrass habitats. This combination of three coastal habitats in a single location is rare along China's coast.

Mangrove swamp characterized by Rhizophora stylosa, Bruguiera gymnorrhiza, Aegiceras corniculatum, Kandelia candel and Avicennia marina; salt marsh dominated by Spartina anglica; sea grass habitats dominated by Halophila ovalis and Halodule uninervis; farm and dry land with Eucalyptus exserta, E. citriodora, rice, peanut, sugarcane etc.

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China
Baotianman

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Declaration date: September 2001
Surface area: 90.950 ha
Administrative division: Henan province

Human activities:

In the buffer zone are built such scientific monitoring institutions as the weather station and the research station of ecological positioning; in the transitional zone such activities are carried out as the plantation of crops, the cultivation of forests, the gathering of Chinese herbs like dogwood and glossy ganoderma and the picking of wild vegetables like mushrooms and black fungi. In Oingfang ecotour is carried out.

Protection classifications:

At the national level: It has been enlisted as the national nature reserve. There are 65 kinds of precious and endangered plants listed in the category of plants protected by the country such as E.henryi Oliv. A. chinensis Van Tiegh and G. elate BI etc. There are 50 kinds of wild animals listed in the category of specially protected kinds by the country such as Panthera pardus Linnaeus, Naemorhedus goral, Chrysolophus pictus etc…

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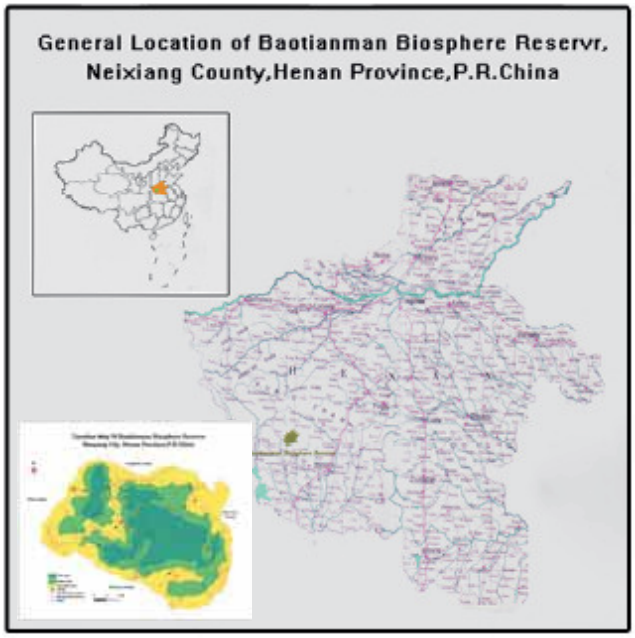
3 Nanyang Road, Tuandong, Neixiang County, Henan, P.R. China 474350

Ecological characteristics:

Situated in the transitional region from China's warm temperate zone to the north subtropical zone designated according to China's geographic system, the geographical location of Baotianman Biosphere Reserve lies in the sole watershed in China among the Yangtze River, the Huai River and the Yellow River and at the same time it is also the origin of several tributaries of the three greatest water systems. The topography of the reserve has an obvious effect on the redistribution of the climatic elements, therefore it shows a special subclimate. Baotianman has the comparatively intact natural broadleaf forest of the transitional zone. In the reserve the remaining primitive vegetation occupies a vast area and there still remains the comparatively intact area of the deciduous broadleaf forest, the mixed forest of coniferous trees and broadleaf trees, the forest of short crooked trees on the mountain top and the rare vegetation groups of Whinghackberry and Armend pine. It is the typical representative of the ecosystem with the transitional characteristics of the eastern deciduous forest of the ancient North area, of the forest biological groups of the north subtropical zone and the south warm temperate zone. Baotianman has complex and typical structure of ecosystem and has intact and multiple synthetic natural system which has a 7 vegetation groups, 13 vegetation types and 123 subgroups. It preserves such intact ecosystems as forest and meadow; inside the reserve it also conserves the wetland agricultural ecosystems such as marsh and river.

© *Baotianman BR*



China
Saihan Wula

© *Saihan Wula BR*

Declaration date: 2001
Surface area: 100.506 ha
Administrative division: Inner Mongolia

Human activities:

Harvesting wild vegetables, ecotourism, handicrafts and other tourism goods,

Protection classifications:

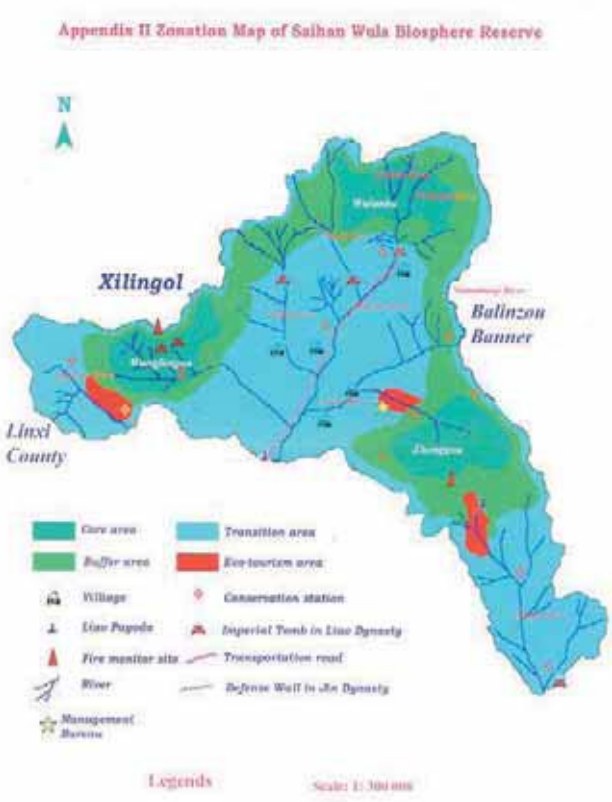
At the national level:
Mixed mountain and highland systems
Populus davidiana, Betula platyphylla, Quercus mongolica mountain grassland with Stipa baicalensis, Leucopoa albida, Quercus mongolica

Contact information:

Tel: 0476-6290926
E-mail: saihanwula520@sina.com
Saihan wula National Natural Reserve Administration,
Balinyou Banner,
Chifeng City,
Inner-Mongolia Autonomous Region,
025100,P.R. China

Ecological characteristics:

Located in the province of Inner Mongolia, the Saihan Wula has a rich biodiversity consisting of cold temperate forests, grasslands, wetland ecosystems and the catchment areas of the Xiliaohe River. The specific traditions of the local ethnic people have contributed to the conservation of biodiversity. Mountain forest including Populus davidiana, Betula platyphylla, Quercus mongolica etc.; mountain grassland with Stipa baicalensis, Agropyron michnoi, Leucopoa albida, Quercus mongolica etc.; mountain shrub characterized by Rhododendron dauricum, P. micranthum, Prunus armeniaca, Artemisia sacrorum etc.; sandy habitats characterized by Ulmus pumila, Crataegus pinnatifida, Malus baccata etc.; river valley wetlands characterized by Salix rorida, S. sibirica, S.microstachya etc.; pasture land; agroecosystems.



© *Saihan Wula BR*

China
Dalai Lake

© *Dalai Lake BR*

Declaration date: 16th December 2002
Surface area: 740.000 ha
Administrative division: Hulunbeier, Inner Mongolia

Human activities:

Grazing

Protection classifications:

The Reserve is classified as a National Nature Reserve and also belongs to two globally important ecoregions: Dauria International Protected Area (DIPA) and Ramsar Wetlands of International Importance.

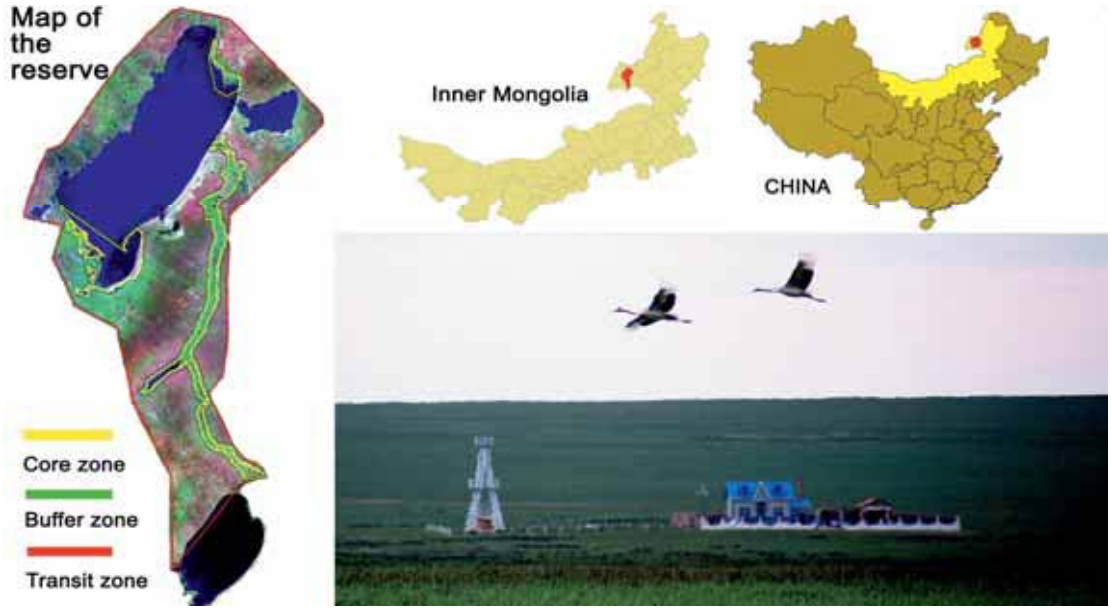
Ecological characteristics:

The Reserve buffers the south- easternmost reaches of Daurian Steppe Ecoregion and Amur Basin Wetlands and Rivers Ecoregion. The global importance of wetlands in this area is most often associated with presence of rare birds and huge numbers of migrating waterbirds in general. It has been shown that it is the Dauria area where narrowing of the continental branch of the global East-Asian Australasian Flyway occurs. The Reserve also occurs in an area that is very important for the mixing of Daurian, Manchurian and Siberian fauna and flora. In evolutionary time it has been and remains an important corridor for dispersal and migration of many terrestrial and freshwater species.

© *Dalai Lake BR*

Contact information:

Tel: 13947001609
No.16 Manzhouli Road,
Hailaer District,
Hulunbeier City,
Inner Mongolia,
CHINA



China
Wudalianchi

Declaration date: 2003
Surface area: 106.000 ha
Administrative division: Co-management committee of Wudalianchi Nature Reserve & Scenery Landscape Area of Heilongjiang Province

Human activities:

About 56,730 people live in the biosphere reserve. Their heritage and customs are very rich and have an important cultural significance in the area. Buddhist temples, statues, frescoes, gardens and folk festivals contribute to the social and economic well-being. Wudalianchi is also a well-researched site for geology, seismology and geomorphology. The construction of an educational museum based featuring volcanism is planned.

Ecological characteristics:

Located in the extreme north-eastern part of the country, the Wudalianchi area is marked by relatively recent volcanism. It contains Mount Laohei and Mount Huoshaos, which are China's youngest volcanoes. Its conservation value derives from rich plant diversity dating from the tertiary period. Due to a mix of older and more recently erupted volcanic areas, the site is an ideal place in which to study the succession of pioneer plants on barren land. Tourism plays an important role in the area, primarily based on hot water springs with mineral water and spas and the area's natural scenery. Environment-friendly "green food" is cultivated by using organic methods and rice in particular is irrigated by mineral waters rich in trace elements that are necessary for the human body. In 2001, the co-management committee of Wudaliachi Nature Reserve & Scenery Landscape Area was established in order to strengthen protection, exploitation, utilization and management of natural and touristic resources. This body was approved by the Heihe city government, institutions and farms.

Contact information:

Li Hong Guang, Co-management Committee
No.1 Yinbin East Street, Scenery District
164500 Wudalianchi City, China
Tel/Fax: (86) 456-7222696
E-mail: yelingsheng_cn@163.com

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

China
Yading

Declaration date: 2003
Surface area: 381.506 ha
Administrative division: Yading National Nature Reserve Administration State Environmental Protection Administration (PRC) Sichuan Environmental Protection Bureau

Human activities: The Kangba-Tibetan ethnic group accounts for 90% of the total population of the biosphere reserve, which practise shamanism or adhere to five different sects of Tibetan Buddhism. The multitude of temples combined with the scenic beauty make this area an interesting tourist destination. Research focuses on botany, zoology, climate, land forms, and more recently, on human-environment interactions in connection with increasing tourism.

Ecological characteristics: This biosphere reserve is part of the eastern extension of the Tibetan plateau ranging from 2,200 to 6,032 m a.s.l. The area is not only noted for its high biological diversity, but also for its associated cultural values as three sacred mountains are located within the area. The local inhabitants observe the custom of revering nature and preserving the environment of the sacred mountains. Attention is given to the protection of some 20 rare animal species in the area, including leopards, black bears, Asian golden cats, golden pheasants etc.

Sub-alpine forests, Alpine deciduous forests, Hard-leaf evergreen broad-leaf forests, poplar birch forests and small leaf forests, Alpine bush grassland.

Contact information:

Liu Ning
Daocheng Yading Nature Reserve Administrative Bureau
No.1 Bei Street, Jin town, Daocheng County
627 750 Daocheng (Sichuan)
China
Tel/fax: (86-836) 572 8125

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

China
Foping

Declaration date: 2004
Surface area: 10.326 ha
Administrative division: Shanxi Foping State-level Nature Reserve Administration, reporting to State Forestry Administration of China

Human activities:

Foping is a semi-enclosed state with poor transport facilities and low human activity. The local population, all belonging to the Han ethnic group, consists of some 8,000 people. They live from traditional farming supplemented by commercial tree planting and propagation. Local people mainly plant economically useful trees such as the medicinal plant Macrocarpiun officinale. The Biosphere Reserve has been proactive in helping local communities develop their economy by providing guidance and financial assistance. One project aimed at helping the local farmers changing their previous slash-and-burn method leading to an increase of the average yield of grain per unit area. A complex diversity of landscapes, complete forest ecosystems, and rich and diversified biological resources provide a research and teaching base for a range of disciplines and they also serve as an open classroom and laboratory to popularize natural sciences and environmental education.

Contact information:

Ma Yisheng
Shanxi Foping State-level Nature Reserve Administration
12 Huangjiawan Road, Foping County
Shanxi Province
China
Tel/fax: (86.0916) 8916002
E-mail: pandafp@vip.163.com - ryqin@163.com

Ecological characteristics:

Foping Biosphere Reserve, corresponding to the Foping Nature Reserve, located in the Shanxi Province at the southern side of the Qinling Mountains, is one of the three major habitats of the giant panda in the country. It belongs to the mid-alpine region and includes well-preserved primitive forest communities unique to the Qinling Mountains at altitudes above 2,200 metres. Foping Biosphere Reserve encompasses typical and complete mountain forest ecosystems and landscapes where the northern subtropical and warm temperate zones meet, and has rich biodiversity and natural heritage represented by the giant panda. It also abounds with important medicinal plant species, and has significant potential for ecotourism and scientific research. The area is situated where typical North, Central and Southwest China flora meet. There are 1,765 species of wild plants including wild economic plants such as medicinal, aromatic and oil-bearing plants. The fauna is a mixture of species in a transition zone including both the oriental and the palaearctic realms. It is characterized by having a complex composition, ancient origin, capacity of survival, and polymorphism. The Biosphere Reserve includes key rare and endangered species such as the giant panda (Ailuropoda melanoleuca), takin (Budorcas taxicolor bedfordi), golden snub-nosed monkey (Rhinopithecus roxellanae), South China Tiger (Panthera tigris amoyensis) and Indian leopard (P. pardus fusca). The Qinling Mountains provides an ideal habitat for the giant panda and comprises the densest population with a population size of 89-97 (2002) of the total 280 that live in the Qinling range. The unique geographical location and relatively primitive environment provide the giant panda with adequate food and a sound environment, and also presents a natural area for the study and protection of the species.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

China
Chebaling

© *Chebaling BR*

Declaration date: 2007
Surface area: 16.110.700 ha
Administrative division: Guangdong

Human activities:

With the support and guidance of the Reserve, local people are growing rice, vegetables and peanuts in farmlands and planting mulberry leaves, tea leaves, citrus and herbs in dry lands; China fir, maso bamboo, citrus and herbs are planted in the forestlands of the transition area as well.

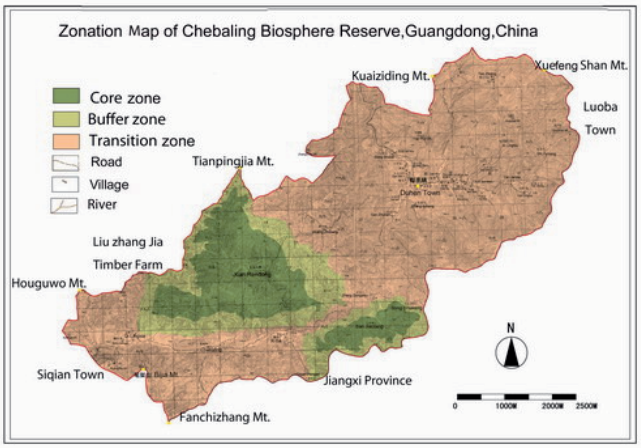
© *Chebaling BR*

Contact information:

TEL 07513463888
E –mail: cblbhq@163.com

Ecological characteristics:

Chebaling Reserve is located in the northeast of Shi-Xing County, city of Shao-Guan, Guangdong Province, with the total area of 16110.7 hectares. The reserve provides protection for mid-subtropical evergreen broad-leaved forest as well as the endangered animals such as Panthera tigris, Neofelis nebulosa, Gorsachius magnificus, Tragopan caboti and their natural habitats. The outcome of research indicates that there are 1928 species of plants in Chebaling Reserve, with 1345 seed plant, 177 pteridophyte, 163 bryophyte, 243 macrofungus. It is approved that there are 1558 species of animals in the Reserve, with 38 animals, 223 birds, 36 reptiles, 16 amphibians, 1220 insects, 25 fish.



Protection classifications:

At the national level
1.Panthera tigris
2.Neofelis nebulosa
3.Muntiacus crinifrons
4.Gorsachius magnificus
5.Bretchneidera sinensis
6.Eurycorymbus cavaleriei

© *Chebaling BR*

China
Fenglin

© *Fenglin BR*

Declaration date: 2007
Surface area: 181.654 ha
Administrative division: Heilongjiang

Human activities:

Collection of forest products,
Mushrooms
Medicinal plants

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Contact information:

Tel 0458-3816087 3818799
E-mail:flgxl88@126.com
Wuying District, Yichuen City,
heilongjiang153033, China

Ecological characteristics:

Located in the extreme north-eastern part of China, this biosphere reserve covers 28,500 hectares in a typical hilly region known for its intact natural stands of Korean pine (Pinus koraiensis). The biodiversity is very rich, with more than 568 species of plants, 52 mammals, and more than 220 birds. About 3,000 people live in the biosphere reserve (1996). There is a forty-year research record on climate, hydrology and the ecology of the Korean pine. Steep-slope Korean pine communities with Pinus koraienses, Quercus mongolica; slope-shrub Korean pine communities with Tilia amurensis, Corylus mandschurica; slight-slope shrub-broadleaf Korean pine communities with Carex campylorhina, Hippochaete hyemalis; Fern-Picea abies-Korean pine communities in gullies with Picea koraiensis, Abies nephrolepis.

© *Fenglin BR*

Protection classifications:

At the national level
1 Pinus koraensis
2 Aix galericulata
3 Tetrastes bonasia
4 Cervus elaphus
5 Selenarctos thibetanus

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China
Wuyishan

© *Wuyishan BR*

Declaration date: 2007
Surface area: 56.527 ha.
Administrative division: Fujian

Human activities:

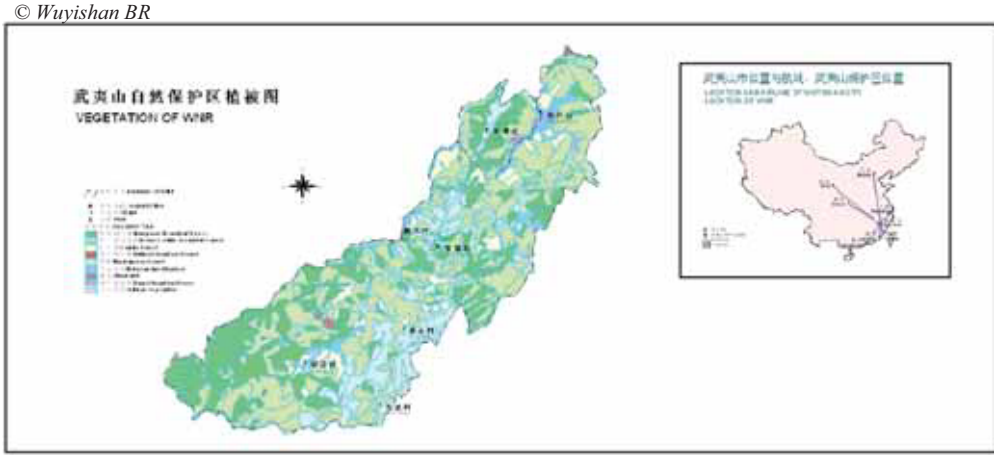
Crops, fruits, vegetable and tea are planted and bamboo shoots, Muer mashroom, fiddlehead, honey, chestnut are collected in the buffer zone.

© *Wuyishan BR*

Ecological characteristics:

Wuyishan Nature Reserve is located in the north of the Wuyi Mountain Range between 27°33 ′ - 27°54 ′ North Latitude and 117°27 ′- 117°51 ′ East Longitude. With the typical subtropical Monsoon Climate, its annual average temperature is between 8.5 ℃ – 18℃ and annual rainfall is between 1486mm – 2150 mm. The average latitude is 1200mm. There are a lot of steep mountains and deep valleys with obvious rifts. It has the lowest temperature, highest humidity, richest rainfall and longest frog days within Fujian Proince. There are abundant flora and fauna in the reserve owing to its complicated and various landforms and climate. The well preserved zonal evergreen broadleaf flora in the reserve is the largest mid subtropical forest ecosystem that has been well protected in the southeast of China. With diversified ecosystem, its nature ecosystem includes forest, shrub, meadow, bamboo forest and rivers. The typical representative for its semi-nature ecosystem is the agriculture ecosystem including dry land and tea garden.

© *Wuyishan BR*



Protection classifications:

At the national level:
1. Tsoongiodendron odorum
2. Trillium tschonosbii
3. Emmenopterys henryi
4. panthera trigris amoyensis
5. Tragopan Caboti
6. Paradoxornisd davidiahus

Contact information: Tel: 0599 - 5305118 E-mail: dm1513@163.com Wuyishan, Fujian, 354300, China

China
Xingkai Lake

Declaration date: 2007
Surface area: 222.488 ha
Administrative division: Heilongjiang Xingkai Lake National Nature Reserve

Human activities:

The local communities within the reserve mainly include the Xingkaihu Farm, Xingkaihu Aquaculture Company and Baipaozi Township. There is a total population of 32,000, comprising Han, Hui, Korean and Manchu people with Han people accounting for 95% of the population. The Xingkaihu Farm covers an area of 139,000 hm2 and has a population of 12,000. It has under its jurisdiction 26 crop and livestock farming teams and 11 industrial, transportation and commercial enterprises. Its agricultural and industrial output value totals some 130 million yuan and annual rice production stands at 800,000 tons. The "Xingkaihu" brand rice has been labeled as one of China's green products. The farm's annual production of aquatic products reaches 200 tons. The farm's paper mill exports six products to 21 countries and regions including Japan and Canada.

Ecological characteristics:

The Xingkai Lake Nature Reserve is situated in the Xingkai Lake basin and the bulging southern section of the Fengmi Hill-Yangmu. On its west side is the Mount Laoye of the Changbai Mountain Ranges and on its east side is the Sikhote-Alin Range in Russia. Its topography is high in northwest and low in east with latitudes ranging from 574 meters to 68 meters. Most of its terrain units are Muling-Xingkai alluvial plain, low lacustrine plain and small areas of low hilly land as results of structural erosion of Fengmi Hill. Baipaozi Township, located in the middle of the reserve, covers an area of 316 km2, including 176 km2 of lake water area, 1.02 hm of cultivatable land, and 3,867 km of forested land. Of its population of 17,500, the majority are Han people while the ethnic minorities including the Manchus and Koreans make up only 2%.

Contact information:

Heilongjiang Xingkai Lake National Nature Reserve Administration
198 Guangfu Zhonglu, Mishan Town
158300 Heilongjiang
China

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Federal States of Micronesia

Utwe

Declaration date: 2005
Surface area: 1.773 ha
Administrative division: Kosrae Conservation and Safety Organization, reporting to Utwe Municipal Government, Kosrae State Legislature, Kosrae State Marine Resources, and Office of the Governor

Human activities:

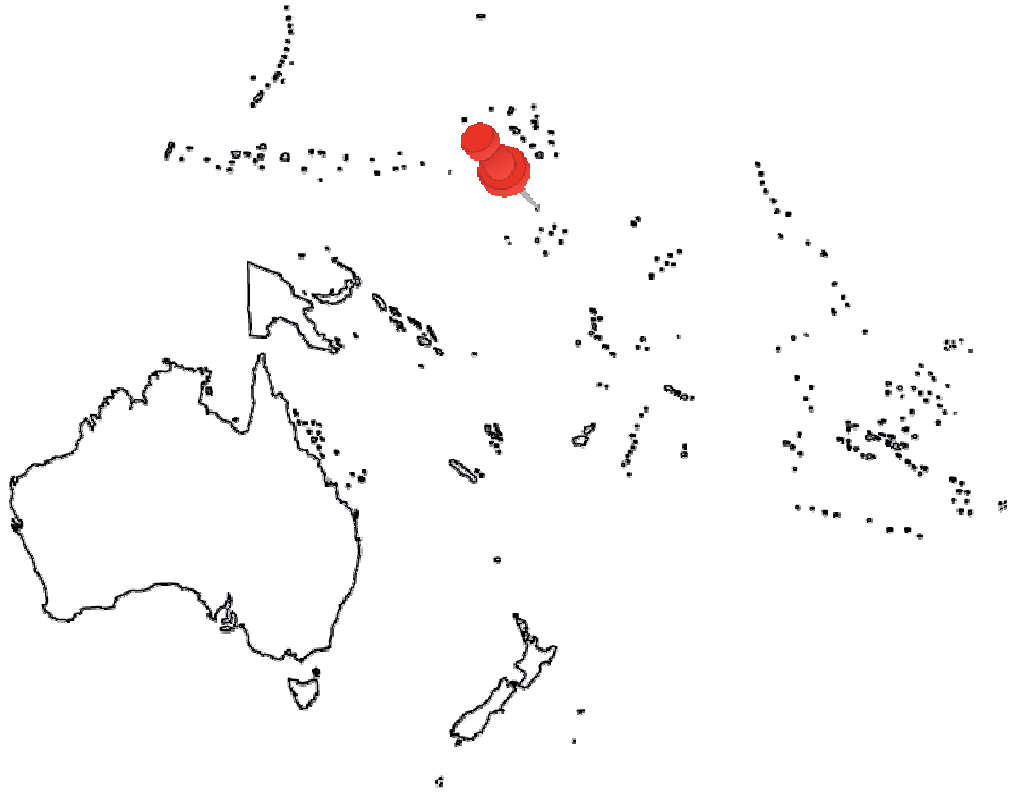
The people living in Utwe use the transition area for agricultural activities, tourism, fishing and harvesting of natural resources, and settlements. It is to a great extent protected from destructive activities by the 'Land Use Plan' and sustainable development programs are promoted here.

Contact information:

Kosrae Conservation and Safety Organization
Box 1007
Kosrae
Fed.States of Micronesia
Tel.: (691) 3703673
Fax: (691) 3703000
E-mail: kcso@mail.fm

Ecological characteristics:

The Utwe Biosphere Reserve is located on the south-west of Kosrae, a small mountainous volcanic island in the South Pacific. The Biosphere Reserve is located on the relatively flat and narrow coastal plain extending from the foothills to the shore. Most of the interior of the island is rough and rugged. Mangrove swamps and coral reefs surround most of the island. According to the Division of Fisheries, over 335 species of fish have been recorded as well as 180 coral species (13 soft coral and over 150 hard coral species). Other ecosystem types in the Biosphere Reserve include tropical rain forest, wetland forest, sea grass beds and marine lakes. The wetland forest has different kinds of green ferns, and also harbours the only remaining stand of Ka trees (Terminalia carolinesis) in the world. Isolated by more than 300 nautical miles from its nearest neighbour, Kosrae has been little influenced by modern development and industry. However, as any other States within the Federated States of Micronesia, Kosrae's marine resources are being depleted and some marine species such as turtles, lobsters, corals, and giant clams are endangered. The core area, which is mainly composed of mangrove and marine areas, has been designated with the main objective to protect the area thus prohibiting any human activities including harvesting of natural resources. The terrestrial buffer zone protects the core area against external pressures and the marine buffer zone is protected as a no-take zone.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Federal States of Micronesia

And Atoll

Declaration date: 2007
Surface area: 950 ha
Administrative division: And Biosphere Reserve ABR committee

Human activities:

Capacity building, fishery/fisheries, forestry, hunting, local participation, recreation, tourism.

There is a very small permanent, part-time population of caretakers on the island itself; therefore there is a very small human ecological footprint on the atoll. However, there is a more significant population within the transition zone on the southwestern coast of Pohnpei Island.

Contact information:

Conservation Society of Pohnpei
P.O. Box: Box 2461, Kolonia
96941 Pohnpei
Fed.States of Micronesia
Tel.: (691) 320 5409
Fax.: (691) 320 5063
E-mail: csp@mail.fm

Ecological characteristics:

And Atoll is biologically and topographically representative of a vast majority of the atolls around Federated States of Micronesia (FSM). It is the most biologically diverse and undisturbed atoll in Pohnpei, Pohnpei's number one marine Area of Biological Significance (ABS) and one of the identified 24 "Priority Action Areas" in the Eco-regional Plan under the National Biodiversity Strategic Action Plan (NBSAP). With a significant lagoon area of approximately 74 km2, the atoll, which is located 18.5 km southwest of Pohnpei, is home to 13 species of reptiles, including the green turtle (*Chelonia mydas*) and hawksbill turtle (*Eretmochelys imbricata*), 25 bird species, seven mammals, and hundreds of other marine species. The proposal to make a Biosphere Reserve presents an opportunity to create a model of sustainability. The relationship between the dynamic human economic system and the larger dynamic, but slower changing, ecological system, can support prosperous local initiatives indefinitely. Done within the bounds of the atoll environment, as to not destroy the diversity, complexity and function of the ecological system, And atoll can stand as an example to the many other islands and atolls of Micronesia and the Pacific. And Atoll is comprised of thirteen low-lying, forested islets encircling a twenty-nine sq. mile lagoon.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

India
Nilgiri

© Photo: Lalitha Vijayan, SACON

Declaration date: 2000
Surface area: 552.000 ha
Administrative division: Principal Chief Conservator of Forests, (Wildlife), & Chief Wildlife Warden, Government of Karnataka, Bangalore

Human activities:

The 1,160,200 permanent inhabitants of the biosphere reserve (2000) subsist on the use of natural resources (such as medicinal plants), agriculture, agri-horticulture and the commercialization of these products. Eco-development programmes are envisaged to provide schemes for generating additional income and security for people, such as forest and grassland management, habitat improvement, animal husbandry, apiculture and aquaculture, development of crafts, education and health, etc. About 200,000 people visit this region annually (2000), thus tourism has also become an important source of income.

Contact information:

S.K. Chakrabarti
"Aranya Bhavan" 2nd Floor, 18th Cross, Malleswaram
560 003 Bangalore, India
Tel.: (91.080) 3345846 - Fax: (91.080) 3346389

Ecological characteristics:

This biosphere reserve represents a unique and threatened ecosystem in the tropics within the Western Ghats Mountain system. It is one of the world's biodiversity hotspots and provides habitat for the probably largest South Indian populations of tiger (*Panthera tigris*), elephant (*Elephas maximus*) and other large mammals. Several ethnic groups inhabit the area, including the only surviving hunter-gatherers of the Indian subcontinent, the Cholanaikans who concentrate in the Nilambur area.

Tropical humid evergreen forests characterized by *Dipterocarpus indicus, Mesua ferrea, Palaquium ellipticum* etc.; tropical montane shola grasslands with *Cinnamomum wightii, Elaeocarpus serratus, Syzygium aromaticum* etc.; tropical semi evergreen forests including *Vitex altissima, Gmelina arborea, Persea macrantha* etc.; tropical moist deciduous forests with *Terminalia tomentosa, Dalbergia latifolia, Schleichera oleosa* etc.; tropical dry deciduous forests characterized by *Albizia chinensis, A. lebbeck, Anogeissus latifolia* etc.; scrub jungle with *Zizyphus oenoplia, Canthium parviflorum* and *Careya arborea*; grazing areas; afforestation areas; agroecosystems; urban areas.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

India
Gulf of Mannar

Declaration date: 2001
Administrative division: The Chief Conservation of forests (Wild life), and the principal Chief Conservator of forests, Tamil Nadu Forest Department, Chennai

Human activities:

The inhabitants are mainly Marakeyars, local people principally engaged in fisheries. There are about 47 villages along the coastal part of the biosphere reserve which support some 100,000 people (200,000 seasonally as of 2001).

© Photo: Gulf of Mannar BR

Ecological characteristics:

The Gulf of Mannar Biosphere Reserve covers an area of 1,050,000 hectares on the south-east coast of India across from Sri Lanka. It is one of the world's richest regions from a marine biodiversity perspective. The biosphere reserve comprises 21 islands with estuaries, beaches, forests of the nearshore environment, including a marine component with algal communities, sea grasses, coral reefs, salt marshes and mangroves. Among the Gulf's 3,600 plant and animal species are the globally endangered sea cow (*Dugong dugon*) and six mangrove species endemic to peninsular India. The Global Environmental Facility (GEF) has provided support to the establishment of the biosphere reserve, including the setting up and functioning of the Gulf of Mannar Biosphere Reserve Trust, which is responsible for the coordination of the management plan for the biosphere reserve in concertation with government agencies, private entrepreneurs, and local people's representatives. Priority is being given to encouraging community-based management.

Sea grass beds dominated by Hydrocharitaceae and Potamogetonaceae, *Halodule uninervis, Cymodocea rotunda, C. serrulata* etc.; coral reefs; mangroves including *Rhizophora conjugata*, *Avicennia* alba, *Bruguiera gymnorrhiza, Ceriops tagal, Lumnitzera racemosa* etc.

Contact information:

Ministry of Environment and Forests
Paryvaran Bhavan - C.G.O. Complex - Lodhi Road
110 003 New Delhi
India
Tel.: (91.11) 436 4593
Fax: (91.11) 436 2551
E-mail: pccfwl@vsnl.com

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

India
Sunderban

© *Subderban BR*

Declaration date: 29 March 1989
Surface area: 963.000 ha
Administrative Division : Chief Conservator of Forests & Director, Sundarban Biosphere Reserve heads the Sundarban Biosphere Reserve.

Human activities:

As the fringe area of Sundarbans Biosphere Reserve is densely populated so activity like Fishing, Honey Collection, Fire Wood Collection are common practice. Forest Department has taken initiative to promote alternate livelihood options for the fringe dwellers so that direct dependence on natural resources could be reduced to large extent.

Protection classifications:

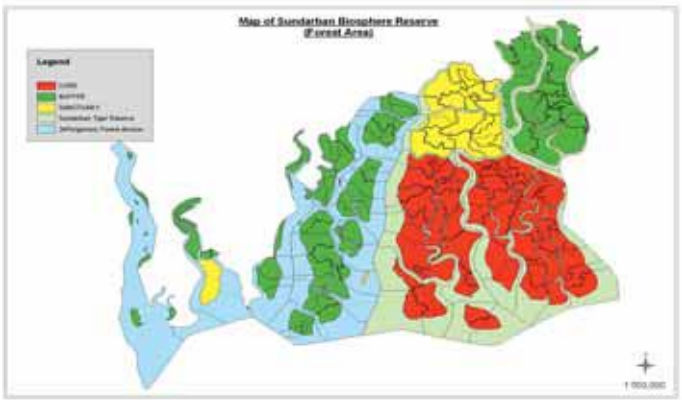
Sunderban Biosphere Reserve, covering the entire Indian Sundarban Region, was constituted as a biosphere reserve in 1989 and included in the global network of BRs in 2001 under Man and Biosphere (MAB) Programme of UNESCO. Core area of the Sundarban Tiger Reserve is National Park and has been declared as World Heritage Site by the UNESCO in 1987.

Contact information:

Government of West Bengal, Directorate of Forests
Office of the Chief Conservator of Forests & Director
Sundarban Biosphere Reserve, West Bengal
Bikash Bhawan, 3rd floor, North Block,
Salt Lake City, Kolkata – 700091
Telefax : 91-33-2321-1750/1529
E-mail: dirsbr@vsnl.com
Website : www.sundarbanbiosphere.org

Ecological characteristics:

The Sunderban Biosphere Reserve (SBR) in the sea-land inter-phase regions of the Ganga-Brahmaputra deltaic complex is located between 210 30' to 220 45' (N) and 880 00' to 890 05' (E) within the districts North and South 24-Paraganas of West Bengal, India covering an area of 9630 sq. km. south to the Dampier-Hodges line. It is the largest and remarkable sheltered part of the wet coastal ecosystem in India. Here the deltaic complex gradually or step by step developed by the enormous silt and sediments deposition carried down by the river Ganga and Brahmaputra from the great Himalayas. During the course of development eight major rivers flowing from north to south which meet the Bay of Bengal and many distributaries, innumerable meandering creeks, canals and small rivers interconnect these major rivers from the east to west and formed hundreds of deltaic islands. The vast deltaic regions regularly receive saline tidal thrust from the Bay of Bengal twice a day and are also bathed with continuous flow of fresh water from the upstream of the rivers Ganga-Brahmaputra system. These intertidal dynamic ecosystems along with inter mixture of fresh and saline water flow creates very specialized habitats for biodiversity. As the habitat is near the vast open coastal environment, extreme climatic condition is absent. Its temperature various from 22ºC to 38ºC, rainfall varies from 2500 to 3000 mm, tidal level varies from 3-6.3m, wind speed varies from 5-30 Km./hr. and occasionally, 70 to 80 Km/h during cyclone. Relative humidity varies from 70% to 90%. Water salinity varies from 0.5% to 3.0%. Soil compromises mainly coastal saline alluvium consisting of clay, silt and fine sands. The regions are dominated by frequent cyclone, storms and other natural calamities.



India
Nanda Devi

Declaration date: 2004
Surface area: 640.703 ha
Administrative division: Divisional Forest Officer, reporting to the Director / Conservator of Forests that further reports to the Chief Wildlife Warden of the State.

Human activities:

Over 15,000 people live in the Biosphere Reserve. The buffer zone includes 45 villages and the local communities living here mainly belong to two ethnic groups, the Indo-Mongoloid (Bhotia) and Indo-Aryan. The transition area includes over 55 villages and is mostly inhabited by Schedule tribes, Schedule Castes Brahmins and Rajputs. The local communities practice marginal subsistence agriculture, rear cattle for milk and sheep for wool. Cultivation of medicinal plants, sheep farming, apiculture and horticulture are among the main income sources of the villagers. Local communities in the Lata-Tolma-Malari and Pindari areas are benefiting from the development of alternative sources of income, such as ecotourism, and from the improvement of a rich variety of agricultural activities.

Ecological characteristics:

Nanda Devi Biosphere Reserve, located in the Himalayan Mountains in the northern part of the country, includes as core areas the Nanda Devi and Valley of Flowers National Parks, which are one World Heritage site. Nanda Devi National Park has remained more or less intact because of its inaccessibility. The Valley of Flowers National Park is renowned for its meadows of endemic alpine flowers and outstanding natural beauty. Together they encompass a unique transition zone between the mountain ranges of the Zanskar and Great Himalaya. The Biosphere Reserve includes reserve forests, evam soyam (civil) forests, panchayat (community) forests, agricultural land, grassy slopes, alpine meadows (bugiyals) and snow-covered areas. The alpine vegetation mainly comprises herbaceous species and scrub communities such as *Rhododendron campanulatum, R. anthopogon* and *Salix denticulata*. These meadows harbour a large number of rare and endangered, native and endemic species. The area has a large altitudinal range (1,800 to 7,817 m) and is dominated by the peak of Nanda Devi. The unique topography, climate, soil and biogeographical location of the Biosphere Reserve gives rise to diverse habitats, communities and ecosystems, and a large number of ecologically and economically important species. Some 1,000-plant species including lichens, fungi, bryophytes and pteridophytes have been recorded. The percentage of native and endemic species is high compared to non-native species. Over 55% of the species are native to Himalaya, over 10 are endemic and 225 are near endemic. Among these plant resources, the inhabitants of the Pindari, Lata-Tolma-Malari, and the Valley of Flowers areas use 224 species for various purposes such as medicine, food, and animal fodder. Seven endangered mammal species find refuge in the area such as the snow leopard (*Panthera unica*), Himalayan black bear (*Selenarctos thibetanus*), brown bear (*Ursus arctos*), musk deer (Moschus chrysogaster) and bharal/blue sheep (*Pseudois nayaur*).

Contact information:

Secretary, Ministry of Environment & Forests
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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

India
Nokrek

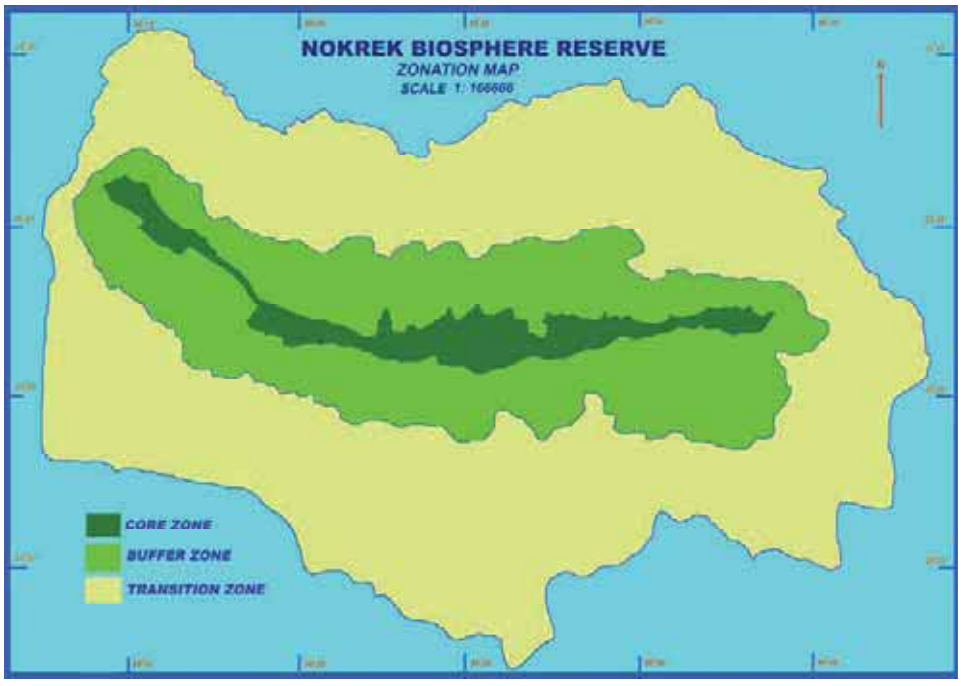
Declaration date: 2009
Surface area: 82.000 ha
Administrative division:
The Secretary, Ministry of Environment and Forests

Human activities:

The biosphere reserve is mainly dominated by the Garo tribes. But other tribes like Koches, Robhas, Hajjons, Banias and others are also there in the biosphere reserve area but with very low frequency. According to the 2001 census the human population of biosphere reserve is 22,084 which are distributed in 166 villages. The population of villages varies from 20 to 2,200. These people are mainly involved in shifting cultivation. About 17% of total biosphere reserve is under such cultivation. 85% of the people are engaged in shifting cultivation. In this way they use to grow maize, rice, squash, banana, areca nut cashew nut, litchi, tea, coffee, pear, jack fruit, cinchona, orange, in vegetables tomato, ginger, potato, chilies, rubber, coconut, tapioca, etc.
The main source of income of the people comes mainly from forest and forest based resources.
Forest department is providing some alternatives to the villagers to reduce the shifting cultivation.

Ecological characteristics:

The area forms a part of one of the global hot spots of biodiversity. It is endowed with natural beauty, diverse flora and fauna and varied human cultures. The Nokrek biosphere reseve is located on Tura Range of mountain system which is a part of Meghalaya Plateau with an average altitude of 600 m. The vegetation consists of evergreen, semi evergreen, deciduous species, bamboo patches and grassland including riverine forests. The Nokrek National Park is designated as core area. It is totally undisturbed nature reserve and wilderness portion where monitoring is conducted from time to time.
It is also important due to the fact that the area forms the primary catchment of all the major rivers and streams in the three districts of Garo Hills. Another special feature of the area is the abundant natural occurrence of *Citrus indica* Tanaka. and other species of *Citrus* like *C. latipes* Tanaka., *C. reticulate* Blanco., *C. aurantifolia* Swingle, *C. grandis* Osbeck., *C. jambhiri* Lushington and *C. limon* Burm.. The area is therefore, considered to constitute an important gene pool for future hybridization programme for evolving disease resistant *Citrus* plants. The area also harbors many rare, endangered and endemic faunal species like Hoolock Gibbon, Binturong, Stump tailed macaque, Pig tailed macaque, Slow Loris, Himalayan black beer, tiger, leopard, elephant, Giant flying squirrel, etc.



Contact information:

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New Delhi – 110 003
Tel: + 91 011-2436 4593
Email

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

India
Pachmarhi

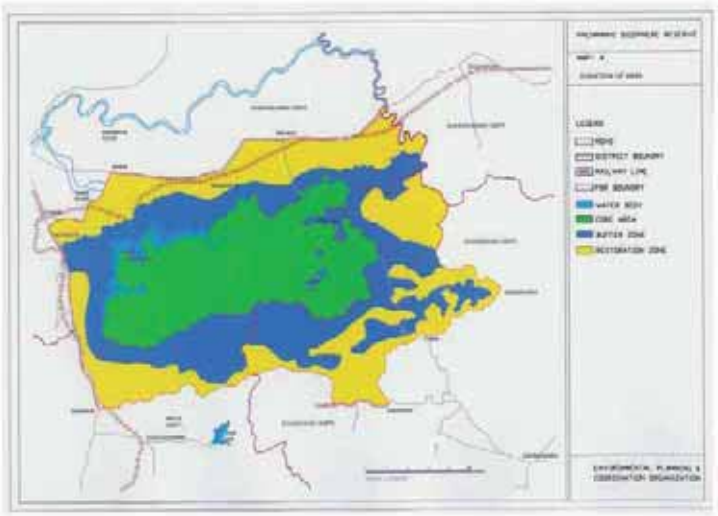
Declaration date: 2009
Surface area: 498.172 ha
Administrative division:
The Secretary, Ministry of Environment and Forests

Human activities:

The inhabitants of the Biosphere Reserve, particularly Gond tribes are culturally, socially and emotionally attached to the area. The most primitive type of tribes 'Bhariya' inhibit in Patalkot region. The Gond is an expert woodsman and lives with the forests, which he understands deeply. The tribe, Korkus, the largest number of which is found in Betul and Chhindwara districts also share love to forests with the Gonds, and are excellent agriculturists and in Bhainsdehi tehsil of Betul district, they have pioneered the cultivation of potatoes. Thus, these tribes derive a wide variety of biological resources from their environment and are involved in making intensive use of land, water and soil. However, conservation oriented development programmes in the region will not only check the erosion of natural resources but also help in improving the living conditions of the tribes. Emphasis is given to those schemes, which generate additional income and security for the people such as popularization of energy alternatives, forest and grassland management, habitat improvement, animal husbandry, apiculture and aquaculture, development of local crafts, education, environmental awareness, health and immunization, development of eco-tourism etc.

Ecological characteristics:

The Pachmarhi Biosphere Reserve is virtually a junction of representative forest types prevailing in the State. The forest of the area is a natural junction of two most important timber species, i.e. Teak (Tectona grandis) and Sal (Shorea robusta). It is composed by a vast stretch of forests with different forest types and habitats, dense flora & fauna including many endemic and endangered species subjected to varying degrees of human intervention. The altitude varies from 320 to 1352m above msl, the Dhoopgarh (1352m) being the highest peak of this hill ranges lies within Pachmarhi BR. The entire forests of Biosphere Reserve can be broadly classified into three major types, viz. tropical moist deciduous forests, tropical dry deciduous forests and Central Indian sub-tropical hill forests. The whole ecosystem complex with a mosaic of vegetational entities, natural habitats and land cover types harbours a rich diversified fauna too. 'Pachmarhi Plateau', which is known, as "Queen of Satpura" is also a Botanist's paradise and consists of deep valley having many waterfalls, marshy places, perennial streams and hills of various elevations. Distribution of wild animals in area shows that the protected areas of National Park and sanctuaries have an ample potential for supporting various kinds of wild animals in the area. Tiger being top carnivore are generally confined to deep forests of National Park and sanctuaries. However, leopards are found to be well distributed in the entire area of BR.



Contact information:
Director, Biosphere Reserve & Executive Director,
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Bhopal- 462016 (MP)
New Delhi – 110 003
Tel: : 91-755-2466970, 2464318
Email epcobpl@sancharnet.in
www.epcobpl.org

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

India
Similipal

Declaration date: 2009
Surface area: 556.900 ha
Administrative division:
The Secretary, Ministry of Environment and Forests

Human activities:

The bulk of the people inhabiting inside and periphery of the Similipal Biosphere Reserve are tribals and constitute about 73.44% of the total population. They are of aboriginal status and some are in their autochthonal primitiveness as in case of Erenga Kharias and the Mankirdias who mainly live in the forest. The Erenga Kharias consider Similipal as their primordial home. The major tribes are Bathudi, Bhumija, Kolha, Santal, Ho, Munda, Gonda and Pauri Bhuyans. They live on agriculture, daily wage earning, hunting and collection of forest products such as fuelwood, sal leaves and seeds, honey, lac, mahua flowers, mushrooms, sabai grass etc.
Besides the rich biodiversity, the Similipal possess vast treasures of natural resources which can be exploited and developed sustainably and economically.

Contact information:

Director, Similipal Biosphere Reserve & Field Director,
Similipal Tiger Reserve
Bhanjpur
Baripada - 757002
Tel: +91-6792-252593 fax: +91-6792-256705
E-mail: bid_simitig@sancharnet.in

Ecological characteristics:

Similipal biosphere reserve is a hilly undulating terrain ranging from an altitude of 40 m to 1168 m above sea level. An assemblage of ecosystems such as mountains, forest, grassland and wetlands congregate into the "Similipal biosphere reserve" with a range of diverse land cover/ vegetation types and rich floristic and fauna account for many indicator species which enrich the region for ecological studies.
The Similipal harbours rich flora of 1076 species of vascular plants including 93 species of orchids, 52 species of rare / endangered plants and more than 300 species of medicinal plants.
The Similipal is the abode of the black and melanistic tiger which are rare. The identified species of fauna include 12 sps of amphibians, 29 species of reptiles, 264 sps of birds and 42 sps of mammals. Paradoxurus jorandensis, an endemic civet was recorded from Similipal. The appearance of black panthers and multi-colour oberrated tigers are of academic and tourist interest.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Indonesia
Cibodas

© *Cibodas BR*

Declaration date: 1977
Surface area: 21.975 ha
Administrative Division : Cianjur, Sukabumi and Bogor West Java

Human activities:

- Participative rehabilitation programme of forest and land, especially at extension areas;
- Ecotourism Management: interpreter/guiding, visitor safety, clean-up campaign, camping equipment rental;
- Environmental education

Protection classifications:

At national level, the area was declared as a national park in 1980. The Park is core zone of Cibodas Biosphere Reserve.

© *Cibodas BR*

Contact information:

Gunung Gede Pangrango National Park
Directorate General of Forest Protection and Nature Conservation (PHKA),
Ministry of Forestry,
Republic of Indonesia
JI. Raya Cibodas PO BOX 3 SDL,
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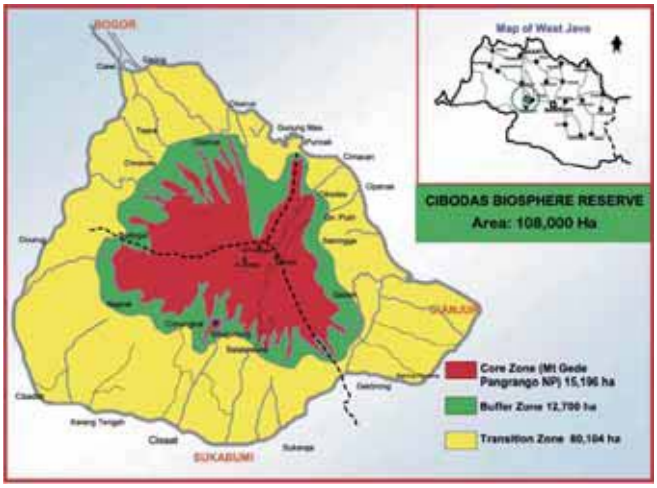
Tel/Fax: +62-(0)262-5123776;
E-mail: gununggedepangrango@yahoo.com

Ecological characteristics:

- Based on elevation and composition of forest stratification, the exsising vegetation is characterized into three types of ecosystems, i.e. sub-montane (<1.500 m asl), montane (1.500 - 2.400 m asl), and sub-alpine (<2.400 m asl);
- Also can be found other types of ecosystems which are not being influenced by elevation, namely swamp ecosystem, pond ecosystem, human made forest, and a unique ecosystem at « Alun-Alun »;
- More than 1000 species of flora from 57 family can be found at the Park;
- 251 species of bird or more than 50% of bird species in Java Island; 110 species of mammal; more than 300 species of insects; around 75 species of reptile; around 20 species of frogs; and several species of molluscs can be found in the Park. One species of bird, namely Javan eagle (Spizaetus bertelsi) is being declared as « satwa dirgantara » by Presidential Decree N° 4 of 9 January 1993;
- The Park is as the upper course of watersheds of Citarum (Cianjur), Citanduy (Bogor), and Cimandiri (Sukabumi). The Park has 58 rivers and small rivers, supplying about 8 million ton water annually. At the moment, there are 47 groups of water users both for commercial and non-commercial purposes at surrounding the Park.



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Indonesia
Komodo

© *Komodo BR*

Declaration date: 6th March 1980
Surface area: 173.300 ha
Administrative division: located East of Wallace line, between the islands of Sumbawa and Flores at the border of the Nusa, Tenggara Timur (NTT) and Nusa, Tenggara Barat (NTB) provinces, and at the heart of Coral Triangle Centre.

Human activities:

Fishing (liftnets, dragnets, fishing rods, fishing traps,
Mariculture (seaweed farming)
Reef gleaning
Handicraft
Naturalist guide

Protection classifications:

At national level:
Law No. 5/1990 Conservation of Biodiversity and Their Ecosystem, Law No. 41/1999 Forestry Management

© *Komodo BR*

Contact information:

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Head of Komodo
National Park
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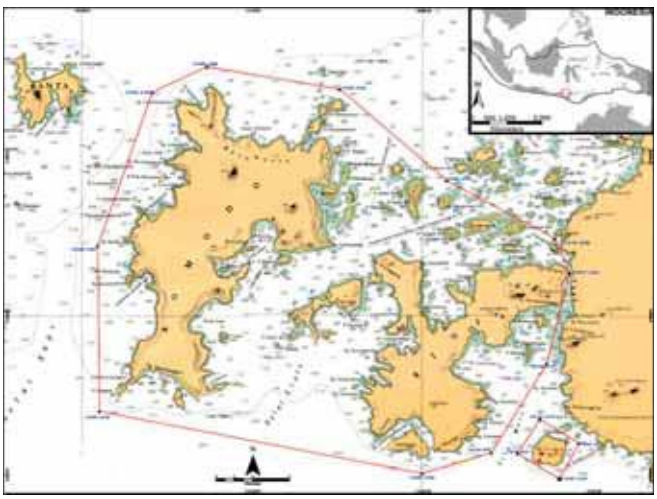
NTT
Indonesia
Phn: +62 385 41005
Fax: +62 385 41006
tamen_tnk@yahoo.co.id

Ecological characteristics:

© *Komodo BR*

The Park is situated in a transition zone between Australian and Asian flora and fauna. Terrestrial ecosystems include open grass-woodland savanna, tropical deciduous (monsoon) forest, and quasi cloud forest. The marine area constitutes 67% of the Park. The combination of strong currents, coral reefs and islets make navigation around the islands in Komodo National Park difficult and dangerous. Komodo National Park includes one of the world's richest marine environments. It includes over 260 species of reef building coral, sponges (70 species), ascidians, marine worms, mollusks, echinoderms, crustaceans, cartilaginous and bony fishes (over 1,000 species), marine reptiles (green turtle and hawksbill turtle), and marine mammals (dolphins, whales, and dugongs). Some notable species with high commercial value include sea cucumbers, Napoleon wrasse (Cheilinus undulatus), and groupers. The number of terrestrial animal species is important from a conservation perspective as some species are endemic. Many of the mammals are Asiatic in origin (e.g., deer, pig, macaques, civet). Several of the reptiles and birds are Australian in origin. These include the orange-footed scrubfowl, the lesser sulpher-crested cockatoo and friarbird. Terrestrial plants found in Komodo National Park include grasses, shrubs, orchids, and trees. The most famous of Komodo National Park's reptiles is the Komodo Dragon (Varanus komodoensis). It is among the world's largest reptiles and can reach 3,6 meters or more in length and weigh over 90 kg.



Indonesia
Lore Lindu

© *Lore Lindu BR*

Declaration date : 1977
Surface area : 21.799.118 ha
Administrative division : Central Sulawesi Province, Poso and Donggala Regency

Human activities:

There are four main ethnic groups inhabiting villages in and surrounding the Lore Lindu National Park: Kaili, Behoa, Bada and Pekurehua. About 117 villages are situated in the park, and other 64 villages in the border area. Rice and maize farming, and cacao plantation are among the main livelihood activities of the local people. The park has been facing several threats in recent times, particularly from massive illegal logging, hunting and poaching. To prevent the park from further damages due to the human induced activities, better management is imposed in such a way that commu-nity involvement and empowerment along with poverty alleviation are intensively promoted in the frame of the park management plan comand implementation. In that regards, based on the park's vision and mission, community develop-ment, management coordination and collaboration are the main factors of the park management as a whole.

Ecological characteristics:

© *Lore Lindu BR*

Lore Lindu National Park is one of Sulawesi's important natural reservation sites, which is home to a wide variety flora and fauna in this Island. The Park is located about 60 kilometres south of Palu. It covers a large area, consisting of lowland and highland mountain forests, thick wood forests, flat fertile valleys, rivers, lakes and hot springs, with a total area of 217,991.18 hectares and altitude ranging from 200 to 2,610 metres above sea level. The park, with its beauti-ful scenery, holds a great number of endemic flora and fauna, and sits at the Wallacea line which is a shifting zone between Asia and Australia. The Park also makes up a water reservoir for three main rivers in Central Sulawesi, which are the Lariang, Gumbasa and Palu Rivers. The rugged interior of the park is home to the Sulawesi's largest native animals, such as anoas, babi rusas, tersiers, tonkeana macaques, marsupials, and Sulawesi's largest mammal carnivore called civet. The park harbours at least five species of squirrels and 31 of its 38 rat species are endemic. There are at least 55 species of bats and 267 birds, including the maleo birds, red-knobbed hornbills. The largest red-knobbed hornbill locally known as "allo", inhabits this park. Thousand of weird and wonderful insect species can be seen around the park and many of them are attractive species, such as butteflies which can be seen as they fly along the water course, or drink from puddles and mudbanks.

Protection classifications:

Lore Lindu was declared a national park by the Ministry of Agricul-ture in 1981, and under the decree of the Ministry of Forestry SK No. 464/Kpts-II/1999, with a total area of 217,991.18 hectares.

MAP OF THE RESERVE:

© *Lore Lindu BR*

Lore Lindu National Park
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Email: tn_info@yahoo.com

Indonesia
Tanjung Puting

© *Tanjung Puting BR*

Declaration date : 1977
Surface area : 415.040 ha
Administrative division : Central Kalimantan

Human activities:

There are eight villages spreading within and around the Tanjung Puting National Park. The majority of the livelihoods include fishing, palm oil plantation, ecotourism with the involvement of local tour operators, local communities/ villagers, etc. The Park is very important for the well-being of the local human population around this area. The villagers also make traditional products, i.e. handicrafts from batik and rattan, and wooden statuette. Besides these, the local cultural significance includes traditional dance and ritual, locally 'Batimung' (traditional sauna in Tanjung Harapan Village).

Protection classifications:

The Tanjung Puting was declared as a national park in 1980. It was then declared under the Decree of the Ministry of Forestry SK No.: 687/Kpts-II/96 dated 25 October 1996, with a total area of 415,040 hectares.

Contact information:

Tanjung Puting National Park
Directorate General of Forest Protection and
Nature Conservation (PHKA),
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Pangkalan Bun, Kotawaringin Barat
Central Kalimantan, Indonesia
Tel/fax: +62-(0)532-23832

Ecological characteristics:

© *Tanjung Puting BR*

Tanjung Puting National Park harbours a very large variation of biological diversity, landscapes and other natural resources. There are seven different ecosys-tem types, such as dry-land dipterocarp forest, mixed-swamp primary forests, transition swamp forest, Shorea balangeran forest, heath forest (kerangan), coastal and mangrove forest, and second-ary forest. The vegetation supports a large population of animals, making this area as one of the most important habitat for the preservation primates, birds, reptiles, amphibians, fish (including the endangered fish species namely Asian bony-tongue or dragon fish), and inver-tebrates. Nine of thirteen primates in Borneo are found in Tanjung Puting National Park, including orang-utan (Pongo pygmaeus), proboscis monkey (Nasalis larva-tus), gibbon, coucang, tarsius, long-tailed macaque and maroon-leaf monkey.

© *Tanjung Puting BR*

Indonesia
Gunung Leuser

© *Gunung Leuser BR*

Declaration date: 1981
Surface area: 1.094.692 ha
Administrative division: Nanggroe Aceh Darussalam and North Sumatra Provinces

Human activities:

More than four million people live within or adjacent to the Gunung Leuser National Park, with many different ethnic groups repre-sented. Most of them are farmers and depend very much on the protection of this park for their subsistence. Paddy fields, mixed gardens, and small-scale and medium estates of rubber and oil-palm receive a consistent water supply from this park.

Protection classifications:

Gunung Leuser was declared a national park by the Ministry of Agriculture in 1980, and designated under the decree of the Ministry of Forestry No. 276/Kpts-VI/1997, covering a total area of 1,094,692 hectares. In July 2004 together with Kerinci Seblat and Bukit Barisan Selatan National Parks the three parks were inscribed as a World Heritage cluster titled the Tropical Rainforest Heritage of Sumatra (TRHS).

Contact information:

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Email : balai_tngl@dephut.go.id
Website : www.gunungleuser.or.id

Ecological characteristics:

© *Gunung Leuser BR*

Gunung Leuser NP is proven as a rich yet vulnerable natural labora-tory. MacKinnon and MacKinnon (1986) stated that Gunung Leuser has the highest score for its conservation contribution to Indo Malaya conservation area. Leuser is a habitat for most fauna, ranging from mammals, birds, reptiles, amphibians to fish and inver-tebrates. It is a region which has the longest list of birds in the world, up to 380 species with 350 of them found in this Park. Gunung Leuser is also home to 36 of 50 Sundaland endemic bird species. Almost 65% of 129 species of mammals in Sumatra is recorded in this area. Gunung Leuser ecosystem is a habitat for key fauna such as Sumatra elephant (*Elephas maximus sumatranus*), tiger (*Panthera tigris sumatrae*), rhinoceros (*Dicerorhinus sumatrensis*) and orang-utan (*Pongo abelii*). The Park is also habitat to owa (*Hylobates l*ar) and kedih (*Presbytis thomasi*). There are also more than 4,000 plant species found in the Park, including 3 of 15 parasite Rafflesia. Thus, it is a habitat of many medical plants (Brimacombe and Elliot, 1996). As a natural laboratory, Gunung Leuser is impor-tant for conservation, education, scientific research for local and foreign researchers and ecotourism. Orangutan Research Station in Ketambe, Southeast Aceh District, is one of the oldest research stations, opened by Dr. Herman D. Rijksen, and is still an interesting location for researchers.

Indonesia
Siberut

© *Siberut BR*

Declaration date : 1981
Surface area : 190.500 ha
Administrative division : West Sumatra Province

Human activities:

© *Siberut BR*

The Mentawai communities on Siberut Island still largely embrace a subeconomic system, relying on the existing natural resources of the Siberut National Park. The traditional wisdom of the local communities allows them to utilize the natural resources of the forest carefully. Day-to-day activities of the people in this area relate to the usage of natural resources, for example through hunting, growing crops, gardening, farming, harvesting sandalwood and cane, and medicinal plants. Along with the change of time, as the socio-cultural, economic, and policy situations also have changed, new ways of exploiting natural resources have been brought to the area. The large-scale logging concessions that have been issued, revoked and then reissued again represent a scheme of resource exploitation which is incompatible with sustainable conservation of the biological and cultural diversity that make the island unique.

Contact information:

Siberut National Park,
Directorate General of Forest Protection and
Nature Conservation (PHKA), Ministry of Forestry
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Email : btnsiberut@gmail.com / wiratns@gmail.com

Ecological characteristics:

© *Siberut BR*

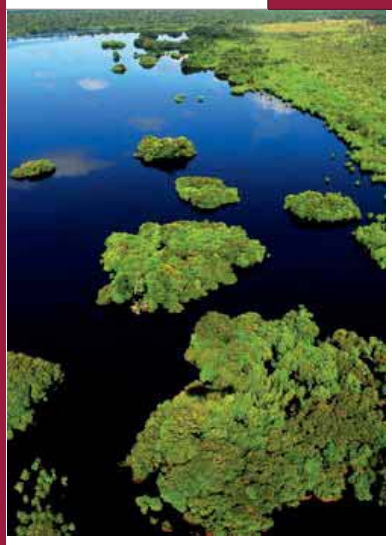
Siberut Island is isolated from the mainland Sunda shelf by the Mentawai Strait, with about 155 kilometres in distance from Padang, the capital city of the West Sumatra Province. It covers five ecosystem types, i.e. dipterocarpaceae primary forest, mixed primary forest, swamp forest, coastal forest and mangrove forest. The forest area is still relatively natural, with large trees. Sixty-five percent of mammals and fifteen percent of fauna on Siberut are endemic at some taxonomic level, making the island, with its limited surface, unique in the world. Four species of primates-the kloss Gibbon/ dwarft siamang (*Hylobates klosii*), Mentawai macaque (*Macaca pagensis*), Mentawaian leaf monkey (*Presbytis potenziani siberu*) and pig-tail snub nosed monkey (*Nasalis concolor siberu*) are only found in this reserve. About 134 bird species found on Siberut, 19 are endemic. Over 31 mammalian species and 864 plants species are also recorded in the Park.

Protection classifications:

The western part of the Siberut Island was designated as a national park in 1993 through the Decree of the ministry of Forestry No. 407/Kpts-II/1993.

Republic of Indonesia

Giam Siak Kecil-Bukit Batu



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Declaration date: May 2009
Surface area: 705.271 ha
Administrative division: Riau Province, Sumatra, Indonesia

Human activities:

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Core Areas:
Activities within the core areas include subsistence farming, fisheries, and non-timber forest products collection.

Buffer zones:
The buffer zone is mainly used for fisheries, plantation forestry, palm oil and commodities cultivation, subsistence farming, and timber and non-timber forest products gathering.

Transition area:
This are is mainly designated for settlements, livelihood and subsistence farming, oil palm and rubber farmers, employees/labourers in large plantations, agri-based industries, forest-based industries, mining, gas and oil exploitation, and various trades/commercial uses.

Ecological characteristics:

Recognizing as part of the Sumatra peat swamp eco-region, Giam Siak Kecil-Bukit Batu (GSK-BB) posses a unique habitat and plays a significant role to help sustain populations of rare, endangered and endemic species. About 189 plant species, consisting of 113 families and 59 genera are recorded in this area. 29 out of the total number of this plant species are categorized as a protected species under Appendix 1 and 3 of CITES. Nine protected species found in this area include red

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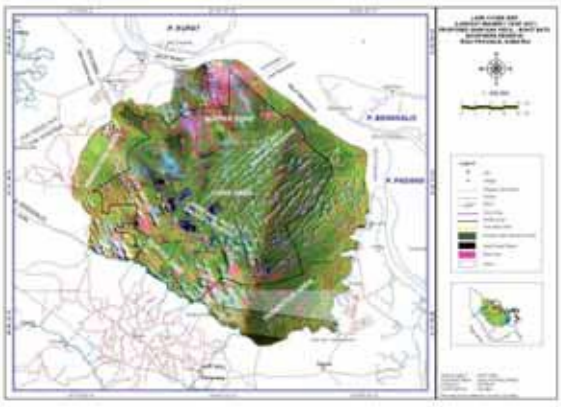
costulata, Apocynaceae), nyatoh (*Ganua motleyana*, Sapotaceae), tiger orchid (*Grammatophyllum speciosum*, Orchidaceae), dara-dara (*Knema* sp., Myristicaceae), mengris (*Kompassia malaccensis*, Mimosaceae), kantong semar (*Nephentes* spp., Nepenthaceae), suntai (*Palaquium leiocarpum*, Sapotaceae), and balam (*Palaquium burckii*, Sapotaceae). The core area is dominated by peat swamp forest types. The plant species have been recorded in this area including *Gonystylus bancanus* (ramin), *Palaquium leiocarpus* (nyatoh), *Durio carinatus* (durian burung), *Shorea teysmanniana* (meranti bunga), *Tetramerista glabra* (punak).

Several key animal species which are recorded in the core area and listed as a protected and endangered species under the Appendix 1 CITES including two species of birds (hornbill *Buceros bicornis* and *Mycteria cynerea*), four mammals (honey bear *Helarctos malayanus*, tapir *Tapirus indicus*, Sumatra elephant *Elephas maximus*, and Sumatra tiger *Panthera tigris sumatrae*), two reptiles (false gharial *Tomistoma schlegelii* and estuarine crocodiles *Crocodylus porosus*) and one endangered fish species *Scleropages formosus*, also known as the Asian bony-tongue or arwana.

Protection classifications: At the national level:

- **Giam Siak Wildlife Reserve**
- **Bukit Batu Wildlife Reserve**



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Islamic Republic of Iran

Arasbaran

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Declaration date : 1977
Surface area : 80.654 ha
Administrative division : Department Of the Environment (DOE)

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Human activities:

There are 68 villages with population of 10700 individuals in buffer zone and 37 villages with population of 5800 individuals in transitional zone. Transnational road of Islamic Republic of Iran and Republic of Azerbaijan crossing form the north.

Ecological characteristics:

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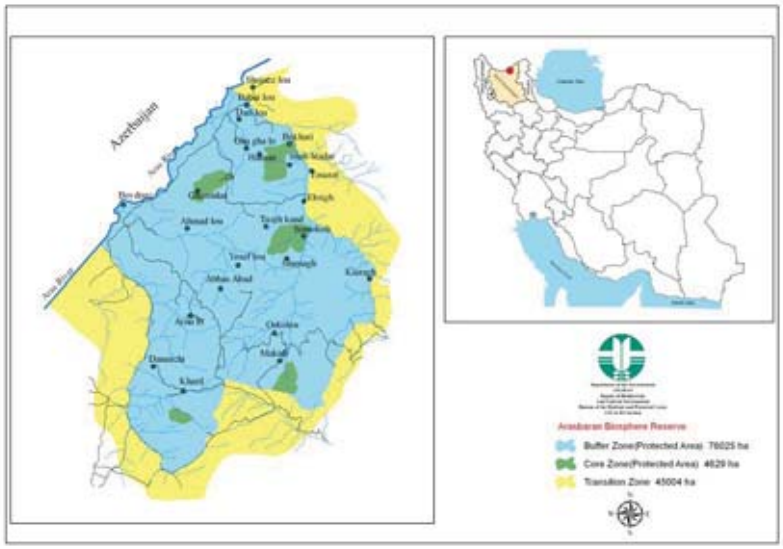
Arasbaran biosphere reserve is located at the highest geographical latitude of Iran. Aras River is in the northern boundary of the reserve and is also in the north of Iran. Azerbaijan and Armenia are 2 neighboring countries along the Aras River. Arasbaran biosphere reserve is influenced by the Mediterranean,Caspian and Caucasus climate. Arasbaran Biosphere Reserve is affected by 3 different regions: Caspian, Caucasus and Mediterranean. Existing habitats are: Mountains (Rocky and stone slopes), Valleys, Sandy soils, Rangelands and forests. 215 bird species, 48 mammalian species and almost 29 reptile species could be distinguished in Arasbaran biosph.ere reserve. There are at least 781 plant species which some of them are endemic of Arasbaran Biosphere reserve.

Protection classifications:

At the national level, this area was declared as protected area in 1971.



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Arjan

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Declaration date : 1976
Surface area : 58.984 ha
Administrative division: Department of the Environment

Human activities:

There are 97 human settlements in buffer and transitional zone of Arjan-Parishan biosphere reserve. A high-voltage power line is crossing this biosphere reserve from east to northern west.

Ecological characteristics:

- Arjan – Parishan Biosphere reserve consists of two wetlands and a plain area. Arjan wetland is located in 60th km of Shiraz-Kazeroon road, in the western part of Shiraz city. Parishan is in the south-west of Kazeroon city.
- Arjan – Parishan Biosphere Reserve mainly affected by Mediterranean climate. Arjan Lake has more humid climate than Parishan Lake.
- There is no permanent surface water in Arjan basin. Seasonal channels have been formed. Karstic springs of Arjan are important sources of water supply.
- Existing habitats are: Terrestrial habitats including: forest, plain and mountainous habitats; Marine habitats including: wetlands and lakes.
- 203 bird species, 49 mammalian species and almost 37 reptile species could be distinguished in the Arjan-Parishan Biosphere reserve.
- There are 12 plant species in Arjan-Parishan Biosphere reserve.

Protection classifications:

At the national level, the area was declared as a protected area, in 1972.

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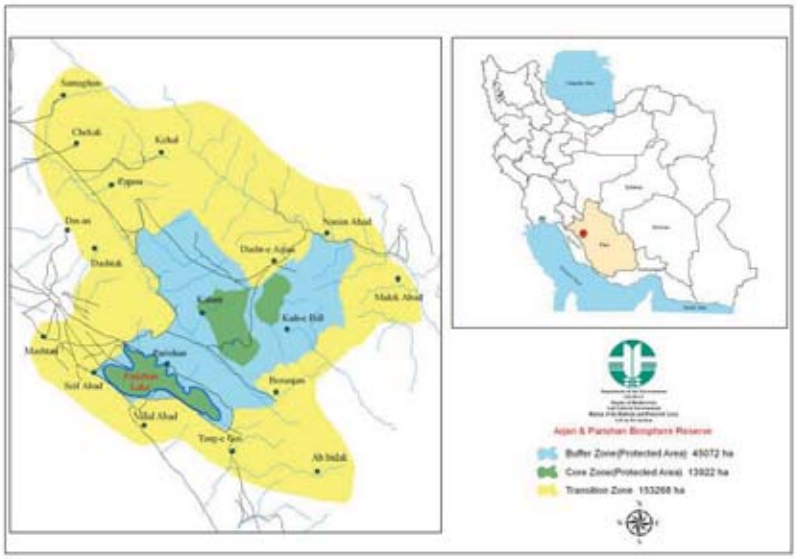

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Islamic Republic of Iran

Geno

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Declaration date:1976
Surface area: 44.271 ha
Administrative division: Department of the Environment

Human activities:

There are 13 villages with population of 6400 native people within the buffer zone and 74 villages with population of 33900 individuals in transitional zone. Geno biosphere reserve is close to Bandar-Abbas city.

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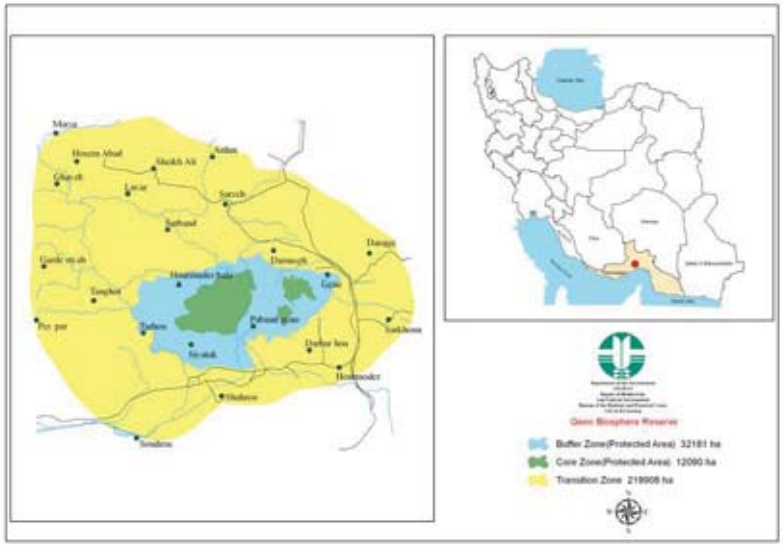
Ecological characteristics:

- Geno biosphere reserve has been located at the end of the Zagros mountain chains. The warm and humid region of Persian Gulf has been separated from arid central deserts of Iran by the climax of this mountain with more than 3000 meters in height.
- Geno receives Mediterranean type rainfall in autumn and winter. The arid season is from middle of May to middle of October. Annually rainfall is formed at least 5% precipitation of the reserve which are mainly convectional and Monson Rainfall types.
- The water resource in Geno Biosphere Reserve consists of 3 main rivers in the area: Koll River, Tiko River,Selkon River and also several wells and hot Springs.
- Existing habitats are: Mountainous areas from 1000 to 2340 meters height (stone, slopes & stone splits), Valley and Sandy soils
- 62 bird species, 28 mammalian species and almost 23 reptile species could be distinguished in the Geno Biosphere reserve.
- There are at least 95 plant species in Geno Biosphere reserve.

Protection classifications:

At the national level, this area has been declared as a National Park in 1972 then has been changed to protected area by improving the conservation level in 1983.



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Islamic Republic of Iran

Golestan

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Declaration date: 1978
Surface area: 148.411 ha
Administrative division: Department of the Environment

Human activities:

There are 44 villages with population of 26000 native people who are settled surrounding Golestan biosphere reserve but there is not any village in Golestan national park.

Ecological characteristics:

- Golestan Biosphere Reserve is located in the northern part of Iran and south-east of Caspian Sea.
- Golestan consists of different biogeographyical and topographical regions. The lowest point is Tangerah where ia located 450m above sea level and the highest point is Divarkaji with 2411m above sea level. Considering the heights, there is about 2000m difference within the reserve.
- Biosphere Reserve is located between sub-humid and semi-arid Caspian regions. The deciduous trees in western part and the coniferous forest in mountains and also hilly parts of north and east of the reserve makes the phytogeographycal feature of the reserve.
- The most important river is Madarsoo or Doogh which is one of the Gorgan River branches. The Khandooshan, Jamshidabad, Golshan and Golestan are some of the important springs of the reserve. High quality of water springs make it suitable for human and wildlife drinking.
- Existing habitats are: closed forest, open woodlands and shrubs, mountain meadows, steppes, halophytic communities, hygrophilous and aquatic communities.
- 133 bird species, 60 mammalian species, 11 fish species and almost 20 reptile species could be distinguished in the Golestan Biosphere reserve.
- There are at least 1300 plant species in Golestan Biosphere reserve.

Protection classifications:

At the national level, the area has been declared as a National Park in 1971.

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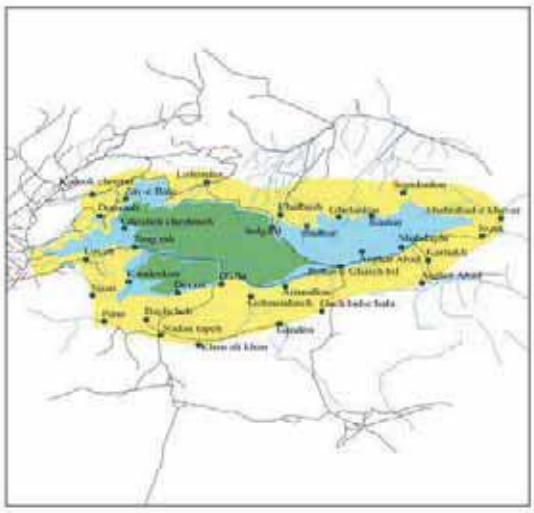

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Hara

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Declaration date: 1977
Surface area: 86.581 ha
Administrative division: Department of the Environment

Human activities:

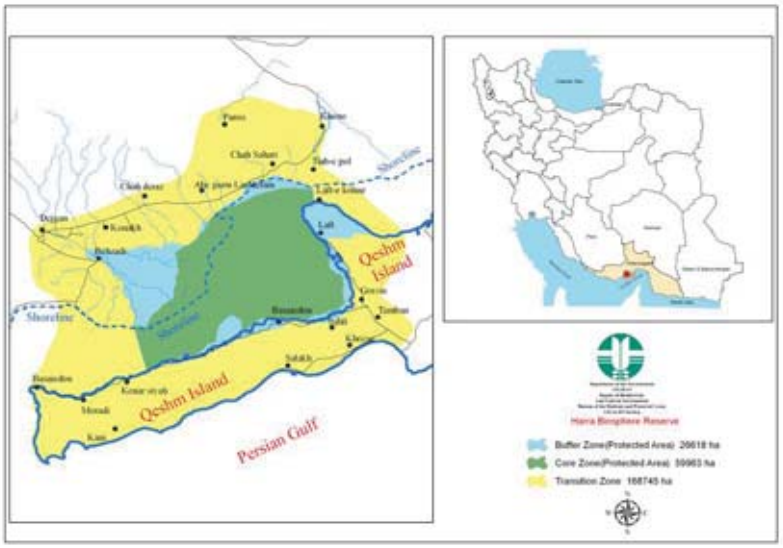
There are 52 human settlements with a population of 30500 individuals in the buffer and transitional zone of the reserve. Development plan of Qeshm has been established near the reserve and there are also 15 small boat factories surrounding the reserve.

Ecological characteristics:

- Hara Biosphere Reserve is one of the nominated protected areas with a vast mangrove cover in northern border of Persian Gulf and Oman Sea.
- Hara Biosphere Reserve climate is subtropical based on Emberger classification along shoreline. Annual average rainfall is 146 mm in Bandar-Abbas and annual average temperature is 27.2ºC
- The salinity of Persian Gulf water is more than open sea, due to low entrance of shoreline coming water and also high percentage of evaporation.
- Existing habitats are: mangrove forests, Salt plains and adjacent areas consist of open halophyte communities and scattered thorn trees.
- 93 bird species, 14 mammalian species and almost 32 fish species could be distinguished in Hara Biosphere Reserve.
- There are at least 183 plant species in Hara Biosphere Reserve which 154 species are endemic.

Protection classifications:

At the national level, the area has been declared as protected area in 1972.



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Kavir

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Declaration date: 1977
Surface area: 691.169 ha
Administrative division: Department of the Environment

Human activities:

There are 187 human settlements inside and surrounding the reserve. Only 5 villages are in buffer zone and there is not any village in core area. There are also 182 villages in transitional zone. There are historical roads, some communication facilities and power stations in the reserve.

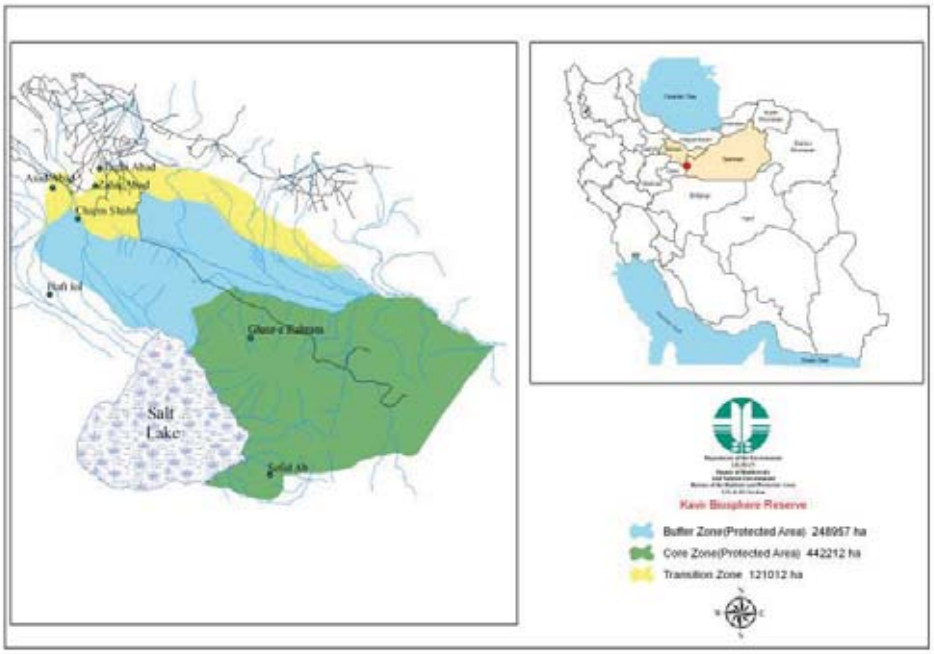
Ecological characteristics:

- Kavir national park is located in arid desert area. Mediterranean is the main type of rainfall with a long dry summer. The area receives the maximum rainfall in winter. Annual average rain is 164mm.
- The elevation difference is about 1000meters. Mountains scatter mainly in the middle and west of the biosphere reserve with the maximum height of 1865m.
- Rainfall shortage, high rate of evaporation, high temperature and unsuitable geomorphological formation of the Kavir national park are the most important factors which affect the quality and quantity of water.
- The existing habitats are: mountainous (rocky, stony), sandy land, gypsum, loamy (steppe habitats), salty lands.

Kavir Biosphere Reserve floristic mainly consists of 302 species of monocotyledonous flowering plants, dicotyledonous and gymnosperm plants.
- 131 bird species, 31 mammalian species and almost 20 reptile species could be distinguished in the reserve.

Protection classifications:

At the national level, the area has been declared as Protected Area in 1964 and a part of this protected area has been changed to national park in 1971. This park is core zone of Kavir Biosphere Reserve.



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Islamic Republic of Iran

Lake Oromeeh

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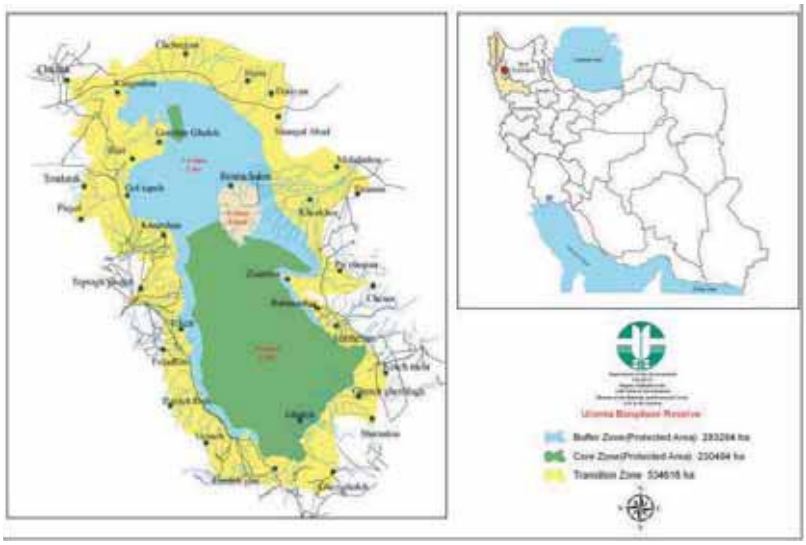
Declaration date: 1977
Surface area: 513.788 ha
Administrative division: Department of the Environment

Human activities:

There are 448 large and small villages with a population of 211000 individuals in transitional zone. There are also some large cities surrounding the biosphere reserve.

Ecological characteristics:

- The main part of the reserve includes southern part of the salty lake Uromia,, all islands and the south wetlands with sweet water. Tectonical Uromia Lake is located in northwest of Iran, between Eastern and Western Azarbaijan provinces.
- Uromia Lake and its watershed are affected mainly by the Mediterranean and Siberian climate. Uromia Biosphere Reserve and its surrounding area have been affected by an arid region climate. In higher region Semi-Arid and Mediterranean climate are dominant. The clomate in mountains is cold to very.
- Zarrineh-Rud River, Simineh-Rud River and Mahabad River are the main rivers in south. These rivers has been formed some small wetlands around the rivers. The largest one is located in Siran-Gol Lake in southwest close to the biosphere reserve.
- Existing habitats are: Mountainous AreasSandy soils and coasts, Saline soils, Wetland, River estuaries, Islands (Terrestrial habitats).
- 212 bird species, 27 mammalian species and almost 41 reptile species could be distinguished in Uromia Biosphere reserve.
- There are at least 546 plant species in Uromia Biosphere reserve.



Protection classifications:

At the national level, the area has been declared as a National Park in 1965 and nominated Ramsar Site in 1977.

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Islamic Republic of Iran

Miankaleh

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Declaration date: 1977
Surface area: 66.932 ha
Administrative division: Department of the Environment

Human activities:

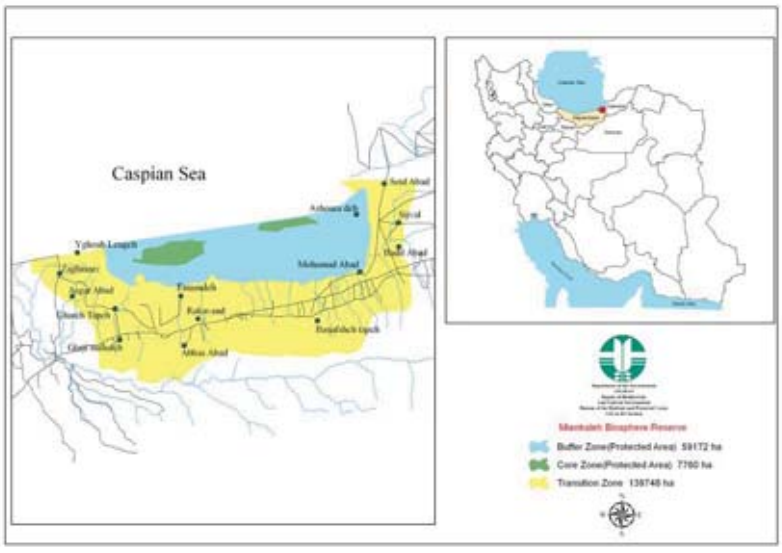
There are 96 human settlements with a population of 109200 individuals living within the buffer and transitional zones. Ashoora-deh harbor construction have been established in north-east of this biosphere reserve area.

Ecological characteristics:

- Miankaleh Biosphere Reserve has been located at the end part of southeastern border of Caspian Sea. Miankaleh has a length of 70 km and has a width between 6.5 to 7 km
- Miankaleh climate is semi-tropical. Annual average rainfall is between 600-700 mm. Maximum monthly temperature in summer is 24ºC and in winter will decrease to less than zero. Precipitation is high and its annual average is 70%.
- Ghare-Soo is the main water resource of the Biosphere Reserve. It is originated from Alborz Mountains, which after irrigating the agricultural lands in its route, enter to the Biosphere Reserve from south.
- The existing habitats are: Inter-tidal mud with a little sandy shore , Shallow marine waters, Forested peat lands, Raspberry shrubs forest, Tamarix forests
- 33 bird species, 5 mammalian species and almost 3 fish species could be distinguished in the Miankaleh Biosphere reserve.
- There are 179 plant species in Miankaleh Biosphere reserve.

Protection classifications:

At the national level, the area has been declared as Wildlife Refuge in 1970.



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Touran

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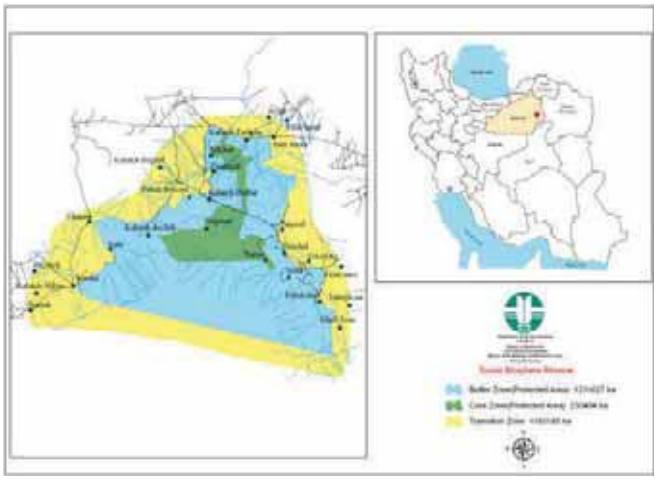
Declaration date: 1977
Surface area: 1.441.521 ha
Administrative division: Department of the Environment

Human activities:

There are 64 human settlements in buffer zone and transitional zones with a population of 10700 individuals. There are only some historical roads, some communication facilities and power stations in the biosphere reserve. There is a guest house in Delbar environmental guard station which provides facilities for visitors and ecotourists.



Ecological characteristics:

- The specific topographical features of Touran Biosphere Reserve is mountains with high slopes, sandy dune deserts, hill and dunes and clay plains resulting a suitable wildlife habitat in its core area.
- Average annual rain in core area is varying from 100mm to 150 mm from south to north. In high elevations (transitional zone) the rainfall is over than 400mm /year. Maximum raining is from February to May, which might be decreased to ½ of average raining in some drought years.
- Touran Biosphere Reserve is a symbol of desert habitat wich is considered to be of high importance for its valuable biodiversity. There is salt, gypsum, mountainous, stone and sandy soil habitats in this biosphere reserve.
- 167 bird species, 41 mammalian species and almost 20 reptile species could be distinguished in the biosphere reserve.
- There are at least 375 plant species that have been adapted to the arid and desert habitats in this biosphere reserve. Trophyt and hemi-cryptophyta plants are dominant in this biosphere reserve.

Protection classifications:

At the national level, the area has been declared as a protected area in 1973.

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Islamic Republic of Iran

Dena

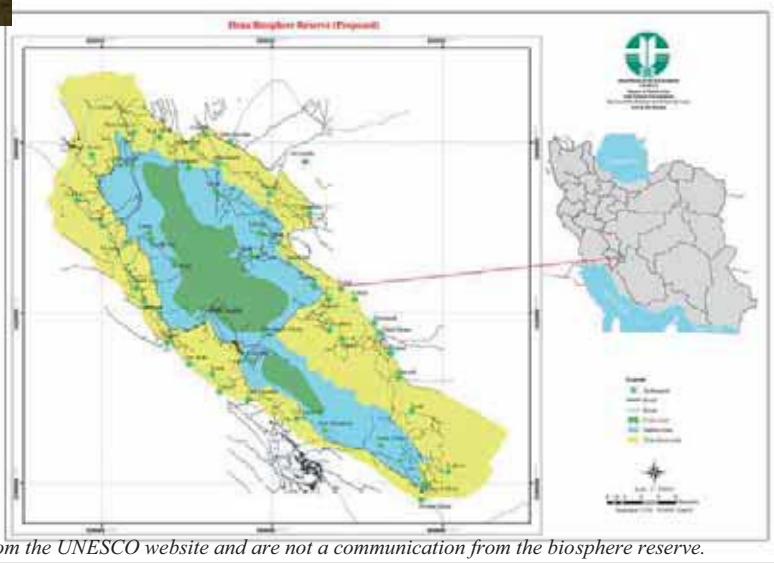
Declaration date: 2010
Surface area: 255.537 ha
Administrative division:
Department of Environment (DoE)

Human activities:

Dena is situated on the boundary of three different provinces in the west of Iran and in 2006 the number of residents was estimated as 27,197 individuals, among which 4,070 individuals live in the northern part and 23,127 in the southern part of the reserve. Dena is under the supervision of Kohkeloyeh and Boyerahmad province. Three different zones (Core, Buffer, Transition zone) are situated at the periphery of Sisakhat (Pataveh portion), Boyerahmad (Central portion) and Semirum (Padena portion) townships.
Notably the Dena Biosphere Reserve also served as one of the world's earliest cultural habitats for both plant and livestock domestication as of 10,000 years ago. Till now the vast majority of people practice a nomadic lifestyle. The cultural diversity of the local communities, including the nomad communities are manifested by their languages, traditional production activities, including herding and hunting, food products, dresses, festivals, dances and weaving and other crafts including their knowledge about seasonal and long routes of migration for their livestock.

Ecological characteristics:

Dena Biosphere Reserve is located in the Central Zagros mountains of Iran, with a general slope of more than 60%. In mountaintops where changes of temperature are most common, a fall of temperature by -25 ℃ in winter is not far from reality. Snow is common throughout the ranges in that season and some higher peaks remain snow-covered throughout the year.
The region contains globally significant ecosystem, species and genetic biodiversity. The area is characterized by extreme topographical and climatic conditions, which have led to an eye-catching diversity of ecosystems and habitats over a small geographical area.
Dena is home to a vast range of plant species and several endangered and endemic mammal species. Oak species dominate the highlands, while pistachio and almond are common at lower elevations. Also, hackberry, walnut, and pear trees are scattered throughout this eco-region. A variety of animal life, such as brown bear, eagles, wolves, various wild cats including caracals, lynxes and leopards, wild goat have long made their homes in the region. On the other hand many large rivers, including the Karun, Dez, and Karkheh originate from the area, flowing into the Persian Gulf and the Omman Sea. Scenic waterfalls, pools, and lakes add beauty to the mountainous landscape.



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www.irandoe.org

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Japan
Mount Hakusan

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Declaration date: 1980
Surface area: 48.000 ha
Administrative division: Ministry of the Environment

Human activities:

Annual number of visitors is estimated around 30,000~40,000 on the Hakusan arterial forest road.
Erosion control and afforestation projects are carried out to maintain the safety of the villages around there. The natural environment is modified by such a performance, although it is inevitable at the moment to co-exist the people there.

Protection classifications:

Whole the area is included in Hakusan National Park

Ecological characteristics:

Location: situated at 36.10' latitude and 136.50'E longitude. Altitude: between 170~2,702 m.
Climate: annual mean precipitation is 3,017.3mm and snow period is from November to April.
Vegetation includes alpine, subalpine and warm-temperate zones. Hakusan is locatd at the southern limit of the mountains with alpine zone in Japan. It is also at the western limit of the alpine plants including about 100 particular species for this.
Animal biodiversity: large mammals such as Japanese serow, Japanese macaque and black bears are observed in high population, and golden eagle lives in high density.

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Contact information:

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Japan
Mount Odaigahara & Mount Omine

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Declaration date: 1980
Surface area: 36.000 ha
Administrative division: Ministry of the Environment

Human activities:

Increase of visitors: on Odaigahara, after construction of driveway in 1961, annual visitors are more than 250,00. Visitors are many in May for Rhododendron flowers, in August during summer vacation and in October to observe autumn color. On Omine, the visitors are for warship under mountainous religion, and 100,000 visitors step on ridge-way every year.

Protection classifications:

Whole the area are included in Yoshino-Kumano National Park.
Also the area is covered by Kumano-kodo World Cultural Heritage.

Ecological characteristics:

Location: situated at 34.10'N latitude and 136.00'E longitude.
Altitude: between 200~1,915m
Climate: annual mean precipitation is 2710.9 mm and annual mean temperature at Mount Kamikatiayama, 334 m alt. is 12.9 . This area is famous in its precipitation, and Odaigahara range is known to have mean annual precipitation of some 4,800 mm. The highest record is 8,214.3 mm in 1920 and highest monthly record is 3,514.0mm in August 1938.
The vegetation was originally very rich with beautiful mountainous or subalpine forests. The area includes the vegetation of subalpine, temperate and warm-temperate forests, and Cryptomeria forest here is beautiful and useful. Recently, Japanese deer increases in population and native vegetation is heavily influence by feeding. Increase of visitors in number is another reason to damage the natural landscape there.

© *Mount Odaigahara & Mount Omine BR*

Contact information: Yoshino National Park Ranger Station, 133 Kamiichi, Oaza Yoshinocho, Yoshino, Nara Prefecture

Japan
Shiga Highland

© *Shiga Highland BR*

Declaration date: 1981
Surface area: 13.000 ha
Administrative division: Ministry of the Environment

Human activities:

The road maintenance for the Winter Olympics at Nagano Prefecture in 1998 was carried out, and the a route was constructed, although the protected areas were preserved from direct development. Careful maintenance and monitoring are carried out by the National Park Ranger Office, although pressure from increase of the visitors is a problem.

Protection classifications:

whole the area is in Joshin'etsu Kogen National Park

© *Shiga Highland BR*

Ecological characteristics:

The location is at 36.43' latitude and 138.30'E longitude, and altitude is between 800 ~2,305 m.
Climate: the average date of first snow of the season is 22nd October, and the average date of root snow is 24th November. The deepest snow is recorded generally late in February.
Vegetation: This area could be classified as the upper area, which is more than 1,700m alt. with evergreen coniferous forest and the lower area, which is less than 1,700 m alt. with deciduous broad-leaved forest. High moor of subalpine is in this area. There are unique vegetation around Mt. Shirane influenced by volcanic activity. The dominant species at the area with artificial influence are *Betula ermanii* and *Sasa* sp. At the upper part and *Quercus cirspula* and *Betula platyphylla* var. japonica at the lower part.

© *Shiga Highland BR*

Contact information:
Shiga Kogen Ranger Office, Joshin'etsu Kogen National Park,
Shiga Kogen, Yamanouchi-machi, Shimotakai, Nagano 381-400

Japan
Yakushima Island

© *Yakushima Island BR*

Declaration date: 1980
Surface area: 18.958 ha
Administrative division: Ministry of the Environment

Human activities:

Human population in Yakushima is 13,875 in 2000, and major industries are agriculture, forestry, fisheries and tourism. After the designation of world heritage, increase of visitors brings various problems. Increase of deer population gives another serious problem in vegetation, and monkey population also increases with feeding of the visitors.

Protection classifications:

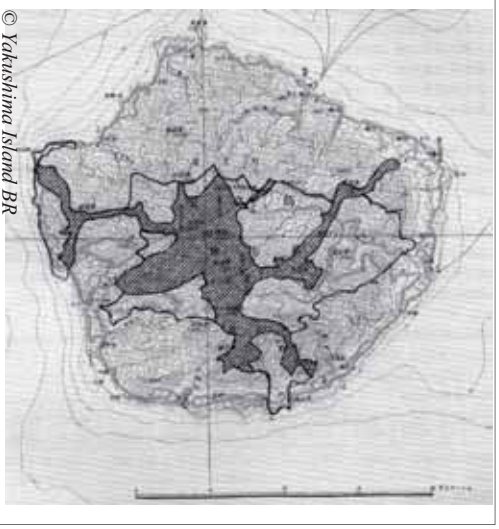
Whole the area is included in Kirishima-Yaku National Park. Other protections are: Yakushima world heritage, Wilderness area, and Yakushima forest ecosystem reserve.

Ecological characteristics:

Location: situated at 30.15'N latitude and 138.28' E longitude. Nearly round-shaped island of 540 km2, ca. 60 km south off the southern tip of Kyushu island.
Altitude: highest peak is 1,935 m.
Climate: annual mean temperature is 19.2 , and in non-frost zone. Precipitation is 2,600~4,300 mm at the coastal zone, and in some places in mountain areas twice more. Snow is observed in the coldest season at the top of higher mountains..
Vegetation: very old Cryptomeria trees show a particular landscape of this island. Influenced by the warm and wet climate, vegetation is very dense, and diversity of organisms is quite high. There are many endemic species and many of them are threatened seriously.
There are six Japanese natural monuments: Ryukyu robin, Land Hermit Crab, Black wood pigeon, Yakushima isand thrush, Ijima's leaf warbler and Rykyu flying fox.

© *Yakushima Island BR*

Contact information:
Yakushima National Park Ranger Station
Ambomaedake, Yaku-cho,
Kumage-gun, Kagoshima, 891-4311



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Democratic People's Republic of Korea

Mount Paekdu

© *Mount Paekdu BR*

Declaration date: July 1989
Surface area: 132.000 ha
Administrative division: Samjiyon County, Ryanggang Province

Human activities:

Visiting and tourism.

Protection classifications:

In April 1946, it was designated as Mt. Paekdu Plant Reserve. In March 1958, it became the Mt. Paekdu Nature Reserve. In 1976, 14,000 ha in the central part of Mt. Paekdu area were designated as nature reserve. In 1985, it was designated 15,880 ha in battle site district as Mt. Paekdu Special Reserve.

Ecological characteristics:

Mt. Paekdu lava plateau has been formed by first volcanic eruption and the Mt. Paekdu and Mt. Potae were made on it by he second eruption. t Larch forest ecosystem dominated with Larix olgensis var. Koreana has been developed on the thick layers of pumice by irst eruption from the volcanic. f Forest ecosystem dominated with Picea-Abies species has been developed on the main volcanic area formed by the second ruption. e It has rich plant species variation including 830 species of igher plant, 274 Bryophyta, 190 Lichenes and 370 Fungus. h It has rich animal species variation including 243 species, 155 genuses, 72 families.

© *Mount Paekdu BR*

Contact information:

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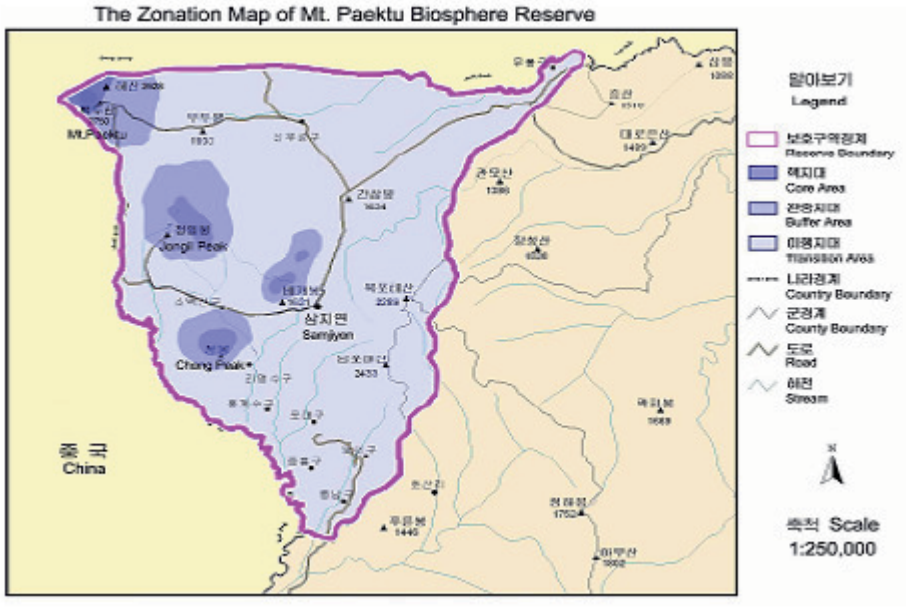
E-mail: pptayang@co.chesin.com



Democratic People's Republic of Korea

Mt. Kuwol

© Mt. Kuwol BR

Declaration date: Oct. 2004
Surface area: 52.175 ha
Administrative division: South Hwanghae Province, DPR Korea

Human activities:

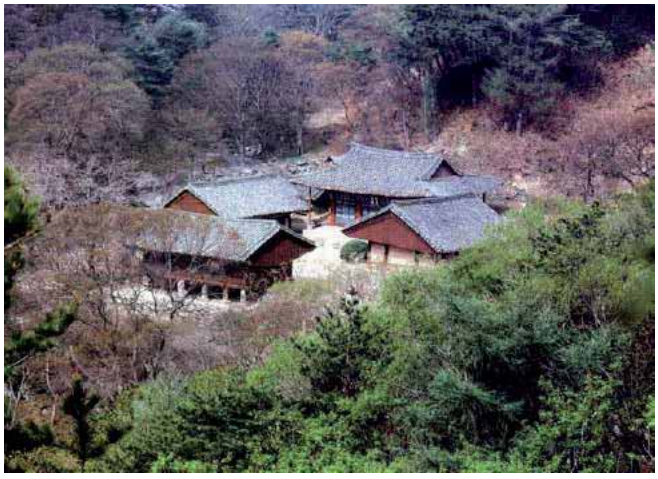
Tourism has been allowed and activated in buffer zone, as it is known as one of the 5 famous mountains of the country from the ancient times. Most of the transition area has been used traditionally for agricultural purpose. Most of the residents in the reserve engaged in the activities for agriculture, fishery and fruit farming and some of them are working for the reserve management.

Protection classifications:

Mt. Kuwol Nature Reserve (4,700ha) was designated in center of Mt. Kuwol area by the Decision of Administration Council No. 55 on 2 October 1976 and later, was nominated as a Biosphere Reserve in DPRK by the recommendation of UNESCO in November 2004.

Ecological characteristics:

The reserve is characterized by various ecosystems which include the forest ecosystem in core area, agricultural ecosystem widely spreaded in the transition area, and wetland ecosystem along coastline, rivers, streams and reservoirs. Therefore, the type of habitat and land cover can be classified into 3 types, i.e. forest, farmland and wetland. It has many curious rocks, cliffs, peaks, valleys, falls and ponds formed by the age-old weathering and erosion. As a typical temperate forest area, it is consisted of broad-leaved forest, coniferous forest and broad and coniferous mixed forest. The weather has a typical temperate climate that four seasons are clearly distinguished. A typical monsoon blows across the mountain. The soil is made up of 5-soil type; forest brown soil, alluvial soil, marshland soil, tidal land soil and paddy soil.



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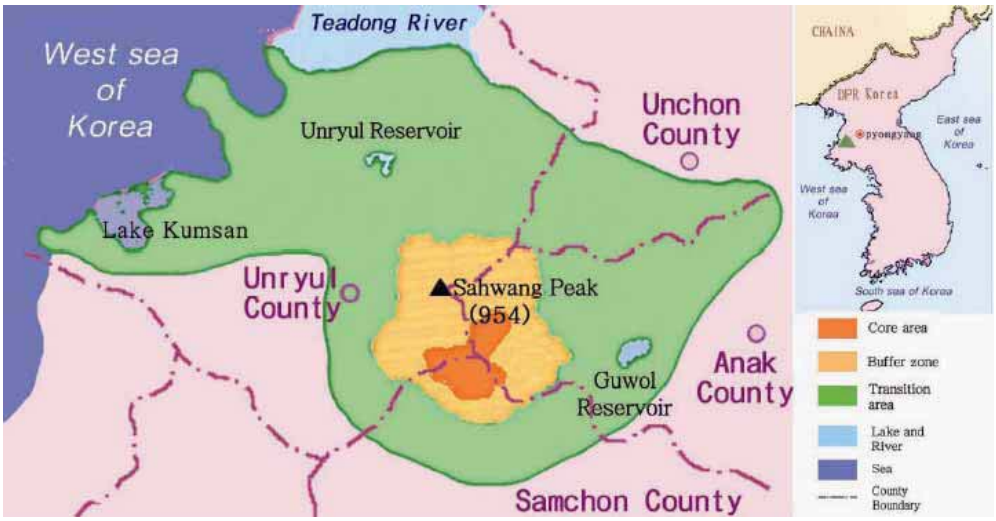

Contact information:

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Democratic People's Republic of Korea

Mount Myohyang

Declaration date: 2009
Surface area: 74.501 ha
Administrative division:
Mt. Myohyang Scenic Spot Management Unit Forest management Units of Hyangsan County, Kujang County, Nyengwon County and Huichon City

Human activities:

There is no inhabitant living within the core area. 18,400 peoples are living in buffer zone while 73,800 in transition area.
Economic activities are mainly conducted in buffer zone and the transition area of the proposed Biosphere Reserve. Tourism is the main activity in buffer zone while the agriculture is the main economic activity in transition area. The main crops are rice, maize, vegetables and fruits. There is no ethnic group or indigenous people living in or near the proposed biosphere reserve other than Korean. Mt. Myohyang has the International Friendship Exhibition, the grand monumental edifice and the cultural heritages including Pohyon Temple, which was built in 1042.
From ancient times, Mt. Myohyang has been known as a sacred and famous mountain, which had an ancestral legend of King Tangun, the progenitor of the Korean nation and one of the eight beauty spots in Korea. The lands are managed by "the Law on land of DPRK" and state-owned. The Mt. Myohyang Nature Reserve was designated on 25 March 1959 by Cabinet Dicision No.29 and as natural park on June 17th, 2003 by Cabinet ratification no. 1063.
The conservation and management agencies are regionally connected through the local governments and carry out the orders of government authorities. The Mt. Myohyang Scenic Spot Management Unit, Ministry of Culture, the Ministry of Land and Environment Protection, County People's Committee of Hyangsan, Nyengwon, Kugang and Huichon City.

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Fax (850.2) 381 4410/(850.2) 381 2100
Email: pptayang@co.chesin.com

Ecological characteristics:

The Mt. Myohyang Biosphere Reserve covers the mountain areas of Myohyang Mountain Range and Jokyuryong Mountain Range on the left bank of River Chongchon. The Mt. Myohyang Biosphere Reserve is enclosed by river or residential districts in east, west and south and only the north is linked with mountain range forming the ecological corridor.
The highest elevation above sea level is 1909m and the lowest is 100m.
The biosphere reserve has unique landscape with rock cliffs of granite-greiss of Cenozonic era formed by ages – old erosion, as well as perennial streams fed by waterfalls. Myohyang Mountain Range stretched along River Chongchon in one direction and another to the direction of west centering Piro Peak. The soil is dark brown forest soil formed mainly by granite and granite-greiss.
It is the continental climate with clearly distinguished four seasons. A dry season and rainy one are clear. A typical monsoon blows across the mountain.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Republic of Korea
Mount Sorak

Towangseong Falls © Mount Sorak BR

Declaration date: 1982
Surface area: 39.349 ha
Administrative division: Sokcho-si, Inje-gun, Goseong-gun, Yangyang-gun

Human activities:

- Ecosystem conservation and restoration, and cultural heritage protection;
- Controlling illegal activities and disorders in BR;
- Improving facilities that damage the environment and visitor safety management;
- Promoting interpretive/environmental education.

Protection classifications:

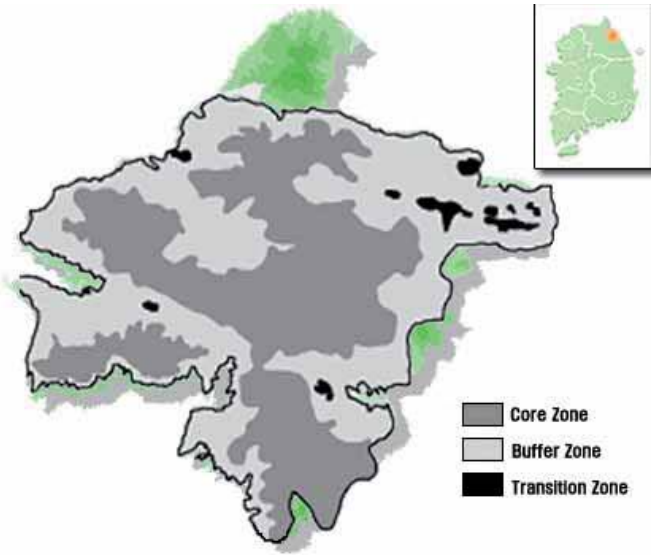
The area was declared a National Monument in 1965 and a National Park in 1970.

Gongryongneungseon © Mount Sorak BR

Ecological characteristics:

© Mount Sorak BR

- The park contains virgin forests of the middle temperate zone and 1,292 species of flora. In the alpine region (over 1300m), climatic factors such as wind, temperature, and humidity have produced, mixed forests of deciduous and evergreen needle-leaf trees. However, pure forests are found in some parts of the park;
- Some 44 mammal species including the Korean goral, musk deer, and otter, 109 bird species, 10 amphibians, 19 reptilians, 43 fishes, and 1,683 insects have been recorded;
- The flagship species representing Seoraksan (Mt. Sorak) are the Korean goral and dwarf stone pine, which grows around Daecheongbong (Peak). In particular, the habitat of the Dwarf stone pine is protected as a Strict Nature Reserve;
- Seoraksan National Park has a very lively and colorful ecosystem. Some of the unique wildlife such as the musk deer, Asiatic black bear, flying squirrel, and the pine tree in Seorakdong are protected as natural treasures as well.



Contact information:
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731, Seorak-ro, Sokcho-si, Gangwon-do (217-120)
Phone: +82-33-636-7700, 7702, 7703
Fax: +82-33-636-7494
E-mail: seorak@knps.or.kr
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Republic of Korea
Jeju Island

© *Jeju Island BR*

Declaration date: December 16, 2002
Surface area: 83.094 ha
Administrative division: Jeju Special Self-Governing Province

Human activities:

© *Jeju Island BR*

- Core Areas: Sightseeing and hiking are the main recreational activities in Mt. Halla National Park. Also, monitoring and research are carried out, and cultivation of shitake mushrooms (Lentinus edodes) takes place in some areas. In the marine core area, three uninhabited islets are used for fishing sites, and two stream valleys are frequently used for picnicking in the summer.
- Buffer zones: No special economic activities exist except for the cultivation of shitake mushrooms (Lentinus edodes). Other activities include limited forest monitoring and research, afforestation and forest conservation. Fishing, sightseeing, and submarine tours are the major activities in the sea around the three islets, which was designated the City Marine Park.
- Transition area: The main uses of types of land in the transition area are grassland, forest, and agricultural land, such as farms, orchards and greenhouses, tourism-related facilities such as golf courses and horseback riding courses, and some residential areas.

Ecological characteristics:

© *Jeju Island BR*

Mt. Halla: The dominant trees over 1,400m are Abies koreana, Betula ermani var, saitoana, Taxus cuspidata, Rhododendren mucronulatum var. ciliatum, Salix blinii, and in the herbaceous layer contains Sasa quelpartensis, Cacalia auriculata, Lycopodium chinense, Majanthemum bifolium, and Ligularia fischerii.

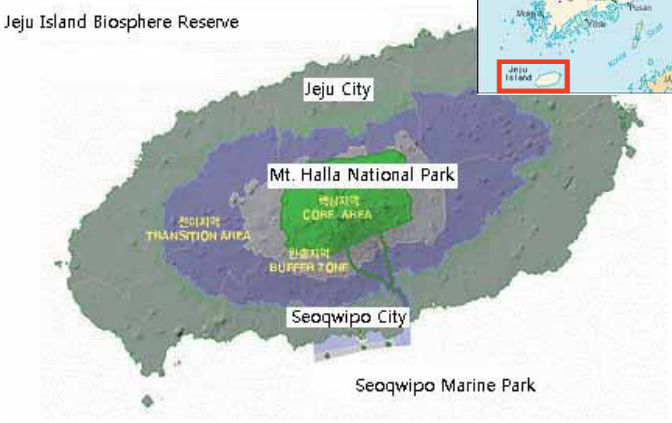
Islets vegetation (Warm temperate evergreen hardwood forest): All 251 species of vascular plants are found on the three islets off the southern coast of Seogwipo City - Seopseom, Munseom and Beomseom - and among them, 47 species are evergreen trees.

Temperate soft coral communities: The soft coral communities of mainly alcyonaceans and gorgonaceans are widely distributed on rocky bottoms especially near Munseom off the southern coast of Jeju Island.

Wetland vegetation – volcanic crater: The main species are Scirpus trinaulantus, Scirpus tabernaemontani, Isachne globosa, Juncus effusus var. decipiens, and Trapa japonica.

Protection classifications:

National Park V (IUCN)
At the national level:
National Park & Seogwipo City Marine Park



Contact information:

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Email:kyb@jeju.go.kr

Republic of Korea

Shinan Dadohae

© *Shinan Dadohae BR*

Declaration date: 26 May 2009
Surface area: 75.749 ha
Administrative division: Shinan County, Jeollanamdo Province

Human activities:

© *Shinan Dadohae BR*

- Core Areas : Monitoring and study are being conducted in order to develop areas for mountain climbing and recreation. The maritime region of the core area can be used for eco-tourism and cruises. Also, trails for the residents can be used without damaging the ecosystem.
- Buffer Zones: Businesses based on indigeous knowledge are conducted within the tidal flats and Dadonhae National Park, particulary 'Sun Dried Salt,' a local specialty is produced in eco-friendly manner. Also, ecotourism programs, such as sightseeing tours and cycling can be beneficial in various ways and are therefor worth considering.
- Transition Area: Eco-friendly fishery and fish breeding is conducted in this area. However, maritime transport systems need to be reorganizated to become more environmentally sustainable. Developing ecotourism in this area with the involvment of the local community and reflecting the natural features is also recommended. In addition, there is a need to maintain the specialization of the local products representing the region's natural characteristic. The area in general is likely to be developed as a residential area.

Ecological characteristics:

Temperate Evergreen Broadleaf Forest Zone: The dominant species in this zone are *Castanopsis cuspidata*, silver magnolia, and camellia trees. There are also herbaceous plants such as *Ardisia japonica, Hedera rhombea*, Saeri trees, and *Kalopanax pictus.*

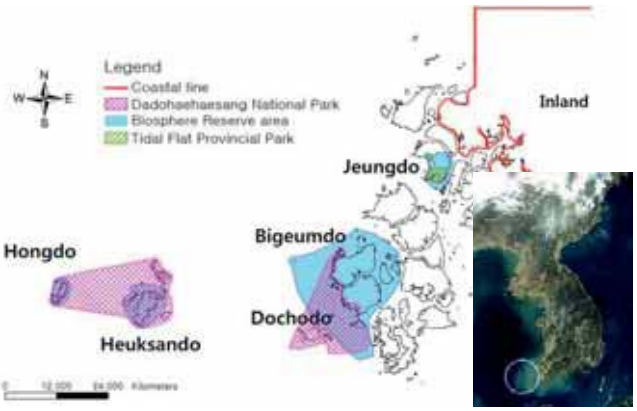
Dune Vegetation: Dune vegetation includes *Ischaemum anthephoroides*, *Zoysia macrostachya*, *Vitex rotundifolia*, *Calystegia soldanella*, *Messerschmidia sibirica*, and a colony of *Carex kobomugi* on Jeungdo Island. Several unusual species, including *Phragmites communis* and *Vitex rotundifolia* are distributed throughout the dunes.

Evergreen Coniferous Forest Zones on Uninhabited Islands : A colony of Japanese black pine trees dominates the seashores and hillsides. On some uninhabited islands, there are remnant patches of temperate evergreen coniferous trees and Japanese black pine trees. There are also insects, such as *Graphium sarpedon* and *Papilio protenor,* in temperate evergreen coniferous trees and costal dunes.

Tidal Flat: Reed and *Phragmitis* communities are dominant in wetland areas. In the coastal area, various saltmarsh plants are developing such as halophyte communities. Many biological organisms are in the inter-tidal zone. The surface of the tidal flat is an important habitat for diatoms and plankton, due to the complexity of ecological circulation and the food chain, many shells and invertebrate are found here.

sibirica, *Plantago major* for. *yezomaritima*, and

Protection classifications:
Ramsar site
At the national level:
Dadohae National Park & Natural Monuments



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Republic of Korea

Gwangneung Forest

Declaration date: 2010
Surface area: 24.465 ha
Administrative division:
Korea National Arboretum

Human activities:

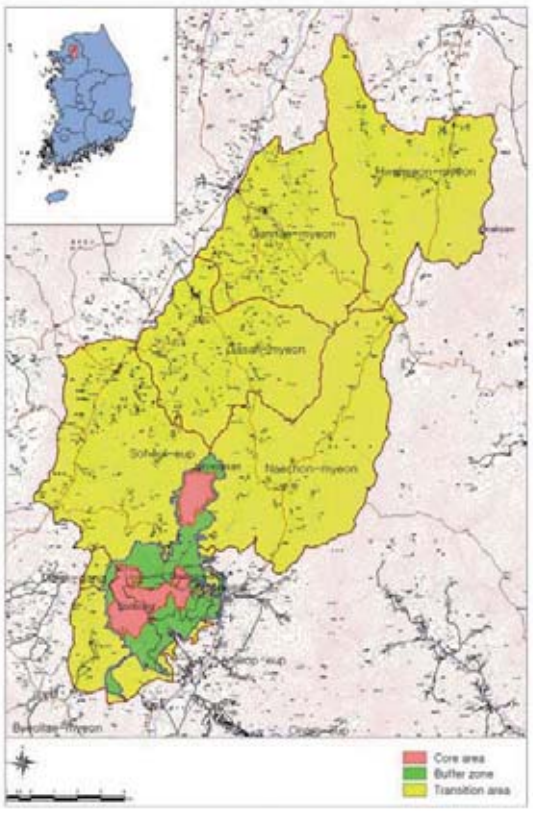
Thirty-five villages with approximately 230,000 inhabitants are within the transition area of the proposed Biosphere Reserve. The inhabitants can be categorized into two groups. The smaller group consists of the original inhabitants engaged in agriculture, and the larger group consists of those who moved from other areas and are engaged in the restaurant and hotel business. Recently, however, new occupations have been introduced, specifically, businesses that provide nature exposure to urban residents, such as hiking trails or forest retreats and weekend farms.
The core areas are protected forests for scientific research and monitoring of natural deciduous broad-leaved forest and habitat protection area for the white-bellied woodpecker. The buffer zones are experimental forest for development of forestry technique and education. Most of the forests are plantations. The transition areas consist of private forests, farmlands and residential districts.

Contact information:
Biosphere Reserve Gwangneung Forest
Jikdongri 51-7
Soheul-eup, Gyeonggi Province
POCHEON CITY 487-821
Rep. of Korea

Ecological characteristics: The western part of the forest is composed of empty Soribong (537m), the second highest peak in the forest, and its three tributary ridgelines to the North, South, and East.

Particularly the eastern ridgelines forms a gentle declination that disappears into Bongseonsacheon Stream, and the Site formed on the environs of the eastern ridge, the central part of Gwangneung Forest, has a fertile soil. And it is covered withold-growth forest composed of the deciduous broadleaf trees assumed to be climatic climax tree species of this region.

(A2) Biosphere Reserve Zonation Map (scale: 1/50,000)



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Kyrgyzstan
Sary-Chelek

Declaration date: 1978
Surface area: 23.868 ha
Administrative division: Director Maiman Mamyrbekov
Deputy Director Akynaly Dubanaev

Human activities:

Before the creation of the biosphere reserve, selective logging of the forest, grass cutting and cattle grazing were practiced. Today, serious problems arise from recreational activities, unorganized tourism, thoroughfare through the reserve and construction work on the banks of Sary-Chelek Lake. Research in the area has been carried out since 1977.

Contact information:

Secretary, Ministry of Environment & Forests
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India
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Fax: 011 4362551 - 011 4361712
E-mail: nrcd@giasdl01.vsnl.net.in

Ecological characteristics:

The Sary-Chelek Biosphere Reserve is situated in the western Tien Shan Mountains on the southern spurs of the Chatkal Range in the west of Kyrgyzstan. The main part of the area comprises a high mountain basin protected to the north, west and east by mountain ridges. The mountain lake Sary-Chelek is situated at about 2,000 meters above sea level, with an area of 470 hectares and a depth of 245 meters. Due to the protection by the surrounding mountain ranges, winters are relatively mild and rich in snow, and summers are warm and wet. The elevation of the biosphere reserve ranges from 1,200 to 4,247 meters above sea level. Main habitats comprise forests, meadows, steppes, rocks, and screes and some aquatic areas. The central and lower region is strongly dissected and covered by nut-fruit forests with walnut (*Juglans regia*), apple (*Malus* spp.), pear (*Pyrus* spp.) and an understory of *Prunus divaricata*. This forest can grow here due to the favorable micro-climate, a reflection of the local relief. Many of the fruits found in the forests here have a high socio-economic value.

Alpine forests with walnut (*Juglans regia*), fir (Abies semenovii), spruce (*Picea schrenkiana*) and grape (*Vitis silvestris*); meadows; tree-shrub communities of juniper (*Juniperus* sp.), spruce, fir etc.; nut forest dominated by walnut with groups of apple (*Malus* spp.), pears (*Pyrus* spp.) and an understory of *Prunus divaricata*, abelia (*Abelia curumbosa*), exochords (*Exochorda* spp.) and juniper; steppe habitats; rocks and screes; water bodies.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Kyrgyzstan
Issyk Kul

© Issyk Kul BR

Declaration date: 25 September 1998
Surface area: 4.311.588 ha
Administrative division: subject of Kyrgyz, Republic Issyk-Kul region

Human activities:

Industrial emission from mining, livestock, agriculture, tourism and hunting activities.

Protection classifications:

The core area of biosphere reserve is government protected nature area 'Biosphere reserve Issyk-Kul' organized by the Decree of Government Kyrgyz Republic #23 from 25 September 1998.

Ecological characteristics:

The central Tien-Shan mountain region around the Issyk-Kul lake is a area one of the last harmonic cultural landscapes in the middle Asia preserving habitats close to nature in combination with traditional culture. The mountain area of the central Tien-Shan region with the Issyl-Kul lake in its center is home to many ecosystems of global importance and has a wide variety of endemic species of wild fauna and flora. The Issyk-Kul lake with its 180 km length and 60 km width is the second biggest high mountain lake in the world. Because of its depth of 700 meters, its low salinity and because of warm water sources it even in the winter never freezes. Starting from the lake shore all significant landscapes from the subtropical to tundra can be found in an azonal order. The fauna of reserve characterized by high species diversity and unequal distribution on different landscapes. There are 335 species of animals: Amphibia – 3 species; Reptiles- 11 species; Mammalia- 54 species; Birds- 267 species. 39 species included in Red Book of Kyrgyzstan. The main objective of the government is development of ecologically sound land use practice and economic activities in this area.

Contact information:

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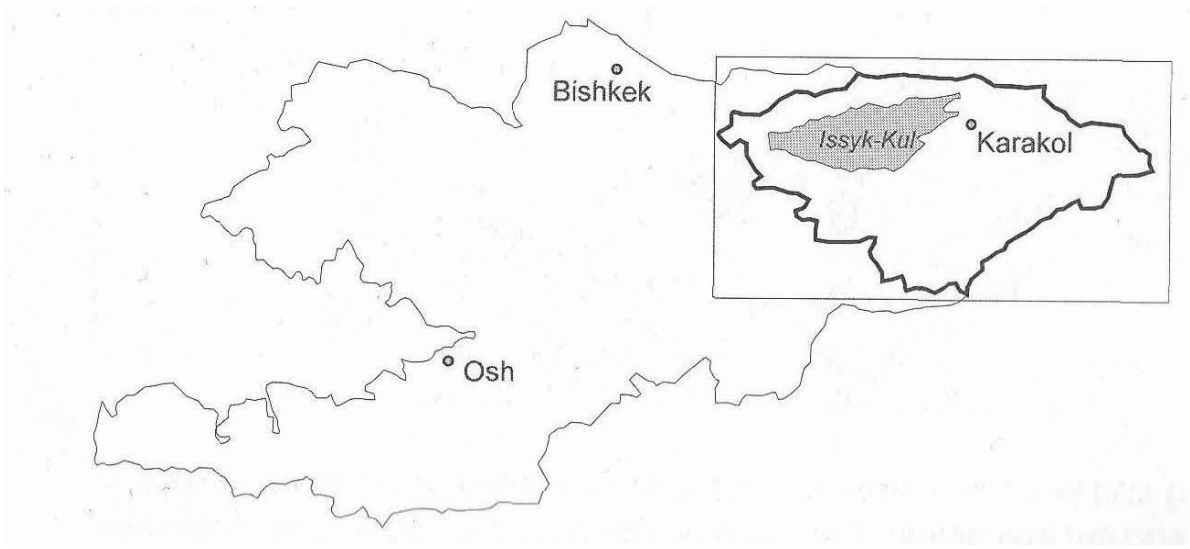
265 Chui str. Room 339
Bishkek, Kyrgyzstan.
Tel: 996-312 656687
E-mail: dalmaz1@mail.ru



Malaysia
Tasik Chini

© *Tasik Chini BR*

Declaration date: 2009
Surface area: 692.297 ha
Administrative division: Pahang

Human activities:

The government and local communities are integrally involved in all resource planning and management initiatives in the region. Forest management occurs within the context of the most stringent government-sponsored guidelines in Malaysia, under the guidance of a joint government-local community and government management board; ongoing ecosystem health is the primary consideration in all development decisions. For sustaining the natural lake as an ecotourism site it has to be managed sustainably. An initiative by one of the leading local university in Malaysia, Universiti Kebangsaan Malaysia Tasik Chini Research Centre was formed to overseer research and Integrated Water Research Management (IWRM) programmers in Tasik Chini. The researches are based on freshwater and terrestrial ecosystems, management, pollution, services, ecotourism, ecohydrology and community of the Orang Asli living in the area. Such research opportunities are attracting scientists and students from around the world to this area.

© *Tasik Chini BR*

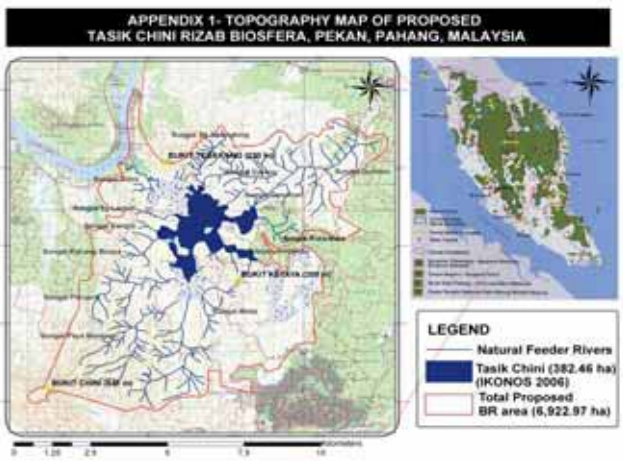
Ecological characteristics:

© *M. Idris, Tasik Chini BR*

The freshwater lake, together with the drainage basin, the gazzetted Tasik Chini State Park including the 641 m Bukit Chini showed habitats that are endemic only to Tasik Chini which represent habitat only found in this area. Other species characteristic of the extreme lowlands may also be present and are of considerable conservation interest due to their diminishing lowland habitats elsewhere within Peninsular Malaysia. The natural freshwater lake included in the Reserve, has its own economical benefits. Of the two beautiful natural lakes in Peninsular Malaysia, Tasik Chini is the second largest natural lake which is located 100 km away from the state capital of Pahang called Kuantan. With the barraging of the only river, Sungai Chini, that drains the lake, Tasik Chini is always flooded even during the drier season to encourage ecotourism throughout the year.

Protection classification:

In the core protected area, these mechanisms include federal legislation (Wildlife Act 1972, Environmental Quality Act 1974), provincial legislation Wildlife Act 1972, Fisheries Act 1985, Forestry Act 1984, Environmentally Quality Act 1974 (Act 127) & Subsidiary Legislation, Land Rules Applicable to the States in Malaysia, and the Town and Country Planning Act 1976) and management plans.



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Mongolia
Great Gobi

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Declaration date: 1990
Surface area: 5.300.000 ha
Administrative division: Tsogt sum, Gobi Altai province

Ecological characteristics:

Natural zone: desert, desert steppe. Special features: preserves representative example of Gobi desert; important habitat area for globally rare and endangered species; World Biosphere Reserve, designated 1991; last site Przewalski's horse recorded in the wild. The protected area is divided into two ecologically distinct parts, the Southern Altai Gobi ("Gobi A") and the Dzungarian Gobi ("Gobi B"), separated by 300 lometers. Scientists have identified 410 species of plants, 49 species of mammals, 15 reptiles and amphibians and over 150 bird species in the protected area.

Protection classifications:

Strictly protected area

Human activities:

While the Southern Altai Gobi is uninhabited except for park staff and border guards, the Dzungarian Gobi is seasonally used by herders.

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Contact information:

Great Gobi Strictly protected area.
Tsogt sum. Gobi-Altai province-
Mongolia
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Mongolia
Boghd Khan Uul

Declaration date: 1996
Surface area: 67.300 ha
Administrative division: Administration of Bogd Khan Uul Strictly Protected Area

Human activities:

Some 70 families (346 people) live in the biosphere reserve (1994) who are mostly nomads, engaged in traditional livestock raising. It is expected that the development of tourism (30,000 tourists annually in 1994) will bring benefits to local communities. The area of Bogd Khan Uul has a very long research history dating back to the 1940's.

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Ecological characteristics:

Bogd Khan Uul Biosphere Reserve is located to the south of Ulanbaatar, in the southernmost forest steppe zone and the Khentei Mountain area. The northern slopes of the mountains are covered by dense coniferous forest and the southern slopes by bare rocks. Among the most threatened animal species in the biosphere reserve are the Musk deer (*Moschus moschiferus*), Roe deer (*Capreolus capreolus*), sable (*Martes zibellina*) and Arctic hare (*Lepus timidus*). Nature conservation dates back to the twelfth and thirteenth century when the Toorl Khan of Mongolian Ancient Khereid Aimag - who prohibited logging and hunting activities - claimed the Bogd Khan as a holy mountain.

Grasslands; mountains; taiga vegetation; bare rock habitats; mixed forest with larch (*Larix sibirica*), birch (*Betula* spp.), cedar (*Cedrus* spp.), pine (*Pinus* spp.), poplar (*Populus* spp.) and fire-tree.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Mongolia
Uvs Nuur Basin

Declaration date: 1997
Surface area: 771.700 ha
Administrative division:
Administration of Uvs Nuur Center (UNC)

Human activities:

They are mostly Monglian ethnic minorities of the durved, bayad and engaged in traditional livestock-nomadic pastoralism and live in throughout Uvs Nuur Basin.

Ecological characteristics:

Uvs Nuur Basin Biosphere Reserve contains 5 diverse ecological zones all located within the Uvs Nuur Basin, at the geographical center of the Asia. The area has outstanding beauty, it offers examples of cold-desert, semi-desert, steppe, taiga tundra and alpine mountain zones and even glaciers. These contain components such as flood plain forest, salty marshes, dunes and wetlands.
level.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Mongolia
Hustai Nuruu

Declaration date: 2002
Surface area: 778.700 ha
Administrative division: HNP/MACNE reporting to the Ministry for Nature and the Environment, Mongolia (Mongolian Association for Conservation of Nature and Environment).

Human activities:

More than 10,800 people live in the biosphere reserve, mainly following their traditional nomadic life and keeping 175,000 animals (sheep, goat, horse and cattle) in total (2002). In summer, most families live by the Tuul River and other places with good water supply. After snowfall, they move to the mountainous areas where rocks provide better shelter. In former times, animal husbandry had almost no negative impact on nature since stock numbers were low. Today, many families from Ulanbaatar settle in the transition area of the biosphere reserve, so the number of livestock increases rapidly and overgrazing of pasture land is said to be the main problem which the area faces today. Studies on the carrying capacity of the ecosystem, improved commercialization of livestock products and stakeholder empowerment aim to improve the situation. With the increasing trend of tourism in Hustai Nuruu (2,000 people in 2002) additional sources of income have been created. An information center and Nature museum provide exhibitions, seminars, and field trips for both tourists and locals.

Ecological characteristics:

The Hustai Nuruu Biosphere Reserve is situated about 100 km south-west of Ulaanbaatar. It comprises mainly steppe ecosystems but also some taiga forests and alpine vegetation. Hustai Nuruu aims to preserve the threatened steppe and forest steppe ecosystems, which, elsewhere, have been destroyed by over-exploitation. The site is further noted for its successful reintroduction of the endemic Przewalski horse (*Equus przewalskii*). This horse, which became extinct in the wild in the 1960s, now helps to restore the steppe ecosystem. As a flagship species it also increases environmental awareness in whole Mongolia.

Steppe/mountain steppe characterized by *Stipa krylovii, Cleistogenes squarrosa, Poa attenuata, Cymbaria dahurica; mountainous steppe* with *Festuca lenensis, Chamaerhodos altaica, Orostachys spinosa* etc.; forest characterized by *Betula platyphylla* and *Populus tremula*; floodplain/riverine forest including *Salix ledebouriana, Agrostis mongolica* and *Poa subfastigiata*; grazing areas; agricultural areas.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Mongolia
Dornod Mongol

Declaration date: 2005
Surface area: 8.429.072 ha
Administrative division: Dornod Mongol Biosphere Reserve, Eastern Mongolia Protected Areas Administration reports to the Department of Special Protected Areas Management, Ministry of Nature and Environment.

Human activities:

The Biosphere Reserve is sparsely populated with some 11,800 people, and the pastoral population depends largely on the environment. Due to the remote location of Dornod Mongol, the pastoral lifestyle and culture in the region have remained relatively intact, and offer possibilities to preserve this culture that has evolved hand in hand with nature over many thousands of years.

Ecological characteristics:

Situated in the eastern corner of Mongolia, this biosphere reserve covers a representative portion of one of the largest intact grassland ecosystems in the world. It is situated on the Mongolian Plateau with an average altitude of about 800 meters above sea level. The main characteristic is rolling steppe, extending for over 200 kilometres along the Chinese border. The landscape is characterized by gently rolling hills with scattered mountains and sand dunes unique to the region. The area is rich in biodiversity, encompassing biological features from the Siberian taiga, Manchurian flora and fauna, and dominated by Central Asian steppes. Some of the largest remaining herds of Mongolian gazelle can be found in the region. These herds make up the largest remaining ungulate population in Asia. Dornod Mongol is home for several globally rare or threatened bird species, and also hosts typical Central Asia fauna and flora in relatively natural settings compared with other Asian steppe ecosystems.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Mongolia
Mongol Daguur

Declaration date: 2007
Surface area: 696.200 ha
Administrative division: Mongol Daguur Strictly Protected Area

Human activities:

The Dornod aimag province is a cultural, communication, trade, industry and information regional centre of Eastern province of Mongolia. Present day population of the Dornod aimag is around 73 900 people and it includes different ethnic groups (khalkh, buriad and barga, uzemhin and others). The numerous herder households live and raise their livestock using traditional ways of making hay, building fences, and moving from one pasture to another.

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Ecological characteristics:

The specific Mongol Daguur's steppe and wetlands territory represents mainly low-mountainous landscapes that support a variety of fauna and flora species. The specific area is rich in biodiversity encompassing biological features from Daurian and Manchurian flora and fauna with natural resources potential in Mongolia. The Mongol Daguur biosphere reserve provides nesting and breeding grounds to globally endangered species i.e. White-naped Crane and there are many rare or critically threatened birds that use the steppe for migratory stopover sites. Situated in the furthest eastern tip of Mongolia and bordered with Russia, the biosphere reserve ecosystem has trans-boundary distinction.

The management plan for buffer zone of Mongol Daguur defines the overall and specific objectives of the biosphere reserve, identifies negative human impacts and constraints to achieving those objectives, and to provide support in ensuring healthy living and working environment for 500 household by means of environmental conservation and restoration. The Council of buffer zone of Mongol Daguur implemented projects to assist in establishing full-time jobs for people capable to work whose income is lower than the minimum subsistence level.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Pakistan
Lal Suhanra

Declaration date: 1977
Surface area: 65.791 ha
Administrative division: Lal Suhanra National Park Administration

Human activities:

There are archaeological remains of an ancient civilization which once flourished along the Hakra River. The about 6,000 people in the biosphere reserve mostly follow their traditional nomadic lifestyle (1997) but also benefit from tourism. The area attracts about 1 million national and 50,000 foreign tourists each year (1997). Television, radio and cinemas as well as field trips and lectures are used to increase environmental awareness in the area.

Contact information:

Lal Suhanra National Park
Bahawalpur Punjab Province
Pakistan
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Ecological characteristics:

Lal Suhanra Biosphere Reserve and National Park is situated in the north-west edge of the Cholistan Desert in the Punjab Province of Pakistan. This arid landscape is relatively flat and interspersed with sand dunes up to 1,000 hectares in extent and 4 meters in height, some of which are unstable. The biosphere reserve is crossed by the dried-up bed of the Hakra River and comprises Patisar Lake and irrigated land. The lake (1,935 hectares) was originally built as a water reservoir and used to be an important wetland as a wintering site of many waterfowls. However, today the pond supports extensive reed beds, submerged and floating aquatic vegetation, thus it has lost its habitat function for most birds.

Sub-tropical thorn forest with *Calligonum polygonoides, Calotropis procera, Capparis decidua, Prosopis cineraria Tamarix aphylla* etc.; lesser Cholistan desert characterized by *Crotalaria burhia, Zizyphus mauritania, Haloxylon recurvum, Aerva javanica* etc.; irrigated plantations with *Acacia nilotica, Dalbergia sisso, Eucalyptus camaldulensis, Prosopis cineraria, Tamarix aphylla, Capparis decidua, Salvadora oleoides;* freshwater wetlands including species such as *Eichornia crassipes, Hydrilla verticillata, Nelumbo nucifera, Nymphaea lotus, Phragmites karka and Typha domingensis*.

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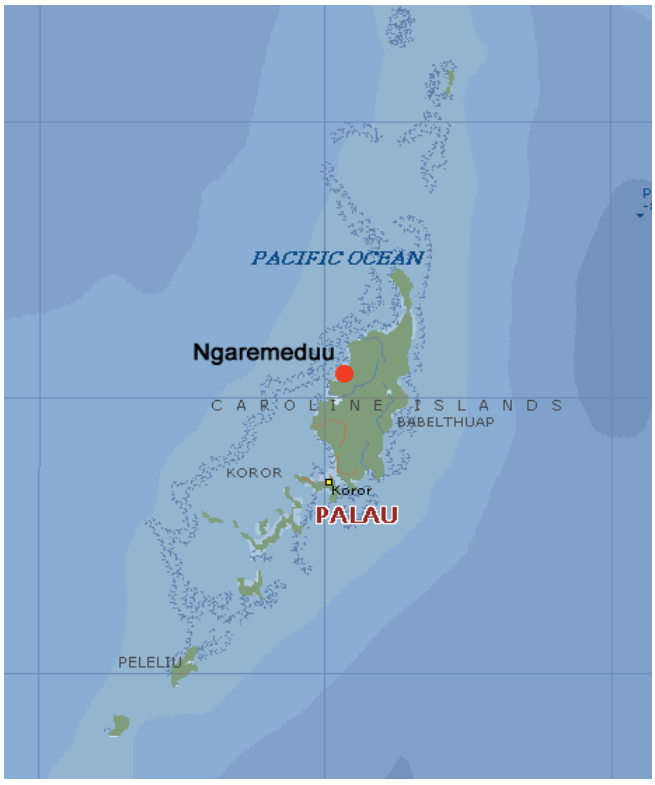
Palau
Ngaremeduu

Declaration date: 2005
Surface area: 13.674 ha
Administrative division: Conservation Area Coordinating Committee (CACC) (decision-making body) and the MCPA Programme (technical and financial support) reporting to the Ministry of Resources and Development and the three State Governments of Aimeliik, Ngatpang and Ngaremlengui

Human activities:

Since the core areas and buffer zones are mostly marine areas, there are only some 60 people living in the Biosphere Reserve and most of the Palauans in the villages still depend on subsistence fisheries and farming. It is estimated that there are over 80 cultural and historical sites within or around the Biosphere Reserve. These include traditional villages consisting of stone platforms, stone paths, monoliths, burials, stone piles and docks. Conservation of these sites is important since they can be used to attract tourists as part of an income-generating project. Other income-generating projects include aquaculture with the construction of milkfish ponds, and ecotourism with adventure kayak tours, nature trails and visits of historical culture sites.



Ecological characteristics:

The Ngaremeduu Bay Region lies on the west coast of Babeldaob Island, the largest island of Palau, located in the South Pacific. The Biosphere Reserve corresponds to the Ngaremeduu Conservation Area: it incorporates the largest estuary in Micronesia, freshwater marshes, Pandanus/grass and shrub savannah, one of the largest stretches of mangroves on the small Pacific islands, as well as extensive coral reefs and sea-grass beds. The area is one of the richest in biodiversity in Micronesia, with a range of both marine and terrestrial species. There are approximately 220 species of stony corals in the reef habitats and the total number of corals can exceed 100 species per site when combined with soft corals. The stretches of mangroves include 44% of Palau's mangrove forest and comprise 18 different mangrove species. Ngaremeduu Bay is also known to provide habitat for several endangered and threatened species such as the dugong, salt-water crocodile, and sea turtles. The Biosphere Reserve Management Plan provides the framework to achieve biodiversity conservation and sustainable development through a participatory community approach. The Conservation Area Coordinating Committee (CACC) is the decision-making body that oversees the management of the overall Ngaremeduu Conservation Area and Biosphere Reserve.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Philippines
Puerto Galera

Declaration date: 1977
Surface area: 23.247 ha
Administrative division: Puerto Galera Biosphere Reserve Department of Environment and Nature Reserves

Human activities:

There are about 22,000 inhabitants in Puerto Galera (1996). Their traditional source of income used to be fishing and subsistence agriculture. However, after the boom of tourism at the end of the 1970's, the service sector became more and more important. Today, the rapid and unregulated development of the tourist sector, which also led to population and economic growth, is the biggest problem of Puerto Galera.

Ecological characteristics:

Puerto Galera Biosphere Reserve is situated on Mindoro Island, about 120 km south of Manila. Its 23,200 hectares make up the northern tip of Mindoro Island and are bounded to the north by the Verde Island Passage, to the west by the Camarong River and to the east by the municipality of San Teodoro. Ecosystems represented here are savannas and grasslands, dipterocarp forests, mossy forests, mangrove, coral reefs and coastal ecosystems as well as agroforestry systems. A wide variety of endemic species are present, including tamaraw (Bubalus mindorensis). The conservation of coral reefs has been recognized as one of the main tasks of the biosphere reserve since healthy coral reefs are important for the conservation of biodiversity, the maintenance of the traditional lifestyle and culture, tourism revenues, education and research.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Philippines
Palawan

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Declaration date: 27 March 1990
Surface area: 1.489.600 ha
Administrative division: Palawan Province

Human activities:

The total population in 2000 is 755,412 with an annual population growth rate of 3.6%. The Palawan BR is also home to approximately 57 ethnolinguistic groups with 3 indigenous peoples: the Tagbanua, Palaw'an, and the Bataks. The major economic activities are agriculture and fisheries. Other important industries are tourism, on-shore and off-shore mining, gathering of minor forest products, and pearl farming.

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Contact information:

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Ecological characteristics:

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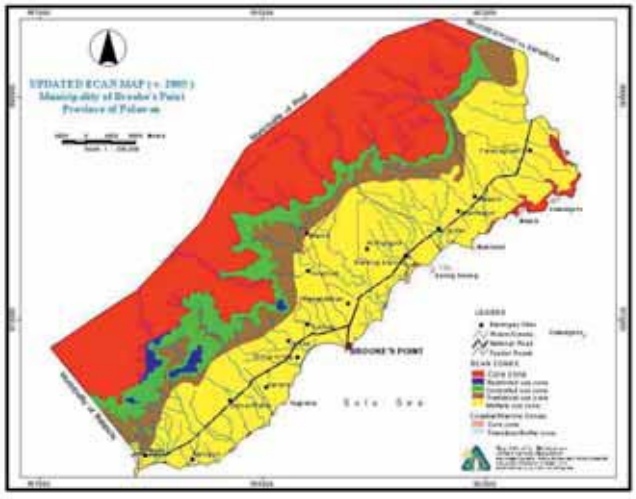
The province of Palawan is known as the Philippine's "last ecological frontier". The Palawan BR is an archipelago composed of main island and more than 1,700 islands. It is endowed with rich natural resources and highly diverse flora and fauna found in both land and sea. Based on the IUCN classification, it has 105 out of the 475 threatened species in the Philippines. Of the 105 threatened species, 67 are endemic to the Philippines, while 42 of the 67 Philippine endemics are Palawan endemics. Its coastal and marine ecosystems include coral reef (379 species of corals), seagrass meadow (13 species), and mangrove (31 species, distributed in 44,500 hectares of mangrove forests, the highest remaining mangrove cover in the Philippines). It also harbors several marine mammals such as marine turtles, dugong, and whale shark. The characteristics of terrestrial and freshwater ecosystems are also diverse. It is composed of old-growth and secondgrowth tropical rainforest, karstic limestone, forest over ultramafic rocks, casuarinas and beach forest. They serve as habitats to freshwater fish (total of 18 Philippines endemics), amphibians (26 Philippines endemics), reptiles (69 species), birds (279 species), migratory birds, terrestrial mammals (58 species, 16 are Palawan endemics).



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Sri Lanka

Hurulu

Declaration date: 1977
Surface area: 25.500 ha
Administrative division: Forest Department

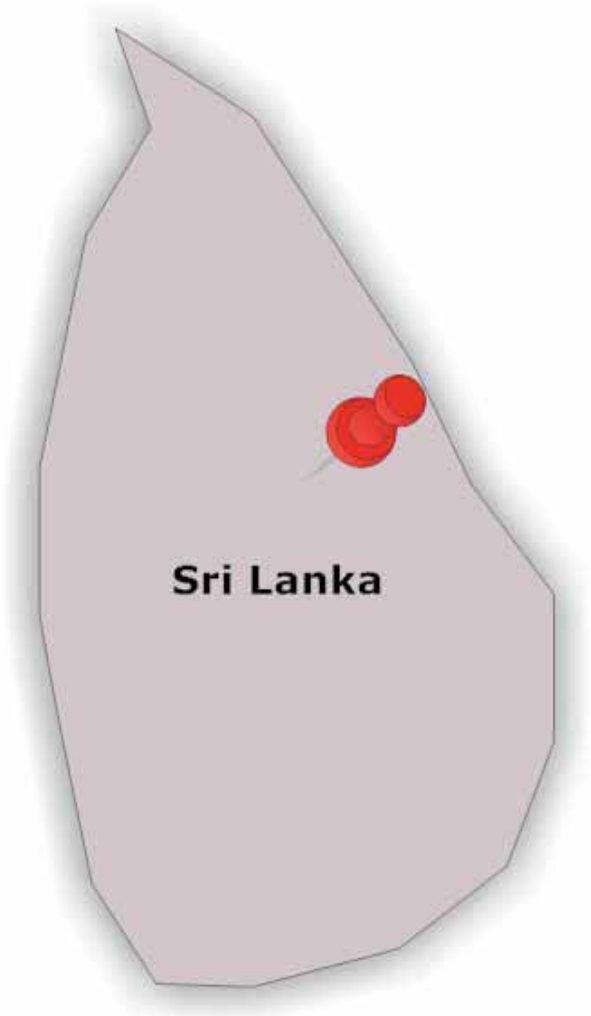
Human activities:

The biosphere reserve is not accessible at the moment and there are no activities going on within the biosphere reserve framework due to the prevailing civil unrest in the area. There is no information on the number of people living in the biosphere reserve (2003). Villagers use the forest for shifting cultivation.

Ecological characteristics:

Hurulu Biosphere Reserve comprises 25,500 hectares within the tropical dry evergreen forest in Sri Lanka. A dry monsoon type climate prevails with mean annual precipitation of 1,600 mm and a mean annual temperature of 27,3° C. Dominant plant species are Setinwood (Chloroxylon swietenia) and Palu (Manilkara hexandra) together with the ebony tree (Diospyros ebenum). Among the most endangered animal species are the turtle (Testudo elegans), Ceylon Junglefowl (Gallus lafayettii), the elephant (Elephas maximus), the leopard (Panthera pardus) and the rusty-spotted cat (Felis rubiginosa).

Tropical dry evergreen forest dominated by Choloroxylon swietenia and Manilkara hexandra together with Diospyros ebenum, Sapindus emarginatus, Vicia unijuga etc.



Contact information:

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Sri Lanka
Sinharaja

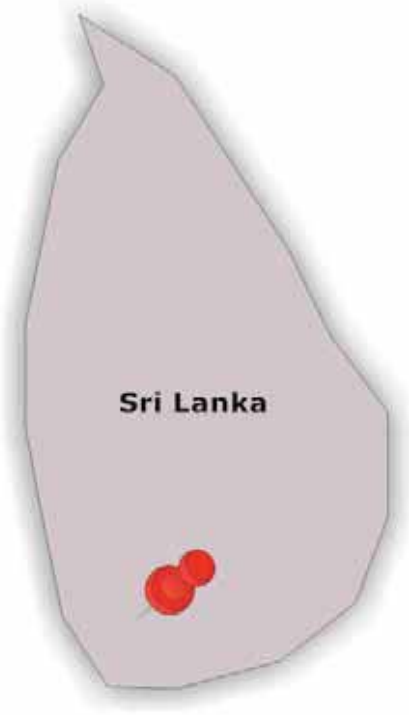
Declaration date: 1978
Surface area: 11.187 ha
Administrative division: Forest Department, Ministry of Environment & Natural Resources

Human activities:

Only 84 families were residing in the southern part of the reserve. There are 544 families living in peripheral villages (according to the statistics of Sinharaja Management Plan - 1992). These families are making their living from farming rubber, tea, cinnamon and seasonal crops such as paddy rice and vegetables. Approaches to improve rural development and local livelihoods include enrichment planting, using primary forest timber and non-timber species in Pinus stands, exploring the potential of locally esteemed non-timber species for domestication and deploying young people from adjacent villages to guide visitors around Sinharaja. Some 20,000 annual visitors come to the northwestern side of Sinharaja (1996). The biosphere reserve fulfils an important training and education function since about half of the visitors are school children and students who use the biosphere reserve as a field observatory to complement classroom teaching.

Ecological characteristics:

Sinharaja is the largest continuous evergreen rain forest remaining in the lowland wet zone of Sri Lanka. Its importance for conservation is linked to its high endemism of flora and fauna. In 1971, 2,500 hectares of the Forest Reserve was transformed into a IUCN-IBP Strict Reserve with full protection for flora and fauna. In 1977, all timber exploitation in the entire forest was banned and in 1978, it was designated as a MAB Biosphere Reserve. The biosphere reserve is included into local ecology curricula. Many studies have been carried out by local as well as foreign researchers and students from various universities. This has given many students very good experience in field work and they have improved the knowledge of the reserves' flora and fauna considerably. The preparation of a Conservation Plan in the area has been crucial for the promotion of conservation and sustainable development activities. Community-based organizations are encouraged and supported by the Forest Department to assist in the implementation of the management plan.



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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

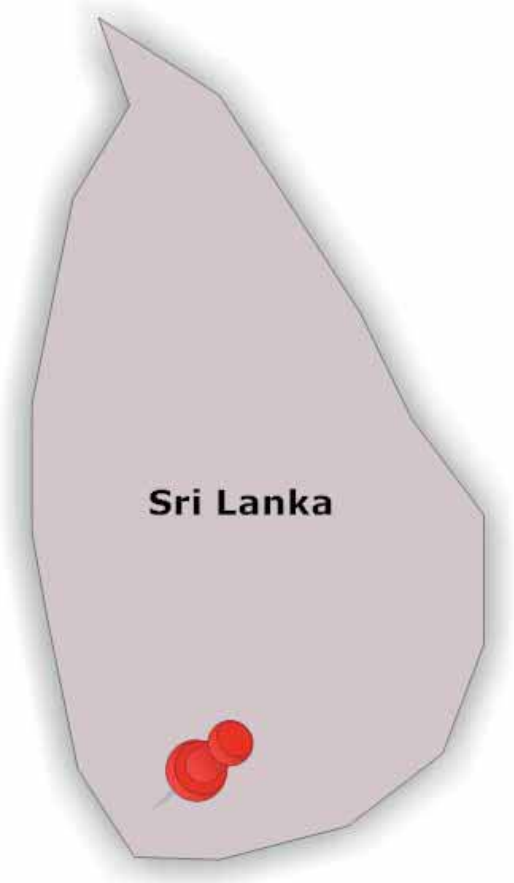
Sri Lanka

Kanneliya-Dediyagala-Nakiyadeniya (KDN)

Declaration date: 2004
Surface area: 20.139 ha
Administrative division: K. Tilak Premakantha and D.H.S. Kumarasiri, Divisional Forest Officers, Divisional Forest Offices of Galle and Matara

Human activities:

10,000 people live in 78 villages in the transition area of the Biosphere Reserve. In the core area, only scientific research and ecotourism activities are permitted. The main economic activities take place in the buffer and transition areas and include forestry, collection of non-timber products, paddy fields, tea, rubber and cinnamon plantations, animal husbandry and other forms of agriculture and cottage industries. There are three temple sites in the KDN complex, the Nugegoda, Rajagala and Dediyagala. These are hermitage type temples or shrines within the forest.



Ecological characteristics:

Kanneliya-Dediyagala-Nakiyadeniya (KDN) Biosphere Reserve, which covers lowland and mountain tropical forests, occupies the interlude between two rivers. It consists of a series of parallel strikes - ridges and valleys. The area is covered by a natural high forest ecosystem consisting of several forest types, mainly lowland tropical forest, wet semi-evergreen forest, submontane tropical wet semi-evergreen forest and montane tropical wet-evergreen forest. It is the only relatively large extension of tropical rainforest of this type in Sri Lanka with 'Dipterocarps' as the dominant forest composition. In the KDN complex, a total of 319 woody plant species representing 194 genera have been identified, of which 22% are endangered, 27% vulnerable and 45% rare. Some 220 faunal species including 41 endemic species have been recorded such as the white-throated flowerpecker (Dicaeum vincens), Ceylon myna (Gracula ptilogenys) and Sri Lanka hanging parrot (Loriculus beryllinus). The Biosphere Reserve is a major catchment area for two of the most important rivers in the region, the Gin and Nilwala Rivers, which feeds numerous rivers and streams. They drain into the Indian Ocean near the world famous coral reefs of the Hikkaduwa Marine Sanctuary. These two rivers are vital for the regional agricultural and industrial development in the Galle and Matara Districts.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Sri Lanka
Bundala

Declaration date: 2005
Surface area: 24.838 ha
Administrative division: Department of Wildlife Conservation

Human activities:

The buffer zone includes four villages with approximately 3,800 people while the transition area includes 18 villages with about 20,000 residents with some areas being semi-urban. The main economic activities practised by these local communities include animal husbandry, fishing, agriculture and mining of fossil shell deposits for lime production. There are Coordinating Committees for fishers and farmers. These committees together with Farmer Organizations and Fisheries Cooperative Societies regulate fishing activities, create alternative livelihoods for fishermen and encourage appropriate fishing methods in the protected areas.

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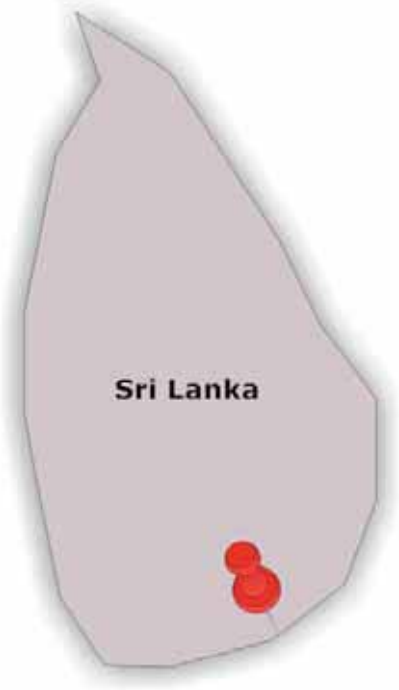
E-mail: w3@wildlife.org.lk

Ecological characteristics:

The Bundala Biosphere Reserve is located on the southeast coast of Sri Lanka. The core area, which is also a national park, includes four brackish water lagoons. The lagoons are fringed by narrow strips of marshland and are surrounded by slightly undulating terrain covered predominantly with lowland dry scrub forest. The topography is generally flat with sand dunes varying in width from about 50 to 300 meters bordering the coastline. This sand dune system is one of the broadest found on the island and has associated fresh water deposits which nourish the vegetation in adjacent areas making it more lush even during the driest periods of the year. The core area serves as a refuge for migratory and resident bird species and is one of the few areas where both of the crocodile species (Crocodilus palustris and Crocodilus porosus) present in Sri Lanka can be found. The nearest major town is Hambantota. The core area is under the legal and administrative jurisdiction of the Department of Wild Life Conservation (DWC) and the buffer zone and transition area are administered by the District Secretary of Hambantota in collaboration with the DWC. All three zones of the biosphere reserve are covered under the existing National Park management plan as it includes what is referred to as the 'zone of influence', which extends to the buffer zone and transition area.In the transition area there are several historic temples and places for religious worship including the seaside temple built by King Kavantissa (209BC - 164 BC) at Kirinda.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Thailand
Sakaerat

© *Sakaerat BR*

Declaration date: 1976
Surface area: 7.808 ha
Administrative division:
- Sakaerat Environmental Research Station
- Thailand Institute of Scientific and Technological Research (TISTR) Ministry of Science and Technology
- Nakhon Ratchasima Province

Human activities:

Some 72,200 people in 18,400 family live within the biosphere reserve (1999). They make their living from crop plantations and growing paddy rice but also use the forest for plant and mushroom gathering and working as laborers.

© *Sakaerat BR*

Protection classifications:

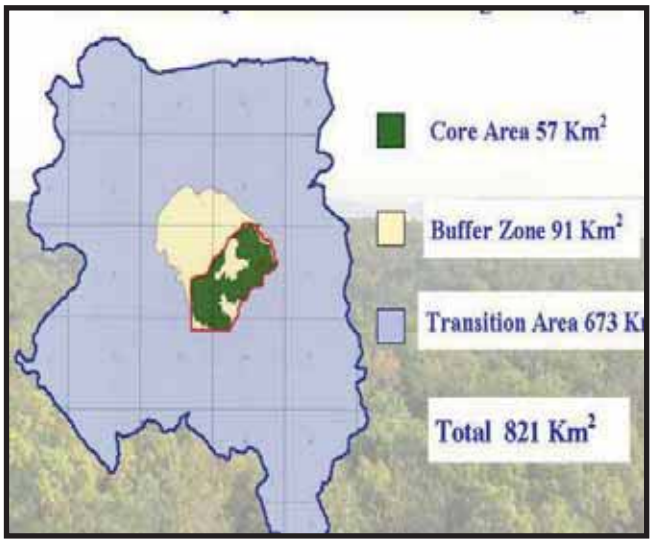
The National Forest Reserve by
The Forest Reserve Act. B.E. 2484 (A.D.1941)
The Forest Reserve Act. B.E. 2507 (A.D.1964)
The Wildlife Reservation and Protection Act. B.E. 2535 (A.D.1992)

© *Sakaerat BR*

Ecological characteristics:

© *Sakaerat BR*

This biosphere reserve is situated on the edge of Thailand's Khorat Plateau about 300 km north-east of Bangkok. It was created around the Sakaerat Environmental Research Station (SERS), which was established as a site for research on dry tropical forest.
The SERS is located in the core area and part of the buffer area of the reserve. It has two major natural vegetation types. Both are primary forests, more than 400 years old. The majority of the vegetation is a dense dry evergreen forest (characterized by Hopea ferrea etc), except for the north and northeast sections of the SERS where an open dry dipterocarp forest (characterized by Shorea obtusa etc.) occurs. Several small areas of the bamboo, Areca sp., are found in the dry evergreen forest at higher elevations. The boundary between the two forest types is sharp and there are narrow strips of transitional mixed deciduous vegetation. The dry evergreen forest is considered as an intermediate between tropical rainforests and mixed deciduous forests.



Contact information:

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http://www.tistr.or.th/sakaerat/sakaeratE/

Thailand
Haui Tak Teak

Declaration date: 1977
Surface area: 4.700 ha
Administrative division: Lampang Province Forest Office and Regional Forest Office Forest Management and Economics Research Division Royal Forestry Department (RFD).

Human activities:

Some 59,500 people live in the biosphere reserve (1999). The ethnic Thai groups are settled within the peneplain area whereas a hill tribe is living in the mountainous region. Most of the people are farmers who depend on the cultivation of paddy rice, corn, tobacco, soybeans and groundnuts or on orchards and livestock raising. Main human impacts on the ecosystem derive from illegal logging, urban expansion, agriculture and shifting cultivation. With some 32,000 national and international tourists each year (1999), tourism also plays an important economic role in the biosphere reserve.

Ecological characteristics:

Located in the north of Thailand within the Ngao Demonstration Forest, the biosphere reserve comprises a big teak (Tectona grandis) plantation surrounded by natural mixed deciduous forests with teak stands. Haui Tak Teak Biosphere Reserve is part of the Ngao Demonstration Project, which seeks to test and demonstrate approaches to the conservation and sustainable use of forest resources. The site is used for field training of students as well as for professional training of forest managers and researchers.

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demonstration@forest.go.th

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Thailand
Mae Sa-Kog Ma

Declaration date: 1977
Surface area: 42.064 ha
Administrative division: Royal Forestry Department (RFD) under Ministry of Agriculture and Cooperatives

Human activities:

About 14,000 people live within the boundaries of this national park (1987). Half of the population belongs to the ethnic minority group of Hmong and there are small numbers Karen, Shari, Yao, Lahu and Lisu. Only 46 % of the population are ethnic Thais. By the early 1990's, land use within the biosphere reserve had undergone a remarkable change. In those villages which have developed paddy land, the cultivation of wetland rice continues to be an important subsistence activity. However, the permanent cultivation of cash crops, often with irrigation, has largely replaced shifting agriculture. Especially the Hmong villages have completely commercialized into tourism related occupations such as selling handicrafts and souvenirs. The Buddhist Doi Suthep temple and the royal palace also attract tourists. Ongoing research in the biosphere reserve has covered a wide range of resource management and environmental issues such as the heavy metal and nutrient contents of stream water and sediments, soil erosion and wildlife populations.

Ecological characteristics:

Situated in the north of Thailand, this biosphere reserve comprises one of the most populated mountain areas of the country and encompasses the watershed of Thailand's second biggest city Chiang Mai. Five natural ecosystems are represented in Mae Sa-Kog Ma: moist evergreen forest, hill evergreen forest, coniferous forest, mixed deciduous forest and dry dipterocarp forests. Most of the biosphere reserve overlaps with a major part of the Doi Suthep-Pui National Park.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Thailand
Ranong

© Ranong BR

Declaration date: December 1997
Surface area: 30.309 ha
Administrative division: Ranong Mangrove Forest Research Center

Human activities:

Villagers living within the mangroves predominantly make their living from catching mud crabs, small Acetes shrimp and small pelagic fish. Some villagers are also involved in the production of shrimp paste and raising of fish cages in the mangrove canals. Villagers living landward of the mangroves predominantly derive their incomes from the fruit orchard, rubber plantation, cashew nut plantation and shrimp farming.

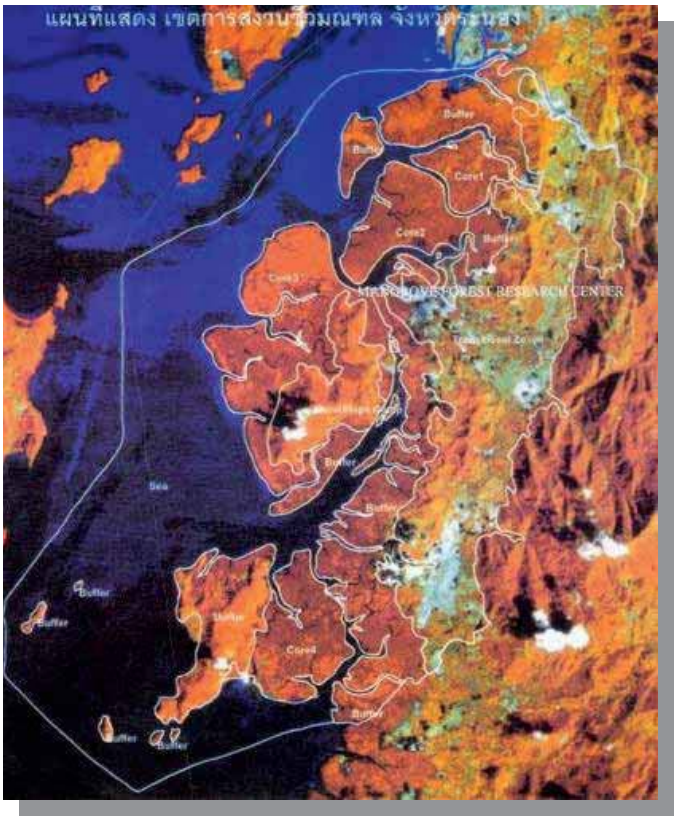
Protection classifications:

The reserve is protected by the National Reserve Forest Act. There are different departments responsible for different resources. Department of Marine and Coastal Resource is responsible for mangroves.

© Ranong BR

Ecological characteristics:

It is located in Ranong province, in the south of Thailand on the west coast of the Malay Peninsula, 650km south of Bangkok . Ranong province is Thailand's least populous province renowned for receiving the highest annual rainfall. The main industries in the province are fisheries and the production of rubber, cashew nut and fruit. The reserve comprises of three types of ecosystems; mangroves, tropical rain forest and seagrass beds. Mangroves are the main ecosystems in the reserve. They occur on the soft muddy soils in the inter tidal zone. Mangroves in the reserve are the largest concentration remaining in Thailand and one of the most extensive in the Indo-Pacific region. They comprise more than 35 species of mangrove trees, shrubs and vines. The tropical rain forest is scattered throughout the reserve, on islands rising high above the mangroves and further inland interspersed by agricultural and urban land. While, seagrass beds are located in isolated patches throughout the reserve.



Contact information:

Mangrove Forest Research Center, 185 Moo 4, Tambon Ngao, Muang, Ranong, Thailand, 85000
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Turkmenistan
Repetek

Declaration date: 1978
Surface area: 34.600 ha
Administrative division: The Repetek Biosphere State Reserve

Human activities:

About 350 inhabitants live within territory of Repetek and nearby (2003). Cattle breeding as well as fuel wood collection are the major human activities within the area.

Contact information:

Repetek Reserve
Chardzhou Region
746060 Repetek
Turkmenistan
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Fax: (9.9312) 511 613

Ecological characteristics:

The Repetek Reserve, located in the central part of the East Karakum Desert, was founded in 1927, covering 34,600 hectares of a typical sand desert. The territory represents a sand plain with large sand ridges and valley shaped depressions. The travelling sand dunes (barkhans) have only sparse vegetation. Repetek is one of the few places in the Karakum Desert where desert forest in the valley shaped depressions with black saxaul (Haloxylon aphyllum) have been preserved. The Sandy Desert Research Station of the Turkmenistan Academy of Sciences was in charge of the area from 1912 to 1998, which is now administered by the Ministry of Protection Nature. Over the years, long-term studies were carried out on the dynamics of the sandy desert, the restoration of overgrazed pastures, and halting sand encroachment. The protection and monitoring of the biodiversity in the East Karakum are the major subjects in the Repetek Biosphere Reserve today.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Uzbekistan
Mount Chatkal

© *RB Mount Chatkal*

Declaration date: 1978
Surface area: 57.360 ha
Administrative division: Chatkal Ridge, State Committee for Nature Protection of the Republic of Uzbekistan

Human activities:

Today, the biosphere reserve is not inhabited since human activities in the area ceased in 1947 with the establishment of the State Nature Reserve. Before that, the area was used for hunting, grazing and mineral prospecting. About 25,000 people live in settlements close to the area (1999), making their living mainly from agriculture, cattle raising and gardening.

Ecological characteristics:

This biosphere reserve covers the southwestern end of the Chatkal'skiy Range in the western Tien-Shan Mountains, 41°08'N; 69°59'E. Covering altitudes between 1,110 to 4,000 meters above sea level, Mount Chatkal Biosphere Reserve comprises a high habitat and species diversity. Major ecosystem types are mixed mountain and highland systems. Habitats include forests with Juniper (Juniperus turkestanica and J. semiglobosa), Prunus sogdiana, Acer turkestanicum, Crataegus turkestanica and Malus kirghisorum; mountain steppe including groves of Pistacia vera; highland areas with herb and grass meadows; rocky habitats; and mountain rivers. The site is famous from an archaeological point of view since it hosts ancient drawings dating back to 1000-2000 BC. Drawings of riders, houses and dogs indicate that people have inhabited the area since ancient times. The biosphere reserve is devoted to conservation and research and provides a research station, several field stations, museum facilities and a meteorological station. Research activities include: Meteorological and hydrological monitoring; Monitoring of air, water and soil pollution; Inventory and monitoring of flora and fauna Phenological research; Ecology of woody plants; Ecology of rare fauna; Reforestation research.

© *RB Mount Chatkal*

Contact information:

Jasur Dustov
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Tashkent Region - Verkhnechirchiskiy District
702222 Parkent Village
Uzbekistan

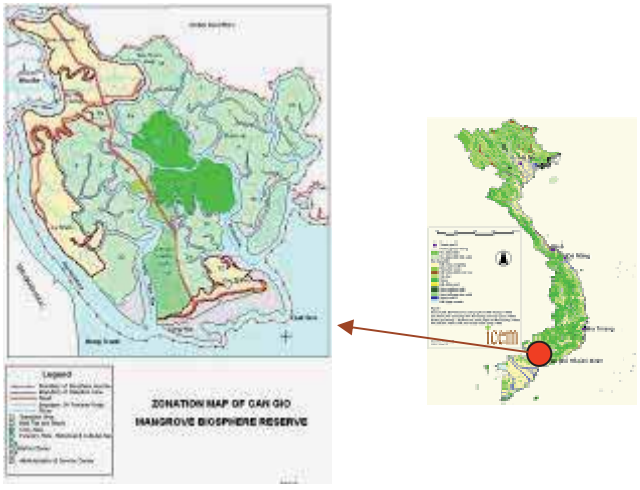
Viet Nam
Can Gio Mangrove

© Can Gio Mangrove BR

Declaration date: 21 January 2000
Surface area: 71.370 ha
Administrative division: Ho Chi Minh city

Human activities:

- Eco-tourism is one of the most successful in this biosphere reserve.
- The successful model of using households living inside the mangrove forest to protect forest and use open-water for doing fishing and aquaculture in small ponds for livelihoods
- The snail and shell fish culture are friendly using the mangroves for local development.
- Salt pan, eco-aquaculture and handicraft production and marketing are good practices



Ecological characteristics:

Covering about 40 thousand hectares of planted and natural mangroves in destroyed areas during the war, this is a luxury mangrove in Vietnam. There is diver habitats including mangroves, wetlands, salt mash, mud flat and sea grasses as a "green lung" of the industrial city, Ho Chi Minh City as they are daily absorb carbon dioxide and polluted agents. There are 52 true and associate mangrove species, 200 animal species, hundred fish, crab, shrimp species and benthos. Over 40 bird species including shore birds and migratory species have been found in this biosphere reserve. The mangrove forest gives a lot of ecological services including protecting the shore lines, extension of mud flats and as a "green wall' to protect the city from storm surges, typhoons and sea level rise.

Protection classifications:

At the national level
Nature Reserve of Can Gio Mangroves, Ho Chi Minh City, one of the most important of wetland conservation site of the country

© Can Gio Mangrove BR

Contact information:

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Secretary, Management Board of CMBR
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Handphone: 0903820139
Fax: 84-8-8950300
E-mail: leductuan@hcm.fpt.vn

Viet Nam
Cat Tien

© Cat Tien BR

Declaration date: 10 November 2001
Surface area: 726.798 ha
Administrative division: Dong Nai, Binh Phuoc, Dac Nong and Lam Dong Provinces

Human activities:

- One of the most beautiful eco-region in the country, eco-tourism is encouraged to develop
- There are eleven ethnic groups to implement the community forestry, environmentally sound farming technique and handicraft production
- Small scale irrigation systems for improving cultivation and indigenous species rehabilitation are encouraging

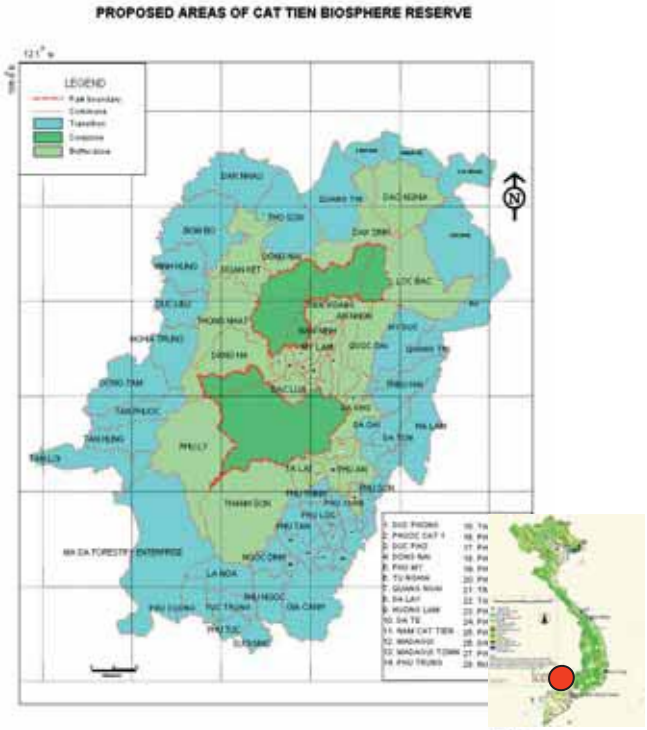
Protection classifications:

At the national level
Cat Tien national Park, Bau Sau Ramsar Site, Proposed World Heritage

© Cat Tien BR

Ecological characteristics:

Covering a huge area in 4 provinces, including the second ramsar site, national park and proposed world heritage, the Cat Tien is the last remaining sizeable lowland tropical rainforest in southern Vietnam, with a relatively intact gradient to montane forest ecosystems of the Dalat Plateau, including a mosaic of other habitats such as wetlands and grasslands. Beside the most endangered species of Java Rhinoceros, there are 38 genetic protection, 22 species of endemic and 550 species for medicinal values and others.
There are many different habitats coexist, ranging from lowland forests via riverine forests to montane forests. The area is important habitat for mammals, birds, reptiles and fish including many endangered and threatened species, and also provides watershed protection and flash-flood control.



Contact information:

Mr. Trần Văn Mùi,
Director, Vinh Cửu Nature Reserve, Đồng Nai Province
Standing Committee of CBR
Address: Vinh Cửu Nature Reserve, Mã Đà Commune, Vĩnh Cửu District, Đồng Nai Province
Tel: 061-3962244
Handphone: 0913850907
Fax: 061-3960157
E-mail: tranvanmui1@fmail.vnn.vn

Viet Nam
Cat Ba

© *Cat Ba BR*

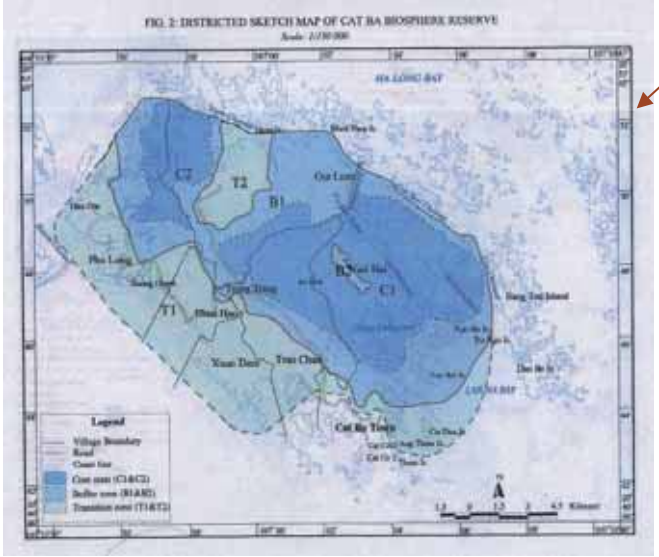
Declaration date: 02 December 2004
Surface area: 26.241 ha
Administrative division: Hai Phong City

Human activities:

- Spatial planning of marine area for fishing, fish-cage culture among others as model for conservation and development
- Quality economy with eco-marketing local products including honey, fish-sours, orange and vegetation
- Eco-tourism in the national park with various measures of control
- Tourism promoted by local community and private sector

Protection classifications:

At the national level
Cat Ba National Park, Proposed Cat Ba Marine Protected Area (MPA)



Ecological characteristics:

© *Cat Ba BR*

As a large island in the Halong Bay, there are 2,026 species found in the biosphere reserve including 199 phytoplankton, 89 zooplankton, 75 seaweed, 23 mangroves, 160 corals, 475 zoobenthonic organisms, 119 fish, three seagrasses, 142 species of terrestrial fauna, and 741 plants. Many species are endemic and rare, the most significant being the globally important Golden-headed langur (Trachypithecus poliocephalus), restricted in range to Cat Ba Island and found nowhere else in the world. The Hawksbill turtle (Eretmochelys imbricata) which is found in the Cat Ba region is listed in the Red Data book, the seahorse (Hippocampus spp.) is also rare and threatened.
Mangroves and segrasses in Cat Ba are as a nursery ground for the life in the bay, and protective buffers for local people from storm surges and typhoon driven from climate change and sea level rise.

© *Cat Ba BR*

Contact information:

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Handphone: 0313244969
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E-mail: cabroffice@gmail.com

Viet Nam
Red River Delta

© *Red River Delta BR*

Declaration date: 02 December 2004
Surface area: 726..798 ha
Administrative division: Thai Binh, Nam Dinh and Ninh Binh Provinces

Human activities:

© *Red River Delta BR*

- A model of co-management of the biosphere reserve by 4 provinces with agreed management plan and eco-tourism development
- Community based tourism, bird watching and handicraft production are encouraging
- Shellfish culture, multi-aquaculture pond and eco-shrimp pond are practicing for sustainable production
- Environmental education and public awareness improvement

Protection classifications:

At the national level
Xuan Thuy National Park, Xuan Thuy Ramsar Site, Tien hai Nature Reserve

Contact information:

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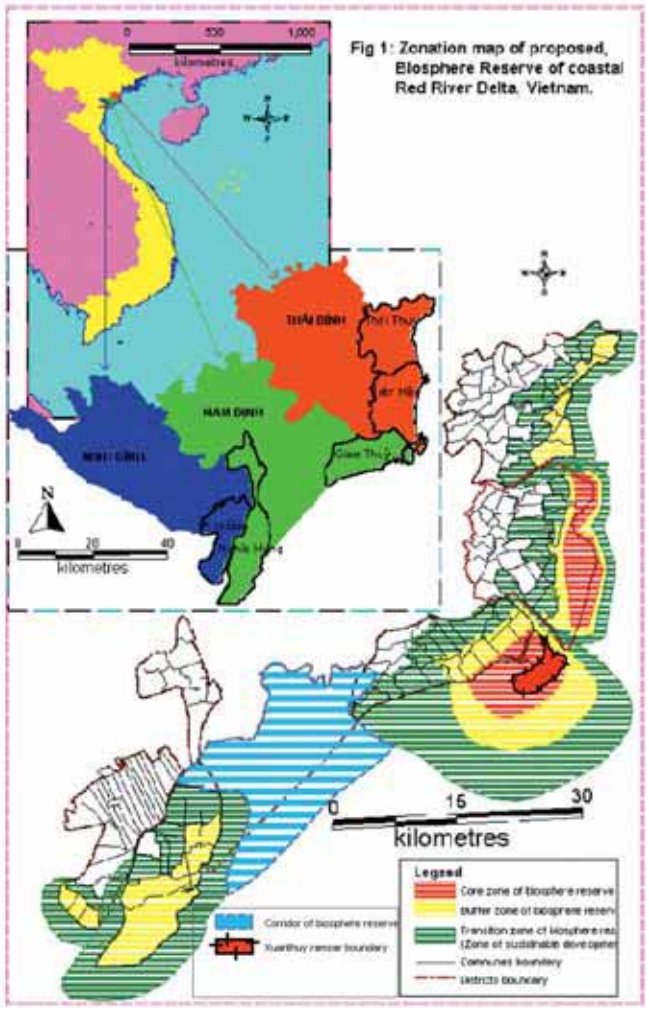
136 Xuan Thuy, Cau Giay, Giao Thuy District
Nam Dinh Province
Viet Nam
Tel.: (84-8) 8950300
Fax: (84-8) 8950300
E-mail: cachxtnp@yahoo.com

Ecological characteristics:

© *Red River Delta BR*

This site composes of various habitats including mangroves, wetlands, salt mash, estuaries and beaches with high biodiversity. There are over 50 mangroves species and sea grasses with important ecological services of protecting sea dikes from storm surges and typhoons. The wetlands are of global importance for breeding/stop-over during migration of birds, especially Black-face spoon bill, Anatidae Rallidae and Order Charidriformes, using the East-Asian or the Australian flyway route for migration listed as threatened by IUCN and/or Birdlife International. Charidriformes are known to be most threatened. 78 species of water birds have been recorded from the Red River Delta including 38 species of shorebirds. Two major roosting areas exist on offshore islands at Xuan Thuy and Nghia Hung Districts. During 1994 it was estimated that 120,000 shore birds used the coastal area of the Red River Delta during migration.



Viet Nam
Kien Giang

© *Kien Giang BR*

Declaration date: 27 October 2006
Surface area: 1.188.104 ha
Administrative division: Kien Giang Province

Human activities:

© *Kien Giang BR*

- Community-based management is applied for the Marine—Protected Area in protecting the fishing ground
- Ecotourism is encouraging in three protected areas including two national parks and nature reserve
- Mangrove plantation in shore line is priority for adapting with storm surges and sea level rise
- Improving local livelihood and environmental education

Protection classifications:

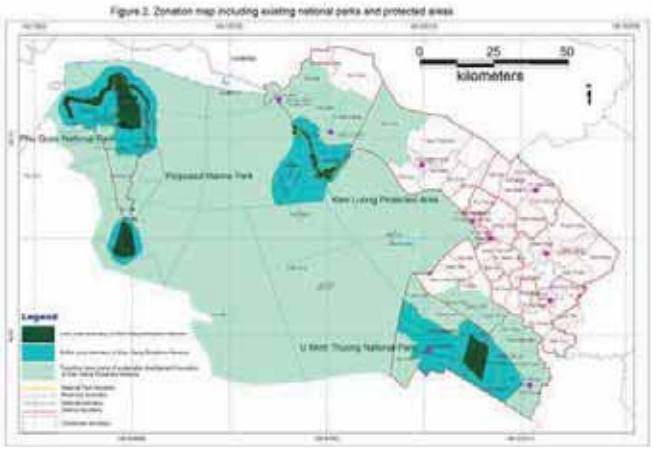
At the national level
Phu Quoc National Park, Proposed Phu Quoc Marine Protected Area (MPA), U Minh Thuong National Park, Hon Chong Nature Reserve

© *Kien Giang BR*

Ecological characteristics:

© *Kien Giang BR*

The biosphere reserve has 3 core zones overlapping with 3 National Parks and one nature reserve. There are various tropical forest ecosystems including primary and secondary forest ecosystems with dominant Dipterocarpaceae family; Limestone and Karst forests with dominant species of Trestonia mergvensis and Dacrydium pierrei; Seasonally flooded forest (Melaleuca cajuputi); Mangrove ecosystems (Rhizophora, Aegiceras, Bruguiera, Avicennia genuses, especially Lumnitzera rosea; Coastal mudflats and lakes; Coral reef and seagrass ecosystems. There are 89 hard coral species, 19 soft corals, 125 coral reef fishes, 132 molluscs, 32 echinoderms and 62 species of seaweed. The seagrass beds are important for foraging marine turtles and a population of the globally threatened Dugong Dugong dugon and the Scaly Clam, Tridacna squamosa and Trochus Shell, Trochus nilotichu, The globally critically endangered Hawksbill Turtle Eretmochelys imbricata.



Contact information:

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lthai.skhcn@kiengiang.gov.vn
Website: www.kiengiang.gov.vn

Viet Nam
Western Nghe An

© Western Nghe An BR

Declaration date: 18 September 2007
Surface area: 1.303.285 ha
Administrative division: Nghe An Province

Human activities:

- A decade of ethnic groups that their livelihoods depending on nature resources with a highest rate of poverty in the country
- There are only 500 people of O Du ethnic group as remaining in endangered
- Ecotourism and small farming systems are encouraging to improve local incomes
- Environmental education

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Protection classifications:

At the national level
Pu Mat National Park, Pu Huong Nature Reserve nd Pu Hoat Nature Reserve

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Ecological characteristics:

The biosphere reserve has three core areas including one national park and two nature reserves, covering almost of types of tropical rain forest, various habitats including mountain, wetlands, rivers and others. There is also a primitive forest remaining along with trans-border with Lao country. There are 1,297 vegetation species recorded. Recently, around 2,500 species have been reported, there are around 2000 species (74%) that belong to Phanerophytes. There are at present 130 species of large and small mammals; 295 bird species; 54 species of amphibians and reptiles; 84 species of fish, 39 species of bats, which are seen only in Viet Nam and North-East Thailand. There are 14 species of tortoises, 305 species of butterflies and thousands of species of other insects. Among these species, there are 68 valuable and rare species recorded in Red Book of Viet Nam. There are 295 species of birds including local and migratory birds, there are 22 species that are considered to be globally threatened and endangered. Two populations including Rheinardia ocellata and Buceros bicornis, Aceros nipalensis are of international significance, Ichthyophaga humilis is nationally significant.

Contact information:

Mr. Nguyễn Thanh Nhàn,
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Deputy Head, Executive Board of NWBR
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Tel.: +84 383 596139
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Vietnam
Mui Ca Mau

Declaration date: 2009
Surface area: 371.506 ha
Administrative division:
People Committee of Mau Province

Human activities:

The proposed Mui Ca Mau Biosphere Reserve has an area of 369,675 ha with 170,321 people living there. Core areas are managed by conservation bodies with national policies of national regulations for national protected areas and forests by decision No 142/2003/QD-TTg, dated 14/7/2003 of Prime Minister for Mui Ca Mau; Decision No 112/QD-TTg of Prime Minister dated 20/01/2006 for U Minh Ha and Decision 08/201/QD-TTg of Prime Minister, dated11/01/2001 for Protected Mangrove Forests. The buffer and transition areas are managed by existing regulations issued by Ca Mau People Committee and Community participation.

Ecological characteristics:

Mui Ca Mau's wetland was listed in Recommendation of National Marine Priority by Ministry of Aquiculture in 2005. It was also listed to nominate as coastal Ramsar site in 2006. In 31/05/2007, Vietnamese Prime Minister approved the "National Action Plan for Biodiversity to 2010 and Strategy to Implement Biodiversity Convention to 2020", inside, Mui Ca Mau is one of critical sites for conservation, development and sustainable use of biodiversity in Vietnam. The establishment of the Mui Ca Mau's biosphere reserve follows the policy of local sustainable development of Communist Party and Vietnamese Government (Agenda 21), and at the same time, takes part the preservation of the biosphere for mankind.
There are three core zones encompassing the strictly protected core zones of Mui Ca Mau National Park, U Minh Ha National Park and the coastal protected forests in Ca Mau Western. They are typical ecosystems that meet the UNESCO's criterion such as example mangrove forest ecosystem, peat wetland ecosystem, marine ecosystem, etc.. Each contains abundant biological and geological resources with high conservation, and has been preserved by international natural conservation organizations.

Contact information:

Director, Department of Science and Technology, Ca Mau Province
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Vietnam
Tel 0780 830866, fax 0780 837 448
Email: sokhcn@camau.gov.vn;
tuandungskhcncm@yahoo.com.vn

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Vietnam
Cu Lao Cham- Hoi An

Declaration date: 2009
Surface area: 33.146 ha
Administrative division:
People Committee of Hoi An City, Quang Nam Province

Human activities:

Fisheries are the most important income generating activity in Cu Lao Cham, and tourism is regarded as a sector with potential to increase income. Many households use resources from the forest, though it is only a few that fully depend on the forest. These households are some of the poorest on the island, and typically consist of families with no other income generating alternatives, e.g. single women, the elderly and non-fishermen households. Various single women live alone with their children and have their only income from firewood collection. Also many elderly people earn their only income though use of natural forestry resources, e.g. from medicinal plants.

The proposed biosphere reserve is coordinated by the People Committee of Hoi An City as a modality of sustainable development with environment services to help local people incomes thought following services:

- conserving biodiversity, cultural diversity and natural resources through active human intervention with cultural values
- conservation of anthropogenic ecosystems in harmonious landscapes resulting from traditional patterns of land use (e.g. grasslands, hedgerows, terraces, ponds etc.); adapted land use/ sea use in order to foster biodiversity; fostering land stewardship
- enhancing the natural environment e.g. cleaning up rubbish, burying unsightly electricity lines, maintaining aesthetic tree-lined routes, planning and building new constructions such that they blend into the landscape, etc.
- restoration/rehabilitation areas assisting the natural recovery of an ecosystem that has been degraded, damaged or destroyed
- serving as corridor, part of ecological networks, stepping-stone patches or stand-alone polygons.

.

Ecological characteristics:

The topographical formations of maritime-marsh origin lie to the east of the township of Hoi An, in the villages of Cam Chau, Cam An, and Cam Thanh and with a stretch along the coast south of the Thu Bon River running past Trung Phuong (Duy Xuyen district). The most typical are the deposits at Cam Chau, with a maximum height of 0.8-1.2 m and sediment of black mud due to the presence of organic matter. They are, in essence, of ancient seas, and after the sea receded, they remained as swamps and marshes and have been filled up gradually. They are approximately 2000 years old.
There are the two core areas, long-term and concentrative conservation are strongly focusing on land/seascape diversity in order to conserve the ecosystems, habitats, species and genetic resources, and to preserve the intactness of the ecosystems, the wild areas from the upset made by people. The corridor between two core areas is considered as the ecological buffer and transition areas linking the River mouth (Cua Dai) and the archipelago outside. This zone contributes a lot to recover the marine ecosystems in the whole area.

Contact information:

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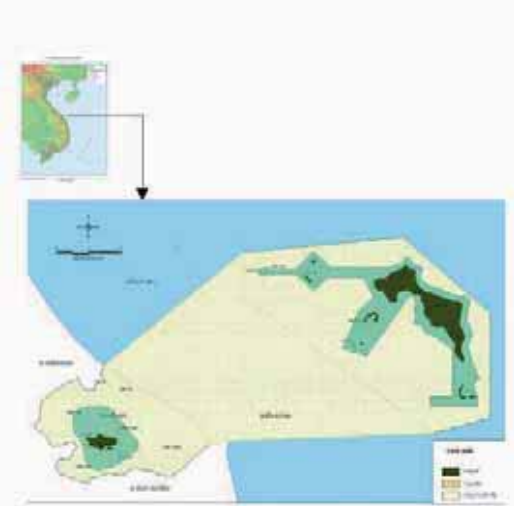

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Europe and North America

- Austria
- Belarus
- Bulgaria
- Canada
- Croatia
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Creece
- Hungary
- Ireland
- Israel
- Italy
- Latvia
- Montenegro
- Netherlands
- Poland
- Portugal
- Romania
- Russian Federation
- Serbia
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- Ukraine
- United Kingdom of Great Britain and Nothern Ireland
- United Statet of America

Country	Biosphere reserve	Year of creation	Pag.
AUSTRIA	Gossenköllesee	1977	217
	Lobau	1977	218
	Neusiedler See	1977	219
	Gurgler Kamm	1997	220
	Grosses Walsertal	2000	221
	Wienerwald	2005	222
BELARUS	Berezinsky	1978	223
	Belovezhskaya Pushcha	1993	224
	Pribuzhskoye Polesie	2004	225
BULGARIA	Alibotouch	1977	226
	Bistrichko Branichté	1977	227
	Boitine	1977	228
	Djendema	1977	229
	Doupkata	1977	230
	Doupki-Djindjiritza	1977	231
	Kamtchia	1977	232
	Koupena	1977	233
	Mantaritza	1977	234
	Ouzounboudjak	1977	235
	Parangalitza	1977	236
	Srébarna	1977	237
	Steneto	1977	238
	Tchervenata sténa	1977	239
	Tchoupréné	1977	240
	Tsaritchina	1977	241
CANADA	Mont Saint Hilaire	1978	242
	Waterton	1979	243
	Long Point	1986	244
	Riding Mountain	1986	245
	Charlevoix	1988	246
	Niagara Escarpment	1990	247
	Clayoquot Sound	2000	248
	Redberry Lake	2000	249
	Lac Saint-Pierre	2000	250
	Mount Arrowsmith	2000	251
	Southwest Nova	2001	252
	Frontenac Arch	2002	253
	Georgian Bay Littoral	2004	254
	Fundy	2007	255
	Manicouagan Uapishka	2007	256
CROATIA	Velebit Mountain	1977	257
CZECH REPUBLIC	Krivoklátsko	1977	258
	Trebon Basin	1977	259
	Sumava	1990	260
	Bilé Karpathy	1996	261

Country	Biosphere reserve	Year of creation	Pag.
	Lower Morava	2003 - Palava 1986 extended and renamed in 2003	262
DENMARK	North-East Greenland	1977	263
ESTONIA	West Estonian Archipelago	1990	264
FINLAND	North Karelian	1992	265
	Archipelago Sea Area	1994	266
FRANCE	Commune de Fakarava	1977 - Atoll de Taiaro, extended and renamed in 2006	267
	Vallée du Fango	1977 - Extension 1990	268
	Camargue (delta du Rhône)	1977 - Camargue, extended and renamed in 2006	269
	Cévennes	1984	270
	Iroise	1988	271
	Mont Ventoux	1990	272
	Archipel de la Guadeloupe	1992	273
	Luberon	1997	274
	Pays de Fontainebleau	1998	275
GERMANY	Flusslandschaft Elbe	1979 - Extension 1997	276
	Vessertal-Thüringen Forest	1979 - Extension 1987 / 1990	277
	Berchtesgaden Alps	1990	278
	Schorfheide-Chorin	1990 - Waddensea of Schleswig-Holstein extended and renamed in 2004	279
	Wadden Sea and Hallig Islands of Schleswig-Holstein	1990	280
	Rhön	1991	281
	Rügen	1991	282
	Spreewald	1991	283
	Waddensea of Hamburg	1992	284
	Waddensea of Lower Saxony	1992	285
	Oberlausitzer Heide- und Teichlandschaft	1996	286
	Schaalsee	2000	287
	Biosphäre Bliesgau	2009	288
	Swabian Alb	2009	289
GREECE	Gorge of Samaria	1981	290
	Mount Olympus	1981	291
HUNGARY	Aggtelek	1979	292
	Hortobágy	1979	293
	Kiskunság	1979	294
	Lake Fertö	1979	295
	Pilis	1980	296

Country	Biosphere reserve	Year of creation	Pag.
IRELAND	North Bull Island	1981	297
	Killarney	1982	298
ISRAEL	Mount Carmel	1996	299
ITALY	Circeo	1977	300
	Collemeluccio-Montedimezzo	1977	301
	Miramare	1979	302
	Cilento and Vallo di Diano	1997	303
	Somma-Vesuvio and Miglio d'Oro	1997	304
	Valle del Ticino	2002	305
	Tuscan Islands	2003	306
	Selva Pisana	2004	307
LATVIA	North Vidzeme	1997	308
MONTENEGRO	Tara River Basin	1976	309
NETHERLANDS	Waddensea Area	1986	310
POLAND	Babia Gora	1976 - Extension 1997/2001	311
	Bialowieza	1976 - Extension 2005	312
	Lukajno Lake	1976	313
	Slowinski	1976	314
	Puszcza Kampinoska	2000	315
	West Polesie	2002	316
	Tuchola Forest	2010	317
PORTUGAL	Paul do Boquilobo	1981	318
	Ilha do Corvo	2007	319
	Ilha Graciosa	2007	320
	Ilha das Flores	2009	321
ROMANIA	Pietrosul Mare	1979	322
	Retezat	1979	323
RUSSIAN FEDERATION	Kavkazskiy	1978	324
	Okskiy	1978 - Part of Oka River Valley until 2000	325
	Prioksko-Terrasnyi	1978 - Part of Oka River Valley until 2000	326
	Sikhote-Alin	1978	327
	Tsentral'nochernozern	1978	328
	Astrakhanskiy	1984	329
	Kronotskiy	1984	330
	Laplandskiy	1984	331
	Pechoro-Ilychskiy	1984	332
	Sayano-Shushenskiy	1984	333
	Sokhondinskiy	1984	334
	Voronezhskiy	1984	335
	Tsentral'nolesnoy	1985	336
	Baikalskyi	1986 - Part of Lake Baikal until 2000	337

Country	Biosphere reserve	Year of creation	Pag.
	Barguzinskyi	1986 - Part of Lake Baikal until 2000	338
	Tzentralnosibirskii	1986	339
	Chernyje Zemli	1993	340
	Taimyrsky	1995	341
	Daursky	1997	342
	Teberda	1997	343
	Ubsunorskaya Kotlovina	1997	344
	Katunsky	2000	345
	Nerusso-Desnianskoe-Polesie	2001	346
	Visimskiy	2001	347
	Vodlozersky	2001	348
	Commander Islands	2002	349
	Darvinskiy	2002	350
	Nijegorodskoe Zavolje	2002	351
	Smolensk Lakeland	2002	352
	Ugra	2002	353
	Far East Marine	2003	354
	Kedrovaya Pad	2004	355
	Kenozersky	2004	356
	Valdaishy	2004	357
	Khankaiskiy	2005	358
	Great Volzhsko-Kamsky	2005 - Composed of Raifa, Sarali, Spassky and Sviyazhsky units	359
	Middle-Volga	2006	360
	Rostovsky	2008	361
	Altaisky	2009	362
SERBIA	Golija-Studenica	2001	363
SLOVAKIA	Slovenský Kras	1977	364
	Polana	1990	365
SLOVENIA	Julian Alps	2003	366
	The Karst	2004	367
	Kozjansko and Obsotelje	2010	368
SPAIN	Grazalema	1977	369
	Ordesa-Viñamala	1977	370
	Montseny	1978	371
	Doñana	1980	372
	La Mancha Húmeda	1980	373
	Cazorla	1983	374
	Marismas del Odiel	1983	375
	La Palma	1983 - Extended and renamed in 1997 and 2002	376
	Urdaibai	1984	377
	Sierra Nevada	1986	378

Country	Biosphere reserve	Year of creation	Pag.
	Cuenca Alta del Río Manzanares	1992	379
	Lanzarote	1993	380
	Menorca	1993 - Change in zonation 2004	381
	Sierra de las Nieves y su Entorno	1995	382
	Cabo de Gata-Nijar	1997	383
	El Hierro	2000	384
	Bardenas Reales	2000	385
	Muniellos	2000 - Extension 2003 - Element of Gran Cantábrica BR	386
	Somiedo	2000	387
	Redes	2001	388
	Las Dehesas de Sierra Morena	2002	389
	Tierras do Miño	2002	390
	Valle de Laciana	2003 - Element of Gran Cantábrica BR	391
	Picos de Europa	2003	392
	Monfragüe	2003	393
	Valles del Jubera, Leza, Cidacos y Alhama	2003	394
	Babia	2004 - Element of Gran Cantábrica BR	395
	Alto Bernesga	2005 - Element of Gran Cantábrica BR	396
	Area de Allariz	2005	397
	Gran Canaria	2005	398
	Los Argüellos	2005 - Element of Gran Cantábrica BR	399
	Valles de Omaña y Luna	2005 - Element of Gran Cantábrica BR	400
	Sierra del Rincón	2005	401
	Las Sierras de Béjar y Francia	2006	402
	Los Ancares Leoneses	2006 - Element of Gran Cantábrica BR	403
	Os Ancares Lucenses y Montes de Cervantes, Navia y Becerreá	2006 - Element of Gran Cantábrica BR	404
	Río Eo, Oscos y Terras de Buron	2007	405
	Fuerteventura	2009	406
SWEDEN	Kristianstad Vattenrike	2005	407
	Lake Vänern Archipelago	2010	408
SWITZERLAND	Parc Suisse	1979	409
	Entlebuch	2001	410
TURKEY	Camili	2005	411
UKRAINE	Chernomorskiy	1984	412
	Askaniya-Nova	1985	413

Country	Biosphere reserve	Year of creation	Pag.
	Carpathian	1992	414
	Shatskiy	2002	415
	Desnianskyi	2009	416
UNITED KINGDOM OF GREAT BRITAIN AND	Beinn Eighe	1976	417
NOTHERN IRELAND	Braunton Burrows-North Devon	1976 - Extension 2002	418
	Biosffer Dyfi	1976	419
	Cairnsmore of Fleet	1976	420
	Loch Druidibeg	1976	421
	Moor House-Upper Teesdale	1976	422
	North Norfolk Coast	1976	423
	Silver Flowe-Merrick Kells	1976	424
UNITED STATES OF AMERICA	Aleutian Islands	1976	425
	Beaver Creek	1976	426
	Big Bend	1976	427
	Cascade Head	1976	428
	Central Plains	1976	429
	Channel Islands	1976	430
	Coram	1976	431
	Denali	1976	432
	Desert	1976	433
	Everglades & Dry Tortugas	1976	434
	Fraser	1976	435
	Glacier	1976	436
	H.J. Andrews	1976	437
	Hubbard Brook	1976	438
	Jornada	1976	439
	Luquillo	1976	440
	Noatak	1976	441
	Olympic	1976	442
	Organ Pipe Cactus	1976	443
	Rocky Mountain	1976	444
	San Dimas	1976	445
	San Joaquin	1976	446
	Sequoia-Kings Canyon	1976	447
	Stanislaus-Tuolumne	1976	448
	Three Sisters	1976	449
	Virgin Islands	1976	450
	Yellowstone	1976	451
	Konza Prairie	1978	452
	Niwot Ridge	1979	453
	University of Michigan Biological Station	1979	454
	Virginia Coast	1979	455
	Hawaiian Islands	1980	456
	Isle Royale	1980	457

Country	Biosphere reserve	Year of creation	Pag.
	Big Thicket	1980	458
	Guanica	1981	459
	California Coast Ranges	1983	460
	Central Gulf Coast Plain	1983	461
	South Atlantic Coastal Plain	1983	462
	Mojave and Colorado Deserts	1984	463
	Carolinian-South Atlantic	1986	464
	Glacier Bay-Admiralty Island	1986	465
	Golden Gate	1988	466
	New Jersey Pinelands	1988	467
	Southern Appalachian	1988	468
	Champlain-Adirondak	1989	469
	Mammoth Cave Area	1990 - Extension 1996	470
	Land Between The Lakes	1991	471

Austria
Gossenköllesee

Gossenköllesee

Declaration date: 1977
Surface area: 85 ha, smallest biosphere reserve worldwide
core zone: no distinction between zones due to small size
Administrative division: Government of Tirol is the official managing authority. However, all research activities at the lake and within the catchment area are coordinated by the Institute of Ecology.

Human activities:
There are no settlements or locals living in the biosphere reserve except researchers who are periodically based at the research station. Within the frame of the BR no educational activities are existing. However, educational courses and excursions are offered by the Institute of Ecology for schools, universities and the public (e.g. Alpine Club, Sparkling Science). The biosphere reserve is dedicated exclusively to environmental monitoring in alpine extreme habitats carried out by the University of Innsbruck with international collaboration.
The main focus in this biosphere reserve is clearly "Research, Education, Monitoring and Training".

Protection classifications:
According to the nature protection law of the Tyrol, the lake itself and the area around its lakeshores within a zone of 500 meters are protected with applicants for plans and projects having to ask for a permit.

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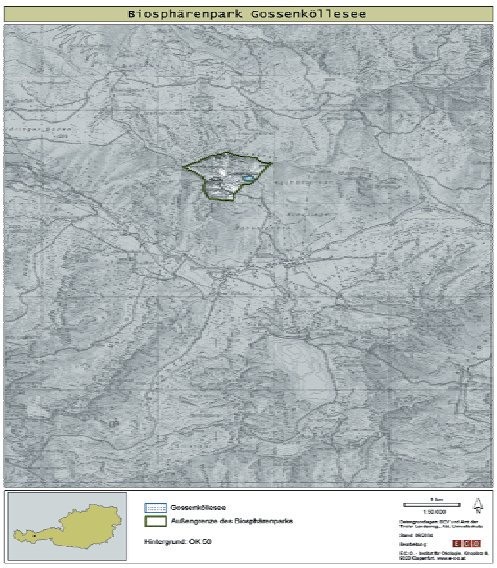
Ecological characteristics:

Situated in the alpine region of the Tyrolean Stubaier Alpen, Gossenköllesee is a typical high-mountain lake at an altitude of about 2,417 meters above sea level.
The lake surface is 1,6 hectares, the maximum depth of the oligotrophic lake is 9,9 m, average depth 4,8m. The whole biosphere reserve covers not more than the lake and its small catchment area. The lake supports truncated food webs including microorganisms, algae, zooplankton and fish. In the surrounding terrestrial areas, lichens, siliceous sc rees and siliceous alpine grasslands are predominating. Gossenköllesee is one of the highest situated lakes with brown trout (*Salmo trutta* F. fario) which was introduced in the 15th or 16th centuryby the Emperor Maximilian. Due to the long lasting isolation of the lake, this fish population is of special research interest. Sediment analysis from Gossenköllesee can track back environmental changes eight hundred years. The limnological station of the University of Innsbruck is located at the lakeshore of Gossenköllesee and hosts several international research activities including EU pojects (MOLAR, GLOCHAMORE, GLORIA, EMERGE) focussing on investigations of high mountain lakes as indicators for environmental change.



Austria

Lobau

Declaration date: 1977
Surface area: 1.037 ha
Administrative division: Management authority: Nationalpark Donau-Auen GmbH, and City of Vienna

Human activities:

There are no inhabitants in the biosphere reserve. However, human activities within the biosphere reserve include forestry, agriculture (e.g. extensive cereal cultures and vegetable growing) and small-scale fishing. Owing to the site's proximity to the city of Vienna, recreational use of the area (e.g. hiking, swimming and biking on marked trails) is growing. The main human impact on the landscape is the embankment of the river. The Lobau Museum provides environmental education for visitors, such as guided tours and educational films. In 2003/2004, the municipal forestry department will build a visitors` center ('Nationalpark-Haus').

Ecological characteristics:

Lobau Biosphere Reserve is situated about 10 km southeast from Vienna within the Danube floodplain. The site belongs to the formerly sprawling central European riverine forest system and comprises residual softwood and hardwood forests, reed beds, semi-natural dry grasslands on calcareous substrates, natural eutrophic lakes, oligotrophic waters, and a system of backwaters and periodical pools. These habitats support an interesting fauna and flora, including a variety of breeding birds and orchids. Since its designation as biosphere reserve in 1977, the site has also been declared a Ramsar Site in 1982, become part of the Donau-Auen National Park in 1996, and has been included in the Natura 2000 Network. The area is an important ground water protection area for drinking water supply of the city of Vienna.

Hardwood forest (including partly artificial forest monocultures); hard oligo-mesotrophic waters with benthic vegetation of Chara formations; floating vegetation of Ranunculus on submontainous rivers; natural eutrophic lakes with Magnopotamion or Hydrocharion-type vegetation; reed beds; humid and mesophyll grasslands; semi-natural dry grasslands on calcareous substrates.

© Photo: Foto MA 49

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Austria
Neusiedler See

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Declaration date: 1977
Surface area: 25.000 ha
core zone: 4330 hectares (identical with the core zone of the national park)
Administrative division Provincial Government Burgenland

Human activities:

Within the framework of the biosphere reserve no educational activities are taking place. The administration of the national park however has numerous guided tours, adventure days, and nature events on offer.

Protection classifications:

Landscape conservation area;
Southern part of the lake is the core zone of the national park "Neusiedler See-Seewinkel", declared in 1992.

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Contact information

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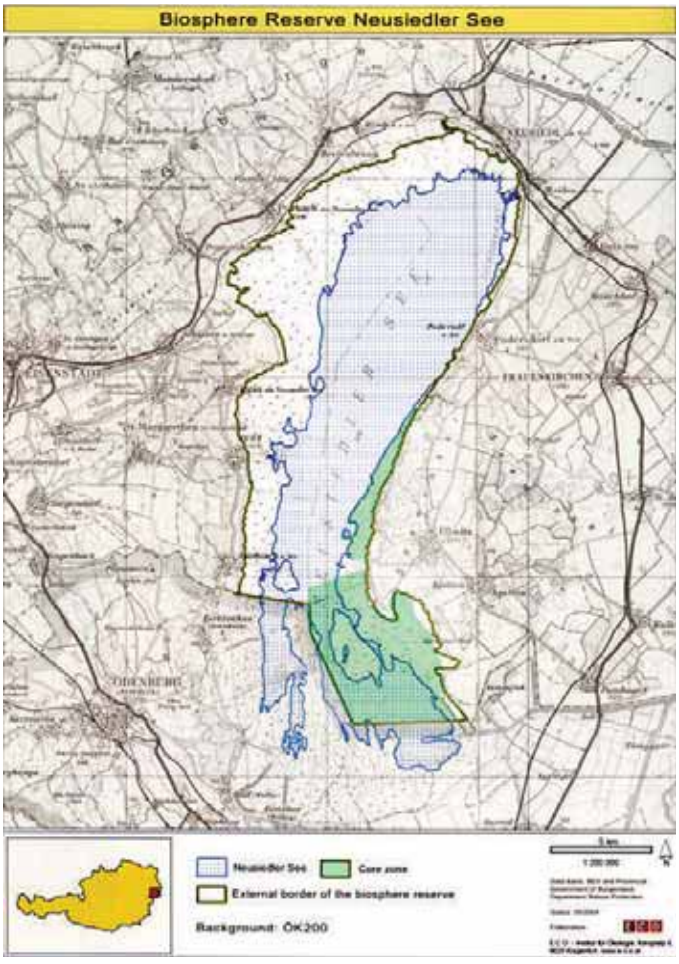
Ecological characteristics:

Initially, dense oak forests covered the region around Neusiedler See, except for the extremely dry or salty locations. Human settlement brought with it forest clearances. The regulation of water levels made it possible to use the pastures more intensively and to mow the hay meadows. Today the landscape consists of a patchwork of habitats. A reed belt that can be up to 5 km wide surrounds the shallow lake. Towards the east it is followed by treeless saline soil with flat pans called "Lacken" that dry up occasionally. The Hanság (fen), originally an extended lowland moor and alder marshland, has been drained and turned into an area of moist meadows.
The biosphere reserve Neusiedler See consists only of the lake area with its reed belt and it is the bird life that benefits the most from the reed belt. Colonies of Great White Egret, Purple Heron, Grey heron and Spoonbill are growing up there and thousands of reed singing birds, e.g. Moustached Warbler, Bearded Tit, are nesting. Among the main species of aquatic birds in the reed are water hens and the rare Ferruginous Duck. The Marsh Harrier, the most common raptor, breeds among the reeds.



Austria

Gurgler Kamm

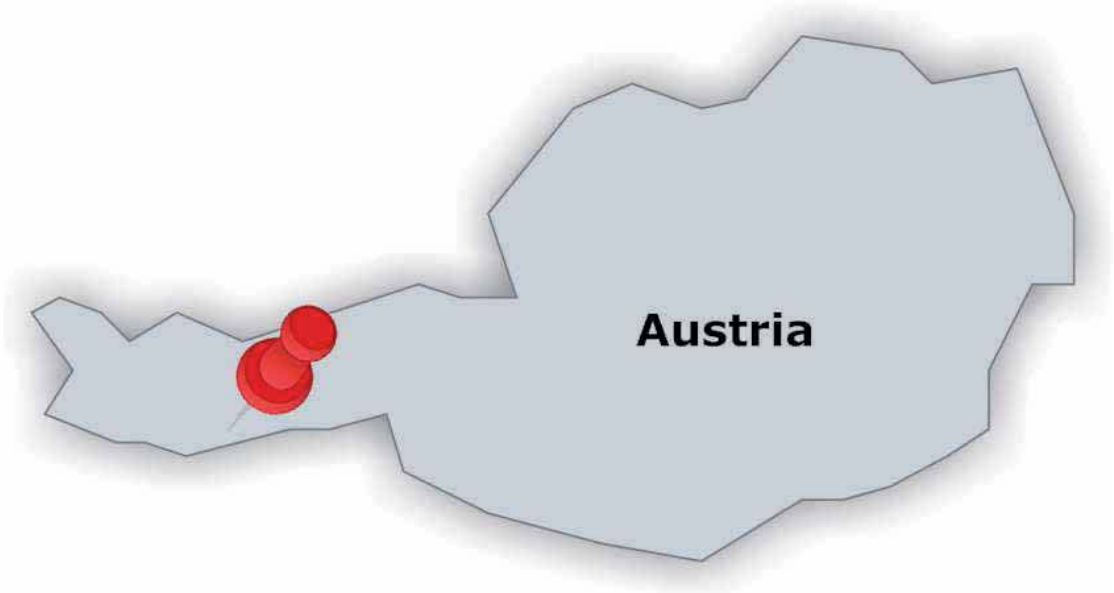
Declaration date: 1977
Surface area: 1,500 ha
Administrative division:

Human activities:

The alpine grassland has for more than five centuries been used as pastures for sheep and cattle. Some parts of the area are influenced by overgrazing. Today, the main impact on the biosphere reserve arises from tourism and the construction of ski lifts and ski slopes.

Ecological characteristics:

Situated at the border to Italy in the southeastern part of the Ötztaler Alpen, this biosphere reserve represents a transect from the high montane to the nival zone (1,900 to 3,400 meters above sea level). It comprises ravines, ridges and slopes with boulders, siliceous screes, rocks and permanent glaciers in the higher alpine and nival zone. In the low alpine and high montane zone, siliceous alpine grassland and dwarf shrubs predominate.
Since 1951, mineralogists, geologists and biologists of the University of Innsbruck have intensively investigated the area.
About 90 % of the biosphere reserve area is under national protection status as 'Ruhegebiet Ötztaler Alpen' since 1981. The same area was in 1995 proposed as Site of Community Importance (pSCI) according to the Habitats Directive and as Special Protected Area (SPA) according to the Birds Directive. It will be a part of the Community List for the network Natura 2000.



Contact information:

Abteilung Umweltschutz
Sillgasse 8
A-6020 Innsbruck
Austria

Austria

Grosses Walsertal

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Declaration date: November 2000
Surface area: 19.237,5 ha
Administrative division: Vorarlberg

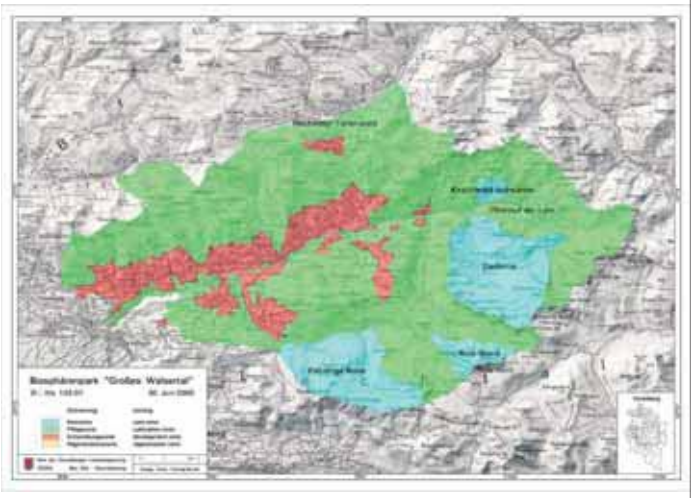
Human activities:
Walserstolz (Walser Pride): High-quality mountain cheese from the region.
Our partners: About 40 tourism companies have committed themselves to nature by complying with a criteria catalogue.
Mountain timber: A project for the marketing of high-quality eco-timber with certified origins.
Box with delicious specialities: Marketing support for regional produce.
Renewable energy: The efficient use of energy has high significance in the biosphere park.
Excursions and environmental education: Experiential weeks for schoolchildren and an extensive excursion program for visitors of the biosphere park.
Walser EigenArt: Typical crafts from the Walser valley

Protection classifications:
Vorarlberg: Law of nature conservation 1997 - Biosphere Reserve as a protection zone category

Nature conservation areas
- Gadental
- Faludriga-Nova

Natura 2000 areas
- Gadental,
- Unter-Überlut

Ecological characteristics:
Forests, meadows, ravines, springs, streams, hills, cliffs, mountain tops, alps and karst formations: Due to its geological and morphological variety the entire Grosses Walsertal valley is a single huge biotope rich in flora and fauna. As an example, the valleys famous mountain meadows contain many herbs, various types of gentian and orchids. 90% of the Grosses Walsertal biosphere park is natural and cultivation landscapes. But nature is not the only topic here: Great attention is laid on developing possibilities to earn money and further to keep living in the valley: For a long time, livestock farming was the essential lively-hood here. Today, most of the workforce commutes elsewhere to their jobs. In the valley itself, the possibilities for earning a living are farming, tourism and a few skilled trade enterprises.
Development zones 6,393 acres (13%)
Living, economic and recreation space for residents and visitors. The entire permanent settlement area of the Grosses Walsertal valley is part of the development zone.
Cultivation zones 32,942 acres (69 %)
In the Grosses Walsertal valley, these are primarily mountain forests, alpine pastures and traditionally cultivated mountain meadows.
Core zones 8,165 acres (17%)
In the Grosses Walsertal valley, they are the nature conservation areas Gadental and Faludriga-Nova, the mountain river Lutz, the Kirschwald-Ischkarnei area, the Tiefenwald moor region and Rote Wand (literally “Red Wall”), the highest mountain of the valley. This zoning has not created any new regulations; each of these areas already had a special protective status under nature conservation laws prior to the new zoning.



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Austria
Wienerwald

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Declaration date: 2005
Surface area: 105.000 ha
Administrative division: Federal States: Vienna and Lower Austria

Human activities:

The Biosphere Reserve Wienerwald is close to the agglomeration of Vienna, Austria's most important economic area. In Lower Austria, 51 communities with about 282,000 inhabitants are either completely or partly within the Biosphere Reserve. Parts of seven municipal districts of Vienna with a population of about 477,000 are part of the Biosphere Reserve. Therefore more than 750,000 people live in the region that is all set to become a model region for sustainability.
In addition to scientific research projects about biodiversity (ecological sustainability) other projects facilitated by the biosphere reserve management take ecological, economical and social sustainability into account. For example the "Wienerwald Pasture Cattle Project" integrates conservation of culture landscape, livestock friendly breeding, short transport (ecological sustainability), cooperation between farmers, a butcher, restaurants (social sustainability) and a high quality - high price product (economic sustainability).

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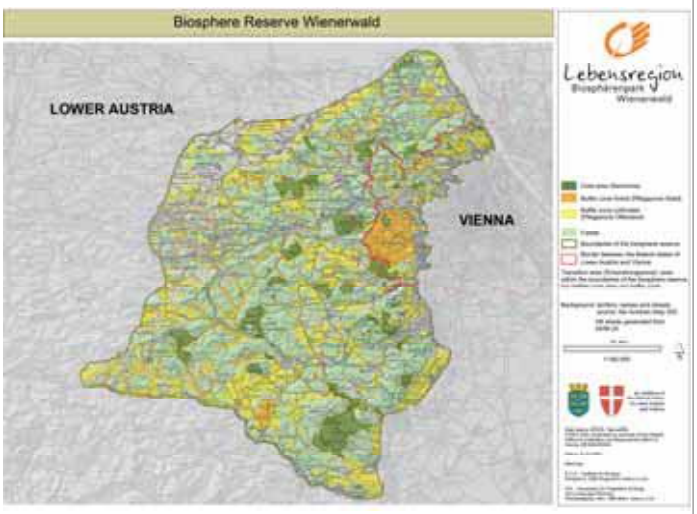
Ecological characteristics:

The Wienerwald is an important biodiversity hot spot throughout Europe. Diverse types of habitats have developed here due to numerous factors such as the meeting of different biogeographical and climatic regions, different geological conditions, considerable altitude difference and, -last but not least- the human influence.
The habitats in the open-land cultivated area in the Wienerwald are of outstanding international importance. Vast meadows and pastures which are the result of centuries of cultivation dominate large parts of the region. Dry grasslands are particularly characteristic in this region. There are also a few unimproved grasslands on moist and wet sites, with moor grass meadows and calcareous fens. Ancient vineyards and fruit orchards, areas dominated by agriculture, rich sources of water and numerous structural elements enrich the landscape diversity of the Wienerwald.
Large areas of the Wienerwald are contiguously wood covered (more than 60%). The dominant tree species is beech (Fagus sylvatica). However, there is more to the Wienerwald then beech forests. It is home to 25 different types of forest vegetation. Austria's largest forests of downy oak (Quercus pubescens) and sub-Mediterranean pine forests with the endemic Austrian pine (Pinus nigra) at the easternmost edge of the region are of European significance.

Protection classifications:

At the national level
Core zones are designated as nature protected areas by federal law
Buffer zones and the whole area in lower Austria are designated as landscape protected area by federal law



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Belarus
Berezinsky

© *V. Ivkovich*

Declaration date: 1978
Surface area: 85.100 ha
Administrative division: Vitebsk region

Human activities:
Main directions of human activities in the reserve are:
- protection of the territory;
- scientific research of forest dynamics, ornitofauna, ground fauna, rare species;
- ecological education and information on the base of the Natural Museum, small Zoo and The House of Ecological Education;
- ecological and educational tourism on the base of ecological pathes;
- forest management on a non-intensive basis to supply local inhabitants with firewood;
- agricultural activity in a limited scale.

Protection classifications:
The highest level of protection-natural reserve

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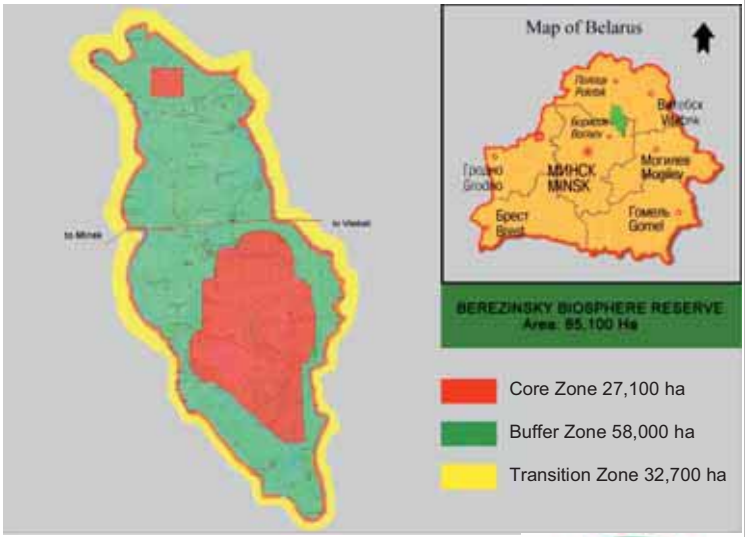
Ecological characteristics: The Berezinsky is situated in the temperate boreal nemoral zone. Geographical coordinates: latitude: 54°28'-54°50' North, longitude: 28°03'-28°29' East. Altitude: 155-227 m above sea level.lt is situated on the flat watershed of the Baltic and Black Seas, in low valley in the basin of the Berezina River. Landscape is a mosaic of coniferous and deciduous forests, lakes, peatlands (60 %), rivers, floodplain and small arable fields. Climate is temperate continental, humid, precipitation total: 690 mm/year. Average annual air temperature is 5.2 °C. The Berezina is the main river in the reserve, flowing through its territory for over 110 km. There are 7 small lakes with the total area being about 2000 hectares in the reserve. The flora comprises more then 2000 species with 804 species of vascular plants (42 rare for Belarus). The fauna includes 56 species of mammals (Ursus arctos, Canis lupus, Alces alces) and 230 species of birds. Major types of ecosystems are present: forests, mires, water bodies, and meadows. Forests are the main type of plant communities. They cover 83.3% of the territory and comprise 4 formation groups: boreal coniferous forests of pine and spruce (56%); broad-leafed forests of oak, lime, and ash (1 %); deciduous mire forests of pubescent birch and black alder (34%); deciduous secondary forests of white birch, aspen, and gray alder (9%).The main ecological value is the richness of plant communities and fauna in a comparatively limited area, their primary natural state.



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Belarus

Belovezhskaya Pushcha

© *Belovezhskaya BR*

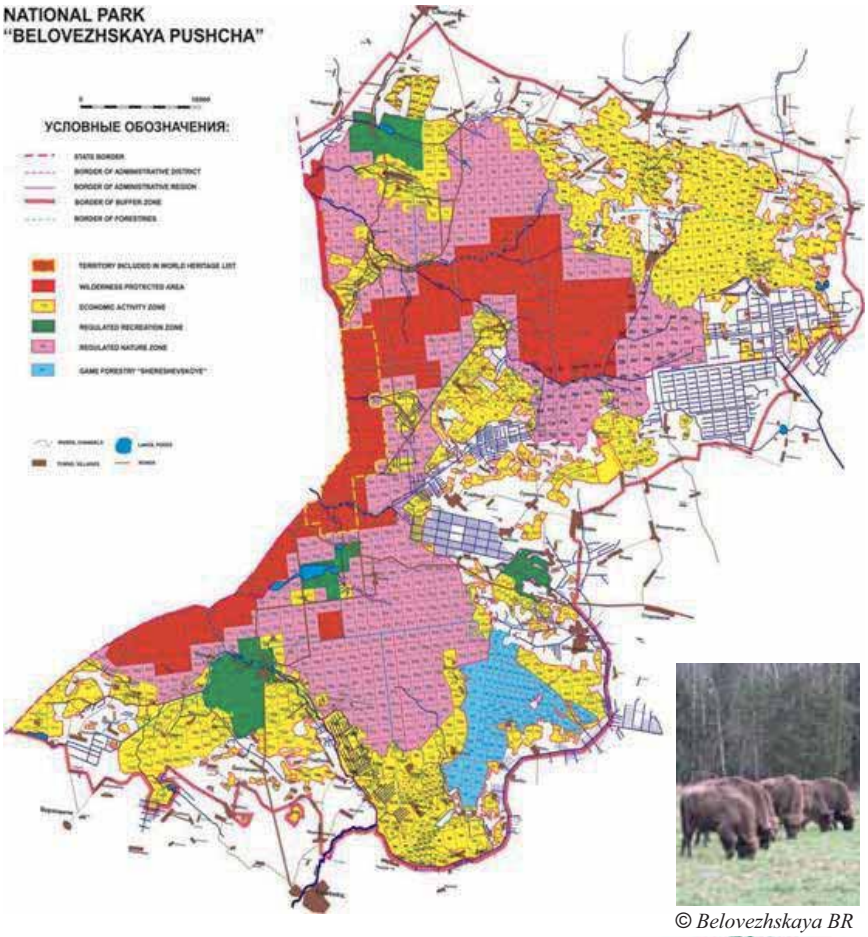
Declaration date: 1993
Surface area: 191.300 ha
Administrative division: Brest region, Grodno region

Human activities:
- Nature conservation
- Scientific activity
- Forestry
- Tourism

About 4,000 people live in the biosphere reserve (1993) who are engaged in agriculture, forestry, forest protection as well as in services. A nature museum provides environmental education to visitors of the area.

Ecological characteristics: Straddling the border between Poland and Belarus, this forest complex is one of the last remnants of primary mixed forests in Europe. Situated in the transition between the boreal and temperate zones, the biosphere reserve contains several tree species at the limit of their distribution. Norway spruce (Picea abies) reaches its southern limits of its northern range and the sessile oak (Quercus petraea) is here at its northeastern limit. Notable mammal species include European bison (Bison bonasus), wolf (Canis lupus) and lynx (Felis lynx). The last big complex of old-aged European mixed primeval forests, effective long-term protection (since XV century) of relict forest pattern and process, high biodiversity, significance as a research site due to its location on the transition zone between Western European mixed hardwood and Eastern coniferous forest ecosystems, the most big nature population of European bison.

Protection classifications: National park (from 1991)



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Belarus

Pribuzhskoye Polesie

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Declaration date: 09 December 2003
Surface area: 48.024 ha
Administrative division: Brest Region

Human activities:
- Protection of natural complexes and ecosystems
- Research and conservation of biological and landscape diversity
- monitoring of environment
- ecological and educational tourism
- ecological education and information

Protection classifications:
At the national level:
Republican landscape reserve, S= 7950 ha
Monument of nature of the republican value, S=31,7 ha
The waste territory doesn't have special status of

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Ecological characteristics:
Biosphere Reserve is located in the Central European Biogeographical Region, on the south-west of the East-European Plain of the Zone of Mixed Forests, in the low valley of the transboundary Western Bug River, the bordering territories with Poland and Ukraine. Geographical coordinates: 23°31′45′′ – 23°55′18′′ East Longitude, 51°29′58′′ – 51°57′00′′ North Latitude. Altitude: 160-170 m above sea level.

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The climate is temperate continental, unstably moist and warm , with long springs and summers. The average annual temperature is +7.4°C. Precipitation exceeds the level of 660 mm once in a decade. Forests dominate the BR and cover 63 % of the reserve, moors and water - 6 %: the largest river - Western Bug River with its tributaries; 5 large lakes and artificial reservoirs, near-natural sites in general – nearly 73 %. Agrocenosis and buildings cover 25% of the BR territory.
The core area is comprised of 15 separate sites, predominantly covered with forest with small lakes and mires forming a "skeleton" of the territory; one of the sites is the riverside of the West Bug flowing through the reserve, which is also a frontier region with a high level of nature preservation.
There are around 700 species of vascular plants and 321 species of vertebrates: 62 species of mammals, 210 species of birds, 12 species of amphibians, 7 species of reptiles, 32 species of fish. 32 species of plants and 61 species of animals are mentioned in the National Red book.

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Bulgaria
Alibotouch

© *Alibotouch BR*

Declaration date: 1977
Surface area: 1.628 ha
Administrative division: Region Blagoevgrad; Municipality Sandanski and Hadjidimovo; in the land of villages Goleshevo, Paril, Nova Lovcha

Human activities: According to the specific national legislation
Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classifications: Strict Nature reserve according to the national legislation – Protected Areas Act

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Ecological characteristics: The biosphere reserve is situated on Slavyanka Mountain. Slavyanka mountain is situated in the border area between Bulgaria and Greece. Its highest peak is "Gotsev vrah" (2212 m), followed by Shabran (2196 m) and Tzarev Vrah (2183 m). Due to its geographical location, specific features of the climate and the karst terrains, Slavyanka is characterized by rich biological diversity. Almost all typical for Bulgaria vegetation belts are presented there. Slavyanka is home for many Tertiary relict and endemic species.
The reserve is spread 1628 hectares and hosts the biggest population of *Pinus heldreichii* on the Balkans. The *Pinus nigra* with its specific variety called "Petrodan" is also widespread in the reserve. Other interesting tree species in Slavyanka are: *Pinus peuce*, *Taxus baccata* – both tertiary relicts, *Abies borsi-regis* – endemic species.
Slavyanka has a rich flora, with more than 1400 vascular plants, including 20 Bulgarian endemic species, 5 of which local and 42 Balkan endemic species.
The fauna of Slavyanka is represented not only by the typical for Bulgaria species, such as Roe Deer, Wild Boar, Hare, Fox or Border, but also by typical Mediterranean species, e.g. the local, the rare European Cat Snake, several species of tortoises (*Testudo greca*, *T. hermani*), Macedonian lizard etc. The diversity on the invertebrates is extremely rich – more that 1200 species. Over 200 of them are butterflies, some of which are new to the science. 134 bird species are found in the region of Slavyanka; 53 – have European conservation importance.

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Bulgaria
Bistrichko Branichté

© *Bistrichko Branichté BR*

Declaration date: 1977
Surface area: 1.062 ha
Administrative division: Region of Sofia

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:

- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural

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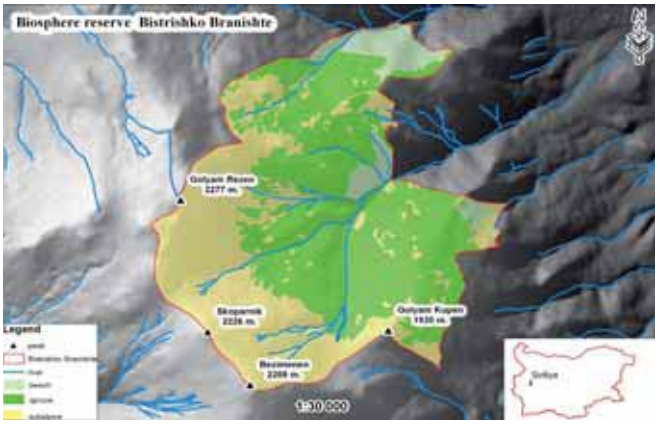
Ecological characteristics:

Bistrishko Branishte is located on the south-eastern slope of Mount Vitosha and accommodates centuries-old natural spruce forests. The reserve lies between 1430 and 2282 m above sea level. The stone and rock formations such as screes, crags and moraines are remarkable and extremely beautiful. Around 400 species of algae, 200 lichens, 99 mosses and over 500 fungi have been located in the reserve. Vascular plants are about 450 species, of which 198 medicinal plants and 58 species of conservation concern, including 5 Bulgarian endemic species, 24 Balkan endemics and 19 relict species. 21 of these species are listed in the Red Book of Bulgaria; three of them are in the IUCN list (*Acer heldreichii, Campanula transsilvanica, Pinus peuce*); one species appears in the Bern Convention list (*Lilium jankae*); two species are covered by Directive 92/43/EC (*Gentiana lutea, Tozzia alpina* subsp. *carpathica*); and 1 species is covered by the CITES Convention on International Trade in Endangered Species (Nigritella nigra). Amphibians and reptiles include *Salamandra salamandra, Bombina variegata, Hyla arborea, Lacerta vivipara, Vipera berus* etc. All of these species are important from a conservation point of view and subject to a special level of protection. Around 100 nesting, migratory and alien bird species have been observed in the reserve. The main bird species are *Nucifraga caryocatactes, Garulus glandarius, Loxia curvirosta, Regulus regulus, Picoides major*, etc. Large mammals are represented by 3 ungulate and 8 predatory species.

Protection classification: Strict Nature reserve according to the specific national legislation – Protected areas Act



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Tel: +359(2)9554152; Fax: +359(2)9559362 ;
E-mail: riew-sofia@ riew-sofia.government.bg;

Bulgaria
Boitine

© *Boitine BR*

Declaration date: 1977
Surface area: 15.972 ha
Administrative division: Divchovoto village, Teteven municipality

Human activities:

According to the specific national legislation – Protected Areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
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- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classification: Strict Nature reserve according to the specific national legislation – Protected areas Act

© *Boitine BR*

Ecological characteristics:

The Boatin Reserve is situated in the Central Balkan National Park. Its north-facing landscape is precipitous and deeply dissected, lying between 800 and 2000 m above sea level. The bedrock consists mainly of granite. The reserve has a well-developed hydrological network. The Boatinska, Sredna, Momina, Brousov Dol, Kalmishki Dol and Telouitski Dol rivers join downstream to form the Cherni Vit river. The main purpose of the reserve is to preserve its centuries-old primary beech forests, which are among the most ancient in Europe. Their average age is 150 years, while individual specimens are over 180–200 years old and reach a height of up to 40 metres and beyond. The most common forest species inhabiting the reserve is beech. The coniferous forest belt is populated by spruce aged 80–100 years on average, outlining the upper boundary of the forest. The alpine sparse vegetation comprises residual, sparse communities of mountain pine.
There are about 550–600 species of vascular plants including four Bulgarian endemics. The reserve accommodates around 80 bird species, including 64 nesting species such as Ural's owl, Tengmalm's owl, pied flycatcher, black woodpecker, white-backed woodpecker, peregrine falcon.
The most common mammal species are the brown bear, red deer, roe deer, wolf, fox, wild boar, otter, pine marten, European polecat, badger, etc.

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Bulgaria
Djendema

© *Djendema BR*

Declaration date: 1977
Surface area: 42.202 ha
Administrative division: Region of Plovdiv, Karlovo municipality

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classification: Strict Nature reserve according to the specific national legislation – Protected areas Act

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Ecological characteristics:

The Dzhendema Reserve is located in the Central Balkan National Park and is the largest reserve in the park. It was designated both in order to preserve the centuries-old beech forests and the chamois population and as one of the most active Bulgarian plant speciation centres on silicate bedrock. The reserve lies between 580 and 1800 m above sea level. The impressive mountainous majesty of Stara Planina is at its best in this reserve with its lofty peaks, deep precipices and inaccessible cliffs. The reserve mainly comprises steep south-facing terrain. With its numerous waterfalls, the reserve's hydrography results in a distinctive landscape, featuring Rayskoto Pruskalo, the highest waterfall in Bulgaria with a fall height of 124.5 m. The reserve covers three relatively large river basins. The forest stands are mainly broadleaved, dominated by beech. One can also find European hornbeam, European hop-hornbeam, Oriental hornbeam, sycamore, Norway maple, Tataria maple, Flowering ash, Turkish filbert, Sessile oak, birch, Common ash, rowan, etc. A distinctive feature of the beech forests is that they occupy all of the high ground in the reserve and often grow in conditions which are usually unfavourable for beech.

Bulgaria
Doupkata

© *Doupkata BR*

Declaration date: 1977
Surface area: 12.108 ha
Administrative division: region of Pazardzhik

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classification: Strict Nature reserve according to the specific national legislation – Protected areas Act

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Ecological characteristics:

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The Doupkata Biosphere Reserve is situated on land adjoining Fotinovo and Batak on the south-western slopes of the Rhodope mountains. The reserve is mountainous. Its beautiful and varied land forms are due to the hard rhyolite bedrock that splits on a horizontal or vertical plane. This is why hard rock formations protrude over the general ground level. The lowest point of the reserve is the confluence of Devinska and Katrandji Dere rivers in the area of Kemera, famous for its vaulted Roman bridge. Roman troops crossed this bridge in the past, while later, Bulgarian trading caravans would cross it on their way to the Aegean Sea ports. The influence of the Mediterranean climate results in a brief period of snow cover and summer and autumn droughts. The maximum precipitation is recorded in June and the minimum in August and September, with a secondary rainfall minimum occurring in March. The total annual precipitation is about 800 mm. The average period of vegetation growth lasts 5 months, from mid-May to mid-October. The rainfall in the reserve is considerable. The Devinska River flows through the reserve from its source at the Golyam Beglik reservoir. In the Doupkata area, which gives its name to the reserve itself, the river is joined by its second large tributary, the Charlashka River. Another large mountain river in the reserve is called Katrandzhi Dere. This is the right-hand tributary of Devinksa river.

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Bulgaria
Doupki-Djindjiritza

© Doupki-Djindjiritza BR

Declaration date: 1977
Surface area: 28.585 ha.
Administrative division: municipalities of Razlog, Bansko, Gotse Delchev, Sandansky, Strumyani, Kresna and Simitly.

Human activities: According to the specific national legislation – Protected Areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classifications: Strict Nature reserve according to the national legislation – Protected areas Act

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Ecological characteristics: The relief is determined by the geomorphological peculiarities of cirques, trough valleys, dry valleys and shear slopes. The geological base is composed mostly of Karst Proterozoic marbles, in which there are many whirlpools, sink holes and precipice caves; in the northeastern part of the reserve there are gran-ites and gneiss. Long winter and short summer are characteristic of the climate. In the lowest parts of the reserve there are black pine forests and forests, compound of beech and coniferous trees, then gradually forests become compound of pine, spruce and fir trees, with isolated specimens of ash-tree and Balkan maple *(Acer hyrcanum);* above them there are white fir (a Balkan endemic species) forests and black fir (a sub-Balkan endemic species) forests. Above 2100 m alt. dwarf pine formations begin. There is a rich diversity of endemic and relict grass species in the reserve. The animal wildlife in the reserve is rich and interesting. Flocks of chamois could be seen on sub-Alpine pastures and steep rock areas at 2200-2600 m alt. In dwarf pine formations and in the forests there are bears and wolves, and in the lowest parts there are deers. The birds stock dove, rock partridge, wood pigeon, woodpecker and many others are of interest. Bear, pine-marten, chamois, goshawk, sparrow hawk, imperial eagle, peregrine falcon, hobby, hazel-hen, wood-grouse, black woodpecker and Grass snake are included in the Red Book of Bulgaria. In Bayuvi Doupki -Dzhindzhiritsa reserve there are four centuries old trees - an about 300 years-old white pine, a 450 years-old white fir and two about 1100 years-old Heldreich's pine. Bayuvi doupki - Dzhindzhiritza is a biosphere reserve in Northern Pirin. Since 1979 it unifies the reserves Bayuvi doupki (established in 1934), Segmentepe (established in 1947) and Malka Dzhindzhiza (established in 1952), and the areas between them. The whole reserve belongs to Pirin National Park's territory and covers 2873 ha.

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Bulgaria
Kamtchia

© *Kamtchia BR*

Declaration date: 1977
Surface area: 8.421 ha
Administrative division: Region of Varna

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classification:

Strict Nature reserve according to the specific national legislation – Protected areas Act

Contact information:

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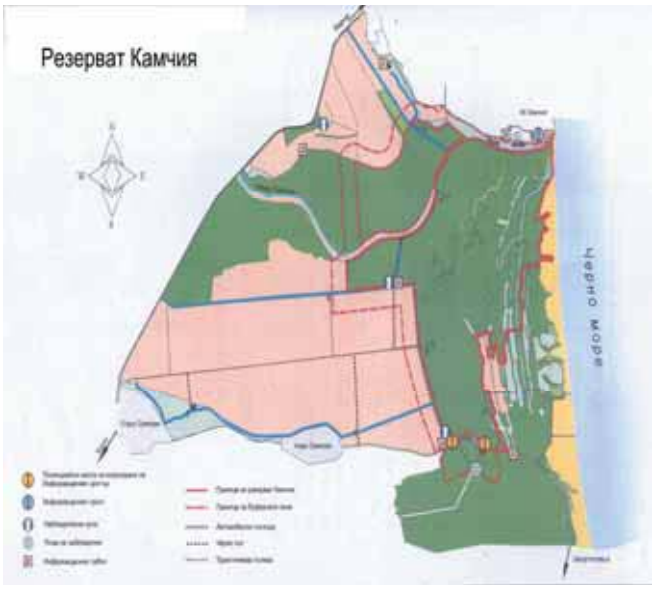
Ecological characteristics:

The reserve is situated on the land adjoining the villages of Novo Oryahovo, Staro Oryahovo and Bliznatsi in the Varna region. It is located along the lower reaches of the Kamchia River, 25 km south of Varna in the vicinity of Kamchia and Shkorpilovtsi resorts. The river flood plain forests around the Kamchia River mouth are currently the most typical piece of the Longoz forests, which are widespread in the Eastern Balkan Peninsula. In the south, they are intersected by two elongated marshy areas overgrown with reeds, bulrushes and other hydrophytes. These are the so called "azmatzi" (small wetlands) – Mazniat and Lesinskiat, which are in fact old branches of the river that remain flooded almost all the year round. This unique ecosystem is determined by the forest vegetation, including preserved indigenous plant communities of narrowleaf ash, common oak, smooth-leaved elm and other water-resistant tree and shrub species living in harmony with all 6 dendriform creepers found in Bulgaria: evergreen clematis, ivy, hop vine, silk vine, skripka and wild grape, as well as with 7 herbaceous creeper species. As a whole, plant communities dominated by narrowleaf ash are prevalent in the reserve. The most typical feature of the Longoz forest is the recurrent flooding related to alterations in the water level in the Kamchia river. The biodiversity of the reserve is impressive.



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Bulgaria
Koupena

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Declaration date: 1977
Surface area: 1.761 ha
Administrative division: Region of Pazardzhik

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve"
are with the highest legal protection. Any activities are prohibited in with the
exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems;
- extinguishment of fires and environmental harvesting in the forests damaged in
consequence of natural disasters and calamities.

Protection classification:

Strict Nature reserve according to the specific national legislation – Protected areas Act

Ecological characteristics:

© KoupenaBR

The reserve is situated on the northern slopes of the Rhodope Mountains at about 3 km south-east of Peshtera. It ranges from 600 to 1400 m above sea level. It was established to protect the landscape and the beautiful scenery, as well as its valuable flora, fauna and biocenoses. The reserve has centuries-old mixed forests of spruce and Scots pine as well as forests of only beech or Scots pine.
A large watershed crosses the reserve starting from Batashki Snezhnik peak and descending north-east between the Vucha and Stara Reka rivers. Its slopes are steep and inaccessible.
Koupena has fascinating and beautiful rock formations such as the sheer, 80-100 m high white limestone faces called Steneto. Koupena peak itself also has sheer faces, but with a rounded ridge attractively overgrown by black pine.
Two rivers flow through the reserve: the Pizditsa and Novomahlenska.
The reserve has three widespread soil types: maroon forest soils, maroon soils and humus-rich carbonate soils.
Special botanical or zoological studies have not been carried out in the reserve, but it is expected that detailed examination would reveal many new rare and interesting plant and animal species.

Contact information:

Regional Inspectorate for
Environment and Water - Pazardzhik
Pazardzhik "Gurko" Str. N 3, 4th floor
tel: +359 (0)34/441875
fax: +359 (0)34/445585
e-mail: riewpz@b-trust.org

Bulgaria
Mantaritza

© *Mantaritza BR*

Declaration date: 1977
Surface area: 10.716 ha
Administrative division: Region of Pazardzhik

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve"
are with the highest legal protection. Any activities are prohibited in with the
exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems;
- extinguishment of fires and environmental harvesting in the forests damaged in
consequence of natural disasters and calamities.

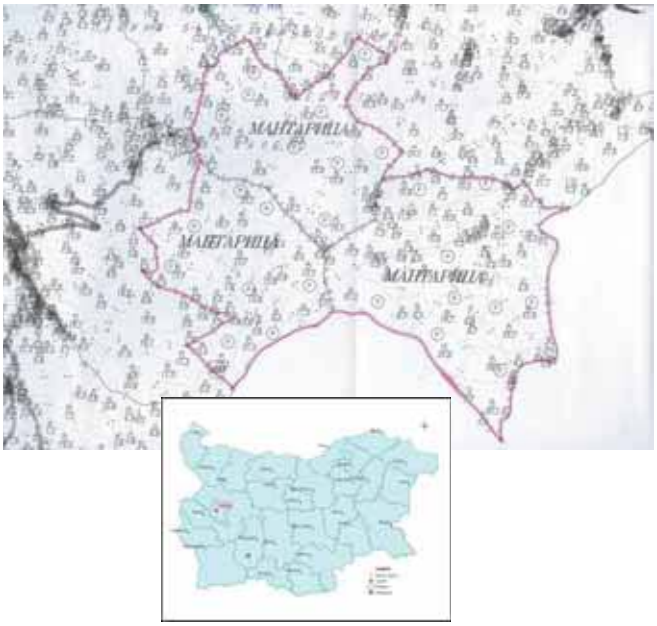
Protection classification:

Strict Nature reserve according to the specific national legislation – Protected areas Act

© *Mantaritza BR*

Ecological characteristics:

The Mantaritsa biosphere reserve is situated in the Western Rhodope Mountains on the land adjoining the town of Rakitovo, north of the highest peak in this part of the Rhodopes named Golyama Sutkya (2186 m), at 41°58′N and 24° 02′E. The high altitude of the reserve means that coniferous species predominate, mainly spruce, fir and Scots pine. The coniferous forests of the West Rhodopes, composed of spruce and Scots pine trees, are a mountain equivalent to the boreal taiga forests and their scale is unique for a relict stand in Europe. There are very few pure spruce forests. Usually spruce is accompanied by beech, fir and Scots pine. Fir is the second most widespread species. This is rare, since fir in Bulgaria is usually dominated by spruce and Scots pine. The average age of the trees in these forests is 100-130 years, while some fir and spruce specimens reach the age of 140 years. Their average height is between 22 and 27 m, but one can also find 40-metre high trees. The deciduous woodland species comprise mainly beech and more seldom oak. The beech plantations are very old (100-150 years), and the tree height varies between 23 and 27 m.



Contact information:

Regional Inspectorate for Environment and Water
Town of Pazardzhik
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http://www.riewpz.hit.bg
e-mail: riosv-vn@revolta.com

Bulgaria
Ouzounboudjak

© *Ouzounboudjak BR*

Declaration date: 1977
Surface area: 25.815 ha
Administrative division: Malko Tarnovo municipality, Burgas region

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classification:

Strict Nature reserve according to the national legislation – Protected Areas Act

© *Ouzounboudjak BR*

Ecological characteristics:

© *Ouzounboudjak BR*

The purpose of its designation is protection and conservation of representative for Strandzha mountains forest communities of Fagus orientalis and Quercus polycarpa. Ouzounboudzhak is part of the important bird area Strandzha and it is significant for protection of ornitofauna. Reserve's vegetation is mostly forest. According to the floristic characteristic of Ouzounboudzhak Bioshere reserve, there are 651 species and subspecies of 339 genera and 85 families established there. Fauna of the reserve has not been well examined yet. Rich and varied is the bird fauna. There can be seen: common buzzard, sparrow hawk, kingfisher, dipper, fieldfare, grey wagtail, corn bunting, hawkfinch, stonechat. The hollow trees make good conditions for several species woodpeckers: Green woodpecker, Greater and Lesser spotted woodpecker, Black and white-backed woodpecker. Some of the migratory species, which can be seen here are: Long-legged buzzard, Lesser spotted eagle, different falcon species, cuckoo, swallows, Black stork. Ouzounboudzhak is a home for many species amphibians and reptiles: Great toad, Marsh frog, Agile frog, Green wizard, Meadow lizard, Balkan glass-snake, Balkan gecko and several snake species – Smooth snake, Green whip snake, Aesculapian snake, Eastern Montpellier snake, Leopard snake. The most important fish species here is the endemic Rezovski shad, Balkan barbell also is to be seen in the reserve.

Contact information:
Regional inspectorate of environment and waters - Burgas
7 Perushtica str. P.O. Box 219, Burgas 8000
tel.: 056/ 813 205, fax: 056/ 813 200
e-mail: riosvbs@unacs.bg, bioriosv_bs@abv.bg

Bulgaria
Parangalitza

© *Parangalitza BR*

Declaration date: 1977
Surface area: 1.509 ha
Administrative division: Blagoevgrad region

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

© *Parangalitza BR*

Ecological characteristics:

The reserve is situated in the Rila National Park in the Rila Mountains. It is bounded by the Bistritsa River, the Haydoushka River, the Mechi vrah ridge, Merddzik and Ezernik. It covers an area of 1509 ha, 800 ha of which represent alpine grassland and 700 ha comprise grassland of other types. A buffer zone of 1250 ha has been set up around the reserve. The reserve comprises north-northwest facing mountainous terrain. The altitude is from 1450 to 2475 m (Ezernik peak) above sea level. The most productive vegetation is located between 1450 and 1650 m above sea level. The main bedrock is granite. The soils are dark-colored, mountain meadow and dark brown argillaceous-sandy, medium to deep, fresh and moist soils, waterlogged in places. The Parangalitsa reserve is situated in the transitional continental climatic sub-zone, with an intermediate mountainous zone at an altitude of 1450-2000 m above sea level, and a high mountain zone at over 2000 m above sea level.

Protection classification:

Strict Nature reserve according to the national legislation – Protected Areas Act

Contact information:
Rila National Park Directorate
2700 Blagoevgrad
Varosha city district
"Bistritsa" Str.
P.B. 56
E-mail: office@rilanationalpark.org

Bulgaria
Srébarna

© *Srébarna BR*

Declaration date: 1977
Surface area: 882,0519 ha
Administrative division: Silistra region, municipality of Silistra, Srebarna Village, Vetren village

Human activities:

According to the specific national legislation in protected areas which fall in the category of "manage reserve" any activities are prohibited with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites;
- conduct of maintaining, steering, controlling or restorative measures, which have to be specified in the management plan of the managed nature reserve.

Contact information:
Regional Inspectorate of Environment and Water - Ruse, "Pridunavski bulevard" № 20 street, po.box. 26., tel.: 359 82 820 772, 359 82 820 774, fax: 359 82 820 779, e-mail:riosv@ruse.bg

Ecological characteristics:

© *Srébarna BR*

Srébarna is a typical freshwater Danube lake of the river flood terrace. According to the palinological evidence, Srebarna Lake has been formed some 8000 years ago following the inundation of the riverside terrace by the Danube. It is a hypertrophic lake located on the Bulgarian (right-hand) bank of the Danube between km 391 and km 393. The Nature Reserve with a total surface area of 892.0519 ha is a state property, adjacent lands being privately owned or belonging to the Municipality of Silistra. Until 1975 there was commercial fishing and mowing of Reed, Reedmace and Bulrush in the reserve. Since then all commercial activities there have been terminated. The lake bowl lies in the Pliocene clays overlying the Barem and Apt limestones. In 1949 the lake was isolated from the Danube by a dike and since then the only source for feeding the lake with water remained the springs and surface run-off from neighbouring hills. Connection with the Danube was somewhat restored in 1978 but the river waters did not enter the lake every year. The lack of adequate connection with the Danube for prolonged periods of time set hydrologic conditions favouring the accumulation of bottom sediments (organic and inorganic sludge) at the same time diminishing the lake maximum and average depth to only 1 m (measured in 1993). In 1994 a canal connecting the Danube with the lake was built with the financial support of international organisations. It improved considerably the ecological conditions in the lake. An increase in the number and diversity of bird species typical for the region has been reported.

Protection classification:

Managed reserve

© *Srébarna BR*

Bulgaria
Steneto

© *Steneto BR*

Declaration date: 1977
Surface area: 35.788 ha
Administrative division: Lovech region, Troyan municipality

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
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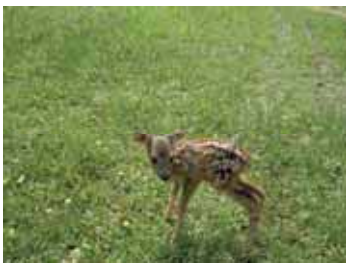
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

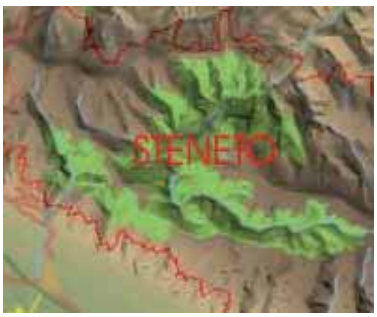
Ecological characteristics:



© *Steneto BR*

Steneto Reserve is located in the Central Balkan National Park. Its landscape is deeply dissected by river gorges flanked by steep crags. The reserve has numerous Karst features including precipices and caves. The underground river in the Kumanitsa flooded cave has an average flow rate of 600 litres per second. The reserve has centuries-old beech, spruce and mixed forests situated in the picturesque gorge of the Cherni Osum River. An area of one hectare can accommodate up to 20 tree species: European hornbeam and European hop-hornbeam, European black pine, Scots pine, spruce, fir, rowan, sycamore, Norway maple, etc. Vascular plants on the reserve number around 1000 species, or 1/4 of Bulgaria's flora. 38 of the species found in the reserve are listed in the Red Book of Bulgaria as rare or threatened with extinction. 18 species are protected by Bulgarian law. Over 440 animal species have been located in the reserve, including over 100 protected vertebrate species and a wealth of cave fauna: the troglobiont species, which are endemic for Bulgaria. Steneto is also recognized as a birdlife habitat, with more bird species than any other reserve in the National Park: booted eagle, golden eagle, hobby, saker falcon and almost all species of Bulgarian woodpeckers and owls, including the pygmy owl. The reserve is also home to the otter, marbled polecat, brown bear, wolf, chamois, roe deer, red deer, wild boar, wild cat, pine marten, stone marten and badger.

Protection classification: Strict Nature reserve according to the national legislation – Protected Areas Act



© *Steneto BR*

Contact information:
Postal code: 5300; Gabrovo City; Country: Bulgaria
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E-mail: office@ centralbalkan.bg

Bulgaria
Tchervenata sténa

© Tchervenata sténa BR

Declaration date: 1977
Surface area: 3.029 ha
Administrative division: Region of Plovdiv

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
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- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Ecological characteristics:

© Tchervenata sténa BR

The Tchervenata sténa reserve is situated in the Chernatish-Prespanski region of the Central Rhodopes. It was designated by Central Forestry Board Order No 2631/21.09.1962, covering an area of 229.5 ha, in place of the Bachkovski Manastir reserve which was removed from the list in 1956. The area of the reserve has subsequently been extended three times and now covers 3029 ha, situated on the land belonging to the villages of Bachkovo, Dobrostan and Oreshetz in the municipalities of Assenovgrad and Luki. In 1977 the reserve was included in the list of biosphere reserves under the UNESCO Man and the Biosphere Programme. Chervenata Stena reserve is a typical botanical reserve established to protect the combination of natural beauty and the wealth of plant species, many of which represent rare relicts, paleo- and neo-endemics both to Bulgaria and to the Balkan Peninsula. 645 higher plant species have been located on the reserve, or almost 18% of the flora in Bulgaria.

Protection classification:

Strict Nature reserve according to the national legislation – Protected Areas Act

Contact information:
Plovdiv Regional Environment and Water Inspectorate
№ 122, Maritsa Boulevard, Plovdiv
tel/fax: +359 (0)32/62-89-94
e-mail: riosv_plovdiv@dir.bg

Bulgaria
Tchoupréné

© *Tchoupréné BR*

Declaration date: 1977
Surface area: 14.392 ha
Administrative division: Region Montana; Municipality Belogradchik and Chouprene; in the land of villages Stakevtsi, Chouprene , Repliana, Gorni Lom

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
- collection of seeds, wild plants and animals for the purpose of scientific research or for repopulating other sites in quantities, manner and time excluding disturbance of the ecosystems, only with permission from the Ministry of Environment and Water;
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classification:

Strict Nature reserve according to the national legislation – Protected Areas Act

© *Tchoupréné BR*

Ecological characteristics:

© *Tchoupréné BR*

The Tchoupréné Biosphere Reserve is situated in the Western Stara Planina on the northern slopes of Chiprovska and Svetinikolska mountains, between 43°23'-43°29' N and 22°34'-22°41' E, at an average altitude of 1000-2000 m above sea level. The reserve covers an area of 1439,2 ha with a buffer zone of 543,2 ha (re-categorized in 2007 as a protected area named Chuprenski buki). It was designated as a reserve in 1973 to protect the unique compact stands of spruce in their primary state and to preserving its rare fauna species. In 1977 it was included in the UNESCO international network of global biosphere reserves. The Chouprene Biosphere Reserve is located in two protected areas in the National Ecological Network, namely Zapaden Balkan, coded BG 0002002 under the Wild Birds Directive, and Zapadna Stara Planina and Predbalkan, coded BG 000104 under the Habitats Directive. The reserve is also a CORINE site, as well as an ornithological important site of European significance. Chouprene is a typical forest reserve, with over 90% covered in woods, a diverse landscape of acute and steep ridges and deep, damp ravines, moraines, alpine meadows, rivers and swamps. There are eight main habitat types: ancient Balkan spruce forests; beech forests with liliaceous and sweet woodruff; mountain juniper formations; old Balkan spike heath communities; alpine bearberry communities; Balkan-Greek blueberry communities; sphagnum virgin forest groups and sedge marsh-lands.

Contact information:
Regional Inspectorate for Environment and Water – Montana
4 Julius Irasek Str.
3400 Montana

Bulgaria
Tsaritchina

© *Tsaritchina BR*

Declaration date: 1977
Surface area: 34.187 ha
Administrative division: Central Balkan National Park Directorate

Human activities:

According to the specific national legislation – Protected areas Act the protected areas that fall in the category of "strict nature reserve" are with the highest legal protection. Any activities are prohibited in with the exception of:
- physical security of the said reserves;
- visits for the purpose of scientific research;
- pedestrian traffic movement on marked hiking trails, designated by an order by the Minister of Environment and Water, including such traffic for educational purposes;
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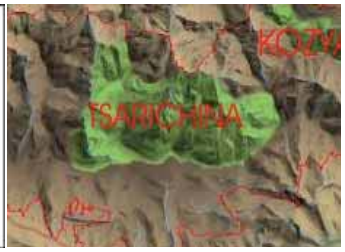
- extinguishment of fires and environmental harvesting in the forests damaged in consequence of natural disasters and calamities.

Protection classification:

Strict Nature reserve according to the national legislation – Protected Areas Act



Ecological characteristics:

© *Tsaritchina BR*

Tsaritchina Reserve is located in the Central Balkan National Park. Its deeply dissected landscape faces north and west and is rocky and hardly accessible in some places. Its altitude varies between 800 and 2198 m above sea level. Its bedrock is composed of granite and granitic gneiss. The reserve covers the Zavodna and Stara Ribaritza river basins. The reserve was designated to preserve its forest and subalpine ecosystems in their primary condition. It contains centuries-old spruce, fir and beech forests and natural ecosystems of Macedonian pine (Pinus peuce). The latter is a Balkan endemic and Tertiary relict and Tsarichina is its northernmost locality. There are about 600 species of vascular plants including 6 Bulgarian endemics: Trifolium medium subsp. scorpilii, Viola balcanica, Jasione bulgarica, Centaurea kernerana, Alopecurus riloensis, Luzula deflexa. Seven Balkan endemics have also been located: Pinus peuce, Alchemilla cathachnoa, Campanula moesiaca, Acer heildreichii, Iris reichenbachii, Festuca riloensis, etc. Among the species protected by the national Biodiversity Act, 11 are found in the reserve. 28 vascular plant species are listed in the Red Book of Bulgaria. Tsarichina is home to 15 amphibian and reptile species. 90 bird species are located in the reserve, including 75 nesting species. There are over 30 mammal species.

© *Tsaritchina BR*

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E-mail: office@ centralbalkan.bg

Canada
Mont Saint-Hilaire

© Mont Saint-Hilaire BR

Declaration date: 28 April 1978
Surface area : 20.700 ha
Administrative division : Quebec, Province

Human activities :

Agriculture (fruit trees, mainly apple and pear)
Recreation and tourism

Protection classifications :

On an international level: Protected area Ia & III (IUCN)
On a national level: Migratory bird refuge
On a provincial level: Natural reserve on private land
On a regional and municipal level: Conservation area

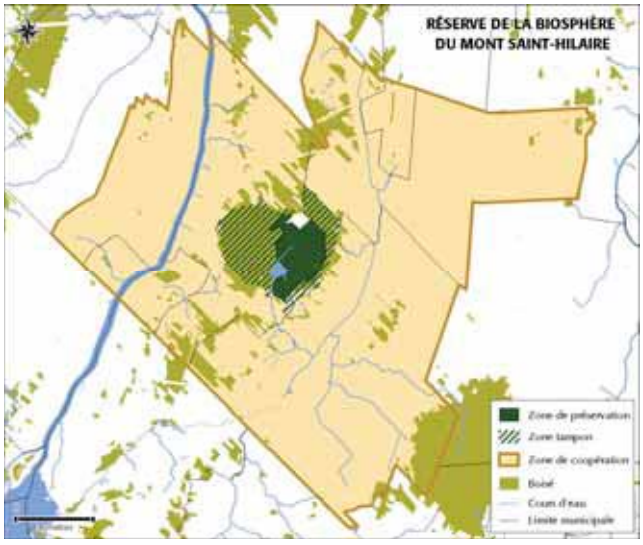
© Mont Saint-Hilaire BR

Contact information :

M. Éric Malka
Réserve de la biosphère du mont Saint-Hilaire
422 Chemin des Moulins,
Mont-Saint-Hilaire (Qc), J3G 4S6, Canada
Tel.: (450)467-1755 ext.226 - eric@centrenature.qc.ca

Ecological characteristics :

The Mont St. Hilaire Biosphere Reserve is a Monteregien hill, rich in natural beauty and in cultural interest. It is located in a peri-urban area and hosts exceptional flora and fauna and also contains unique minerals. The forest of Mont St. Hilaire has never been exploited commercially and is of remarkable quality. The forest mainly contains maples and beech trees, some are 400 years old. Over 600 species of vascular plants grow on the hill, over 30 of them are endangered, vulnerable or close to being so. The forest of Mont St. Hilaire also hosts numerous mammals, birds, reptiles and amphibians. In fact, thirty species of mammals are to be found in the Reserve. Some of them are easy to see along the roadside, the lake and the top of the hill, such as the grey squirrel, the eastern chipmunk, or the racoon. The Biosphere Reserve is also a wonderful place to watch birds, as 200 species have been recorded representing 60 % of all the species present in south western Québec. This diverse wealth makes Mont St. Hilaire a marvel of nature that has inspired many artists, painters, poets and story-tellers in the past and that today still continues to thrill the residents of this rural and urban territory.



Canada
Waterton

© *G. Pech*

Declaration date: 1979
Surface area: 52.597 ha
Administrative division: Waterton Lakes National Park Waterton Biosphere Association

Human activities:

Waterton has a permanent population of 279 people and a seasonal population of about 2,250 during the summer peak season (1996). Major source of income is tourism which mainly takes place in the buffer zone. Agriculture, especially livestock raising and sustainable forest use within the 'Blood Indian Reserve', is of importance mainly in the transition zone. The biosphere reserve organizes or helps co-sponsor public seminars or forums on matters that attract local community interest or concerns and also arranges outings for students.

Ecological characteristics:

Waterton Biosphere Reserve and National Park is situated in the extreme south-west of the Province of Alberta and encompasses a section of the east slopes of the Rocky Mountains extending from the Continental Divide to the edge of the Canadian Great Plains to the east. The Glacier Biosphere Reserve and National Park in Montana, USA is located to the south of the area. The steep environmental gradients from the Continental Divide to the prairies have created an unusual rich mosaic of habitats with their associated flora and fauna. The biosphere reserve covers prairie grasslands, aspen grove forests, subalpine forests, alpine tundra and meadows, cliffs, lakes and freshwater wetlands as well as disturbed, heavily grazed land in the prairies.

Prairie grasslands including Danthonia spp., Festuca scabrella and Koeleria macrantha; aspen grove forests with Populus tremuloides, Amelanchier alnifolia and Heracleum lanatum; alpine tundra/high meadows characterized by Douglas fir (Pseudotsuga menziesii), lodgepole pine (Pinus contorta), limber pine (P. flexilis) and whitebark pine (P. albicaulis); arctic-alpine communities above the tree line dominated by Dryas octopetala and Polemonium viscosum; upper subalpine forests with Larix lyallii, Luzula hitchcockii, Picea engelmannii and Abies lasiocarpa; lower subalpine forests dominated by Engelmann spruce (Picea engelmannii) and subalpine fir (Abies lasiocarpa); deciduous forest, coniferous forests dominated by Douglas fir and limber pine; cliffs, lakes and frewhwater wetlands; disturbed, heavily grazed land with Populus tremuloides, Urtica dioica, Bromus inermis and Phleum pratense.

© *G. Pech*

Contact information:

Larry Frith
Waterton Biosphere Reserve
Box 460
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Canada
Tel.: (1.403) 627 2065
Fax: (1.403) 627 2065
E-mail: lrf@jrtwave.com

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Canada
Long Point

© Haldimand/Norfolk Development

Declaration date: 1986
Surface area: 40.600 ha
Administrative division: Norfolk County, Ontario

Human activities:

· Forest corridor stewardship projects to restore terrestrial ecosystems on private lands
· Roadway improvement project with 20 partner agencies and community groups to reduce roadside wildlife mortality in the Reserve
· Education and community development (workshops, conferences) focused on sustainability

Ecological characteristics:

· Long Point is a coastal erosion deposit sand spit formation that extends about 32 kilometers into the central basin of Lake Erie from its north shore. Habitats on and surrounding Long Point include woodlands, sand dunes and bluffs, marshes, ponds, meadows, beaches, and lakeshore. This complex is the largest biophysical formation of its kind in the Laurentian Great Lakes of North America.
· Inner Long Point Bay covers approximately 78 km2 between the spit and Lake Erie's north shore. The Inner Bay is a diverse sport fishery and continentally important staging area for migratory waterfowl.
· Recorded in the Reserve and surrounding region are 1,384 species of plants, 370 species of birds, 102 species of fish, 46 species of mammals, 34 species of amphibians and reptiles, and 91 species of butterflies.
· Immediately adjacent to the coastal Reserve is a distinctive terrestrial area of temperate "Carolinian" broadleaf forests, conifer plantations, oak savannas, and diverse agro-ecosystems.

Protection classifications:

The Long Point National Wildlife Area (3,650 hectares) is the core of the Reserve, managed by the Canadian Wildlife Service. Other protected areas are managed by provincial and regional governments.

Partners discussing restoration methods at a restored site in the Long Point World Biosphere Reserve Zone of Cooperation. Photo: © Long Point BR.

Signage as part of a project to reduce roadside wildlife mortality in the Reserve. Photo: © LPWBRF

Contact information:

Long Point World Biosphere Reserve Foundation
P.O. Box 338 Port Rowan, ON N0E 1M0 CANADA
info@longpointbiosphere.org

Canada
Riding Mountain

Declaration date: 1986
Surface area: 1.331.800 ha
Administrative division: Riding Mountain National Park Riding Mountain Biosphere Reserve Management Committee

Human activities:

Descendants of the Ojibwa First Nations live in four relatively small Indian Reserves within the transition zone. The rest of the area was settled mainly by people of Ukrainian, English, French or Scandinavian descent. Some 28,400 people live in the biosphere reserve on a permanent basis. However, peak summer weekends can bring many thousands of visitors to the area (2001). The region supports a rural agricultural economy supplemented by tourism associated mainly with the national park. The national park maintains a well-developed interpretive center with a wide variety of public information materials.

Ecological characteristics:

Riding Mountain Biosphere Reserve is located in south central Canada, some 300 km north-west of Winnipeg, Manitoba. It is situated at the junction of the grassland and boreal forest biome. Forests cover most of the area, dominated by aspen (Populus tremuloides). Although grasslands occupy only 7,400 of the total 1,331,800 hectares, they are of national importance since they exist as discrete units and the rare climax rough fescue community represents the eastern extent of its range. This was the reason for its designation as a national park (core area of the biosphere reserve). The grasslands once occurred throughout southern Manitoba but they have been transformed since the European settlement in the late 19th century. The biosphere reserve also includes agricultural areas which used to be forests or grasslands. The forest ecosystem maintains many larger mammals, such as black bear (Ursus americanus), gray wolf (Canis lupus) and coyote (Canis latrans).

Contact information:

John Whitaker, Riding Mountain Biosphere Reserve
P.O. Box 399, R0J 1N0 Erickson, Manitoba, Canada
Tel.: (1.204) 636 2595, Fax: (1.204) 636 2595
E-mail: jwhitaker@escape.ca

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Canada
Charlevoix

Declaration date: 1988
Surface area: 560.000 ha
Administrative division: Corporation de la reserve mondiale de la biosphere de Charlevoix

Human activities:

About 30,000 people live in the biosphere reserve (1988), which covers 457,000 hectares. In former times, the population of Charlevoix used to rely on the river and the sea, for example on coastal navigation, marine constructions and fisheries (e.g. beluga, eel). Today, the economic landscape has diversified and major factors in the local economy are now forestry, silica mining, agriculture and tourism. The forest education centre 'Les Palissades' or the ecological center 'Port-au-Saumon' are important institutions for environmental education in the area. A five-year action plan (1999-2003) currently tries to promote the divers goals of a biosphere reserve.

Ecological characteristics:

Situated some 80 km east of Quebec City, Charlevoix Biosphere Reserve borders the Saint Lawrence River to the north. Extending from 5 to 1,150 meters above sea level, the area comprises agricultural areas, river ecosystems, estuarine tidal marshes and flats, coniferous and mixed forests, stunted vegetation (krummholz) and mountain tundra ecosystems.

Maple forests including paper birch (Betula papyriferae), alder (Alnus spp.) and elm (Ulmus spp.) and with an understory of sumac (Rhus typhina), Acer pensylvanicum and Cornus alternifolia; mixed fir (Abies sp.) forest with Corylus cornuta, Sambucus pubens and Taxus canadensis; boreal forests up to an altitude of 300m with fir and spruce (Picea spp.); estuarine tidal marsh and flats dominated by Scirpus americanus meadows including Zizania palustris, Sagittaria cuneata and S. latifolia; tundra with ericaceous zones consisting of Kalmia spp., Ledum groenlandicum; stunted vegetation community (krummolz) with Picea mariana and Abies balsamea; agroecosystems with cereals, fruits and legumes; river ecosystems.

Contact information:

Charles Roberge, Réserve de la biosphère de Charlevoix
15, rue des Battures, G5A 2P3 G4A 1L1 LA MALBAIE, (QUEBEC)
Canada
Tel.: (1.418) 665 4436 - Fax: (1.418) 439 1228
E-mail: roberge.charles@videotron.ca

© Photo: Charles Roberge

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Canada
Niagara Escarpment

© *Niagara Escarpment BR*

Declaration date: February 1990
Surface area: 190.270 ha
Administrative divisions: Canada, Province of Ontario; 8 Regions / Cities; 21 Local Municipalities

Human activities:

- Tourism & Recreation
- Farming (tender fruit in south; mixed crops & beef toward north)
- Grapes and wine
- Aggregate extraction (sand, gravel & stone)
- Forestry (furniture-grade & building-grade)

Protection classifications:

Provincial Legislation and Land-use Plan and Regulation administered by government-mandated Niagara Escarpment Commission (1985); Two National Parks; 129 Provincial and Municipal Parks; Provincial Greenbelt – Foodland Conservation Plan; 8 watershed-based Conservation Authorities.
Core = 32.5% Buffer = 60 %
Zone of Cooperation = 7.5 %

© *Niagara Escarpment BR*

Ecological characteristics:

Ordovician and Silurian Formation (420-445 million years BC); Sedimentary rocks: Limestones, dolostones, shales, sandstones. Maximum average temperature, warmest month: 29.9 C; Minimum average temperature, coldest month -7.1 C; Mean annual precipitation 818.5 mm (13% as snow). North-south corridor crossing two major ecological regions. In south, Carolinian life zone is one of the Most biologically diverse regions in Canada with 40% of province's rare vascular plants. In north, Great-Lakes – St. Lawrence forest: sugar maple, beech & hemlock. Further north, harsher with occasional sub-arctic flora and globally rare alvar habitat. Caves, valleys, cliffs, and crevasses, waterfalls and seeps provide a variety of microclimates along vertical gradients, optimal for oldgrowth cedars and ferns. More than 300 bird species, 55 mammals, 36 reptiles and amphibians, 90 fish and 100 varieties of special interest flora (including 37 types of wild orchids). Headwaters recharge area for several major river systems.

Contact Information:

Niagara Escarpment Biosphere Reserve,
232 Guelph Street, Georgetown, ON,
Canada L7G 4B1
Phone: 011 … 905 … 877… 5191
e-mail: nec@escarpment.org
Web: www.escarpment.org

Canada
Clayoquot Sound

© M. Hobson, Clayoquot Sound

Declaration date: January 21, 2000
Surface area: 349.947 ha
Administrative division: Tofino, Opitsaht, Esowista, Hesquiaht and Ahousaht in British Columbia, Canada

Human activities:

- Support research and indicator monitoring in the reserve, with small research library, two research cabins and through funding researchers in the region.
- Support and development of local programs in community development, education, culture, terrestrial and marine and aquatics.

Protection classification:

The core area of the Reserve is a federally designated National Park Reserve.

Contact information:

Clayoquot Biosphere Trust, P.O. Box 67
Tofino, British Columbia, V0R 2Z0 - Canada
Tel: 250-725-2219, Fax: 250-725-2384
www.clayoquotbiosphere.org

Ecological characteristics:

The primary habitat of the Clayoquot Biosphere is Temperate Rainforest (Coastal Western Hemlock), covering 85 per cent of the terrestrial component, extending to an altitude of about 900 metres. The habitat is dominated by large trees: the Western Hemlock, Western Red Cedar, Amabilis Fir, Western Yellow Cedar, Sitka Spruce, Pine, Douglas Fir, Yew and the Red Alder. There are approximately 300 vertebrae species, including the black bear, cougar, mink and wolf.
The second common habitat covering 12 percent of the Clayoquot above 900 metres is temperate rainforest (Mountain Hemlock). Dominant trees are the Mountain Hemlock, Western Yellow Cedar and Amabilis Fir. Fewer species are found at such a high altitude, but those that are, are the same as those found in lower altitudes.
The Marine component of the Clayoquot supports mudflats, beaches and estuaries. The reserve contains the largest cover of eelgrass on the west coast of Vancouver Island. Gray whales, orcas, humpback whales and a variety of other whale, dolphin and porpoise species are common. Stellar and California sea lions are also common in the Reserve. Commercial aquaculture of native salmon species and introduced Atlantic salmon, oysters and scallops are significant economic activities in the Reserve.

Vargas Island trail.
Photo: © Clayoquot Sound

Hooksum Outdoor School..
Photo: © Clayoquot Sound

Canada
Redberry Lake

© *JK, Redberry Lake BR*

Declaration date: January 21, 2000
Surface area: 12.210 ha
Administrative division: Redberry Regional Economic Development Authority Corporation; Rural Municipalities of Redberry, Douglas, Meeting Lake, & Great Bend; Lucky Man First Nations Reserve; Hafford, Saskatchewan, Canada

Human activities:

- Environmental protection and research
- Eco-education and tourism
- Agricultural Production
- Light industrial
- Cultural Research
- Community sustainability planning

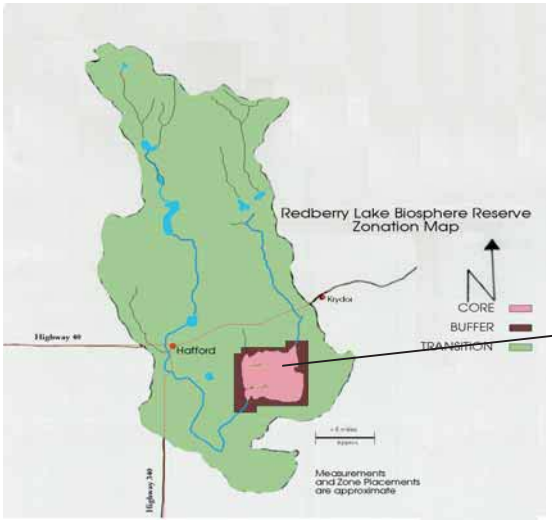
Ecological characteristics:

© *Redberry Lake BR*

Altitude: +487 to +533 m asl
Location: 52°42'N; 107°10'W (centre of core area)
Major ecosystem type: Temperate grassland; saline lake
The core area is a saline lake with several islands (salinity ~ 2.5%). There are small patches of natural mixed prairie which is very rare in this highly grazed and cultivated part of the prairies
Major habitats & land cover types: Grasslands including typical prairie grasses such as wheat grass (Agropyron spp.), fescue (Festuca spp.), oat grass (Avena barbara), sedges etc.; aspen-shrub forest dominated by aspen (Populus tremuloides) with several shrubs such as Rosa spp., silver willow (Salix alba) and hawthorn (Crataegus spp.); saline lake/rocky islands; farmland cultivated with wheat, and barley; pasture land
It provides habitat for nine endangered, threatened, or rare bird species, as well as over 180 other species.

Protection classification:

- National migratory bird sanctuary since 1915
- 1997: Saskatchewan's Representative Areas Network
- 1998: Important Birding Area
- January 21, 2000 Designated by UNESCO as a World Biosphere Reserve
- UNESCO Associated Schools Program (ASPnet)



© *JK, Redberry Lake BR*

Contact information:

Redberry Lake Biosphere Reserve Office
Box 221, Hafford, SK S0J 1A0
Telephone: 1.306.549.4060
Fax: 1.306.549.4061
Email: info@redberrylake.ca
URL: www.redberrylake.ca

Canada

Lac Saint-Pierre

© Lac Saint-Pierre BR

Declaration date : 9 November 2000
Surface area : 480.000 ha
Administrative division: Québec, Canada

Human activities :

- Agriculture
- Hunting
- Commercial fishing and angling
- Fauna reserves
- Summer tourism for cottagers
- Nautical sports
- Merchant shipping
- Trade
- Light and heavy industry

Protection classifications :

RAMSAR site
Protected areas for fauna
Natural heritage

Contact information :

www.biospherelac-st-pierre.qc.ca
info@biospherelac-st-pierre.qc.ca

Ecological characteristics :

Quebec's most important conservation areas:
Ninety percent of the territory is in its natural state
Most important archipelago of the St. Laurent River (103 islands)
20% of all the marshes of the St. Laurent River
50% of the wetlands of the St. Laurent River
27 species of rare plants
79 species of fish, of which 2 are endangered
The most important migratory resting place for St. Laurent waterfowl
288 species of birds, 116 nesting and 12 endangered
First spring migratory staging point for the Snow Goose on the St. Laurent River. The most important heronry in North America.
RAMSAR site

© Lac Saint-Pierre BR

Canada
Mount Arrowsmith

Declaration date: 2000
Surface area: 118.592 ha
Administrative division: Mount Arrowsmith Biosphere Foundation

Human activities:

Approximately 38,000 residents live permanently in the area, which can total up to 43,000 people depending on the season (2000). Coastal Salish First Nations live in the biosphere reserve. However, today the population is dominated by descendants of European immigrants. Tourism and service industries but also fishing and forestry provide the main sources of income for people.

Ecological characteristics:

This biosphere reserve is located on the east coast of Vancouver Island in British Columbia. It is close to the Clayoquot Sound Biosphere Reserve, located on the other side of the island. Situated in the Coastal Douglas-fir (Pseudotsuga menziesii) biogeoclimatic zone, the forests in the area were logged in the early 1900's. Today, second-growth trees are reaching harvestable size which leads to pressures from the logging industries. The Mount Arrowsmith Biosphere Reserve includes the entire watershed draining the area. Management focuses on the maintenance of healthy aquatic, coastal estuarine and intertidal ecosystems. Because the health of these ecosystems is directly influenced by the integrity of streams and rivers flowing into them, these have been defined as the buffer zone. The area is under continuous urban development pressures. The biosphere reserve concept is believed to provide an ideal framework within which to address the complex problems facing Mount Arrowsmith today.

Contact information:

Glen S. Jamieson, Mount Arrowsmith Biosphere Reserve
804 San Malo Crescent, V9P 1S4 Parksville, B.C., Canada
Tel.: (1.250) 756 7223 (W) - (1.250) 248 5593 (H), Fax: (1.250) 756 7138 (W)
E-mail: jamiesong@pac.dfo-mpo.gc.ca - Web site: www.mountarrowsmithbiosphere.ca

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Canada
South west Nova

Beverley Lake on the Shelburne Heritage River within the Tobeatic Wilderness Area. © O. Maass, Southwest Nova BR

Surface area: 1.546.374 ha
Declaration date: 2001
Administrative division: Annapolis, Digby, Queens, Shelburne and Yarmouth Counties of the Province of Nova Scotia, Canada

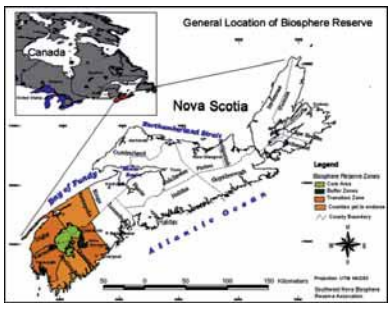
Human activities:

- Enjoying outdoor living
- Protecting endangered species & our environment
- Local Farm Markets

Local Farm Market. © *J. Barteaux, Southwest Nova BR*

Protection classifications:

At national level, the area was declared a biosphere reserve in September, 2001.



Ecological characteristics:

© Parks Canada

The designation of the Southwest Nova Biosphere Reserve recognizes the importance of two large, contiguous protected areas in Southwest Nova Scotia, Kejimkujik National Park Historic Site and the Tobeatic Wilderness Area, and of the potential in the broader region for multi-sector cooperation and sustainable development. The five counties (Annapolis, Digby, Shelburne, Queens and Yarmouth) surrounding these parks are included in the designation on a voluntary basis, as determined by community interest and project development. Southwest Nova Scotia is a largely undeveloped, primarily rural area with ocean-side communities on three coasts. The region has a diverse cultural heritage including Mi'kmaq, Black Loyalist, French and English historical communities. Southwest Nova is also an important ecological region with a National Heritage River, two large protected areas, rare coastal plain flora, and a number of endangered species. The economy is natural resource-based with a primary dependence on forestry, agriculture, tourism, fishing, mining and natural gas extraction (recent). The intense promotion of tourism, especially eco-tourism, conflicts with visual aspects of ongoing clear-cutting of forests and proposed mining etc., and is a significant local issue. The out-migration of youth, and a general decline in population due to an increasing lack of opportunity also threatens.

© C. Drysdale

Contact Information:
Southwest Nova Biosphere Reserve Association (SNBRA)
c/o Dr Bob Maher, Chair
NSCC Annapolis Valley Campus
RR#1 Lawrencetown
Nova Scotia, Canada B0S 1M0
Phone: (902) 825-5477
Fax: (902) 825-5479
Email: Robert.Maher@nscc.ca;
Website: **http://www.snbra.ca/**

Canada
Frontenac Arch

© *Frontenac Arch BR*

Declaration date: November 2002
Surface area: 270.000 ha
Administrative division Incorporated as a Not for Profit Organization.

Human activities:

The Frontenac Arch Biosphere Reserve's mission is to encourage people to work together toward a more sustainable way of life. Our vision is that the Frontenac Arch Biosphere Reserve will be known by all who live and visit here as a world-class model of successful, sustainable development. We will celebrate our natural, economic and human qualities and forge a new way of working, living and growing together. The Frontenac Arch Biosphere Reserve through a group of committed volunteers, organizations, governments and agencies operates as the Biosphere Network. The Network works to stimulate all who live and visit here to contribute to the sustainability of the region.

Ecological characteristics:

The Frontenac Arch is the name given to an ancient ridge of granite that sweeps across the St. Lawrence River forming a corridor between the Canadian Shield and the Adirondack Mountains. Where the ridge intersects the Great Lakes and the St. Lawrence River, it forms the beautiful Thousand Islands. One can see the granite ridge in the rock faces along Highway 401. First Nations call the Frontenac Arch the "backbone of the mother"—Mother Nature's spinal column. At the crossroads of the Frontenac Arch and St. Lawrence River, five separate forest regions meet creating a great richness of plant, insect and animal species—making it the most biodiverse region in Canada, and a place of great beauty. It has a long and rich cultural heritage and served as the historic gateway through the St. Lawrence River to all of Canada. The Frontenac Arch is a unique chorus of people, landscapes and living creatures.

© *Frontenac Arch BR*

Contact Information:

19 Reynolds Road
Lansdowne Ontario, K0E 1L0
Phone: 613-659-4824
www.fabr.ca
Email: Robert.Maher@nscc.ca;
Website: **http://www.snbra.ca/**

Canada
Georgian Bay Littoral

© Georgian Bay Littoral BR

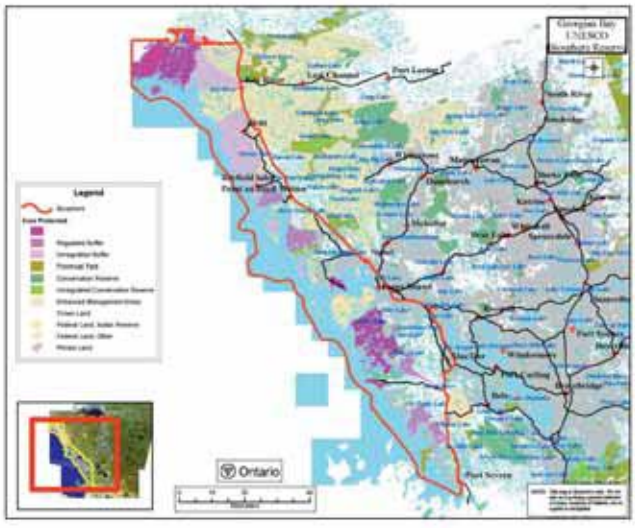
Declaration date: November 2004
Surface area: 347.000 ha
Administrative division: Ontario

Human activities:

The main activities in the region are summer tourism (for boaters, cottagers, campers and outdoor enthusiasts), small service communities of up to 6,500 people, and sustainable forest management.

Protection classifications:

1 national park (IUCN Class II)
5 provincial parks (IUCN Class II) natural environment or nature reserve types
Numerous provincial conservation reserves.



Ecological characteristics:

The eastern coast of Georgian Bay has a complex topography with an extensive shoreline along the many islands, deep coves, fiords, and river mouths. It is thought to be the world's largest freshwater archipelago with a mix of open waters, sheltered bays, coastal wetlands, exposed bedrock shores, sandy and cobble beaches, riparian vegetation and upland Boreal Needleleaf forests on the mainland. The resulting rich mosaics of habitats and interconnections among them, combined with the inaccessibility of much of the area, serves to support and protect a high level of biodiversity - over 100 species of animals and plants that are considered to be species at risk in Canada or Ontario. These include reptiles such as eastern massasauga rattlesnake (Sistrurus c. catenatus), eastern fox snake (Elaphe gloydii), eastern hognose snake (Heterodon platyrhinos) and spotted turtle (Clemmys guttata).

© Georgian Bay Littoral BR

© Georgian Bay Littoral BR

Contact Information:

Georgian Bay Biosphere Reserve Inc.
52 Cascade Street
Parry Sound, Ontario CANADA P2A 1K1
Telephone: +01 705 774 0978
Email: info@gbbr.ca
Website: www.gbbr.ca

Canada
Fundy

Declaration date: 2007
Surface area: 432.308 ha
Administrative division: At present, the FBR Interim Board of Directors. Upon designation by UNESCO MAB, an elected Board of Directors

Human activities:

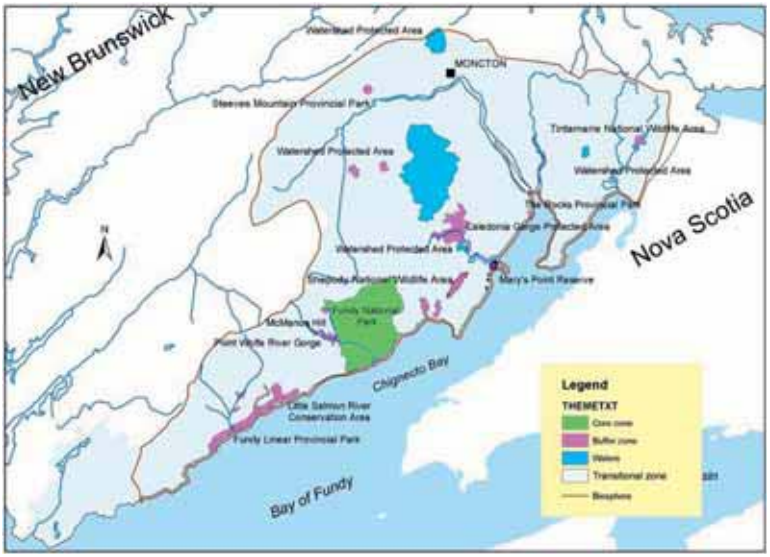
Included in the proposed FBR area are the three urban areas of Moncton, Dieppe and Riverview; referred to as the Greater Moncton area. This urban environment has a rich bilingual culture and heritage that is indicative of the collaboration that exists between the francophone and anglophone societies that co-exist in province. New Brunswick is the only legislated bilingual province in Canada while the City of Moncton is the first and only official bilingual city in Canada. The diverse linguistic background of the area attracts many investors, businesses and visitors to the area.

The intent of the Fundy Biosphere Reserve is to provide a forum for dialogue and information sharing between communities, resource sectors, government agencies and researchers. This cooperative network of partners will assist communities in developing a more sustainable way of life based on a common understanding that healthy economy can only be supported by a healthy environment.

Ecological characteristics:

Located on the western side of the upper Bay of Fundy in New Brunswick, Canada, the area is renowned for its Acadian mixed wood forests, rugged coast line, extreme tidal ranges, salt marshes, tidal mudflats as well as for its terrestrial and marine biodiversity. The area also has a rich cultural heritage starting with the original Mi'kmaq aboriginal inhabitants. The first settlers from France and other European countries, during colonial times, had an influence in shaping of the landscape that is evident today. The southern half of the proposed area is one of the least developed areas on the east coast of North America where steep, forested river valleys are deeply incised into the landscape creating gorges with waterfalls, rapids and steep rock walls. Topographical elevations range from 30 m below sea level in the estuarine area to 400 m inland. At the head of the bay is a broad gently undulating landscape with wide ranging salt marshes in the coastal area.

The land area is represented by the watersheds and coastal areas that extend from St. Martin Through to the Tantramer march that drains into the upper Bay of Fundy. The area is unique in its geological formations, terrestrial and marine ecosystems, cultural heritage, and its cross section of rural communities and urban areas. The area also has many protected, conservation and special management areas that facilitate the land and categorization into Core area, Buffer zones and Transitional area as required of a UNESCO Biosphere site (as shown in Figure 1).



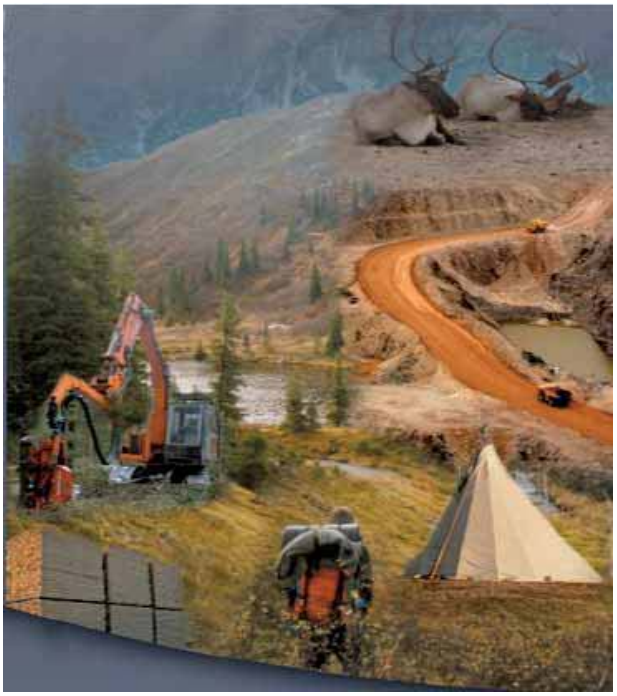
Contact information:

Fundy Biosphere Reserve
Room 137, PA Landry Building
Université de Moncton, Moncton, NB, E1A 3E9

Phone: (506) 863-2142
Fax: (506) 863-2000
Email: info@fundy-biosphere.ca

Canada

Manicouagan Uapishka



Towards a region as a model of sustainable development (acknowledgment RMBMU). Photo: © Manicouagan Uapishka BR

Declaration date: 20 September 2007
Surface area : 5.480.000 ha
Administrative division : Région Côte-Nord, Québec, Canada

Protection classifications :

- 2 Ecological Reserves (Level 1A IUCN)
- 5 Biodiversity Reserves (Level III UICN)
- 6 exceptional forest ecosystems (Level III IUCN)

Human activities:

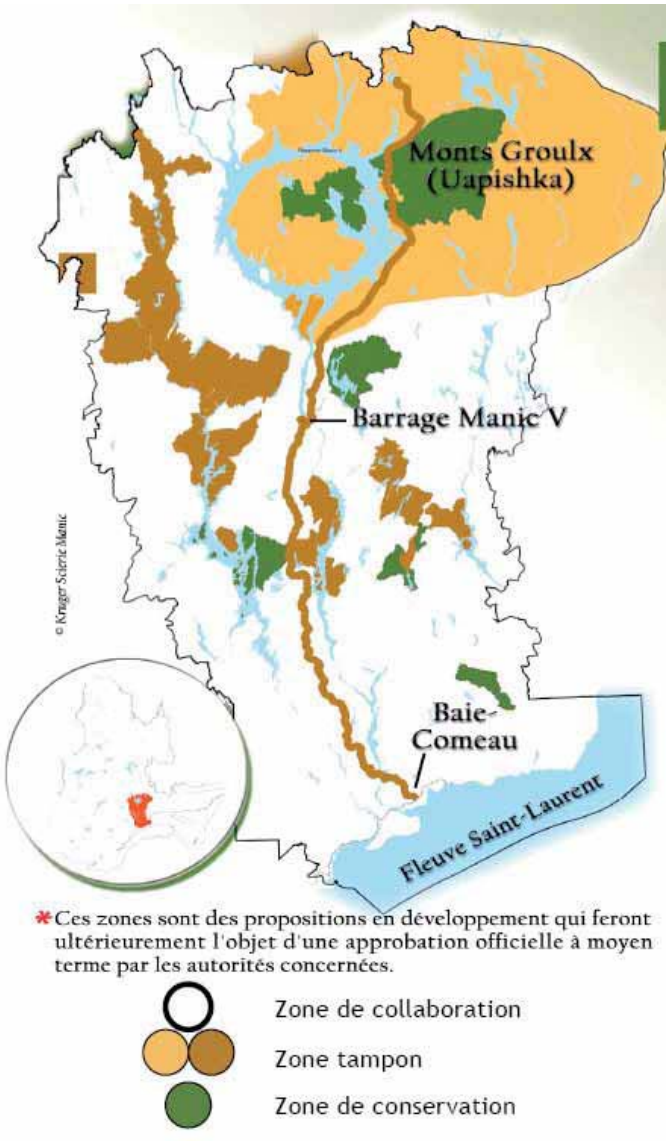
- Industrial forest management
-Timber transformation (sawmills and pulp-mills)
- Hydroelectric production
- Aluminium production
- Mining industry
- Commercial fisheries
- Merchant shipping

Contact information:

1(418) 293-2548
info@rmbmu.com
www.rmbmu.com

Ecological characteristics :

- Mounts Groulx (Uapishka): The greatest area of Arctic-Alpine tundra in southern Quebec, with a varied and rare flora at this latitude.
- Boreal forest : An important element of world biodiversity and representative of one of the last forest masses in the world.
- Particular species: many endangered and/or vulnerable species among which, a highly symbolic Cervidae, the woodland Caribou
- Estuary of the St. Laurent River: One of the richest and most productive marine environments of the whole St. Laurent River, hosting the Blue Whale, the world's largest mammal.



Croatia
Velebit Mountain

Declaration date: 1977
Surface area: 200.000 ha
Administrative division: State Directorate for Protection of Nature and Environment

Human activities:

About 20,000 people live within the biosphere reserve (2003). Communities on the maritime side of the biosphere reserve are oriented towards tourism, fishing, traditional agriculture and services within the Velebit Nature Park. Communities on the northern side of Velebit make their living mainly from agriculture, small enterprises, hunting and logging. Scientists and visitors will agree that the most valuable natural landmarks of Velebit include the caves called Cerovacke pecine (southern Velebit) and a pit called Lukina jama (northern Velebit). Many smaller caves and pits and a number of important geomorphologic objects (Kiza, Tulove grede, kuk Stapina etc.) and hydrological objects (the spring and course of the Zrmanja etc.) are also of interest. A visitors center of the Paklenica National Park welcomes tourists and provides environmental education and information on the natural history of Velebit Mountain.

Ecological characteristics:

This biosphere reserve is located in the large mountain area of Mount Velebit at the Adriatic Sea. With an altitude ranging from 0 to 1,757 meters above sea level, the area represents a 145 km long and 10-30 km wide stretch of karst landscape. The maritime slope is barren karst, whereas woodlands cover the central mountain ranges and the Lika slope. Habitat diversity is very rich, comprising pine (*Pinus halepensis*) woodlands, submediterranean shrub (*Paliurus spina-christi*, *Carpinus orientalis*), beech (*Fagus sylvatica*) woods, fir and beech woods (*Abies alba*), pine woods (*Pinus nigra*), subalpine beech woods and subalpine meadows.

Contact information:

Milan Krmpotic
National Park "Northern Velebit"
Krasno - ispostava Senj, Obala kralja Zvonimira 6
53270 Senj
Croatia
Tel.: (385.53) 884 551
Fax: (385.53) 884 552

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Czech Republic
Krivoklátsko

© *Krivoklátsko BR*

Declaration date: 1st March 1977
Surface area: 62.800 ha
Administrative division: Central Bohemia

Human activities:

Forestry
Agriculture
Quarrying of the spilites and rhyolites
Tourism, recreation, scientific research

Protection classification:

At the national level:
Krivoklatsko Protected Landscape Area
24 nature reserves and monuments
Natura 2000 – SPA (EU Bird Directive)
Natura 2000 – 10 SCI (EU Habitat Directive)
IBA (B2, B3 – Bird Life International)

© *Krivoklátsko BR*

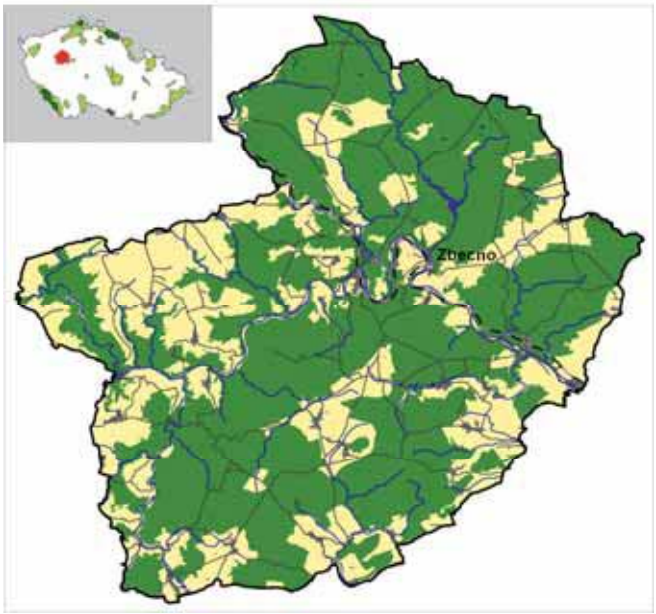
Contact information:
Krivoklatsko Biosphere Reserve and Protected Landscape Area Administration (Sprava CHKO Krivoklatsko), Zbecno 5, 270 24 Zbecno, Czech Republic
Telephone: +420 313 251 810
Fax: +420 313 554 810
e-mail: krivoklatsko@nature.cz
http:// www.krivoklatsko.nature.cz

Ecological characteristics:

Biome: Temperate broad-leaf forests
Elevation: 223 - 616 meters above sea level
Climate: moderately warm and moderately dry region, mean annual temperature/precipitation 8,0°C/530 mm

© *Krivoklátsko BR*

Krivoklatsko is a predeminanthy forested region of the Middle-European highlands, 62% of the total area consists of broad-leaved and mixed coniferous forests, and contains a high species diversity (about 1800 vascular plant species alone and 84 native species of trees and shrubs, etc.). There are several reasons for this high biodiversity. The major feature of the landscape is the Berounka river valley, which creates a network of deeply cut canyons, narrow floodplains, terraces, steep slopes and cliffs. These land forms provide a great variety of habitats for plant and animal life, as well as characterizing the valley phenomenon. The remarkable geological diversity and related differentiation of both the parent rocks and soils also add to the microclimatic factors and eventually to the biodiversity of flora and fauna. Another influencing factor is the historical presence of human settlements in the area and of the associated impacts. The fact that the area constituted hunting grounds for royalty helped to limit the extent of deforestation and human interference. Now the area is a combination of small villages, agricultural land, silvicultural plots and forests.



Czech Republic

Trebon Basin

© PLA Adm. Hátle, RB Trebon Basin

Declaration date: 1977
Surface area: 70.000 ha
Administrative division: The Trebonsko Protected Landscape Area and Biosphere Reserve Administration

Human activities:

The main economic activities of the 26,000 inhabitants of the biosphere reserve (1998) are agriculture, forestry, fish-farming, the extraction of sand, gravel and peat, light industry (timber manufacturing, furniture, construction materials, textile, glass, brewery) and (mainly tourism and spa-treatments) services. The Trebon Basin Biosphere Reserve Administration and the Czech Academy of Sciences' Institute of Botany are key bodies in helping to promote appropriate management - articulating links between local and central government, local communities and resource users, and the scientific and educational communities.
Tourism, recreation, spa, scientific research

Protection classification:

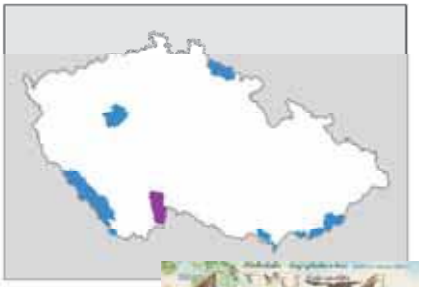
At the national level:
Trebonsko Protected Landscape Area
33 nature reserves and monuments

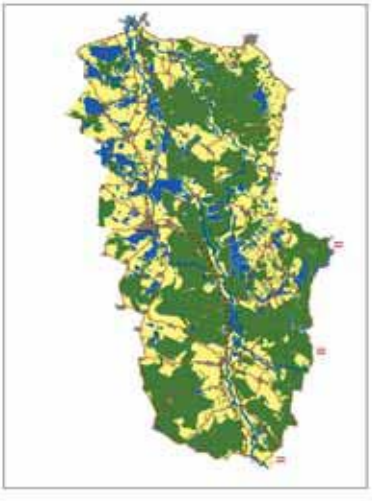
Natura 2000 – SPA (EU Bird Directive)
Natura 2000 – 20 SCI (EU Habitat Directive)
2 Ramsar sites (T. Fishponds, T. Peatlands)

Ecological characteristics:

This biosphere reserve (declared as Protected Landscape Area on the national level, 70,000 hectares) is located largely in the shallow Trebon Basin in South Bohemia near the Austrian border. The region has been modified by human activities for more than eight centuries. This semi-natural landscape comprises 460 artificial fishponds and lakes that were constructed in the 15th and 16th century and now constitutes the center of Czech fish-farming industry. The Trebon fishponds and Trebon peatlands, which are part of the core area of the biosphere reserve, are also listed among wetlands of international importance within the Ramsar Convention (designated 1990 and 1993 respectively). Other habitats of particular conservation value are floodplain swamps, marshes and forests, primeval forests and sand dunes. As described in a synthesis of the Trebon wetlands (2002), species native to both the northern tundra and warm continental lowlands live in close proximity here, as well as species associated with extremely wet and dry biotopes. The biosphere reserve is also classified as European Important Bird Area (IBA), providing suitable habitats and food sources for both nesting and migratory birds (ducks, geese, white-tailed eagle etc.). It is the core area of the Czech otter population.

© PLA Adm. Hátle, RB Trebon Basin





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Czech Republic
Sumava

© *A. Pavlicko, Sumava BR*

Declaration date: 27th March 1990
Surface area: 167.000 ha
Administrative division: South Bohemia, Plzen County

Human activities:

Forestry, Agriculture
Tourism, recreation, ski activities
Extraction of sand, gravel, peat
Scientific research

Protection classification:

At the national level:
Šumava National Park
Šumava Protected Landscape Area
89 nature reserves and monuments

Natura 2000 – 2 SPA (EU Birds Directive)
Boletice (15.12. 2004, 24 km2)
Šumava (8.12. 2004, 97 km2)
Natura 2000 – 23 SCI (EU Habitats Directive)
Ramsar sites (Š. Peatlands, 10,226 km2)

Ecological characteristics:

© *A. Pavlicko, Sumava BR*

Sumava BR is a flat or slightly undulating region near Austrian and Bawarian border that has been modified by human activities for more than 10 centuries. The Sumava Mts. is one of the most extensive forested areas in the Central Europe. Primeval mountain forests, glacial lakes, peat bogs, revers and canyons are the main landscape values even though the area has been inhabited by man for centuries. Forests cover approx. 65 % of the total area of the biosphere reserve (flowering and acidiphilous beech forests, mountain spruce forests..); the proportion within the Šumava / Bohemian Forest National Park is even higher (83.8 %). Peat-bogs are another important natural element. There are extensive plains at the approx. altitude of 1,000 m a.s.l. in the Šumava Mts. Large areas of them are used as meadows or pastures. Among wild animals, the Northern Birch Mouse should be mentioned. Recently, the Eurasian Lynx was successfully reintroduced there. Wild birds include both the Capercaillie and Black Grouse. In the spring area of the Blanice River, the most important site for the River Pearl Mussel in the Czech Republic can be found.

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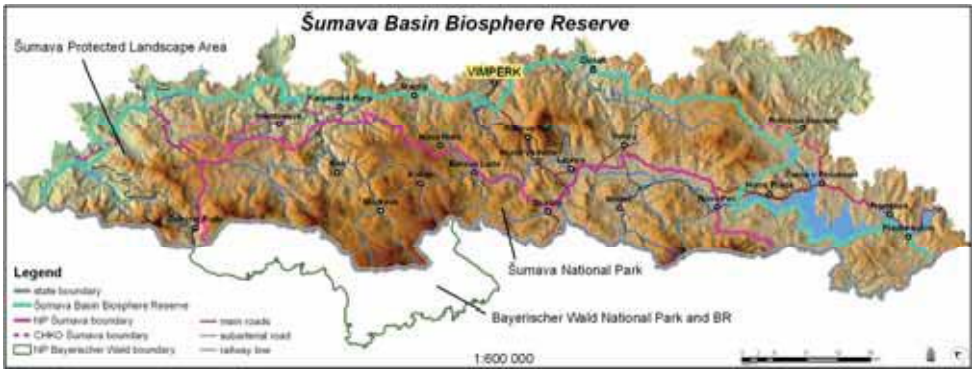

© *A. Pavlicko, Sumava BR*

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Czech Republic

Bílé Karpaty

© *J.W. Jongepier, Bílé Karpaty BR*

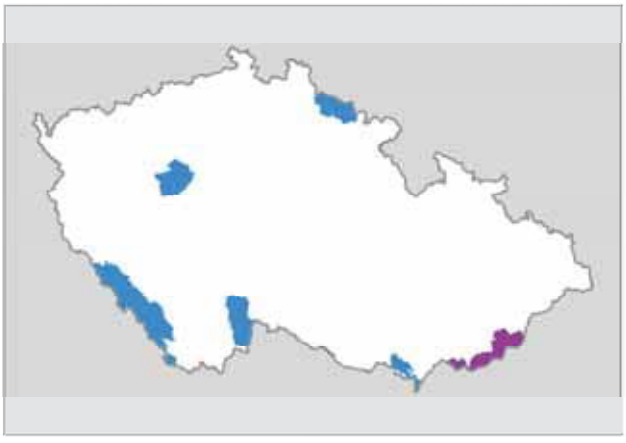
Declaration date: 15th April 1996
Surface area: 71.500 ha
Administrative division: South-east Moravia

Human activities:

Agriculture
Forestry
Hunting
Small industries
Scientific research
Recreation, tourism
Collecting herbs and mushrooms

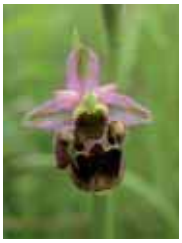
Protection classification:

Protected Landscape Area (1980)
European Diploma of Protected Areas (2000)
Natura 2000 - 13 SCI (EU Habitat Directive)
52 nature reserves



Ecological characteristics:

Biome: temperate broad-leaved forests
Elevation above sea level: 175–970 m
Climate: moderately warm and dry (SW) to moderately cool and wet (NE and higher elevations), annual temperature 6.8–8.9 °C, annual precipitation 553–901 mm



© *J.W. Jongepier, Bílé Karpaty BR*

The Bílé Karpaty (White Carpathians) BR is a low-mountainous area stretching out along the border between the Czech Republic and Slovakia. The area is particularly valuable for its species-rich grasslands, which cover over 4000 ha. They host many orchids and other rare plant species, and attract a large number of insects. Its high level of biodiversity is ascribed to its position, enabling a blending of Carpathian and Pannonian species, in combination with long-term sustainable grassland management by the local people. Meadow orchards are a significant part of the landscape and its biodiversity. They host a wide range of different old and local fruit cultivars. Other important habitats are old-growth beech forests and oak-hornbeam forests.
The area is rich in traditions and living folklore.

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Czech Republic

Lower Morava

© J. Slama, RB Lower Morava

Declaration date: 1986, extension 2003
Surface area: 24.240 ha
Administrative division: Lower Morava Biosphere Reserve Public Benefit Corporation (Biosfericka rezervace Dolni Morava, o.p.s.)

Human activities:

Agriculture, wine production, fish-farming, forestry, small scale industry and services, tourism & recreation.

Protection classification:

About 20,000 people live mostly in the transition area of the biosphere reserve (2003). They are mainly engaged in agriculture and small-scale industry. Tourism has increasingly become an alternative source of income. The Lednice-Valtice Cultural Landscape World Heritage Site (1996) lies in the transition area. There are two Ramsar Sites in the Biosphere Reserve: Lednice fishponds (1990) and Flood Plain of the Lower Dyje River (1993).
Landscape World Heritage Site.

© P. Cupa,RB Lower Morava

Ecological characteristics:

Situated in South Moravia, about 35 km south of Brno and next to the Austrian and Slovak borders. The Pavlov hills consisting of limestone cliffs and steep slopes, covered with steppes, forests and grasslands, are the dominant landscape features, however a considerable part has also been transformed into arable land and vineyards. The northeastern part of the biosphere reserve is situated in the flat alluvium of the Dyje River which is now mostly converted into agricultural land with some remnants of floodplain meadows and forests. The southern and eastern parts are characterised by arable land. The largest mid-European area of hard-wood alluvial forests and continental flood-plain meadows (some 8000ha) is preserved in the triangle between the town of Bureclav, the village of Tynec and the confluence of the Morava and Dyje Rivers. The central part of the Biosphere Reserve is made up of a depression occupied by fishponds (shallow, artificial lakes). The core area is identical with zone 1 of the "Protected Landscape Area Pálava" and smaller protected areas outside this. The buffer zone consists of zone 2 of the "Protected Landscape Area Pálava" and mainly forested areas outside. The transition area composes zones 3 and 4 of the "Protected Landscape Area Pálava" and mainly agricultural land outside.

© M. Polachova, RB Lower Morava

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Denmark
North-East Greenland

Declaration date: 1977
Surface area: 97.200.000 ha
Administrative division: The National Park Administration in North-East Greenland

Human activities:

There is a permanent research station (Zackenberg), with a field season from late May to early September. Long time series of background ecosystem data is being generated through a long-term monitoring programme, called Zackenberg Basic. The biosphere reserve is part of the International Tundra Experiment (ITEX), which was initiated within the framework of the MAB Northern Sciences Network in 1990. It is a contributing research site to observe and measure responses of selected arctic plants to changing environmental conditions, such as temperature or duration of snow cover.

Ecological characteristics:

Situated in north-east Greenland, this biosphere reserve is the largest biosphere reserve in the world, covering 97,200,000 hectares. There is no permanent settlement in the biosphere reserve, since most of the area is inland ice and the rest is a composite fjord landscape. Many bird species are breeding in the summer within the biosphere reserve, which also includes two Ramsar sites.

Tundra and high mountain vegetation including willow (*Salix arctica*), dwarf birch (*Betula nana*), crowberry (*Emptetrum* sp.) etc.; shore and marsh communities; grassland; heathland; freshwater communities.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Estonia

West Estonian Archipelago

© *West Estonian Archipelago BR*

Declaration date: January 1990
Surface area: 1.560.000 ha (including sea areas)
Administrative division: Counties of Hiiumaa, Saaremaa and Läänemaa

Human activities:

population about 43000. Main activities food industry (fishing industry, dairy industry, bakery); forestry and timber industry; plastic industry; electronics industry; trade; transportation; tourism

Protection classification:

the biosphere reserve has no special legal status in Estonia. The core areas of the biosphere reserve belong to the legal system of protected nature areas.

© *West Estonian Archipelago BR*

Contact information:

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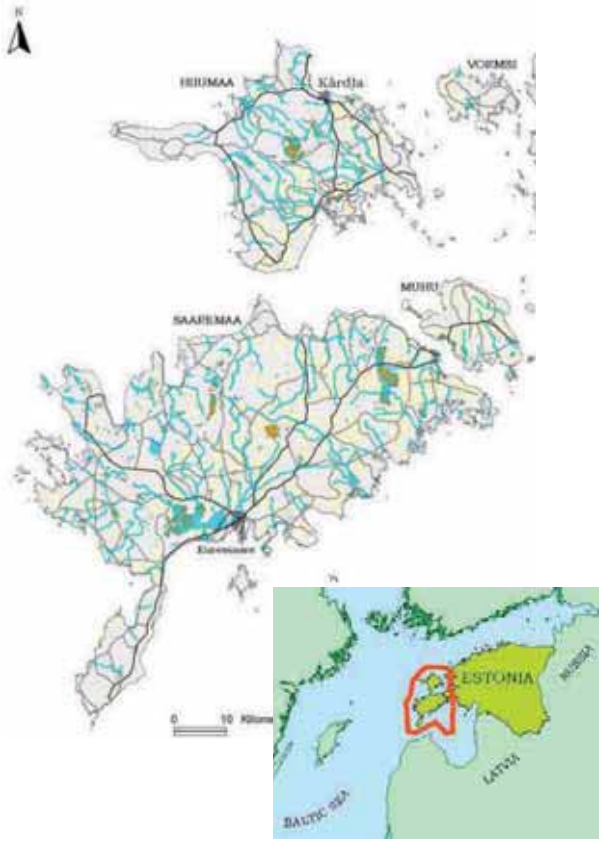
Ecological characteristics:

The West Estonian Archipelago is located in the southern part of the Boreal forest zone of the Northern hemisphere, where the south-taiga forest subzone changes into spruce-hardwood subzone. Phytogeographically, Estonia belongs to the Euro-Siberian region of the Holarctic realm. First and foremost the archipelago represents the ecosystems that have been formed on the coastal formations of different developmental phases of the Baltic Sea in the last ten thousand years. The distinctive features and diversity of nature in the West Estonian islands is mainly influenced by the geographical position, young age of the area, lime-richness of soils and centuries of human activity. Long coastal line where we can find both low and dune beaches, low bays with small islets and holms and thousands of years of land use has formed the structure of the islands` forests, meadows, arable land and pastures, the result of which is a mosaic landscape and diverse nature of the islands. Terrestrial habitats contain pine forests, mixed spruce and deciduous woodlands, juniper and coastal meadows, swamps and peat bogs. The alvar forests (spruce, pine or birch forest on limestone plains with thin soils) are of particular interest. Parts of the area are designated as wetlands considered important according to Ramsar specifications. Valuable ecosystems consist of the shallows of the Baltic sea , islets, lagoons, Grasslands (coastal, alvar, alluvial or marshy), woodlands and wooded meadows.



Finland
North Karelian

Declaration date: 1992
Surface area: 350.000 ha
Administrative division: Provincial Administration under the Ministry of the Environment

Human activities:

The biosphere reserve offers to the local people a channel to participate in the local economic development of the area and village meetings enhance the cooperation between local communities, administration and researchers. The biosphere reserve offers to the local people a channel to participate in the local economic development of the area and village meetings enhance the cooperation between local communities, administration and researchers.

Ecological characteristics:

Situated north-east of Joensuu at the border to Russia, this biosphere reserve encompasses a generally flat landscape with some forested moraine hills (so called 'vaara'), glacio-fluvial formations, mires, peat lands and lakes. Coniferous forest, which occurs throughout the region, can be divided into dry and moist heath forest. The whole region is only sparsely populated with about 2,320 people living in the transition area of the biosphere reserve (1991). Forestry and agriculture are the most important sources of income in this rural area, however also hunting activities, the exploitation of mires, fishing and gathering berries and mushrooms are common and economically significant. Projects in rural waste management and recycling, collecting and processing of wild and cultivated berries and herbs, and using cattle in landscape management have been initiated. In addition, basic data have been gathered for a comprehensive development programme of the area.

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timo.hokkanen@environment.fi

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Finland
Archipelago Sea Area

© J. Gröning

Date of declaration: 1994
Surface area: 420.000 ha
Administrative Divisions: In the municipalities of Houtskär, Nagu, Korpo and Dragsfjärd in the Province of Varsinais- Suomi

Human activities:

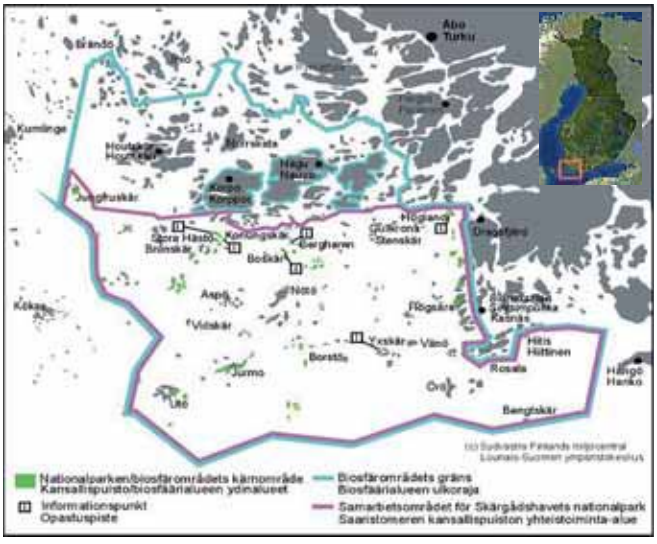
The history of the Archipelago Sea starts around 4500 BC when the first land-areas rose from the sea after the ice age. The coastline still rises 4-5 mm annually. The coexistence between man and nature has formed the archipelago environment as man has settled new areas. As professional fishing decreased and people moved to larger cities and Sweden for work the population of the archipelago started to decrease. Now there are about 1100 people living inside the BR. However, the population is multiplied during the summer. Summer and seasonal inhabitants are spending more time in the archipelago due to more flexible working arrangements. The role of tourism as an additional income is increasing. Depopulation has lead to a strong decrease in the number of grazing animals. This has caused many grazing islands to become overgrown. The Archipelago National Park restores and conserves these biologically and culturally valuable traditional rural landscapes. One of the biggest threats to the environment is eutrophication of the Archipelago sea.

© J. Tobiasson

Ecological characteristics:

© J. Gröning

If the number of endangered plant and animal species is used as a measure, the Archipelago Sea is the internationally most valuable area in Finland. The small-scaled archipelago consists of 41 000 islands and islets. Most of the islands in the outer archipelago are treeless. The geology consists mostly of bed-rock. The major land ecosystem types are woodland and broad-leaf forests. The traditional rural landscape that is still found in the area consists of grazed natural meadows like wood meadow, field, heat and rocky meadow. These are highly important ecosystems for many endangered species. The Baltic Sea has brackish water, with a salinity of only 0,6 %. Rather few species have adapted to this brackish environment, but the high number of individuals witnesses of a lively marine life. The fish species represent both saline and fresh water species. On some islands the vegetation is very rich because of the calcareous soil. On these islands there are also many rare plants. The Archipelago Sea is also an internationally valuable area for migratory birds. Of marine mammals there are a few thousand Grey Seals and less than 200 Ringed Seals.



Protection classification:

National Park and smaller areas protected by other programs

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France

Commune de Fakarava

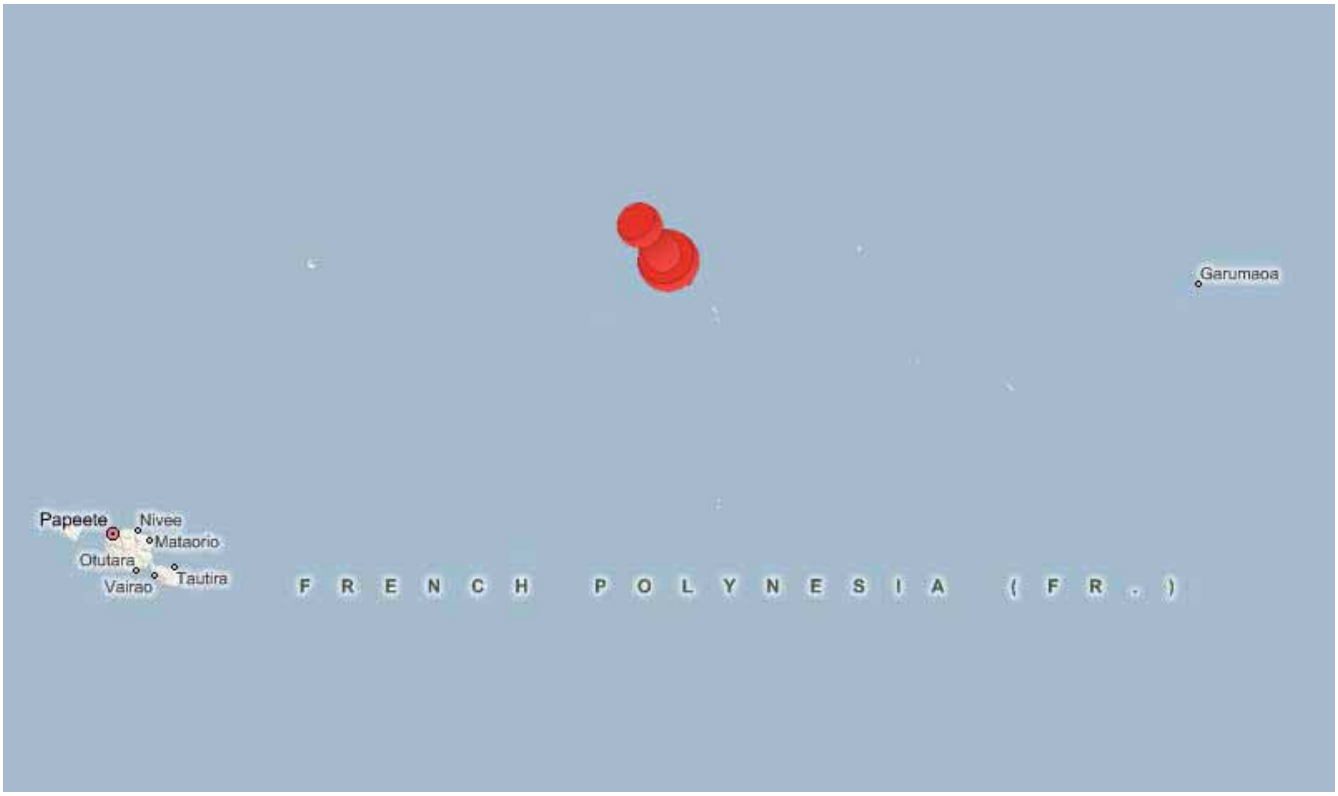
Declaration date: 1977
Surface area: 930 ha
Administrative division: Délégation à l'Environnement Ministère de l'Environnement, Papete French Polynesia

Human activities:

The number of visitors to this area is quite low due to the geographical isolation and lack of infrastructure in the area. Tourist activities include diving, camping, hiking, sailing, watersking, fishing and hunting.

Ecological characteristics:

This biosphere reserve is situated in the Tuamotu Archipelago some 540 km north-east of Tahiti. Taiaro is an atoll, a ring-shaped island built up on an ancient volcano that has sunk into the ocean due to the drift of the Pacific Ocean floor. Taiaro is only visible because of the rim of coral that forms a barrier reef 5 km in diameter around the original volcano. Unlike the other 420 atolls listed throughout the world, the inner lagoon is completely closed and therefore has exceptional characteristics, as yet little studied.



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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

France
Vallée du Fango

© *M. Ricaud*

Declaration date: 1977
Surface area: 23.500 ha
Administrative division: Parc National Régional de Corse (Charte du PNRC) + Comité d'aide a la gestion (3 communes, ONF, Association APEEM)

Human activities:

Human activity is modest with 435 inhabitants scattered through the various hamlets of the communities of Galéria, Manso and Calenzana (1990). The economy is mainly based on livestock and tourism (12,000 visitors in the 1992 season) and is concentrated on the coast and the banks of the Fango. The management of scarce freshwater resources in the area is one of the main challenges in the biosphere reserve. The 'Casa Marina' is used since 1994 to house various environmental education activities. Research has been carried out since 1970 on biological and socio-economic issues.

Ecological characteristics:

© *M. Ricaud*

Located in the north-west of Corsica, this biosphere reserve follows the limits of the Fango Valley watershed. The Fango River is a mountain torrent that flows into the Gulf of Galéria in Corsica. The biosphere reserve rises from the level of the Mediterranean sea up to an altitude of 2,556 meters above sea level. The different altitude zones are clearly represented in the strongly characteristic Mediterranean-type valley with evergreen broadleaf forest and Mediterranean maquis. The mouth of the Fango River is a biologically rich mosaic noted particularly for its bird life, amphibians and reptiles. The holm oak groves of the Fango are ancient stands where the evergreen oak still dominate. The steep rocky landscapes of the high valley are home to the Corsican mouflon, the bearded vulture or lamergeier and the golden eagle.

© *P. Lepaulmier*

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

France
Camargue (delta du Rhône)

© Camargue (delta du Rhône) BR

Declaration date: 1977
Surface area: 13.117 ha
Administrative division: SNPN (association gestionnaire de la reserve naturelle)

Human activities:

About 50 people live permanently within the biosphere reserve. However, the number rises up to 80,500 in the summer (1997) making tourism one of the main management issues. People in the region are mainly engaged in the tourism industry and services, agriculture, salt extraction and fisheries.

Ecological characteristics:

© Camargue (delta du Rhône) BR

Situated in the delta of the Rhône River on the French Mediterranean coast, the Camargue Biosphere Reserve is made up of a mosaic of lagoons and represents one of the most important wetlands in Europe. Located between river and sea but also between Europe and Africa, the exceptional biological richness of the reserve is illustrated by the 272 species of birds found here. The area is also designated as a wetland of international importance under the Ramsar Convention. Other habitats include freshwater and saline marshes, freshwater and saline ponds, halophilous steppes and grasslands with glasswort (Salicornia spp., locally called 'sansouires'), beaches, dunes and woods.

Wetlands; saline steppes; beaches; sand dune systems; humid depressions between sand dunes; lagoons; floating or submerged vegetation; Mediterranean xerophyllic grasslands; Mediterranean gallery forest with Salix alba and Populus alba; Carex communities; agroecosystems.

© Camargue (delta du Rhône) BR

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

France
Cévennes

© *Cévennes BR*

Declaration date: 1984
Surface area: 323.000 ha
Administrative division: Parc National des Cévennes

Human activities:

This vast territory has one of the lowest population densities in France (40,600 inhabitants in 1998). However, about 800,000 tourists annually visit this rural region (1998). A rich network of ecomuseums and visitor centers provides environmental education to tourists. Apart from tourism, agriculture and mining are the main economic activities.

Ecological characteristics:

© *Cévennes BR*

Located in the south of the Massif Central, the Cévennes Biosphere Reserve and National Park encompasses some very different landscapes such as the limestone 'causses', the granite massifs of Aigoual and of Mont Lozère and the schist mountains of the Cévennes. The geology of the area and the presence of man since the Neolithic have led to the current biological richness. Habitats include beech, oak, pine and fir forests, Mediterranean scrublands, high altitude grasslands, rivers and peat lands. The great diversity of the Cévennes is dependent on human activity. The decline in agricultural activities has reduced the grazing pressure, with the result that many previously open areas and grasslands are being invaded by ligneous plants. This is the reason why the biosphere reserve aims in particular to support rural activities such as setting up maintenance contracts for farmers, providing grants for the restoration of farm buildings, maintaining old breeds (Aubrac cattle, Raïole sheep), labeling meet products, restoring long-abandoned chestnut groves and managing hunting and forestry. This biosphere reserve is twinned with the Montseny Biosphere Reserve in the Catalonian region of northeastern Spain and cooperates closely in research, training and education activities.

© *Cévennes BR*

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Web site: www.bsi.fr/pnc/

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

France
Iroise

Declaration date: 1988
Surface area: 20.613 ha
Administrative division: Syndicat mixte du Parc Naturel Régional d'Armorique (collectivité territoriale) Bretagne Vivante SEPNB

Human activities:

Daily tourism is a significant element of the local economy, providing the basis for commercial activities on the islands. However, also fishing activities remain important. Numerous educational and training activities are carried out in the biosphere reserve, such as guided visits for school classes, exhibits, public information meetings and internships.

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Ecological characteristics:

Iroise Biosphere Reserve, located on the coast of Brittany, comprises small rocky marine islands and islets and open marine areas to a depth of -20 meters with strong currents and a high tidal range. It is of significance from a biodiversity point of view since it encompasses a variety of habitats e.g. for more than 300 species of seaweed, large sea bird colonies and populations of basking shark (*Cetorhinus maximus*) and grey seal (*Halichoerus grypus*). The Isle of Ouessant reaches no higher than 60 meters in altitude and its landscape is one of meadows grazed by sheep and criss-crossed with stone walls and numerous hamlets.

Islands; marine waters and sandy bottoms; marine algae communities dominated by Fucus spiralis, F. vesiculosus and Laminaria digitata; gravel, rocks and rocky bottoms (*Zostera* seagrass beds, *Laminaria* and kelp seaweed communities); sandy beaches; pebble beach communities with *Beta maritima* and *Crambe maritima*; rocky coasts and islets; coastal marshlands; coastal grasslands; dry moorlands; enriched pasturelands; scrublands (ferns, willows); mesotrophic backwaters.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

France
Mont Ventoux

Date of declaration: 1990
Surface area: 85.000 ha
Administrative division: Provence, Vaucluse

Human activities:
Marked by an ancient rural civilization, the Mont Ventoux Biosphere Reserve provides a vast historic, religious, architectural, artistic and linguistic heritage. The archaeological heritage is rich and diverse with bones, flint and polished stone tools and utensils and pottery from Gallo-Roman times.
At present human activities are still of a traditional nature, with agriculture (vine-growing, stock-raising, aromatic plants) occupying an important place in local socio-economic life.
The Biosphere Reserve is also aiming at nature tourism (ecotourism) and discovery of the cultural heritage.

Contact information:

M. Ken REYNA
Réserve de biosphère du Mont Ventoux
830 Av du mont Ventoux
84.200 CARPENTRAS
France
Tel 04 90 63 22 74
Fax 04 90 67 09 07
Mail: ventoux.biosphere@smaemv.fr

Ecological characteristics:

In the heart of the calcareous Provence, at the crossroads of the Alps, the Massif Central and the Rhone Valley, the Mont Ventoux Biosphere Reserve is truly a natural and cultural synopsis of the Alps to the Mediterranean.
This isolated mountain is a centre of passage and contact, with its peak at 1,912 m harbouring a curious phenomenon of biological "telescoping." The natural habitats and species of Mediterranean and Alpine origin are found side by side in a paradoxical and original fashion. This enormous biodiversity gives rise to extremely important challenges to nature conservation.
Over 1200 species of flora have been identified in the Biosphere Reserve, some of which are endemic to Ventoux (*Acis fabrei, Silene petrarchae),* over 1,400 species of butterflies (30% of the species found in France). Over 120 species of nesting birds (Golden Eagle, Peregrine Hawk, Sardinian Warbler, Boreal or Tengmalm's Owl...). Following reintroduction and strengthening of the population, large fauna can also to be found, such as the Chamois, Red Deer, Mouflon, Roe Deer …).

France
Archipel de la Guadeloupe

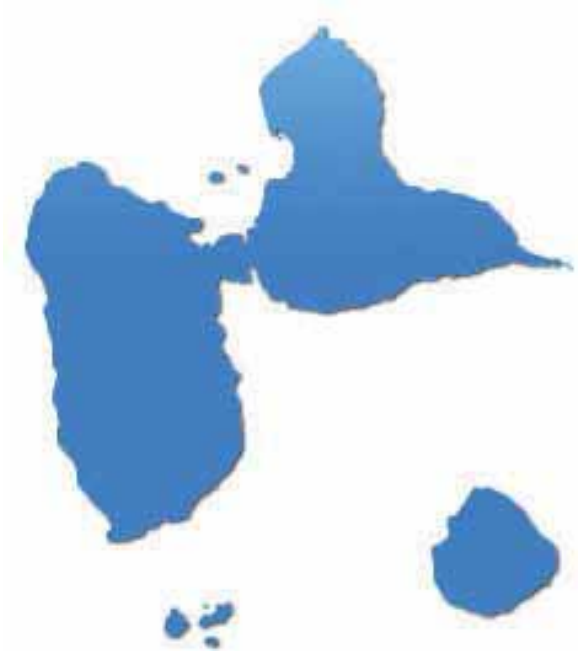
Declaration date: 1992
Surface area: 69.707 ha
Administrative division: Parc national de la Guadeloupe

Human activities:

Some 225,500 inhabitants live permanently in the biosphere reserve and there are about 20,000 visitors per year only to the marine part of the area (2000). Threats to the biosphere reserve are hurricanes, tourism, anchorage on coral reefs, deforestation and water pollution. A management plan was implemented in 1998 with the objectives to maintain biodiversity and good water quality.

Ecological characteristics:

Situated on Guadeloupe Island in the Caribbean Sea, this biosphere reserve comprises two geographically separate sites. Basse-Terre comprises a tropical forest, located in the west of the island and watched over by the still active volcano of La Soufrière (1,467 meters above sea level). The tropical forest, which is completely uninhabited, is home to over 300 species of trees and bushes, in spite of the presence of man who, for centuries, has decimated numerous species. Grand-Cul-de-Sac Marin, a vast bay of 15,000 hectares between Basse-Terre and Grande-Terre includes coral reefs, mud flats, sea-grass bed and mangrove forests, freshwater swamps forests and marshes. In the lagoon, sea-floor 'meadows' provide habitat to turtles and teem with fish. Giant sponges and soft corals, urchins and fish are abundant. The mangrove hosts many sedentary and migratory birds (pelicans, terns, moorhens, ducks, herons and kingfishers). Parts of the biosphere reserve also comprise a Ramsar site, designated in 1993. The transition areas of the biosphere reserve include numerous small towns and villages with many tourist facilities.



Contact information:

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Réserve de biosphère de l'Archipel de Guadeloupe
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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

France
Luberon

© *Luberon BR*

Declaration date: 1997
Surface area: 179.600 ha
Administrative division: Parc Naturel Régional de Luberon

Human activities:

About 150,000 people live in the biosphere reserve (1997). Much effort has been made to safeguard Luberon's heritage and maintain agricultural activities. Tourism plays a major role in the local economy and efforts are made to promote ecotourism backed up by environmental education and public information. Research focuses on the fauna and flora, resulting in detailed inventories of genetic resources.

Ecological characteristics:

This biosphere reserve is situated contiguous to the Mont Ventoux Biosphere Reserve to the north. It consists of two mid-altitude mountain chains, the Luberon and the Vaucluse. The long history of human settlement has created a human-modified landscape and a mosaic of habitats and biotopes with a rich biodiversity. The cultural heritage dates from prehistoric times and is also very rich, with numerous classified monuments, ancient towns and ancient villages, houses, manors, fountains and chapels, all blended into the landscape. However, traditional methods of land use that created this landscape have essentially been abandoned, with profound effects on the fauna and flora. 'Areas of major biological value' have been identified and protected: these include holm oak forests (*Quercus ilex*), Montpellier pine oak forests (*Pinus halepensis*), beech groves, garrigues, dry grasslands and riverine woodlands.

© *Luberon BR*

© *Luberon BR*

Contact information:

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

France
Pays de Fontainebleau

© G. Larègle

Declaration date: 1998
Surface area: 307.370 ha
Administrative division: Office national des Forêts Direction du Parc naturel régional du Gâtinais

Human activities: Since the 10th century, the forest has been a royal domain and the Chateau de Fontainebleau was built at the beginning of the 16th century by Francois I. The forest has been studied by well known naturalists (Linné, Jussieu and Buffon) since the 17th century and painters were also attracted to the forest (e.g Millet, Rousseau, Corot), and created the Barbizon school in the 19th century. Due to its proximity to the capital, the area receives exceptionally high number of visitors, which is a major management concern.

Ecological characteristics:

© R. Larchant

Located in the Ile de France region, some 70 km south-east of Paris, this biosphere reserve is composed of temperate deciduous forest (mainly oak, Scots pine and beech), heathlands, open rock areas and several wetlands. The forest lies upon an ancient marine sand-bank which is occasionally overlaid by sandstone. The sandbank lies on a layer of Brie limestone and green marl, where springs arise. The soils within the forest area are highly diverse, which also is one explanation for the high plant diversity, as more than 5,800 plant species have been identified so far. The biosphere reserve contains two habitats of community interest listed in the European Union's Habitats, Flora and Fauna Directive: Northern Atlantic wet heaths with Erica tetralix, and forests of slopes, screes and ravines (Polystico-Corylenion). These are included in the 20 core areas of 3,874 hectares. The core and the buffer zones correspond to the administrative unit of the Forest of Fontainebleau, managed by the Office National des Forêts. The transition area lies essentially in the Parc naturel régional du Gâtinais français but also includes villages and towns with a total of 60,000 inhabitants, including the town of Fontainebleau (1998).

© G. Vallée

Contact information:
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biosphere-fontainebleau-gatinaisfrancais@mab-france.org
www.mab-france.org/fr/reserves/C_fontainebleau.html

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Germany
Flusslandschaft Elbe

© *Flusslandschaft Elbe BR*

Declaration date: 1979, extension 1997
Surface Area: 342.847 ha
Administrative division: Federal states: Sachsen-Anhalt (BR Mittelel-be), Brandenburg (BR Flusslandschaft Elbe – Brandenburg), Mecklenburg-Vorpommern (Na-turpark Mecklenburgisches Elbetal), Nieder-sachsen (BR Niedersächsische Elbtalaue), Schleswig-Holstein

Human acitivities:

Agriculture, Forestry, Hunting, Fishing Recrea-tion and Tourism, Culture, Business and Trade

Protection classifications:

Protection classifications: Nature reserves, Nature parc, Protected Landscape, Biosphere reserve (due to German national legislation), NATURA 2000 sites World Heritage Side "Garden Kingdom of Dessau-Wörlitz ".

Contact information:

Contact information Länder-Arbeitsgemeinschaft UNESCO Biosphärenreservat Flusslandschaft Elbe c/o Norbert Burget Niedersächsisches Umweltministerium Archivstr. 2, D-30169 Hannover
norbert.burget@mu.niedersachsen.de
www.mittelelbe.com
www.grossschutzgebiete.brandenburg.de
www.elbtalaue.niedersachsen.de
www.elbetal-mv.de

Ecological characteristics:

© *Flusslandschaft Elbe BR*

Mid European floodplain landscape covering a stretch of about 400 km of River Elbe from SE- to NW-German lowlands. - Largest floodplain forests in central Europe added by several residual riparian woodlands - Wetlands, flooded water meadows and mires - Extensively used grassland (meadows, pas- tures) rich in plant species - Open dunes and nutrient poor pine forest stands - old river arms and ponds providing rare habitats for endangered fish species as well as amphibians. - traditional habitat of expanding Elbe beaver population - important resting and wintering sites for swans and geese from the North.

Germany
Vessertal-Thüringen Forest

© *Vessertal-Thüringen Forest BR*

Declaration date: 1979
Surface area: 17.098 ha
Adminstrative division: Thuringia

Human acitivities:

© *Vessertal-Thüringen Forest BR*

- Settlement : Schmiedefeld am Rennsteig, Frauenwald and Vesser, and parts of Schleusinger-neundorf, lie within the transition area (4.200 Inhabitants)
- Tourism: Hiking, Horse-back-riding, Winter sports (cross-country skiing, down-hill skiing, ski-jumping)
- Forestry: systematic imple-mentation of principles for managing semi-natural forests.

Protection classifications:

Biosphere Reserve

Part of the Natura 2000 coherent ecological network
FFH area
European Bird Protection area

Contact information:

Vessertal-Thuringian Forest Biosphere Reserve
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E-Mail: poststelle.vessertal@br-np.thueringen.de
www.biosphaerenreservat-vessertal.de

Ecological characteristics:

Climate
Atlantic-influenced, moderate, cool-moist central mountain climate with heavy snowfall
Annual average temperature ranges between 4 °C - 7 °C (depending on elevation)

© *Vessertal-Thüringen Forest BR*

Geology, geomorphology
is located in the central region of the Thuringian Forest
includes parts of two geological features of the region: the Thurin-gian Forest proper and the Thurin-gian schist mountains
mountain range is cut by nume-rous valleys, and it slopes evenly from the ridge to 475 m, on its northern side, and to 420 m, on its southern side
peaks include Großer Beerberg (982 m), the Thuringian Forest's highest mountain, Schneekopf (978 m), Finster-berg (944 m)

Habitats
Acidic-soil mountain spruce forests of montaneous and high-montaneous categories
Silicate spring fields, soft-water streams and stream-bank communities of crystalliferous mountains

Biosphärenreservat Vessertal-Thüringer Wald

Germany
Berchtesgaden Alps

© *Berchtesgaden Alps BR*

Declaration date: 1990
Surface area: 54.000 ha
Administrative Divisions: Government of Upper Bavaria

Human acitivities:

About 32,000 people live in the biosphere reserve (1998), who depends mostly on tourism and visitors of a health resort with mineral springs. Small-scale agriculture gives the landscape its characteristical features.

- tourism
- agriculture (mostly dairy farming by smallholders)
- forestry
- salt mining

Protection classifications:

core area und buffer zone are
coextensive with the National Park
Berchtesgaden (= 210 km2)

Ecological characteristics:

This German biosphere reserve is located in the Berchtesgaden Alps (150 km south-east of Munich at the border to Austria) which belong to the northern limestone Alps. It is the only alpine biosphere reserve in Germany with an elevation up to 2,700 meters above sea level. However, the transition zone is situated in low elevated areas (about 500 meters above sea level) in the north of the mountain ranges. Therefore, the biosphere reserve encompasses submontane, montane and subalpine forests and alpine meadows. The core area and buffer zone are identical with the Berchtesgaden National Park with the famous lake Königssee.

- broad range of natural habitats of the northern
- limestone alps
- alpine pastures having their origin in transhumance

© *Berchtesgaden Alps BR*

Contact information:

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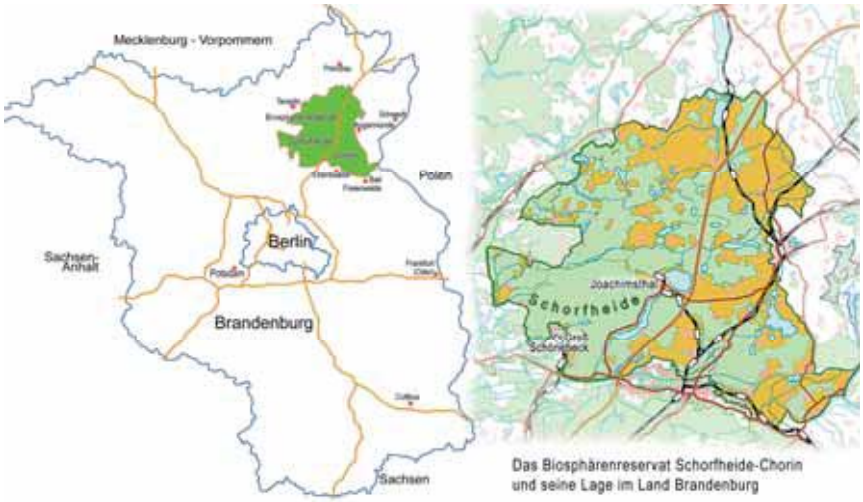
Germany
Schorfheide-Chorin

Declaration date: 12.09.1990
Surface area: 129.161 ha
Administrative division: Germany, federal state Brandenburg, districts Uckermark

Human Activities:
Low density of settlements (32.000 residents), sources of income are:
- Agriculture (38% of the area)
- Organic agriculture (28% of arable land)
- Forestry on 48 % of the area,
- Fishery,
- Bee-keeping,
- Horticulture,
- Hand-craft, sustainable tourism

Protection classifications:
At the national level
Protected in total as a landscape protected area, zoned into three levels:
Zone I : core zone(nature protected area)
Zone II: buffer zone (nature protected area)
Zone III : transition zone (Landscape protected area)

Ecological characteristics:
The last ice-age ended 15.000 years ago and shaped a multifaceted landscape with a wide variety of formations: Large scaled Pleistocene young moraine landscape, Full range of all formations of the last ice age, like Valley sands: groundwater sander, bogs ground and end-moraines in round topped and flat forms, dunes, kames, drumlins, Spillways, bogs, sands, river-meadows and flood plains outwash areas, approx. 240 lakes with a surface larger than 1 hectare, Extraordinary wealth of endangered and rare species: bald eagle, osprey, lesser spotted eagle as breeding species European swamp turtle, black and white stork, common crane, fish otter, beaver, rare insects like beetles and several kinds of dragon-flies, Various amphibians like tree frog or red-bellied toad, Rare plants, several orchids, mosses, lichens, mushrooms, Extended beech-forests, numerous bogs and swamps.



Das Biosphärenreservat Schorfheide-Chorin und seine Lage im Land Brandenburg

Contact information:
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www.schorfheide-chorin.de

Germany

Wadden Sea and Hallig Islands of Schleswig-Holstein

© Wadden Sea and Hallig Islands of Schleswig-Holstein BR

Declaration date: 1990
Surface area: 443.100 ha
Administrative Divisions: State Office for the National Park Schleswig- Holstein Wadden Sea

Ecological characteristics:

The biosphere reserve is situated on the German North Sea coast of the state of Schleswig-Holstein between the Danish border in the north and the river Elbe in the south. The wetland is part of two counties; Nordfriesland in the North with its capital town Husum and Dithmarschen in the south with its capital town Heide. It lies about 80-160 km northwest of the city of Hamburg. The Wadden Sea is a natural ecosystem complex of tidal flats, tidal channels, sandbars, salt-marshes and islands. The low-lying salt-marsh islands, called "Halligen", are unique to the region. The Wadden Sea is the transition zone between purely marine and terrestrial ecosystems. The area is a nursery ground for the Harbour Porpoise and many North Sea fish species. It is of international importance as a resting, feeding and breeding area for seals and as a roosting, feeding, breeding and moulting site for birds. It is an essential stepping stone for millions of waterfowl on the East-Atlantic flyway. It accommodates more than 2000 indigenous invertebrate species, many of them endemic.

Human acitivities:

- shrimp and blue mussel fisheries
- sheep and cattle grazing
- tourism and recreation
- coastal protection
- shipping and passenger traffic
- oil exploitation
- gravel and sand extraction
- ballistic tests

© Wadden Sea and Hallig Islands of Schleswig-Holstein BR

Protection classifications:

- National Park
- MAB Reserve
- Ramsar Area
- SPA (Special Protection Area / EU – Bird Directive)
- SCA (Special Area of Conservation /EU – Habitat Directive)
- PSSA (Particularly Sensitive Sea Area)

Biosphärenreservat
Schleswig-Holsteinisches
Wattenmeer und Halligen

Contact information:

Schleswig-Holstein Agency for Coastal Protection,
National Park and Marine Conservation
Kirsten Boley-Fleet
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Mail: kirsten.boley-fleet@lkn.landsh.de
www.wattenmeer-nationalpark.de

Germany
Rhön

© *Rhön BR*

Declaration date: 1991
Surface area: 184.939 ha
Administrative division: Administrative division: Germany; Geographical Position: Meeting point of three states (Länder) Bavaria, Hesse & Thuringia

Human activities:

Extensive agriculture, tourism, forestry, jobs by services and handicrafts.

Protection classifications:

At the national level:
Biosphere Reserve

© *Rhön BR*

Ecological characteristics:

Around central basalt highlands (High Rhön) peak of single, forested cone-shaped mountaintops, transition to the Swabian-Franconian stratified land (South Rhön); heights from approx. 230 to 950 m above sea level; agricultural use with the emphasis on grassland management in the higher positions, connected with hedges and forests; woodland proportion approx. 42 %. The forests in the Rhön are semi-natural and species-rich mixed mountainous forests around the upper mottled sandstone and the upper shell limestone and primarily arable, sometimes even in the upper shell limestone; chalk oligotrophic grassland on the steep slopes of the lower shell limestone as a result of sheep grazing, especially in Thuringia.

Contact information:

Thuringia: Biosphärenreservat Rhön/Verwaltung Thüringen
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Hesse: Hessische Verwaltungsstelle Biosphärenreservat Rhön
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Germany
Rügen

© *Rügen BR*

Declaration date: 1991; april 11th
Surface area: 47.500 ha
Administrative division: state of Brandenburg

Human acitivities:

Tourism, agriculture, fishery

Protection classifications:

At the national level
Core Zones are nature protected area/total reserve
Buffers are nature protected area
Transition zones are landscape protected area
Core and buffer are FFH-site
whole reserve is SPA-site

Ecological characteristics:

The biosphere reserve is situated in the south-eastern part of Rügen, Germany's biggest island. Within its 22,900 hectares, almost all coastal forms of the southern Baltic Sea can be found. The whole landscape was formed by the glaciers of the last glacial period which expired nearly 10.000 years ago. Today the biosphere reserve includes areas of ground and terminal moraine hills deposited after the last glacial period and Holocene depositional features such as sand bars. The inland waters are shallow, interrupted by peninsulas, small islands and hooked spits. Moraine areas are dominated by Baltical Beech forests with Fagus sylvatica and Quercus robur. Here are also the agricultural areas with the highest harvests. But also pastures, low productive grasslands and coastal vegetation of brackish water can be found. Mainly at shallow bays salt meadows and salt reed banks occur. These bays are also very important for thousands of resting water birds, mainly in the wintertime. Steep coasts and natural beaches are typical formations of the beachside of Baltic Sea. All in all more than 800 plants can be found in the biosphere reserve, nearly 200 of them are listed in Red Lists. Today most of the people living in the biosphere reserve earn their living mostly from tourism, fishing and agriculture. Traditional land use forms as well as traditional fishing methods are still maintained in the area. The biosphere reserve is especially known for sustainable small-scale cod fishery which is a model for other regions.

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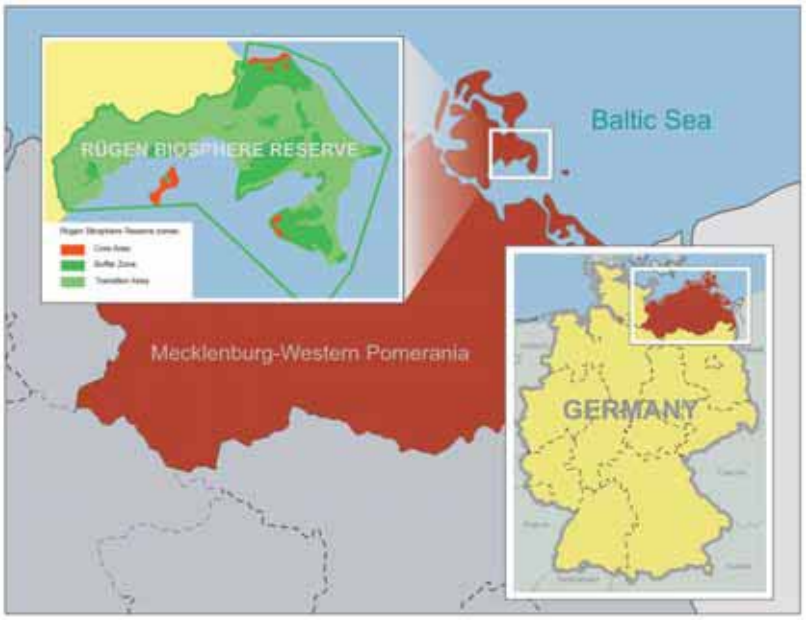

Contact information:

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www.biosphaerenreservat-suedostruegen.de

Germany
Spreewald

© *Spreewald BR*

Declaration date: 1991; april 11th
Surface area: 47.500 ha
Administrative division: state of Brandenburg

Human acitivities:

Human activities: About 50,000 people live in the biosphere reserve (1998). Many of them are descendants of the first settlers in the Spreewald region, the Slavic tribes of the Sorb/Wends. Until today, they have preserved their traditional language, customs and clothing. People mostly depend on tourism. Many tourists enjoy the exploration of the Spreewald in punts. However, also agriculture, forestry and fishery are important sources of income.

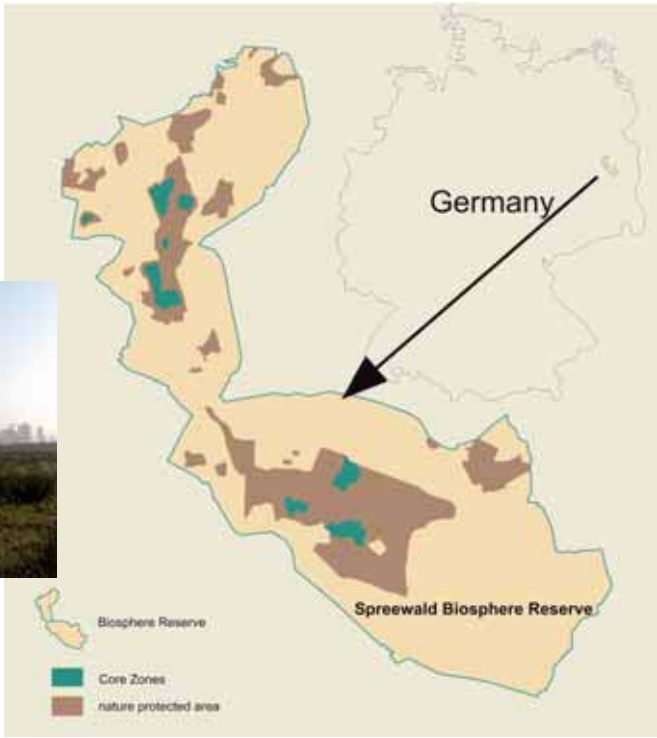
Protection classifications:

At the national level
Core Zones are nature protected area/total reserve
Buffers are nature protected area
Transition zones are landscape protected area
Core and buffer are FFH-site
whole reserve is SPA-site

© *Spreewald BR*

Ecological characteristics:

The Spreewald Biosphere Reserve is situated 100 km south-east of Berlin. It is known for its traditional irrigation system which consists of 1,300 km small channels (called 'Fliesse') within the 47,500 hectares area. The landscape was shaped during the ice-age. Alder forests on wetlands and pine forests on sandy dry areas are characteristical for the region, however, also grasslands and fields can be found. Forested low moor landscape with ramose system of water bodies dominated by alder (*Alnus glutinosa*), *Salix viminalis* and *Carex* spp.; grassland low moor landscape with ramose system of water bodies with reed canary grass (*Phalaris arundinacea*), purple moor grass (*Molinia caerulea*), Siberian Iris (*Iris sibirica*) etc.; inland dune pine forest and dry grassland with Scots pine (*Pinus sylvestris*), silver birch (*Betula pendula*) and alder buckthorn (*Frangula alnus);* old fruit plantations; agroecosystems with cucumber, cabbage etc.; forestry systems with alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*), oak (*Quercus robur*) and pine (*Pinus sylvestris*). Main animal species are red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), wild boar (*Sus scrofa*), otter (*Lutra lutra*) beaver (*Castor fiber*), white stork (*Ciconia ciconia*), black stork (*Ciconia nigra*), crane (*Grus grus*), white-tailed eagle (*Haliaeetus albicilla*), several woodpeckers, kingfisher (*Alcedo atthis*), pike (Esox lucius), burbot (Lota lota), several dragonflys.



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Internet: www.mluv.brandenburg.de/cms/detail.php/lbm1.c.323683.de

Germany
Waddensea of Hamburg

Declaration date: 1992
Surface area: 11.700 ha
Administrative division: Umweltbehörde Hamburg Wadden Sea National Park of Hamburg

Human activities:

38 people are living in the biosphere reserve (1998). The main human activities at the site are recreation and tourism and some agricultural practices such as livestock grazing.

Contact information:

Klaus Janke, Umweltbehoerde-Naturschutzamt
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E-mail: klaus.janke@ub.hamburg.de
peter.koerber@ub.hamburg.de

Ecological characteristics:

This site is a part of the Wadden Sea on the North Sea coast, about 40 km north of the city of Bremerhaven in the Land Hamburg. Situated close to the mouth of the Elbe River, it represents an estuary system which is the habitat for the seal Phoca vitulina and a large diversity of birds and fish. The nutrient-rich waters of the Elbe support a high biomass production and are important for fish spawning. The site includes sand and mudflats with channels, islands and saltmarshes. The site has been designated as a National Park, Ramsar site and EU Special Protection Area for wild birds. The adjacent waters north to the biosphere reserve are intensively used by ships, so that potential oil spills are a major threat to the site. Also, pollution stemming from the Elbe River impacts the ecosystem. An information centre on the Neuwerk Island provides an exhibition and educational materials for tourists.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Germany
Waddensea of Lower Saxony

© Waddensea of Lower Saxony BR

Declaration date: 1992
Surface area: 240.000 ha
Administrative division: Federal State of Lower Saxony

Human activities:

- Recreation,
- Fisheries,
- Agriculture,
- Coastal Protection

Ecological characteristics:

- Intertidal sand- and mudflats,
- Subtidal channels and gullies,
- Coastal salt marshes,
- Barrier islands with salt marshes, dunes and beaches,
- Coastal North Sea,
- Important nursery for North Sea fish species,
- Main stepping stone on the East Atlantic Flyway,
- Breeding areas of international importance.

Protection classifications:

National Park,
EU Bird Directive,
EU Habitat Directive,
EU Water Framework Directive,
Ramsar Convention,
Convention on Migratory Species (Bonn Convention),
Convention of Biological Diversity (CBD),
Convention for the Protection of the Marine Environment of the North-East-Atlantic (OSPAR),
African-Eurasian-Waterbird Agreement (AEWA),
Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS),
Particularly Sensitive Sea Area (PSSA).

Contact information:

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Biosphere Reserve “Wadden Sea of Lower Saxony”
Virchowstr. 1
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Germany
Oberlausitzer Heide-und Teichlandschaft

© *Oberlausitzer Heide-und Teichlandschaft BR*

Declaration date: 1996
Surface area: 30.102 ha
Administrative division: Special Biosphere Reserve authority with links to the various environmental authorities of the Land of Saxony, and the municipalities

Human activities:

The primarily traditional land use forms in the biosphere reserve are fishing, forest shaft and agriculture. Other land use forms are settlement development, tourism and traffic. Besides, a special meaning comes up to the protection of endangered species and biotope protection. Item, the most important purpose is the penetration of lasting management forms primarily in the areas of land economy, forest economy and fishing economy. Therefore, the nature conservation authorities narrowly co-operate with the single actors and fix together the way of the management. For suitable nature conservation achievements are sufficient for the respective companies or individuals subsidies.

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Contact information:
Biosphere Reserve Centre
Dorfstr. 29
02694 Guttau OT Wartha
Germany
Phone: ++49 35932 365 0
Mail: poststelle.brv@smul.sachsen.de

Ecological characteristics:

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There are many ecological specific features in the biosphere reserve. But especially in the area of flora and fauna two species are to be emphasised. The first one is the only moor violet (lat.: *Viola uliginosa*) occurrence in Germany. Its last occurrence in Germany has the moor violet actually seeming in East Europe in a very original alder break in the biosphere reserve. Today the moor violet already blue blossoming at the end of April has its next occurrence 300 km to the east in Poland. The second specific feature is the highest density in sea eagles (lat.: *Haliaeetus albicilla*) in Germany. With a number of 21 breeding pairs in 2007 in an area of 300 km ² is the biosphere reserve beside the Müritz-National park probably the most densely populated sea eagle brood area in Germany. During the hatching time more than 100 eagles are present in the region. Especially in the autumn during the fish harvest can be observed nearly 30 to 60 sea eagles in the proximity of the ponds.

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Germany
Schaalsee

© *Schaalsee BR*

Declaration date: 20.01.2000
Surface area: 30.900 ha
Administrative division: State of Mecklenburg-Vorpommern. Administrative district of Nordwestmecklenburg. Administrative district of Ludwigslust.

Human activities:

Agriculture and Forestry, Fishery activities, Cutting of peat, Settlements, Tourism and leisure, Commerce and industry with the associated infrastructure

Protection classifications:

At the national level the area is recognised as biosphere reserve. The whole biosphere reserve is protected landscape area with integrated nature reserves. Area of national representative importance.

© *Schaalsee BR*

Contact information:

Contact information: Wittenburger Chaussee 13, D-19246 Zarrentin, www.schaalsee.de

Ecological characteristics:

The Schaalsee area is a landscape from the late glacial stage of the Baltic ice shield. The Schaalsee landscape confirms in this way a high representation for the biogeographical region of the central and east european forest with a subtype of the summer green deciduous woodland, bush and subpolar shrub formations. Seminatural ecosystems of the woods, bogs and lakes exist in typical forms. The picture is completed by a wide spectrum of culturally dependent ecosystem types (old pastures, flooded pastures, arable lands). A special characteristic of the Schaalsee landscape is the variety of landscapes with a proximity and interaction of the most different large and small habitats.

Germany
Biosphäre Bliesgau

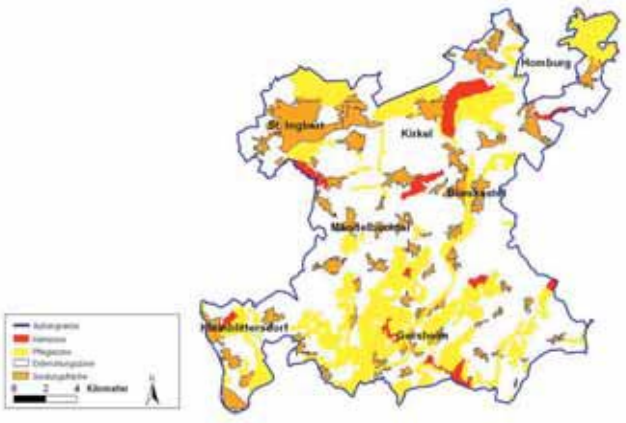
© *P. Baus*

Declaration date: 2009
Surface area: 36.152 ha
Administrative division: Geschäftsstelle Biosphärenzweckverband Bliesgau

Human activities:

© *U. Hornig*

Human activities have formed this landscape of gentle hills over millennia. In comparison to the other Biosphere reserves in Germany the Bliesgau features a very unique urban-rural interrelation. With a high density of human population (311 Ind./km²) the region is very urbanised. The north with its industrial- and service divisions builds the economical centre, while a more rural living has been maintained in the south. A wide transition area is found between these zones. Land use forms are mainly extensive agriculture and Orchards still build an important part of the natural scenery. Various regional initiatives of producers build an essential and supporting pillar of the sustainable regional development.



Ecological characteristics:

© *P. Baus*

The predominant geological features in the Bliesgau are bunter and lacustrine limestone. The barren bunter surfaces in the north are mainly afforested, while the fertile surfaces of lacustrine limestone in the south have allowed extensive agriculture. Various different soils and microclimates have created diverse habitats, which are home to many rare animal and plant species. In the state of Saarland the Bliesgau inhabits the highest concentration of endangered species and types of biotopes. Valuable Orchards, species rich meadows, comprehensive beech groves and floodplains form the region. About 80% of the total population of the endangered little owl (*Athene noctua*) lives here. The Bliesgau is an important breeding ground for the red kite (*Milvus milvus*), for which Germany has a special national responsibility. The population of the butterfly marsh fritillary (*Euphydryas aurinia*) is exceptionally high and almost half of the orchid species present in Germany can be found on the lacustrine limestone surfaces in this region.

© *Biosphäre Bliesgau BR*

Contact information:

Geschäftsstelle Biosphärenzweckverband Bliesgau
Zweibrücker Str. 5
66440 Blieskastel
Tel.: +49-(0)6842-960090
Fax.: +49-(0)6842-9600929
e-mail: info@biosphaere-bliesgau.eu
website: www.biosphaere-bliesgau.eu

Germany
Swabian Alb

© Swabian Alb BR

Declaration date: 2009
Surface area: 84.525 ha
Administrative division: Geschäftsstelle Biosphärengebiet Schwäbische Alb

Human activities:

For the bordering congested European Metropolitan region of Stuttgart the Swabian Alb is a popular recreation area. Under these basic conditions the biosphere concept is a model for other regions aiming for sustainable development in densely populated areas. About 150.000 inhabitants constantly live in the biosphere reserve.

© Swabian Alb BR

Contact information:

Geschäftsstelle Biosphärengebiet Schwäbische Alb
Street or P.O. Box: Altes Lager Gebäude R13
Country: D-72525 Münsingen-Auingen
Tel.: +49.7381-93293810
Fax: +49.7381-93293815
E-mail: biosphaerengebiet@rpt.bwl.de
Website: www.biosphaerengebiet-alb.de

Ecological characteristics:

© Swabian Alb BR

The Swabian Alb is part of the European Jura and represents an undulating landscape. The Swabian Alb is a low mountain range and the biggest coherent karst area of Germany with more than 200 km in length. Different geological conditions, different bio-geographical regions and the activity of humans have developed various types of habitats. It is characterised by four geologic formations. The northeastern border of the area is characterised by the so-called "Albtrauf" - a step in the terrain which is up to 400 m high. North of this rim, the foreland of the Swabian Alb ("Albvorland") is the place where most of the settlements in the region are located and beechforests are typical. Wine is produced in this part. The northwestern border of this area is characterised by widespread traditionally extensive sparse orchards ("Streuobstwiesen"), which are of high biological value, because of the habitat they provide for many species and the organic fruits they produce. The "Albtrauf" steep terrain is known for its beech forests which are situated on hillsides and inside of canyons, being exposed to special conditions. Behind the steep rim the following high plateau of the Swabian Alb is characterised by the so-called "Kuppenalb", with its bumpy relief with different kinds of beechforests interspersed with pine and spruce forests and grassland. In a south-eastern direction the high plateau becomes more level. This part is called "Flächenalb" and is used for agronomic farming.

Greece
Gorge of Samaria

Declaration date: 1981
Surface area: 4.850 ha
Administrative division: Region of Crete, Forest Directorate of Chania

Human activities:

The area designated as biosphere reserve is currently not inhabited (1999). The region around the gorge is interesting from a cultural point of view since it hosts ancient ruins, churches and castles. Tourism is a main economic activity in the area, however activities are restricted within the national park. There is a visitors center at the entrance of the gorge.

Contact information:

Hariklia Kargiolaki, Samaria Biosphere Reserve
Chrysopgi, 73100 Chania, Greece
Tel.: (30.821) 92287, Fax: (30.821) 91295
E-mail: hkargiolaki@cha.forthnet.gr

Ecological characteristics:

Located on the southwestern coast of Crete, this biosphere reserve and national park is a mountainous limestone area renowned for the deep narrow Samaria Gorge. The area comprises examples of high altitude Mediterranean forest (including virgin stands of *Cupressus sempervirens*), maquis and phrygana. Among the typical Mediterranean fauna, the endemic wild goat (*Capra aegagrus cretensis*) is well known. As in most parts in the Mediterranean, the whole area was subject to grazing and timber extraction in the past.

Xerophytic aromatic phrygana including *Pistacia* sp., *Phlomis fruticosa, Thymus capitatus, Cistus salviaefolius, C. creticus* etc; pine (*Pinus brutia*) and cypress (*Cupressus sempervirens*) forest with *Quercus* spp.; pseudo-alpine and desert vegetation; riparian communities; naturally reforested fields; almost soil-less steep rocks; mountain plateau ("omalos").

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Greece
Mount Olympus

Declaration date: 1981
Surface area: 4.000 ha
Administrative division: Forest Directorate of Pieria

Human activities:

About 120,000 national and 60,000 foreign tourists each year (1999) visit this center of Greek mythology as, according to Homer, the twelve Greek gods have their palaces on Mount Olympus. A visitor center has been set up at the national park entrance. In cooperation with communities outside the biosphere reserve, the Peria Forest Directorate organizes seminars for adults and school classes on environmental issues.

Contact information:
Pavlos Andredakis
Terma Ipirou
60100 Katerini
Greece
Tel.: (30.351) 23720
Fax: (30.351) 3585

Ecological characteristics:

This biosphere reserve is situated on the eastern part of the Greece mainland and covers the eastern limestone foothills and the summit of Mount Olympus (2,914 meters above sea level). The landscape comprises maquis and Mediterranean sclerophyll shrublands, beech and oak woodlands, pine (*Pinus nigra*) forests as well as montane grasslands and alpine areas. The biosphere reserve is managed as a national park and hence there are no settlements within the area. As almost all areas in the Mediterranean, this area was subject to heavy grazing and timber extraction in the past. Today, local communities use the buffer zone of the biosphere reserve for grazing, hunting, gathering of herbs and wood extraction. However, tourism is the main economic activity in the biosphere reserve.

Maquis dominated by *Quercus ilex* and with *Arbutus unedo, Phyllaria media* and *Q. coccifera*; coniferous woodland and forest dominated by *Pinus nigra pallasiana* and with beech (*Fagus* spp.) and oak (*Quercus* spp.); meadows; ravines at montane and sub-alpine levels; pine (*Pinus heldreichii*) woodland; snow-bed meadows dominated by the grass *Alopecurus gerardi*; grassy moors with solifluction dominated by *Sesleria korabensis, Festuca graeca and Carex kitaibeliana*; screes; rock crevices.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Hungary
Aggtelek

© *Aggtelek BR*

Declaration date: May 1979
Surface area: 20.188 ha
Administrative division: Borsod-Abaúj-Zemplén

Human activities:

Inhabitants in the Buffer Zone: permanently 1000, seasonally 1200.

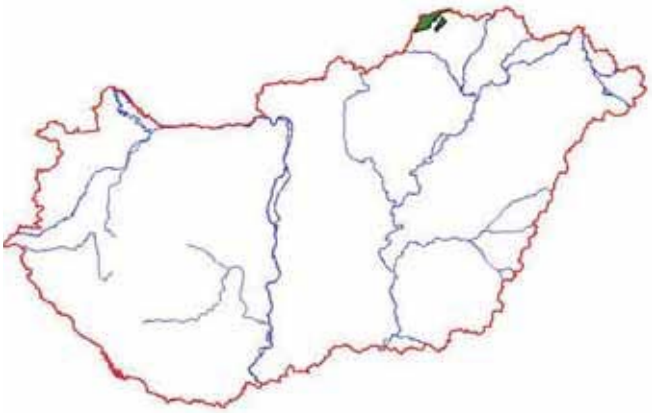
- Controlled grazing from spring to autumn;
- Mowing for winter-food of live-stock;
- Tourism;
- Habitat management for nature protection purposes.

Protection classification:

As a protected landscape, established on December 19, 1978. As a national park, established on January 1, 1985 by Presidential Decree 7/1984. (XII. 29.) of the National Authority for Nature Conservation. Repeated and recently valid declaration is the Decree No 134/2007. (XII. 27.) of the Ministry of Environment and Water.
BR designation: proclaimed by the Presidential Decree no. 2100/1980 of the National Authority for Nature Conservation and Environmental Protection. Valid declaration is the Decree No 7/2007. (III. 22.) of the Ministry of Environment and Water.

Ecological characteristics:

The Aggtelek BR is a transboundary protected area forming one biogeographyc unit with the neighbouring Slovak Karst BR. The Aggtelek BR is a low, karstic mountain area dominated by various deciduous (mainly oak and hornbeam) forests. Species-rich semi-dry grasslands and wet meadows are also typical. These habitats form a conspicuous mosaic structure, which maintain various fauna elements (carpathian, mediterranean, dacic, etc.). There are some 260 caves in the BR, where several endemic invertebrates were found. Traditional land management and land use is still typical.



© *Aggtelek BR*

Contact information:

http://www.anp.hu,
info.anp@t-online.hu
3758 Jósvafő, Tengerszem oldal 1.
Hungary

© *Aggtelek BR*

Hungary
Hortobágy

© *Hortobágy BR*

Declaration date: May 1979
Surface area: 55.372 ha
Administrative division: Hajdú-Bihar

Human activities:

Inhabitants in the Buffer Zone: permanently: 200, seasonally: 400.

- Controlled grazing from spring to autumn as the dominant type of activity;
- Mowing for winter-food of live-stock;
- Reed-cutting;
- Tourism;
- Habitat management for nature protection purposes.

© *Hortobágy BR*

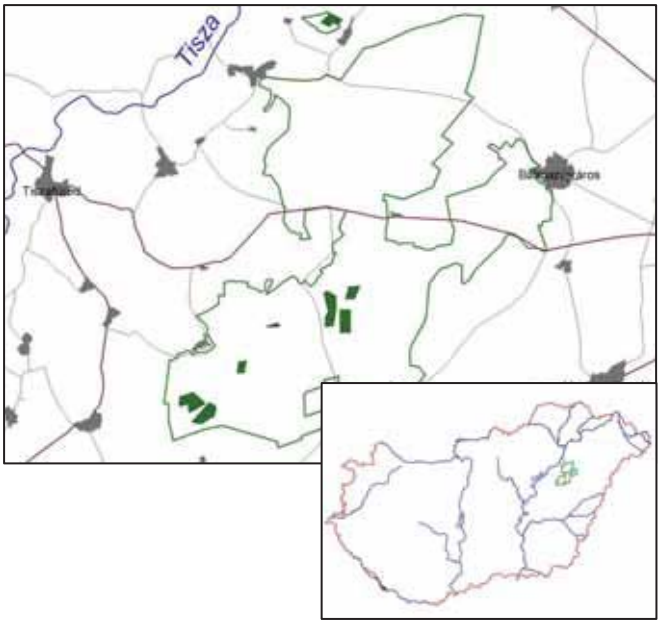
Contact information:

http://www.hnp.hu,
hnp@hnp.hu
4024 Debrecen, Sumen u. 2. Hungary

Ecological characteristics:

© *Hortobágy BR*

Extensive flat lowland (originally seasonal and occasional flooding area) dominates the Festuca grassy landscape which is an ice-age alluvial cone. Abandoned, marsh-covered river beds, erosional ditches and the richness of micro-topographic features are typical. They form a conspicuous mosaic structure of habitats. Dominant types of soils are different alkaline formations. This is the largest occurrence of continental sodic and alkaline soils in Europe (except of the semi-desert region around lower Volga river), moreover the biggest continuous natural-seminatural grassland of the mentioned part of the continent. Recently the landscape is a treeless grassland with extensive patches of alkaline marshes, mostly affected by traditional, extensive shepherding.



Protection classification:

As a national park, established on January 1, 1973 by Presidential Decree 185-51/1972 of the National Authority for Nature Conservation. Repeated and recently valid declaration is the Decree No 134/2007. (XII. 27.) of the Ministry of Environment and Water.
BR designation: proclaimed by the Presidential Decree no. 2100/1980 of the National Authority for Nature Conservation and Environmental Protection. Valid declaration is the Decree No 7/2007. (III. 22.) of the Ministry of Environment and Water.

Hungary
Kiskunság

© *Kiskunság BR*

Declaration date: 1979
Surface area: 30.627 ha
Administrative Divisions: Bács-Kiskun

Human acitivities:

- Controlled grazing is characteristic and relevant on the grasslands
- Reed and grass harvesting
- Dredging on the swampy area to create open water is also a relevant managing method
- Controlled local cultivation of forests
- Alien plant species removal from the areas is common management method
- On the higher elevation there is some plough land, where controlled cultivation is going on
- Restricted and organised tourism

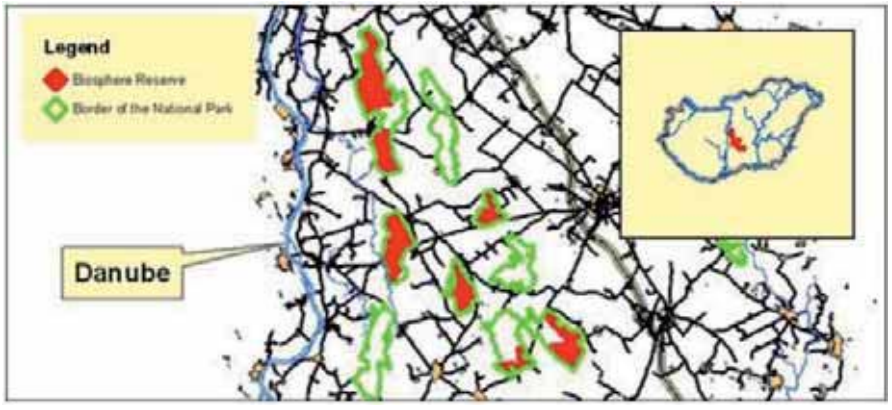
Protection classifications:

Protected by Decree N° 1800/1974 of OKTH (National Authority for Environment Protection and Nature Conservation) and Decree N° 134/2007 (XII. 27) of KVM (Ministry of Environment and Water)

Ecological characteristics:

The Kiskunság Biosphere Reserve is Hungary lies between the Danube and Tisza Rivers. Its constituent parts situated along the Danube River plain, as well as in the Sand Plateau. The five separate units that make up the BR are dominated by open-horizon sodic lands, undulating sand plateaus, poorly drained marshes and bogs, wet grasslands. It is the mosaic make-up of the park that accounts for its diverse character and the richness of its wildlife, as the individual units belong to different landscape and habitat types. Diversified farming and the lifestyle of the isolated farmsteads also became a distinguishing feature of the region. Based on this it is not surprising that besides the natural conditions, ethnographic and cultural traditions also contribute to the distinctive character of the Biosphere Reserve and the surrounding area.

© *Kiskunság BR*



Contact information:

http://knp.nemzetipark.gov.hu
mailknp@knp.hu
6000 Kecskemét Liszt F. u. 19.
Hungary

Hungary
Lake Fertö

© *Lake Fertö BR*

Declaration date: 1979
Surface area: 12.524 ha
Administrative division: Győr-Moson-Sopron county

Human activities:

- Controlled grazing is characteristic and relevant
- on the grasslands.
- Reed harvesting and hay mowing
- Shallow alkaline temporary wetland habitat reconstruction
- Controlled forest management
- Alien plant species removal from areas
- On the higher elevation there is some plough
- land, where controlled cultivation is going on.
- Restricted and guided, organised tourism.

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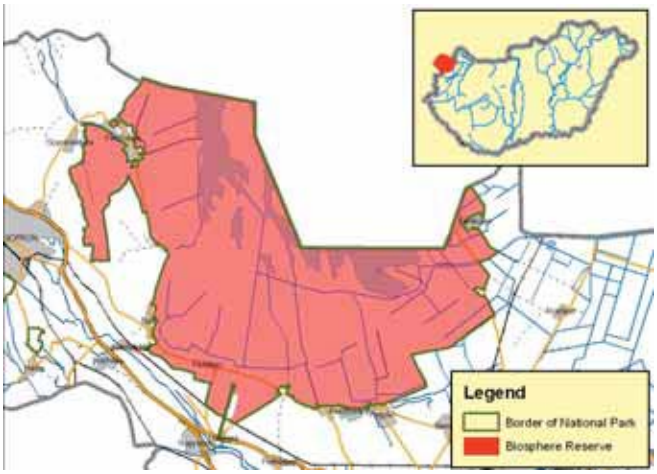


Ecological characteristics:

© *Lake Fertö BR*

The Lake Fertő Biosphere Reserve in Hungary lies at the NW edge of the country across the Hungarian-Austrian borderline. The BR consists of one unit from the shallow, akaline temporary wetlends (East) through the lake Fertő itself to the limestone xeroterm hilly area (West). The main ecological characteristics of the wetlands at the East are the alcaline soil and temporary shape, the shallow water with high salt content and dense reed vegetation on the lake supporting special bird fauna. The Western part of the lake is surrounded by the Leitha-limestone hills with xerotherm Pannonian steppe-slopes, forests and wet meadows at the lower elevations. There are large areas covered by vineyards as well (local traditional famous race is the Sopron Bluefrankish). These are the elements of the mosaic structure of the park that makes its ecological diversity and landscape variety. Besides the natural conditions, cultural traditions also support the distinctive character of the Biosphere Reserve and the surrounding area.

Protection classification:

Protected by Decree No 19/1977. of OKTH (National Authority for Environment Protection and Nature Conservation), National Park by Decree No 2/1990 of KTM (Ministry of Environment and Regional Developement)

© *Lake Fertö BR*

Contact information:

http://fhnp.nemzetipark.gov.hu
fhnpititkarsag@netmail.kvvm.hu
Hungary 9435 Sarród, Rév-kócsagvár

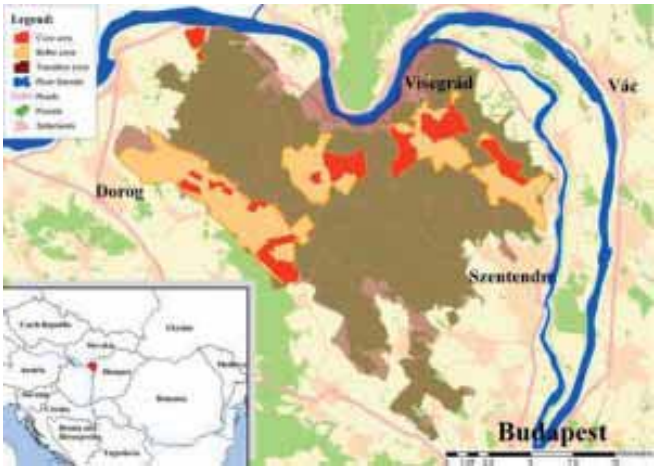
Hungary
Pilis

© *Pilis BR*

Declaration date: February 1981
Surface area: 25.367 ha
Administrative divisions: Pest, Komárom-Esztergom

Protection classification:

Landscape Protection Area: established in 1978
BR designation: proclaimed by the UNESCO in 1981
Valid declaration is the Decree No 7/2007. (III. 22.) of the Ministry of Environment and Water.
National park: established on November 20, 1997 by Presidential Decree 34/1997 of the Ministry of Environment and Regional Development. Repeated and recently valid declaration is the Decree No 134/2007. (XII. 27.) of the Ministry of Environment and Water.



Contact information:

http://www.dinpi.hu, dinpi@dinpi.hu
1021 Budapest, Hűvösvölgyi út 52., Hungary

Ecological characteristics:

© *Pilis BR*

The northeastern part of the area consists of middle Miocene andesite pyroclastic rock, its southwestern carbonate rock part is from the upper Trias, Dachstein Limestone and Hauptdolomite. The appearance of the River Danube in the Ice Age created a grandiose scene. The hills flanking the river are the remnants of Danube terraces. Characteristic vegetation types of the low mountain ranges are Turkey oak-sessile oak (*Quercetum petraeae-cerris*) and hornbeam-oak (*Querco petraeae-Carpinetum*) woodlands. The following types also occur in the area: Mercuriali-Tiliaetum, Parietario-Aceretum, Phyllitidi-Aceretum. On the steep southwestern hillsides of ravines the typical vegetation cover consists of a mosaic of rock woodlands and rocky grasslands. A high number of endemisms occur in the area. The most important population of a Carpathian relict endemic fennel (*Ferula sadleriana*) can also be found here. In the foothills, in place of one-time vineyards and orchards, highly diverse secondary steppe meadows have formed. Presently, the most prominent land use practices are forestry activities aiming at creating and maintaining semi-natural woodlands. Tourism, although present even in the core area is most significant in the transition area, where remarkable increases in the number of temporary inhabitants can be observed throughout the holiday seasons.

Human activities:

Inhabitants in the Buffer Zone: none
Dominant type of activity:
-Forest management: in the core areas all activities are strictly supervised by the nature conservation authority
-Tourism: the BR is situated in the Danube-bend, which is the third most important tourist attraction of Hungary. The number of visitors to the region is over one million per year.

© *Pilis BR*

Ireland
North Bull Island

Declaration date: 1981
Surface area: 1.008 ha
Administrative division: Parks & Landscape Services Division, Dublin Corporation

Human activities:

In addition to its ecological value, the island has an important educational and recreation function valued by school classes and day visitors from Dublin. Two golf courses are situated on the island and there are some boating activities in the adjacent waters. In applying the biosphere reserve concept, the ambition is to reconcile the multiple uses in this small area.

Contact information:
Gerry Barry
Parks and Landscape Services Division
Wood Quay, Dublin 8, Ireland
Tel.: (353.1) 672 2222 - Fax: (353.1) 670 7332

Ecological characteristics:

North Bull Island is located in the Dublin Bay, just 7 km north-east of Dublin City center. It represents a small island, 5 km in length, built up over 200 years ago against a man-made sea wall. The biosphere reserve is significant from a conservation perspective since it supports well-developed salt marshes and dune systems displaying all stages of development from the earliest phase of colonization to stable and full maturity. The area is also important for nesting and wintering waterfowls and is also designated as a Ramsar site.

Saltmarsh with glasswort *(Salicornia dolichostachya* and *S. europaea*), *Puccinellia maritima* and sea lavender (*Limonium humile*); sand dune complex with saltwort (*Salsola kali*), sea rocket (*Cakile maritima*), sea couchgrass (*Agropyron junceiforme*) etc.; beaches; lagoonal sand flat; lagoonal mud flats with algae such as *Enteromorpha intestinalis, E. compressa* and *Ulva lactuca*; salicornia flat.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Ireland
Killarney

Declaration date: 1982
Surface area: 10.129 ha

Human activities:

Human history has also left its mark in the Killarney area, e.g. with the well preserved remains of Inisfallen Abbey on an island in Lough Leane, Muckross Abbey, or the Muckross House which serves as a visitor center today. This Killarney National Park Education Centre fulfills an important educational role within the national park and biosphere reserve, which is one of the best-known tourist destinations in Ireland.

Contact information:

Killarney National Park,
Muckross, Killarney
County Kerry, Ireland
Tel.: (353.64) 314 40 - Fax: (353.64) 339 26

Ecological characteristics:

Located just south-west of the city of Killarney in south-west Ireland, this biosphere reserve and national park comprises the mountains and woodlands surrounding Lough Leane Lake and adjacent smaller lakes, moorlands, parks and gardens. Much of the natural woodland has been cleared but the remaining fragments include the most extensive areas in the country. Due to differing geology in the biosphere reserve, three main woodland types can be distinguished: woods of sessile oak (*Quercus petraea*) with holly (*Ilex aquifolium*) in the understorey on sandstone; a yew (Taxus baccata) wood growing on almost bare limestone; and carr forest dominated by *Alnus glut*inosa in places along the north-east shore of Lough Leane and in other poorly-drained areas.
Present human impacts on and uses of the area include conifer afforestations, lake eutrophication and tourism activities. Additional human influence is the past introductions of alien species that have impacted on the natural ecosystems of Killarney. The most notable of these introduced species are *Rhododendron ponticum* and sika deer which overgraze the woodland floor and pose a potential threat to the genetic integrity of the native red deer.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Israel

Mount Carmel

© D. Rotem

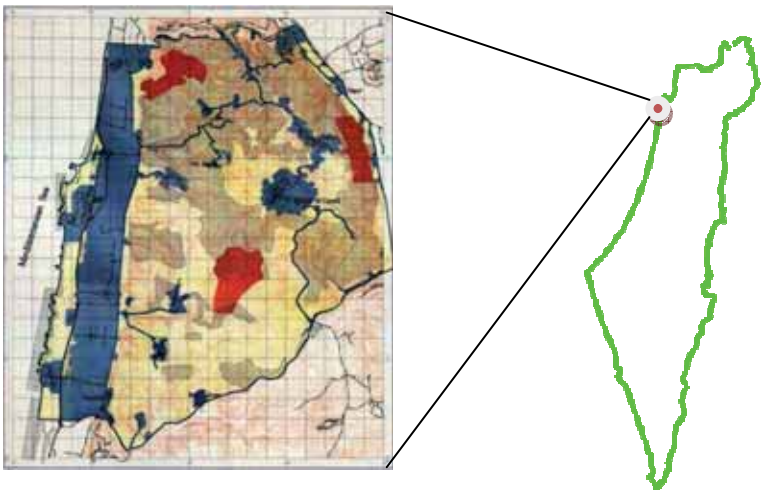
Declaration date: 1996
Surface area: 266 sq km
Administrative division: Israel Nature and Parks Authority (NPA)

Human activities:

- Tree cutting by local citizen as part of the forest and maquee management.
- Agriculture: from very intense in transition zones to traditional / ecological in buffer zone.
- Picnic areas, hiking trails, traditional and craft markets are located at buffer and transition zones.
- Recycling activities takes place in many of the settlements.
- Education programs dealing with nature protection

Protection classifications:

The core zones are nature reserves. Major parts of the buffer zone are national parks or KKL forests.



Ecological characteristics:

© D. Rotem

The Carmel Mt. biosphere reserve is located in the north west of Israel. The reserve represent maquee in semiarid environment (hard-leaf woody vegetation), at the mountain area and two types of shoreline: rocky and sandy, one is highly diverse and unique representing one of the last Kurkar reefs in the world while the other is essential for logger head and green sea turtles as a nesting substrate. The Carmel Mt. is highly diverse geologically. Lime stone, Dolomite and Chalk are the main rocks and at least four different underwater volcanic eruptions can be detected allowing geologist to determine precise age and geological processes. The maquee and its biodiversity are represented in three core areas based on different vegetation types: native Aleppo pine (*Pinus halepensis*), Kermes Oak (*Quercus calliprinos*) and Mt. Tabor Oak (*Quercus ithaburensis*), each as a dominant species addressing unique vegetation diversity in its environment. The highlights of the biodiversity in the reserve are the fire salamander (*Salamandra inframaculata*) which the Carmel BR is the south point in the world where the species can be found. It responds to the arid conditions by positioning larva to winter temporal pools while the rest of the year it hides among rocks. Roe deer and fallow deer are reintroduced along with Griffon vulture Egyptian vulture and the rare Bonelli's eagle. Among the flowers the Lilium candidum blooms in isolated cliffs and more than 10 species of Orchids can be found in the reserve.

© D. Rotem

Contact information:

Contact information: Dotan Rotem
Am ve'olamo 3 Jerusalem
Tel: (057)-7762196
E-mail: dotanrotem@ npa.org.il

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Italy
Circeo

Declaration date: 1977
Surface area: 8.500 ha
Administrative division: Ministero Delle Risorse Agricole, Alimentari e Forestali Gestione Ex A.S.F.D.

Human activities:

About 50 people, mostly farmers and fishermen, live in the biosphere reserve (1989). Due to its proximity to Rome, the area is a popular destination for tourists which causes some pressure on the ecosystem, in particular to coastal dunes. Another challenge of biosphere reserve management is do deal with the eutrophication and water pollution of the coastal lakes due to urban sewage and agricultural activities. Environmental education activities take place within the national park, where an ecomuseum provides information to visitors.

Ecological characteristics:

Situated about 100 km south of Rome on the Tyrrhenian coast, Circeo Biosphere Reserve represents a diversity of Mediterranean ecosystems. It comprises a plain forest located on a series of continental dunes, three coastal lakes, marshy areas and the calcareous massif of Mount Circeo (541 meters above sea level) as well as agriculture fields and pastures. The biosphere reserve partly overlaps with the Circeo National Park and includes a Ramsar site.

Deciduous oak woodland dominated by pedunculate oak (*Quercus pedunculata*), turkey oak (*Q. cerris*) and Hungarian oak (*Q. frainetto*) together with caucasian ash (*Fraxinus oxycarpa*), common alder (*Alnus glutinosa*) and English elm (*Ulmus procera*); Mediterranean type vegetation including holm oak (*Q. ilex*) with undergrowth *Pistacia lentiscus, Phillyrea latifolia* and *Erica arborea*; marshlands with caucasian ash, grey willow (*Salix cencerea*), pedunculate oak and alder; anthropic vegetation with pine, eucalyptus and poplar groves; lakes; coastal dunes; agroecosystems with water melon, tomatoes, paprika etc.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

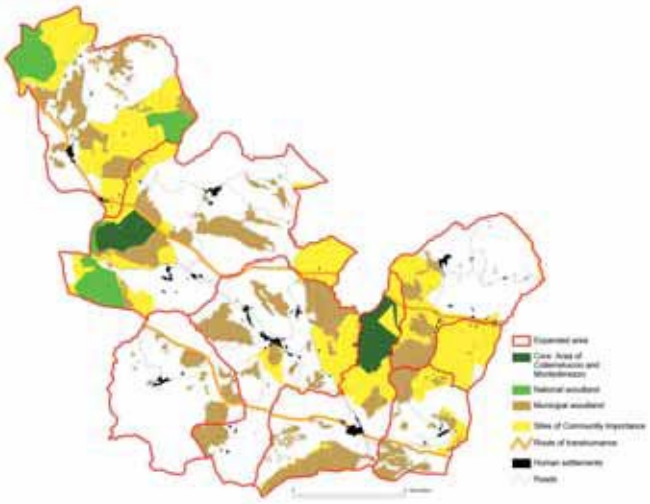
Italy
Collemeluccio-Montedimezzo

© Collemeluccio-Montedimezzo BR

Declaration date: 1977
Surface area: 637 ha
Administrative division: Isernia, Molise

Protection classifications:

- National Reserve
- Biogenetic Reserve (Collemeluccio, 160 ha)
- Special Protection Areas
- Sites of Community Importance



Contact information:

Corpo Forestale dello Stato,
Ufficio Territoriale per la Biodiversità di Isernia
e-mail: utb.isernia@corpoforestale.it

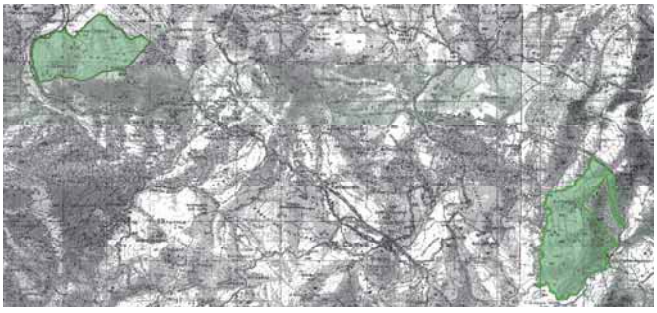
Ecological characteristics:

Silver fir woods (70%) and Turkey oak woods (30%) in Collemeluccio; Turkey oak woods (45%), Beech woods (45%) and Ostrya carpinifolia woods (10%) in Montedimezzo. In the Biosphere Reserve are present 377 entities of vascular plants (survey 2006-07), divided into 75 families and 240 genera. In the year 2007 it was also conducted a survey of bird fauna that recorded 37 species at Montedimezzo and 32 species at Collemeluccio. In the same time period, relatively to the species of vertebrates listed in the Annexes of the EU "Habitat" Directive *Salamandrina terdigitata* (ann. II e IV), *Rana italica* (ann. IV), *Bombina pachypus* (ann. II e IV), *Canis lupus* (ann. II e IV), *Mustela putorius* (ann. V) were recorded.

Human activities:

Sustainable tourism
Research and monitoring

The two forests do not follow MaB zonation criteria according to Seville Strategy. After the involvement of local population and stakeholders started in 2002, the ASSO Consortium was established with the priority objective to extend the BR area and participating in a new sustainable management of resources. ASSO is composed by 7 municipalities, the Region of Molise, the National Forest Service and the University of Molise.



Italy
Miramare

Declaration date: 1979
Surface area: 290 ha
Administrative division: WWF Italia on behalf of the Ministry of Environment Management Committee and a Reserve Board

Human activities:

This small biosphere reserve (290 hectares) is not inhabited, however many tourists enjoy underwater tours or visit the castle and garden of the Habsburg family. Both commercial and amateur fishing as well as other recreational activities infringe on the marine habitat. One of the challenges of the biosphere reserve is to involve all stakeholders such as traditional fishermen and the local community, tourism industry, non-governmental organizations, universities and municipalities in the management of the biosphere reserve. The area is managed by the Italian World Wildlife Fund on behalf of Italy's Ministry of the Environment and Protection of the Territory.

Ecological characteristics:

Miramare Biosphere Reserve and Marine Reserve is situated only about 7 km from the city of Trieste on the Gulf of Trieste close to the Slovenian border. It represents a rocky promontory of karst with coastal cliffs and beaches. Marine habitats of special interest from a conservation perspective are the tidal zone which harbors many endemic species, such as Fucus virsoides, and undisturbed cliffs with a diverse benthic fauna. The aim of the biosphere reserve is to maintain biological diversity in the marine environment surrounding Trieste through scientific research and monitoring activities. Environmental education designed for students and the public is also a major activity in the area.

Zostera marina and *Cymodocea nodosa* meadows; tidal zone with endemic species such as *Fucus virsoides*; cliffs where aggregate many commercial fishes; Mediterranean sclerophyllous vegetation on terrestrial part .

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Italy
Cilento and Vallo di Diano

Declaration date: 1997
Surface area: 181.000 ha
Administrative division: Ente Parco, Italian Ministry of Environment

Human activities:

The cultural heritage is particularly rich, with traces of human occupation going back to Palaeolithic times, with archaeological and historic vestiges of a succession of civilisations. Some 300,000 people live permanently in this biosphere reserve (1999), mainly in the transition area. A particular effort is made to create employment opportunities in inland rural areas by stimulating local enterprises, restoring the rural patrimony, re-activating agriculture, forestry and fishing and promoting ecotourism. Olive oil production in Cilento has a long tradition, dating back to the Middle Ages when Benedict monks planted olive groves. In the last years, the region suffered from the import of cheap olive oils and emigration of people. To address these problems, a local olive oil cooperative has introduced organic farming techniques, selling the oil with its own label of quality. A research center has been established for studying birds of prey and the migration of birds between Africa and Europe.

Ecological characteristics:

This biosphere reserve is located in south-central Italy, bordering the Tyrrhenian Sea. It is characterized by low dolomite mountains with typical karst features such as sinkholes and caves. The coastline is made up of cliffs, bays and sandy beaches, with sea caves and freshwater springs. The Mediterranean sclerophyll vegetation is divided into many habitats according to altitude, ranging from dry coastal garrigue, to Holm oak woodlands, mixed forests of oak, hornbeam, and alder, natural stands of European beech, to high-altitude grasslands. The fauna is noted for its birds, notably birds of prey.

Littoral habitats and halophile vegetation dominated by *Crithmum maritimum, Limonium multiforme* and *L. remotispiculum*; maritime and continental dunes dominated by *Ammophila arenaria; sclerophyllous shrublands* with the endemic *Genista ephedroides*; natural and semi-natural grasslands characterized by *Micromeria graeca, Nigella damascena and Reichardia picroides*; rocky habitats with endemic species such as *Primula palinuri, Dianthus rupicolae and Iberis semperflorens*; forests of oak (*Quercus ilex*), conifers (*Pinus halepensis*) and chestnut (*Castanea sativa*) .

Contact information:

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Italy

Somma-Vesuvio and Miglio d'Oro

Declaration date: 1997
Surface area: 13.500 ha
Administrative division: Ente Parco, Italian Ministry of Environment

Human activities:

The local population of 200,000 people (1999) essentially practice agriculture, however traditional activities are declining. Measures are being taken to renew interest in the rural heritage and develop cultural tourism and ecotourism.

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Ecological characteristics: This biosphere reserve is located on the Gulf of Naples and encompasses the active volcano Vesuvius, which is well know for its eruption in 79 AD, covering the town of Pompeii. The biosphere reserve includes the Vesuvius Park which is strictly protected and its transition area on the surrounding coastline. The 'Archaeological Areas of Pompei, Ercolano, and Torre Annunziata' are also inscribed on the World Heritage list. This area has been settled since Antiquity and incorporates the town of Pompeii and the Vesuvian Villas, which were built by rich Napolitan families in the 16th and 17th centuries. The long history of studies on the colonization of vegetation on lava of different ages is of particular research interest. The traditional agricultural areas are diverse in fruit, vines and flowers. The fauna is relatively poor but the site is a resting and staging area for migratory birds.

Lava flow habitats with Stereocaulon vesuvianum, Helianthemion guttati, Helichrysum litoreum etc.; maquis communities; oak woodlands (Quercus ilex); mixed woodlands with Quercus pubescens, Acer obtusatum and A. neapolitanum.

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Italy
Valle del Ticino

Declaration date: 2002
Surface area: 97.140 ha
Administrative division: Lombardy: Consorzio 'Parco Regionale Valle del Ticino'; Piedmont: Ente di gestione del parco naturale Valle del Ticino.

Human activities:

432,700 people live in the biosphere reserve (1999) who are mainly engaged in services and industry. With the 'tool' of the designation as biosphere reserve, management of the area aims at calibrating economic activities so that the conservation of this cultural landscape with its rich history is ensured in cooperation with local communities. Rural communities are hoped to benefit from increased sustainable uses of the area such as ecotourism and recreational activities, environmental education and training. Within the Ticino Lombardo and Ticino Piemontese natural parks, visitor centers and information, point walking trails and cycling paths have been created. The cycling paths run for more than 100 km and touch on places of natural interest. These activities are carried out by Parks in collaboration with environmental associations of the two regions.

Ecological characteristics:

The Valle del Ticino is a 'riverscape' biosphere reserve along the Ticino River in the north of Italy, situated at the meeting place of the culturally rich regions Lombardy and Piedmont. It represents an important ecological corridor within the urbanized and industrialized Po plain. The site encompasses a mosaic of ecosystems with large river habitats, wetlands, riparian woods and patches of primary plain forest which covered the entire valley during Roman colonization. At the same time, the area is characterized by its traditional rural landscape with semi-natural ecosystems with paddy rice, cornfields, permanent grasslands and 'marcita' (water-meadow).

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Italy
Tuscan Islands

Declaration date: 2003
Surface area: 264.800 ha
Administrative division: Ministerio dell'Ambiente

Human activities:

Today (2004) more than 30,000 people live permanently in the archipelago and depend mostly on services related to tourism, with relatively little employment in agriculture and fisheries. Projects are planned to introduce renewable energy resources, to bring innovations to the agricultural sector and to enhance the availability of water by means of alternative technologies.

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Ecological characteristics:

The Tuscan Islands Biosphere Reserve consists of an archipelago in the Tyrrhenian Sea composed of seven main islands and a few isolated islets. It represents an interesting system in the Mediterranean Region encompassing a wide range of geological, geomorphological and biological diversity. Islands are covered by sclerophyllous evergreen forest, Mediterranean pine woods, maquis, scrub and hardwood forest with deciduous oaks and chestnuts. The recent development of tourism has created an enormous pressure on the natural environment: consequently certain terrestrial and marine areas and some islands are protected within a National Park, particularly with a view to conserving rare and endemic species. Current research focuses on geology and geomorphology, corals and fish distribution, monitoring of sea water quality, restoration of populations of rare species, such as the Peregrine falcon (*Falco peregrinus*) and bats (*Rhinolophus euryale).* The Biosphere Reserve will enable to coordinate the work of the National Park with action to promote sustainable development and environmental protection in the entire archipelago.

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Italy
Selva Pisana

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Declaration date: 2004
Surface area: 23.114 ha
Administrative division: Pisa and Lucca (Tuscany)

Human activities:

- all areas: Environmental education, Scientific research and monitoring; sustainable turism, guided visits and excursions;
- core areas (2457 ha): ecological restoration (e.g. LIFE Nature projects);
buffer areas (10257 ha): Forestry, fishing and ecological restoration;
- transition areas (10757 ha): agricolture (organic agriculture and authocthonal breeding), hunting, bathing estabilishments (traditional tourism).

Protection classifications:

The entire area was declared as a regional park in 1979.

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Contact information:

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sergiopaglialunga@sanrossore.toscana.it
foreste@sanrossore.toscana.it

Ecological characteristics:

- Four main type of environments, interconnected and overlapped: Woodlands, Wetlands, Sandy Dunes and Agricoltural Lands;
- Contains an enormous wealth of biodiversity: natural and semi-natural plain habitats, extremely rare species wich have disappeared from most of Italy and Mediterranean. Some species live on the border of their distribution, some are the remains of species typical to other areas, others are authentic endemisms;
- Occurrence of Boreal elements (*Sphagnum* sp.), Atlantic elements (*Hibiscus palustris, Hypericum elodes*), sub tropical elements (*Osmunda regalis*) and oriental elements (*Periploca greca*);
- The 9000 ha of meso-hygrophilous and xerophilous woodlands rapresented the largest plain forest in the Mediterranean area;
- The wetlands include rivers, ponds, swamps. Massaciuccoli lake and wetland is one of the last biggest wetland remained in the Mediterranean area. These areas are very important for many migratory and nest-building bird species like Botaurus stellaris, and olso for other animal species like Emys orbicolaris.

Latvia
North Vidzeme

Declaration date: 1997
Surface area: 474.447 ha
Administrative division: Administration of Northern Vidzeme Biosphere Reserve

Human activities:

60 people live in the core area of the biosphere reserve (1997). In the surrounding areas, agriculture is the economic main activity, although traditional grazing practices are declining. There are 25,000 visitors per year and tourism is increasing (1997). Monitoring focuses on topics such as water quality, air pollution, plant communities and insects. There are also many training and environmental education activities.

Ecological characteristics:

North Vidzeme Biosphere Reserve comprises 53 km of the coastline of the Gulf of Riga and borders to the north the frontier with Estonia. It covers 474,447 hectares corresponding to the catchment basins of the Salace, Svetupe and Vitrupe Rivers. Lakes characterise the landscape (over sixty greater than 3 hectares) as well as gentle glacially formed hills and rolling plains. The coastal part consists of sandy beaches, coastal meadows and areas of bare rocks. The area is important from a conservation point of view since it harbours raised bogs, wild rivers with wild Baltic salmon, coastal meadows which are traditionally maintained by grazing and remnants of the ancient broadleaf forest.

Boreal coniferous and mixed forests; wetlands; raised bogs and open bog pools; fens and wet meadows; lakes and rivers; coastal dunes and marine littoral area; extensive agricultural and urban areas.

Contact information:

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Fax: (371) 4071 407
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Web site: www.biosfera.lv

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Montenegro

Tara River Basin

Declaration date: 1976
Surface area: 182,889 ha
Administrative division:
Ministry of Environmental Protection Public Enterprise for National Parks, Public Forest Enterprise

Human activities:

About 23,800 people live within the biosphere reserve (1991) who are mostly engaged in agriculture, cattle breeding and grazing. The area is also of cultural interest since it hosts numerous churches, monasteries and memorials

Ecological characteristics:

Situated in the southeastern part of the Dinaric Alps, the Tara River Basin comprises carbonate plateaus, canyons and the deepest gorges in Europe. The Tara canyon is 80 km long and reaches 13,000 meters at its deepest point. In the biosphere reserve, the altitude ranges from 433 to 2,522 meters above sea level, thus it harbors a rich habitat and species diversity. Habitats include alpine forests, alpine rivers and lakes, alpine and subalpine heath, transition mires, bogs and screes. The biosphere reserve includes Durmitor National Park, which was designated as World Heritage site in 1980

Netherlands
Waddensea Area

Declaration date: 1986
Surface area: 260.000 ha
Administrative division: Institute for Forestry and Nature Research c/o The Netherlands MAB Committee

Human activities:

Apart from tourism, main human activities in the biosphere reserve are fisheries, musselculture, sand extraction, exploitation and transport of natural gas and oil, military training as well as engineering works for coastal protection. The area is of great significance from a research and monitoring point of view since geological, biological, physical and chemical activities were carried out for many decades and provide also historical data record.

Ecological characteristics:

This biosphere reserve represents a section of the Wadden Sea area which extends along the coast of the Netherlands, Germany and Denmark. This Dutch biosphere reserve comprises the area between the town of Den Helder and the estuary of the Eems River whereas two more biosphere reserves represent the wadden sea on the German side. Wadden Sea Area Biosphere Reserve is a shallow coastal area partly with estuarine character. The Wadden Sea is protected by a chain of barrier islands and high sand flats. It consists of tidal channels and shallow open water, muddy and sandy tidal flats and sand marshes. The area is of international importance as staging, wintering, moulting and foraging area for many bird species and is therefore also designated as Ramsar site. The original Wadden Sea are has been diminished in size by gradual embankment of the adjoining salt-marshes and coastal embayments.

Contact Information:

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P.O. Box 167
1790 AD Den Burg - Texel
Netherlands
Tel.: (31.222) 369 700
Fax: (31.222) 319 235

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Poland
Babia Gora

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Declaration date: 1976
Surface area: 11.825 ha
Administrative division:
province: Malopolskie
county: Sucha Beskidzka, Nowy Targ
Gmina: Lipnica Wielka, Jablonka

Human activities:

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The Biosphere Reserve has some 6 000 inhabitants living in 4 villages and some 70 000 visitors annually spend their holidays in the area. Some 25 000 people are living in the vicinity of biosphere reserve. The Babia Góra Mountain ridge was a state border until 1918 and the communities living on the different sides of the massif have developed independently, giving rise to different architecture, folklore, clothing and dialects. The main economic activities are agriculture, cattle breeding, forestry, carpentry and agro-tourism. Farmers cultivate mostly wheat, oats and potatoes, they breed cattle and pigs. The above circumstances cause that land use is very traditional, extensive and nature-friendly. The villages maintained a beautiful landscape consisting of a patchwork of fields, meadows and forests. Tourism plays a small, however growing role in the local economy.

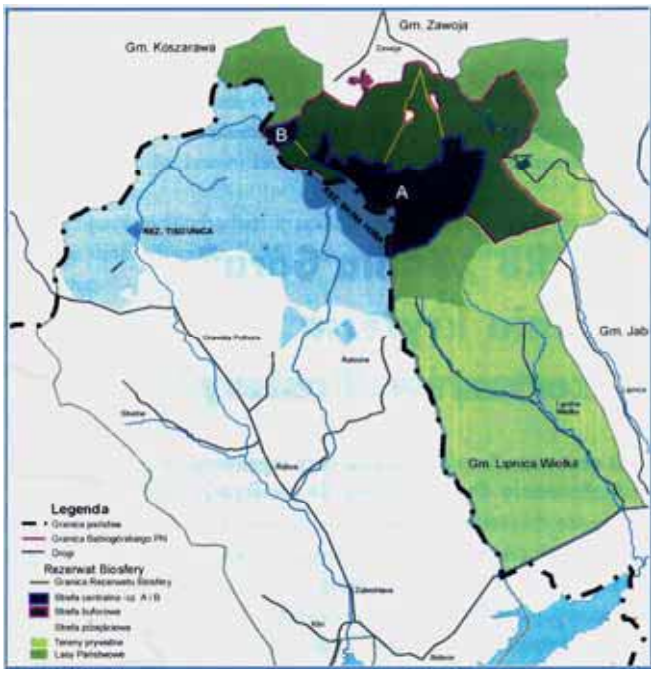
Ecological characteristics:

Biome: Mixed mountain and highland ecosystems with complex zonation.

The Babia Góra Biosphere Reserve is the second highest mountain massif in Poland situated in the Beskids Mountains. Its highest peak reaches 1,725 m above sea level. Four habitats are represented: the lower forest belt (up to 1,150 m), the upper forest belt (up to 1,390 m), the dwarf pine belt (up to 1,650 m) and the alpine belt (up to 1,725 m). The core zone includes about 1000 ha primeval forests, and buffer zone consists natural and managed forests. The climate is typically montane. The average annual temperature varies between 4°C in lower altitudes and 2.5°C at the upper timberline. The average annual precipitation is 1 140 mm at the foothills. Snow cover lasts 5-7 months. The Babia Góra Biosphere Reserve forms a watershed between the Baltic Sea and the Black Sea basins.

Protection classification:

Core Areas and Buffer Zones - Babia Gora National Park
Transition areas – protective zone of the Babia Gora National Park



Contact information:

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Zawoja 1403, 34-223 Zawoja, Poland
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Poland
Bialowieza

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Declaration date: 1977, enlarged in 2005
Surface area: 59.726 ha
Administrative division: Białystok / Podlasie Province

Human activities:

- tourism: agro-tourism, eco -tourism and the like;
- forestry;
- science institutions;
- agriculture (in the area surrounding BR)

Protection classification:

At the national level BR includes:
The Nature2000 network
PLC 200004 site,
National Park,
Nature Reserves,
All of the BR territory is a Landscape Protection Area.

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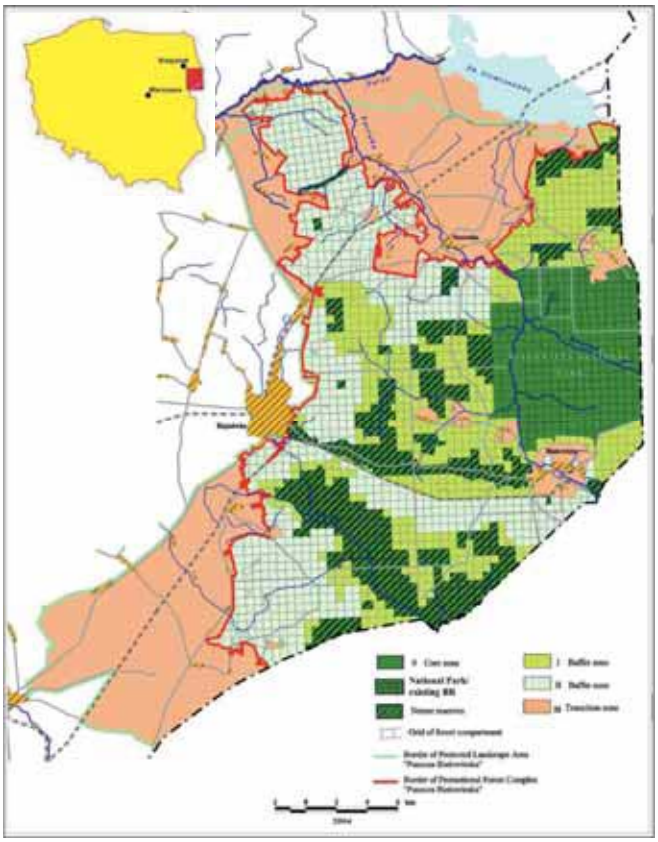
Ecological characteristics:

The Bialowieza Forest constitutes the relic of the primeval forest landscapes of the old-morainic plateau, which dominated in the past over the Middle-Poland and Northern Podlasie lowlands. The reserve protects mixed broadleafs forests with the mosaic of peat bogs and sedge communities in the valleys of the rivers Narewka, Hwoźna, Łutownia and Leśna. These areas have never been deforested. The dominating landscape of this area is formed by the flat lowlands of the clayey ground moraine, overgrown with deciduous forests; the swampy valleys are occupied by the ash-and-alder woods and the large unit of the BR is formed by the stenothermal deciduous oak-hornbeam-lime and mixed forests. The Forest remains the last European refuge of the European bison (Bison bonasus), and the habitat of such species as wolf (Canis lupus), lynx (Lynx lynx), marten (Martes martes), otter (Lutra lutra), bats (ex. Barbastella barbastellus), storks (Cicconia cicconia, Cicconia nigra), or golden eagle (Aquila chrysaetos).



Contact information:

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Poland
Lukajno Lake

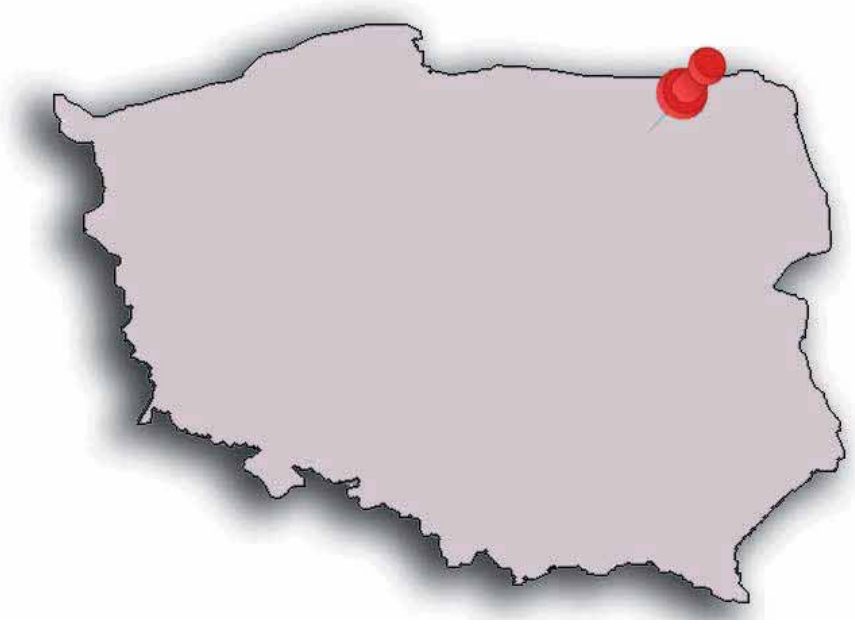
Declaration date: 1976
Surface area: 1.410 ha
Administrative division:
Mazurski Park Krajobrazowy (Masurian Landscape Park)

Human activities:

Faunistic and ecological studies are carried out in and surrounding the biosphere reserve, for instance on population dynamics and landscape changes. At the field station of the University of Warsaw, located at the lakeshore, students learn about the lake ecosystem and conferences take place here. Lukajno Lake Biosphere Reserve is also a popular destination for tourists and is especially known among ornithologists.

Ecological characteristics:

Lukajno Lake Biosphere Reserve is located 5 km east of the town of Mikolajki in the Masurian Lakes region in north-east Poland. This shallow freshwater lake of glacial origin is surrounded by marshes and meadows and is connected with nearby Sniardwy Lake by a channel. Already in 1937, Lukajno Lake was put under protection due to its large number of occurring mute swans (*Cygnus olor*). In 1977, it was designated as Ramsar site, being a wetland of international importance. Waterfowls on passage include *Netta rufina, Aythya nyroca* and *Fulica atra*. Breeding waterfowls include *Podiceps cristatus, Botaurus stellaris* and *Porzana porzana*. The site also provides an important feeding area for several raptors, including the threatened *Haliaeetus albicilla*



Contact information:
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Poland
Tel/fax: (48.89) 742 1405/ (48.89) 742 1405
Email: mpkraj@box43.gnet.pl

Poland

Slowinski

Declaration date: 1976
Surface area: 20.790 ha
Administrative division:
Ministry of Environment Slowinski National Park Management

Human activities:

The name of the biosphere reserve derives from the group of Kashubian tribe (Slowincy), who once lived in this remote area. An open-air museum, located in Kluki village, is designated to present the culture of this ethnic group. The biosphere reserve is a popular tourist destination and also offers environmental education to the visitors, for instance with interpretative nature paths.

Ecological characteristics:

Situated along the southern Baltic coast between Leba and Rowy, this biosphere reserve focuses on the protection of coastal aeolian processes and mobile sand dunes which are among the most active and extensive around the Baltic Sea. The Baltic Sea activity and other geo-morphological processes lead to the creation of sand-bars, separating lakes from the sea. The mobile dunes can reach a height of over 30 meters above sea level. The Slowinski wetlands are of high importance in the Baltic Sea region as a breeding and stopover area for many bird species. It was designated as Ramsar site in 1995. The biosphere reserve comprises a series of vegetation zones created by natural succession, going from the coastline towards the mainland. The system includes pioneer and initial sand communities, as well as coastal coniferous forests with crowberry.

Contact information:
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Web: mos.gov.pl/kzpn

Poland
Puszcza Kampinoska

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Declaration date: 21th January 2002
Surface area: 76.233 ha
Administrative division:
Mazowieckie Voivodeship and 15 communities: Stare Babice, Izabelin, Łomianki, Czosnów, Leszno, Kampinos, Brochów, Leoncin, Bielany, Bemowo, Zakroczym, Sochaczew, Młodzieszyn, Czerwińsk and Wyszogród.

Human activities:

Agriculture, forestry, tourism and recreation (hiking, biking, cross-country skiing, horse-riding), ecological education, research.

Protection classification:

Kampinos National Park and its buffer zone
Natura 2000 site PLC140001 Puszcza Kampinoska
Natura 2000 site PLH140020 Forty Modlińskie

Contact information:

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Ecological characteristics:

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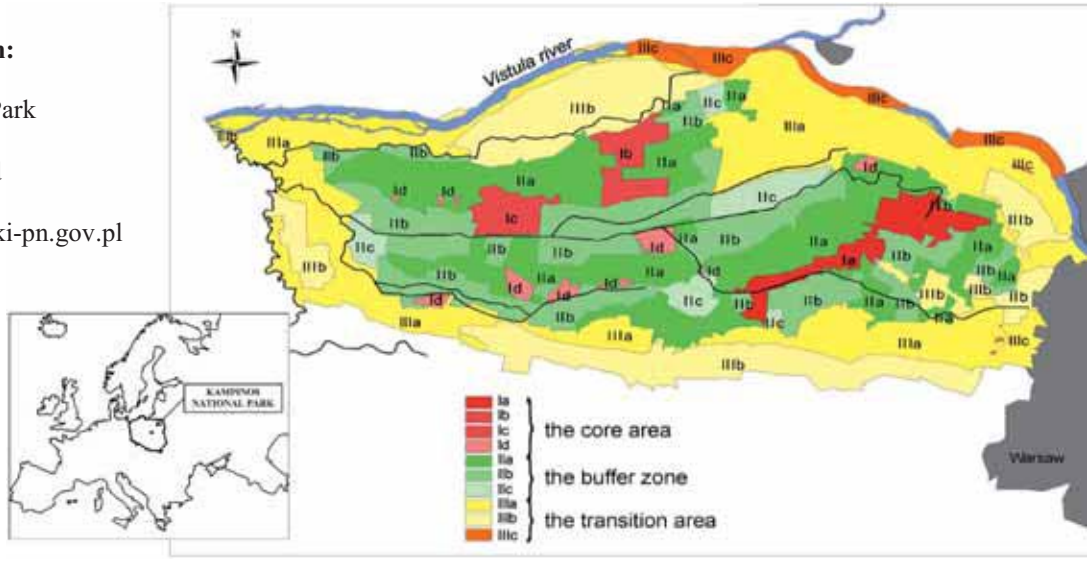
The BR "Puszcza Kampinoska" is situated in central Poland, on the Middle Mazovian Lowland, in the proglacial valley of the Vistula River, northwest of Warsaw. It is located in the area of a hydrological node, where the rivers: Bug, Narew, Wkra and Bzura fall into the Vistula River and is recognized as a European rank ecological node. The whole area of the BR "Puszcza Kampinoska" has a structure of belts parallel to the Vistula River's bed. Dune areas are divided by wide marshy lowerings. The most important watercourse of the area is the Łasica. Only the upper course of the Łasica River has a natural character. Vegetation of the BR "Puszcza Kampinoska" is dominated by forests, most notably of the mixed type. Of other types most common are pine forests (fresh, moist or bog) and deciduous forests. Apart from forests, the Park abounds in a variety of other plant communities, such as underwater and surface water communities, sedge meadows, fens, transitional peat bogs, high peat bogs, wet and fresh meadows, pasturelands, moors, sandy grasslands. So far research has confirmed the presence of 1420 species of vascular plants in the BR "Puszcza Kampinoska". On the area of the BR "Puszcza Kampinoska" the occurence of only 3000 animal species has been proved, but it is estimated to be home for 16,5 thousand animal species, which constitutes half of Poland's native fauna.



Poland
West Polesie

© T.J. Chmielewski

Declaration date: 30th April 2002
Surface area: 139.917 ha
Administrative division: Lublin Province (boroughs: Cyców, Dębowa Kłoda, Hańsk, Niedźwiada, Ostrów Lubelski, Ludwin, Łęczna, Parczew, Puchaczów, Sawin, Siemień, Sosnowica, Stary Brus, Urszulin, Uścimów, Wierzbica, Włodawa, Wola Uhruska, Wyryki)

Human activities:

Agriculture (pastures, fields), forestry, fishery, tourism and recreation (water sports, agro-tourism, ecological tourism, bird – watching, biking, horse - riding) ecological education.

Ecological characteristics:

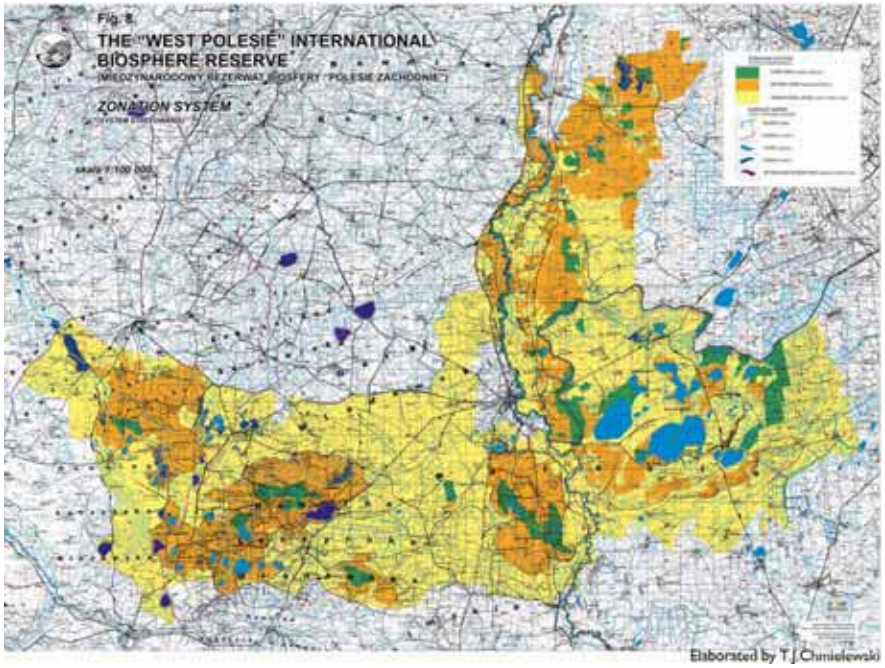
"West Polesie" Biosphere Reserve is situated in an ecotone sphere among two bio-geographic regions: boreal coniferous forests and leafy forests of the Temperate Zone, with bigger influence of the first one. Diverse water, moor, forest and meadow ecosystems' mosaic has place here, as well as – in zones B and C – traditional field use. On the area of "West Polesie" Biosphere Reserve 1466 species of vascular plants exist, in this: 12 species from the European CORINE list and 4 species from the Polish "Red Book of Plants", 341 alga species and 154 lichen species are here as well. Great habitat diversity shows that over 250 plant groups were noted here. The animal world is also very rich – zooplankton is represented by at least 278 species, zoobentos – 197, fish – 35, amphibian – 13, reptile – 6, birds – 154, mammals – 35. Over 58 fauna species of the region are recorded in the CORINE list, and 25 – in the Polish "Red Animal List".

Protection classification:

Poleski National Park, "Żółwiowe Muds" nature reserve.

Contact information:

Poleski National Park
22-234 Urszulin, ul. Lubelska 3a, Poland
+48(082)571 30 72, poleskipn@poleskipn.pl



© A. Rozycki

Poland
Tuchola Forest

Beata Grabowska, Dunes and pine forests in the Tuchola Forest National Park

Tuchola Forest National Park

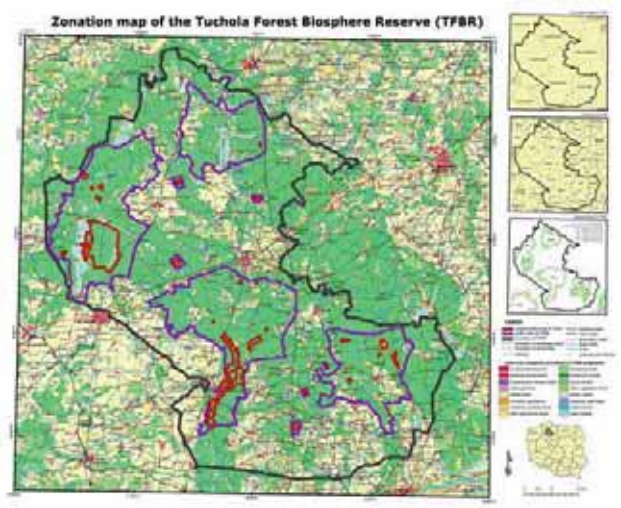
Declaration date: 2010
Surface area: 319.524,61 ha
Administrative division:
Administration of BR Tuchola Forest is part of the Tuchola Forest National Park under the authority of the Ministry of Environment, and Zoborski Landscape Park and Wdzydzki Landscape Park under the authority of Marshal' Office of the Pomerania Province, and Tucholski Landscape Park and Wdecki Landscape Park under the authority of Marshal' Office of the Kujawy – Pomerania Province

Human activities:

About 17,140 people live in the buffer zone of the biosphere reserve (in total 102,500 people in 2006). The average density of the human population in the whole area is 32 persons/km^2. It drops to 16 persons/km2 within the buffer zone and almost to zero within the core zone. The former interactions and settlement processes led to the constitution of three major ethnic groups in the Biosphere Reserve. Those groups are formed by: Borowiacy from the Tuchola region (in the southern part of the area), Borowiacy from Kashubia (in the northwestern part) and Zaboracy (in the northern part). Their material culture and everyday life, in the past and today, are presented in numerous museums, and ethonographic park, exhibitions and memorial chambers.
People mostly depend on forestry and tourism. However, at the same time, the major source of income is exploitation of forest ecosystems (logging, picking mushrooms and berries, hunting) and water ecosystems (fishing), as well as cultivation of small agricultural fields, which, together with housing settlements, form mid-forest "islands". In last several years, agritourism combining the traditional farming forms with tourism and recreation, as well as craft development based on local timber processing, has become one of the most intensively developing branches of economy in the transition zone.

Ecological characteristics:

The tuchola Forest Biosphere Reserve is one of the biggest forest complexes in Poland. It is situated in the northwestern part of Poland in the Pomerania region, about 50 km south-west of Gdansk in the Baltic coast. The present-day relief of Tuchola Forest developed during the glacial age, particularly during the last Baltic glaciation, the Pomeranian Phase. Within the Biosphere Reserve, fluvioglacial alluvial plains dominate, build of sand layers and mostly afforested. The region is characterized by a lowland, Lakeland type of landscape. The area is quite diversified in respect of altitude. The relief differentiation is connected with the occurrence of concave geomorphological forms (subglacial gullies, river valleys, small glacial melt-water features), as well as eolian convex forms (dunes, eolian hills). The area of the Biosphere Reserve is intersected by two Holocene river valleys: Brda and Wda, running from NW to SE. The Biosphere Reserve is situated within the temperate climatic zone with the slight influence of oceanic air masses.



Contact I nformation:

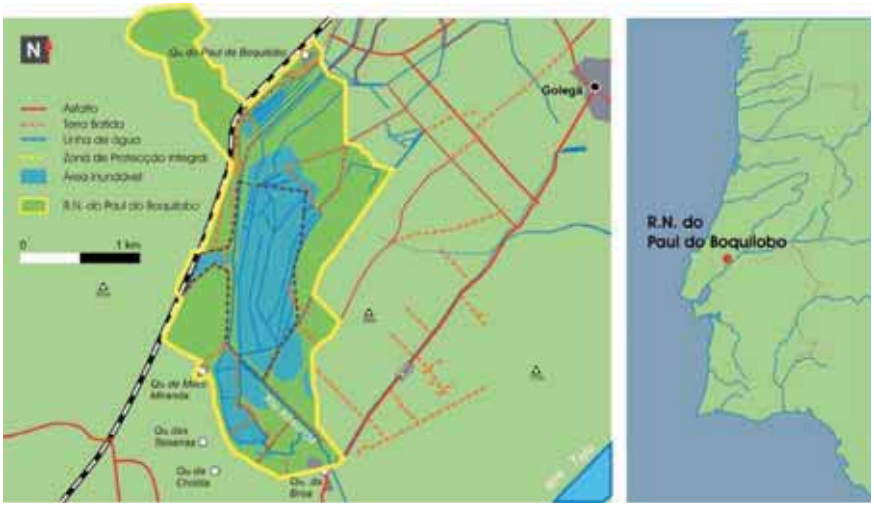
Tuchola Forest National Park
MAB
Dluga 33
89-606 Charzykowy
Poland
Email: secretariat@pnbt.com.pl
Tel/fax 48 052 3988397
www.br.tucholaforest.pl

Portugal
Paul do Boquilobo

Paúl Do Boquilobo
Declaration date: 1981
Surface area: 554 ha
Administrative division:
Instituto da Conservação da Natureza, tutela do Ministério do Ambiente e do Ordenamento do Território

Human activities:
The local population nearby is mainly involved in agriculture including extensive cultivation.. The site is of considerable conservation value and scientific interest.

Ecological characteristics:
Paúl do Boquilobo Biosphere Reserve in Central Portugal consists of a natural freshwater wetland surrounded by marshes, which lie in a bend of the Almonda River. Floods from the Tejo River naturally inundate the site in winter and part of it subsequently dries out when the water table is mechanically lowered in spring to create larger areas for cultivation. The site may also act as a flooding buffer zone contributing to increased protection of adjoining farmland areas against erosion caused by winter floods. For many years this wetland has been a valuable sink for alluvial particles carried in by the Tejo River creating rich cultivated areas, which have contributed to the economic wealth of the area. The marshes have characteristic aquatic vegetation in permanently inundated areas. Lines of cottonwood (Populus sp.), willow (Salix sp.) and other trees make up characteristic hedges around the wetland and offer excellent cover for breeding birds and other fauna. Three core areas are designated including the densest willow growths. Sunflower and other fast-growing annuals are grown on fertile sediments around the marsh. The wetland, which is also a Ramsar site, is a very important wintering site for waterbirds in Portugal, with concentrations of ducks pintail (Anas acuta) and cattle egret (Bubulcus ibis), little egret (Egretta garzetta), black-crowned night-heron (Nycticorax nycticorax) and a growing population of the spoonbill (Platalea leucorodia).



Contact information:

Reserva Natural do Paul do Boquilobo
Apartado 27
2350-334 TORRES NOVAS
Portugal
Tel.: (351.249) 820 550
Fax: (351.249) 820 378
Email: rnpb@icn.pt
www.icn.pt

Portugal
Ilha do Corvo

Declaration date: September 2007
Surface area: 25.852 ha
Administrative division: Ilha do Corvo, the Azores

Human activities:
Agriculture and animal husbandry have always been of relevance for the island's economy. Over the past two decades cattle raising has gained importance over other animal raising and agriculture. This has been a result of the conversion of cropland into pasture land. As from the mid-eighties, fisheries have had more weight in the economy due to exports of frozen fish. There is great potential for tourism because of the island's natural characteristics but it is still scantly developed

Contact information:

Ecological characteristics:
The Island of Corvo has a significant wealth of endemic terrestrial flora, with 95 endemic species, 59 of which are endemic to the Azores Archipelago, 19 are endemic to Macronesia and 17 are endemic to Europe. Also to be found are endemic invertebrates, making this island particularly interesting. In terms of terrestrial arthropods, 24 species have been recorded as endemic to the Azores and 6 to Macronesia. Six endemic species of land molluscs have been identified (5 to the Azores and one to Macronesia). As to birdlife 8 subspecies endemic to the Azores have been recorded and one subspecies endemic to Macronesia. The island has important nesting sites at international level for relevant bird species, many of them registered in Annex I of the Birds Directive. Due to its geographical position located on the American Tectonic Plate, at almost equal distance from the Iberian Peninsula and Terra Nova, migratory birds often arrive accidentally on the island from North America and the Arctic. These birds find the right resting and feeding conditions on the Island of Corvo. To complete the wealth of species endemic to the this location is a species of bat endemic to the Azores and another one endemic to Macronesia.

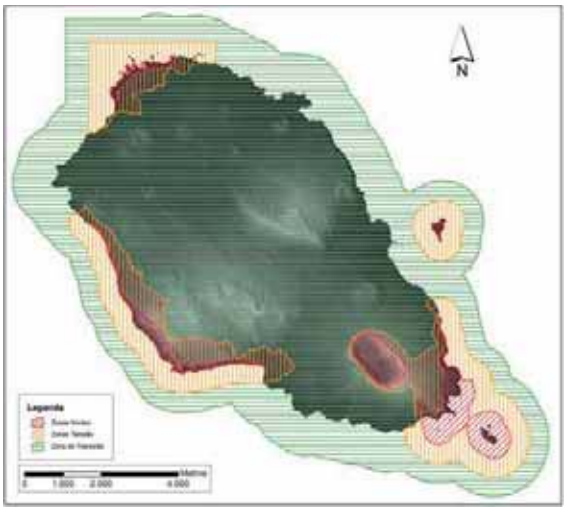
Portugal
Ilha Graciosa

Declaration date:
September 2007
Surface area: 12.172 ha
Administrative division:
Ilha Graciosa, Azores

Human activities:
Agriculture and animal husbandry have always played a significant role in the Island's economy, continuing up to the present with a population that is strongly linked to the rural environment. Agriculture is extensive and diversified, aimed both at subsistence and export, with raw material and products with added value such as wine. The local population is also engaged in fishing which is mainly of the traditional kind with exports of frozen fish. The mild climate and the different and attractive landscapes provide Ilha Graciosa with high promises of multifunctional tourism.

Contact information:

Ecological characteristics:
Ilha Graciosa is rich in land flora, with 60 endemic species, of which 40 are endemic to the Azores and 20 endemic to the Macronesian region. Invertebrate fauna include 33 land arthropods endemic to the Azores and 13 endemic to the Region of Macronesia. In terms of land molluscs, 15 endemic species have been recorded for the Azores and 2 for the Macronesia Region. .Nine endemic subspecies of birds nesting on the island have been recorded for the Azores and one endemic subspecies for Micronesia. The Biosphere Reserve contains areas of international importance for rare and sensitive species of birds that nest there, many of which are contained in Annex 1 of the European Union's Birds Directive. One of the island's most important natural assets is its geo-diversity, characterized by a variety of geological structures, forms and materials. Located within the Crater or Caldeira is the Furna do Enxofre, a unique volcanic cavity. The Caldeira was recently reclassified as Caldeira da ilha Graciosa Natural Regional Monument. The island has hot springs, the best known are located on the Carapacho coast, where they feed the thermal baths.



Portugal
Ilha das Flores

© *Ilha das Flores BR*

Declaration date: 2009
Surface area: 58.619 ha
Administrative division: Autonomous Region of the Azores

Human activities:

© *Flores Island BR*

- The largest settlements occur in the villages of Lajes and Santa Cruz, the latter representing currently the main urban settlement.
- Agriculture and livestock farming still play and have always played a major role in the economy of the island.
- Livestock farming is extensive and used for subsistence and exportation, both of living cattle or of dairy products. Agriculture is also extensive, little diversified and used mainly for subsistence.
- Ilha das Flores main processed product is cheese. However, butter production could be increased and processing extended to different types of products.
- The landscape remains, dominated by pasture delimited by basalt walls and low hedges of hydrangeas. Single and double wheeled water mills are a striking feature of such landscapes.
- Fishing and whale hunting have also developed as a traditional occupation despite the difficult access to the sea in most parts of the island.
- The celebrations of the Holy Spirit brought by the first settlers is currently one of the most important social and cultural events in Flores Island

Ecological characteristics:

© *Ilha das Flores BR*

- 24 natural habitats listed in Annex I of the Habitats Directive of the European Union have been identified, of which five are priority ones.
- The largest juniper (*Juniper usbrevifolia*) forest of the Azores
- Wide areas of endemic macaronesian heaths and laurissilva forests, surround freshwater lenthic (lakes of various sizes) and lothic (permanent or temporary streams) environments.
- The coastline of the island is vigorously shaped by high cliffs and complemented by many nearshore islets and rocks. The difficult access preserved for centuries the importance of these places as a breeding place for important sea birds.
- At the base of the cliffs the deposition and agglomeration of cobbles and boulders gives rise to the so-called “fajãs”, some of them outlined by impressive hills and waterfalls.
- The largest peat bogs in the Azores are located in the high and humid areas of the central plateau of Flores Island. Peat bogs are vital for the water balance of this island that supports streams and waterfalls.

Protection classifications:

- 4 areas of Natura 2000 network of the European Union: 2 Special Protection Areas (SPA) and 2 Special Areas of Conservation (SACs)
- Ilha das Flores Natural Park .
- RAMSAR Wetlands areas

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Contact information:

Manuel.PS.Costa@azores.gov.pt

Romania

Pietrosul Mare

Declaration date: 1979
Surface area: 44.000 ha
Administrative division: Forest Directorate, Maramures Country

Human activities:

The area is not inhabited. Rural villages in the surrounding area depend on agriculture, livestock raising, hunting and forestry. Due to traditional farming, the ancient landscape is still maintained today.

Contact information:

Institute for Forestry and Nature Research
P.O. Box 167
1790 AD Den Burg - Texel
Netherlands
Tel.: (31.222) 369 700
Fax: (31.222) 319 235

Ecological characteristics:

Mount Pietrosul Mare is the biggest mountain complex in the Rodna Massif which is situated to the north of the Eastern Carpathians. This biosphere reserve is very important from a biodiversity conservation perspective. Habitats are extremely diverse due to high elevation changes (900 to 2,300 meters above sea level). They include beech (Fagus sp.), spruce (Picea sp.) and pine (Pinus sp.) mountain forest ecosystems as well as alpine meadows with many endemic and endangered species.

Beech (Fagus sylvatica), spruce (Picea abies) and arolla pine (Pinus cembra) forests; alpine and subalpine pasture with Carex curvula, Festuca airoides and shrublands of Rhododendron kotsckyi; arcto-alpine habitats with species such as Cerastium alpinum, Silene acaulis, Atragene alpina etc.; circumpolar habitats with Woodsia ilvensis, Diphasus alpinum, Salix herbacea etc.; central European alpine habitats characteristic of the Rodna Massif with dwarf pine (Pinus mugo), green alder (Alnus viridis), Salix retusa, Callianthemum coriandrifolium etc.; lakes of glaciar origin.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Romania

Retezat

Declaration date: 1979
Surface area: 38.047 ha
Administrative division: Administration of the Biosphere Reserve: Retezat National Park Administration (RNPA), under the Forest Directorate Hunedoara

Human activities:

The biosphere reserve is not inhabited, however rural communities outside the biosphere reserve depend on agriculture, livestock raising and forestry. Impacts on the environment come from overgrazing and recreation activities. In this region, people from different origins (Romania, Hungary, Germany and Serbia) are living together.

Ecological characteristics:

This biosphere reserve is situated in the southern Carpathian Mountains and has an altitude range from low mountain ranges to alpine landscape. Peak Peleaga with 2,509 meters above sea level is the highest elevation in the biosphere reserve. The Retezat Massif is a well-defined upland block, separated on most sides from the rest of the range by deep valleys and to the north overlooking the Tertiary Hateg basin. The area was glaciated in the quaternary and has many landforms caused by glacial erosion. This biosphere reserve is significant for the conservation of European mountain forest diversity. The vegetation is very diverse due to the varied relief and the junction of three floristic regions in this area.

Contact information:

Zoran Acimov
Forest Directorate Hunedoara Forest Directorate Deva
Bdul 22 Decembrie Bl. 4 Parter
2700 Deva, Romania
Tel./Fax: (40.54) 218 829
E-mail: office@retezat.ro
Web site: www.retezat.ro

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Russian Federation

Kavkazskiy

© *Kavkazskiy BR*

Declaration date: 1978
Surface area: 295.700 ha
Administrative division: Krasnodarski krai, Republic of Adygeya, Republic of Karachaevo-Cherkessia

Human activities:

The main problem of the Reserve is to save its territorial integrity since the administration of the Republic of Adygeya has some territorial claims. There is also a problem of illegal using of natural resources within the Reserves' area.

Protection classifications:

State nature reserve (Zapovednik)

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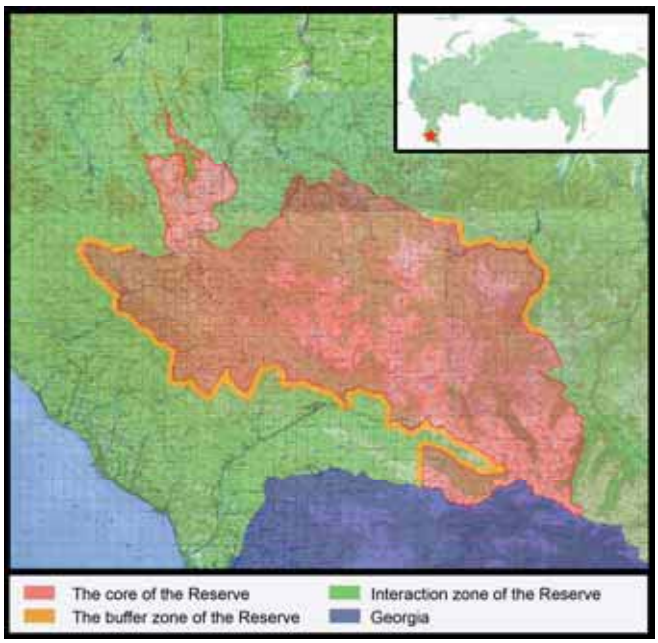
Contact information:

Kavkazskiy Biopshere Reserve, 8, Karl Marx St., Sochi city, Adlerskiy district, Krasnodarski Krai, 354340 Russia. Tel.: +7 862 2 445136; fax: + 7 862 2 445265, E -mail: adlerzap@sochi.ru, web-site: http: www.kgpbz.ru

Ecological characteristics:

© *Kavkazskiy BR*

The Reserve is characterized by 11 types of landscape zones with amazing diversity and high level of endemism. 60% of its territory never was under human development. World of invertebrates includes more than 10000 species. In rivers and lakes one species of Cyclostomatous and 24 species of fishes are registered. There are 20 species of creepers, 10 of amphibians, 176 of birds including 82 nesting species. There are 78 species of mammals. Among them is Caucasus bison (Bison bonasus montanus x Bison bison) rehabilitated instead of destroyed in the past Bison bonasus caucasicus. Mean level of faunistic endemism is about 15%. 16 species are included into IUCN Red List. There are about 2900 species of vascular plants and mean level of floristic endemism is about 29%. 16 species are included into IUCN Red List. Also there are more than 1000 species of fungi and about 500 species of lichens.



Russian Federation

Okskiy

© *Okskiy BR*

Declaration date: 1978
Surface area: 77.193 ha
Administrative division: Ryazanskaya oblast

Human activities:

People having impact on the Reserve's territory can be divided into three categories: Reserve staff living in cordons and in the central village (180 people); local residents, living near the Reserve (about 2000); and visiting tourists, hunters, and fishermen (up to 10,000).

Protection classifications:

State nature reserve (Zapovednik).

© *Okskiy BR*

Contact information:

Okskiy Biosphere Reserve, p/o Lakash, Spassky district, Ryazanskaya oblast, 391072 Russia. Tel./fax: + 7 491 35 72274, E-mail: obz@mail.ru

Ecological characteristics:

© *Okskiy BR*

Reserve is located in the south-eastern part of the Meshera lowland and includes flood plains of the Oka River. The Pra River, a tributary of the Oka, which forms part of the Reserve's boundary, is considered one of the cleanest rivers in European part of Russia. The Reserve's territory is covered with pine, birch, and deciduous forests, with occasional oak groves. There are many bogs and lakes inhabited by dozens of species of fish and reptiles. Plant world includes 800 vascular and flowering species and 150 fungi species, including 69 rare and five disappearing species. Over 50 species of mammals and 240 species of bids found at the protected territory, including the rare desman, black stork, white-tailed eagle, and several species of bumblebees. The Reserve's staff conducts ecological education for the surrounding community and visitors to the area to convey the importance of conservation of the diversity of plant and animal species located in the region. A nature museum of the Reserve hosts school children and other local interested groups, increasing overall environmental awareness in the region. The Reserve is home to two famous breeding and reintroduction centers: for the Caucasian-Byelovezh bison and for rare crane species, such as Siberian, red- crowned, and hooded cranes.

Russian Federation

Prioksko-Terrasnyi

© *Prioksko-Terrasnyi BR*

Declaration date: 1978
Surface area: 9.845 ha
Administrative division: Moskovskaya oblast

Human activities:

Forestry and agriculture in near-by areas don't represent threat to the Reserve. More important is rapid development of country-house construction. It will lead to sharp increase of impact by the local population.

Contact information:

Prioksko-Terrasnyi Biosphere Reserve, Danki village, Serpukhovskoi district, Moskovskaya oblast, 142200 Russia. Tel.: + 7 496 7 707149, fax: + 7 496 7 707149, E-mail: ptz@danki.ru, web-site: www.danki.ru

Ecological characteristics:

© *Prioksko-Terrasnyi BR*

The Reserve is situated in the central part of the East-European plain at the boundary of broad-leaved and mixed forests subzones, on the afforested terraced slopes of the left bank of the valley of the Oka River. The climate of the Serpukhovskoi district is moderately continental with a duration of the frostless period is more than 135 days and average annual precipitation is about 500 - 550 mm. The mean annual temperature of the is +3,9°C. January is the coldest month, July is the warmest one. The height of snow cover can reach 50 - 55 cm. Almost the whole territory of the Reserve is situated within the preglacial flood-plain of the Oka River, having the step-like structure of its banks. Soddy weakly-podzolic soils predominate here. Strong soddy carbonate soils lie in the places with surface occurrence of limestone. Among the forest flora the main species being pine; the other plant communities include unique relict meadow-steppe phytocenoses with a number of steppe and rare mountain species. In total 982 species of flora have been recorded. In the Reserve there are 53 species of mammals and over 130 species of birds.

Protection classifications:

State nature reserve (Zapovednik).

© *Prioksko-Terrasnyi BR*

Russian Federation
Sikhote-Alin

© *Sikhote Alin BR*

Declaration date: 1978
Surface area: 1.488.428 ha
Administrative division: Primorski Krai

Human activities:

Industrial logging in transition areas and stocking of non-timber forest products by local population; minerals mining; construction of roads and communication lines; hunting. Man-caused forest fires; trade of biological marine resources in the adjacent to the Reserve aquatories.

Protection classifications:

State nature reserve (Zapovednik).

Contact information:

Sikhote-Alinskiy Biosphere Reserve, 44, Partizanskaya St., Terney settlement, Primorski Krai, 692150 Russia. Tel.: + 7 423 74 31559, fax: + 7 423 74 31378, E-mail: sikhote@vld.global-one.ru

Ecological characteristics:

© *Sikhote Alin BR*

The Reserve is situated in the central part of the Sikhote-Alin Mountain Range with average heights of 600 - 1000 m above sea level. This Range divides the Reserve's territory into two zones with distinct morphologic, climate and vegetation characteristics. The Reserve includes also two plots in the Japan sea. Latitudinal and high-altitudinal vegetation belts are well observed within the territory - from the coastal area to the Sikhote-Alin Range. The Reserve conserves unique natural terrestrial complexes of virgin coniferous, coniferous-broad-leaved, dark-coniferous, light- coniferous, broad-leaved and small-leaved forests, meadows and high-mountain plots and also marine and coastal ecosystems of the Japan Sea. Nearly 1200 species of vascular plants, more than 400 species of vertebrates (among them 62 terrestrial and 10 marine mammal species) are found within the Reserve's territory and aquatory. 24 of plant species and 53 vertebrate species are included into the Red Data Book of Russia and 39 vertebrates – into the IUCN Red List. The high diversity here was formed thanks to mixing species from the North and South, high degree of endemism and low level of invasion by alien species. These data collected during 70 years, are presented in the Reserve's database. The Reserve's territory has been included also into the World Natural Heritage List.

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Russian Federation

Tsentral'nochernozern

© *Tsentral'nochernozern BR*

Declaration date: 1978
Surface area: 16.567 ha
Administrative division: Kurskaya oblast

Human activities:

Change of a special-purpose designation of the agricultural land; poaching; construction of houses, roads, communication lines, etc.

Protection classifications:

State nature reserve (Zapovednik).

© *Tsentral'nochernozern BR*

Contact information:

Tsentral'nochernozemny Biosphere Reserve,
p/o Zapovednoe, Kurskaya oblast, 305528 Russia.
Tel./fax: + 7 471 2 565829,
E-mail: alekhin@zapoved.kursk.ru

Ecological characteristics:

© *Tsentral'nochernozern BR*

The Reserve is one of the oldest in Russia. It was created in 1935 to conserve the chernozem soils and the last non-plaughed plots of virgin steppe with multicolored herbs. It consists of six clusters: Streletski (2046 ha), Kazatski (1638 ha), Barkalovka (368 ha), Bukreevy Barmy (259 ha), Zorinski (495 ha), Poima Psla (481 ha). There are 950 species of vascular plants, among them there are some interesting species of steppe and chalk deposits which is never met in other Reserves of Russia: Koeleria talievii, Erucastrum cretaceum, Astragalus albucarulis, Androsace koso-poljanskii, Daphne cneorum, Linum hirsutum and other. The forest inheritance is not rich. There are small pieces of wood with predominance of Quercus robur and with poor undergrowth broken by clearings and pastures. A natural recovery of multi-species broad-leaved forest is going on. Fauna of the Reserve is rich and consists of: 3500 species of insects, 10 - amphibians, 5 - reptiles, 220 - birds, 50 -mammals.

Russian Federation
Astrakhanskiy

© *Astrakhanskiy BR*

Declaration date: 1984
Surface area: 16.567 ha
Administrative division: Kurskaya oblast

Human activities:

Change of a special-purpose designation of the agricultural land; poaching; construction of houses, roads, communication lines, etc.

Protection classifications:

State nature reserve (Zapovednik).

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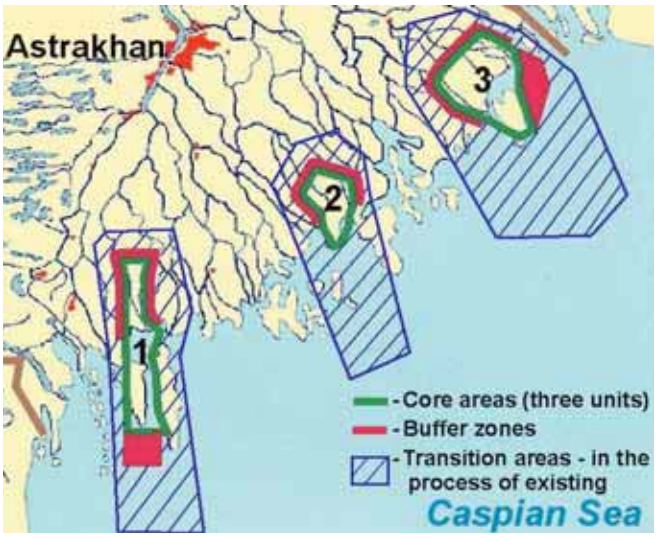
Contact information:

Tsentral'nochernozemny Biosphere Reserve,
p/o Zapovednoe, Kurskaya oblast, 305528 Russia.
Tel./fax: + 7 471 2 565829,
E-mail: alekhin@zapoved.kursk.ru

Ecological characteristics:

© *Astrakhanskiy BR*

The Reserve is one of the oldest in Russia. It was created in 1935 to conserve the chernozem soils and the last nonplaughed plots of virgin steppe with multicolored herbs. It consists of six clusters: Streletski (2046 ha), Kazatski (1638 ha), Barkalovka (368 ha), Bukreevy Barmy (259 ha), Zorinski (495 ha), Poima Psla (481 ha). There are 950 species of vascular plants, among them there are some interesting species of steppe and chalk deposits which is never met in other Reserves of Russia: Koeleria talievii, Erucastrum cretaceum, Astragalus albucarulis, Androsace koso-poljanskii, Daphne cneorum, Linum hirsutum and other. The forest inheritance is not rich. There are small pieces of wood with predominance of Quercus robur and with poor undergrowth broken by clearings and pastures. A natural recovery of multi-species broad-leaved forest is going on. Fauna of the Reserve is rich and consists of: 3500 species of insects, 10 - amphibians, 5 - reptiles, 220 - birds, 50 - mammals.



Russian Federation
Kronotskiy

© *Kronotskiy BR*

Declaration date: 1984
Surface area: 1.142.134 ha
Administrative division: Kamchatski krai

Human activities:

This Reserve is located far from human settlements and such position helps to keep its natural complexes almost in pristine state. Recreational pressure currently does not exceed maximum permissible level. Habitats of rare plant species are not transformed and diversity of fauna is also kept at the level of original natural parameters and populations of key animal species are not endangered.

Protection classifications:

State nature reserve (Zapovednik).

Ecological characteristics:

© *Kronotskiy BR*

Ecosystems of the Reserve are referred to the North-Pacific type and include mountain-taiga, rare woods (with a Stone birch, Kamchatka birch, Cajander's larch, and Ajan spruce) with thickets of mountain pine and Siberian mountain ash and tundra with plenty of berries. Being located in the Eastern part of Kamchatka it is included into the Eastern Volcanic belt that caused the formation of relief, flora and fauna. This area is notable for various types of volcanic activity: there are active and extinct volcanoes (11), geysers and thermal springs. Mountain-glacial landscapes are also widely presented: there are glaciers (11 % of all Kamchatka glaciers), including the largest glaciers (Koryto, Tushevsky) and in total they cover 14 000 ha. At the territory of the Reserve it is possible to see the variety of natural complexes typical for the peninsula: tundra, forest, meadow, coastal communities. Stone birch and mountain pine woods, mountain and coastal tundra, and vast marshy sites are widely spread. Flora accounts for 810 plant species including 38 which are endemic. Fauna of the Reserve includes all ecological groups and complexes which are typical for the peninsula. The Reserve is distinguished by its very high density of brown bear. Several rare and endangered animals are included into the Red Data Book of Russia (sea-otter, Steller's sea eagle, fish hawk, Arctic falcon and Aleutian tern). It belongs to the World Natural Heritage List.

© *Kronotskiy BR*

Contact information:

Kronotskiy Biosphere Reserve, 48, Ryabikova St.,
Elisovo Town, Kamchatski krai, 684010 Russia.
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E-mail: zapoved@mail.kamchatka.ru

Russian Federation

Laplandskiy

© *Laplandskiy BR*

Declaration date: 1984
Surface area: 1.088.500 ha
Administrative division: Murmanskaya oblast

Human activities:

Industrial air emissions and water pollution from large enterprises; forest fires in results of human activity.

Protection classifications:

State nature reserve (Zapovednik).

Ecological characteristics:

© *Laplandskiy BR*

The peculiarity of biodiversity protected in the Reserve is connected with its history since it was organized on uninhabited territories before their intensive industrial development. This allowed to preserve unique natural complexes, biological and landscape diversity and to avoid conflicts with local population. At present, the Reserve includes three zones: the core area serves for the long-term preservation, monitoring and investigations. Its major asset is pristine nature. Old-aged forests cover almost 50% of whole territory that sometimes are three, five and even more hundred years old, with trunks up to 20 m in height, and 70 cm in diameter. 31 species of mammals inhabit the Reserve. As a result of serious protecting measures, the Reserve hosts the largest herd of wild reindeer in Scandinavia, with more than 1000 animals. Five species of vascular plants are enlisted in the Red Data Book of Russia. The buffer zone is located around the core area. Education activity and ecotourism are conducted there. The area of cooperation includes the public institutions and districts of Murmanskaya oblast and large industrial enterprises which guarantee social and economic welfare of region. So, the sustainable development of this region should be based at the compromise between nature conservation and economic development.

© *Laplandskiy BR*

Contact information:

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Zeleny pereulok, Monchegorsk City,
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E-mail: lapland@lapland.ru

Russian Federation

Pechoro-Ilychskiy

© *Pechoro-Ilychskiy BR*

Declaration date: 1984
Surface area: 1.253.753 ha
Administrative division: Komi Republic

Human activities:

Expansion of timber manufacturing firms; poaching hunting and fishing, collection of wild plants; uncontroled tourism; impact of river vessels and technical pollution on river ecosystems; pasture of domestic reindeer near the Reserve's border.

© *Pechoro-Ilychskiy BR*

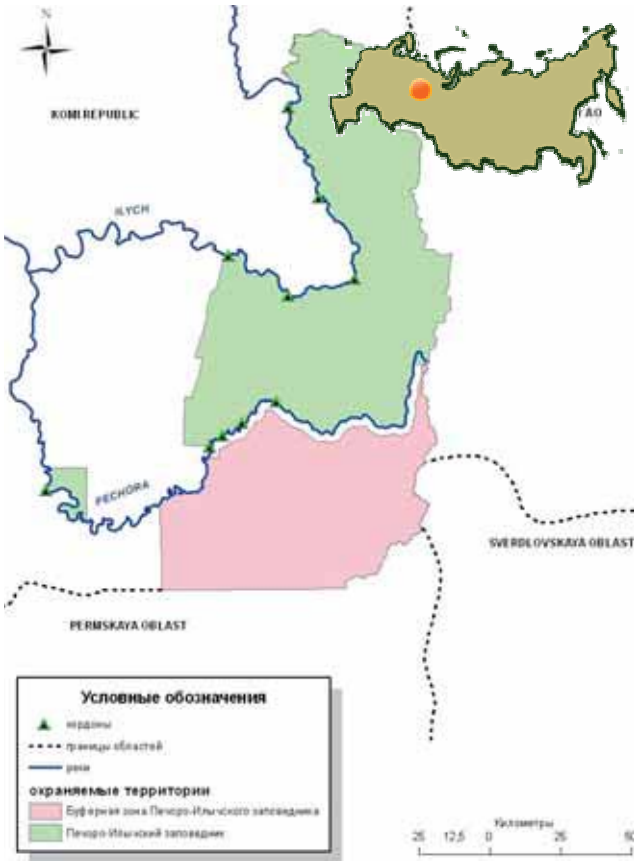
Protection classifications:

State nature reserve (Zapovednik).

© *Pechoro-Ilychskiy BR*

Ecological characteristics:

The Reserve is situated at the south-east of the Komi Republic (62º - 63º North) in the north and middle taiga subzones. More than 86% of its area is covered by forest. The territory of the Reserve includes a part of the west macro slope of the North Urals (max. height above sea level – 1200 m) and there are three altitudinal belts that represent three landscape regions: plain pine forests, sub-montane dark coniferous forest and mountain habitats. The Reserve's flora characterized by the prevalence of dark coniferous forest with Picea obovata, Abies sibirica and Pinus sibirica. The fauna is included typical taiga species: Alces alces, Rangifer tarandus, Ursus arctos, Martes zibellina, Martes martes, Tetrao urogalus, Perisoreus infaustus. The Reserve is protecting the existence of plant and animal species inhabiting virgin ecosystems at the border of Europe and Asia. The most part of the Reserve's forests did not have man's impact during several ages.



Contact information:

Pechoro-Ilychskiy Biopshere Reserve, 8, Lanina St., 8,
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Komi Republic, 169436 Russia.
Tel.: +7 821 38 95680,
E-mail: pechilzap@mail.ru

Russian Federation

Sayano-Shushenskiy

© *Sayano-Shushenskiy BR*

Declaration date: 1984
Surface area: 1.087.968 ha
Administrative division: Krasnoyarski krai

Human activities:

Poaching and impacts of Sayno-Shushenskiy water reservoir.

Protection classifications:

State nature reserve (Zapovednik).

Ecological characteristics:

© *Sayano-Shushenskiy BR*

The Reserve was created for preservation of natural complexes which are typical and unique for Western Sayan region. Its area is one of the few in Russia, where it is possible to see snow leopard, Siberian ibex, osprey, golden eagle, and also many species of rare plants. Middle mountain relief with sharp partition and steep slopes is typical for the Reserve which is located in the area of contact between Siberian taiga and steppes of the Central Asia. Forests make of common boreal species: first of all, Siberian pine, Siberian larch and then Siberian fir, spruce, pine, birch and aspen. The flora counts more than 1000 vascular plant species. Fauna of the Reserve is very rich also: 770 species of insects, one amphibian, five reptiles, 336 birds, 53 mammals, 21 fishes. Of rare species included into the Red Data Book of Russia are snow leopard and Pallas' cat. Among rare birds are Baikal snow partridge, golden eagle, saker falcon, and peregrine falcon.

© *Sayano-Shushenskiy BR*

Contact information:

Sayano-Shushenskiy Biosphere Reserve, 7, Zapovednaya St., Shushenskoye settlement, Krasnoyarski krai, 662710 Russia. Tel.: + 7 391 39 31881, fax: + 7 391 39 32300, E-mail: zapoved7@yandex.ru

Russian Federation

Sokhondinskiy

© *Sokhondinskiy BR*

Declaration date: 1984
Surface area: 347.000 ha
Administrative division: Chitinskaya oblast

Human activities:

Forest fires, poaching hunting and fishing and cattle breeding in near-by areas.

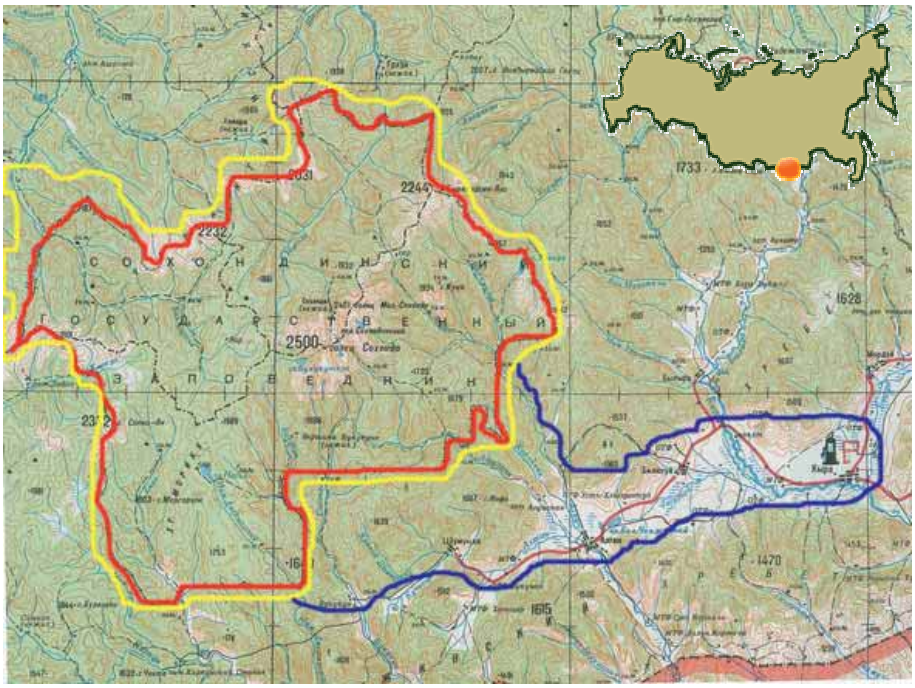
Protection classifications:

State nature reserve (Zapovednik).

Ecological characteristics:

© *Sokhondinskiy BR*

The Reserve is situated 25 km north of the Mongolian border and occupies the isolated mountain massif of Sokhondo (2,508 m above sea level) which is the highest part of the Khentey-Chikoiskoe highland. Here, major rivers of the Baikal-Amur watershed have their source. Ecosystems in the Reserve have influence of East Siberian taiga and Mongolia-Manchurian steppe. There is a series of altitudinal vegetation belts with a steppe, taiga, alpine meadows and high mountain tundra. Up to 1200 m uneven forest-steppe rises where larch and birch forests are interspersed with areas of open steppe. At the height 1200 – 2100 m there are different forests: light coniferous taiga with larch (Larix daurica) and pine (Pinus sylvestris); dark coniferous taiga formed of Siberian pine (Pinus sibirica), spruce (Picea obovata) and fir (Abies sibirica). The highest belt is occupied by mountain tundra with thickets Pinus pumila and alpine meadows. In total flora counts more than 600 vascular plants with such rare species as yellow lady's slipper, Cypripedium macranthon and Iris tigridia. There is a high diversity of vertebrate animals: more than 60 mammal species and more than 200 bird species including such rare species as Daurian hedgehog, Pallas' cat, golden eagle, peregrine falcon, and hooded crane.



Contact information:

Sokhondinskiy Biosphere Reserve,
1, Cherkasova St.,
Kyra village,
Chitinskaya oblast,
674250 Russia.
Tel./fax: + 7302 35 21559,
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Russian Federation
Voronezhskiy

© *Voronezhskiy BR*

Declaration date: 1984
Surface area: 83.783 ha
Administrative division: Lipetskaya and Voronezhskaya oblasts

Human activities:

The Federal Railway that crosses the territory of the Reserve; lack of central system of rubbish collection and utilization in nearest settlements; cultivation of food and decorative alien plant species; poaching, cemetery functioning in the buffer zone

© *Voronezhskiy BR*

Protection classifications:

State nature reserve (Zapovednik).

Contact information:

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Settlement Grafskaya,
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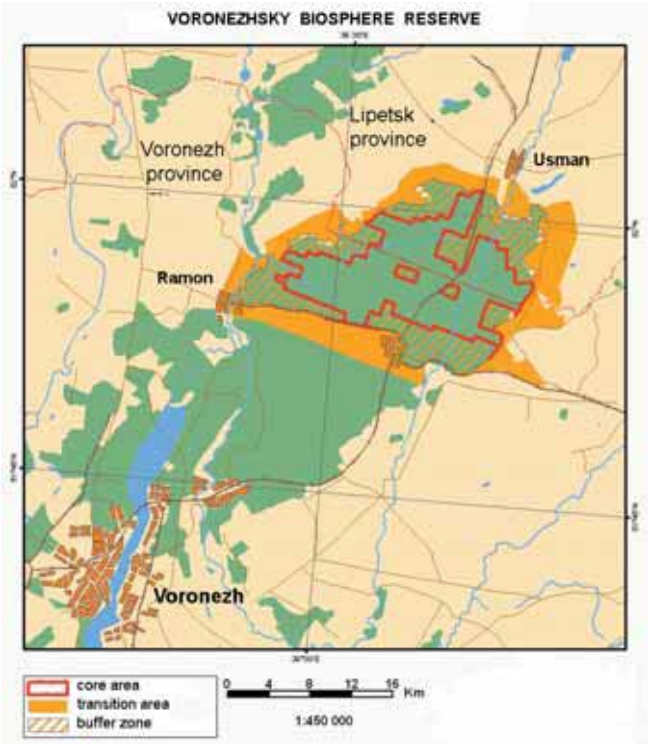
394080 Russia.
Tel./fax.: +7 4732 59-45-60,
E-mail: nauka@reserve.vrn.ru

Ecological characteristics:

© *Voronezhskiy BR*

The Reserve is situated in the northern part of the Usman pine forest. It is one of the largest woodland island in forest-steppe zone at the European part of Russia. Forest vegetation on the left-bank sand terraces of Voronezh River has been formed in ancient Holocene. At the same time the human occupation of the territory began. Steppe that surrounded the Usman pine forest has been transformed to agricultural lands. The woodland island is of great importance for permanent residents now as it was in the past. Functional zones of the Reserve allowed to protect and study forest ecosystems and also to satisfy the requirements of people in recreation, wood, berries and mushrooms. The biodiversity consists of more than 1000 species of vascular plants, 133 lichen species, 134 mosses species, about 300 species of fungi, 6000 insect species, 39 fish species, 9 amphibians, 7 reptiles, 200 bird species and 57 mammal species. 30 species of plants and animals are included into the Red Data Book of Russia. The combination of boreal and zonal steppe plants and animals is the principal peculiarity of this woodland island in agricultural landscapes.



Russian Federation

Tsentral'nolesnoy

© *Tsentral'nolesnoy BR*

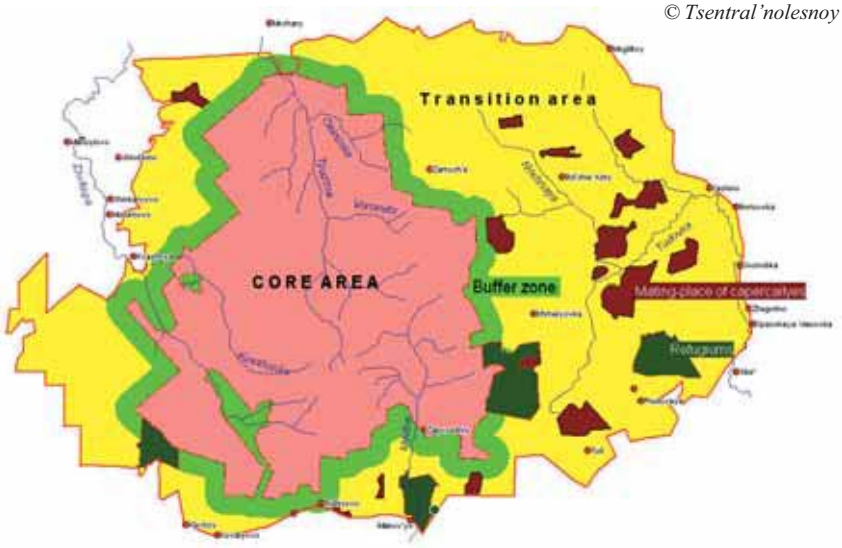
Declaration date: 1985
Surface area: 70.508 ha
Administrative division: Tverskaya oblast

Human activities:

The basic potential threat to the Reserve is changing of hydrologic conditions in the result of drainage of bogs, constructions of hydrounits and dams along streams of Tudovka, Mezha and Tyudma rivers beginning at the Reserves' territory.

Protection classifications:

State nature reserve (Zapovednik).



Ecological characteristics:

The Reserve is located in western part of European territory of Russia, in the immediate watershed of the upper Volga and Zapadnaya (West) Dvina Rivers at the southwestern edge of the Valdai highlands. The Reserve's flora includes 860 species of plants. The species, which have colonized this area in the outcome of Valdai glaciation are great interest: dwarf arctic birch, mountain raspberry, small-fruited cranberry. The species registered in the Red Data Book of Russia and of Tverskaya oblast are under special protection in the Reserve: yellow lady's slipper (Cypripedium calceolus), perennial honesty (Lunaria rediviva) and others. Currently 56 species of mammals are known in the Reserve, a special place among them is belonging to predators – bear (Ursus arctos), wolf (Canis lupus) and lynx (Felis lynx). The Reserve is inhabited by 204 species of birds: wood grouse, hazel grouse, heath cock are rather numerous here. The species listed in the Red Data Book of Russia are carefully protected in the Reserve: golden eagle, black stork, peregrine falcon and osprey.

© *Tsentral'nolesnoy BR*

Contact information:

Tsentral'nolesnoy Biosphere Reserve,
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Nelidovskiy district,
Tverskaya oblast,
172513 Russia.
Tel./fax: + 7 482 66 22433,
E-mail: c_forest@mail.ru,
web-site: www.clgz.ru

Russian Federation
Baikalskyi

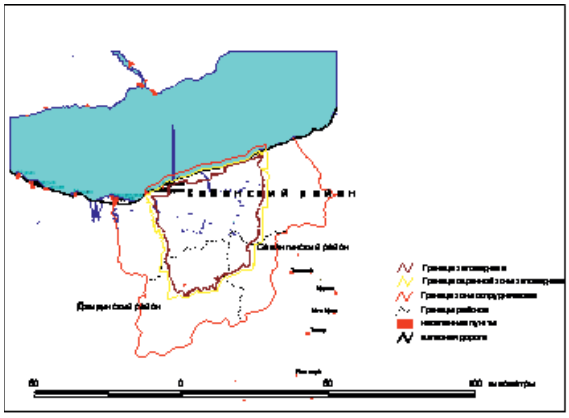
© *Baikalskyi BR*

Declaration date: 1986
Surface area: 200.524 ha
Administrative division: Republic of Buryatiya

Human activities:

The Reserve's ecosystems are seriously threatened by the air-pollution from neighboring Baikalsk paper-mill and from remote Angarsk and Irkutsk enterprises. The acid load over the Reserve is rather significant, which causes degradation of some its ecosystems, first of all, dark coniferous forest at the Khamar-Daban northern macro-slope.

© *Baikalskyi BR*



Ecological characteristics:

© *Baikalskyi BR*

The Reserve's flora is typical for mountains of the southern Siberia and counts over 880 species of higher vascular plants. This diversity can be estimated as rather significant for the relatively small area, but the number of species is not final yet. Majority of species belongs to the boreal ecosystems but among those one can find significant number of species belonging to mountains, forest-steppe, alpine and other groups. One of the distinguishing features of the Reserve's flora is a number of relict species of Tertiary nemoral complex. Over 60% of the Reserve's area is occupied by forests. Among them fern and long grass fir and mixed fir-pine forests (sometimes with massive birch inclusion) with well developed young growth of sorb, alder, black alder, willow and shoots of major forest-forming species. At the southern macroslope of Khamar-Daban, in its lower parts, prevail pine-larch forests with the Siberian pine and birch of moss-lichen and rhododendron types. The fauna of the Reserve is quite typical for the mountains of the southern Siberia, but it includes also some species of animals and especially birds, that have their origin from the regions of the Central Asia. Total number of vertebrate species in the Reserve is 318. The Reserve belongs to the World Natural Heritage List.

Protection classifications:

State nature reserve (Zapovednik).

Contact information:

Baikalskyi Biosphere Reserve,
34, Krasnogvardeyskaya St.,
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Republic of Buryatiya,
671220 Russia.
Tel./fax: + 7 30138 93725,
E-mail: baikalnr@mail.ru,
web-site: http://baikal.net/zapovednik

Russian Federation

Barguzinskyi

© *Barguzinskyi BR*

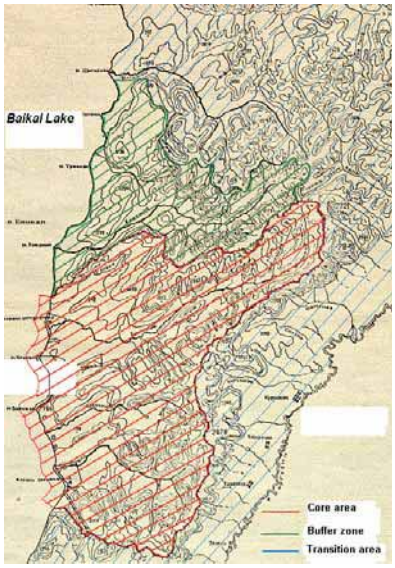
Declaration date: 1986
Surface area: 358.600 ha
Administrative division: Republic of Buryatiya

Human activities:

Tourism, recreation, fishing, gathering berries, nuts, mushrooms. The extraction of minerals in bordering northeast areas: complex ore in "Holodnaya", quartz in "Cholbon" mines. Not regulated recreation. The fishing industry in Baikal Lake.

Protection classifications:

State nature reserve (Zapovednik).



Contact information:

Barguzinskiy Biosphere Reserve, 61, Kozlova st.,
Nizhneangarsk town, Republic of Buryatiya,
671710 Russia.
Tel./fax: + 7 30130 47992,
E-mail: barguzin_zap@mail.ru, a_ananin@mail.ru

Ecological characteristics:

© *Barguzinskyi BR*

The Reserve is located in northeast of Baikal Lake coast on western slopes of Barguzin mountain ridge. It includes natural complexes - water areas, mountain taiga, alpine meadows and rocks, geothermal spring. The fauna and flora are typically boreal with including mountain steppe and arctic-alpine elements. 10 plant, one mammal, 19 birds, one fish species preserved here were listed in Red Data Book of Russia. The territory of Reserve was never used except of hunting. The initial purpose of the Reserve's creating was preservation and restoration of sable's numbers as disappearing species. The successful solving this problem was important contribution to conservation of the biodiversity. The major event in development of scientific researches in the Reserve was organization of monitoring. Since 1938 observations for climate, vegetation, dynamics of mammals, birds, insects within all zones were conducted. In 1987 the grounds of biosphere testing area have been included into the Reserve's territory, the first such area in Russia. Now for active participation in the decision-making on environmental and ecological problems of region the Reserve prepares the draft of Regulations for its zone of cooperation. The Reserve currently is known not only for nature protecting, but became a multifunctional institution with strong scientific and environmental education activities. The Reserve belongs to the World Natural Heritage List.

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Russian Federation

Tzentralnosibirskii

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Declaration date: 1986
Surface area: 2.500.000 ha
Administrative division: Krasnoyarski krai

Human activities:

Geological survey and mining operations; logging; poaching (elk and sable are the most vulnerable species) and unlimited fishing.

Protection classifications:

Three entities: State nature reserve (Zapovednik); State ethnographic and nature complex refuge "Yeloguysky" (Zakaznik), regional nature refuges (Zakazniks) "Turukhansky" and "Evenkia".

Ecological characteristics:

© *Tzentralnosibirskii BR*

The Reserve's landscapes are representative both for the Western and Eastern Siberia. There are primeval fir, spruce, larch and Siberian pine forests, high bogs, permafrost, bottomland and bedrocks landscapes. Several basins of the small inflows of the Yenisei River were included to the Reserve and in result the biggest part of its territory is protected from the external pollution. The Yenisei Biogeographic Border crosses the Reserve. It divides Palaearctic region to the east and west parts whereupon the level of biodiversity here is increased in comparison with typical taiga. More than 810 species of plants are found in the Reserve. Some species (Cypripedium calceolus, Cypripedium macranthon, Calypso bulbosa) are especially rare. Fauna of vertebrates is typical for the middle taiga. There are 45 species of mammals (sable, bear, elk, forest reindeer, squirrel etc.), 274 species of birds including such nesting species as Ciconia nigra, Aquila chrysaetos, Haliaeetus albicilla, Pandion haliaetus, Falco peregrinus, four species of amphibians and reptiles and 35 species of fishes. From the invertebrates 3 species of butterflies (swallowtail and apollos) and 3 species of bumblebees are called as the all-round vanishing species.

© *Tzentralnosibirskii BR*

Contact information:

Tzentralnosibirskii Biosphere Reserve,
1, Gribnaya St., Village Bor, Turukhanskiy district,
Krasnoyarski krai, 663246 Russia.
Tel./fax: + 7 391 98 74140,
E-mail: csgbz@mail.ru, web-site: www.centralsib.ru

Russian Federation

Chernyje Zemli

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Declaration date: 1993
Surface area: 532.901 ha
Administrative division: Republic of Kalmykia

Human activities:

Oil extraction, hunting, haymaking, cattle breeding and irrigated agriculture.

Protection classifications:

State nature reserve (Zapovednik).

© *A. Bezlepkin BR*

Contact information:

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Settlement Komsomolsky, Chernozemelskiy District,
Republic of Kalmykia, 359240 Russia.
Tel./fax: + 7 847 43 91254,
E-mail: zapovchz@mail.ru

Ecological characteristics:

© *Chernyje Zemli BR*

The Reserve is situated in the Precaspian lowland and besides main territory includes as its unit Manych Gudilo Lake which is designated as Ramsar wetland. The lake is an important breeding site for a number of colonial shorebirds, such as Pelecanus crispus, Anser erythropus, Branta ruficollis and Oxyura leucocephala, all listed as globally threatened in the IUCN Red List. Most of the lakeshores are used as pastures or contain some fishponds. Within the grassland Main area the conservation of the Saiga antelope (Saiga tatarica) is of special importance since its habitats have been largely destroyed with development activities in the surrounding territory. About 1400 people lived within the Reserve before 1992 that were making their living from cattle breeding and irrigation agriculture. Constant long-term monitoring of the steppe ecosystems now provides information on the rehabilitation process of the transformed previously vegetation cover within the Reserve.

Russian Federation
Taimyrsky

© *Taimyrsky BR*

Declaration date: 1995
Surface area: 2.750.291 ha
Administrative division: Krasnoyarski krai

Human activities:

Human activities are limited and they not pose a threat to environment in the Reserve. Fishing plots are only on the outskirts of the Reserve, there is also limited hunting on birds (geese), arctic fox, caribou. Reindeer farming is survived in limited range on a south of the territory. Impacts on the north limit of the forest are discontinued since Reserve's organization.

Protection classifications:

State nature reserve (Zapovednik).

© *Taimyrsky BR*

Contact information:

Taimyrsky Biosphere Reserve, 18, Sovetskaya St.,
Settlement Khatanga, Krasnoyarski krai, 647460 Russia.
Tel.: + 7 391 76 21239, fax: + 7 391 76 21097,
E-mail: taimyr@orc.ru

Ecological characteristics:

© *Taimyrsky BR*

Clusters of the Reserve are situated: in subzones of typical tundra ("Main Territory" and transitional area "Bikada"), of arctic tundra (unit "Arctic"), of southern tundra (unit "Ary-Mas", where is situated a relict larch forest), of forest-tundra (unit "Lukunsky"). The permafrost is found on the whole territory. The main type of ecosystems - plain spotty and hummocky tundra, with predominating in vegetation cover mosses, sedges, dwarf shrubs. There are many polygonal and flat-palsa bogs, with moss-cottongrass-sedge hollows and sedge-dwarf shrubs or sedge-shrubs hillocks on the histosols. Meadow and shrubs ecosystems on alluvial sod soils are developed only in valleys. There are altitudinal belts in the Byrranga Mountains: arctic deserts on the top, mountain grass-dryad, and sedge-moss, polar willow-moss tundra in middle and lower belts. Fragments of relict cryophyte-steppe on mountain sod soils are on south slopes of canyon. Forest vegetation represented by moss- and shrubs (dwarf birch and alder) larch light forest. Vascular flora includes 460 species, there are 262 species of mosses and 263 lichens too. Vertebrate fauna includes 23 mammals (17 permanently inhabit in the Reserve), the more common are caribou, musk-ox, lemmings, arctic fox, hare, ermine, wolf, glutton. 122 species of birds are recorded; 77 are nested (snow owl, snow bunting, divers, geese, sandpipers, peregrine, buzzard etc.). Inventory of fish and insects is not yet finished.

Russian Federation
Daursky

© *Daursky BR*

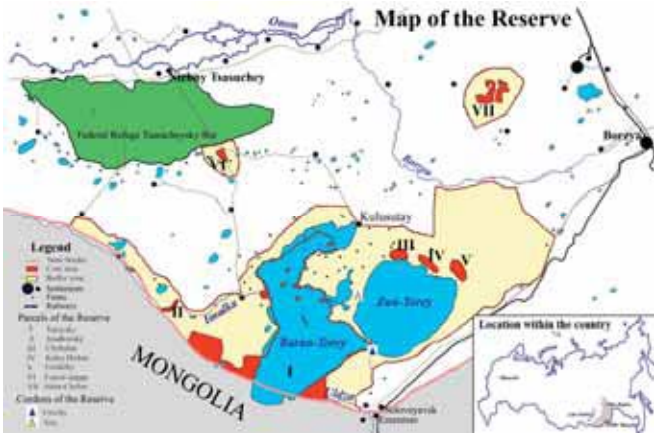
Declaration date: 1997
Surface area: 227.700 ha
Administrative division: Chitinskaya oblast

Human activities:

Projects of transforming the hydrological regime of the main rivers in Dauria (Argun, Onon, Kherlen); steppe and forest fires; poaching; chaotic development of recreation and tourism; farming development without consideration of natural features of the region.

Protection classifications:

State nature reserve (Zapovednik).



Contact information:

Daursky Biosphere Reserve, 76, Komsomolskaya St.,
village Nizhny Tsasuchey, Ononsky District,
Chitinskaya Oblast, 674480 Russia.
Tel.\fax: + 7 302 52 41559;
E-mail: onon_daur@casuchey.chita.ru

Ecological characteristics:

© *Daursky BR*

The Reserve is situated in the steppe zone of Central Asia; it includes steppe, wetland, and forest-steppe ecosystems of Dauria. Little destroyed steppe areas of the Reserve are represented by the parcels of deserted, dry, and true steppes, which are formed by endemic plant communities of Dauria-Mongolian and Dauria-Manchurian flora. Wetlands are represented by the largest in Eastern Transbaikalia flowless Torey lakes with the mouth parts of the rivers Uldza and Imalka filling the lakes. The Reserve is located in the junction of large biogeographical regions and in the point of East-Asian-Australasian birds flyways narrowing. Thanks to this it is distinguished by high biological diversity and has a special importance for conservation of millions of migrant birds of 315 species, among them a lot of rare ones (including about 30 species put into the IUCN Red List: swan goose, white-naped and Japanese cranes, hooded crane, great bustard, relict gull and others). The Reserve is one of the four places known in the World and the only nesting area of relict gull and area of permanent inhabitance and breeding of Mongolian gazelle in Russia. The main peculiarity of the Reserve's ecosystems is their close dependence on periodic climate fluctuations, which cause significant change in hydrological regime of the lakes' hollow and connected with it alteration of vegetation and animal population of the Reserve. Together with the Mongolian (Mongol Daguur) Biosphere Reserve and the Chinese (Dalai Lake) Biosphere Reserve this Reserve forms the only in Asia trilateral Dauria international protected area (DIPA). The prospects of creating within MAB Program a transboundary Biosphere Reserve on the basis of DIPA are being discussed.

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Russian Federation

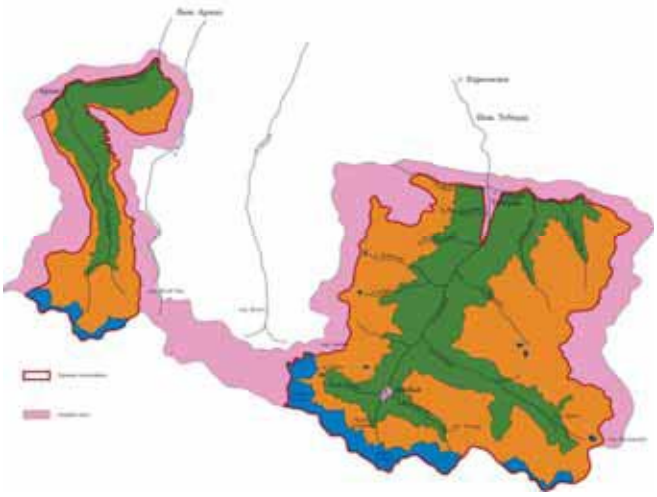
Teberda

© *Taberda BR*

Declaration date: 1997
Surface area: 536.000 ha
Administrative division: Karachaevo-Cherkesskaya Republic

Human activities:

High recreational load in the excursion area of Dombai complex.



Contact information:

Teberda Biosphere Reserve,
1, Badukski-impass, Settlement Teberda,
Karachaevo-Cherkesskaya Republic, 369210 Russia.
Tel./fax: + 7 878 72 51808,
E-mail: teberda@mail.svkchr.ru

Ecological characteristics:

© *Taberda BR*

The Reserve is located on the northern slopes of the Main Caucasus Range in upper part of the Teberda valley. 83 % of its territory are situated over 2000 m above sea level. The climate is mild and warm. Average annual temperature is +5º - +7ºC. Maximum average temperature in July is +22,7°C Minimum average temperature in January is -7ºC. The average annual precipitation is 712,1 mm is noticed at a height of 1330 m. There are more than 100 glaciers which occupy 10 % of the total area of the Reserve. The brown soil is typical for this area. The full ecological range of high-mountainous ecosystems - from pine woods and conifers up to alpine meadows with river valleys and high-mountainous lakes is presented. On the area of 86000ha there are 1133 plant species; 262 species of vertebrate animals (53,5 % of all Caucasus region fauna, including Transcaucasus), as well as 47 mammal species (36,2 % of all Caucasus fauna) and 202 bird species. Several rare and endangered species of mammals and birds are protected: the West-Caucasian ibex, chamois, leopard, Caucasian otter, white-headed griffin, eagles, etc.

Protection classifications:

State nature reserve (Zapovednik).

© *Taberda BR*

Russian Federation

Ubsunorskaya Kotlovina

© *Ubsunorskaya Kotlovina BR*

Declaration date: 1997
Surface area: 2.750.291 ha
Administrative division: Republic of Tuva

Human activities:

Illegal hunting and fishing; collecting nuts, berries, medical herbs, fallen horns of deer; forest and steppe fires; littering lake banks and water bodies by tourists; impact of separating parts of different rockets launched at Baikonur cosmodrome.

Ecological characteristics:

The Reserve is almost the only place in the World where all natural zones of the Northern hemisphere meet at the relatively small area. The central part of the Reserve (1000 m above sea level) is occupied by sandy and loamy deserts, which closer to slopes are turned into desert-like and dry steppes, after transmitting to forest-steppe and at the 1500-2300 m altitude turned up to the forests. On the higher altitudinal zone the mountain tundra is dominant, and in the snow accumulating and underground water discharging areas the meadows are dominant. There are snow drifts and glaciers at the tops of mountains. The Reserve's territory is characterized by the unique composition of fauna including 83 species of mammals. The following species are recorded in the IUCN Red List - red wolf, snow leopard, argali (wild sheep), Mongolian gazelle. There are 351 species of birds, 12 of them are recorded in the IUCN Red List (Cygnopsis cygnoides, Oxyura leucocephala, Aquila heliaca, Haliaeetus albicilla, Aegypius monachus, Falco naumanni, Grus monacha, Otis tarda dybowskii). There are 1075 species of vascular plants, including 40 species known to be rare (Oxytropis tschujae, Rheum altaicum, Stipa pennata, Allium pumilum, Orchis militaris).

Protection classifications:

State nature reserve (Zapovednik).

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© *Ubsunorskaya Kotlovina BR*

Contact information:

Ubsunorskaya Kotlovina Biosphere Reserve,
144 A, Kalinina St., Kyzyl City, Republic of Tuva, 667010
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Russian Federation

Katunsky

© *Katunsky BR*

Declaration date: 2000
Surface area: 695.262 ha
Administrative division: Altai Republic

Human activities:

In general, natural ecosystems of the reserve are weakly affected by human activities. The major types of land use are active recreation, grazing, and traditional land use practices - unique maral (Red deer) farms, apiculture, collection of medicinal herbs and other non-timber products, hunting and fishing. Main ecological challenges are posed by excessive collection of non-timber products and non-regulated recreation.

© *Katunsky BR*

Contact information:

Katunskiy Biosphere Reserve, 1, Zapovednaya St.,
Settlement Ust-Koksa, Altai Republic, 649490 Russia.
Tel./fax: + 7 388 48 22946,
Email: katunskiy@mail.ru,
web-site: http://katunsky.h1.ru

Ecological characteristics:

© *Katunsky BR*

The Reserve is located in the highlands of the Altai Mountains at altitudes from 745 to 4506 m a.s.l. near the borders of Russia and Kazakhstan. The highest peak of Siberia – Mt. Belukha, the sacred site for local people and followers of N. Roerikh – is situated in the transition zone. The Reserve occupies a transboundary position in more than merely political sense: it is located at the junction of different floristic subkingdoms, resulting in great diversity of species and plant communities. Land cover is represented by the system of altitudinal belts, including steppes, mountain woods, sublapine and alpine meadows and shrubs, mountain tundra, nival complexes and glaciers of the most significant center of modern glaciation in Siberia. Habitats of endangered snow leopard (Uncia uncia) are included into the core and transition zones of the reserve. Nine plant species are included into the Red Data Book of Russia (Rheum altaicum, Paeonia hybrida, Stipa pennata, Rhodiola rosea etc.). 20 endagered birds are under protection in the core zone of the reserve, including Pandion haliaetus and Aegypius monachus from IUCN Red Lists. The Reserve is designated as a cluster of “The Golden Mountains of Altai” World Heritage Site.

Protection classifications:

State nature reserve (Zapovednik).

Russian Federation

Nerusso-Desnianskoe-Polesie

© *Nerusso-Desnianskoe-Polesie BR*

Declaration date: 2001
Surface area: 128.394 ha
Administrative division: Bryanskaya oblast

Human activities:

Intensive clear-cuttings; poaching in near-by areas; forest fires; illegal garbage dumping.

Protection classifications:

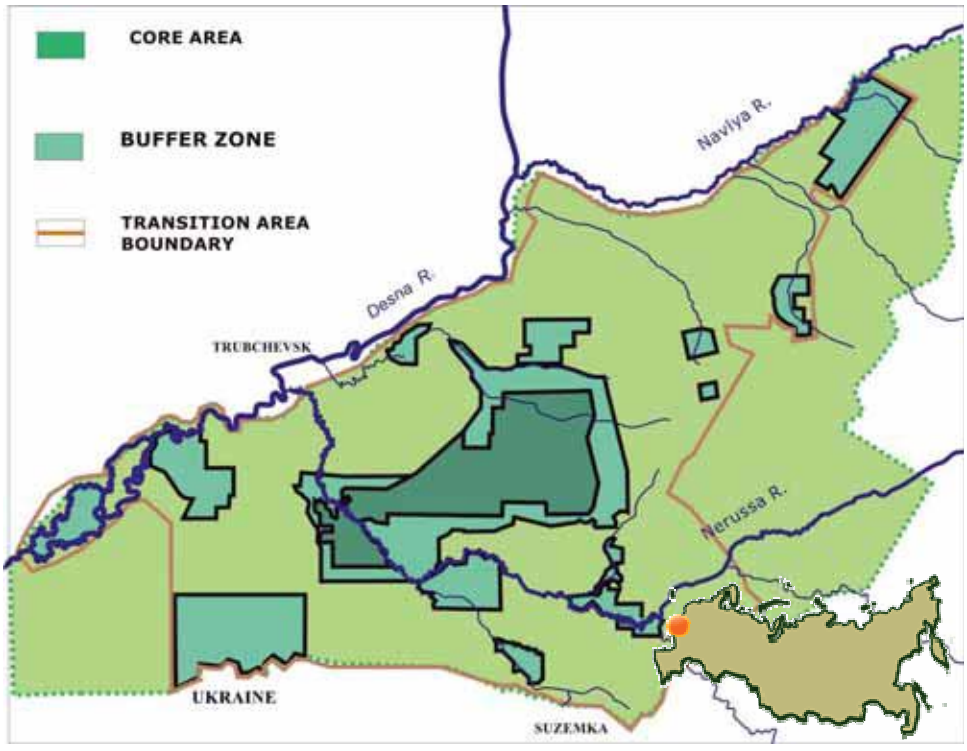
State nature reserve (Zapovednik).

Ecological characteristics:

Reserve has very high biological diversity and covers a whole spectrum of natural ecosystems of the Bryanskaya oblast. The typical and rare communities such as oak and pine forests, swamped alder forests, herbaceous mires, sphagnum bogs, floodplain meadows and aquatic communities are well preserved. Local ecosystems are characterized by a wide gradation of the man-caused disturbance: natural forests and forest cultures, untouched bogs and drained mires, uncultivated lands and pastures are presented here. The flora is typical of the broad-leaved forest zone of Eastern Europe. It contains about 900 species of vascular plants that is more than half found in the whole oblast. Of all protected plant species 70% grows in the Reserve and among them 86 species listed in the regional Red Data Book and 11 species listed in the Red Data Book of Russia. The fauna is characterized by combination of different faunistic complexes and includes 343 species of vertebrates. More than 80 species of vertebrates are listed in the regional Red Data Book, 27 species in the Red Data Book of Russia and 17 species in the IUCN Red List.

Contact information:

Nerusso-Desnianskoe Polesie Biosphere Reserve,
Nerussa station, Suzemsky district,
Bryanskaya oblast, 242180 Russia.
Tel./fax: + 7 483 53 25774,
E-mail: zapole@bk.ru



© *Nerusso-Desnianskoe-Polesie BR*

Russian Federation

Visimskiy

© *Visimskiy BR*

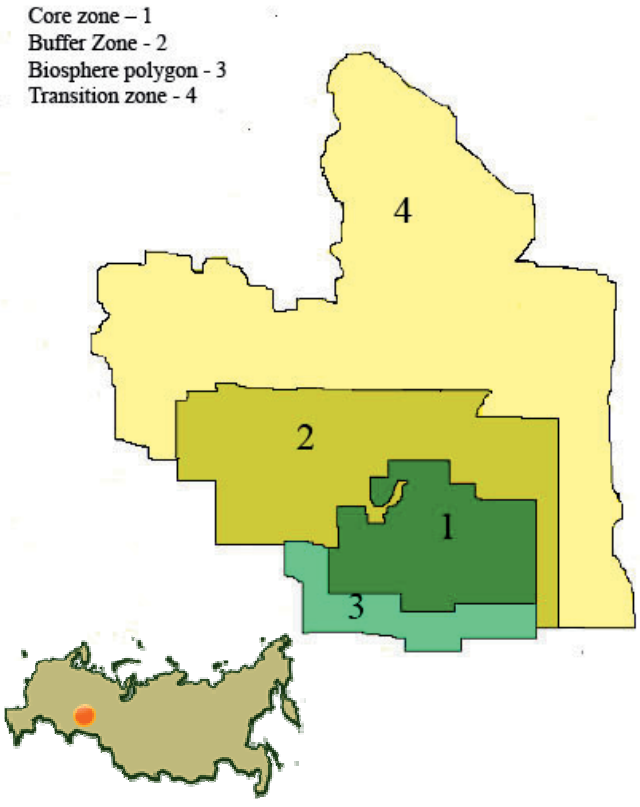
Declaration date: 2001
Surface area: 179.606 ha
Administrative division: Sverdlovskaya oblast

Human activities:

Forest exploitation, poaching and other human activities.

Protection classifications:

State nature reserve (Zapovednik).



Ecological characteristics:

© *Visimskiy BR*

Most of the Reserve territory is located on the western slope of the Ural ridge, the rest being on the main watershed and its eastern slope. Forest is represented by southern dark conifer taiga, sub-virgin forest and secondary forest (the result of earlier felling in the more recently added areas), so providing a good cross-section of the region's forest lands. The climate is moderately continental. The vegetative period is more than 141 days. The average annual precipitation is about 600 mm. The mean annual temperature of the air is 0,9oC. January is the coldest month, July is the warmest one. The height of snow cover can reach 80 - 100 sm. Mountainous-forest soil predominates here. 53% of plant species of the Middle-Urals Chusovskoi botanical region found here and they are under protection together with 76% of western taiga fauna of mammals. In total the species inventory shows 435 species of vascular plants, 443 of fungi, 249 of lichen, 44 of mammals, 180 of birds (this including those within the buffer zone), 4 species of reptiles, 4 of amphibians, 14 of fish and near 1800 of invertebrates.

© *Visimskiy BR*

Contact information:

Visimskiy Biosphere Reserve, 23, Stepana Razina St.,
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E-mail: visim@krv.ekt.usi.ru

Russian Federation

Vodlozersky

© *Vodlozersky BR*

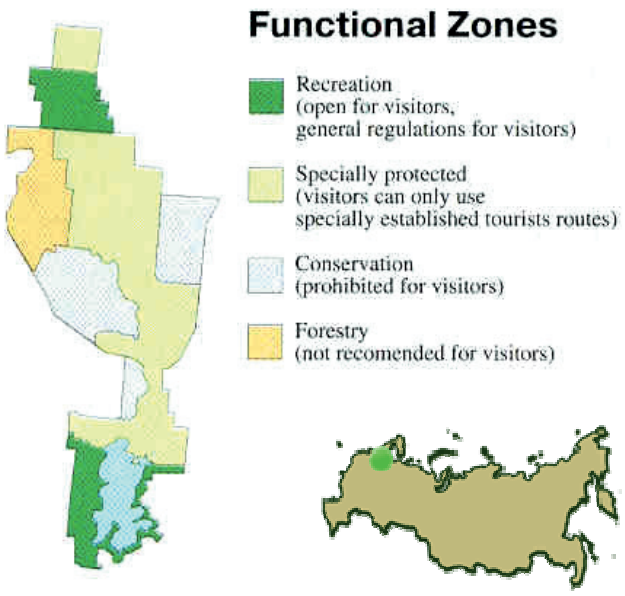
Declaration date: 2001
Surface area: 882.360 ha
Administrative division: Republic of Karelia and Archangelskaya oblast

Human activities:

Industrial fishing in lake Vodlozero especially during spawning season negatively affects ichthyocenosis of the Reserve. Cutting of forests along its border leads to weakening of the forests and heighten risk of a wind-fallen trees. Exploitation of Aganozero deposit may also negatively impact ecosystems protected in the Reserve.

Protection classifications:

National Park



Ecological characteristics:

© *Vodlozersky BR*

The Reserve (previously a National Park) was established to protect the untouched nature complex of the Vodlozero Lake and Ileksa River basin with its typical zonal ecosystems and unique nature objects. Fresh water lakes occupy more than 10% of the territory of the Reserve. The largest of them is Vodlozero - 358 km2, with 438 km of jagged shoreline. The rivers and lakes are rich in fish (21 species). The most common are: pike-perch, pike and whitefish. The Reserve comprises the largest area of primary old-growth coniferous forests in Europe. The forests have never been logged. Spruce and pine stands dominate here and giant Siberian larches can be found here at their westernmost boundary. The average age of trees is 200-280 years but some trees reach the age of 500 years. The area lies on the migratory route of many birds. The forest provides habitats for wild forest reindeer, elk, wolf, brown bear, lynx etc. Along the rivers and lakes it is possible to see white-tailed eagles and ospreys. About 40% of the territory occupied by mires; this is one of the special features of the Reserve. The mires differ in type, structure and vegetation. Five vascular species and two lichen species were included into the Red Data Book of Russia.

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Contact information:

Vodlozersky Biosphere Reserve, 44, Parkovaya St.,
Petrozavodsk City, Republic of Karelia, 185002, Russia.
Tel./fax: + 7 814 2 764417,
E-mail: vodloz@karelia.ru, web-site: www.vodlozero.ru

Russian Federation
Commander Islands

© *Commander Islands BR*

Declaration date: 2002
Surface area: 3.648.679 ha
Administrative division: Kamchatski krai

Human activities:

Uncontrolled catch of hydrobionts in the coastal waters; alien species introduction (Northern reindeer, red vole, American mink); poaching of salmons, sea otters, harbour seals, wintering anseriformes, etc.; oil pollution of the coastal waters and seashores; recreation press in the coastal areas; uncontrolled use of transport (off-road vehicles, etc.).

Protection classifications:

State nature reserve (Zapovednik).

© *Commander Islands BR*

Ecological characteristics:

© *Commander Islands BR*

The Commander Islands' nature complexes are typical representatives of the island and marine ecosystems of the Pacific North-West and they have no analogues considering their unique character and high level of preservation. There are no forests here. Development of mountain tundra took place without any permafrost and phytophagous animals. Unusual combination of flora and fauna species of the Asian and American origin is registered here. A diversity of endemic plants and animals inhabits the Reserve: Arctic foxes, rock ptarmigan, murrelet, wren, American finch, island wormwood, etc. The islands are remarkable for diversity of sea mammals and marine birds forming multispecies concentrations. Sea otter, harbour and larga seals, Steller's sea lion and fur seals live here. Feeding or wintering grounds, or migration routes of sperm, killer, beaked, and minke whales, porpoise etc. (total 21 cetacean species) are located near the Islands' shores. About 50% representatives of the sea mammals' fauna are among rare and endangered ones. About 20 species of marine birds (35% of nesting avifauna) form breeding colonies (more than 1 million birds in total). Ice-free coast attracts 16 species of anseriformes for wintering. Especially high diversity of subaquatic landscapes and biocenoses (from littoral to ultra abyssal) is concentrated in the limits of 30-mile zone only.

Contact information:

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50 Let Oktyabrya St., Nikolskoe village,
Aleutskiy District, Kamchatski krai, 684500 Russia.
Tel./fax: +7 415 22 55418,
E-mail: gpz_komandorskiy@mail.iks.ru,
web-site http://komand-reserve.ru

Russian Federation
Darvinskiy

© *Darvinskiy BR*

Declaration date: 2002
Surface area: 438.243 ha
Administrative division: Vologodskaya and Yaroslavskaya oblast

Human activities:

People living around the Reserve are predominantly engaged in traditional agriculture, forestry, fishing and gathering wild berries which could have some impact on the protected ecosystems.

Protection classifications:

State nature reserve (Zapovednik).

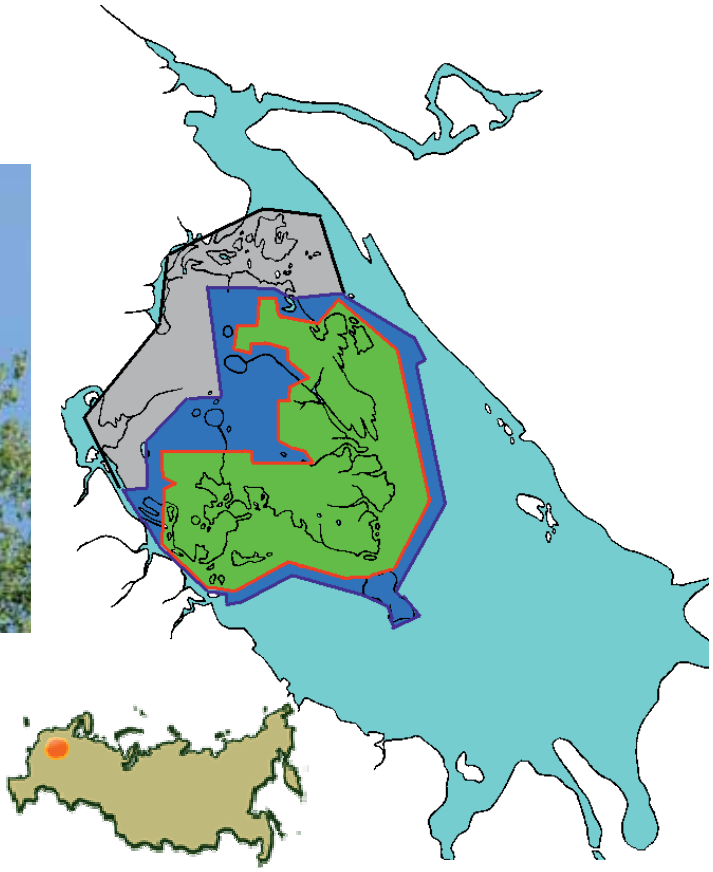
© *Darvinskiy BR*

Contact information:

Darvinskiy Biosphere Reserve, Cherepovetsky District,
p/o Ploskovo, Settlement Borok, Vologdskaya oblast,
162723 Russia. Tel./fax: + 7 820 2 666970,
E-mail: dgpbz@rambler.ru

Ecological characteristics:

The Reserve is situated on a peninsula in the north-west of the Rybinsky Reservoir on the Volga River. Its territory comprises bogs, marshes and southern taiga forests. Southern taiga forests characterized by Pinus sylvestris, Picea abies, Oxalis acetosella etc.; oligotrophic moors with Andromeda polifolia, Eriophorum vaginatum, Rubus chamaemorus etc.; reservoir ecosystems with Potamogeton natans, Sagittaria sagittifolia, Phragmites communis etc.; waterlogged river valleys characterized by Phragmites communis and Phalaroides arundinacea. In total flora accounts 590 vascular plant species. The mammal fauna makes up 37 species. Moose, brown bear, wild boar, wolf, fox, badger, common weasel and hare are common; linx and otter are rare. Ornithofauna includes more than 230 species of nesting and migratory birds. Rare birds that nest in the area include the golden eagle and osprey. Due to the operation of nearby hydroelectric station, the water level the reservoir changes, thus affecting near-shore habitats. Starting from 1945 studies what impacts that this reservoir - one of the biggest in the world - would have on natural ecosystems have been regularly conducted. Thus, there is a long monitoring history of vegetation dynamics and hydrology in the area which is the valuable input into current study of climate changes.



Russian Federation

Nijegorodskoe Zavolje

© Nijegorodskoe Zavolje BR

Declaration date: 2002
Surface area: 57.446 ha
Administrative division: Nizhegorodskaya oblast

Human activities:

Logging is the most dangerous threat. Human caused fires are the most frequently encountered phenomena in the buffer zone and the outer transition zone because of careless attitude to the fire of some recreating town dwellers. Hunting and poaching at the territory of the core is practically non-existent. In the buffer zone the hunting is allowed. In the outer transition zone some cases of poaching occur. Harvesting of forest wild berries and mushrooms makes an insignificant influence on the nature systems, though in the buffer and transition zones these practices are widely spread and could have a mass scale.

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Contact information:

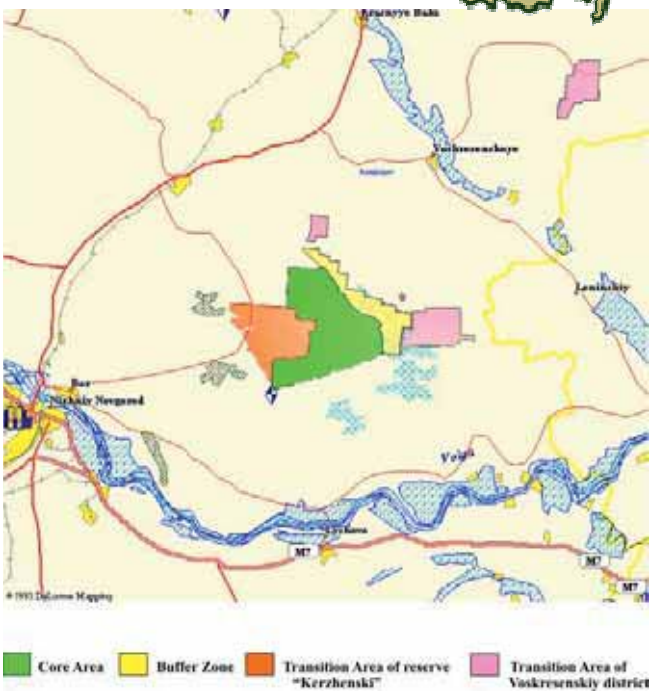
Nijegorodskoe Zavolje Biosphere Reserve, 2, Kostin St., N. Novgorod City, 603134 Russia. Tel.: + 7 831 4340832, fax: + 7 831 4340951, E-mail: kerzhenskiy@rambler.ru, web-site: http://www.kerzhenskiy.ru

Ecological characteristics:

The territory of the Reserve is large enough and representative for the region. It encompasses various nature systems of boreal coniferous broad-leaved forests. Here there are both areas of less disturbed and well-preserved natural systems of lakes, sphagnum bogs, river valleys and old-age forests, and the spots of nature systems of various stages of human intervention and disturbance: areas cleared due to logging, settlements and areas cleared due to fires of anthropogenic origin. A significant level of biodiversity is registered: the flora is represented by 603 species of higher vascular plants. Preliminary data testifies to the existence of more, than 160 species of mosses, 205 species of lichens, 305 species of algae and 290 species of fungi. There are 45 species of mammals; 44 species of birds; 6 species of reptiles; 5 species of amphibians and 15 species of fish. Among invertebrates 1024 species of arthropods and hundreds of species of other taxa are found here. There are more than 60 species of rare and endangered species of plants, lichens, fungi and some animal species. The Reserve is giving important habitats for such key species as common crane, woodcock, heath cock, beaver, elk, lynx, wolf, bear etc.

Protection classifications:

State nature reserve (Zapovednik).



Russian Federation

Smolensk Lakeland

© *Smolensk Lakeland BR*

Declaration date: 2002
Surface area: 156.237 ha
Administrative division: Smolenskaya oblast

Human activities:

Forest cutting, melioration, construction and laying of new communication lines, use of fertilizers, herbicides and pesticides, conversion to arable lands could have destructive impact on the Reserve's territory. There are incidents of fires and poaching of moose or wild boar, violation of laws in fishing.

© *Smolensk Lakeland BR*

Contact information:

Smolensk Lakeland Biosphere Reserve, 19, Gurevicha St., Przhevalskoe town, Demidovsky District, Smolenskaya Oblast, 216270 Russia. Tel.: + 7 481 47 46636, fax: + 7 481 47 46636, E-mail: dgo@sci.smolensk.ru

Ecological characteristics:

© *Smolensk Lakeland BR*

The Reserve is interesting for the landscape and biological diversity which can hardly be found anywhere else in such relatively small territory. The main types of ecosystems are following: unique system of 35 lakes and numerous rivers; bog and flood meadows along local streams with rare species of orchids; large complex of long sandy ridges left by glaciers in the past; mossy wetlands, formed 9000-11000 years ago; old-growth coniferous, spruce and broad-leaved virgin forests with particular composition of flora and fauna. The flora consists of more than 900 species of vascular plants (89 of them are rare for Smolenskaya oblast and for Russia). Among animals it is possible to meet here typical steppe and forest-steppe or taiga species. The bird population is more than 225 species, including 67 rare ones. The water bodies are inhabited by 35 species of fishes and their abundance indicates that this region has a clean water environment. There are archeological sites of Stone, Bronze and Iron ages, remains of the ancient town Verzhavsk near Lake Rzhavets.

Protection classifications:

National Park

Russian Federation

Ugra

© Ugra BR

Declaration date: 2002
Surface area: 153.832 ha
Administrative division: Kaluzhskaya oblast

Human activities:

Destruction of proprietary and collective agriculture. Unorganized mass visits of the Reserve during days off. Low living standards of local population trying to make business rapidly with use of natural resources.

© Ugra BR

© Ugra BR

Contact information:

Ugra Biosphere Reserve, Prigorodnoye Lesnichestvo,
Kaluga City, 248007 Russia.
Tel.: + 7 484 2 725791, fax: + 7 484 2 725791,
E-mail: parkugra@kaluga.ru,
Web-site: http://parkugra.forest.ru

Ecological characteristics:

The Reserve consists of 3 main and 3 clustered areas and encompasses picturesque valleys of the rivers Ugra and Zizdra and of the left-bank part of the Oka River. More than 65% of the area is covered by forests, rivers, lakes; within the boundaries of the Reserve there are 23 natural monuments, four key ornithological areas. Among the rich variety of flora and fauna five vascular plants and 30 species of animals are included into the Red Data Book of Russia. The Reserve's territory is characterized by the landscape diversity. The Ugra area has the image of typical moraine valley with hilly landscape, numerous moors and springs of underground waters. Mixed conifers and broad-leaved forests are abundant everywhere on the territory. Zizdra valley is situated in the sub zone of deciduous forests and includes landscapes of moraine and erosive valleys. Old recurring indigenous forests on the right bank of the river are one of the preserved areas of the defensive intersection line of Moscow state in the 16-18th centuries. The territory is rich in objects of historical and cultural heritage including such famous religious centers as Saint Vvedenskaya Optina Monastery.

Protection classifications:

National Park

Russian Federation

Far East Marine

© *Far East Marine BR*

Declaration date: 2003
Surface area: 121.100 ha
Administrative division: Primorski krai

Human activities:

Poaching activity which can eliminate some species and can lead to degradation of the natural communities.

Protection classifications:

State nature reserve (Zapovednik).

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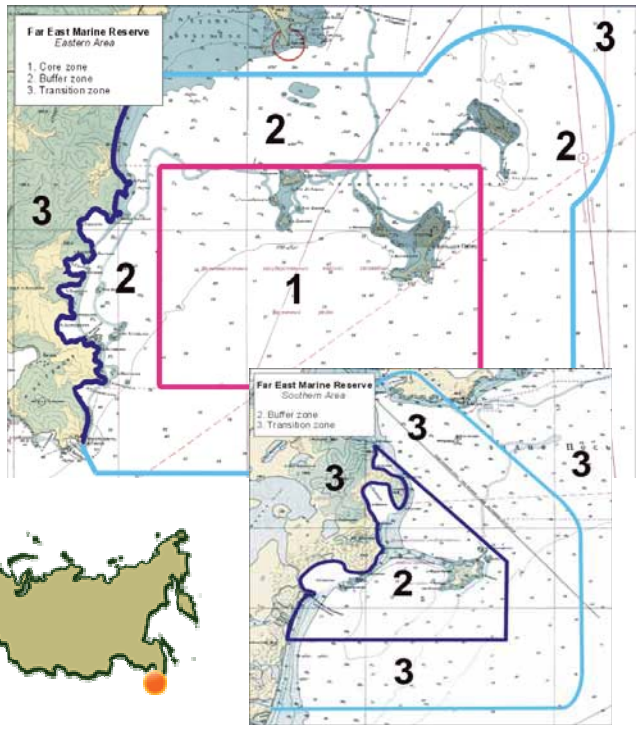
Contact information:

Far East Marine Biosphere Reserve,
17, Palchevsky St., Vladivostock,
690041 Russia.
Tel./fax: + 7 423 2 310-915,
E-mail: marreserve@mail.ru

Ecological characteristics:

© *Far East Marine BR*

There are three main types of habitat in the Reserve.
- Marine environment of the Peter the Great Bay, Sea of Japan: More than 1.200 species of marine animals and plants are noted in the Reserve's waters. Among them, about 170 species of fish, 300 species of Crustaceans, more than 200 species of mollusks and 30 species of Echinoderms. Under protection there are some benthic species, which form large gatherings necessary for effective reproduction: far–eastern sea-cucumber (trepang), two species of scallops, giant octopus, Kamchatka king crab. Even some coral species can be found here.
- Small Islands of the Peter the Great Bay, Sea of Japan.
There are more than 1.500 species of terrestrial animals and plants. Among them vascular plants – about 1.000 species (7% of them need very special protection measures), birds – 370 species and 45 of them are in the IUCN Red List (Black-faced spoonbill, Swinhoe's storm petrel, Chinese egret and others). Populations of some birds are restored, for instance Rhinoceros auklet. Seal Phoca largha breeds on the Reserve's islands only, so its rookeries are also under special protection.
Continental part of the Reserve.
Birds: White-tailed eagle, Steller' sea eagle and Black vulture are common in winter. Siberian tiger and Far Eastern leopard are found in coastal zone as well. More than 260 species of birds are noted in marsh areas during migrations.



Russian Federation
Kedrovaya Pad

© *Kedrovaya Pad BR*

Declaration date: 2004
Surface area: 38.583 ha
Administrative division: Primorski krai

Human activities:

Forest fires, illegal hunting of wild animals, collecting of ginsengs, ferns, mushrooms and nuts, poacher fishing, construction of resort complexes and overpasses.

Protection classifications:

State nature reserve (Zapovednik).

© *V. Shibnev, Kedrovaya Pad BR*

Contact information:

Kedrovaya Pad Biosphere Reserve, 10, Zapovednaya St.,
Settlement Primorskyi, Khasanskyi District,
Primorski krai, 632710 Russia.
Tel.: + 7 914 7108089, E-mail: kedrpad@mail.ru

Ecological characteristics:

© *V. Shibnev, Kedrovaya Pad BR*

Kedrovaya Pad is one of the oldest reserves in Russia. There have been discovered 918 species of vascular plants here - more than one third of total number counted in Primorski krai. Among them 59 plant species are included into the Red Data Book of Russia. The picturesque butterflies and beetles inhabiting the area (Protantigius superans, Coreana raphaelis, Carabus jankowskii, Apis cerana, etc.) are included into endangered species list. There are 12 species of fishes inhabiting the small rivers of the Reserve. Masu salmon (Oncorhynchus masou) and White-spotted chare (Salvelinus leucomaenis) are considered to be anadromous fish species. 184 bird species have been observed in the Reserve: 164 of them are migratory, 96 - breeding, 66 - wintering, and 10 species of birds are rare or accidental. Amur tiger often visits the territory where those animals breed. The Reserve's main pride is the Far East leopard. This rare predator population is of only 30 specimens in Primorye and one or two leopard families inhabit regularly the Reserve's territory.

Russian Federation
Kenozersky

© *Kenozersky BR*

Declaration date: 2004
Surface area: 139.663 ha
Administrative division: Arkhangelskaya oblast

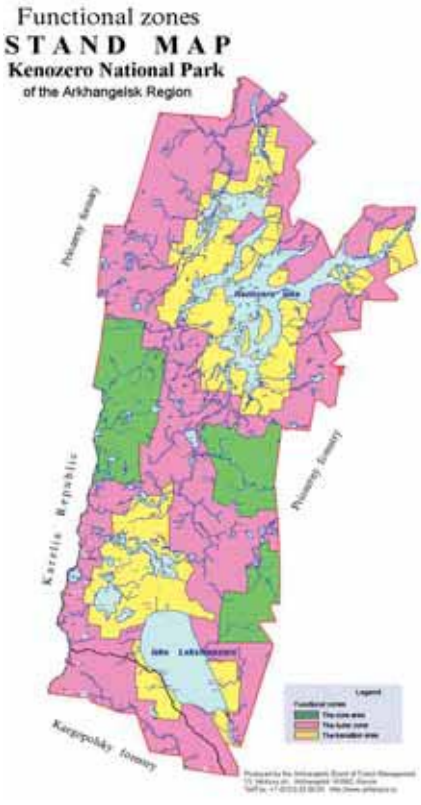
Human activities:

Within or outside the area some negative impact could have hunting and fishing poaching; increase fire danger; breaking natural succession processes; lowering number of antropophobic species; disturbance to wildlife populations; disappearance of traditional cultural landscapes; substitution of natural ecosystems by artificial ones; environmental pollution.

Ecological characteristics:

The Reserve (previously a National Park) is a specially protected natural area, a model of historical mastering by humans, an object, which has conserved centuries-old history and culture of the Russian North. It is illustrated by natural complexes and objects, lots of material and sacred monuments of culture, and rich ethnographic materials. The area covered by mixed pine-spruce forests and here about 5000 ha little-disturbed primeval taiga forests are conserved. There are 322 vertebrate species including 50 species of mammals, 263 species of birds, 4 species of reptiles and 5 species of amphibia. Many of them are not typical for ecosystems of the Russian North. It is an Important Bird Area (IBA). The area is peculiar by its hydrographic net and has about 300 lakes, rivers and streams belonging to the White and Baltic Seas' basins. Cultural landscapes play an important role in the forming of high biodiversity level of this protected area. This territory has unique historical-cultural heritage presented by monuments of wooden architecture - 39 chapels, 11 churches and bell-fries, other monuments of civil architecture, 27 obey crosses, 39 monuments of archeology, most of which are under Federal protection. There are 42 sacred groves, sacred stones, single sacred trees appeared on the sites of pagan places of burial conserved from ancient, pre-Christian time. An exceptional representativeness of cultural landscapes makes this Reserve unique, not having an analogue in Russia and in the World.

© *Kenozersky BR*



Protection classifications:

National Park

© *Kenozersky BR*

Contact information:

Kenozersky Biosphere Reserve,
78, Naberejnaya Severnoy Dviny,
Arkhangelsk City,
163000 Russia.
Tel./fax: + 7 818 22 86523,
E-mail: kenozero@arkhangelsk.ru,
web-site: http://kenozero-park.ru

Russian Federation

Valdaisky

© *Valdaisky BR*

Declaration date: 2004
Surface area: 158.932 ha
Administrative division: Novgorodskaya oblast

Human activities:

Forestry development in nearby areas, illegal fishing and hunting and possible impact of ecotourism which is a key priority of the local community development strategy.

© *Valdaisky BR*

Protection classifications:

National park

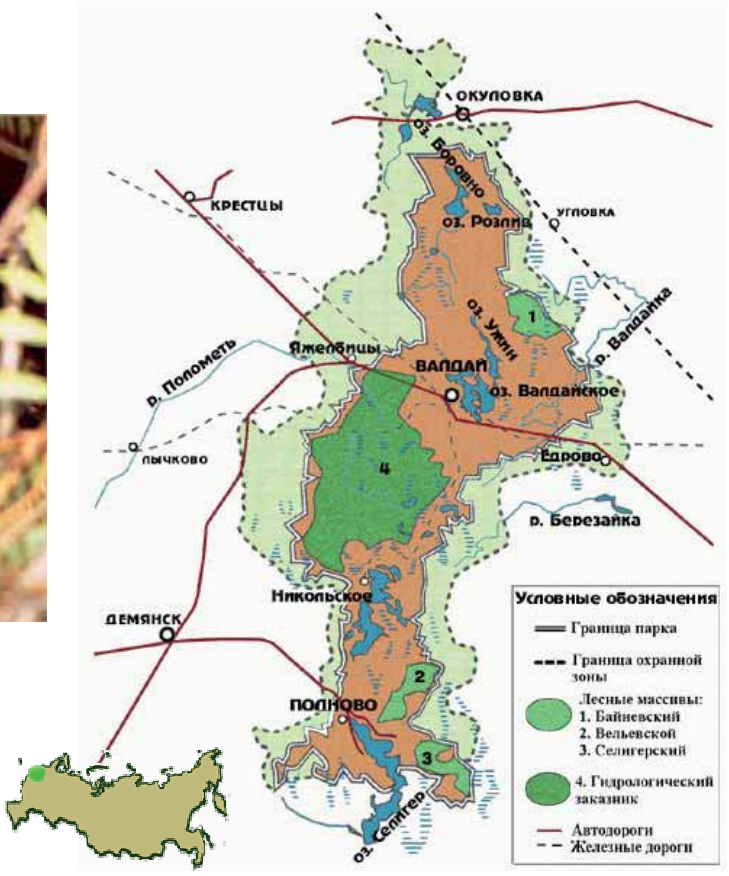
© *Valdaisky BR*

Contact information:

Valdaiskiy Biosphere Reserve, 2, Pobedy St.,
Valdai town, Novgorodskaya oblast, 175400 Russia.
Tel./fax: + 7 384 53 21809,
E-mail: valdpark@novgorod.net

Ecological characteristics:

The Reserve is located in the Valdai Highlands, the main watershed of the Russian plain (including the source of the River Volga). The relief is hilly and includes hill-moraine glacier relief with different forms of glacial morphology. The area has various ecosystems typical for the southern taiga. They are following: pine forests characterized by Pinus sylvestris, Diphasiastrum complanatum, Pteridium aquilinum etc.; spruce forests with Picea abies, Populus tremula, Betula pubescens, B. pendula etc.; small-leaved forests characterized by B. pubescens, B. pendula, Alnus incana, Equisetum pratense etc.; broad-leaved forests with Quercus robur, Acer platanoides, Fraxinus excelsior etc. The flora encompasses more than 750 species of vascular plants and 126 moss species including rare and endangered species (17 of them are included into the Red Data Book of Russia). There are about 50 mammals and more than 180 bird species. Due to human activities in the past the native forests, typical and unique bogs and lake-river ecosystems, are mixed with former agricultural landscapes, and in particular with areas of regenerating clear-cut forest. The area holds 230 monuments of historical and cultural value, including the Iversky monastery from the 17th century located on the Valdai Lake Island. Recently 500 archeological monuments (burial hills, mounds, settlements, sites from the Stone and Iron Ages) have been identified.



Russian Federation
Khankaiskiy

© *Khankaiskiy BR*

Declaration date: 2005
Surface area: 299.896 ha
Administrative division: Primorski krai

Human activities:

Water pollution with industrial sewage water, pesticides, herbicides and mineral fertilizers; burning of grass; poorly controlled fishery in Lake Khanka; amelioration drainage; waterfowl poaching.

Protection classifications:

State nature reserve (Zapovednik).

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Contact information:

Khankaiskiy Biosphere Reserve,
10, Yershova St., Spassk-Dalny town,
Primorski krai, 692245 Russia.
Tel.:+ 7 423 52 20887, fax: + 7 423 52 23138,
E-mail: khanka@mail.primorye.ru,
Web-site: http://www.khanka.nm.ru

Ecological characteristics:

The wetlands of the Lake Khanka make the unique natural complex of open plains with grassy meadows, bogs, swamps, numerous small lakes. In 1976 the area was included into the Ramsar List of wetlands of the international importance. The Reserve's flora includes 711 species of vascular plants and 216 species of algae. The Reserve is one of few places of growth of Lotus lily (Nelumbo komarovii) and Prickly water lily (Euryale ferox), included in the Red Data Book of Russia. A number of vertebrate animals in core and buffer zones come to 477 species: one - cyclostomatous, 69 - of fishes, 6 - of amphibians and reptiles, 352 - of birds and 43 - of mammals. 144 species of birds are nesting here, among them Japanese (Grus japonensis) and White-naped (Grus vipio) cranes, Black-billed white stork (Ciconia boyciana) etc. During mass spring migration on the Khanka Lake it is possible to observe up to 500 thousand of ducks, geese and swans. The Reserve is a unique nesting-place of Intermediate egret (Egretta intermedia) and Reed parrotbill (Paradoxornis heudei) in Russia. In the western part of the Reserve there is one of the largest populations of a Soft-shell turtle (Pelodiscus sinensis) in the Russian Far East. 21 species of birds, 2 species of fishes are included in the IUCN Red List. 50 species of birds, 6 species of fishes, one species of reptiles and 3 species of mammals are included to the Red Data Book of Russia.

Russian Federation

Great Volzhsko-Kamsky (composed of Sarali and Raifa BRs)

© *Great Volzhsko-Kamsky BR*

Declaration date:
Raifa and Sarali units: 2005
Sviazhsky and Spassky units: 2007
Surface area: 19.008.246 ha
Administrative division: Republic of Tatarstan

Human activities:

Agriculture in buffer zone and transition area promote the erosion processes, which have negative influence on the water streams, lakes and boreal ecosystems of core area. The increase of cottage building in transition area and tourism promote the pollution of the territory of the Reserve.

Protection classifications:

Three entities: State nature reserve (Zapovednik) with Raifa and Sarali units and two Republican nature refuges (Zakazniks) - Sviyazhsky and Spassky units.

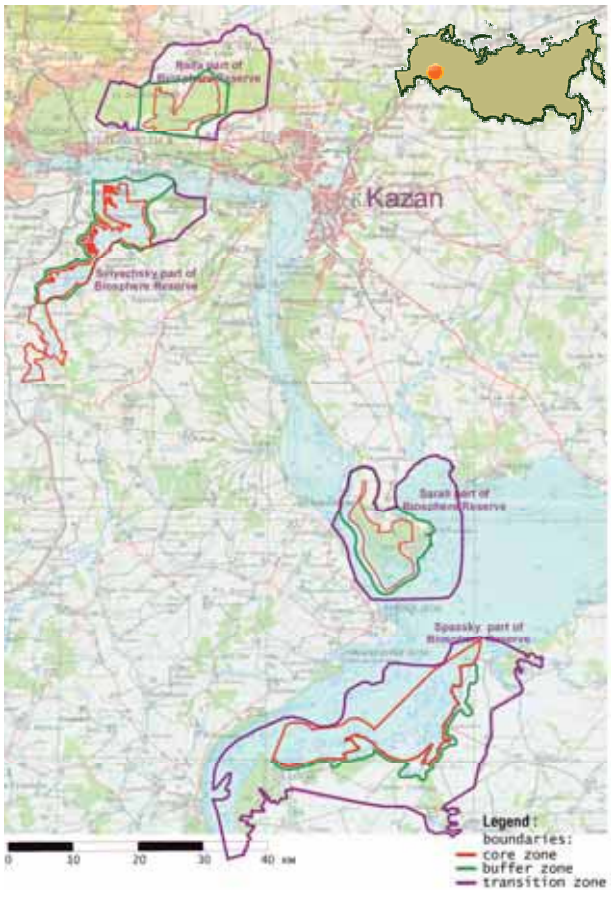
© *Great Volzhsko-Kamsky BR*

Contact information:

Great Volzhsko-Kamsky Biosphere Reserve,
Settelment Sadovy, p/o Raifa, Zelenodolsky district,
Republic of Tatarstan, 422537 Russia.
Tel.: +7 843 71 34720, fax: +7 843 71 34724,
E-mail: vkz@mail.ru

Ecological characteristics:

Raifa unit of the Reserve is one of the oldest in Eastern Europe massive of sub-taiga, which is surrounded by agrocoenosis and urbanized landscapes. It is the unique center of the landscape and biological diversity preservation in the region. In Sarali unit there are nemoral forests with steep field portions and system of gulfs and bypasses of the largest in Europe Kuibishev reservoir. Accordingly it plays an important role in preservation and reproduction of aquatic and semi-aquatic fauna of the region. Sviyazhsky unit is comprised by valley and water ecosystems of mouth part of Sviyaga River (tributary of Volga), enriched in islands, gulfs and bypasses. Spassky unit includes the system of 64 islands and shallowlands of Kuibishev reservoir. "Spassky Archipelago" was included into the List of Key Ornithological Territories of Russia and into the "List of objects, recommended for incorporation into the list of wetlands, protected by Ramsar Convention". The territory of the Reserve is distinguished for its biodiversity. The natural communities of coniferous, mixed, broadleaved forests, meadow steppes, herbaceous and sphagnum swamps and lakes are present here. 900 species of higher plants, 180 species of mosses, 210 species of lichens, 800 species of macromycetes, 3200 species of invertebrates, 343 species of vertebrates were registered.



Russian Federation

Middle Volga

© *Middle Volga BR*

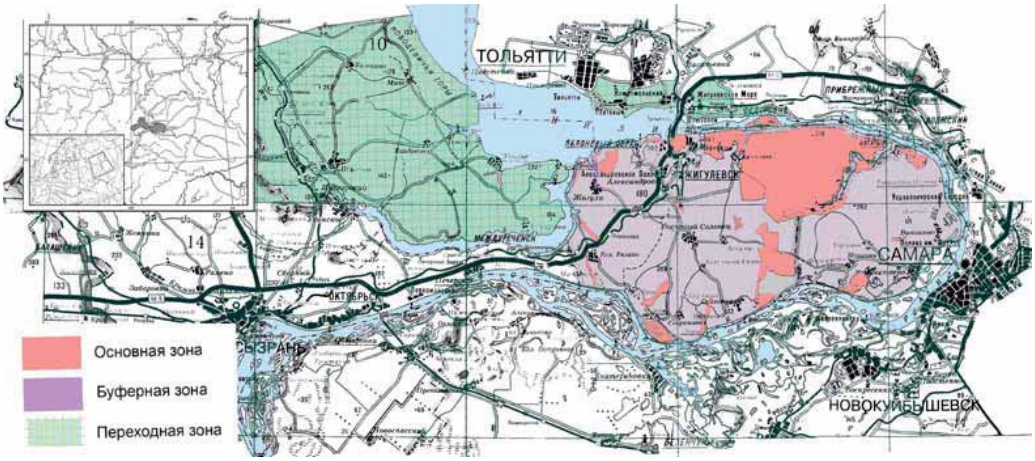
Declaration date: 2006
Surface area: 150.000 ha
Administrative division: Samarskaya oblast

Human activities:

Mining operation, timber harvesting, industrial production, tourism.

Ecological characteristics:

Both unique and typical ecosystems of Samarskaya Luka and adjacent territories are represented in the Reserve. The unique ecosystems of limestone mountains are widely spread here: stony steppes, primeval steppification pine forests and mixed coniferous-broad-leaved forests. There are typical forests on the plateau of Samarskaya Luka with lime, birch, aspen, oak, maple, and also forb meadows and meadow steppes, pastures and croplands are formed on chernozems and grey forest soils. At the Volga wetland flood-plain there are oak forests, black poplar and black poplar-white willow forests, purple willow forests and wet meadows. Due to this variety of ecosystems there is a great number of different plant species: 972 angiosperm, 3 gymnosperm, 16 ferns, 6 horsetails species, more than 30 moss species, about 130 lichen species and more than 700 species of mushrooms. There are more than 300 vertebrate species: 65 - mammals, about 240 - birds, five - amphibians, seven - reptiles, 50 - fishes. The known part of the invertebrate fauna consists of about 6000 species. The most interesting component of the fauna and flora are endemics (five plant species), relicts (more than 50 species of plants and invertebrate animals) and rare and endangered species (14 plant species, six species of insects, eight bird species and two mammal species are listed in the Red Data Book of Russia, eight bird and four mammal species are included to the IUCN Red List.



Protection classifications:

Two entities: State nature reserve Zapovednik) and National Park

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Contact information:

Middle-Volga Integrated Biosphere Reserve,
Bakhilova polyana village,
Urban Zhigulyovskiy district, Samarskaya oblast, 445362 Russia.
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zhr@mail.samtel.ru

Russian Federation

Rostovsky

© *Rostovsky BR*

Declaration date: 2008
Surface area: 4.638.149 ha
Administrative division: Rostovskaya oblast

Human activities:

Crop cultivation, hay production and cattle grazing, maintenance of roads and power lines, impact of tourists and local people on shoreline zones, fishing with illegal tackles.

Protection classifications:

State nature reserve (Zapovednik).

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Contact information:

Rostovsky State Nature Reserve, 102, per. Chapaevsky,
Orlovsky settlement, Orlovsky district,
Rostovskaya oblast, 347510 Russia.
Tel./fax: + 7 863 75 31410,
E-mail: gzr@orlovsky.donpac.ru

Ecological characteristics:

© *Rostovsky BR*

The territory of the reserve is situated within the boundaries of the Kuma-Manych Depression and the spurs of the Salo-Manych Ridge. The reserve appears to be a reference area for endangered steppe ecosystems of Eurasia. The flora of the Reserve includes at least 460 species of plants, among them eight species were listed in Red Data Book of Russia (Tulipa schrenkii, Iris pumila, Stipa zalesskii, Bellevalia sarmatica, Calophaca wolgarica etc.). The fauna is represented by more than 30 species of mammals and more than 219 species of birds, 32 of which are in Red Data Book of Russia (Falco naumanni, Falco peregrinus, Anthropoides virgo, Otis tarda, Aqila rapax, Aquila clanga, Aqila heliaca, Gavia arctica, Pelecanus onocrotalus, Pelecanus crispus, Platalea leucorodia, Plegadis falcinellus etc.). Nine species of reptiles and three species of amphibians inhabit the Reserve. The Reserve is situated within the limits of the biggest flyway in Eurasia connecting the European part of Russia and Western Siberia with Northern and Eastern Africa, Middle East and Indochina and accordingly the Reserve and its buffer zone covering the Lake Manych-Gudilo are Wetlands of International Importance (Ramsar Convention).

Biosphere reserve "Rostovsky"

Russian Federation

Altaisky

© *Altaisky BR*

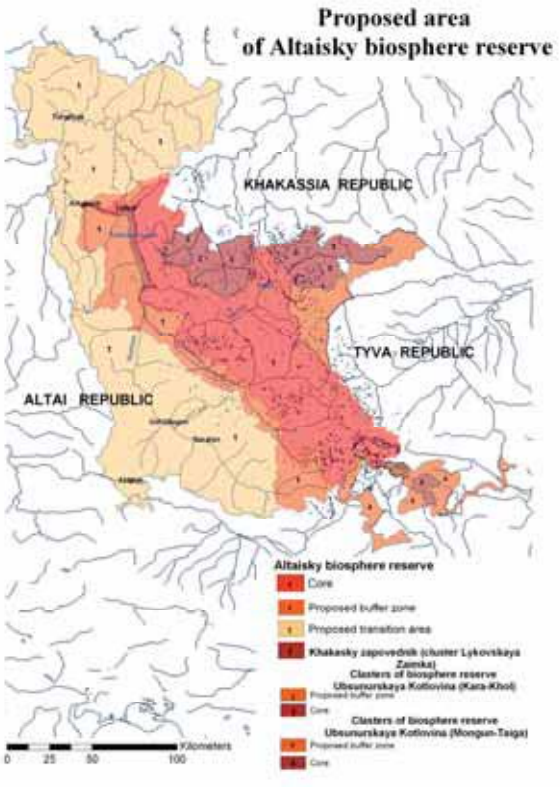
Declaration date: 2009
Surface area: 3.532.234 ha
Administrative division: Altai Republic

Human activities:

- noncontrollable tourism;
- poaching of fish, birds and mammals;
- threat of forest fires.

Protection classifications:

State nature reserve (Zapovednik).



Ecological characteristics:

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The proposed biosphere reserve Altaisky is located on the area of the North-Eastern and Eastern Altai. The Altaisky reserve is the largest lake country in Altai-Sayan region. 2560 medium and small lakes are located in its area, the largest of which is the Teletskoye Lake. The most part of water area of the Teletskoye Lake is included into a core area of the Altaisky reserve, the rest of area is a buffer (protected) zone. The core area of the proposed BR is a State nature reserve "Altaisky" - a federal strictly protected nature area representing a unique mountain country consisting of a system of mountain ranges. The relief is characterized by variety of forms: high-mountainous alpine zones are replaced by plateau like uplands, wide valleys and deep canyons, and has different elevations ranging from 400m up to 3500m above sea level. Based on the quantity of vascular plant species the Altaisky reserve takes the second place in Russia after the Caucasus biosphere reserve; by a species variety – within the five of the Russian reserves. Today there are more than 3101 kinds of plant species in the reserve area. Since the Altaisky reserve have been established 16 fish species, 2 species of amphibians, 6 species of reptiles, 326 bird species, and 70 mammal species have been found.

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Contact information:

State nature reserve «Altaisky», prospect Communisti-chesky-1,
Gorno-Altaisk, Altai Republic
Russia 649000
Tel./fax: (388-22) 6-69-47
E-mail: agpzmain@rambler.ru http://www.altzapovednik.ru

Serbia
Golija-Studenica

Declaration date: 2001
Surface area: 53.804 ha
Administrative division: Ministry of Health and Environment

Human activities:

The transition area has 6,600 inhabitants within 42 dispersed rural communities which are characteristic of these mountainous regions (2001). Their main economic activities are livestock rearing and extensive farming, and collection of secondary forest products such as mushrooms and medicinal herbs. The biosphere reserve includes the Studenica Monastery, which is a cultural World Heritage site and a popular tourist attraction.

Ecological characteristics:

Golija-Studenica Biosphere Reserve is situated in southwestern Serbia and belongs to the inner zone of the Dinaric mountain system. It covers a mountainous region and includes a mosaic of different ecosystems such as forests, shrubs and lakes. The local population cleared parts of the forests over centuries and thus created species rich pastures and meadows which are still maintained today. In the area, many non-governmental organizations are interested in the protection of the natural environment and in the implementation of sustainable development principles. With the establishment of a biosphere reserve, these organizations will be able to carry out their programmes and contribute to the functions of the Golija-Studenica Biosphere Reserve, based on a rich history of scientific research and observations.

Contact information:
Zavod za zastitu prirode Srbije
III Bulevar 106
11070 Novi Beograd, Serbia
Tel.: (11) 142 281 / 142 162 - (11) 138 062
Fax: (11) 142 281
E-mail: nature@net.yu

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Slovakia
Slovenský Kras

Declaration date: 1977
Surface area: 74.500 ha
Administrative division: Administration of the Slovak Karst protected Landscape Area, State Nature Conservancy of the Slovak Republic, they report to the Ministry of Environment of the Slovak Republic

Human activities:

About 47,900 people live in the transition area of the biosphere reserve (1997). Settlements and related economic activities are concentrated in the basins and river valleys. Forests are mostly coppice stands, derived from repeatedly cut broad-leaved trees, and forest plantations. There are also grasslands and pastures as well as some agricultural areas. The region has an industrial-rural character with more people employed in agriculture than industry (exploitation and processing of raw materials, machinery and metal industry). Research in the area has a long history. While there have been studies on the stratigraphy, geomorphology and regional physical geography of the Slovak Karst over many decades, systematic environmental research began only with its designation as biosphere reserve.

Ecological characteristics:

Situated adjacent to Aggtelek Biosphere Reserve in Hungary, Slovensky Kras in the south of Slovakia is a karst landscape comprising almost the complete range of the karst phenomena of temperate climates. A series of plateaus, ranging between 400 and 900 meters above sea level, are surrounded by steep slopes descending to adjacent basins, valleys and gorges. More than 700 caves are currently recognized in the 60,000 hectares karst area, which is shared with Hungary. In 1995, 'Caves of Aggtelek and Slovak Karst' were designated as a World Heritage site.

Carpathian oak-hornbeam forests characterized by Carpinus betulus, Quercus petraea; mixed oak forests dominated by Q. petraea, Carpinus betulus, Fagus sylvatica, Fraxinus excelsior etc.; xero-thermophilous oak forests with Cornus mas, Q.petraea, Q.cerris, Cerasus mahaleb; beech forests with Fagus sylvatica, Acer platanoides, A.pseudoplatanus and Tilia cordata; shrub layer with Cornus mas, Acer campestre, Corylus avellana, Crataegus monogyna, Rosa canina, Ligustrum vulgare, Cerasus mahaleb, Sorbus aria, S.torminalis etc.; limestone rock walls and rock cracks with Asplenium trichomanes, A. viride, Moehringia muscosa etc.; grasslands; grass meadows; underground brooks and lakes, caves, caverns and chasms; fields with Adonis aestivalis, Anagallis foemina and Caucalis platycarpos; orchards and vineyards.

Contact information:

Ján Kilik
Slovensky kras National Park, Biosphere Reserve and World Heritage Site
Biely kastiel' 188
949 51 Brzotín, Slovakia
Tel.: (421.58) 732 6815, Fax: (421.58) 734 6769
E-mail: kilik@sopsr.sk

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Slovakia
Polana

© *Polana BR*

Declaration date: 1990
Surface area: 20.360 ha
Administrative division: The Polana Biosphere Reserve is situated in central Slovakia within the Western Carpathians Mountains. It spreads on parts of districts Zvolen, Detva, Brezno and Banska Bystrica.

Human activities:

Even today, the area is sparsely inhabited, with only three settlements, one recreation centre, several farm- and forest-houses. Most of the 400 permanent inhabitants are retired, and those employed commute to industrial enterprises outside the region, only a few work in forestry or agriculture. Most of the region is covered by woodland, the rest being agricultural land, except for 50 ha of water reservoir. Forest management is according to decade plans which include most of the demands of nature conservation. Mountain meadows and pastures are mown and used for grazing by cattle and sheep.

Protection classifications:

At national level, the area was declared as a protected landscape area in 1981. Its area is the same as the area of biosphere reserve.

Contact information:

Roman Bies
Polana Protected Landscape Area, Biosphere Reserve
Hurbanova ul. 20
960 01 Zvolen, Slovakia
Phone: (421.45) 5334834
Fax: (421.45) 5333657

Ecological characteristics:

Polana is one of the greatest European former volcanoes (cca 2500 m above sea level) and it is the highest volcanic mountain range in Slovakia. The highest altitude is 1458 m above sea level, the lowest one is 460 m above sea level. Polana BR is characterized by a common occurrence of both, thermophilous and mountain plant species. Forest covers almost 85% of the Polana BR, with the slight majority being coniferous forests, the rest being deciduous one. Many of them have a character of primeval forest. The forest system is very diverse from oak forests to spruce forests growing on andesites, well known for their southernmost occurrence within the Western Carpathians, cover the highest part of the mountain range. There are about 1220 species of higher plants in the area and it is also rich in lichens and mosses. Out of which 80 species are in categories of protection, threat and rareness. The variety and species-richness of the fauna in the Polana BR reflect its environmental diversity. There are many biogeographically outstanding and biosociologically significant animal species, whose rare populations are often endangered and thus strictly protected. The invertebrate fauna includes several Carpathian endemic species. Particularly species rich is the fauna of beetles, butterflies, reptiles, birds as well as large predators (- bear, wolf, lynx). The avifauna is exceptionally rich. There are 174 species of birds in the area. In consideration of occurrence of endangered and rare bird species, the Polana has been recognised as Important Birds Area of Slovakia.

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Slovenia
Julian Alps

© *Julian Alps BR*

Declaration date: 15. 9. 2003
Surface area: 195.723 ha
Administrative division: Republic of Slovenia, Ministry of Environment and Spatial planning, The Triglav National Park

Human activities:

Agriculture with pastoral economy, small enterprises, crafts, ecottage industry, tourism, forestry.

Protection classifications:

© *Julian Alps BR*

The Biosphere Reserve Julian Alps is divided into a core area, a buffer area and a transitional area or area of corporation. The core and the buffer areas are determined by the Triglav National Park Act. The transitional area includes the whole surface of Local Municipalities, which are partly located inside the Triglav National Park and and partly outside.

Contact information:

Roman Bies
Polana Protected Landscape Area, Biosphere Reserve
Hurbanova ul. 20
960 01 Zvolen, Slovakia
Phone: (421.45) 5334834
Fax: (421.45) 5333657

Ecological characteristics:

Relief and geology:
- Underlying bedrock consist mainly of Early Triassic limestone
- The Julian Alps were strongly shaped by glaciers
- Typical landscape: high mountain summits and ridges, karst plateaus, deep glacier valleys
- Average altitude: 1334 m
- The lowest point (180 m): in the Tolminka gorge
- The highest point (2864 m): the Triglav summit

Climate:
- Alpine climate with cold winters and short warm summers
- The valleys opened towards the Mediterranean sea have milder climatic conditions

Hydrological characteristics:
- Karst springs, waterfalls, creeks and rivers,
- Alpine glacier lakes – on limestone basis!
- The dividing line between the Soča and Sava catchment areas runs trough the heart of the Julian Alps, marking the important watershed between the Mediterranean and Black Sea

Vegetation cover:
- 66 % natural forests
- 2 % agricultural land

Flora and fauna:
- 1000 lichen species
- 1600 vascular plants
- 200 mosses
- 300 – 400 algae
- 2200 animal species

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Slovenia
The Karst

© *The Karst BR*

Declaration date: 24.10.2004
Surface area: 413 ha
Administrative division: Republic of Slovenia, Ministry of Environment and Spatial Planning, Public Service Agency Park Škocjan

© *The Karst BR*

Human activities:

There are 68 inhabitants in the core zone, 8000 are living in buffer zone and 7000 in transition area.
Tourism: bed and breakfast, family guesthouse, local touristic societies, participation in and promotion of visits to the Škocjan Caves and surrounding villages, promotion of ethnological events and culture.
Education: four primary schools involved in international schools network of the Park Škocjan Caves, high school, participation in workshops and training for teachers, mentors, local people, rangers, participation in research projects for school children organized by parks authorities.
Research: participation in monitoring of underground waters, protection of drinking water sources, explorations of caves, underground channels and canyons, hydro geographical study, biodiversity studies.
Nature protection: participation in local societies organised by fisherman, hunters, fireman, mountaineers, scouts, cavers, peasant women, participation in activities for raising public awareness provided by parks authorities and Public Service Agency for Forestry.
Private or/and business sector: Transport business, timber industry, railway transport.
Food production: bees for honey production, growth of autochthonic apple and plum species and their products, autochthonic fish, sheep and goats breed.

Protection classifications:

At the national level: Regional Park Škocjan Caves, part of Natura 2000 sites Kras and Reka Reka
At the regional level: UNESCO World Heritage Site, Ramsar Site, MAB location

Ecological characteristics:

© *The Karst BR*

Karst Biosphere Reserve encompasses The Škocjanske jame Regional Park and a proper cave system of Škocjanske jame with Mejame cave. The area is well known for its outstanding natural features, geological and hydrological peculiarities. The buffer zone encompasses the flysch surface with the catchment area of The Reka River. The transition area is located on limestone surface above the vulnerable underground system of the caves. Specific ecosystems, typical of the karst, are well known for their exceptional geomorphological phenomena that are due to the limestone bedrock. The latter is also the main reason for constant lack of running water in karst and the condition for the development of numerous caves. It also influenced the way that animals and plants have adapted the occurrence of endemic species and resourcefulness of farmers. Geomorphologic features are observed here: caves, number, grasslands, stony countryside, pastures, underground streams and pools, collapsed dolines, cave system, underground canyons, sinkholes, the Reka River, speleothems - stalactites, stalagmites, ponds, underground halls, natural bridges. Fauna of the cave system represents species adapted to the absence of light, scarce food supply and variable river flow.

Contact information:

Park Škocjanske jame, Slovenija
Škocjan Caves
Škocjan 2
SI – 6215 Divaca
SLOVENIA
T: 00386 (0)5 70 82 100,
F: 00386 (0)5 70 82 105
E: psj@psj.gov.si

Slovenia

Kozjansko and Obsotelje

Apple festival

Abbey and Church in Olimje

Declaration date: 2010
Surface area: 94.814 ha
Administrative division:
The Public Institution of Kozjanski Park

Human activities:

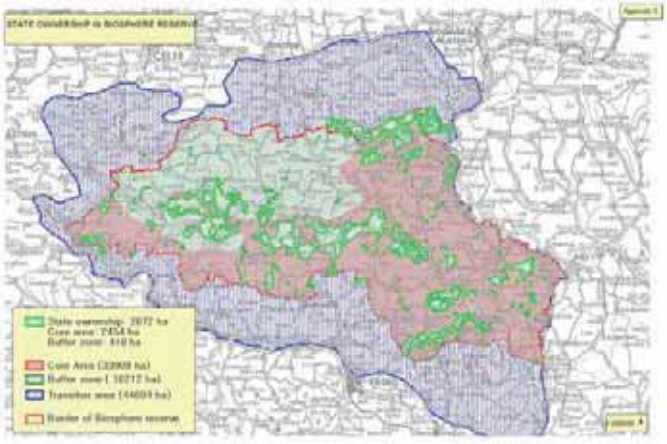
Until the end of the 19th century, the area was characterized by traditional agriculture, craft and (river) transport routes. The construction of new mains of transport (coming of the railway) and industrialization gave rise to the area gradually lagging behind behind other parts of Slovenia economically.
There are 11 local communities in the area of the Biosphere Reserve. Number of inhabitants in Biosphere Reserve is 20,765. In 2007, the natural growth rate was negative in all municipalities which have the majority of the population in the proposed Biosphere Reserve (Kozje, Bistrica ob Sotli, Dobje), with the natural growth being below -7 % in all of them, and similar the municipalities of Podčetrtek and Radeče have a great deal more negative growth than the Slovene average.
Employment in primary activities (agriculture and forestry) only rarely predominates, generally in small settlements in hilly parts.
Prevailing employment in non-agricultural activities appears in settlements that are more distant from employment centres or have a significant number of jobs in these activities.
Employment in the service sector predominance closer to major employment in service activities prevails for the most part in settlements in the hinterland of employment centres or high migration to more distant centres and also the share of self-employment is not negligible.

Ecological characteristics:

Kozjansko and Obsotelje Biosphere Reserve is marked by a closed chain of pre-Alpine hills, unconnected areas of tertiary lower hills and a chain of lowland fields. The special qualities of the areas are varied, but interconnected natural-geographical and culturally settled units. The altitude belts within the biosphere reserve area are the following:

0-200 m	21.03 km2
200-300 m	65.83 km2
300-400 m	110.95 km2
400-600 m	232.06 km2
600-800 m	59.69 km2
800-1000 m	11.09 km2
Above 1000 m	0.04 km2

54% of the land is covered with forests. Agricultural land represents 31.2% of the area.



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Spain
Grazalema

Zahara de la Sierra

Declaration date: 22 January 1977
Surface area: 51.695 ha (core: 6 per cent; buffer: 81 per cent; transition 13 per cent)
Administrative division: 14 Municipalities have their territories in the Biosphere Reserve

Human activities:

Forestry activities using wood and cork, open-range cattle and goat-raising, the famous wool and leather handicrafts and rural tourism are going from strength to strength.

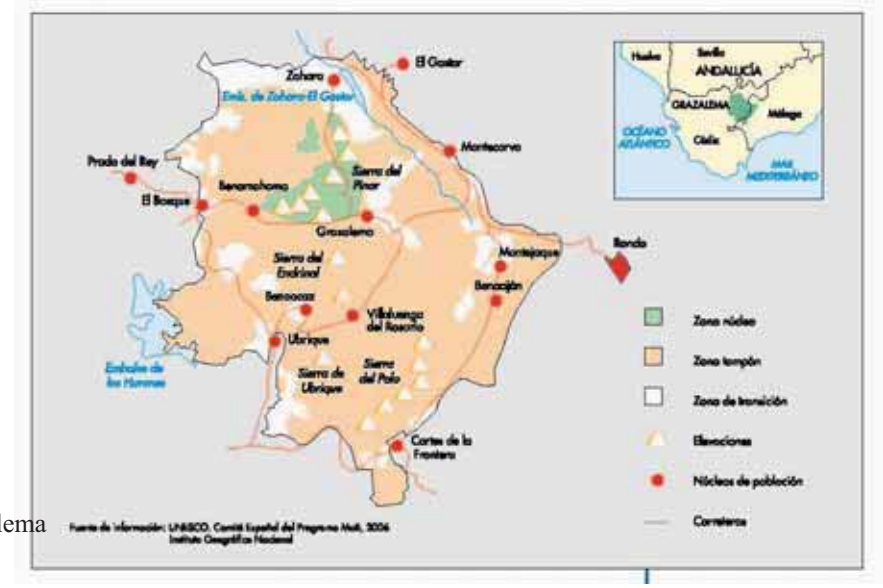
Ecological characteristics:

Grazalema is a group of calcareous sierras, enjoying an extraordinarily rainy microclimate because of its location as one of the first mountain barriers to the moisture-laden winds from the Atlantic Ocean. Annual rainfall is over 2,000 mm, encouraging one of the most extensive patches of forest in Spain. Noteworthy are the magnificent Cork Oak and Holm Oak groves and in the higher and shadier levels, the Pinsapo forests, the exceptional Mediterranean fir, endemic in these sierras and a remnant of the vast fir groves that covered the area during glaciations. The diversity of fauna should be noted, particularly that of birds of prey such as the Golden Eagle, the Peregrine Hawk and one of Europe's most numerous colonies of Griffon Vulture. There are also mammals such as the Mountain Goat, and in the wooded areas, Deer and Wild Boar. The karstic formation of these calcareous sierras has resulted in a wealth of caves and potholes, harbouring such species as the Troglodyte Bat that has its major European wintering area in this location.

Protection classifications:

- National Park
- Specially Protected Bird Zone(ZEPA)

Pinsapo forest



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Spain
Ordesa-Viñamala

Monte Perdido Massif
CENEAM

Declaration date: 22 January 1977
Surface area: 51.396 ha (core: 18 per cent)
Administrative division: 11 Municipalities have their territory in the Biosphere Reserve

Human activities:

Highland stock-raising, essential for the stability of Alpine grasslands, and rural and nature tourism.

Edelweiss
José L. Rodríguez

Chamois
José L. Rodríguez

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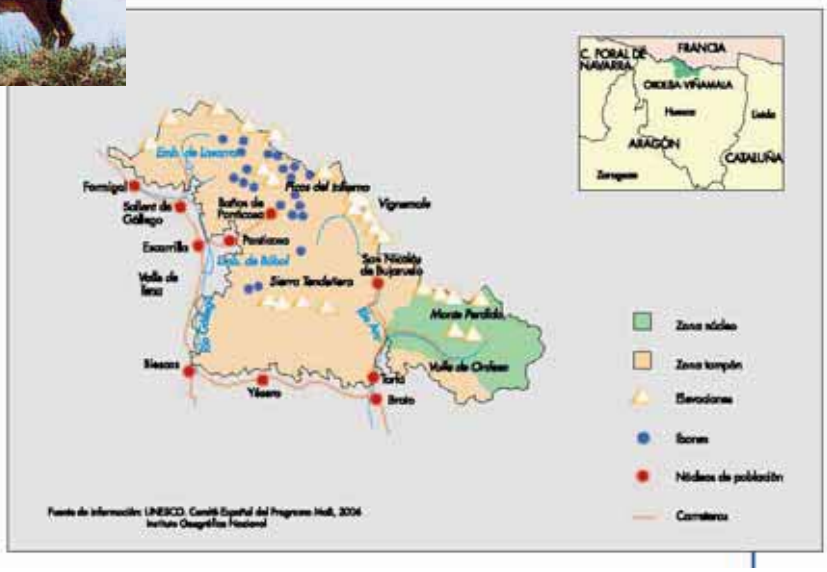
Ecological characteristics:

The Biosphere Reserve includes Pyrenean valleys and siliceous (Northwest) and limestone (South and East) mountains, with peaks reaching 3,355 m (Monte Perdido). Landforms have been modelled by glaciations forming deep valleys with a U profile, circuses and lakes excavated by the ice (locally known as *ibones*). The limestone massifs also contain labyrinths of caves and galleries opened up by the water (Karst) the most famous being the sinkholes of the Escuaín canyon, considered to be among the deepest in Europe. The climate is variable in function of the altitude and orientation, oscillating between the continental sub-Mediterranean zones in the lower parts and Boreal-Alpine climate in the highlands. The vegetation is distributed in altitudinal layers ranging from Oak groves to mosses and lichens in the highest areas near the perpetual snows. The intermediary layers are covered with a succession of Oak, Beech, Fir and European Black Pine, mixed with Birch, European Yew, Aspen, Ash and Willow trees. Plant diversity is very high and over 2,000 species have been recorded. The fauna is interesting with species such as the Chamois and the Marmot which inhabit the Alpine grasslands or the Pyrenean Desman that inhabits mountain streams and, among the birdlife, the rare Lammergeyer, or Bearded Vulture, the Rock Ptarmigan, or in the remotest forests, the Western Capercaillie, the White-backed Woodpecker and the Black Woodpecker are noteworthy.

Protection classifications:

- Ordesa and Monte Perdido National Park, together with the adjoining French Pyrenees Park, has been declared a World Heritage site by UNESCO
- Specially Protected Bird Area (SPBA)
- Diploma from the Council of Europe



Spain
Montseny

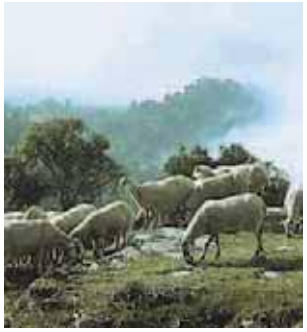
The Montseny Massif
J. Castells

Ecological characteristics:

Montseny is a northern massif isolated from the Catalan pre-coastal cordillera. It includes an extraordinary diversity of flora and fauna as it is located in the transition zone between the Mediterranean and Atlantic regions, with very well conserved Cork Oak, Holm Oak, Beech, Chestnut, Pine and even Fir forests, giving way to vast grasslands in the highlands. The numerous water courses are bordered by riparian forests of Aspen, Willow, Hazelnut and Ash trees. Among the fauna, together with other Mediterranean species, are species that are characteristic of Central- European ecosystems, such as the Edible Door-mouse, the European Green Lizard or the Aesculapian Snake, and high mountain species such as the Pyrenean Brook Salamander and the European Common Frog. The entomological fauna is also very varied with a rich diversity of butterfly species.

Declaration date: 28 April 1978
Surface area: 30,120 ha (core: 3 per cent; buffer: 55 per cent; transition: 42 per cent)
Administrative division: 18 Municipalities have their territory in the Biosphere Reserve

Beech trees
J. Castells



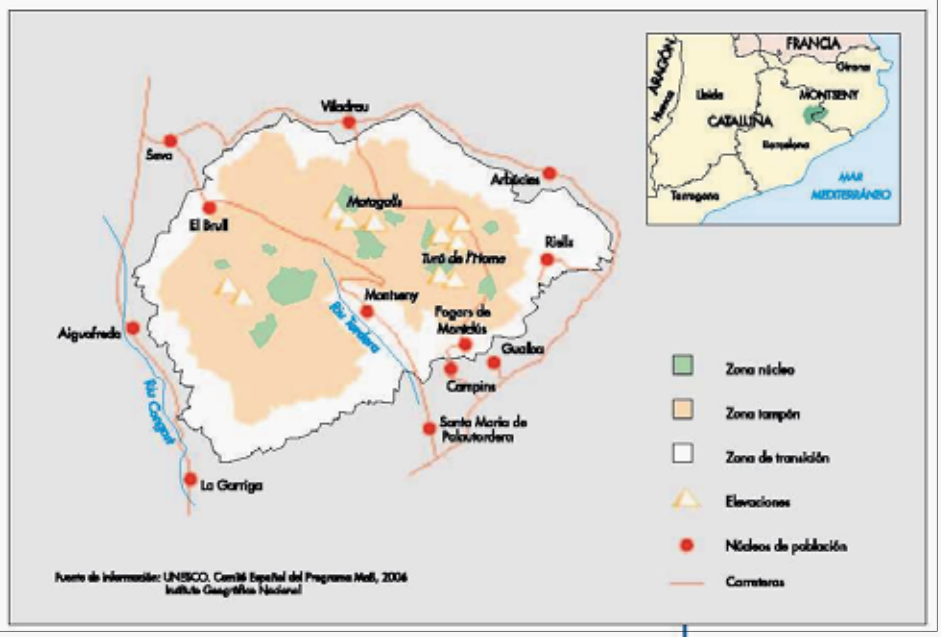
Traditional livestock
J. Castells

Human activities:

Livestock-raising and forest harvesting. Ecological research, agro-tourism and recreation based on its proximity to the metropolitan area of Barcelona

Protection classifications:

- Natural park



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Spain
Doñana

Guadalquivir Marshland
José L. Rodríguez

Declaration date: 30 November 1980
Surface area: 77,260 ha (core: 66per cent; buffer: 34 percent)
Administrative division: 4 Municipalities have their territory in the Biosphere Reserve

Human activities:

Open-range cattle-raising and agriculture in the marshlands, shell-fishing and agro-environmental tourism. A Sustainable Development Plan is being implemented which covers the Biosphere Reserve and its hinterland.

Fallow deer
José L. Rodríguez

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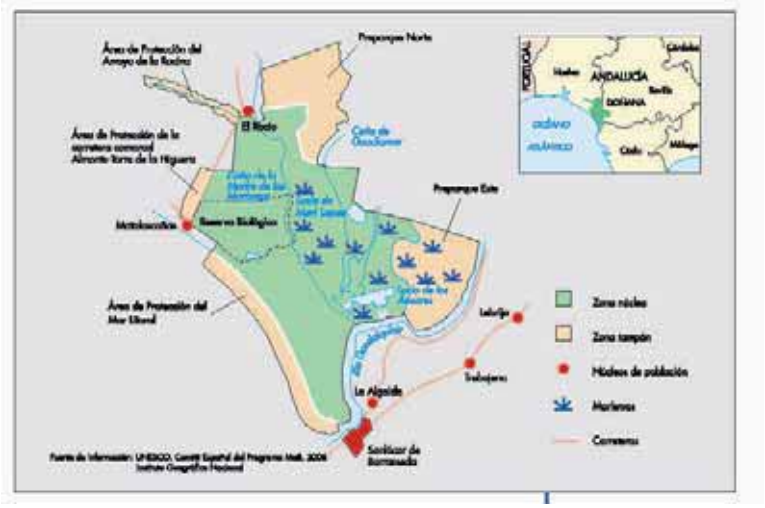
Ecological characteristics:

This is one of the most important areas of wetlands in the world and covers diverse landscape units. The coastal strip includes virgin beaches and chains of both static and migrating dunes, alternating with forests of centenary pine trees and complex lagoon systems interconnected by the water-table, enormous estuary areas and marshlands influenced by tides; seasonally flooded grasslands such as the scrubland plains, forests of age-old Cork Elms converted into grasslands, the so-called "white mountain" areas with a predominance of Rockrose, Thyme and Rosemary and the "black mountain" area where the dark colour of the heather abounds. However the most interesting point is the extraordinary wealth of fauna that makes Doñana a unique enclave where over 300 species of vertebrates have been identified. It is estimated that some 6 million birds pass through the Reserve annually on their migratory flyways, due to its strategic location between Europe and Africa. Furthermore, Doñana is one of the last refuges for endangered species such as the Iberian Lynx or the Spanish Imperial Eagle.

Protection classifications:

- National Park
- Natural Park
- Specially Protected Bird Area (SPBA)
- Internationally Important Wetland (Ramsar Convention)
- European Council Diploma
- UNESCO World Heritage Site

The Eurasian Widgeon
José L. Rodríguez



Spain
La Mancha Húmeda

Tamarisks
J. L. Perea

Declaration date: 30 November 1980
Surface area: 25,000 ha (core: 8 per cent; buffer: 22 per cent; transition: 70 per cent)
Administrative division: 19 Municipalities have their territories within the Biosphere Reserve

Human activities:

Agriculture and animal husbandry. Incipient development of agro-tourism

Red crested Pochard
J. L. Perea

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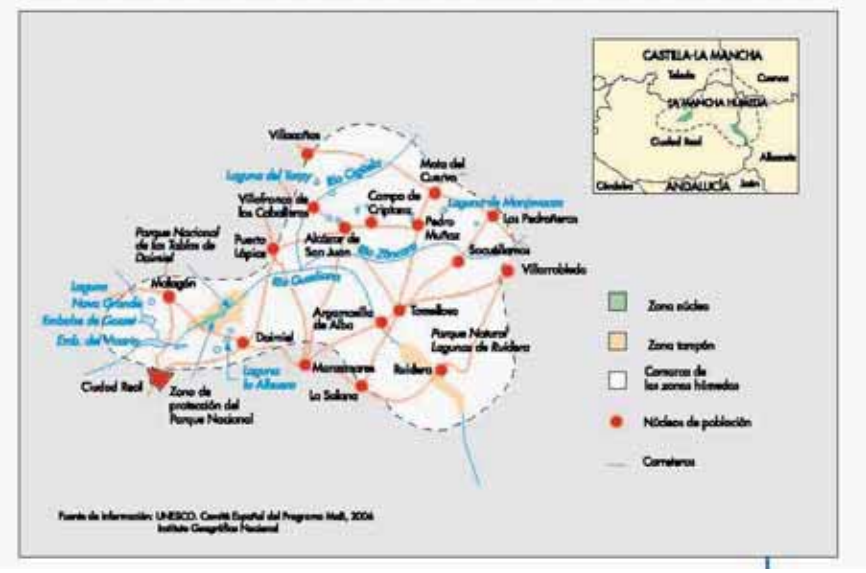
Ecological characteristics:

A gently rolling plain located at between 600 and 700 m above sea level, full of Tertiary deposits and scattered with a great number of wetlands arising from the seasonal flooding of rivers such as the Guadiana, Cigüela, Záncara and Riánsares, and from the numerous upwelling of the Manchego aquifer in the depressions, known in the area as "eyes." The Tablas de Damiel National Park is noteworthy as is a complex of fifteen staggered lagoons comprising the Lagunas de Ruidera National Park. The boundaries of the Reserve are imprecise as they cover the maximum extension of the wetlands during the rainy season, at the time the Biosphere Reserve was declared. In fact, irregular rainfall, characteristic of a Mediterranean climate, makes its surface area very variable. To this must be added that the aquifer is over-exploited for irrigation, surpassing the level of natural replenishment by rainfall. An attempt is being made to compensate this with the implementation of the Special Plan for Alto Guadiana. The typical lagoon vegetation comprising wetland plants such as the Mediterranean Tall Rush, Blue Sedge, Yellow Flag and many other reeds and sedges, together with small woodlands of water-loving trees such as Tamarisk, Willow and Aspen. But the concentration of thousands of anatidae and other waterfowl is what gives this area a special value. Special mention may be made of the Pochards, Lesser Scaup and the Red-crested Pochards which feed in the vast flooded grasslands in these shallow waters.

Protection classifications:

- National Park
- Natural Park
- Specially Protected Bird Area (SPBA)
- Internationally Important Wetland (Ramsar Convention)



Spain
Cazorla

Country houses in the Sierras
A. Benavente

Declaration date: 21 April 1983
Surface area: 214,300 ha (core: 9 per cent; buffer: 77 per cent; transition: 14 per cent)
Administrative division: twenty-three municipalities have their territory in the Biosphere Reserve

Human activities:

Tapping of forest resources, hunting and stock-raising. Crafts and agro-tourism.

The Cazorla violet
A. Benavente

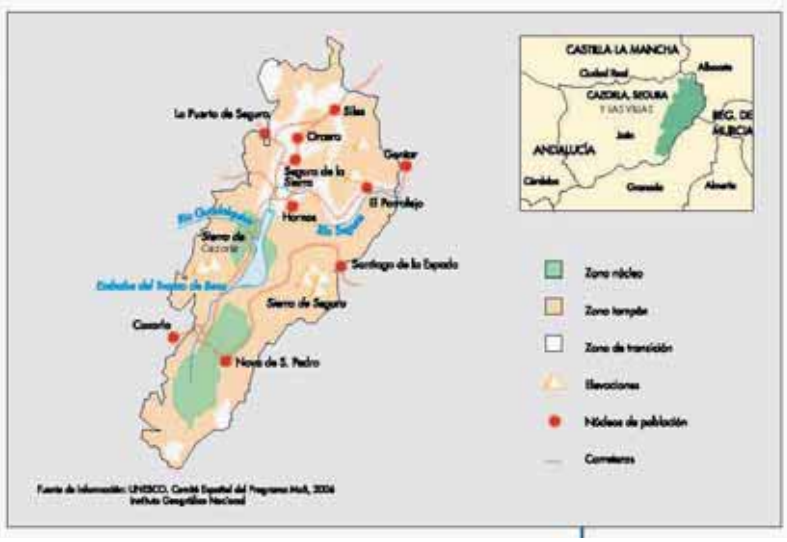
Ecological characteristics:

This is the largest protected area in Spain. It covers a series of mountainous limestone alignments in NE – SW direction where important rivers, such as the Guadalquivir, Segura, Guadiana Menor and Guadalimar have their source. Its continental Mediterranean climate, with mean annual rainfall between 500 mm in the low areas and 2,000 up on the peaks, has given rise to one of the largest forest masses of the Peninsula, including autochthonous forests of European Black Pine, where some trees have reached an extraordinary size and longevity, alternating with reforestation of Aleppo and Maritime pine, in addition to the Strawberry Tree, Oak and Spanish Juniper. The great wealth of flora and fauna in this Reserve is noteworthy with 26 endemic species, such as the emblematic Cazorla violet, numerous ungulate populations such as the Mountain Goat, the Red Deer, Fallow Deer and the European Muflon. There is also an exclusive species of reptile, the Valverde Wall Lizard.

Protection classifications:

- Natural Park
- Specially Protected Bird Area (SPBA)

Mountain goat
A. Benavente



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Spain
Marismas del Odiel

Grey Herons

Declaration date: 21 April 1983
Surface area: 7.158 ha (core: 15 per cent; buffer: 85 per cent;)
Administrative division: 4 Municipalities have their territory in the Biosphere Reserve

Human activities:

Salt works, fishing and shell-fishing in the estuary, open range livestock-raising, forest harvesting (pine kernels, firewood, honey). Integrated management in the surroundings of a potentially highly contaminating industrial chemical plant.

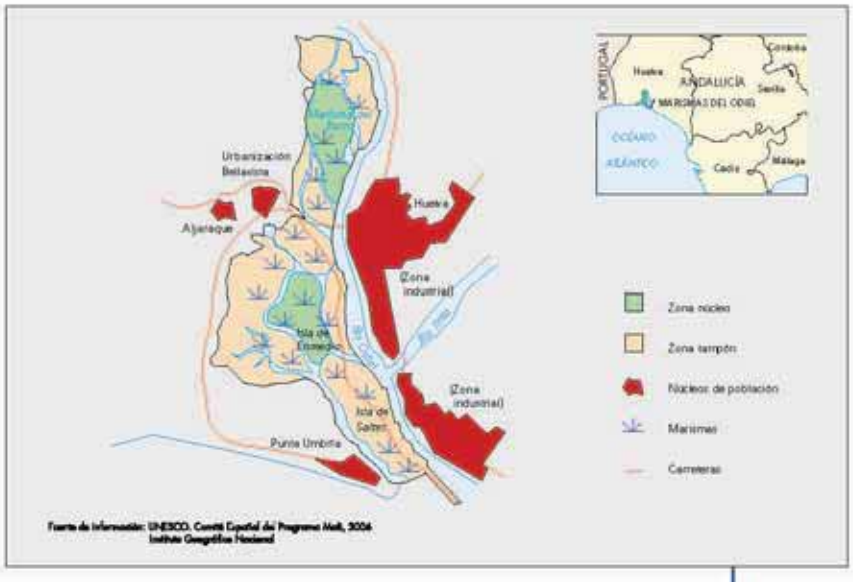
Shell fishing

Ecological characteristics:

Tidal marshes scattered with islands bordered by many streams, beaches and dune systems. The erosion and sedimentation processes taking place give rise to rapid morphological changes. The Mediterranean climate is softened by the influence of the ocean with a mean annual rainfall a little above 500 mm. The wetland vegetation is dominated by halophile species (adapted to the high salt content of the soil). There are also strips of Italian Stone Pine and Spanish Juniper. The extraordinary wealth of bird life in the area is to be noted and includes species such as the Grey Heron, the Purple Heron, the Western Marsh Harrier and the Spoonbill (one third of the whole European nesting population is to be found in the Marismas del Odiel). After Doñana, with which for reasons of proximity it maintains a continuous link, Marismas del Odiel is considered to be the second most important wetland area for water fowl in Spain based on the diversity of species recorded.

Protection classifications:

- Natural Landscape
- Specially Protected Bird Area (SPBA)
- Internationally Important Wetland (Ramsar Convention)
- Natural Reserve (2)



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Spain
La Palma

Partial view of the Taburiente Cauldron and Angustias Ravine
Amador Camacho

Declaration date: 21 April 1983 (El Canal and Los Tiles). First extension: 15 December 1997 (Los Tiles). Extension to the whole island: 8 November 2002
Surface area: 80,702 ha (70,832 ha on land), (core: 17 per cent; buffer: 40 per cent; transition: 43 per cent)
Administrative division: 14 Municipalities have their territory in the Biosphere Reserve

Human activities:

Agriculture (banana plantations), animal husbandry, bee-keeping and fishing. Presently agro-tourism and crafts are in the process of considerable development. .

Nogales Beach
Juan Carlos Álvarez

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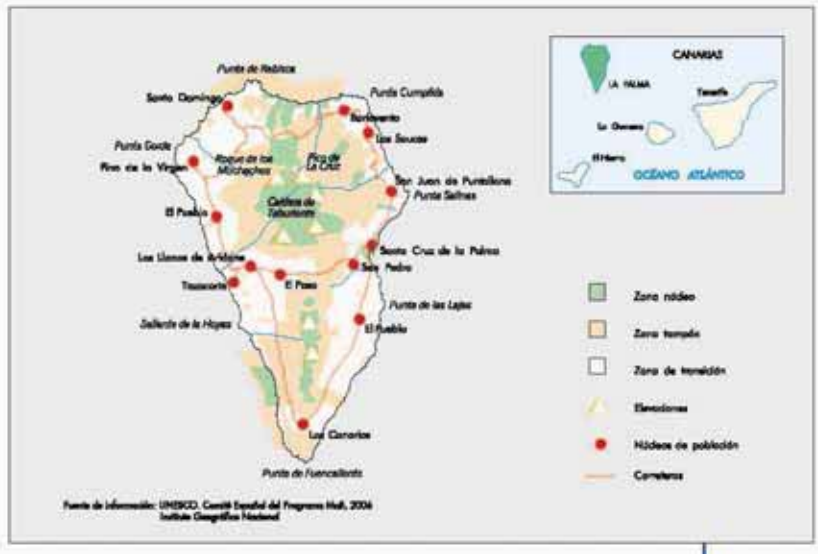
Ecological characteristics:

La Palma, with its highest peak, Roque de los Muchachos, at 2,426 m, is considered to be one of the highest islands in the world in relation to its surface area. It is truly a miniature continent that contains, staggered at different altitudes, all the representative ecosystems of the Macaronesian region, a biogeographical region grouping the Archipelagos of the Canaries, Madeira and Azores. Starting from the coastal *Euphorbia obtusifolia* and Spurges, then giving way to the thermophile forest and subsequently to monte verde vegetation (Laurel forests, Tree Heath and Faya-tree), to be substituted at greater altitudes by Canary Pine and finally by *Adenocarpus viscosus* and scrubland at the summit.
The spectacular Laurel tree forests associated with horizontal precipitation-condensation of coastal fogs caused by the humid trade winds are particularly noteworthy. This permanent atmospheric humidity, characteristic of the Tertiary Era, has enabled relict plants to survive. Forest function is also vital for aquifer replenishment which is essential for the development of the Island. Among the fauna, numerous endemic insect species are to be found and some unique birds, such as Bolle's Laurel Pigeon and the White-tailed Laurel Pigeon.

Protection classifications:

- National Park
- Natural Park (2)
- Protected Natural Reserve
- Special Natural Reserve
- Site of Special Scientific Interest (3)
- Natural Monument (8)
- Protected Landscape (4)
- Specially Protected Bird Area (SPBA) (2)
- Marine Reserve



Spain
Urdabai

Cliffs at Orgoño
Jon Maguregi

Declaration date: 7 December 1984
Surface area: 22.041 ha (core: 11 per cent; buffer: 25 per cent; transition: 64 per cent)
Administrative division: 22 Municipalities have their territory in the Biosphere Reserve

Human activities:

Agro-environmental tourism, scientific research, environmental education and forest and livestock uses.

Ecological characteristics:

The Biosphere Reserve is located in a river basin draining into an estuary of the Cantabrian Sea, forming marshlands with a wide, inter-tidal area, in a region with a temperate ocean climate. The mean annual rainfall and temperature are 1,400 mm and 14ºC respectively. Natural vegetation is formed by a mosaic of lush forests, scrublands and moorlands,together with anthropic conifer vegetation, meadows and croplands. It includes a varied zoological community, associated with the different environments. Urdubai, which means “River of the Boars” in Euskera, reflects the abundance of this animal. The marshlands are critical for birdlife, both as a nesting area and as a stopping or wintering site. The coastal wetlands are also a natural nursery of great importance for many marine species that spend their first years in this area.

Protection classifications:

- Specially Protected Bird Area (SPBA)
- Internationally Important Wetland (Ramsar Convention)

Kingfisher
Jon Maguregi

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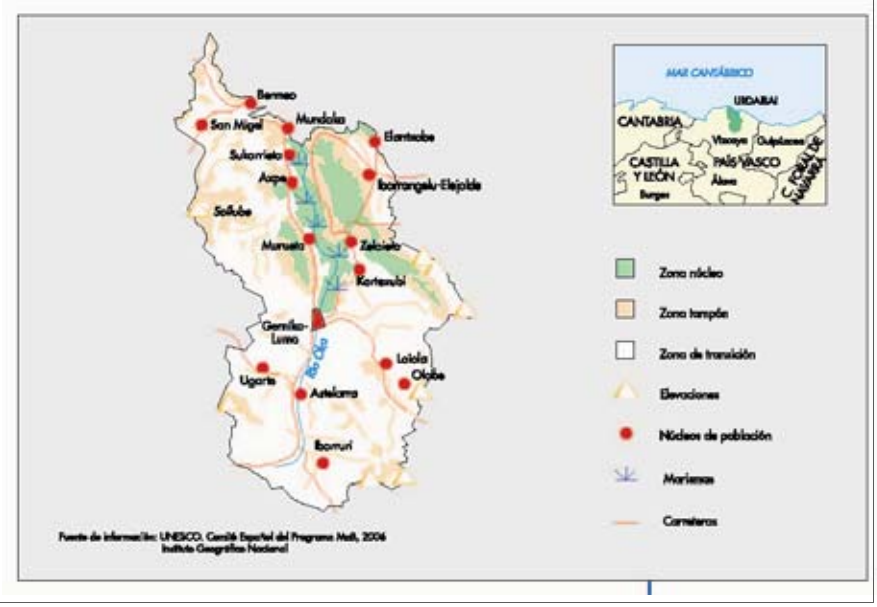


Spain
Sierra Nevada

The peaks of Alcazaba, Mulhacen and Veleta
A. Miguelez

Declaration date: April 1986
Surface area: 171,646 ha (core: 30 per cent; buffer: 70 per cent)
Administrative division: 60 Municipalities have their territory in the Biosphere Reserve

Human activities:

Mountain farming activities, with small orchards, sheep and goat-raising.
Winter tourism associated with the important skiing resort and summer tourism.

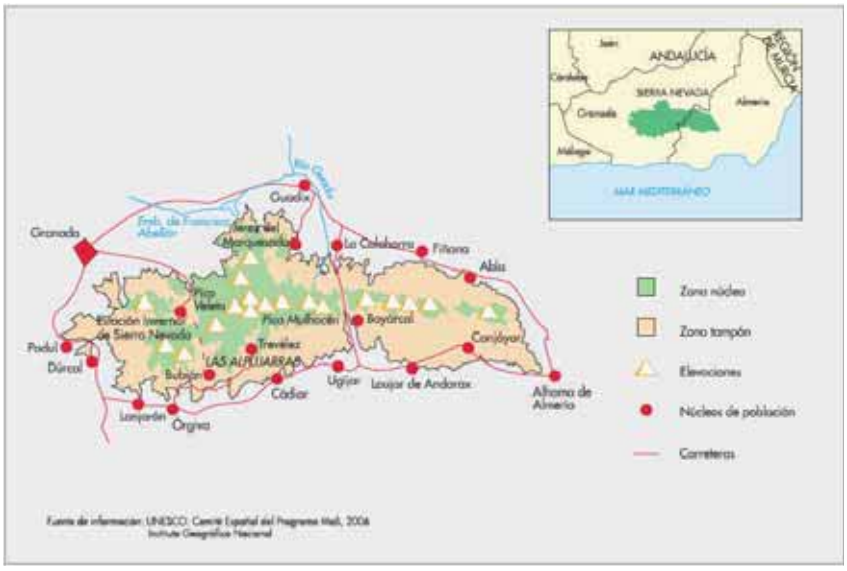
Ecological characteristics:

This Biosphere Reserve includes the inner mountain nucleus of the Cordillera Penibética mountain range which has the Spanish Peninsula's highest peaks such as the Mulhacen peak at 3,482 m. The steep mountain slopes are a reflection of its past, modelled by glacial erosion. The dominating climate is continental Mediterranean, although it has strong variations in mean annual rainfall, ranging with altitude between 350 and 1,600 mm. The vegetation includes vast stretches of grasslands and high mountain scrubland, Pine, Juniper and deciduous and sclerophyllus forests. But what confers an extraordinary value on the Sierra Nevada, in addition to its grandiose landscapes, are the numerous unique and endemic species of flora found here, with over 1,700 different species recorded, 64 of which are endemic. Mention should be made of Wormwood (*Artemisia granatensis*), Monkshood (*Aconitum*) and Stavesacre (*Delphinium staphisagria*). There are also numerous endemic invertebrates and high mountain emblematic species, such as the Mountain Goat, the Wall-creeper (*Tichodroma muraria)* and the Royal Eagle.

Protection classifications:

- National Park
- Natural Park
- Natural Monument
- Internationally Important Wetland (Ramsar Convention)(2)

Erigeron frigidus



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Spain
Cuenca Alta del Río Manzanares

Traditional ash tree lobbing

Declaration date: 9 November 1992
Surface area: 47.500 ha (core: 39 per cent; buffer: 61 percent)
Administrative division: 16 Municipalities have their territory in the Biosphere Reserve

Human activities:

Traditional open-range livestock-raising continues to be the main land use, together with leisure and tourist activities derived from the proximity of the Biosphere Reserve to the city of Madrid.

The Great-crested Grebe

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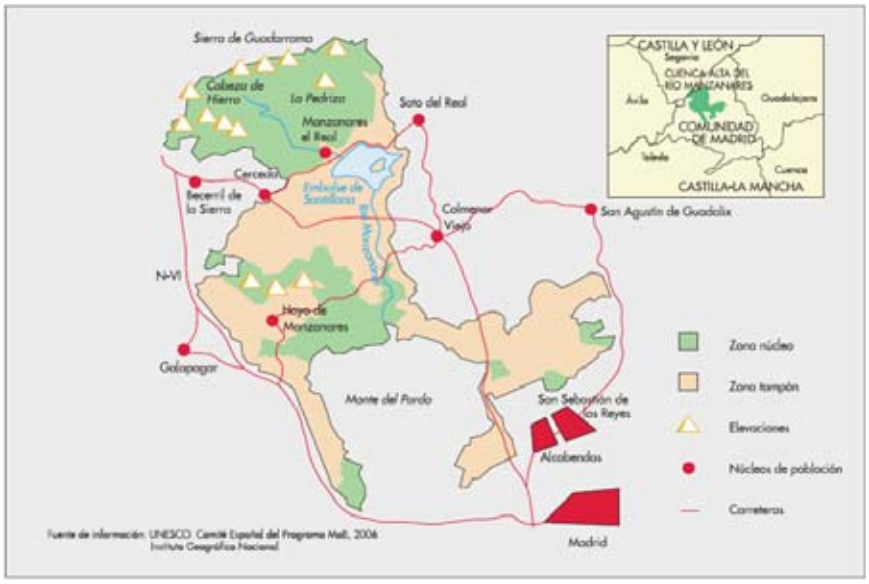
Ecological characteristics:

The Biosphere Reserve is located on medium altitude and high altitude mountains with valleys and rocky areas on granite and gneiss. The "Pedriza de Manzanares" is to be noted, a spectacular geological landscape, dominated by strongly eroded granite formations of enormous capriciously shaped blocks known as "berruecos", with a Mediterranean vegetation of aromatic plants such as thyme, lavender, Spanish lavender, rosemary and Cistus or Rock roses. Among the tree formations are Oak and Ash groves, juniper and pine groves and, at higher altitudes, *Cytisus oromediterraneus* scrubland. All this reflects a continental Mediterranean climate, with a mean annual rainfall between 450 mm in the lower areas and 2,000 at higher altitudes. Among the fauna, Iberian endemic species are to be found such as the Marbled Newt and the Iberian Frog. The Santillana Dam, which has been declared an Internationally Important Wetland is a wintering place for aquatic birds, such as winter populations of Black-headed Gulls and summer Stork colonies.

Protection classifications:

- Regional Park
- Specially Protected Bird Area (SPBA)
- Internationally Important Wetland Area (Ramsar Convention)



Spain
Lanzarote

Cliffs at Famara
Gerardo García-Casanova

Declaration date: 7 October 1993
Surface area: 122.610 ha (84.610 ha on land) (core: 11 per cent; buffer: 36 per cent; transition: 53 per cent)
Administrative division: 7 Municipalities have territory in the Biosphere Reserve

Human activities:

The primary sector has gradually lost importance vis-à-vis the tourist sector that has a network of centres designed by the Lanzarotan artist César Manrique. These blend perfectly with the natural environment. The Cabildo limits urban excess through the Insular Land Plan, adopted in 2001 by the Government of the Canaries. The Biosphere Reserve Council undertakes defence in general interests.

Crops growing in volcanic sand
L. Perea

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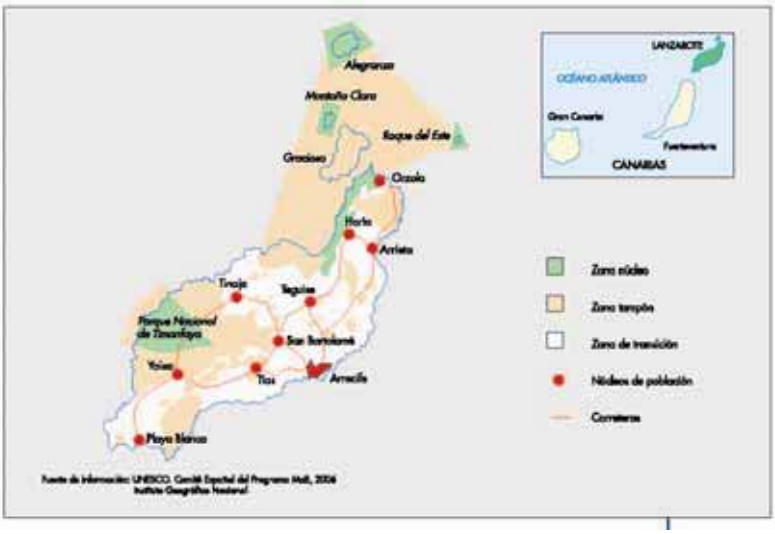
Ecological characteristics:

The Island is relatively flat (maximum altitude 670 m), of volcanic origin, with vast lava fields, known as malpais, and a profusion of craters in the Timanfaya National Park. There are also shallow sea beds harbouring a great wealth of biodiversity. The climate is dry sub-tropical, with trade winds and a mean annual rainfall of 115 mm, and no permanent water courses. The vegetation is xerophyllus adapted to storing and retaining humidity. There is a high number of endemic species. The island culture developed a series of adaptations to trap and use the scant and unpredictable rainfall. This is the case of agricultural techniques for sowing under ash and volcanic sheet flows under inverted cones forming unique landscapes such as those of the Geria valley.

Protection classifications:

- National Park
- Natural Park (2)
- Comprehensive Natural Reserve
- Specially Protected Bird Area (SPBA) (5)
- Natural Monument (5)
- Site of Scientific Interest (2)
- Protected Landscape (2)
- Marine Reserve
- Site of Community Interest (SCI) (11)



Spain
Menorca

Virgin beach on the south coast of Menorca

Declaration date: 7 October 1993
Surface area: 70,200 ha (core: 4 per cent; buffer: 39 per cent; transition: 57 per cent)
Administrative division: 8 Municipalities have their territories in the Biosphere Reserve

Human activities:

Very diversified quality tourism together with industrial activities, such as shoe and jewellery-making, and dairy-farming.

Taula (Table in Catalan), a T-shaped stone monument

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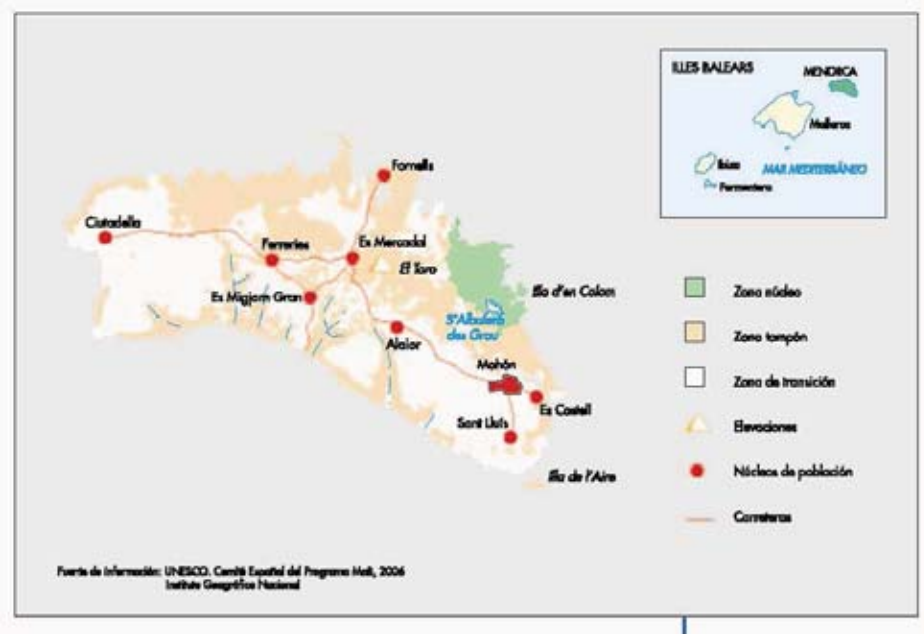
Ecological characteristics:

This island has very flat landforms with the highest altitude at Mount Toro (358 m). Although the seasonally flowing torrents and ravines predominate, two low discharge courses of permanent water are of special ecological interest. The climate is Mediterranean sub-humid with a mean annual temperature of some 17ºC and mean annual rainfall ranging from 450 to 650 mm. Frequent and very strong winds have an impact, especially on the North coast. The well-conserved rural landscape is dominated by an agro-forestry mosaic, comprising a wide mesh of drywalls, closed-in fields and country houses. Coves, cliffs and beaches are to be found along the coast, still virgin in most of the island. The flora includes endemic species such as Peonies and diverse species of thorny shrubs forming pillows (*socarrell - Launaea cervicornis*). Among the fauna, mention should be made of the large colonies of sea birds gathering in S'Albufera des Grau, such as the European Shag and an abundance of birds of prey such as the Booted Eagle and the Red Kite.

Protection classifications:

- Natural Park
- Specially Protected Bird Area (SPBA)
- Marine Reserve
- Particularly Interesting Natural Area (PINA)
- Protected Megalithic Archaeological Monuments and Findings, representative of the Talaiotic culture.



Spain
Sierra de las Nieves y su entorno

Pinsapar de Ronda
José López Quintanilla

Declaration date: 15 June 1995
Surface area: 93,930 ha (core: 4 per cent; buffer: 57 per cent; transition: 39 per cent)
Administrative division: 11Municipalities have their territory in the Biosphere Reserve

Human activities:

Traditional agriculture and livestock-raising co-existing with incipient tourism

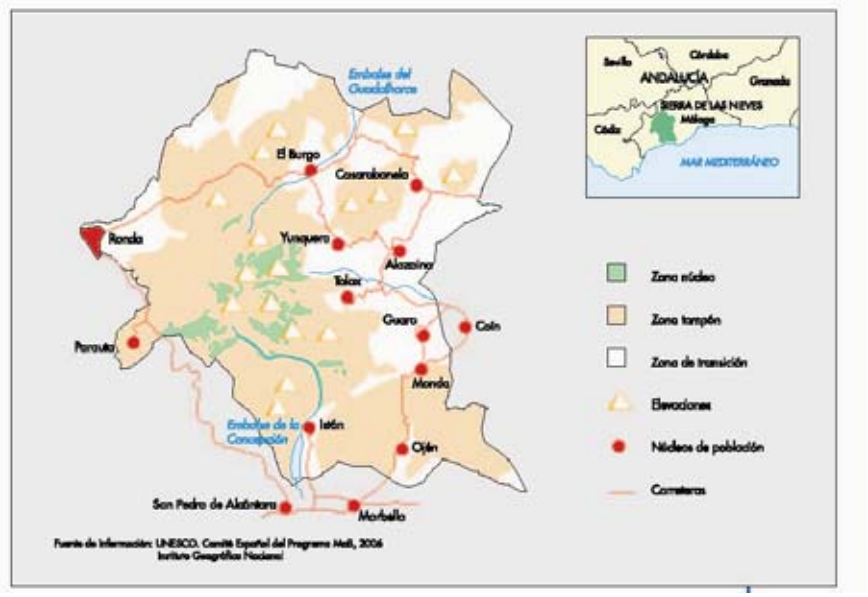
Booted Eagle
José López Quintanilla

Ecological characteristics:

The Biosphere Reserve includes limestone and peridotite mountains in the eastern sector of the Ronda hills with steep slopes, giving way to very deep valleys and a profusion of gullies, ravines and precipices. The Karstic modelling of these mountains has shaped an abundance of caves and sinkholes, among them the GESM, which with a free fall of 1,100 m is the third deepest in the world. The Mediterranean climate, with the influence of humid ocean air, has given rise to all the Mediterranean bio-climatic layers and their associated vegetation, with the noteworthy presence of 3,000 ha of Pinsapar (*Abies pinsapo*), a species of Spanish fir, together with forests of Portuguese Oak, Holm Oak, Cork Oak and Pine. The characteristic fauna in these high and medium-sized mountains includes populations of Mountain Goat, Roe Deer, Wild Boar and birds of prey such as the Royal Eagle, Bonelli's Eagle and the Booted Eagle and the Peregrine Hawk.

Protection classifications:

- Natural park
- Included in the Special Physical Environmental Protection Plan for the Province of Malaga
- Andalucía Hunting Reserve



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Spain
Cabo de Gata-Níjar

Volcanic coast
By permission of the Cabo de Gata-Níjar BR

Declaration date: 5 November 1997
Surface area: 46,000 ha (34,000 ha on land), (core: 17 per cent; buffer: 80 per cent; transition: 3 per cent)
Administrative division: Three municipalities have their territories in the Biosphere Reserve

Human activities:

Intensive greenhouse agriculture and increasingly, the tourist and service sector

Pink Flamingos
By permission of the Cabo de Gata-Níjar BR

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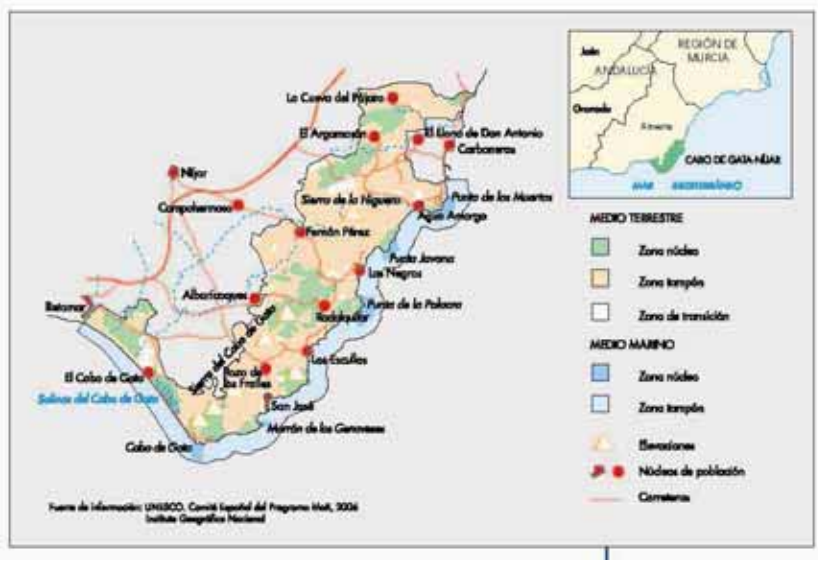
Ecological characteristics:

The Cabo de Gata Sierra is one of the main European volcanic mountain massifs. It stretches to the coast with cliffs over 100 m high, edged with salt flats and chains of fixed sand dunes. The coastal shelf is well conserved with vast underwater meadows of *Posidonia* and benthic communities associated with the scantly illuminated rocky seabed. The climate is conditioned by the proximity of the Sahara Desert and the influence during most of the year of the Azores anticyclone. The result is high temperatures and scant and irregular rainfall. The Biosphere Reserve hosts an abundance of semiarid plant formations with fan palms (the only autochthonous continental European palm tree), *Pistacia lentiscus, Olea europaea var. sylvestris* and the Indian Jujub (*Zizyphus jujube*). Together with numerous endemic species specific to the zone are many other species characteristic of Saharan flora. In the dunes and sand flats vegetation adapted to saline soils has developed, including European Beach-grass, *Salicornia* and *Arthrocnemetea*. Regarding the fauna, the Biosphere Reserve is home to grassland birds such as the Stone-curlew, the Tibetan Sand-grouse and the Black-bellied Sand-grouse and a diversity of aquatic birds present in the sand flats, such as the Black-winged Stilt, the Pied Avecet, the Flamingo and the rare Audouin's Seagull.

Protection classifications:
- Maritime and Terrestrial Natural Park
- Specially Protected Bird Area (SPBA)
- Internationally Important Wetland (Ramsar Convention)
- Geo-park
- Specially Protected Area of Importance for the Mediterranean (SPAIM)



Spain
El Hierro

Sea bottom
By kind permission of the Cabildo de El Hierro

Declaration date: 22 January 2000
Surface area: 29,600 ha (28,700 ha terrestrial), (core: 4 per cent; buffer: 54 per cent; transition 42 per cent)
Administrative division: 2 Municipalities have their territory in the Biosphere Reserve

Human activities:

Agricultural and stock-raising uses and development of the tourist industry and services.

Rural landscape
By kind permission of the Cabildo de El Hierro

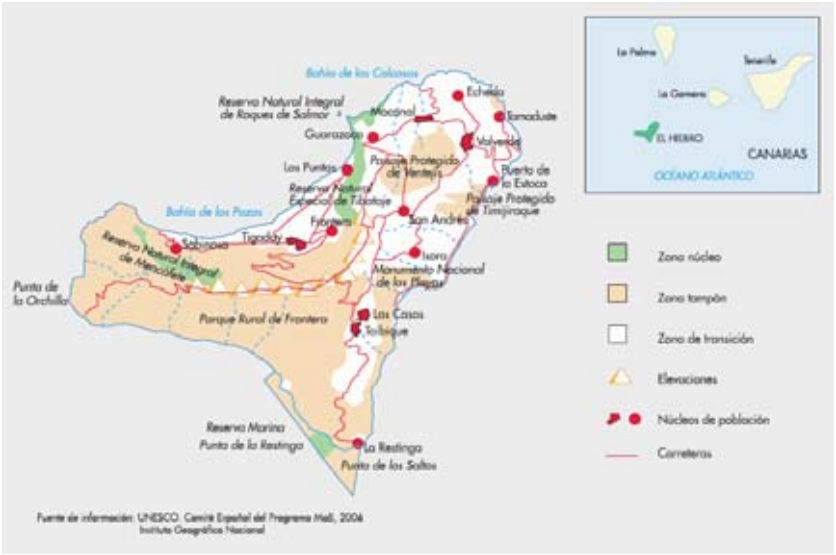
Child dancers bringing down the Kings' Virgin

Ecological characteristics:

It is the most westerly and smallest island in the Canaries Archipelago. It has abrupt landforms with steep slopes and most of its coastline comprises cliffs. The mountains reach a maximum altitude of 1,501 m. The climate is conditioned by its proximity to the tropics and influenced by the trade winds that combined with the altitude give rise to various climatic zones, with rainfall ranging from 150 mm in the southern coastal areas to 750 mm in the northern divide. The distribution of the main ecosystems is staggered: coastal scrubland with succulent plants including different kinds of Spurge, thermophile forests of Spanish Juniper, evergreen Laurel forests together with Myrtle and Tree Heath and finally, the Canaries Pine grove. There are numerous endemic species of flora and fauna, among the latter the Giant Hierro Lizard that was thought to be extinct. However, recently residual populations have been found that have enabled its rehabilitation. Other endangered species are the White-tailed Laurel Pigeon, the European Storm Petrel and Bulwer's Petrel. The wealth of marine life is exceptional and much visited by submarine divers from all over the world.

Protection classifications:

- Protected Natural Reserve (2)
- Special Natural Reserve
- Marine Reserve
- Specially Protected Bird Area (SPBA) (3)
- Natural Monument
- Rural Park
- Protected Landscape (2)
- Fifty-eight per cent of the territory is protected



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Spain
Bardenas Reales

Castill de Tierra
Joseba del Villar

Declaration date: 10 November 2000
Surface area: 39,273 ha (core 5 per cent; buffer: 33 per cent; transition: 62 per cent)
Administrative division: the Bardenas Reales are not attached to any municipality. Because of an extraordinary and unique legal regime, the uses and development of this territory are managed by the Commonwealth of the *Congozantes de Bardenas* (Mancomunidad de Congozantes de Bardenas), involving 19 villages in addition to the Monastery of la Oliva and the Councils of the two Pyrenean valleys of Salazar and Roncal, which enjoy these exclusive rights through Royal privileges and concessions granted over the centuries.

Human activities:

Traditional agriculture and animal husbandry. Military use at the rifle range included in the territory of the Bardenas, but not part of the Biosphere Reserve.

Gorse in flower
Larrión-Pimoulier

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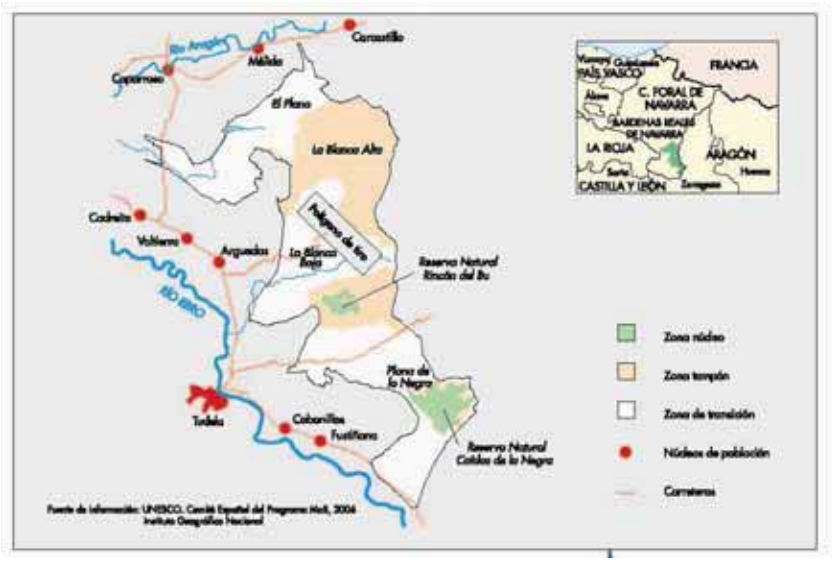
Ecological characteristics:

Morphologically three differentiated areas are apparent: to the north the great plateau, known as El Plano. La Blanca occupies the central area, a great depression where softer sedimentary rocks leaving clay unprotected, give rise to spectacular and capricious erosive formations (*badlands)*. La Negra is an area located to the south and comprises a group of horizontal tubular formations. The climate is characterized by extremes, with very cold winters giving way with almost no transition into spring and torrid summers. Rainfall, scant and irregular is frequently torrential. The action of strong dry winds, particularly from the north-east (*cierzos*), accentuates the aridity of the area. All this has made las Bardenas into a true cold desert in the heart of Europe, where the conditions of the great central Asian steppes are reproduced. This is reflected in the Aralo-Caspian vegetation that is to be found here and where species of halophile flora are predominant, adapted to living on saline soils in the depressions, giving way to Mediterranean forests of Aleppo Pine in the more thermophile areas of La Negra. In terms of fauna, an abundance of birds of prey, such as the Griffon Vulture, the Egyptian Vulture, the Golden Eagle and the Peregrine Hawk are found in the Biosphere Reserve. There is also a great diversity of grassland birds, such as the Great Bustard, the Little Bustard, the Eurasian Stone Curlew, the Black-bellied Sandgrouse and the rare Dupont Lark.

Protection classification:

- Natural Park · Natural Reserves (2)
- Special Bird Protection Areas (SBPA) (2)



Spain
Muniellos

View of Muniellos from Teso Porciles

Declaration date: 10 November 2000 (initial Biosphere Reserve) and 10 July 2003 (extension)
Surface area: 55.657 ha (core: 15.6 per cent; core: 83 per cent; transition: 1.4 per cent)
Administrative division: Municipalities of Cangas de Narcea, Degaña and Ibias.

Human activities:

Agriculture and livestock-raising, together with forest harvesting and rural tourism.

Protection classifications:

- Natural Park
- Comprehensive Natural Reserve
- Specially Protected Bird Area (SPBA)

A Beech grove

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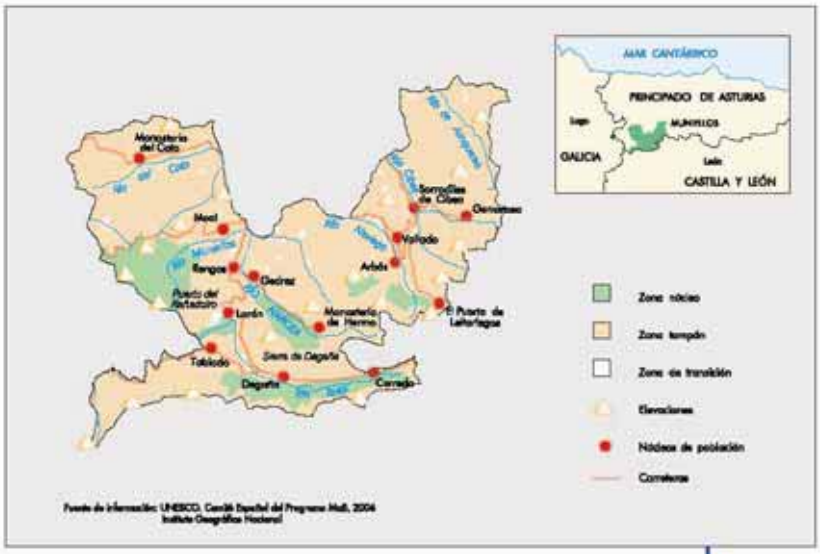
Ecological characteristics:

This Reserve includes various watersheds with steeply sloping landforms that only become gentler in the lower-lying valleys. The climate responds to the specific characteristics of the extreme west of the Cantabrian Cordillera, with high rainfall, increasing considerably with altitude. Muniellos is remarkable from the biological standpoint for its rich forests as it is home to what is the largest and probably the best conserved Oak forest in Western Europe. It includes almost virgin communities of flora and fauna that in the past were dominant in most of the Cantabrian Cordillera. In addition to the Pedunculate Oak, the dryer areas harbour a series of xerophyllus Sessile Oak forests with a stratum where Alder Buckthorn, Mountain Ash, Whitebeam, Hazelnut and Holly flourish. In the humid shady areas, a dense herbaceous stratum develops and the dominant Oak is accompanied by Birch, Ash and Maple trees. The abundance and diversity of fungi, mosses and lichen, some of which are extremely sensitive to the slightest air pollution, reflect the purity of the environment making Muniellos seem like an enormous enchanted forest. The magnificent Beech groves including those of Hermo Monastery, give way in the higher areas to sub-Alpine vegetation and lagoon systems such as those of the Cueto de Arbás, reflecting the glacier shaping of these mountain land forms. Although hard to observe because of the dense vegetation, large species of Atlantic European fauna, now extinct in most of the continent, live in the Biosphere Reserve, such as the Brown Bear and the Wolf which feeds on the abundant Wild Boar, Deer and Chamois. Birds are represented by over one hundred species, among them the rare Western Capercaillie.



Spain
Somiedo

Brown Bear
J. M. Fernández Díaz-

Broom-roofed hut
J. M. Fernández Díaz-Formentí

Declaration date: 10 November 2000
Surface area: 29,121 ha (core: 36 per cent; buffer: 60 per cent; transition 4 per cent).
Administrative division: the Municipality of Somiedo, gathering 38 population centres scattered throughout four valleys.

Human activities: Cattle-raising has specialized in an autochthonous race of cattle, the Asturian valley cattle or *vaca roxa*, which produces excellent quality meat. The highland pastures have been shared for centuries with the transhumant flocks of sheep from Extremadura. Transhumance still takes place, with families coming from the lowlands of Asturias, such as Belmonte and Salas, to the summer highland grazing areas. These systems of pasture use have given origin to a rich ethnographic heritage with curious constructions such as the *cabanas de teito de escoba, (*broom-roofed huts*) corros* (circular huts), *ol.leras* (constructions made out of stone near springs along which the water ran, cooling the milk contained in the *ol.las*) and mills. Another interesting cultural element is the Royal Way of the Mesa or *Camín Real*, which joined Asturias with the Castilian plateau. The service sector has undergone considerable development, particularly regarding hostelling, based on small rural tourist lodgings.

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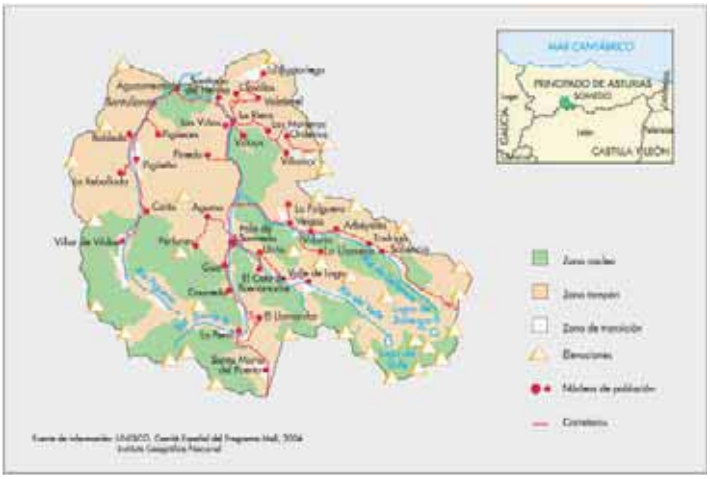
Ecological characteristics:
Somiedo is characterized by its abrupt landforms, with steep slopes ranging from 400 m in the extreme north to over 2,100 m for some of the peaks along the southern divide. It belongs to the temperate humid climate domain. The transition between limestone and siliceous Asturias, the different lithology, the strong tectonic folding, and the modelling of fluvial, glacier and Karstic erosion have given rise to unique landscapes: glacial cirques, lacustrine complexes such as that of Saliencia, lakes such as the Valle Lake, vertical dips, folds, hanging terraces, ravines, etc. The plant cover is also very diverse and unique, with over 1,200 taxa of vascular plants, approximately half the flora of Asturias and of the 73 trees and shrubs autochthonous to Asturias, 65 species are to be found in the Biosphere Reserve. The meadows and grasslands cover a vast expanse of land as a result of human use of the territory. The deciduous Beech, Oak and Birch forests and diverse types of scrubland with Common Wire-weed, Heather, Erica, Gorse and Broom are noteworthy. The Somiedo area harbours one of the most important Cantabrian populations of Brown Bears, there are also stable reproductive families of Wolves; in the rocky areas the Chamois finds refuge, while the forests are home to Roe Deer and Red Deer. Among the birds, mention should be made of the Royal Eagle, and the Egyptian Vulture as migratory species and unique species linked to Atlantic forests such as the Middle Spotted Woodpecker and the Western Capercaillie.

Protection classifications:

Natural Park
Specially Protected Bird Area (SPBA)
Site of Community Importance (SCI)



Spain
Redes

Bosque atlántico
J. M. Fernández Díaz-Formentí

Declaration date: 20 September 2001
Surface area: 37,803 ha (core: 53.7per cent; buffer: 40.3 per cent; transition: 6 per cent)
Administrative division: 2 Municipalities have their territory in the Biosphere Reserve

Human activities:

Farming, forestry and conservation, hunting and fishing, industrial facilities, equipment and services, public use, education and research. Some unique architecture is noteworthy such as the stone cabins with slate roofs, located in the high valleys of the summer grazing lands and the traditional stone granaries. Herds of the endangered Casina cattle or Asturian mountain cattle are to be found in Redes, and their milk is used to make the famous Casin cheese.

Casina cows
J. M. Fernández Díaz-Formentí

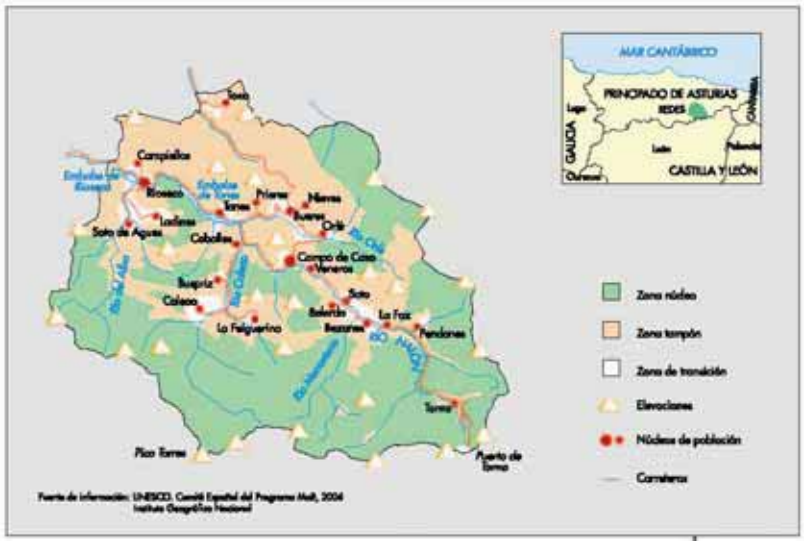
Ecological characteristics:

Redes is located in the northern slope of the eastern Cantabrian Cordillera in the upper basin of the Nalon, one of the rivers with the most discharge in northern Spain. The territory includes the whole of the Caso and Sobrescobio Councils, with altitude variations ranging from the River Nalon at 350 m to 2,104 m at the Pico Torres. The landforms are steep with deep ravines and spectacular waterfalls such as those along the Ruta del Alba. The ecological importance of the Biosphere Reserve is noteworthy for its vast forest masses of autochthonous Beech and Oak that are in a good state of conservation enabling emblematic species to survive, such as the Brown Bear, the Western Capercaillie, the Royal Eagle, the Egyptian Vulture, the Middle Spotted Woodpecker, etc, and also for its production of water resources that supply water to the whole central Asturian watershed.

Protection classifications:

- Redes Natural Park
-
- Ruta del Alba Natural Monument

Western Capercaillie



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Spain
Dehesas de Sierra Morena

Signposts in the Sierra de Aracena and Picos de Aroche Natural Park (Huelva)
Junta de Andalucía. Consejería de Medio Ambiente

Declaration date: 8 November 2002
Surface area: 424,400 ha (core: 8 per cent; buffer: 77 per cent; transition: 15 per cent)
Administrative division: 43 Municipalities have their territory in the Biosphere Reserve

Human activities:

Traditional agriculture, animal husbandry and forestry activities, inseparable from the Dehesa (savannah-like grasslands scattered with oak trees) system are fully maintained, supporting agrarian transformation industries and increasing agro-tourism.

An example of the diverse vegetation in the Dehesas
Junta de Andalucía. Consejería de Medio Ambiente

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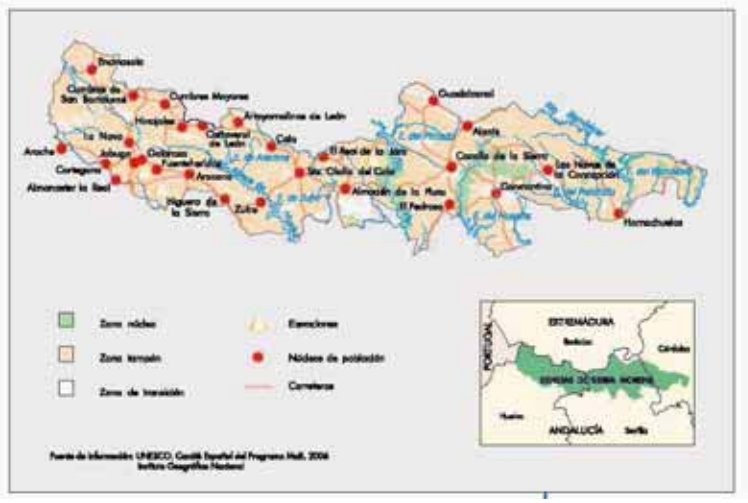
Ecological characteristics:

The declaration of this vast territory as a Biosphere Reserve implies international recognition of the Dehesa, a traditional and truly Iberian landscape, consisting of savannah-like grasslands with the shade of ancient trees: Holm Oak, Portuguese Oak, Pyrenean Oak and Cork Oak, effectively reducing the effects of the Mediterranean sun while optimizing the production of acorns for the livestock. Thus the Dehesa is a unique model of sustainable development and an example of popular wisdom, which over the centuries has given access to multiple natural resource uses, combining in a harmonious and balanced way agricultural uses with livestock raising, hunting and forestry. The Biosphere Reserve also has areas that have been scantly modified comprising Chestnut forests, Mediterranean forests and Gallery forests bordering the numerous river courses. These different landscapes harbour very high biodiversity with some of the most emblematic species of Mediterranean ecosystems, such and the Iberian Lynx, the Spanish Imperial Eagle, or the Eurasian Black Vulture.

Cerro del Hierro Natural Monument (Sevilla)
Junta de Andalucía. Consejería de Medio Ambiente

Protection classification:

- Natural Park (3)
- Specially Protected Bird Area (SPBA)
- Natural Monument (3)



Spain
Terras do Miño

Old mill. An illustrious clergyman in the seventeenth century founded what is today the "A Fervenza" Ethnographic Complex in the heart of the Terras do Miño Biosphere Reserve
INLUDES - Diputación Provincial de Lugo

Declaration date: 8 November 2002
Surface area: 363,669 ha (core: 10 per cent; buffer: 22 per cent; transition: 68 per cent)
Administrative division: 26 Municipalities have their territory in the Biosphere Reserve

Protection classifications:

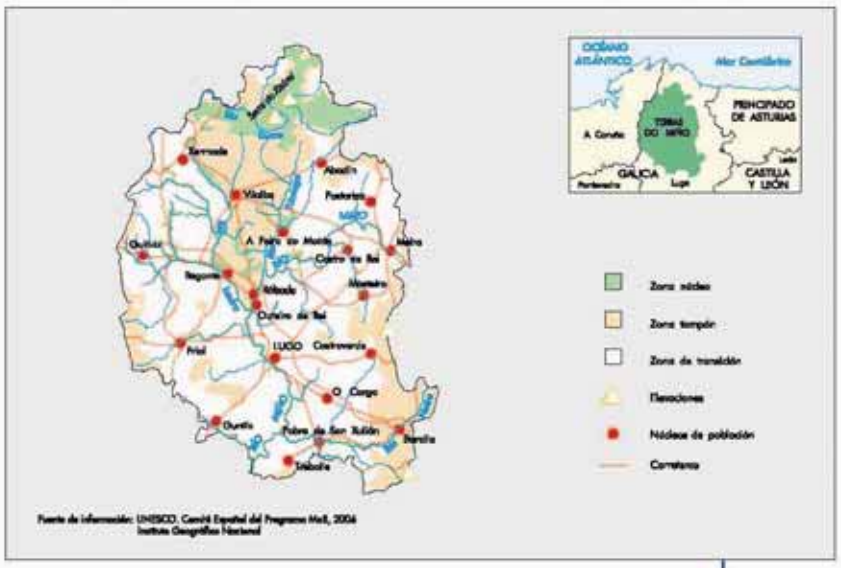
The river and lagoon ecosystems of Parga- Ladra-Támoga, together with the totality of the mountain landscapes of the Serra do Xistral, have been proposed for inclusion in the Natura 2000 Network as Natural Protected Areas within the category of Specially Protected Natural Value Areas, according to the provisions of Law 9/2001 of 21 August of *Conservación da Natureza.*

Ecological characteristics:

The mountain landscapes of the Serra do Xistral Mountain and the riparian landscapes of the river and lagoon ecosystems of Parga-Ladra-Támoga are particularly noteworthy, with a multitude of rivers and streams flowing into the Miño, the territory's veritable backbone. This has given rise to a great number of priority habitats of community interest in a good state of conservation, such as the Galician-Portuguese Oak groves (*carballeiras* and *reboleiras)*, alluvial Alder and Birch forests, wetland scrub with Gorse, Erica and Broom and semi-flooded grasslands with peculiar peat-bogs with mosses and sphagnum. Among the fauna, together with the permanent presence of the Wolf are Otters and River Mussels, species that, because of their extreme sensitivity to water pollution, show that the riparian ecosystems are in good condition.

Human activities:

These are reflected in the Reserve's cultural landscapes, defined by UNESCO as the result of the joint work of nature and humans over centuries. Thus traditional farming activities and silvo-pastoral activities have resulted in a mosaic of permanent grasslands and croplands with considerable areas of scrubland and Oak forests, used by the autochthonous races of cattle such as the Blond Galician cow and the Galician pony (*cabalo do monte)*. The declaration of the Roman walls in Lugo as World Heritage added to the cultural, crafts and ethnographic wealth of the Reserve and the beauty and diversity of its water and mountain landscapes, and the gastronomy and thermal springs in the area are presently the basis for an increasing tourist and service sector.



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Spain
Valle de Laciana

«La Corradina» neighbourhood in Villablino
Mario Sierra

Declaration date: 10 July 2003
Surface area: 21,700 ha (core: 12 per cent; transition: 8 per cent; buffer: 80 per cent).
Administrative division: one Municipality, Villablino including 13 populated centres, has its territory in the Biosphere Reserve

Human activities:

Mention can be made of mountain livestock raising, coal-mining, and small enterprises engaged in hostelling. There has been a great increase in rural and adventure tourism. .

Caboalles seen from above
Mario Sierra

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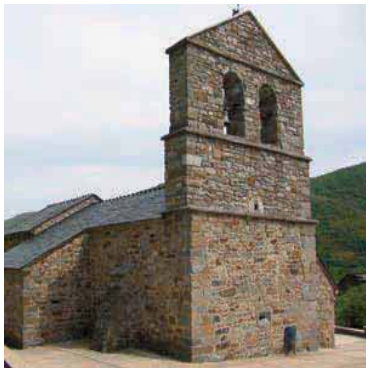
Ecological characteristics:

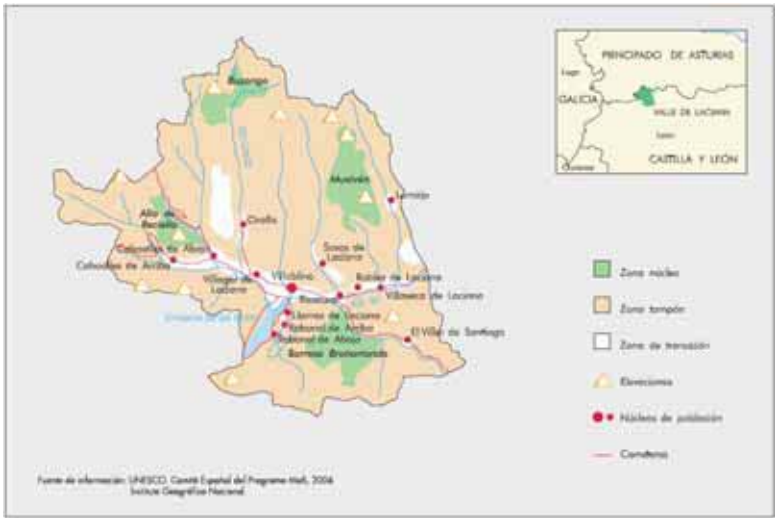
The Valley of Laciana is located near the headwaters of the River Sil in the Cantabrian Cordillera, to the north of the Province of Leon, bordering with Asturias. The area has a wide range of altitudes, with the consequent wealth of landscape and valuable habitats: limestone Oak groves, rocky outcrops, mountain grasslands, Birch-groves, Yew forests, scrubland, numerous rivers and riparian forests in a good state of conservation. The mountain grasslands have traditionally been used by the transhumant sheep flocks from Extremadura and cattle for the Asturian "Nomadic cowherds" (*vaqueiros de alzada)*. This has given rise to scrubland with Broom, Bilberry, and grasslands suited to the Broom Hare, endemic to the Cantabrian Cordillera, the Grey Partridge and the large wild ungulates such as the Roe Deer, the Chamois, and the Red Deer, and their main depredator, the Iberian Wolf. There are also endangered species such and the Brown Bear and the Western Capercaillie.

Protection classifications:

- Site of Community Importance (SCI)
- Specially Protected Bird Area (SPBA)



Romanesque church at Robles de Laciana
Mario Sierra



Spain
Picos de Europa

Lake Ercina Luis Montoto

Declaration date: 10 July 2003
Surface area: 64,660 ha: 24,560 ha in Asturias; 15,381 ha in Cantabria; 24,719 ha en León (core: 27 per cent; buffer: 71per cent; transition: 2 per cent). There is presently a proposal for an extension.
Administrative division: Asturias: 5 Municipalities; Cantabria: 3Municipalities; León: 2 Municipalities with territory in the Biosphere Reserve

Human activities:

Grazing and open-range sheep and goat raising as well as of autochthonous races of cattle such as the Asturian mountain cattle -Ratina and Casina- and Tudanca cattle. The mountain grasslands are used in the best possible way thanks to the summer transhumance from the valleys to the highlands. A rich heritage of traditional buildings is conserved where different kinds of artisanal cheeses are prepared, such as the Cabrales, Leon, Picon de Bejes-Tresviso, Valdeón, Liébana, Gamonedo or Beyos cheeses. Presently nature-related tourism is the main economic activity.

Protection classifications:

- National Park
- Specially Protected Bird Area (SPBA)
- Site of Community Importance (SCI)

Contact information:
Parque Nacional y RB de Picos de Europa
Arquitecto Reguera, 13
33004 OVIEDO
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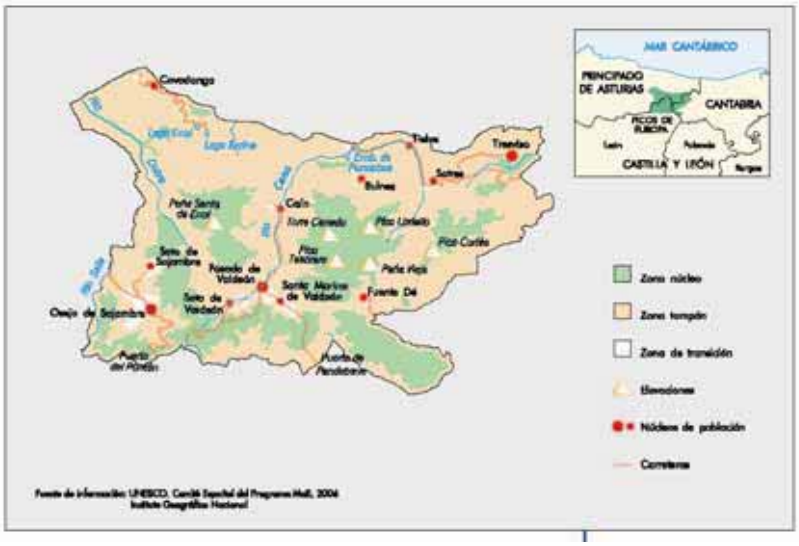
Ecological characteristics:

The Biosphere Reserve is located on two different geological formations: the Picos de Europa limestone mass and a fraction of the central Cantabrian Cordillera. The landforms are abrupt with steep slopes modelled by fluvial incisions, Karstic dissolution and Glacial and Periglacial processes. A temperate humid Atlantic-type climate predominates, where the great variation of altitudes, lithological diversity and ancestral human presence have given rise to a great variety of landscapes. The vegetation includes large pure or mixed forests of Beech, Pedunculate Oak, Birch, Holm Oak and gallery woodlands with Aspen, Ash, Willow and Alder. Livestock-raising is done in the vast meadows and grasslands interspersed with gorse and heath scrubland. In the higher areas, creeping Junipers grow close to the ground to avoid the lethal effect of frosts. As a whole there are over 1,600 species of phanerogam plants in the Biosphere Reserve. The fauna is also very diverse, including the Wolf, Brown Bear, Chamois, Western Capercaillie, Golden Eagle, Alpine Newt, Atlantic salmon and some other seventy species of vertebrates. There is also a great variety of bats and little known fauna associated with the sinkholes, that in some cases are over 1,500 m deep.

Aerial view of the limestone peak Naranjo de Bulnes
Luis Montoto



Spain
Monfragüe

The excellent state of conservation of characteristic Mediterranean habitats is manifest in Monfragüe
Piedad Martín

Declaration date: 10 July 2003
Surface area: 116.160 ha (core: 11per cent; buffer: 13 per cent; transition: 76 per cent)
Administrative division: 14 Municipalities have their territory in the Biosphere Reserve

Human activities:

The main activities in the Biosphere Reserve are open-range livestock-raising, environmental education, scientific research, cork harvesting and other forest uses, together with hunting and tourism

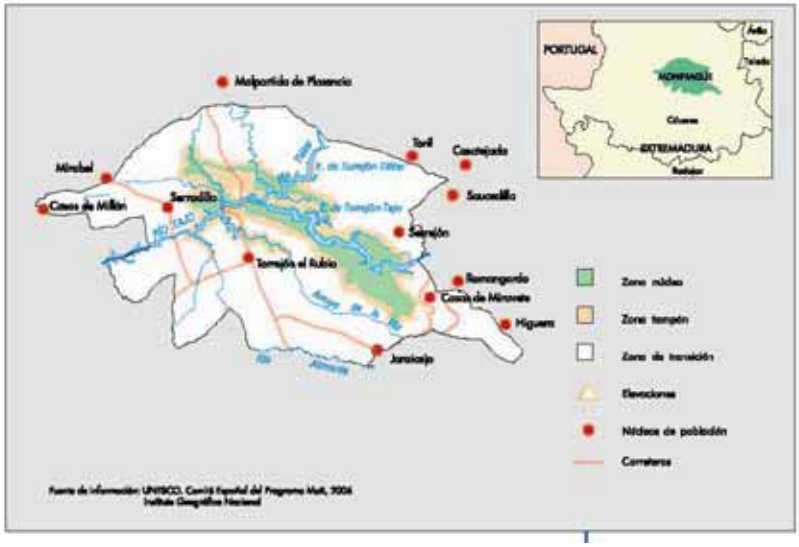
Protection classifications:

- Natural Park
- Site of Community Importance (SCI)
- Specially Protected Bird Area (SPBA)

Ecological characteristics:

The central area consists of a succession of sierras at an altitude of about 500 m, festooned by quartzite crests. The best representations of Mediterranean forest and shrubland, harbouring 90 per cent of the Mediterranean flora present in the Iberian Peninsula, are to be found on the slopes of these sierras, particularly on the shady sides, Towards the outer part and coinciding with the transition zone, less rugged and more accessible to humans, Dehesas take over from the Mediterranean forest . They are in an excellent state of conservation, together with other less representative ecosystems such as the riparian woodlands, irrigated land near the Tietar River and the orchards and smallholdings near the villages. The presence of endangered species such as the Lynx and the Black Stork is noteworthy. However the most emblematic species in the Biosphere Reserve are the numerous and large colonies of birds of prey, such as the exceptional Spanish Imperial Eagle or Adalberti's Eagle and the colonies of the Eurasian Black Vulture.

Monfragüe is home to the world's largest colony of Eurasian Black Vultures, with a census of 250 couples
Ángel Rodríguez



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Spain

Valles del Jubera, Leza, Cidacos y Alhama

Santa Marina . D.G. de Calidad Ambiental de La Rioja

Declaration date: 10 July 2003
Surface area: 119,669 ha (core: 5 per cent; buffer: 10 per cent; transition: 85 per cent)
Administrative division: 40Municipalities have their territory in the Biosphere Reserve (27 totally included and 13

Human activities:

Traditionally the natural resources of the area have been used for open range livestock-raising (sheep and cattle), dryland farming (cereals, olives, almonds, vines) and fruit and vegetable growing in the few valley-bottom irrigated areas. Recently, the service sector has increased its importance based on traditional resort tourism in Arnedillo, Cervera del Río Alhama and on incipient rural tourism associated with the natural and cultural heritage (findings of dinosaur fossils – tracking, mushrooms, truffles, monuments, crafts). Industrial activity is scant inland and is located in the periphery that is better communicated with the Ebro corridor, such as Arnedo. There is still some craft-production of espadrilles and natural wool. Traditional orchids have generated a different landscape and their irrigation system is a heritage of Arab presence in this area centuries ago.

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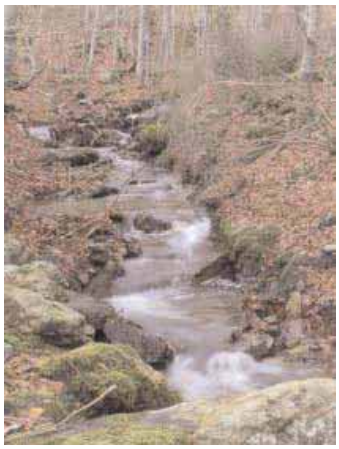
Ecological characteristics:

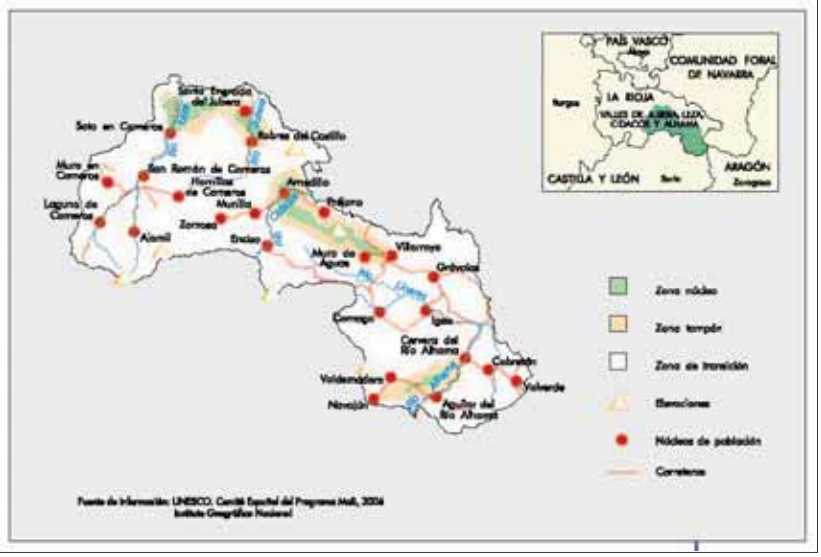
The Biosphere Reserve is located in the south eastern half of La Rioja, a mountain area in the Iberian System where the highest peaks are at 1,600 m. It includes the Santiago Beech grove, the largest in La Rioja and with the community's largest and best conserved masses of Holm Oak. Mention should also be made of the highly diverse Mediterranean scrubland (Rosemary, Thyme, Gum Rockrose, Broom). Among the different and varied landscapes are the rocky outcrops and river canyons, an ideal nesting habitat for birds such as Bonelli's Eagle, the Griffon Vulture, the Eurasian Eagle Owl, and the Egyptian Vulture, among others. The forests, scrubland, rivers and streams harbour emblematic species such as the Wild Cat or the Otter and considerable populations of ungulates such as the Roe Deer, Red Deer and Wild Boar. It is also one of the most important sites of paleontological findings in Europe, with traces and remains of dinosaur fossils and fossils of other species of mammals and flora and is the site of the Cantabrian Celtic-Iberian archaeological findings. It also includes pyrite mines in Navajun, considered to be the best in the world with the purest crystals.

Protection classifications:

- Specially Protected Bird Area (SPBA)



Santiago Beech grove
D.G. de Calidad Ambiental de La Rioja



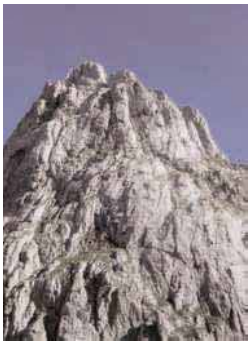
Spain
Babia

Montigüero
Carlos González-Antón

Declaration date: 29 October 2004
Surface area: 38,018 ha (core: 32 per cent; buffer: 60 per cent; transition 8 per cent
Administrative division: Two municipalities have their territory in the Biosphere Reserve

Human activities:

Both in the past and at present, the main activity is animal husbandry. A relevant number of inhabitants work in the mining sector and, to a lesser degree, in the service sector.



The Peak of Ubiña seen from Riolago
Carlos González-Antón

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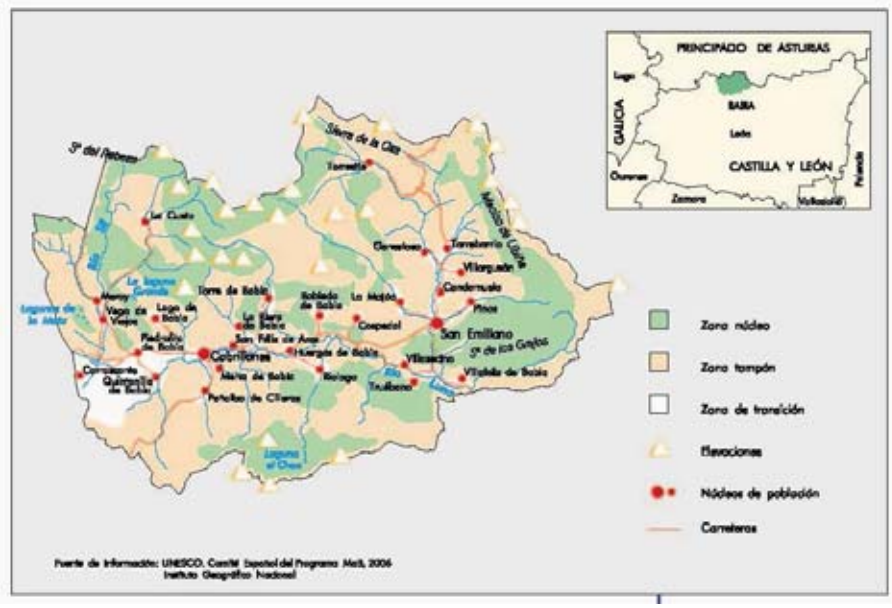
Ecological characteristics:
The Babia region is a mountain ecosystem where conservation of natural resources and their use have been excellently combined. The Reserve is delimited by two high and rugged mountain ranges, with crests above 2,000 m in most of its area, lying in an East-West direction and the wide flat valley of the rivers Luna and Sil in between them, at 1,300 to 1,100 m above sea level. Through extensive stock-raising, over the centuries human activities have modelled the outstanding landscape handed down to us. There are woody formations (Beech, Birch, Oak) pointing to the existence of a tree cover that once covered most of the territory, and meadows and grasslands growing on the previous tree-covered territories, which have enabled the present human communities to subsist, basing their economy on stock-raising. Interspersed between abundant scrubland, are areas of abandoned grasslands that are progressively recovered by the original forest and Alpine and subAlpine formations (rocky outcrops, quarries, crags), where productive use is practically impossible. The biological diversity of Babia is apparent in the quantity of interesting endemic species of flora and fauna to be found in the territory. It harbours unique species of fauna, among which mention can be made of the endangered Cantabrian Brown Bear, the Gray Partridge, and the Broom Hare, an endemic Cantabrian species. There are numerous birds, a wide representation of various species of bats and very well conserved rivers that host a rich fish population. The flora is of undoubted interest, with numerous endemic Iberian species such as *Saxífraga babiana* and *Centaurea janeri ssp. babiana*.

Protection classification:

- Specially Protected Bird Area (SPBA)
- Site of Community Importance (SCI)
- Natural Area



Spain
Alto Bernesga

The Casares River Valley
Miguel Aguilar Barrera

Declaration date: 29 June 2005
Surface area: 33.442 ha (core: 26 per cent; buffer: 44 per cent; transition: 30 per cent)
Administrative division: Two municipalities have their territories in the Biosphere Reserve

Human activities:

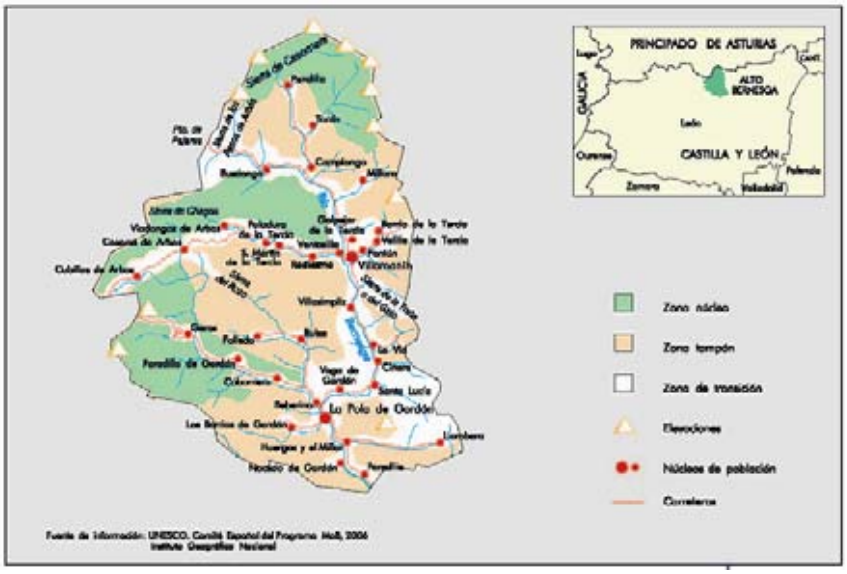
Traditionally the local inhabitants were engaged in animal husbandry but presently there is a clear predomination of the mining and energy sectors, followed by trade, animal husbandry, ecological agriculture and services.

Ecological characteristics:

The wealth and biodiversity in the Alto Bernesga Biosphere Reserve is exceptional because of its biogeographical location in the transition areas between dry Spain and humid Spain; that is to say, between the Mediterranean region and the Euro-Siberian or Atlantic region. The flora includes high mountain grasslands in the crags, rocks and passes; Oak-groves, acidophilous Oro-Cantabrian Beach trees, Euro-Siberian riparian forests of Willow and Poplar trees; with the presence of endemic plant formations such as the Sabina Albar forests and Oro-Cantabrian Oak-groves. In terms of fauna, special mention should be made of the bird life, with some endangered species such as the Red Kite, the Egyptian Vulture, the Peregrine Hawk, and the Golden Eagle. In addition to a diversity of flora and fauna, the Reserve is also of great paleontological value due to the Devonian seafloor fossil sites. This wealth contributes to making Alto Bernesga very attractive to researchers and students from all over the world who visit these unique sites as there are only three similar ones and they are not as accessible.

Protection classifications:
- Sites of Community Importance (SCI)
- Sites of Biological Interest (SBI) (2)
- Sites of Geological Interest (SGI)

A Devonian fossil site
Miguel Aguilar Barrera



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Spain
Area de Allariz

The veigas at Ponte Liñares
Francisco Javier López

Declaration date: 29 June 2005
Surface area: 21.482 ha (core: 1 per cent; buffer: 5 per cent; transition: 94 per cent)
Administrative division: Four municipalities have their territory in the Biosphere Reserve

Human activities:
The area is characterized by traditional grazing and agricultural uses. Activities related with economic and human development have adjusted to this tradition over centuries. Presently land use and development are implemented through the plans of the Municipalities having their area in the Biosphere Reserve. These plans contain the bases for sustainable development, primarily encouraging traditional land uses that have enabled the area to conserve its own very particular natural, socio-cultural and economic characteristics. All the actions set out in the Land Plan aim at combining the different possibilities offered by agriculture, animal husbandry, hunting, fishing, tourism, historical heritage and others, and to implement management that links the development of the area with conservation and the protection of the territory's natural assets.

Contact information:

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Plaza Mayor, 1
32660 ALLARIZ
Tel: 988440001

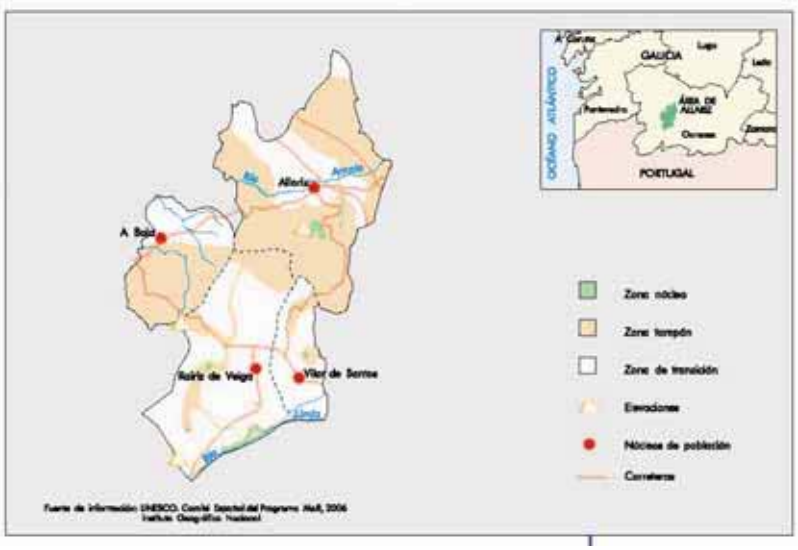
Ecological characteristics:

The Biosphere Reserve is of great biogeographical importance, because the local flora and fauna have been preserved in this border territory between two vast ecological areas: the morpho-tectonic semi-endorheic depression, with a flat base where the River Limia flows, and the mountain ridge that in the north is characterized by the Allariz granitic massif where the confined Arnoia River windingly circulates. Three ecologically valuable areas stand out: the *veigas* or enclaves of land on the banks of the Antela canal and the Limia River, with herbaceous and shrub vegetation; the *touzas*,a mosaic of meadows or croplands, separated by patches of trees; and the *sebes*, mixed Pedunculate and Pyrenean Oak with considerable specific diversity.

Recreational area on the River Ourille
Juan Marcel

Muiño de Escadas

Protection classifications:
Wetland of International Importance (Ramsar Convention)
- Specially Protected Bird Area (SPBA)
- Site of Community Importance (SCI)



Spain
Gran Canaria

Las Niñas Dam
Cabildo de Gran Canaria

Declaration date: 29 June 2005
Surface area: 100.459 ha (of which 65.595 ha are on land) (core: 7 per cent; buffer: 33 per cent; transition: 60 per cent)
Administrative division: 7 Municipalities have their territory in the Biosphere Reserve

Human activities:

Forestry, agriculture, animal husbandry, fishing, recreation, education and rural tourism.

Protection classifications:

- Natural Park (2)
- Rural Park
- Natural Monument (3)
- Protected Natural Reserve
- Special Natural Reserve
- Protected Landscape
- Site of Community Importance (SCI)

The Roque Nublo monolith
Cabildo de Gran Canaria

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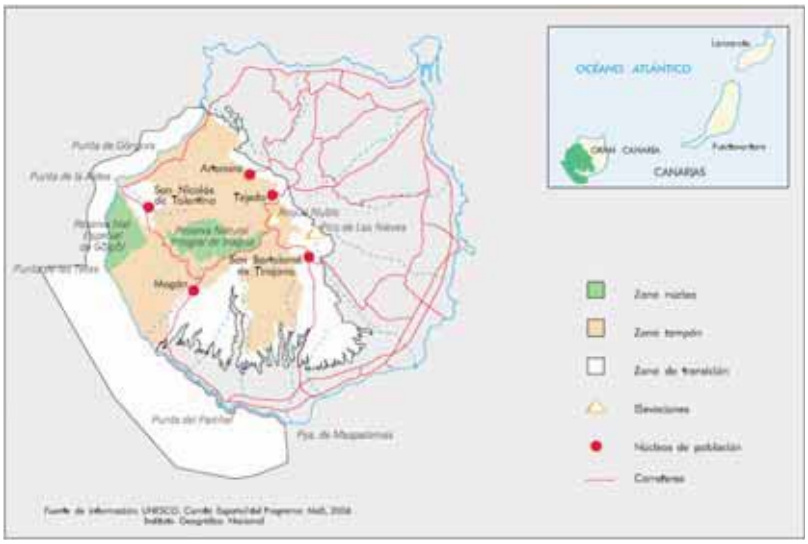
E-mail: scaro@grancanaria.com

Ecological characteristics:

From the geological standpoint, the Gran Canaria Biosphere Reserve is of exceptional value in understanding the process of formation and evolution of ocean islands. This BR covers 40 per cent of the Island's surface area and includes all the catchment areas from the mountain tops down to the beaches and marine areas, through the valleys where farming is carried out. Gran Canaria is characterized by its great biological diversity. Its geographical isolation together with the variety of available ecological niches for the vegetation have favoured speciation processes resulting in the presence of numerous endemic species. Thus, of the 1,363 taxa (600 in the BR) of vascular terrestrial flora identified on the island, 125 are endemic to Gran Canaria (95 in the BR), 137 are endemic to the Canary Islands (101in the BR) and 46 are endemic to Macaronesia (32 in the BR). In terms of fauna, 1,094 species of animals have been identified, of which 543 are endemic to the Canary Islands (52%). For this reason it may be considered that this area is of vital importance for biological conservation and evolution. In addition to its natural assets, is the rich archaeological heritage of the insular Berber culture that was born and died, far from the influence of predominating Medieval Mediterranean ideology. Furthermore, a considerable heritage of material assets (agricultural, architectural and craft structures, etc.) and intangible assets (oral tradition, working songs, etc.) is present, linked to the farming traditions of the area.

Cory's Shearwater
Cabildo de Gran Canaria



Spain
Los Argüellos

Los Argüellos Mountains
Emilio Oreja

Declaration date: 29 June 2005
Surface area: 33,260 ha (core: 18 per cent; buffer: 75 per cent; transition: 7 per cent)
Administrative division: 3Municipalities have their territory in the Biosphere Reserve

Human activities:

The main human activity has always been livestock-raising, traditionally the chief source of wealth of the region. Presently this is complemented with other activities such as hunting and low impact tourist uses.

Mountain torrent
Emilio Oreja

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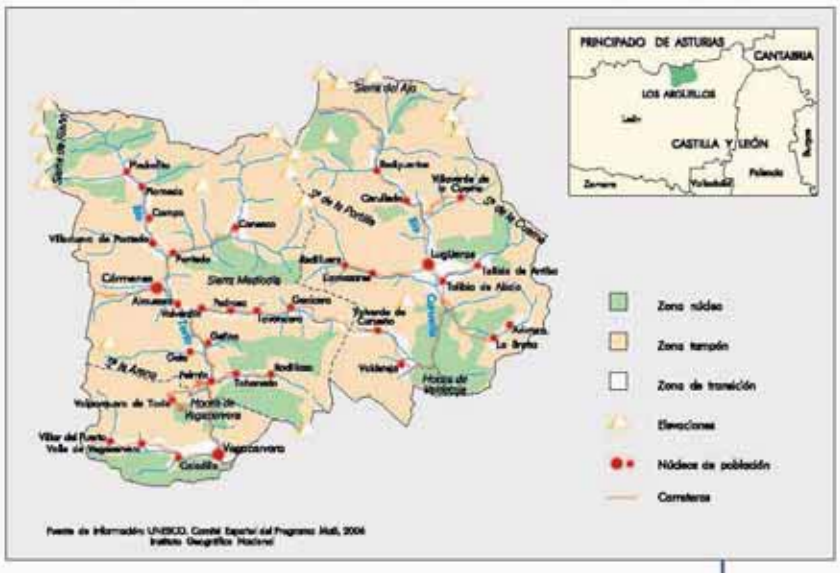
Ecological characteristics:

Los Argüellos is an example of a Cantabrian mountain ecosystem where for centuries the population has made wise use of the scant resources, thus shaping a unique landscape. The Biosphere Reserve includes geo-morphological characteristics of undeniable attraction, among them numerous caves such as those of Valporquero, Llamazares and Barredo, of great tourist and scientific interest. Together with others also modelled by the action of water, but by completely different processes, are the spectacular gorges of Vegacervera and Baldeteja, combining with open valleys where friable material has given way to the excavation of water courses. A varied vegetation is present, ranging from Alpine grasslands to an abundant series of endemic species such as the endemic forests of *Juniperus Spp*, to the oak groves of *Quercus pyrenaica* near the Mediterranean environment. Other ecosystems such as the sub-steppe areas of annual grasses, active highland peat bogs and tufa-forming springs are noteworthy. The numerous caves and crannies are home to 15 of the 26 species of bats existing in the Iberian Peninsula. Together with them are many birds of prey and two characteristic vertebrates of Cantabrian mountain ecosystems: the Grey Partridge and the Broom Hare. Mention should also be made of the Brown Bear, one of the most endangered species in the Iberian Peninsula.

Protection classifications:

- Site of Community Importance (SCI) (2)
- Natural Area



Spain
Valles de Omaña y Luna

Sierra de la Filera, the northern limit of Omaña
Jorge F. Layna

Declaration date: 29 June 2005
Surface area: 81,159 ha (core: 19 per cent; buffer: 74 per cent; transition: 7 per cent)
Administrative division: 6 Municipalities have their territory in the Biosphere Reserve

Human activities:

One of the main sources of economic development in the region is open range livestock-raising, together with domestic agriculture and incipient tourist activities.

Typical balcony in the Puente neighbourhood
Jorge F. Layna

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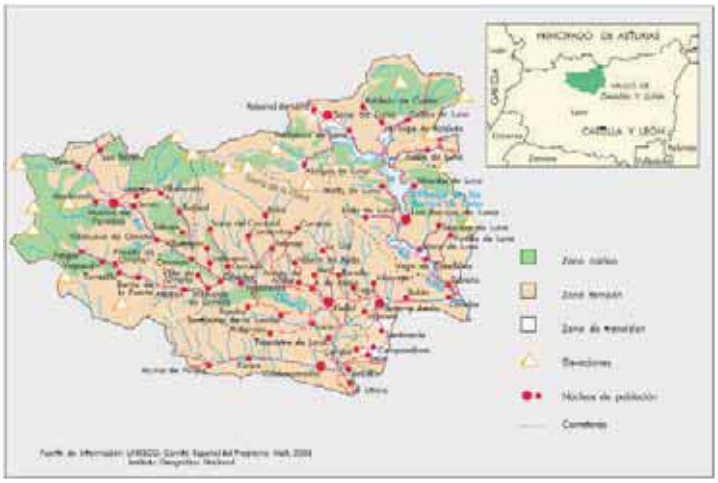
Ecological characteristics:

The regions of Omaña and Luna are the result of a farm system that was basically established during the Middle Ages and continued to be operational until the middle of the last century. This system included, associated to each inhabited nucleus, land allocated to grasslands, woods to supply timber and croplands. The high mountain landscapes in the extreme north, west and south of the Reserve are noteworthy because of their high ecological value, in addition to the landscapes modelled by human and livestock activities, scattered all over Omaña. The Reserve harbours a good number of singular species of fauna and for some this is the limit of their southern distribution. Thus we find seriously endangered species such as the Brown Bear and the Western Capercaillie and species endemic to Cantabria such as the Broom Hare or endemic to Spain, such as the Iberian Desman, in addition to very singular species such as the Grey Partridge, the Wolf and large populations of Trout, with very specific characteristics adapted to mountain water courses. In general the bird, mammal, amphibian and reptile communities are widely and richly represented.
The zone has considerable and interesting flora, with numerous species endemic to the Iberian Peninsula. It conserves samples of deciduous and marcescent forests in excellent condition. To be noted are the Birch groves, considered to be unique in the Iberian Peninsula, the vast *Quercus Pyrenaica* groves and the presence of clumps of another recently described (2002) species of Oak (*Quercus orocantabrica*). Also of interest are the riparian forests, combined with traditional agro-systems in a mosaic of outstanding landscape and cultural value.

Protection classifications:

- Specially Protected Bird Area (SPBA)
- Site of Community Importance (LIC)
- Natural Area



Spain
Sierra del Rincón

Beech grove at Montejo de la Sierra
Alberto Ruiz Laguna

Declaration date: 29 June 2005
Surface area: 15,231 ha (core: 4 per cent; buffer: 46 per cent; transition 50 per cent)
Administrative division: 5 Municipalities have their territory in the Biosphere Reserve

Human activities:

farming, forestry, livestock raising, hunting, recreation, education and rural tourism.

Protection classifications:

- Natural Site of National Interest
- National Hunting Reserve
- Site of Community Importance (LIC)
- Eighty-seven per cent of the area is protected as Public use and Trust Woodlands.

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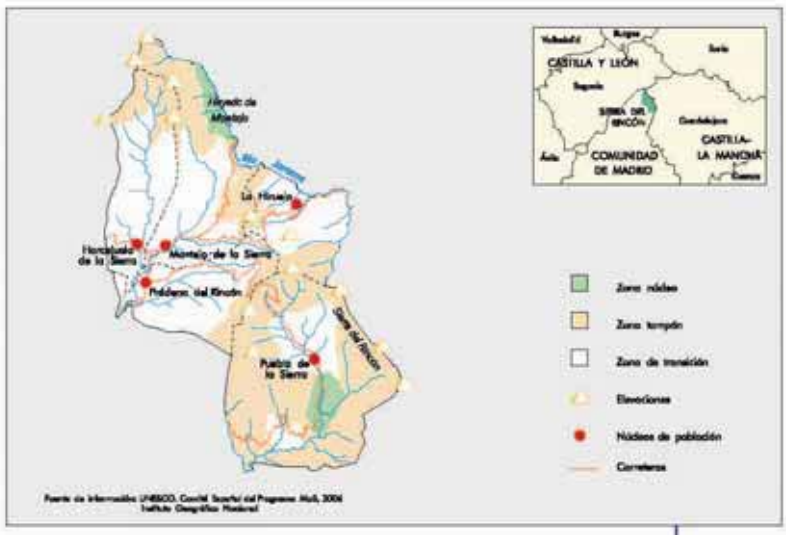
Ecological characteristics:

The Biosphere Reserve harbours a variety of species of flora and fauna associated with its history of farming and stock-raising. The singularity of the Reserve arises from the mosaic formed by Dehesas, rocky areas, scrubland, rural units and reforested woodlands, organized around four depressions of valleys of varying sizes: the Pradena.Montejo depression and the valleys of Horcajuelo, la Hiruela and la Puebla; surrounded by mountainous belts such as the southern foothills of the Cebollera massif and the Peña de la Cabra and la Hiruela sierras. The Dehesas, clearly differentiated by their fences, are located in the lowland slopes and valley bottoms and alternate with fenced-in fields and rural units; the reforested woodlands are located on the slopes together with rocky outcrops and scrubland with grasslands developing in the highlands. As a whole, the territory includes seven types of natural habitats: masses of mixed or single-species pine; shrubland formations, Piornales (Cistus and Broom formations), acidophilic scrubland (Cistus or Rock-rose and Erica or heath etc.); Oak groves; pasture land; rocky places; Beech forests such as that of Hayedo de Montejo, particularly interesting because of its uniqueness; Ash and Holm Oak forests and riparian forest formations. Biodiversity is represented by numerous species of flora and fauna conferring a high value on conservation of the BR territory. Many of these species are endangered and legally protected by international conventions, regional or national catalogues or are endemic species that are scantly distributed in Mediterranean environments.



Spain
Las Sierras de Béjar y Francia

Julián Pérez Mamolar

Montemayor del Río

Declaration date: 27 October 2006
Surface area: 199,140,48 ha (core zone: 12 per cent; buffer zones: 57 per cent; transition zone: 31 per cent.
Administrative division: Province of Salamanca (85 Municipalities)

Human activities:

The main economic activities are pig, cattle, sheep and goat raising, beekeeping and agriculture (mainly grapes, olives and cherries). Industrialization of these products has been developed with vineyards and oil mills. The pork industry is noteworthy with the mark of origin Guijuelo Ham. Forestry activity is significant and presently there is a growing tourist service industry.

Protection classifications:

- Natural Park
- Specially Protected Bird Areas (SPBA)
- Sites of Community Interest (SCI)

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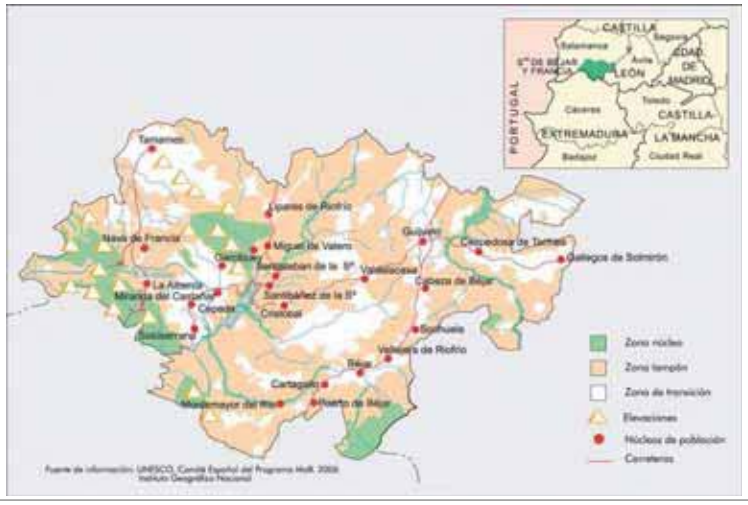
Ecological characteristics:
The biosphere reserve is located in a mountainous region with uneven land formations and high peaks characterizing the area, such as La Ceja at 2,425 m, one of the highest peaks in the Province. The territory is singular as it is located between two important watersheds: the Tajo with the Alagón River and its tributaries and the Duero with the Tormes and the Huebra, among other tributaries. Worth mentioning, due to geo-morphological and ecological interest arising from their vast flooded areas, are the tail-waters of the Santa Teresa dam in Tormes and the Gabriel and Galán dams in Alagón, together with the natural lagoons in the Sierra de Béjar and the San Marcos Lagoon in La Alberca. Ecosystems are very diverse, in particular because of the abundance of *Quercus pyrenaica* and *Quercus ilex* groves that have developed both in dehesa and low forest formations. Their degree of conservation is reflected in the great biodiversity found in the understory and their floristic complexity. Among other formations, mention should be made of the *Quercus pyrenaica* forests because of their singularity, the Strawberry Tree formations as the oldest and most extensive in Europe, the Chestnut trees, the Ash groves, the Alder Ggroves, the Juniper formations, matgrass and peat beds.
In terms of fauna, species are very diverse and linked to this ecosystem complexity with many endemic species such as the *Cobitis vettonica*; the lizard, the Eurasian Black Vulture, the Griffon Vulture, Bonelli's Eagle, the Golden Eagle, the Egyptian Eagle, the Eurasian Owl-Eagle and the Black Swan. Mammals include the Spanish Lynx, the Otter and the Mountain Goat.

Salomé Casado Briones

Traditional architecture at the Sierra de Francia Mogarraz



Spain
Los Ancares Leoneses

Sierra de los Ancares

Declaration date: 27 October 2006
Surface area: 56,786 ha: (core zone: 28 %; buffer zone: 55 %; transition zones: 17 %).
Administrative division: Province of Leon (4 municipalities).

Human activities:
The main activity is stock-raising based on the use of high mountain pastures for sheep, cattle and horses. Agriculture and areas used for hunting continue to be important and an increase in rural tourism is noteworthy.

A herd of mountain goats

Ecological characteristics:

Within the Cantabrian Cordillera, the Los Ancares Biosphere Reserve possesses its own differentiating elements that provide the area with an identity and give it an outstanding value and variety. The Cordillera is home to woodland formations, remains of the plant cover that used to occupy most of the territory, together with prairies and grasslands growing on the old tree-covered territories, providing subsistence to today's human communities that base their economy on stock-raising. There are many scrubland formations, often grassland areas that were abandoned and are progressively being regained by the original forests, and other areas of mixed scrubland and grassland. The varied lithology and complexity of its orography have enabled many plant species to flourish, some of them of particular value, including some fifty Iberian endemic species. Fauna is also amply represented thanks to the diversity of habitats with over two hundred species of vertebrates recorded, practically all of them under some kind of protection. There is a relevant representation of birds of prey and the presence of the Capercaillie is indicative of the importance of the area in the maintenance of biodiversity as this species is one of the signs showing the persistence of highly valuable habitats. It is also an area of great importance for one of the most endangered species of mammals in the Peninsula, the Brown Bear.

A night bird

Protection classifications:
Site of Community Interest (SCI)
Specially Protected Zone Bird Zone (SPBZ)
National Hunting Reserve

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Spain

Os Ancares Lucenses y Montes de Cervantes, Navia y Becerreá

"Palloza" (dwelling) in Piornado (Cervantes)

Declaration date: 27 October 2006
Surface area: 53.664 ha (core: 26 %; buffer: 60 %; transition: 14 %).
Administrative division: Province of Lugo (3 Municipalities have their territory in the Biosphere Reserve)

Human activities:
The most important activity is open range livestock-raising, mainly of cattle, followed by consumer agriculture and harvesting of forest resources, together with hunting. Over the past few years rural tourism has increased and beekeeping has also been re-launched.

Ecological characteristics:
The Biosphere Reserve is located between two bio-geographical regions, where species of northern origin (both Central European and Boreal) live in harmony with species from Mediterranean or Atlantic-Mediterranean origin, giving the area great biological diversity. To this should be added the area's orography, with a difference of over 1600 m between the 300 m of the Navia River course and the 1,935 m of the peak of Mostellar. Its intricate hydrological network, varied geological material (slate, schist, sandstone, quartzite, calcite, dolomite, granite) and a variety of geo-morphological formations (of glacial and fluvial origin), contribute to increase the structural heterogeneity of the region's ecological mosaic. Os Ancares s are lands that have preserved in exceptional condition their natural values, landscapes and the natural resources used for centuries by their inhabitants. The people of Os Ancares shaped their own culture, where the conjunction of the natural environment and the ethnography are apparent, giving rise to an ethnographic wealth resulting in the "pallozas" (round, thatch-roofed buildings) the most ancient dwellings in Europe. The Reserve includes the last part of the Cantabrian Cordillera, thus many species of flora and fauna found here are at the limit of their distribution for the Iberian Peninsula and even for Europe. This is the case of the Brown Bear (*Ursus arctos*) an endangered species, and the Western Capercaillie (*Tetrao urogallus*) which is classified as vulnerable.

Protection classifications:
- Sites of Community Interest (SCI) (2)
- National Hunting Reserve

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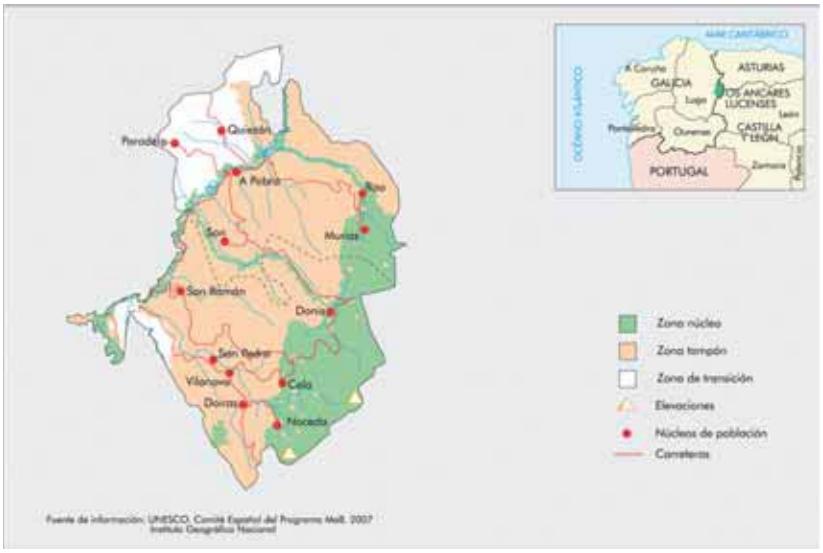

Spain
Río Eo, Oscos y Tierras de Buron

Seimeira falls

Declaration date: 19 June 2007
Surface area: 159,379 ha (158,883 ha on land) (core zone: 10 %; buffer zone: 19 %; transition zone 71 %)
Administrative division: The Provinces of Lugo and Asturias (14 Municipalities have their territory in the Biosphere Reserve)

Human activities:

At present, stock-raising, forestry and tourism are the main economic activities. Over the past years, the economic structure has undergone relevant changes, with a drop in the primary sector and a rise in the service sector. Mention should also be made of the Barres and San Briz industrial zones, the shipyard and its important activity and the diversification of crafts.

Protection classifications:
Specially Protected Bird Zones (SPBZ) (3)
Sites of Community Interest (SCI) (9)
Internationally Important Wetland (Ramsar Convention)

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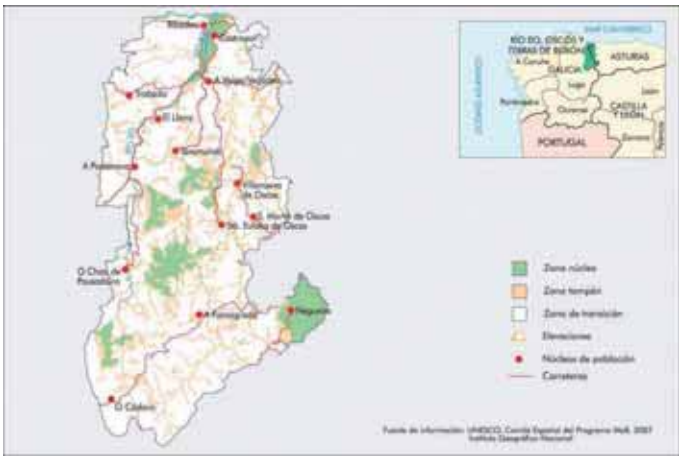
Ecological characteristics:

The Biosphere Reserve is articulated around the basins of the Eo river and its estuary and the rivers Navia, Porcía and Miño, together with other small Cantabrian coastal basins. The continental ecosystems are complemented by a wide representation of marine and coastal formations, among which the Eo river-estuary system, the cliffs, pebbly and sandy beaches and dunes are noteworthy. A great diversity of tree formations are found in the Biosphere Reserve, including Laurel, Willow, Oak and Beech groves, humid and riparian forests and evergreen formations where Holly or Cork Oak trees predominate. The natural state of the river corridors and low degree of pollution favour the existence of numerous riparian species. In general, the Eo has a large population of salmon, in addition to other fish such as the Allis shad (*Alosa alosa*), Lamprey and Eel. It also attracts populations of European Otter, Freshwater Mussel and Pyrenean Desman. Human action is manifest in the shaping of the semi-natural ecosystems, where signs of mediaeval land use systems are still apparent, with the inhabitants settled in small scattered enclaves around tilled fields, hay fields, chestnut groves, small orchards (generally apple) and areas of grapevines. This traditional land use system contrasts with the large areas of pine and, above all, eucalyptus plantations started a few decades ago.

Eo Estuary



Spain
Fuerteventura

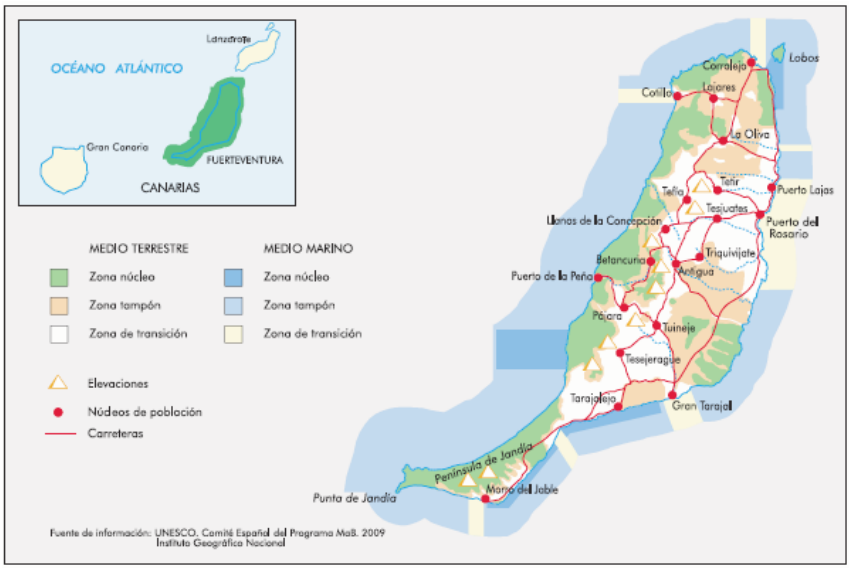
Cabildo de Fuerteventura

Declaration date: 27 May 2009
Surface area: 353.500 ha (core area: 60.517 ha on land [36,35 % of the land surface area]; 13.785 ha on sea [7.34% of the marine surface area]; buffer zone: 47.062 ha on land [28.27% of the land surface area]; 150.793 ha on sea (80.28 % of the marine surface area] ; transition zone: 58.873 ha on land [35.34 % of the land surface area]; 23.258 ha on sea (12.38% of the marine surface area)
Administrative division: Communes located in the territory of the Biosphere Reserve: Antigua, Betancuria, La Oliva, Pájara, Puerto del Rosario, Tuineje

Human activities:
Fuerteventura has a population of 97,859 inhabitants. Most traditional activities such as farming, stock-raising, fishing and crafts – still practiced – have lost economic importance on the island, with the exception of stock-raising. Presently the most important economic activity on the island is tourism, either directly through the hotel sector and its connected services, or indirectly in the promotion of building works.

Ecological characteristics:
The Island of Fuerteventura is the second largest island in the Atlantic Macaronesia archipelago. It has a strong regional identity mainly due to the particularities of its geological characteristics and to the display of its vast natural heritage, arising from its arid condition and a rich and diversified marine environment.
The island harbours many natural habitats and living communities linked to those of the Macaronesian zone and, more strongly, to arid zone habitats and biota stretching from the North of Africa to India. To a certain extent it may be said that the island is in a transition zone and is thus influenced by the exuberance of the central and western Canary Islands and by the adjacent desert zones on the African continent. . The Island of Fuerteventura, together with certain areas in southeast Spain form the most arid region of the whole European Union, which makes it an unequalled observatory for world climate change phenomena.
The Island of Fuerteventura has become an ideal spot for bird-watching as it possesses the most authentic and largest representation of Canary Island steppe habitats. The island has a high level of endemic species because of its insularity, its geographical isolation and climatic features. Of the 721 taxa composing its vascular flora, 42 are endemic to the Canary Isles and 15 only to Fuerteventura. There is at least one species of endemic mushroom (that is to say 0.9% of the species endemic to the Canary Islands), 7 species of lichens (23% of the species endemic to the Canaries) and 5 bryophytes (50% of the species endemic to the Canary Islands). The coastal and marine environment harbours 4 species of sea turtles, 22 species of cetaceans, and a great variety of fish and benthic and pelagic algae.

Protection classifications:
Natural Reserve (3)
Site of Community Interest (SCI) (13)
Specially Protected Bird Zones (SPBZ) (5)
Ramsar Convention on Wetlands Site (1)



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Sweden

Kristianstad Vattenrikke

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Declaration date: 29 June 2005
Surface area: 104.375 ha
Administrative division: The Municipality of Kristianstad

Human activities:

To make more acess for visitors we have created more than 20 visitor sites in the reserve. Some have birdwatching towers, other have boardwalks or outdoor museums.

Ecological characteristics:

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The Biosphere Reserve is in Skåne, the southernmost of Sweden´s provinces. The area includes the lower drainage basin of the River Helge å in the Municipality of Kristianstad and the coastal waters of Hanöbukten Bay, which forms part of the Baltic Sea. It covers 100 000 ha and contains within its boundaries landscapes and biological values of regional, national and international importance. At the heart of the entire area, extending north to south, is an expanse of rich wetlands of international importance (The Helgeån Ramsar Site). Other examples of biotopes that are classified as possessing high biological values of international and national importance include stretches of running water, broadleaf forests and the sandy grasslands formerly managed under a rotational system of cultivation and falllow. Within all of these landscapes and ecosystems there are areas af varying extent wich possess such high values that they form a part of the European Union´s Natura 2000 network. There are also about 15 nature reserves here.

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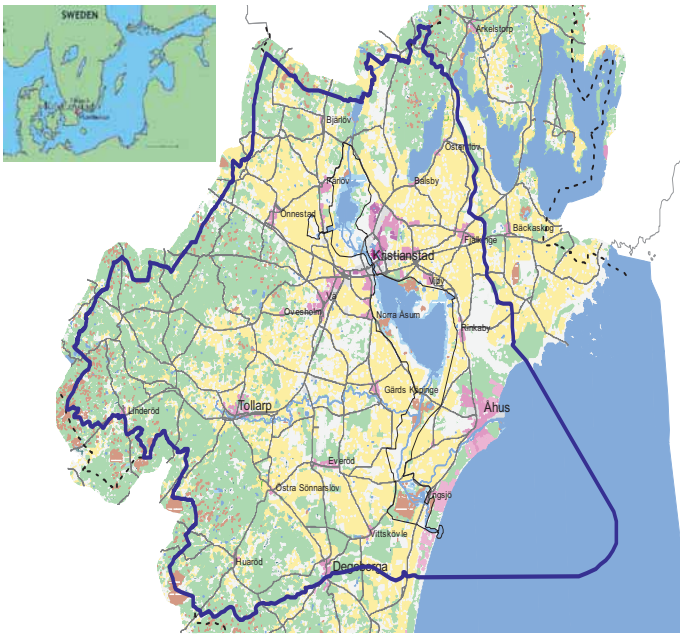

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Sweden

Lake Vanern Archipelago

Advanced study in handicraft in Mariestad

Declaration date: 2010
Surface area: 278.600 ha
Administrative division:
Götene Municipality, Lidköping Municipality and Mariestad Municipality

Human activities:

There are almost 60,000 people living in the biosphere reserve. The transition area is the most densely populated area within the biosphere reserve, where a little over 50,000 people lives. The transition area incorporates the city centres of Götene, Lidköping and Mariestad. Lidköping and Mariestad are located on the shores of Lake Vänern, while Götene is situated along the European Route E20.
Core areas include national park, nature reserves, Natura 2000 sites and forest habitat protection areas. The buffer zones consist of areas of national interest for the purpose of naturae conservation, areas of national interest for the purpose of culture heritage conservation, Ramsar site, nature conservation areas, forest with nature conservation agreements, fish protection areas and protected shores. The transition area includes other land. The core areas are mainly surrounded by buffer zones which in turn are surrounded by transition areas.

Ecological characteristics:

The Biosphere Reserve comprises part of the Lake Vänern drainage basin. Lake Vänern is the largest lake in Sweden and the third largest lake in Europe. In the western part of the area is Hindens rev, a long glacial moraine that stretches 5 km in the lake. Hindens rev is part of the so called middle Swedish ice marginal zone, resulting from the receding inland ice 10,000 years ago.
In the central parts of the biosphere reserve in Mount Kinnekulle, Västergötland's highest plateau mountain, and Mount Lugnåsberget, one of the smallest plateau mountains in the country. The area also includes boulder-ridges and sand-ridges. South-west of Mount Kinnekulle is the only species-rich highly calcareous fen outside the lime-rich area, the so called Skebykärret. The area south and south-west of the plateau mountains consists of relatively flat cultural landscape, dominated by agriculture. Large areas of contiguous forest occur in the archipelago as well as in the southern and eastern parts of the area.
Along the 350 km long Lake Vänern coast there are a number of sites with reed areas and rich birdlife. The largest contiguous reed area is found at Lake Dättern in the south-western part of the area. The islands and skerries in the archipelago include extensive sandy beaches and dunes, rocks, flat-rock pine forest and bilberry spruce forest. Torsö, the largest island in Lake Vänern, is home to a wetland area. The area includes five rivers of which the two largest, Tidan and Lidan discharge in Lake Vänern at the two largest population centres Lidköping and Mariestad. The three smaller rivers, Friaån, Sjöråsån and Mariedalsån run through the agricultural landscape before discharging in Lake Vänern.

Hindens reefs in Lake Vanern

Biosphere Office, Spiken fishing port—Lake Vånern Archipelago

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Switzerland

Parc Suisse

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Declaration date: 1979
Surface area: 172.400 ha
Administrative division: Zernez, Switzerland

Human activities:

The scientific research is a central element, making it possible to improve and document our understanding of nature and how habitats change without human interference.

Protection classifications:

The scientific research is a central element, making it possible to improve and document our understanding of nature and how habitats change without human interference.

Ecological characteristics:

- The elevation of the Swiss National Park (Snp) ranges from 1350 to 3170 m a.s.l. 50 km2 are comprised with forests, 33 km2 with alpine grasslands and 3 km2 with subalpine grasslands, while ice, snow and rocks occupy the other half of the park.
- The park's forests are composed of five conifer species. Most abundant are mountain pine, Swiss stone pine and European larch, while Scots pine (Pinus sylvestris L.) and Norway spruce (Picea abies L.) occur less frequently.
- In the Snp nature is left to develop without any human intervention. Visitors remain in the background and are merely witness to the evolution of nature. Its extraordinary variety of alpine animals, such as chamois, red deer, ibex and marmots contribute greatly to the incomparable landscapes of the park. The great diversity of alpine plants provides a colourful sight along the numerous hiking trails of varying degrees of difficulty (80 km), which offer visitors a wide choice of excursions.

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Switzerland
Entlebuch

Declaration date: 2001
Surface area: 39.659 ha
Administrative division: Regional management - Direction du Reserve de Biosphere Entlebuch

Human activities:

There are some 17,000 people living in the area (2000) and the populations embarked in a highly participative approach in making the biosphere reserve proposal. Public meetings were held in the eight communities concerned, which approved the proposal with a vast majority. The inhabitants in Entlebuch aim at promoting regional products, cultivating natural resources (grass, wood, and landscape) and developing ecotourism. A project on monitoring the success of sustainable regional development is currently underway. It will develop aims and indicators for ecotourism, agriculture and forestry.

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Ecological characteristics:

The Entlebuch Biosphere Reserve is located at the foot of the Alps in the central part of Switzerland. It covers some 39,000 hectares and reaches an altitude of 2,350 meters above sea level. Few regions in the country have natural and cultural landscapes that are as intact as those in Entlebuch. It includes peat bogs and raised bogs, alluvial and riverine forests, as well as complete cave systems, such as the Schrattenfluh and the Napf area.

Highland marshes characterized by Sphagnetum sp., Lycopodiella inundata, Scheuchzeria palustris, Carex sp. etc.; montane pine forests - forested peatlands charachterized by Pinus montana, Sphagnum sp., Cladonia sp., Carex sp. etc.; lowland marshes including Carex sp., Eriophorum sp., Juncus sp. and orchid species; karst with Caricetum ferrugineae, Seslerio-Caricetum sempevirentis and Caricetum firmae; alpine meadows with Caricetum ferrugineae, Seslerio-Caricetum sempervirentis, Caricetum firmae, Elynetum etc.; dry and semi-dry grasslands dominated by Bromus sp., Centaurea sp., Chrysanthemum leucanthemum, Lotus corniculatus etc.; forest communities with Picea abies, Abies alba, Sorbus aucuparia and Vaccinium myrtillus; alluvial areas dominated by Salix sp. and Alnus incana; cultivated meadows including Arrhenatherum sp. and Trisetum sp. etc.; areas of human settlements with cultivated or exotic species; heathland communities including Juniperus communis, Rhododendron ferrugineum, R. hirsutum, Homogyne alpina etc.; Alnetum viridis communities including Alnus viridis, Adenostyles alliariae, Peucedanum ostruthium etc.; pasture lands for sheep, silviculture; plantation of exotic trees; agroecosystems with potatoes, and cereals; military zone.

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Turkey
Camili

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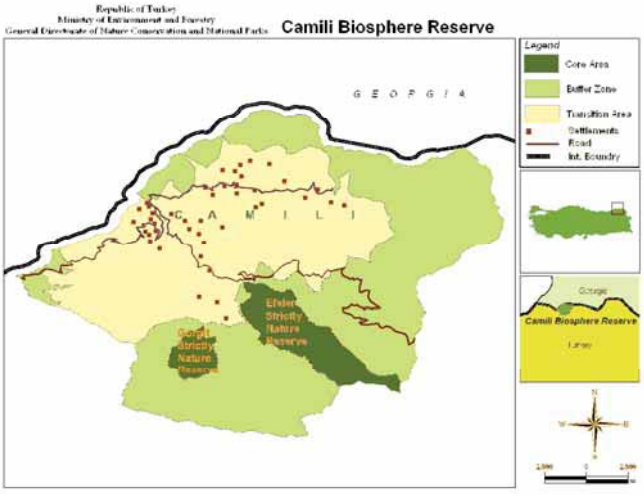
Declaration date: 2005
Surface area: 27.152 ha
Administrative division: Core zones of Camili Biosphere Reserve are strictly protected area and managed by General Directorate of Nature Conservation and National Parks according to the law no: 2873. Buffer and transition zones of Camili Biosphere Reserves are managed by General Directorate of Forestry according to the law no. 6831.

Human activities:

Camili Biosphere Reserve has very tradational rural lifestyle. Hazelnut farming, bee and honey production are main agricultural activities in the Biosphere Reserve. In the recent years ecotourism also is becoming one of main driver in the local economy.



Ecological characteristics:

© *Camili BR*

The main ecosystem types in the Camili Biosphere Reserve are boreal coniferous forest and temperate deciduous forest including tree species such as black alder (Alns glutinosa), oriental spruce (Picea orientalis), Caucasus lime tree (Tilia rubra ssp. caucasicus), hazelnut (Corylus avellana) and Sessile oak (Quercus petraea). The Camili basin is part of the Karçal Mountains Important Plant Area, which is one of the 122 Important Plant Areas defined in Turkey. The basin is the only area where the Caucasus bee race has remained without its purity being damaged. It is one of the three most important bee races in the world. Camili Biosphere Reserve is on one of the most significant bird migration routes in Black Sea Basin. The area is also within the Eastern Black Sea Mountains Important Bird Area and Karçal Mountains Important Bird Area.

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Ukraine
Chernomorskiy

Declaration date: 1984
Surface area: 89.129 ha
Administrative division: National Academy of Science of the Ukraine

Human activities:

- Conservation of natural processes in protected natural complexes
- Studying of these processes with the purpose of preservation
- Ecological-educational propagation

Ecological characteristics:

In territory of the Reserve a unique natural complexes are presented:
- Azonal sandy forest-steppe on arenas of the Low Dnieper
- Seaside solonetzic desertificated steppe
- Complex of coast - and islands
- Nature-aqual complexes of shallow-water bays and Black Sea

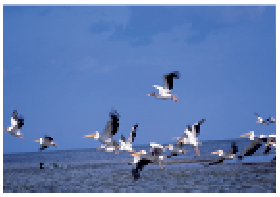
A variety of ecological conditions have caused riches of flora and fauna. In the Reserve grows in nature condition more than 700 species of floral plants, inhabits up to 3000 species Invertebrate animals. Here 457 species of vertebrate animals are totaled: about 80 kinds of fishes, 5 kinds of amphibians, 9 - reptiles, 306 - birds, 53 species of ground and water mammals.

More than 50 % of species are protected by the Bern convention, introduce in the European red list, in the Red book of Ukraine

The Black Sea biosphere reserve - one of the most interesting place the defense land nature of the Europe, the standard of natural complexes of the south of Ukraine, the center of endemism, a place of preservation of many rare and protected species of plants and animals.

Protection classifications:

At international level. Especially protected natural territory
Benchmark natural complexes of the south of Ukraine
Wetland.



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E-mail: bsbr-nauka@yandex.ru

Ukraine
Askaniya-Nova

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Declaration date: 1985
Surface area: 1.129.888 ha
Administrative division: Kherson region, Chaplynka district

© *Askaniya-Nova BR*

Human activities:

- Conservation of the natural steppe ecosystems, wild animals of Askania Nova Zoo and plants of Dendrological Park;
- Scientific researches and long term monitoring for natural environment;
- Environmental education.

Protection classifications:

The area was declared as a Biosphere reserve "Askania Nova" in 1983.
The Reserve is listed in World Network of the Biosphere Reserves in 1984.

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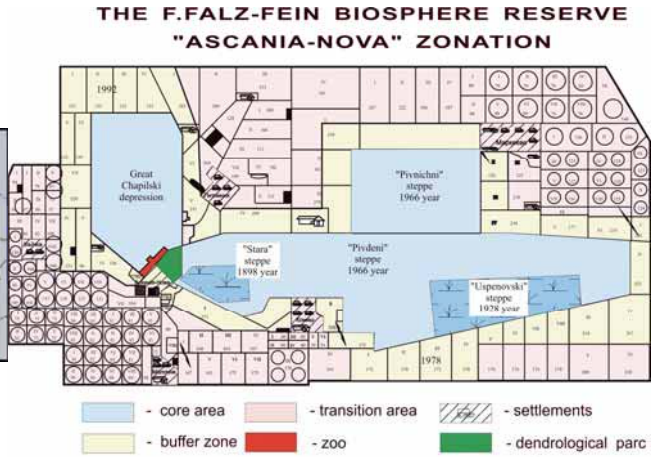
Ecological characteristics:

The Biosphere Reserve "Askania Nova" is the sole natural protected scientific institution in Ukraine which core area is situated within the near-Syvash-Azov lowland of near-Black and Azov Sea region of dry steppe province of the Steppe Zone. The reserve provides conservation of largest plot of feather grass steppe of relic flora-fanistic complex in Europe. Askanian steppe is one of the oldest reserves of the Earth. Reserve "Askania Nova" consists of the virgin steppe, the State Dendrological Park "Askania Nova" and the Zoological Park "Askania Nova". 75 species of birds and 41 species of mammals in the Askania Nova zoo collection. The autochthonous flora of the virgin steppe is represented by 505 flowering species of plants. A fairly large portion is consisted of rare, endemic and threatening species – 85 flowering species and 8 lichens. 3 fungi, 4 lichen and 13 flowering species are listed in the Red Data Book of Ukraine. Fauna of core area is presented by 1154 species. Among them 219 species are the invertebrates and chordata, which include 2 species of amphibians, 5 reptile species, 21 species of mammals, 269 bird species. 60 animal species are listed in the Red Data Book of Ukraine; there are 9 insects, 3 are reptiles, 44 bird species and 4 species of mammals.

© *Askaniya-Nova BR*



Ukraine
Carpathian

© *Carpathian BR*

Declaration date: 1992
Surface area: 53.630 ha
Administrative division: Rakhiv, Tyachiv, Khust and Vynohradiv administrative districts of Transcarpathian region

Human activities:

- Protection of unique and typical natural complexes;
- Biodiversity conservation;
- Ecological monitoring and scientific research;
- Conservation of natural and cultural components of the traditional culture;
- Ecological tourism and regulated recreation;
- Ecological education;
- Promotion of regional sustainable development.

Protection classifications:

The Carpathian State Reserve was designated in 1968. At the national level it was declared as a biosphere reserve by the Presidential Decree in 1993.

© *Carpathian BR*

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http://cbr.nature.org.ua

Ecological characteristics:

The biosphere reserve has a cluster structure and is composed of 8 separate massifs; It covers all the altitude belts characteristic for the southern maroslope of the Carpathians: foothill oak forests (180-450 m.a.s.l.), mountain beech and mixed forests (450-1000 m.a.s.l.), mountain spruce forests (1.000-1.450 m.a.s.l.), subalpine meadows and crooked woodland (1.450-1.800 m.a.s.l.) and alpine meadows (1.800-2.061 m.a.s.l.); 44.100 ha, or over 82 % of the area is forested, and almost 21.000 ha out of it belong to primeval forests, which are now listed in the UNESCO World Natural Heritage List as components of the serial Ukrainian-Slovak transboundary property "Beech Primeval Forests of the Carpathians"; Vegetation of the reserve is represented by about 400 associations, 102 of which are rare ones, listed in the Green Book of Ukraine;
Flora of the reserve contains 3.019 species (1.349 high vascular plant species), 114 of which are rare ones, listed in the Red Book of Ukraine and international conservation lists; Fauna of the reserve contains 4.813 species (306 vertebrate species), 232 of which are rare ones, listed in the Red Book of Ukraine and international conservation lists. 3 species of troglobiont insects - Duvalius transcarpaticus (Carabidae, Coleoptera), Willemia virae та Aropalites carpaticus (Collembola) – are distributed exclusively within the karst caves of the reserve;23 habitats found in the reserve are globally threatened.

© *Carpathian BR*

Ukraine
Shatskiy

© *Shatskiy BR*

Declaration date: 2002, extension 2006
Surface area: 48.977 ha
Administrative division: Volyn`

Human activities:

The dominating economic functions of this Artec are agriculture, forestry, rest with medical treatment, weekend recreation, harvesting of forest berries and mushrooms, and fishing. 42 recreation centres, sanatorium "Lisova Pisnia" and many tent small towns are located on lakeside's of Svitiaz and Pisochne. Distribution of services for visitors and trade both domestic and the industrial goods get the increasing here. Thanking recreation are opportunities of selling of agricultural production, and also the berries collected in forests, the mushrooms and the caught fish in bounds of the sustainable development.

© *Shatskiy BR*

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Ecological characteristics:

© *Shatskiy BR*

The Shatsk National Natural Park (SNNP) was organised in 1983 to preserve original beauty of the nature and provide modern principles of the nature reserve use. The SNNP is situated in the far northern west of the Volyn Region in the Shatsk administrative district. It borders upon Poland in the west and Buelorussia in the north. It is 35 km long south to north, and is 37 km long west to east. In 1999 its territory was enlarged from 32 800 ha(1983) to nearly 49000 ha. An aerial view the Shatski Lakes look like pearls on the green velvet of Polessian forests and marshes. There are 23 lakes in the park with a total water surface of nearly 6400 ha. This is one of the largest European groups of lakes. The Shatski Lakes belong to the international wetlands and are protected according to requirements of the Ramsar Convention. Territory of the park is located in the main European Black-and-Baltic Sea watershed that divides basins of the Prypiat and Western Bug rivers. Climate of the Shatski Lakes region is moderate continental, humid, with mild winter and summer, long spring and autumn. Most part of the territory (24 500 ha, or 50 percent) is occupied by forests. Meadows cover 3 300 ha (6,8 percent), waters - 7 000 ha (14,2 percent), marshes - 1 900 ha (4 percent). Arable land, gardens and roads take nearly 25 percent of the park's area.

Protection classifications:

National Park

Ukrania

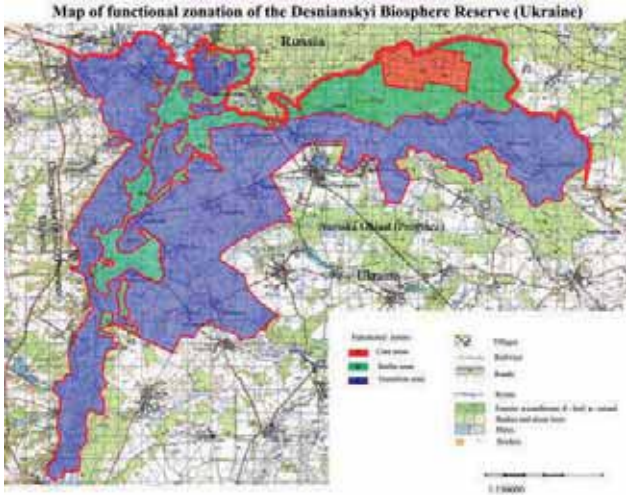
Desnianskyi

Declaration date: 2009
Surface area: 58.293 ha
Administrative division:
National Nature Park "Desniansko-Starogutskyi"

Human activities:

Low density of population within the biosphere reserve and on adjoining areas, absence of huge industrial centers in the region create the background for development of agriculture and forestry on the base of principles of rational use of natural resources with considerable part of traditional forms of nature use. Already now numbers of research, monitoring educational programs are realizing. National Nature Park "Desniansko-Starogutskyi", 3 small wildlife reserves (zakazniks) and 3 nature monuments, wetland of international importance "Desna River Floodplains" form the territory of the Reserve. On the north Desnianskyi Biosphere Reserve borders with the Russian biosphere reserve "Nerusso-Desnianskoe-Polesie", which in future it is planning to consolidate in transboundary biosphere reserve.

Map of functional zonation of the Desnianskyi Biosphere Reserve (Ukraine)



Ecological characteristics:

Desnianskyi Biosphere Reserve located in middle stream of the Desna River (one of the biggest branches of the Dnipro River) in the Eastern Polesie Region and presents the basic landscape types of the east of the Polesie Lowland: rivers, lakes, floodplains, bogs, transition mires, fens, real, peaty and swampy grasslands, pine, broad-leaf and mixed forests, including floodplains. Alluvial-outwash plains occupy 60% of the reserve area, and 15% are terrace sand plains, which occupied by forests mainly. 20% of the reserve area are under floodplains and appr. 5% are moraine-outwash plains. The majority of agricultural lands are located between floodplains and a moraine-outwash plains, namely hayfields, pastures, etc.

Map of location and borders of the Desnianskyi Biosphere Reserve (Ukraine)

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United Kingdom
Beinn Eighe

© *Beinn Eighe BR*

Declaration date: 1976
Surface area: 4.800 ha
Administrative division: Wester Ross

Human activities:

- Restoration of native woodland
- Long term environmental monitoring and research
- Public access and environmental education

© *Beinn Eighe BR*

Protection classifications:

National:
- National Nature Reserve
- Site of Special Scientific Interest
- Part of Wester Ross National Scenic Area

Ecological characteristics:

- Internationally important remnant Caledonian forest (*Scots pine*);
- Other rare and unusual habitats of national importance include the UK's best example of dwarf shrub heath with prostrate juniper, and montane lichen heath;
- Globally important populations of rare plant species, particularly mosses, liverworts and lichens;
- Supports a wide range of invertebrates, including specialist beetles and hoverflies which are restricted to Caledonian pine forest, and 13 species of dragonflies, some of which have restricted northern distributions.

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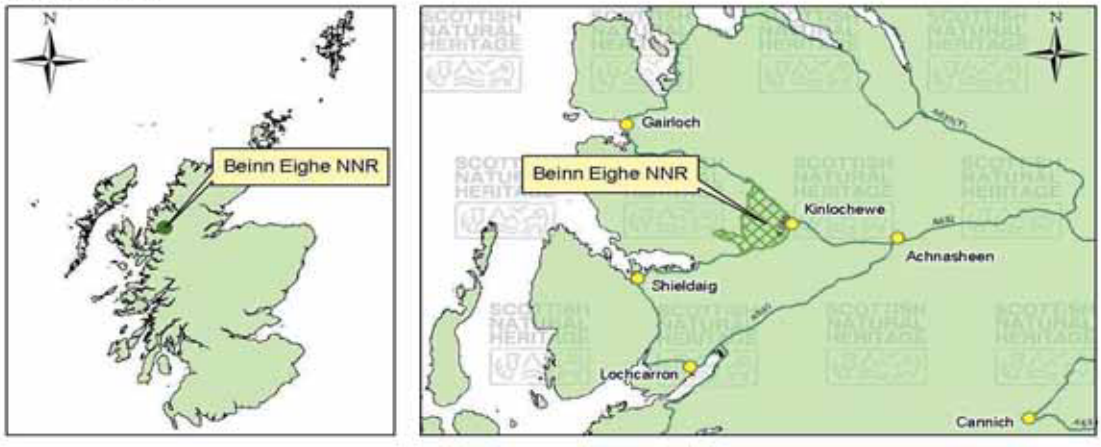
Location Map



United Kingdom

Braunton Burrows - North Devon

© *Braunton Burrows - North Devon's BR*

Declaration date: 1976 (extended 2002)
Surface area: 14.177 ha
Administrative division: Devon County Council North Devon Council and Torridge District Council

Human activities:

The area has an economic strategy that focuses on the environment as an economic driver. Activities in the area include:

- Tourism, agriculture, ship building, fishing, manufacturing and technology.
- Recreation (surfing, sailing kayaking, golf, cycling, rock climbing, angling)

Funds have been drawn down to help support the development of low carbon economies.

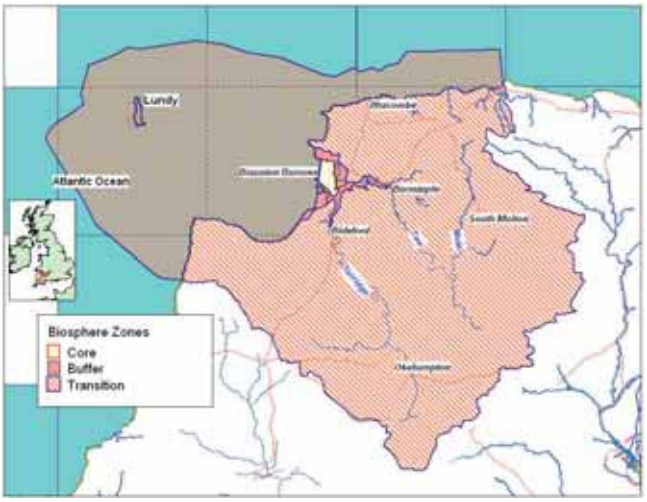
The reserve includes a research station at North Wyke which is also a Environmental Change Network monitoring station. The site is close to Plymouth and Exeter Universities. The reserve team has developed foundation degrees in Sustainable development and new ways to engage the public in learning about their environment and culture. Schools have partnered in the area to develop specific geography learning website and other education packs. A school has been rebuilt as a carbon neutral college in support of the BR. Research has been done on climate change impacts, in particular sea level rise, diffuse pollution from a human as well as natural sciences perspective.

Protection classifications:

The core of biosphere reserve is a Special Area of conservation under the EU Habitats and Species Regulations; owned by the Christie Family for 400 years. The reserve includes the North Devon Area of Outstanding Natural Beauty and the sections of Dartmoor and Exmoor National Parks.

Ecological characteristics:

The BR is defined by the river catchments of North Devon feeding into the Atlantic Ocean and including the sea area to encompass the first marine reserve in the UK.
The core area is a high quality example of an Atlantic facing dunes system with over 500 plant spp. The catchment incorporates Blanket bog, Ancient oak woodlands, Culm Grasslands (Rhos Pasture) and a network of rivers. Key species include Red Dear, Atlantic salmon, European Otter, basking sharks and smaller cetaceans. Conservation of these features provided through an integrated Biodiversity Action Plan.



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www.northdevonbiosphere.org.uk

United Kingdom
Biosffer Dyfi Biosphere

© *Biosffer Dyfi Biosphere BR*

Declaration date: 1977
Surface area: 1.589 ha
Administrative division: Ceredigion, Gwynedd and Powys, Wales, UK

Human activities:

Pastoral farming and forestry;
Tourism and outdoor recreation;
Sustainable living and technology development;
Natural resource re-habilitation, management and monitoring;
Environmental education and interpretation;
Cultural development

Protection classifications:

The greater part of the estuarine unit, and core area lies within Dyfi SSSI (sites of special scientific interest) and National Nature Reserve.
Additional areas of SSSI occur within the Dyfi river catchment, part of which is also within Snowdonia National Park..

© *Biosffer Dyfi Biosphere BR*

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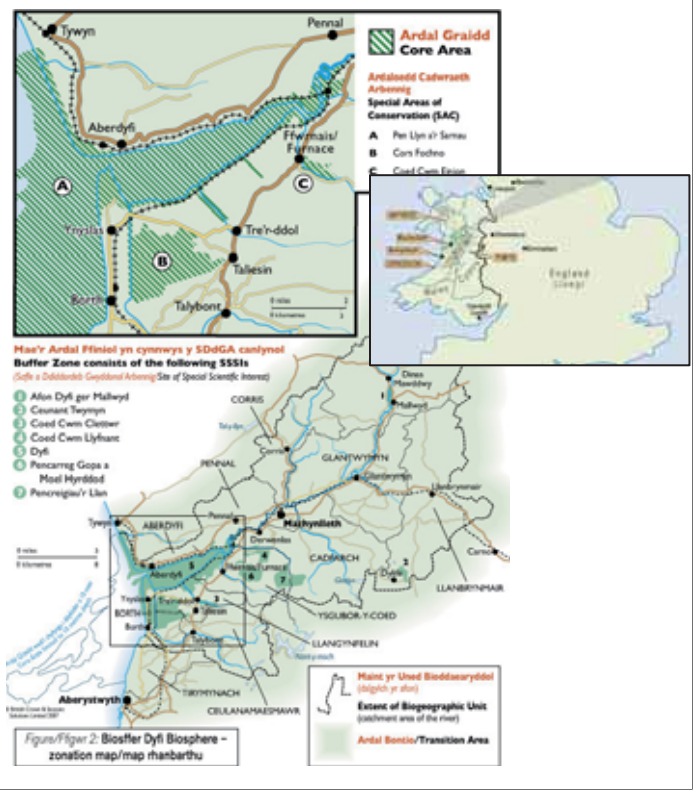
Ecological characteristics:

- Dyfi is a glaciated catchment of predominantly hill land with thin, acidic soils developed on lower Palaeozoic sedimentary strata;
- Broadleaf woodlands, typically sessile oak or ash dominated, are a feature of the valley slopes and its many tributaries, although conifer plantations now dominate large areas;
- The bryophyte, lichen and fern communities of the shady, damp valley woods are particularly notable, with large numbers of Atlantic species;
- Several areas of upland moorland occur, comprising mixtures of acid grassland, blanket bog and dwarf shrub heath, often contiguous with larger upland areas and supporting important bird populations.
- The Dyfi is a classic bar-built estuary, and one of the foremost examples of a drying, sandy, nutrient-poor estuary. Important populations of migratory fish, birds and otter occur along with extensive areas of saltmarsh (Atlantic salt meadow);
- The spit dune system of Ynyslas is an actively accreting system with good representation of dune community succession including marram fore-dunes and humid dune slacks.
- The estuarine raised mire of Cors fochno is one of the largest and best preserved active raised bogs in UK. It is a key site for climate-related research and supports important assemblages of lower plants, invertebrates and birds.



Figure/Ffigur 2: Biosffer Dyfi Biosphere – zonation map/map rhanbarthu

United Kingdom
Cairnsmore of Fleet

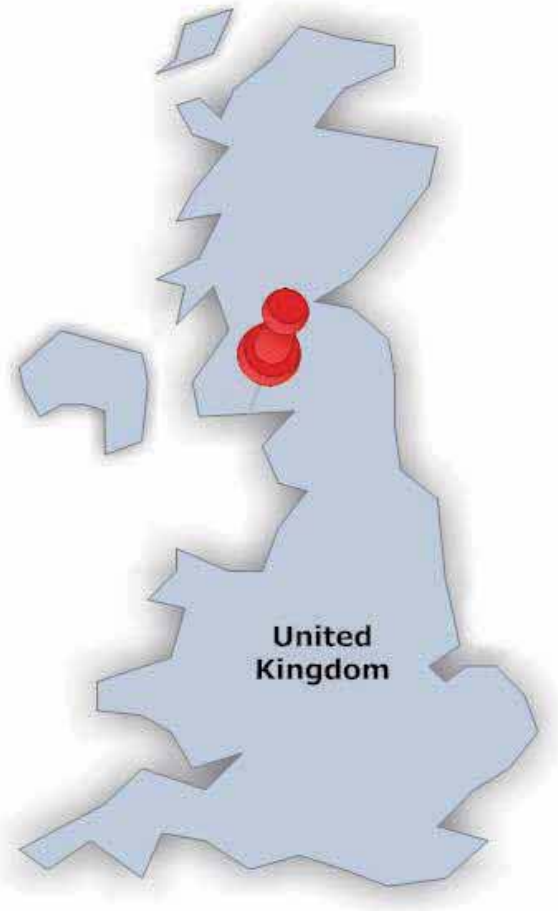
Declaration date: 1976
Surface area: 1.922 ha
Administrative division:

Human activities:

One of the main challenges facing the site is the re-establishment of extensive cattle and sheep grazing through work with farmers. A decline in farming of traditional breeds, such as belted Galloway cattle, has reduced the potential for such practices, with farmers operating with less sturdy breeds more suited to lowland grazing.

Ecological characteristics:

Situated in south-west Scotland in the Wigtown district, Cairnsmore of Fleet is representative of unafforested granite massif, low level moorland, montane grassland, and dwarf shrub heath. It is the most extensive area of open moorland in Galloway. The reserve contains plants at their northern and western limits, nationally scarce plants, breeding and upland birds, mammals and invertebrates of interest, and upland raptors such as golden eagle, merlin and hen harrier. There is also a population of wild goats. Much of the site is managed by grazing and burning to maintain habitat for birds. There is progressive management to maintain red and black grouse.



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United Kingdom
Loch Druidibeg

© RB Loch Druidibeg

Declaration date: 1976
Surface area: 1.677 ha
Administrative division: Comhairle Nan Eilean Siar (Western Isles Council), Scotland

Human activities:

Traditional crofting - rotational cultivation, seasonal stock grazing and fallow periods encourage a rich flora on the machair.
Recreation, tourism, fishing
Housing

Protection classifications:

At the national level.
National Nature Reserve
Site of Special Scientific Interest
Part of South Uist Machair Special Area of Conservation
Part of South Uist Machair and Lochs Special Protection Area

Ecological characteristics:

Loch Druidibeg is part of the largest machair (dune grassland) system in the British Isles, and has a complete transition of habitats from the western coastal machair to the inland acid moorland and blanket bog. This range of habitats supports many notable plants and animals. The west-facing shore of sand and shingle is highly exposed to salt-spray from the Atlantic Ocean. It is fringed by low shell-sand dunes with dune slacks, and grades eastwards into a machair plain containing shallow lochs with associated fens and marshes. Internationally significant numbers of waders, such as dunlin, feed and nest on the machair. The shallow nutrient-rich lochs on the machair plain have sandy or peaty shores, and show successions from open water to species-diverse marsh and fen communities. In contrast, Loch Druidibeg itself and the small inland lochs surrounded by blanket bog are nutrient-poor and support a different range of freshwater species. The area is one of the most important breeding grounds in the British Isles for native greylag geese. Many of the islands in Loch Druidibeg are covered by relict woodland scrub dominated by Willows with Rowan, Birch, Juniper and a woodland flora of Bluebell, Primrose and Royal fern around their shores.

© RB Loch Druidibeg

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(44.1870) 62 03 50
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United Kingdom

Moor House-Upper Teesdale

Declaration date: 1976
Surface area: 7.386 ha
Administrative division: English Nature

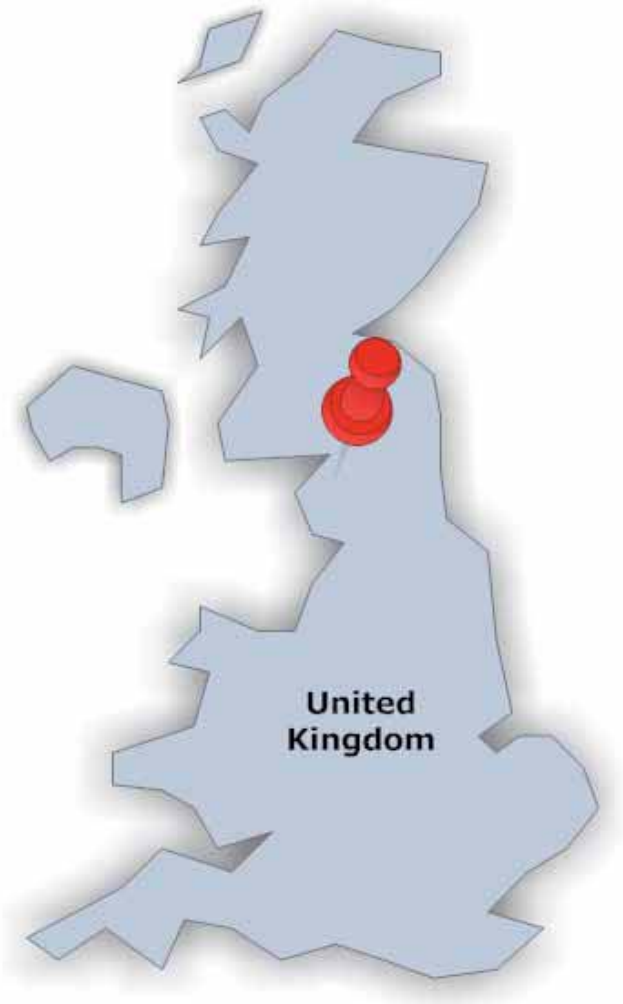
Human activities:

The two principal land uses are agriculture and estate management for game. Agriculture is mainly in the form of sheep and cattle grazing, with some production of hay meadow. A variety of management agreements encourage tenants to maintain traditional hay making practices. Other uses include small-scale forestry, water storage, quarrying of limestone and whinstone, barytes extraction and recreational activities. Both Moor House and Upper Teesdale have long histories of research and monitoring, including botanical, ornithological, and meteorological activities. The area is also used by a range of schools and colleges as an outdoor classroom.

Ecological characteristics:

Located on the northern Pennine hills in northern England, this biosphere reserve comprises two adjacent areas: Moor House with Calluneto-Eriophoetum-Sphagnum blanket bog, which is an uncommon European habitat, and Upper Teesdale which constitutes typical heather moors, blanket mires, and acidic grasslands. The area is internationally important because of its combination of Arctic, Alpine and Continental plant communities.

Blanket bog (with peat 2-3 m deep) with vegetation dominated by *Eriophorum* spp. (cotton grass), *Calluna vulgaris* (heather), and *Sphagnum* moss; montane heath; calcareous flushes; wet heath; acid grassland.



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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United Kingdom
North Norfolk Coast

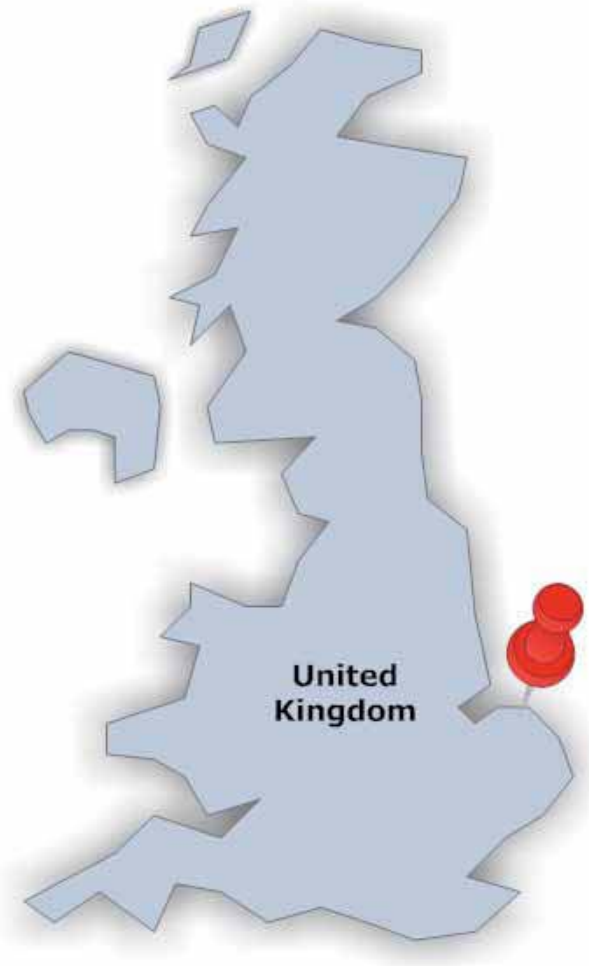
Declaration date: 1976
Surface area: 8.500 ha

Human activities:

Many tourists frequent the area, notably for beach activities and birdwatching. There arises some pressure on specific sites due to these activities. Other activities within the biosphere reserve are the cultivation of mainly cereals and sugar beet, grazing and harvesting mussels, cockles, shrimps, crabs, and bait as well as some commercial shore-netting. Educational visits of school children and students take place and there are a number of interpretive and field centers in the area. Research covers a full range of biological sciences (and especially ornithology), and also relates to the geomorphology of coastal processes.

Ecological characteristics:

Situated north of Norwich at the Norfolk coast, this biosphere reserve includes a wide range of habitats, from intertidal sands and muds, through shingle ridges, to saltwater and freshwater marshes. The saltmarshes are of great value for breeding and wintering wildfowl and includes a large breeding colony of common seals. Other habitats comprise mires, river valleys, heathlands, chalk and cliff-top grasslands, woodlands and farmland.



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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United Kingdom

Silver Flowe—Merrick Kells

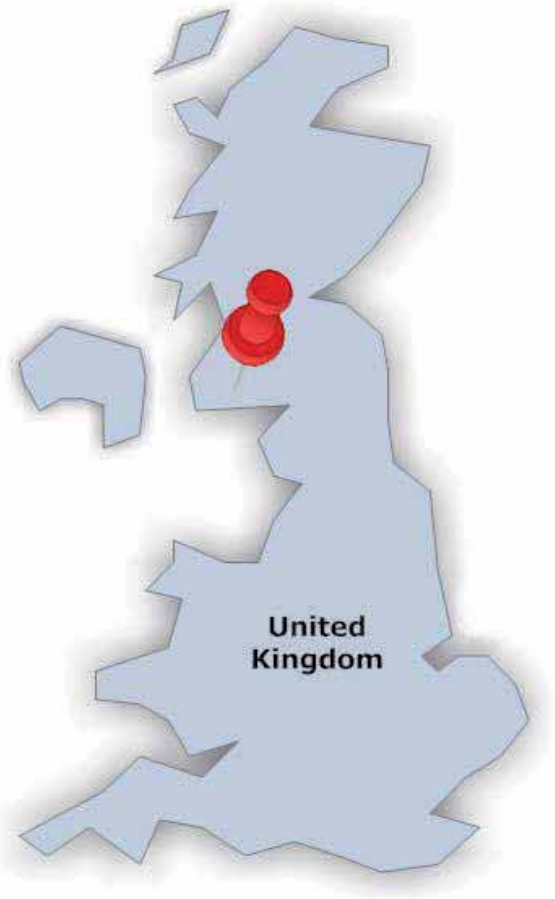
Declaration date: 1976
Surface area: 3.088 ha
Administrative division:

Human activities:

Both sites are surrounded by commercial coniferous forestry. The management of Merrick Kells and Silver Flowe is mainly carried out through non-intervention, apart from areas where extensive livestock grazing is practiced in order to manage vegetation.

Ecological characteristics:

Situated in south-west Scotland, this biosphere reserve is composed of two separate sites. Silver Flowe is a unique bog formation and one of the least interrupted undisturbed mire systems in Europe. Its high value is principally due to the landscape pattern of an assemblage of discrete mires. It is also a breeding site for the rare Azure Hawker dragonfly. Silver Flowe is also designated as Ramsar site.
Merrick Kells contains three habitats of European interest: blanket bog, montane acid grasslands, and wet heath with cross-leaved heath. There are mires supporting various communities, and the area has a wide variety of species but low population levels. There are nationally important breeding bird populations, and important invertebrate populations. The site is the largest remaining unafforested area of upland in Galloway.



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United States of America

Aleutian Islands

Declaration date: 1976
Surface area: 1.100.943 ha
Administrative division: Alaska Maritime National Wildlife Refuge; Aleutian Islands Unit; U.S. Fish and Wildlife Service

Human activities:

There are some villages within the biosphere reserve. Natives use the natural resources for fishing and hunting waterfowls and game as well as some livestock raising. There are considerable World War II debris and abandoned military installations which cause the contamination of land and sea.

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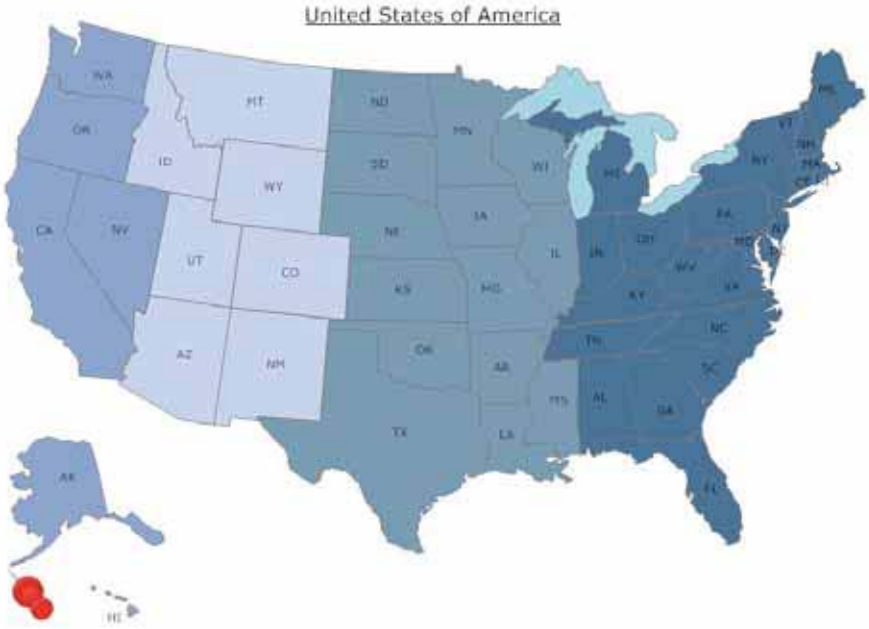
Ecological characteristics:

The Aleutian Islands Biosphere Reserve and National Wildlife Refuge consist of most of the Aleutian Islands and almost all Amaknak Island. These islands extend in an arc from the Alaska Peninsula about 1,600 km to the west. Most of the islands are mountainous as emergent peaks of a submarine mountain range which also includes some active volcanoes. The Aleutian Islands flora and fauna is composed of species from both the North American and Asian continents. The vegetation is classified as terrestrial-marine tundra composed of arctic-alpine species, dominated by heath, grass and composite families. In general, three plant communities can be distinguished: beach communities, lowland and upland tundra. The Aleutian fauna has been described as a melting pot for faunal elements from two continents including some species which evolved in the Bering Sea area. One of the most unique features is the Aleutian Canada goose (Branta canadensis leucopareia), a threatened species which nests in the wild only here. This bird was exterminated from other Aleutian Islands as a result of the introduction of arctic fox (Alopex lagopus) during the time when the islands were leased for fox farming. The eradication of fox as well as of the introduced Norway rats is one of the main management issues in order to restore native bird life. Investigations are carried out regarding population status and ecology of sea otter (Enhydra lutris) and Steller sea lion (Eumatopias jubata). Archaeological research in the western Aleutians attempts to characterize historical and prehistorical biodiversity.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Beaver Creek

© Beaver Creek BR

Declaration date: 1976
Surface area: 111.300 ha
Administrative division: Arizona

Human activities:

- The Beaver Creek Biosphere Reserve is part of the Coconino National Forest fuels reduction project. This project attempts to protect the national forest and its wildland-urban interface communities from catastrophic wildfires.
- The reserve has been considered for incorporation into the National Ecological Observatory Network (NEON).
- Other sustainable activities within the reserve include livestock grazing, hunting and recreation

Protection classifications:

At the national level, the Beaver Creek Biosphere Reserve is part of the Blue Ridge Ranger District, Coconino National Forest, U.S. Department of Agriculture, Forest Service.

Ecological characteristics:

- The Beaver Creek Biosphere Reserve and Experimental Watershed is located about 80 km south of Flagstaff in north-central Arizona. The experimental watershed was established in 1956 as a major center for watershed management research within the pinyon-juniper (Juniperus sp.) and ponderosa pine (Pinus ponderosa) vegetation types and semi-desert shrubs.

© Beaver Creek BR

- Beaver Creek has a long history of human influence. Since the late 19th century, the area has had various degrees of modification by man, the earliest being the introduction of domestic livestock. Most of the ponderosa pine area has been logged. Protection from natural fire occurred since the early 1900's. Pinyon-juniper woodlands were converted for range and water yield improvement in the early 1960's.
- Today, the main goals of the Beaver Creek Program are to provide land managers with essential information about the biological, physical, social, and economic effects of management practices in the ponderosa pine forests and pinyon-juniper woodlands.

© Beaver Creek BR

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United States of America

Big Bend

Declaration date: 1976
Surface area: 283.247 ha
Administrative division: Big Bend National Park National Park Service

Human activities:

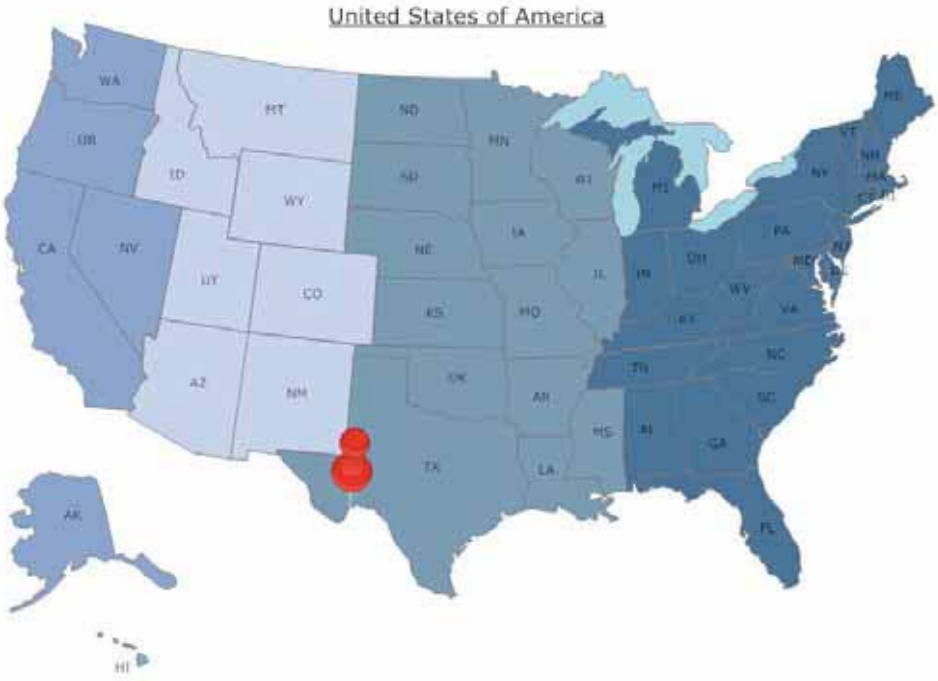
The Big Bend Biosphere Reserve is largely a protected core area managed for conservation, public education, and recreation use.

Contact information:

Frank J. Deckert
P.O. Box 129, Big Bend National Park
79834 Texas
United States of America
Tel.: (1.915) 477 2251 ext. 101
Fax: (1.915) 477 2357
E-mail: BiBe_Superintendent@nps.gov
Web site: www.nps.gov/bibe

Ecological characteristics:

Big Bend Biosphere Reserve and National Park, situated in the big bend of the Rio Grande in western Texas, represents one of three biosphere reserves in the Chihuahuan Desert (among Jornada Biosphere Reserve in USA and Mapimí Biosphere Reserve in Mexico). The vegetation zones in Big Bend are mainly determined by elevation (533 – 2,388 meters above sea level), comprising mainly shrub deserts and grasslands as well as some woodlands and riverine vegetation. All three biosphere reserves are located in areas traditionally dominated by a livestock raising economy. Today, they face a variety of resource management issues relating to sustainable development in desert ecosystems. Problems are associated with grazing of livestock, air pollution, and water quality, poaching of plants and animals, and loss of habitats. One of the major programs in the Big Bend Biosphere Reserve is maintaining the area's remarkable biodiversity, exemplified by some 58 endangered, threatened, and listed species and the occurrence of over 430 species of birds. A growing tourism industry is developing around Big Bend National Park. In nominating three biosphere reserves in the Chihuahuan Desert it was expected that cooperation would develop the knowledge and skills needed to manage the ecosystems of the Chihuahuan Desert for conservation and sustainable economic uses. Today, mainly research and environmental education projects characterize this cooperation.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Cascade Head

Declaration date: 1976
Surface area: 7.051 ha
Administrative division: Cascade Head Experimental Forest and Scenic Research Area U.S. Department of Agriculture, Forest Service

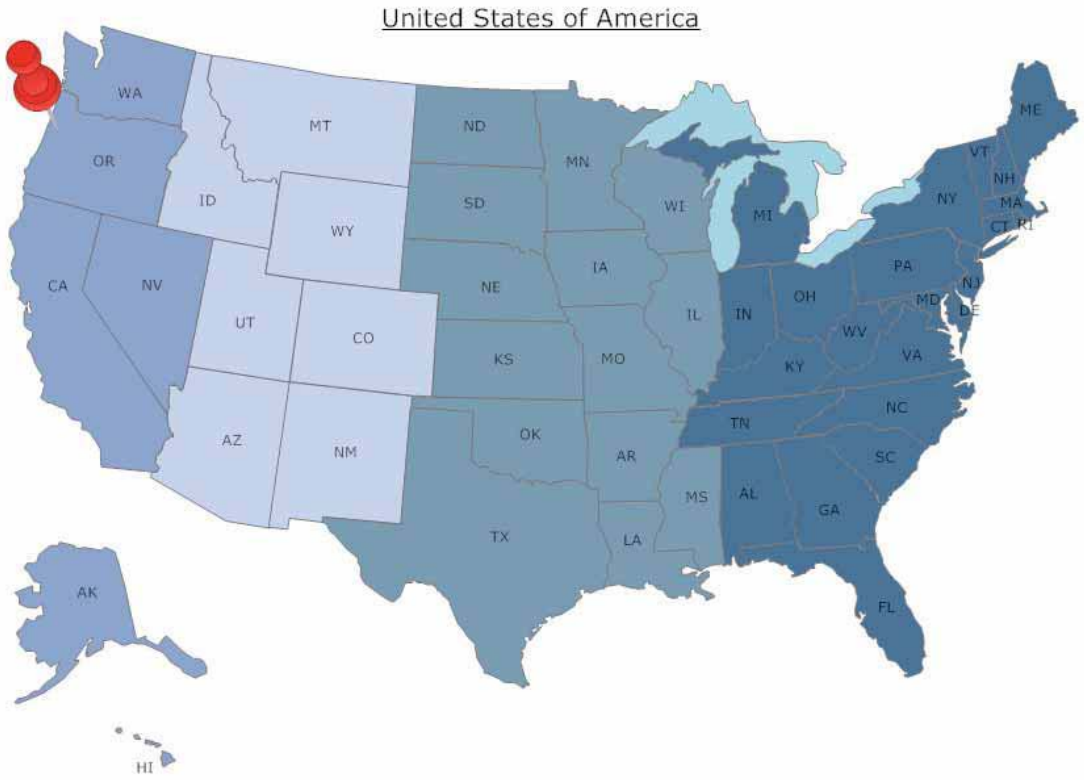
Human activities:

Approximately 30 percent of the Experimental Forest has been subject to logging and 60 km of road has been constructed as part of research and experimentation on silvicultural practices. The Scenic Research Area has been subject to varying degrees of human modification from little to substantial (e.g. residences, diking of marshlands, clearing for agriculture).

Contact information:
Sarah Greene, Forest Science Laboratory
3200 Jefferson Way, 97331 Corvallis, Oregon
United States of America
Tel.: (1.503) 750 7360, Fax: (1.503) 750 7329
E-mail: sgreene@fs.fed.us
Web site: www.fsl.orst.edu/chef/

Ecological characteristics:

The Cascade Head Biosphere Reserve and Experimental Forest is situated 136 km south-west of Portland on the Pacific Coast. The Experimental Forest was established in 1934 for scientific studies of typical coastal Sitka spruce (Picea sitchensis) and western hemlock (Tsuga heterophylla) forests found along the Oregon Coast. Since then, the forest stands have been used for long-term studies, experimentation, and ecosystem research. Ecosystems represented in the biosphere reserve are very diverse. Two major prairie headlands jut out into the Pacific Ocean. The recently restored Salmon River estuary provides a critical juncture between fresh and salt water and maintains staging areas for upstream spawning migrations of anadromous fish and rearing areas for juveniles and smolts. The forested ecosystems include very productive young and mature (150 year-old) stands of Sitka spruce-western hemlock and Douglas fir (Pseudotsuga menziesii) forests with riparian areas and stream banks dominated by red alder. Spotted owl, marbled murrelet, coho salmon and Oregon silver spot butterfly are four federally listed endangered species that occur in the biosphere reserve.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Central Plains

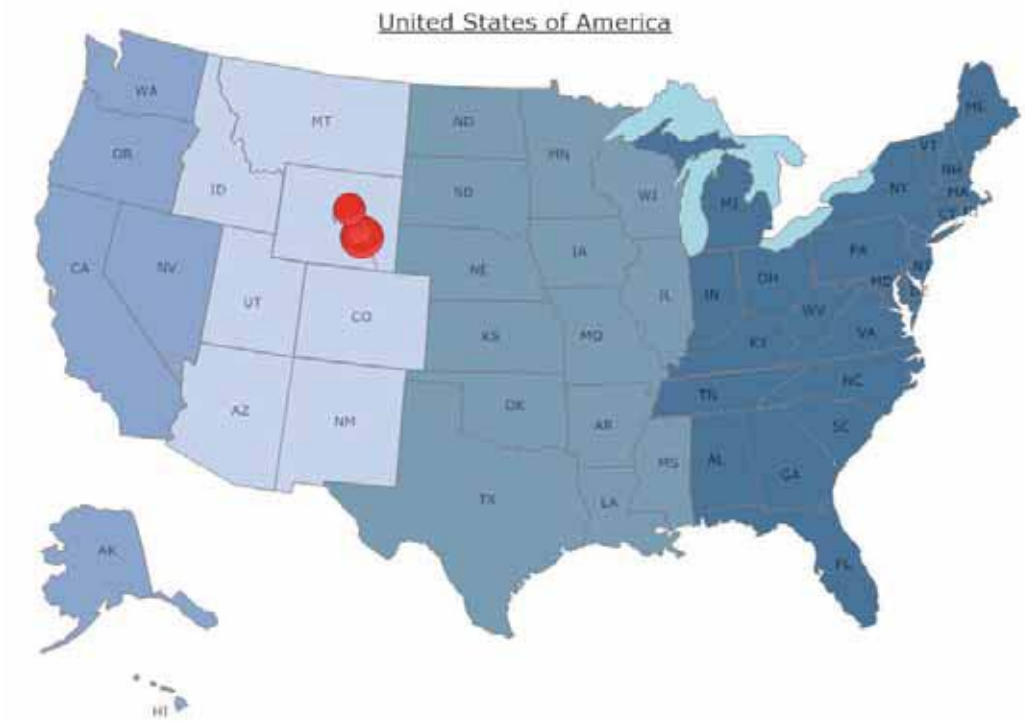
Declaration date: 1976
Surface area: 6.210 ha
Administrative division: Central Plains Experimental Range U.S. Department of Agriculture, Agricultural Research Service

Human activities:

The biosphere reserve has a long history of research on shortgrass prairie ecosystems and the effects of range management practices. Several areas in the biosphere reserve were farmed and grazed for many years and are now embedded in a countryside of intense agriculture.

Ecological characteristics:

This biosphere reserve is situated in the western Central Great Plains in north-central Colorado in the shortgrass prairie. The predominant grass is blue grama (Bouteloua gracilis). Other grasses include sand dropseed (Sporobolus cryptandrus), red threeawn (Aristida longiseta) and buffalo grass (Buchloe dactyloides). Monitoring is carried out on aboveground and belowground plant biomass and livestock weights. There are four instrumented watersheds under



Contact information:

Mary Ashby
Central Plains Experimental Range
58009 Weld County Road 37
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United States of America
Tel.: (1.970) 897 2226
Fax: (1.970) 897 2463
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mmashby@lamar.colostate.edu

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United States of America

Channel Islands

Declaration date: 1976
Surface area: 479.652 ha
Administrative division: California

Human activities:

Fires, farming and livestock grazing, fishing, military activity, and house and road constructions have altered, to some extent, all of the islands and offshore waters within this biosphere reserve. Many dominant plant and animal species have been introduced. Channel Islands National Park and National Marine Sanctuary, which maintain visitor centers and offer research and educational programs, are situated within the reserve; Santa Cruz Island Reserve, a University of California Natural Reserve System site, maintains a field station for university-level teaching, research, and public service.

Protection classifications:

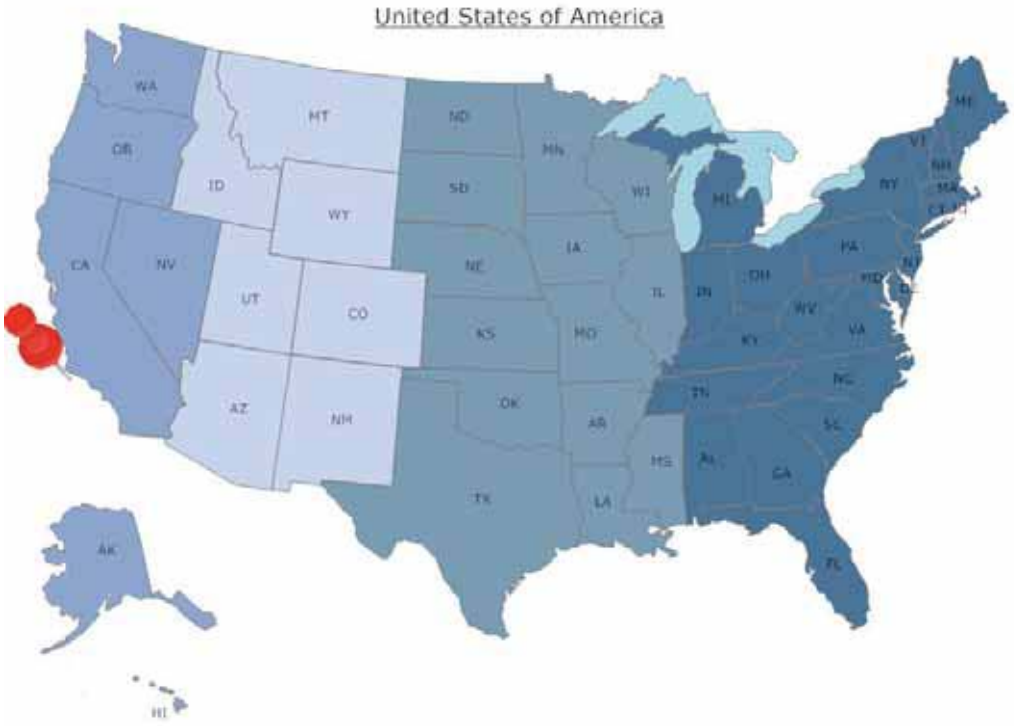
Administrative authorities for this reserve include: the California Department of Fish and Game; the U.S. National Park Service (overseeing Channel Islands National Park); the National Oceanic and Atmospheric Administration (overseeing Channel Islands National Marine Sanctuary).

Ecological characteristics:

Eight islands are encompassed within this biosphere reserve, which offers one of the last examples of natural Mediterranean ecosystems in North America and some of the few remaining natural southern California coastal ecosystems. The area's major terrestrial ecosystem type is evergreen sclerophyllous woodland, with a coastal/marine component. Characteristic features are coastal sage scrub communities on the islands. Marine sanctuary waters include 1,128 square nautical miles from mean high tide to 6 nautical miles offshore San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara Islands. Warm and cool currents support a great variety of flora and fauna, including giant kelp, fish and invertebrates, marine birds, pinnipeds, and cetaceans. The sanctuary's secluded, relatively undisturbed waters also provide full or part-time homes for several endangered species, including blue, humpback, and sei whales, southern sea otters, the California brown pelican, and the California least tern.

Contact information:

Channel Islands National Marine Sanctuary,
113 Harbor Way, Suite 150,
Santa Barbara, California 93109,
United States of America
http://channelislands.noaa.gov/



United States of America

Coram

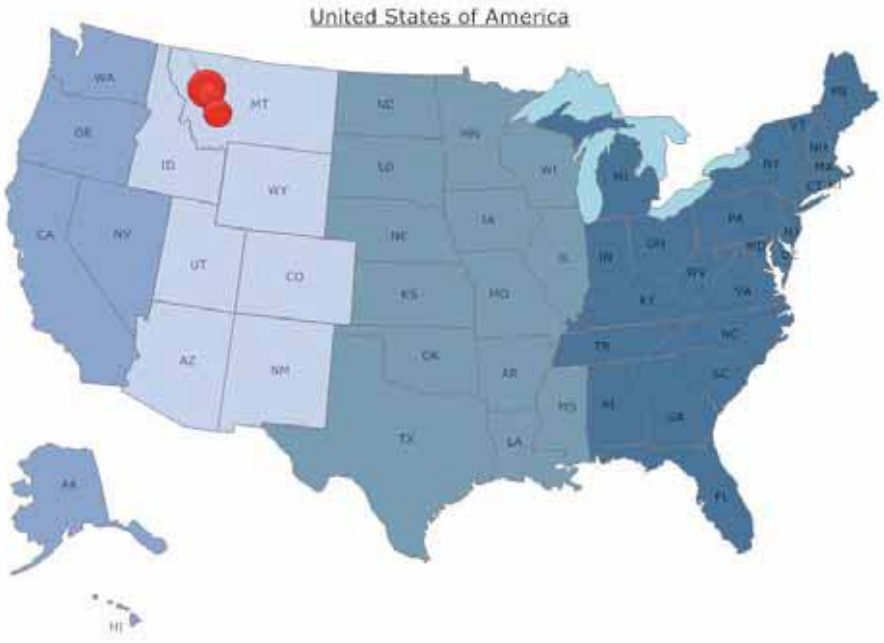
Declaration date: 1976
Surface area: 3.019 ha
Administrative division: Coram Experimental Forest; U.S. Department of Agriculture, Forest Service

Human activities:

Coram is not inhabited and there are no major economic activities carried out in order not to interfere with the long-term research objectives of the area, which has no zonation scheme. There is some harvesting of wild berries, game hunting and some recreational activities such as hiking and cross-country skiing. A curriculum was developed to assist science teachers in local schools to use Coram Experimental Forest as an outdoor classroom. A local high school science class monitors water quality on a major stream originating in the area. University silviculture classes annually visit this area to supplement classroom instruction with examples of 50 years of continuous research.

Ecological characteristics:

The Coram Biosphere Reserve and Experimental Forest is located on the Flathead National Forest near Glacier National Park, 45 km east of Kalispell (Montana). It is an outdoor laboratory, established in 1933 to provide basic information needed to manage western larch (Larix occidentalis) forests. Research results point the way to proper application of silvicultural practices to achieve ecosystem management goals and enhance biodiversity of species. Western larch and Douglas-fir (Pseudotsuga menziesii) are the most common of 10 conifer species. Many trees are over 300 years old with a few larch trees over 500 years old. A 1992 Larix symposium culminated in the establishment of the International Larix Arboretum at Coram Experimental Forest Headquarters. It includes most of the world's Larix species.



Contact information:

Jack A. Schmidt
Rocky Mountain Research Station
800 East Beckwith - P.O. Box 8089
59807 Missoula, Montana
United States of America
Tel.: (1.406) 542 4152
Fax: (1.406) 543 2663

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United States of America

Denali

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Declaration date: 1976
Surface area: 782.000 ha
Administrative division: Alaska

Human activities:

- Resource management activities
- Research, including inventory and monitoring of resources
- Visitor activities (458,307 visitors in 2007): shuttle buses or tour buses traveling on the 148-km park road; back country hiking, camping, or travel by dog team (winter)
- Mountaineering (1218 attempted to climb Mt McKinley in 2008)
- Traditional subsistence activities, e.g., hunting, trapping, gathering firewood (new park and preserve, for those who qualify)
- Concessioner-guided activities
- Sport hunting (preserve only)
- Professional photography (with permit)

Protection classifications:

~1/3 area established as park, wilderness, and wildlife "refuge" in 1917 (as Mount McKinley National Park). Area added in 1980 (as Denali National Park and Preserve).

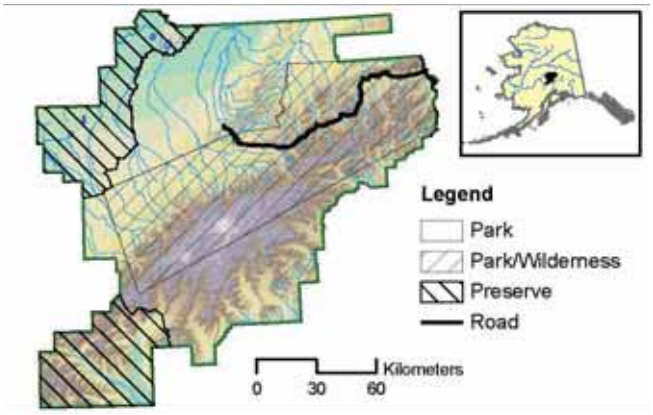
Contact information:

Channel Islands National Marine Sanctuary,
113 Harbor Way, Suite 150,
Santa Barbara, California 93109,
United States of America
http://channelislands.noaa.gov/

Ecological characteristics:

© *Denali BR*

The landscapes and ecosystems of Denali National Park and Preserve are influenced by geological history, earth movements, climate, the advance and retreat of glaciers, permafrost, wildland fire, and water flow. One of the major influences on Denali's ecosystems is the Alaska Range, the massive wall of rock, glacial ice, and snow running from southwest to northeast across the Park's 2.4 million hectares. It towers above and separates the Kuskokwim and Tanana river basins to the north from the Susitna River lowlands to the south. This mountain barrier creates two major climate zones in the Park and dramatic elevation differences. Denali is located within the northern boreal forest biome. The park's ecosystems range from lowlands with taiga forests, braided glacial stream floodplains, and meandering sloughs; to subalpine woodlands, meadows, and scrub tundra (willow, alder, and dwarf birch); to alpine low-shrub tundra slopes and unvegetated steep peaks, including Denali (Mt. McKinley) at 6,194 meters. Nearly one third of Denali is made up of high, glaciated mountains and bare rock outcrops. The upper limit of plant growth is about 2290 meters. Species of vertebrates: 39 mammals, including grizzly (brown) bear, gray wolf, caribou, moose, and Dall's sheep; 168 birds (116 documented breeding); 14 fish; 0 reptiles; and 1 amphibian (wood frog). Species of plants: 754 vascular plants (8 tree species), and approximately 600 species of mosses, lichens, and liverworts.



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United States of America

Desert

Declaration date: 1976
Surface area: 22.513 ha
Administrative division: Desert Experimental Range U.S. Department of Agriculture, Forest Sevice, Rocky Mountain Research Station

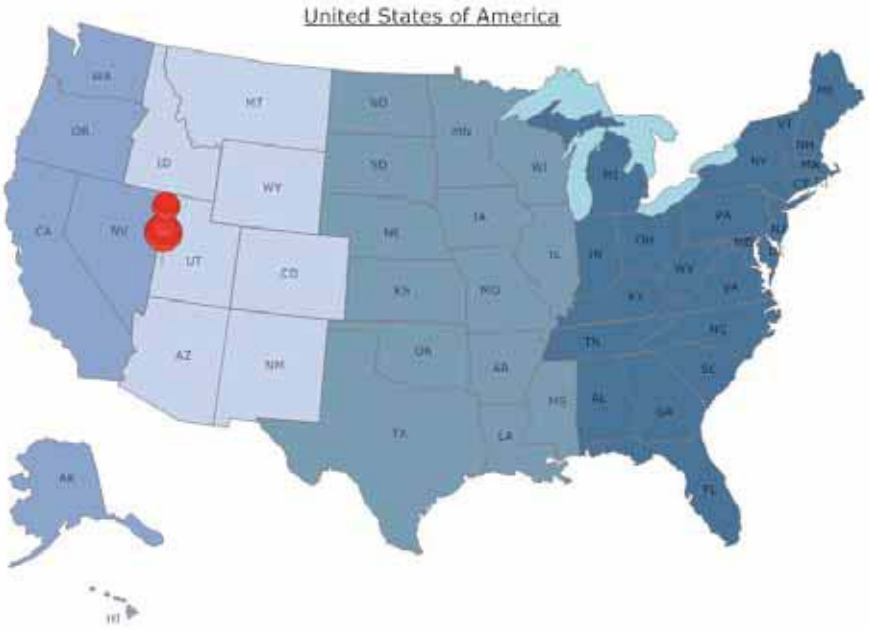
Human activities:

The area is largely undisturbed by man except fences, a limited road system, and controlled livestock grazing. Research that is carried out in this cold desert includes for instance disturbance and successional processes in North American cold desert plant communities, desertification and winter sheep management.

Ecological characteristics:

The Desert Biosphere Reserve and Experimental Range is located in Pine Valley some 70 km west of Milford, Utah. Its geography, flora and fauna represents the Great Basin, an arid and cold desert of the Western United States comprising a series of north- and south-aligned ranges and closed basins. Vegetation is typical of the Great Basin plant communities, particularly salt-desert shrub with e.g. shadscale saltbush (Atriplex confertifolia) and sagebrush (Artemisia spp.). The area has been protected and utilized in experimental grazing programmes for many decades and there are long-term records of range use, vegetal change and climate available.

Shadscale (Atriplex confertifolia) mixed shrub-perennial grass shrublands; black sagebrush (Artemisia nova) shrubland; pinyon - juniper (Pinus monophylla) woodland; pasture land.



Contact information:

E. Durant McArthur
Rocky Mountain Research Station
735 North 500 East
84606 Provo, Utah
United States of America
Tel.: (1.801) 356 5112
Fax: (1.801) 375 6968

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United States of America

Everglades & Dry Tortugas

Declaration date: 1976
Surface area: 636.411 ha
Administrative division: Everglades National Park and Dry Tortugas National Park National Park Service

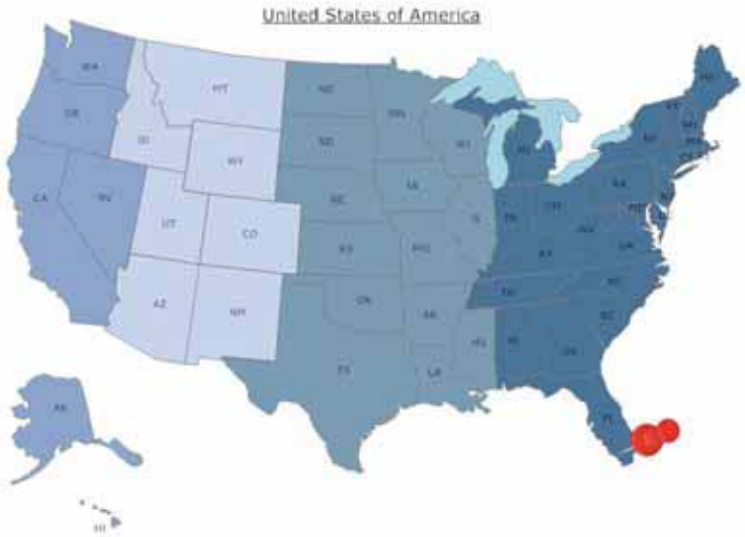
Human activities:

The reserve contains some 200 known archaeological sites, with two archaeological districts nominated in the National Register of Historic Places. Historic use has left a rich record from Native American use, settlement, farming and fishing activities. A Native American group, the Miccosukee Tribe of Florida, has a special use trust area inside the Everglades National park for tribal headquarters, visitor centre, housing and businesses. Some 40 park personnel and 50-100 concession personnel live in residential areas in the park (1990). The area receives more than 84,000 (1990) visitors for snorkelling, swimming, sport fishing and touring the historic sites. The Everglades Regional Collection Centre houses some 50,000 biological and cultural museum artefacts and archives, as well as a library with 10,000 volumes. Fort Jefferson National Monument offers excellent research possibilities on coral reef ecology, subtropical islands, bird migrations, and fisheries (IUCN, 1990).

Ecological characteristics:

The Everglades National Park is a shallow basin tilted to the southwest and underlain by extensive Pleistocene limestones. The reserve also includes Fort Jefferson National Monument, which consists of a group of seven coral reefs called the Dry Tortugas National Park with three major banks (Pulaski, Loggerhead and Long Key) forming a pseudo-atoll with a mud-bank type formation. The biosphere reserve lies at the interface between temperate and subtropical America between fresh and brackish water, shallow bays, deeper coastal waters and coral reefs, thus creating a complex of habitats supporting a high diversity of flora and fauna. The area of transition from freshwater (glades) to saltwater (mangrove) is a highly productive zone that incubates great numbers of economically valuable crustaceans. Southern Florida vegetation is unique in the United States, but similar communities occur throughout the Caribbean and parts of tropical America.

Freshwater and wet prairies characterized by islands of tropical hardwood trees; saltmarshes; mangrove forests; beach and dune complexes; brackish water estuaries; cypress swamps; marine systems; coral reefs.



Contact information:
Richard Ring
Everglades National Park
40001 State Road 9336
33034 Homestead, Florida
United States of America
Tel.: (1.305) 242 7700 - (1.305) 242 7710
Fax: (1.305) 242 7711
E-mail: dick_ring@nps.gov

United States of America

Fraser

Declaration date: 1976
Surface area: 9.328 ha
Administrative division: Fraser Experimental Forest Rocky Mountain Research Station U.S. Department of Agriculture, Forest Service

Human activities:

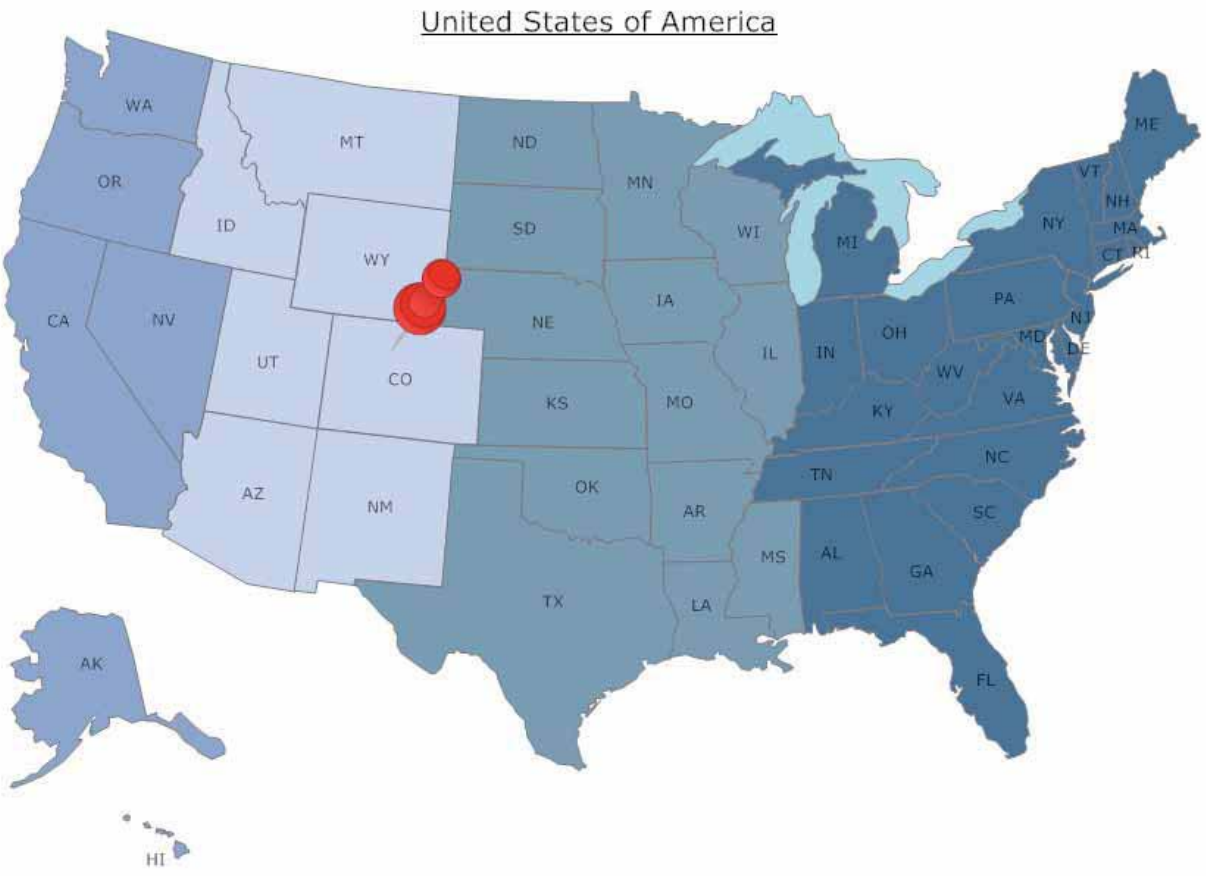
Apart from past logging activities, human impacts in the area stem from cattle and sheep grazing and recreational use.

Contact information:

H. T. Mowrer
Rocky Mountain Research Station
240 West Prospect St.
80526 Fort Collins, Colorado
United States of America
Tel.: (1.970) 498 1255 (station) - (1.970) 498 1010 (office)
Fax: (1.970) 498 1010
E-mail: tmowrer@fs.fed.us

Ecological characteristics:

Fraser Biosphere Reserve and Experimental Forest is situated on the west side of the Continental Divide in north-central Colorado and encompasses the entire watershed of Main St. Louis Creek, a tributary of the Fraser River. The Fraser Experimental Forest was established in 1937 as an outdoor research laboratory to study timber, water, wildlife management, and their integration in the high elevation subalpine coniferous forests. It is one of few sites in the Rocky Mountains that maintains long-term records on hydrology, climate, forest structure and growth, and responses to forest management. Fraser Biosphere Reserve includes subalpine forests and alpine tundra typical of the central Rocky Mountains. In the forested areas below the timberline, Engelmann spruce (Picea engelmannii) and subalpine fir (Abies lasiocarpa) are predominant trees, at higher elevations, on north slopes, and along streams. Lodgepole pine (Pinus contorta var. latifolia) is the predominant tree at lower elevations and on drier upper slopes. The majority of the forest was initiated after a fire in 1685. Pockets of older trees exist in draws and at higher elevations.



United States of America

Glacier

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Declaration date: 1976
Surface area: 410.056 ha
Administrative division: National Park

Human activities:

- Visitor recreation and environmental education
Energy development- coal, gas, and mineral exploration in
- British Columbia, Canada
- Fire management- fire suppression and fuels buildup near developed areas

Protection classifications:

Glacier National Park was established in 1910. Glacier National Park and Waterton Lakes National Park in Canada comprise the Waterton- Glacier International Peace Park, the world's first international peace park established in 1932. Waterton- Glacier International Peace Park was designated as a World Heritage Site in 1995.

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Contact information:

Glacier National Park
P.O. Box 128
West Glacier, Montana, 59936 U.S.A.
Phone: (406) 888-7901
Fax: (406) 888- 7904
Email: glac_questions@nps.gov

Ecological characteristics:

© *Glacier*

Glacier National Park ranges from 985 to 3150 meters in elevation and straddles the continental divide in the North American Rocky Mountains. Habitat variations include grasslands, conifer and deciduous forests, lakes, wide glacial valleys and steep alpine zones. There are approximately 1270 vascular plant species, 272 bird species, 23 fish species, and 63 mammal species. Threatened or endangered species include grizzly bears, Canada lynx, gray wolves, and bull trout. Glacier National Park is surrounded by National Forest Service wilderness areas to the south and west, the Blackfeet Indian Reservation to the east, and Waterton Lakes National Park and Crown Forest Lands to the north in Canada. These lands collectively make up the protected lands in the Crown of the Continent ecosystem. The park sustains great biodiversity and intact land connectivity allowing for species migration. The park is a pristine laboratory for scientific studies of global climate change, snowpack, natural wildfire processes, species migration and population estimates, water and air quality. Research includes ecosystem and species impacts of adjacent human activities such as energy development, resource use, fire management, invasive species control, human population and economic growth. The park has a wealth of baseline data collected over the past 100 years.

United States of America

H.J. Andrews

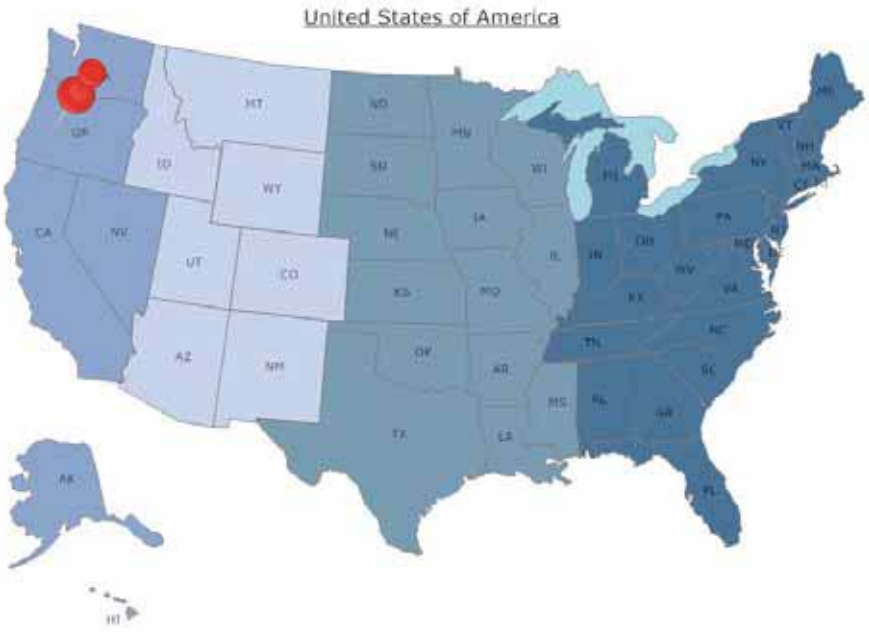
Declaration date: 1976
Surface area: 6.400 ha
Administrative division: H.J. Andrews Experimental Forest, U.S. Department of Agriculture, Forest Service in cooperation with Oregon State University

Human activities:

The biosphere reserve is dedicated to both research and education, receiving a number of scientists and visitors each year. The research programmes have been diverse throughout the history of the H. J. Andrews Forest. Emphasis was given to applied research in silviculture, wildlife, landscape ecology under the Long-term Ecological Research (LTER) programme in the 1980's. Today, the central research question is of high scientific, social and economic interest: How do land use, natural disturbances, and climate change affect three key ecosystem properties (carbon dynamics, biodiversity, and hydrology)?

Ecological characteristics:

H. J. Andrews Biosphere Reserve and Experimental Forest is located in the western Cascade Range (Oregon) in the drainage basin of Lookout Creek, a tributary of the Blue River and the McKenzie River. Forests in this region are among the tallest and most productive in the world. Lower elevation forests are dominated by Douglas-fir (Pseudotsuga menziesii), western hemlock (Tsuga heterophylla), and western redcedar (Thuja plicata). As elevation increases, Douglas-fir and western red cedar decline in importance and western hemlock is gradually replaced by Pacific silver fir (Abies amabilis). Non-forest habitats include wet and dry meadows, rock cliffs, and talus slopes. H. J.Andrews Forest supports a rich biological diversity for a north temperate ecosystem including many plant and animal species associated with old-growth forests of the Pacific Northwest (e.g. northern spotted owl, Strix occidentalis).



Contact information:

Arthur McKee
H.J. Andrews Experimental Forest, P.O. Box 300
97413 Blue River, Oregon, United States of America
Tel.: (1.541) 822 6300 (field station) - (1.541) 750 7350 (campus)
Fax: (1.541) 822 6329 (field station) - (1.541) 750 7329 (campus)
E-mail: mckee@fsl.orst.edumckee@fsl.orst.edu
Web site: www.fsl.orst.edu/lter

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Hubbard Brook

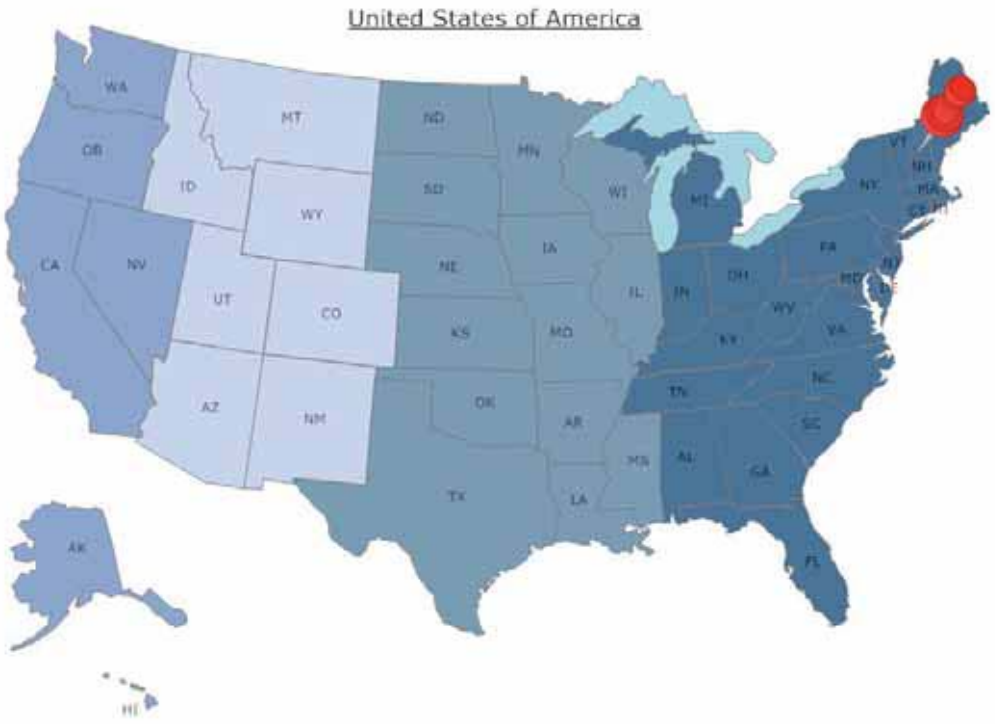
Declaration date: 1976
Surface area: 3.160 ha
Administrative division: Hubbard Brook Experimental Forest U.S. Department of Agriculture, Forest Service

Human activities:

In 1988, the area was designated as a Long-Term Ecological Research (LTER) site by the National Science Foundation. On-going cooperative efforts among diverse educational institutions, private institutions, government agencies, foundations and corporations have resulted in one of the most extensive and longest continuous databases on the hydrology, biology, geology and chemistry of natural ecosystems.

Ecological characteristics:

The Hubbard Brook Biosphere Reserve and Experimental Forest is located in the White Mountain National Forest near Woodstock (New Hampshire). The biosphere reserve is mainly dedicated to the long-term study of forest and associated aquatic ecosystems. The biosphere reserve is entirely forested, mainly with deciduous northern hardwoods. Logging operations ending around 1915-1917 removed large portions of the conifers and better quality, accessible hardwoods. The present second-growth forest is even-aged and composed of about 80 to 90% hardwoods and 10 to 20% conifers. Trees on the lower and middle slopes include sugar maple (Acer saccharum), beech (Fagus grandifolia), and yellow birch (Betula alleghaniensis), and some white ash (Fraxinus americana). Red spruce (Picea rubens), balsam fir (Abies balsamea), and white birch (Betula papyrifera var. cordifolia) are abundant at higher elevations and on rock outcrops.



Contact information:

Amey Bailey, Hubbard Brook Experimental Forest
234 Mirror Lake Road
NH 03223 Campton, United States of America
Tel.: (1.603) 726 8902, Fax: (1.603) 868 4851
Web site: http://www.hubbardbrook.org/

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United States of America

Jornada

Declaration date: 1976
Surface area: 78.297 ha
Administrative division: Jornada Experimental Range U.S. Department of Agriculture, Agricultural Research Service

Human activities:

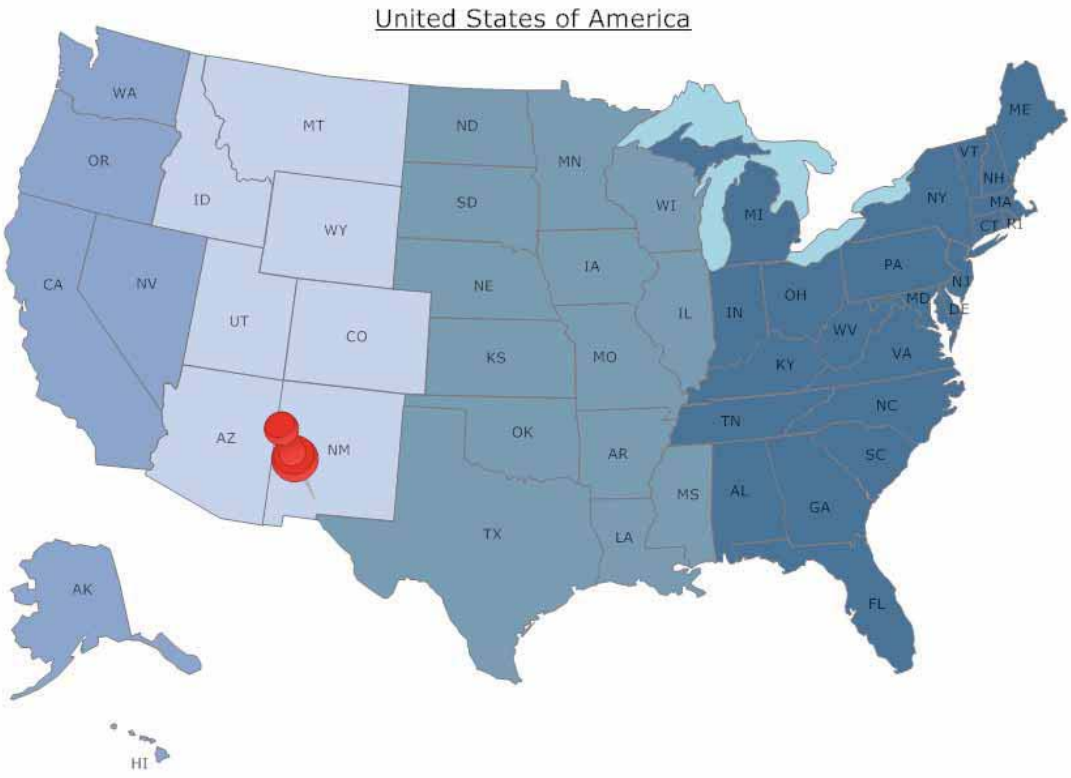
Jornada Biosphere Reserve, while in a rural area, is becoming more and more influenced by the urban economies of Las Cruces (New Mexico) and El Paso (Texas). It focuses on long-term experimental research directed toward range management and maintenance of healthy desert ecosystems.

Contact information:

Kris Havstad, New Mexico State University
P.O. Box 30003 - MSC 3JER, 88003-0003 Las Cruces
New Mexico, United States of America
Tel.: (1.505) 646 4842, Fax: (1.505) 646 5889
E-mail: khavstad@nmsu.edu,
Web site: usda-ars.nmsu.edu/

Ecological characteristics:

Jornada Biosphere Reserve is one of three biosphere reserves representing the Chihuahuan Desert (among Big Bend Biosphere Reserve in western Texas and Mapimí Biosphere Reserve in Mexico). The area extends from the crest of the San Andres Mountains, which are dominated by shrub woodlands, to the Jornada Plains characterized by semi-desert grasslands. All three biosphere reserves in the Chihuahuan Desert are located in areas traditionally dominated by a livestock raising economy. Today, they face a variety of resource management issues relating to the sustainable development in desert ecosystems. Problems are associated with grazing of livestock, air pollution, and water quality, poaching of plants and animals, and loss of habitats. In nominating three biosphere reserves in the Chihuahuan Desert it was expected that cooperation would develop the knowledge and skills needed to manage the ecosystems of the Chihuahuan Desert for conservation and sustainable economic uses. Today, mainly research and environmental education projects characterize this cooperation.



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United States of America

Luquillo

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Declaration date: 1976
Surface area: 11.400 ha
Administrative division: Luquillo Mountains, Northeast, Puerto Rico

Human activities:

Forest management activities
Tourism and recreation
Harvesting of water
Research and environmental education
Communication towers

Tabonuco Tree
Photos by: Jerry Bauer

Protection classifications:

Experimental Forest
National Forest
Wilderness Areas
Wild and Scenic Rivers
Wildlife Refuge

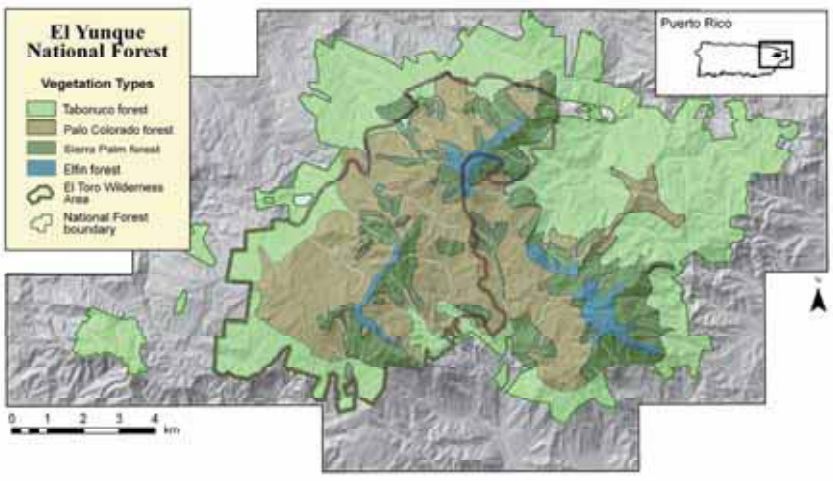
Juan Diego Stream,
Sierra de Luquillo
Photos by: Jerry Bauer

Contact information:

US Forest Service,
International Institute of Tropical Forestry
Jardín Botánico Sur, 1201 Calle Ceiba
San Juan, Puerto Rico 00926-1115
Tel: 787-766-5335
Fax: 787-766-6263
E-mail: alugo@fs.fed.us

Ecological characteristics:

- Climatic gradients, varied soils and topography, contrasting wind exposure, and recurrent natural disturbances result in a mosaic of ecosystems.
- Forests are taller in the lowlands and decrease in height with elevation. There is a transformation in the functioning of ecosystems at the cloud condensation level as forests above this level become "cloud forests" or forested wetlands responding to cloud water and cloud nutrient inputs that transform their soils and soil biota. Examples are the elfin forests, colorado forests, palm forests, and the locally threatened Pterocarpus forests.
- Hurricanes open forest canopies and stimulate the growth of pioneer tree species such as Cecropia, which rapidly fill the holes in the canopy. The age of trees reflects different stages of succession. The oldest trees range in age between 600 and 1,000 years, and these are the ones that have escaped the frequent hurricanes and human disturbances. Most mature forest trees range in age from 100 to 400 years old. The younger forests that emerged after the abandonment of past human activity in the lowlands or after recent disturbances are less than 100 yr-old.
- The Biosphere Reserve also harbors aquatic ecosystems such as the pools and rapids of its streams, six major river systems, herbaceous wetlands including those on the rock faces of waterfalls, and micro ecosystems in decomposing logs and tanks of bromeliads.
- Given the environmental milieu, the overall biodiversity includes: 225 tree species, 16 amphibian species, 18 reptile species, 16 mammal species, about 150 resident and migratory bird species, and over 350 mushroom species. The number of species in groups of organisms such as micro fungi, bacteria, nematodes, arthropods, and other soil groups are unknown but well exceed the number of tree species. The biodiversity includes 98 rare and endangered plant species and 23 endemic plant species.



United States of America

Noatak

Declaration date: 1976
Surface area: 3.035.200 ha
Administrative division:

Human activities:

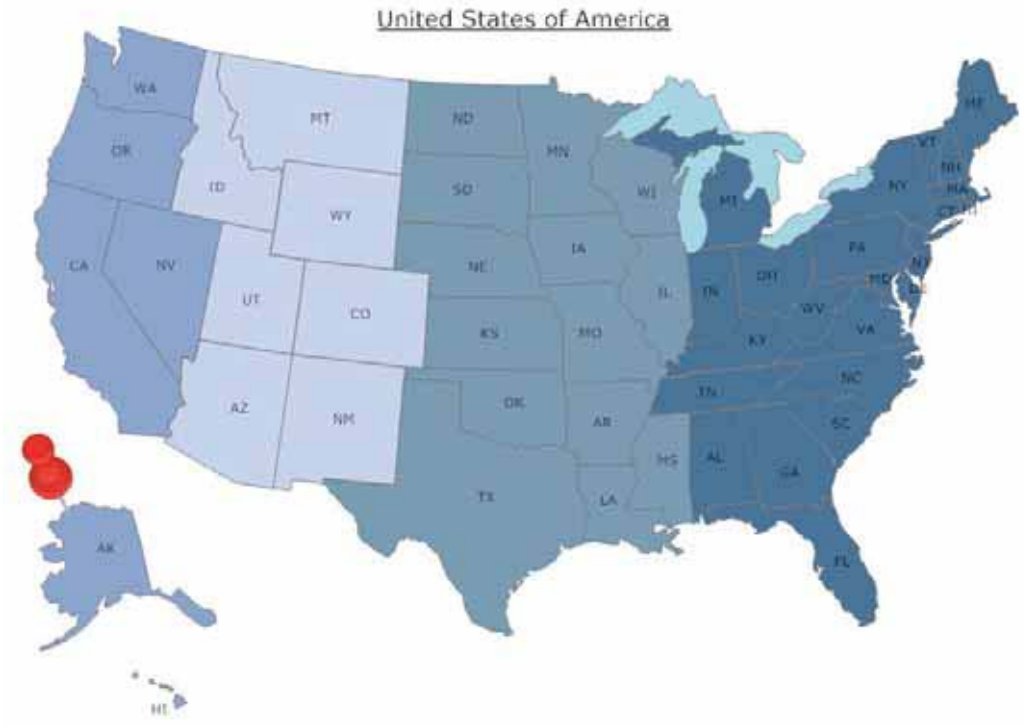
Human population of the region is predominantly Inupiat Eskimos who are living mainly in the community of Kotzebue. The economic life in the region continues to be dominated by subsistence use of resources, however commercial fisheries as well as tourism bring income to the residents. The area is considered to have been the gate for human settlement of North America. Its archaeological resources are of great scientific interest.

Contact information:

Bob Gerhard
National Park Service
Box 1029
99752 Kotzebue, Alaska
United States of America
Tel.: (1.907) 442 3890
Fax: (1.907) 442 3482

Ecological characteristics:

Noatak Biosphere Reserve is located in northwestern Alaska in the Arctic Range. Noatak preserve was established in order to maintain the environmental integrity of the Noatak River and adjacent uplands, to protect wildlife habitats and populations and to protect archaeological resources for scientific research. Vegetation within the biosphere reserve is predominated by low mat tundra with boreal forest cover in the lower Noatak drainage and alpine tundra communities at higher elevations (willow, heather and combinations of grasses, sedges, wildglowers and mosses). Moist tundra community occurs along the foothills of the Noatak Valley (cottongrass, willow, dwarf birch, labrador tea, Lapland rosebay, mountain alder and avens). A spruce forest community (white spruce, paper birch, aspen, poplar and black spruce) is represented sporadically throughout the area. Wildlife is the primary natural resource of the preserve and include caribou, moose, Dall sheep, grizzly bear, wolf, fox, lynx, marten, beaver and muskrat. The Noatak River is considered key in the subsistence and commercial fisheries harvest for north-west Alaska. The most common fish found in the Noatak River and its tributaries are Arctic grayling (Thymallus arcticus) and Arctic char (Salvelinus alpinus).



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Olympic

Declaration date: 1976
Surface area: 373.396 ha
Administrative division: Olympic National Park National Park Service

Human activities:

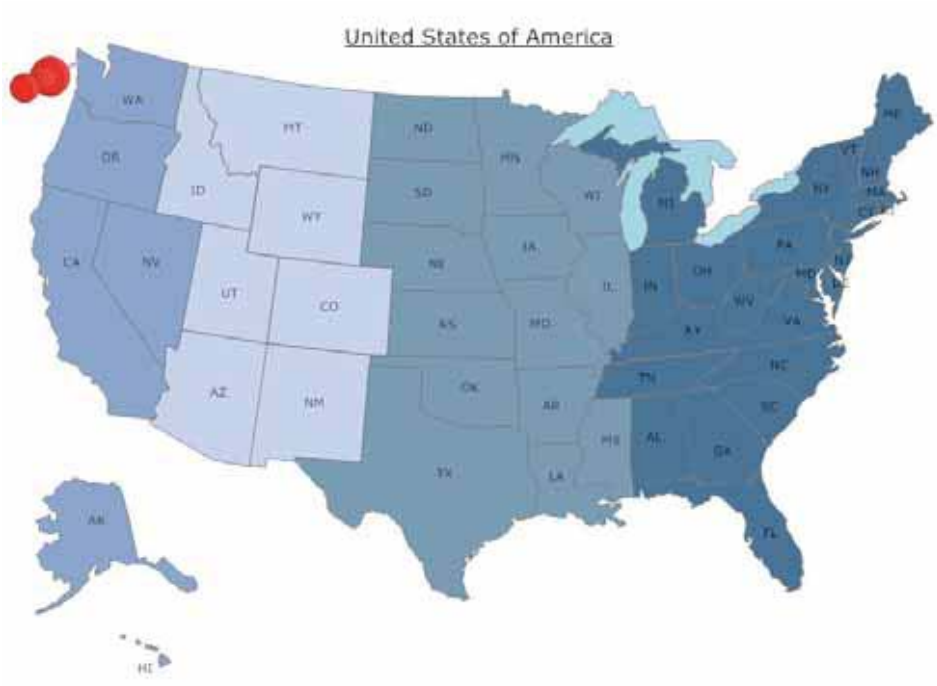
Over 2.5 million tourists annually visit the area (1986). The Olympic Mountains are the traditional homeland of many Native American groups who have benefited from the rich natural resources of the forests and rivers.

Contact information:

David Morris
Olympic National Park
600 East Park Avenue
98362-6798 Port Angeles, Washington
United States of America
Tel.: (1.360) 452 4501
Fax: (1.360) 452 0335
E-mail: david_morris@nps.gov
Web site: www.nps.gov/olym/

Ecological characteristics:

Situated on the Olympic Peninsula on the north-west coast of Washington State, Olympic Biosphere Reserve and National Park is known for its ecosystem diversity. Glacier-clad peaks interspersed with extensive alpine meadows are surrounded by an extensive old growth forest, among which is the best example of intact and protected temperate rainforest in the Pacific Northwest. Characteristic trees are Sitka spruce (Picea sitchensis), western hemlock (Tsuga heterophylla) and western red cedar (Thuja plicata). Eleven major river systems drain the Olympic Mountains, offering some of the best habitats for anadromous fish species in the country. The area also includes 100 km of wilderness coastline, the longest undeveloped coast in the United States, and is rich in native and endemic animal and plant species, including critical populations of the endangered northern spotted owl (Strix occidentalis) and marbled murrelet (Brachyramphus marmoratus). The large coastal subspecies of Roosevelt elk (Cervus elaphus roosevelti) was first described in the Olympic Mountains and its protection was an important reason for establishing the national park in 1938. The area is also designated as World Heritage site. No timber logging is permitted in the national park, however there is some illegal felling, rapidly increasing around the boundaries. Introduced mountain goats (Oreamnos americanus) have had an impact on high elevation communities.



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United States of America

Organ Pipe Cactus

© *Organ Pipe Cactus BR*

Declaration date: 1976
Surface area: 133.827 ha
Administrative division: Arizona

Human activities:

Prehistoric hunting, gathering, and farming
Historic ranching and mining
Natural and cultural resource management
Scientific research
Education
Outdoor recreation
Human and contraband trafficking
International border security

Protection classifications:

1937 Presidential Proclamation establishes the National Monument and rights for native people to continue to harvest the fruits of the organ pipe cactus and other cacti.
1978 Public Law establishes Wilderness in the National Monument.

© *Organ Pipe Cactus BR*

Ecological characteristics:

The dominant biome is Sonoran Desert. There are some patches of relict temperate woodland in mountains and an oasis at Quitobaquito. Landscapes are dominated by mountains, bajadas, and valleys. There are many ephemeral washes and no perennial rivers. Floodplains support mesquite bosques and saltbush communities. Elevations range from 296 to 1465 m, average annual rainfall ranges from 161 to 354 mm, and average annual temperatures range from 20.2 to 22.9 °C across the monument. Rainfall is bimodal in distribution with approximate half falling in the summer and half in the winter. Plant species include creosotebush, white bursage, ironwood, foothills paloverde, elephant tree, Mexican jumping bean, organ pipe cactus, senita, and saguaro. Animal species include the Mexican leaf-cutting ant, giant hairy scorpion, desert tortoise, western whiptail, western coachwhip, Gambel's quail, red-tail hawk, desert pocket mouse, white-throated woodrat, kit fox, and coyote. Endangered species include the Quitobaquito pupfish, lesser long-nosed bat, and Sonoran pronghorn.

Contact information:

http://www.nps.gov/orpi

United States of America

Rocky Mountain

Declaration date: 1976
Surface area: 106.710 ha
Administrative division: Rocky Mountain National Park
National Park Service

Human activities:

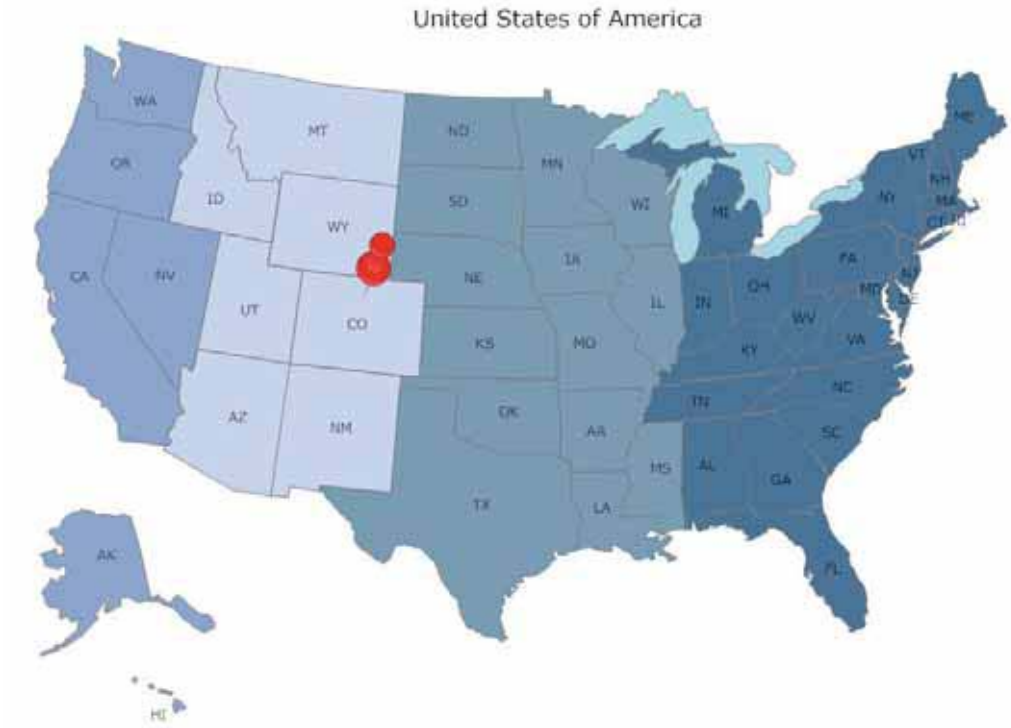
Outside of developed areas and roadways, the impact of humans has been minimal. Many exotic plant and sport fish species have been introduced in the area. There are over 2.5 million visitors mostly using only the developed areas and about 36,000 camper days were recorded in the back-country in 1986.

Contact information:

A. Durand Jones, Rocky Mountain National Park
80517 Estes Park, Colorado, United States of America
Tel.: (1.970) 586 1200, Fax: (1.970) 586 1397
E-mail: randy_jones@nps.gov
Web site: www.nps.gov/romo/

Ecological characteristics:

Located on the Front Range of the Rocky Mountains along the Continental Divide, 100 km north-west of Denver (Colorado), this biosphere reserve and national park is managed for nature conservation, environmental education and public recreation purposes. Three vegetation zones are represented within the altitude range from 2,328 to 4,345 meters above sea level. The upper montane forest is characterized by ponderosa pine (Pinus ponderosa) shrublands, meadows and grasslands; the subalpine forest zone comprises mainly Engelmann spruce (Picea engelmannii) and fir (Abies lasiocarpa); and the alpine tundra includes open stands of grasses, sedges and dwarf flowering plants and willows. Early meat and sport hunting drastically reduced large ungulate populations in the area. Wapiti (Cervus elaphus) was reintroduced in 1913-14 and have increased to a winter herd of about 1,500. Mule deer (Odocoileus hemionus) is now common and about 350 bighorn sheep (Ovis canadensis) utilize the high-elevation ranges. Some species, however, such as Grizzly bear (Ursus arctos), pronghorn (Antilocapra americana) and bison (Bison bison) never recovered.



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United States of America

San Dimas

Declaration date: 1976
Surface area: 6.945 ha
Administrative division: San Dimas Experimental Forest USDA, Forest Service

Human activities:

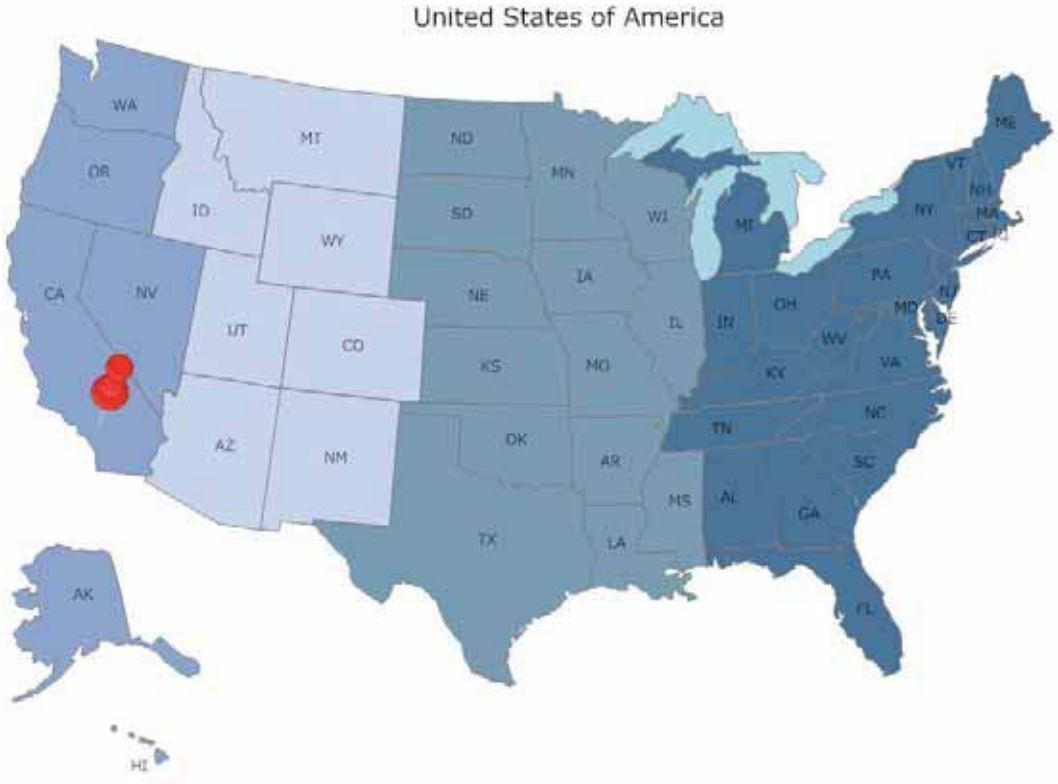
The forest is currently closed for the general public, except under special written permit. No hunting or other recreational activities are currently allowed.

Contact information:

Peter Wohlgemuth, San Dimas Experimental Forest
4955 Canyon Crest Drive, 92507 Riverside, California
United States of America
Tel.: (1.909) 680 1538, Fax: (1.909) 680 1501
E-mail : pwohlgemuth@fs.fed.us

Ecological characteristics:

The San Dimas Biosphere Reserve and Experimental Forest is located in southern California, in a chaparral-dominated Mediterranean ecosystem. In addition to the chaparral vegetation (with e.g. Adenostoma fasciculatum), riparian woodland, sage-buckwheat and barren areas, oak woodland and open yellow pine woodlands are represented. San Dimas constitutes a protected field laboratory jointly managed by the Angeles National Forest and Pacific Southwest Research Station. Studies have provided valuable information on air pollution, fire effects, erosion, hydrology, and plants and animals in southern California watersheds. The area also provides opportunities for ecological research to many nearby colleges, universities and governmental agencies.



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United States of America

San Joaquin

Declaration date: 1976
Surface area: 12.038 ha
Administrative division:
San Joaquin Experimental Range USDA, Forest Service

Human activities:

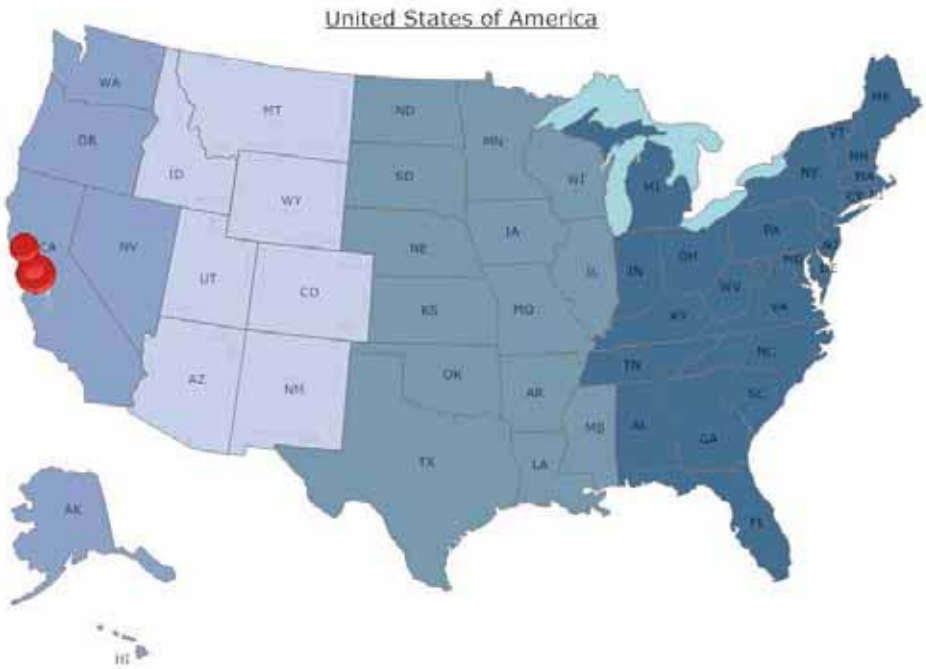
In 1934, the U.S. Forest Service established this experimental range to investigate resource and animal husbandry problems associated with maintaining a commercial cattle herd on a year-round basis on the foothill rangelands. Today, long-term records on livestock gains and herbage yield and utilization are available. Parts of the range have served as a Research Natural Area, protected from fire and ungrazed by domestic livestock since 1934. Remaining portions of the range have been grazed by various classes of livestock during different seasons. Some range units have been modified through the application of fertilizers. Prescribed burning has been used in some units for forage improvement.
A cowherd and facilities at the experimental range also provide opportunities for students to gain practical experience in the commercial cattle industry.

Ecological characteristics:

Situated on the western slopes of the central Sierra Nevada mountains, this biosphere reserve represents the California steppe and California woodlands with blue oak (*Quercus douglasii*), interior live oak (*Q. wislizenii*) and digger pine (*Pinus sabiniana*).

Contact information:
University Agricultural Laboratory (UAL)
2385 East Barstow Avenue M/S AG85
CA 93740-8004 Fresno, California
United States of America

Tel (1.559) 278 2011 fax (1.559) 278 6998
Email gsrinivasan@csufresno.edu
Web:



United States of America

Sequoia-Kings Canyon

Declaration date: 1976
Surface area: 349.543 ha
Administrative division: Sequoia and Kings Canyon National Parks National Park Service

Human activities:

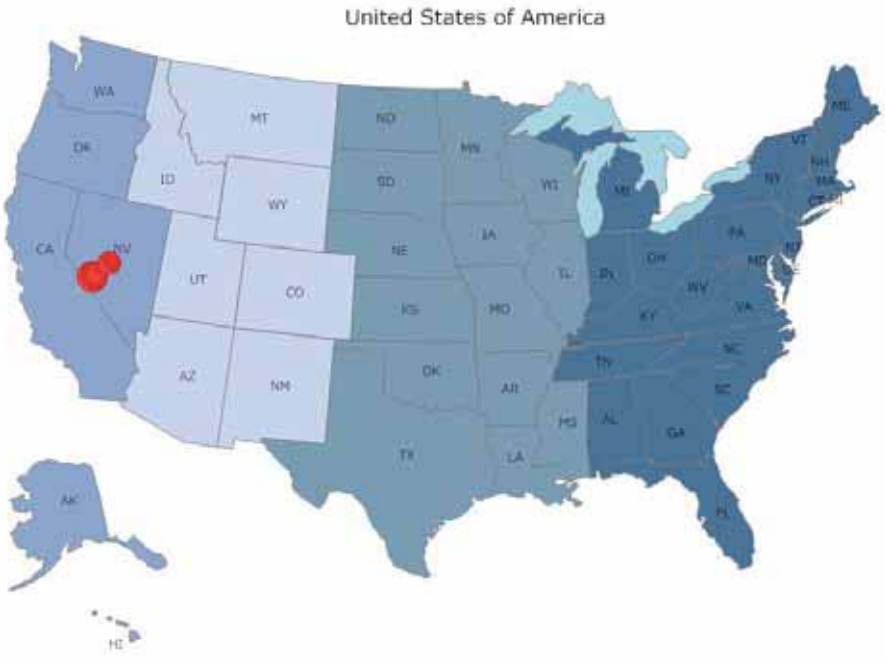
In addition to their natural diversity, the parks also host a unique cultural and historical record. Archeological sites date back at least five thousand years, indicating the presence of Native American peoples throughout the Sierra Nevada.

Contact information:

Michael Tollefson
Sequoia and Kings Canyon National Parks
47050 Generals Way
93721 Three Rivers, California
United States of America
Tel.: (1.559) 565 3101- (1.559) 565 3120
Fax: (1.559) 565 3730
E-mail: SEKI_Superintendent@nps.gov
Web site: www.nps.gov/seki/

Ecological characteristics:

Situated in the southern Sierra Nevada (California), this biosphere reserve comprises Sequoia and Kings Canyon National Parks. From west to east, the two adjacent parks extend from the foothills of the San Joaquin Valley to the crest of the Sierra Nevada and contain the highest parts of that range. Pleistocene glaciers left an abrupt topography of granite carved canyons and domes and hundreds of glacial lakes. The most notable vegetation is forests of giant sequoia (Sequoiadendron giganteum). Oak woodland (Quercus douglasii, Q. wislizenii) and chaparral with Adenostoma fasciculatum, Arctostaphylos viscida characterize the lower elevations. Mixed conifer forest with Colorado white fir (Abies concolor), red fir (A. magnifica), western yellow pine (Pinus ponderosa), sugar pine (P. lambertiana) and lodgepole pine (P. contorta) forests and montane meadows occupy the middle elevations. Subalpine forests with foxtail pine (P. balfouriana, P. albicaulis) and meadows, krummholz, and alpine ecosystems typify the higher elevations. Past herding of sheep (1850-1900) and cattle (1850-1940) has resulted in significant changes in the species composition and extent of upland and foothill vegetation. Fire suppression during the 20th century has interrupted successional patterns. Air pollution from outside the biosphere reserve affects several prominent tree species. Recreational impact is locally acute. Sequoia National Park contains a number of visitor centers, campsites and supply facilities.



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United States of America

Stanislaus-Tuolumne

Declaration date: 1976
Surface area: 607 ha
Administrative division: Stanislaus-Tuolumne Experimental Forest USDA, Forest Service

Human activities:

The site is significant for its long history of timber management research. Dominating trees in the area are ponderosa pine (*Pinus ponderosa)* and sugar pine (*P. lambertina*). Early research included studies on reproduction, planting, pruning, slash disposal and lumber recovery. More recent studies have involved climate, insects, mistletoe, harvest cuttings, site preparation, herbicides and roots. Trees in one tract have been inventoried by stand-conditions classes within one hectare divisions, providing an excellent data base. Several plantations, areas of natural young-growth, and large blocks of diverse species and age classes which are virtually uncut, provide great potential for silvicultural and ecological research in a complex forest system.

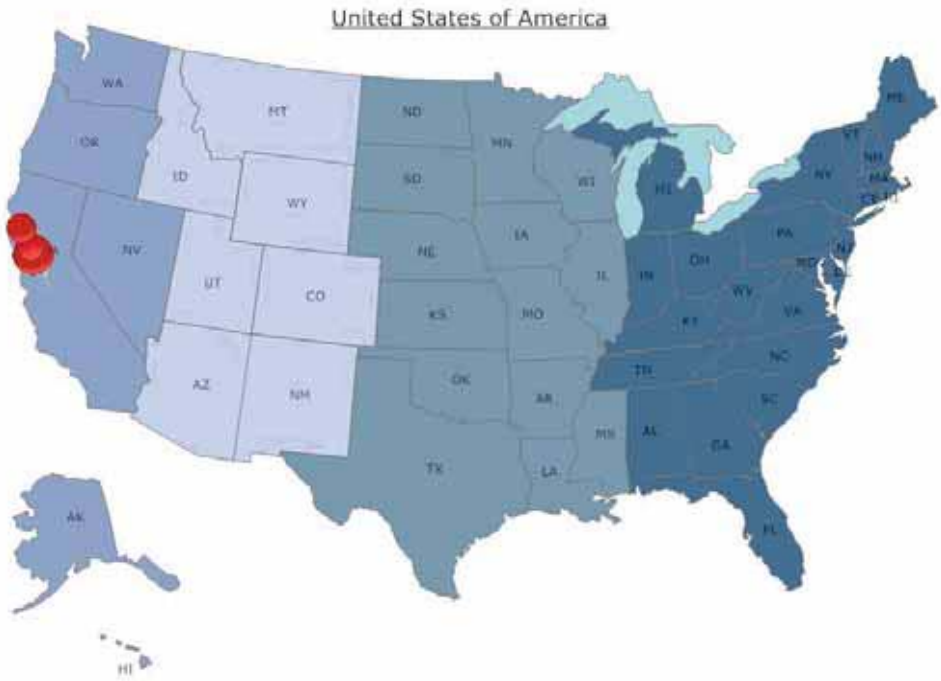
Ecological characteristics:

This biosphere reserve and experimental forest is situated on the western slopes of the central Sierra Nevada Mountains (California) about 15 km north-west of the Yosemite National Park. The area consists of two tracts on the South Fork of the Stanislaus River and on the lower slopes of Dodge Ridge.

Contact information:

Stanislaus National Forest 1
9777 Greenley Road
95370 Sonora, California
United States of America

Tel (1.209) 532 3671 ext. 313 fax (1.209) 533 1890
Email **dpotter@fs.fed.us**
Web: **www.r5.fs.fed.us/stanislaus**



United States of America

Three Sisters

Declaration date: 1976
Surface area: 80.900 ha
Administrative division: Three Sisters Wilderness USDA, Forest Service

Human activities:

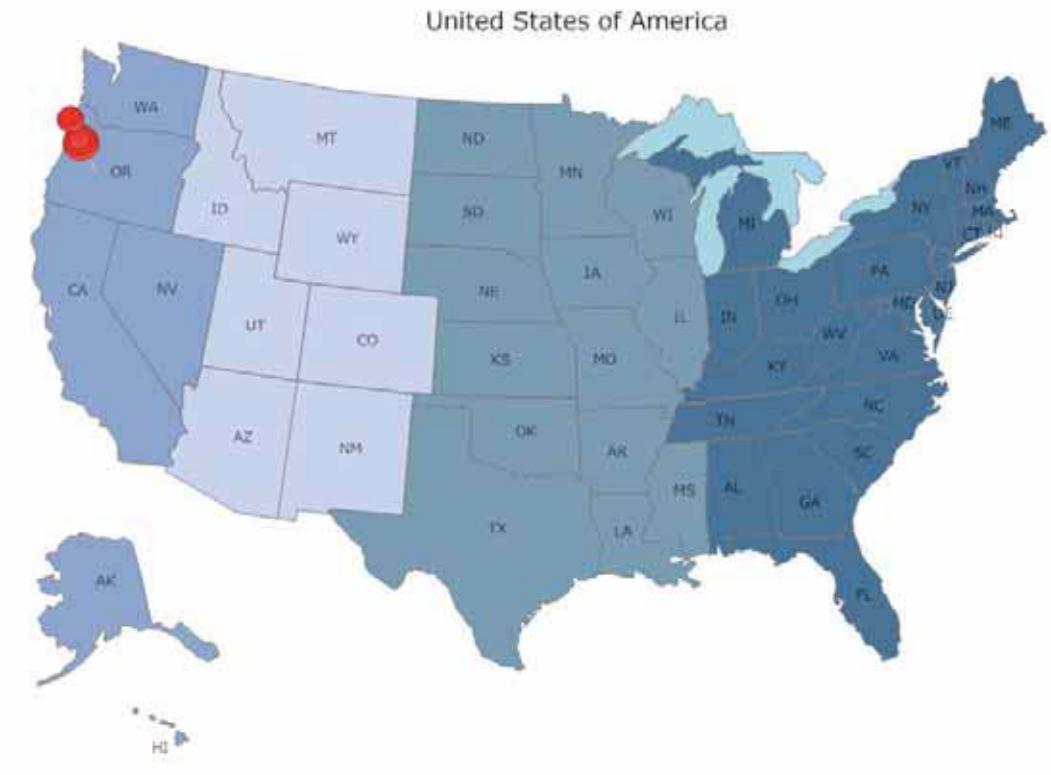
There is no permanent human settlement in the biosphere reserve. Recreational use is moderate though some hunting and fishing occurs.

Contact information:

Ruby Seitz
McKenzie Ranger District
57600 McKenzie Highway
97413 McKenzie Bridge, Oregon
United States of America
Tel.: (1.541) 822 7256
Fax: (1.541) 822 7254
E-mail: ruseitz@fs.fed.us
Web site: www.fs.fed.us/r6/centraloregon/

Ecological characteristics:

The Three Sisters Biosphere Reserve represents the essentially undisturbed landscape straddling the crest of the central Cascade Range (Oregon). The name refers to the three volcanoes that dominate the area and exemplify how glaciers and time can change the volcano landscape. The biosphere reserve comprises permanent snowfields and glaciers, and numerous streams and small rivers. Coniferous forests dominate the area. The western slopes (below 1,200 meters above sea level) are dominated by douglas fir (Pseudotsuga menziesii) and western hemlock (Tsuga heterophylla). The subalpine forests are dominated by lodgepole pine (Pinus contorta), P. albicaulis and alpine fir (Abies lasiocarpa). Extensive parkland with a mosaic of forest patches and subalpine meadow communities extends from 1,500 - 2,000 meters above sea level. Except intensive studies on geology, little research has been carried out in the biosphere reserve. However, the forests on western part are comparable with those of H. J. Andrews Experimental Forest and Biosphere Reserve, thus serving as a large control area for research.



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United States of America

Virgin Islands

© *Virgin Islands BR*

Declaration date: 1976
Surface area: 6.130 ha
Administrative division: Unincorporated Territory of the U.S.

Human activities:

Participative rehabilitation program of land, control of exotic plants / animals; collaborative long-term terrestrial and marine monitoring. Ecotourism management: Interpreter / guiding, visitor safety, cleanup / restoration campaign. Concessions operations; one- million annual visitors. Environmental education.

Protection classifications:

At national level the area was designated a National Park in 1956, the marine component was added in 1962, and Biosphere Reserve designation by UNESCO MAB in 1976.

© *Virgin Islands BR*

Ecological characteristics:

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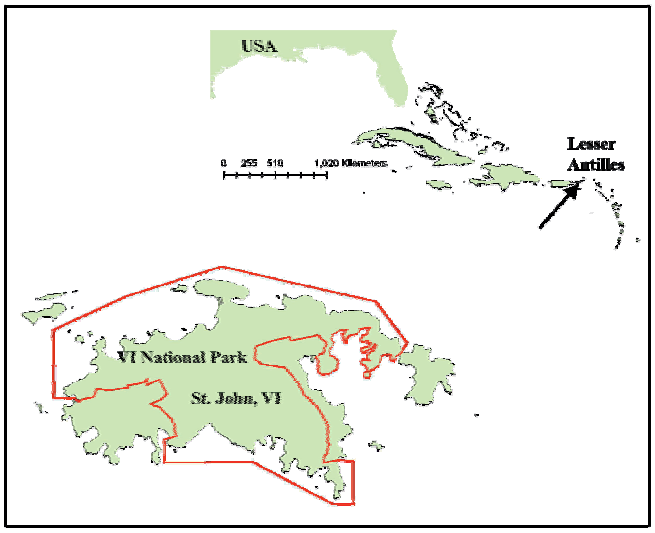
The park is representative of the Lesser Antillean biogeographic province of tropical Atlantic terrestrial, coastal and marine ecosystems, including various types of subtropical dry to moist forest, salt ponds, beaches, mangroves, seagrass beds, fringing coral reefs and algal plains. These natural resources provide a relatively undisturbed example of tropical ecosystems where the processes of nature can be observed, studied and used as a basis for comparison to similar ecosystems elsewhere that are undergoing rapid development and alteration. Native fauna include five whale and several porpoise species that migrate through the park, three sea turtle species, about 15 terrestrial herptofauna, 170 bird species, six bat species, and over 1500 beetle species. Over 800 plant species occur. Almost 500 marine fish species and 40 coral species occur along with 10,000+ marine invertebrates. Introduced species including 13 mammal and several plant species, insects, fishes and bacteria pose increasing management problems. Microbes associated with dust may be transported here in the upper atmosphere from Saharan Africa and cause disease to coral reefs. Representative examples of Pre-Columbian Taino habitation and Plantation era historic structures (500+) occur throughout the park.



Contact information:

US Department of the Interior Secretary Dirk Kempthorn, Washington, D.C.
Mark Hardgrove, Superintendent, 1300 Cruz Bay Creek, St John, U.S. Virgin Islands 00830
Tel: 340-776-6201 ext. 242
Email: mark_hardgrove@nps.gov

United States of America

Yellowstone

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Declaration date: 1976
Surface area: 898.349 ha
Administrative division: Department of the Interior, National Park Service. The Park occupies the northwest corner of the State of Wyoming and adjacent areas of the States of Montana and Idaho.

Human activities:

In 2007, Yellowstone National Park received 3,144,405 visitors. Activities range from visitor recreation to research to road maintenance and wildlife management.

© *Yellowstone BR*

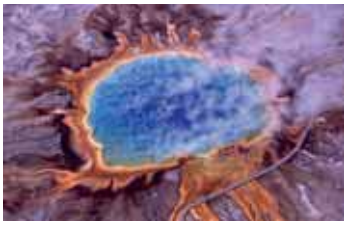
Protection classifications:

Designated the world's first national park on March 1, 1872. Designated a World Heritage Site on September 8, 1978. Numerous sites and structures within the park are listed on the National Register of Historic Places and/or are classified as National Historic Landmarks. Additional protection is provided under several other congressional acts pertaining to specific resources.

Contact information:

Yellowstone National Park
PO Box 168
Yellowstone NP, WY 82190-0168
USA
001-(307)-344-2013
Yell_Public_Affairs@nps.gov
www.nps.gov/yell

Ecological characteristics:



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Yellowstone contains approximately half of the world's hydrothermal features—more than 10,000—including the world's largest concentration of geysers—more than 300. Elevation in the park ranges from 1,710m to 3,463m. Five percent (5%) of the park is covered by water, 15% grassland and 80% forest—principally (80%) lodgepole pine. Yellowstone is the source of two major North American rivers: the Snake River and two of the three forks of the Missouri River begin here. The Yellowstone River runs for 141km within the park and is the longest free-flowing river in the country. The park has 67 species of mammal, including 2 species of bear and 7 species of native ungulate, 322 species of birds (148 nesting species), 16 species of fish (5 non-native), 6 species of reptile, 4 species of amphibian, 1 species designated as "Threatened" under the Endangered Species Act (Lynx canadensis), 7 species of conifers, 1,100 species of native vascular plants (in addition to nearly 200 non-native) 186 species of lichen and at least 406 species of thermophile (only 1% of hydrothermal areas inventoried). Also, approximately 1,500 archeological sites have been identified in the park.

United States of America

Konza Prairie

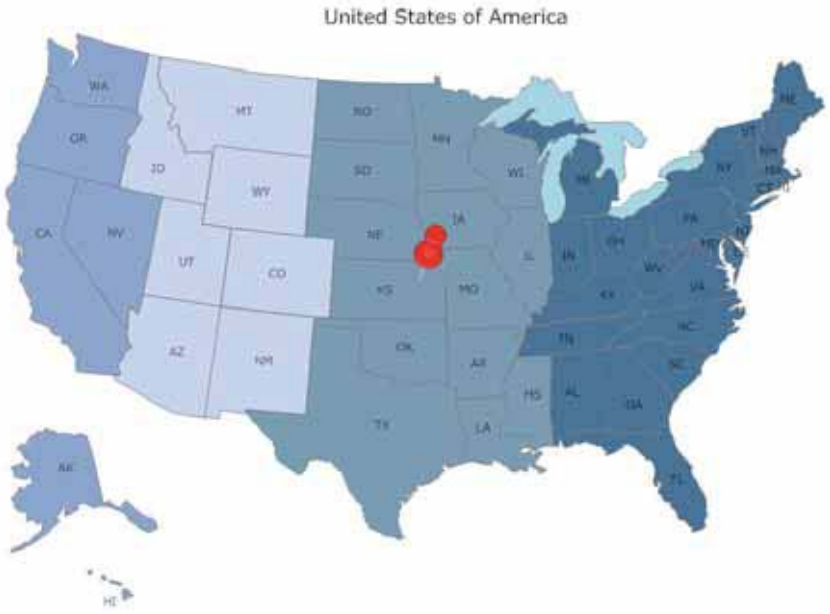
Declaration date: 1978
Surface area: 3.487 ha
Administrative division: Konza Prairie Biological Station; Kansas State University Division of Biology

Human activities:

Ecological research is the central activity of the Konza Prairie which is also a Long-Term Ecological Research (LTER) site of the National Science Foundation. The site was established to provide a natural laboratory for the study of ecological patterns and processes in native tallgrass prairie ecosystems. Key natural processes that regulate and sustain the tallgrass prairie are periodic fire, ungulate grazing, and a variable continental climate. Thus, these processes are the focus of much of the long-term research. Other research by the Kansas State University includes physiological ecology, population and community ecology of plants, insects, birds and mammals, aquatic ecology, ecosystem and landscape ecology, and grasslands restoration ecology. The Konza Prairie Biological Station provides educational opportunities for students from elementary school to post-graduate level.

Ecological characteristics:

Konza Prairie is located in the Flint Hills region of northeastern Kansas, approximately 10 km south of the city of Manhattan. The Flint Hills are steep-sloped and overlain by shallow limestone soils unsuitable for cultivation. This region contains the largest remaining area of tallgrass prairie in North America since the majority of the Konza Prairie and the surrounding landscape have not been plowed. The vegetation of Konza Prairie is dominated by native tallgrass which can reach over 2.5 meters in height in the most productive years. The prairie is dominated by plants adapted to the continental climate, mainly perennial grasses such as big bluestem (Andropogon gerardii), little bluestem (Andropogon scoparius), Indiangrass (Sorghastrum nutans), and switchgrass (Panicum virgatum). The grassland habitats include upland prairie on thin loess soils, hill prairie along alternating limestone benches and slopes, and areas of lowland prairie on deep alluvial-colluvial soils.



Contact information:

David Hartnett, Kansas State University - Division of Biology
Ackert Hall, 66506 Manhattan, Kansas, United States of America
Tel.: (1.785) 587 0441, Fax: (1.785) 532 6653
E-mail: konza@ksu.edu, Web site: http://kpbs.konza.ksu.edu/

** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Niwot Ridge

Declaration date: 1979
Surface area: 1.200 ha
Administrative division:
Mountain Research Station, Niwot Ridge University of Colorado

Ecological characteristics:

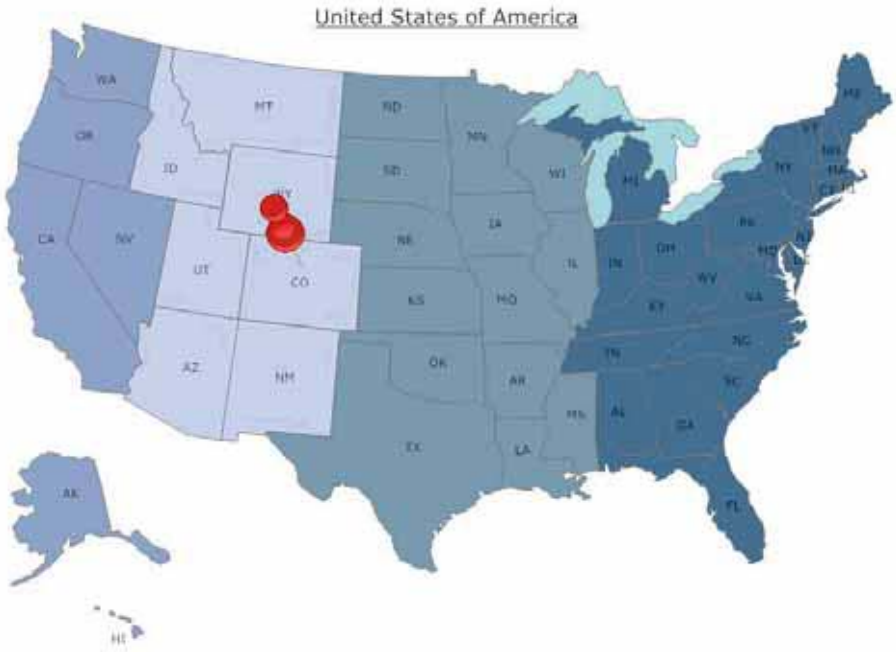
Niwot Ridge is located 65 km north-west of Denver in north-central Colorado. Habitats include western spruce-fir forest, lodgepole pine (Pinus contorta) subalpine forest, alpine meadows as well as ponderosa pine (Pinus ponderosa) shrubland.

Human activities:

The site is little influenced by human impact and is thus an excellent site to monitor biological, chemical, and physical responses to changes in atmospheric chemistry and climate. The biosphere reserve is administered cooperatively by the U.S. Forest Service and the University of Colorado for experimental and long-term studies of alpine tundra.
A mountain research station facilitates research from atmospheric chemistry to alpine and sub-alpine ecology. Niwot Ridge is one of the National Science Foundations Long-Term Ecological Research (LTER) sites, and has been used by the National Oceanic and Atmospheric Administration (NOAA) for atmospheric trace gas sampling since 1968.
Today, the substantial increases in nickel deposits during the past three decades are one of the major concerns since they may alter biological processes in alpine tundra and surrounding catchment areas. Educational programmes in the biosphere reserve focus primarily on the university level, but also include high schools and the general public.

Contact information:

Mountain Research Station
818 County Road 116
80466 Nederland, Colorado
United States of America
Tel/fax (1.303) 492 8841
Web: **www.colorado.edu/mrs/**



United States of America

University of Michigan Biological Station

Declaration date: 1979
Surface area: 4.048 ha
Administrative division: University of Michigan Biological Station University of Michigan

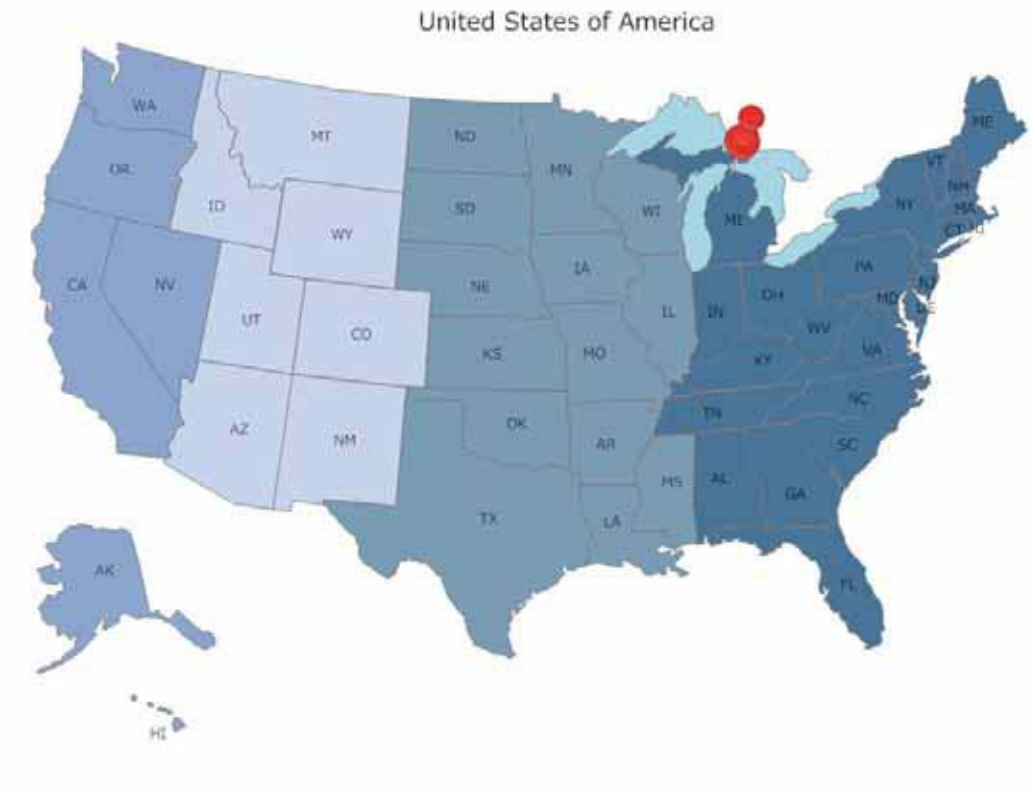
Human activities:

With its excellent research facilities, the station has also an important education function and receives about 150 students for courses every summer.

Contact information:
Karie Slavik
University of Michigan Biological Station
2541 Chemistry, 930 N. University
48109-1055 Ann Arbor, Michigan
United States of America
Tel.: (1.734) 763 4461 - (1.231) 539 8408
Fax: (1.734) 647 1952 - (1.231) 539 8785
E-mail: umbs@umich.edu
Web site: www.lsa.umich.edu/umbs

Ecological characteristics:

The University of Michigan Biological Station and Biosphere Reserve is located at the northern tip of the Lower Peninsula of Michigan on the southern shore of Douglas Lake. Since its establishment in 1909, the biological station has continually served as an instructional and research center for students and scientists from all around the world. During this long research history, natural ecosystems in the area have been monitored in numerous experimental plots and control areas. The biosphere reserve is located in the northern hardwood forest ecosystem and comprises forests of beech-maple and successional stages of aspen, oak, and pine on the better-drained soils. Moister habitats have spruce, fir, and cedar forests. Wetlands include bogs, fens, swamps, marshes and numerous lakes. The region has a rural character with generally low population and with tourism as major industry.



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United States of America

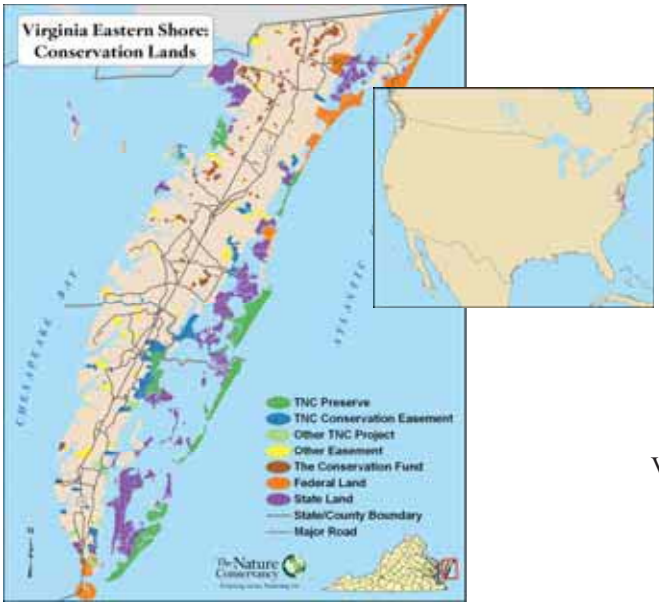
Virginia Coast

© *Virginia Coast BR*

Declaration date: 1979
Surface area: 13.511 ha
Administrative division: Virginia Coast Reserve The Nature Conservancy

Human activities:

- Protection and ecological management of barrier islands, marshes and key upland habitats
- Habitat restoration, including woodlands, seagrass beds and oyster reefs
- Scientific research of migratory birds, marine animals and other species
- Ecotourism and recreation management
- Farming, primarily small grains and poultry production
- Seafood harvest, including hard clam and oyster aquaculture
- Small (less than 50 acre) wood lot loblolly pine based forestry.



Ecological characteristics:

- The Eastern Shore of Virginia is a north-south ranging peninsula dividing the Chesapeake Bay and the Atlantic Ocean; it is ~670 square miles of uplands consisting of a low profile (~45 foot maximum elevation) of alluvial deposits and a landscape comprised of small rural towns (45,000 population), farmland, forest and salt marsh, laced with tidal creeks, shallow bays, mud flats and ponds.
- A barrier island system extends for nearly 60 miles along the Atlantic side of the peninsula and is composed of 13 ocean islands, associated tidal inlets and beaches, five back barrier islands, and thousands of acres of fringe salt marshes.
- The bayside estuarine system features some of the Chesapeake's best and most extensive tidal salt marshes, productive food sources for waterfowl, diamondback terrapins, and breeding high marsh birds.
- The peninsula's 850 miles of shoreline provide diverse habitats for 380 resident and migratory bird species, including beach-nesting birds, shorebirds, waterfowl and neotropical songbirds.

Protection classifications:

At the national level, four wildlife refuges collectively equal 16,500 acres. The state of Virginia owns roughly half of the total protected lands, or some 41,700 acres. The Eastern Shore of Virginia Land Trust, a private NGO, holds over 8,500 acres under conservation easement. The Nature Conservancy is the largest private landowner with nearly 27,000 acres, and it has helped protect more than 40,000 acres in all.

© *Virginia Coast BR*

Contact information:

Virginia Coast Reserve, The Nature Conservancy
P.O. Box 158, Brownsville, Nassawadox,
VA 23413 USA
+1 (757) 442-3049

United States of America

Hawaiian Islands

© Hawaiian Islands BR

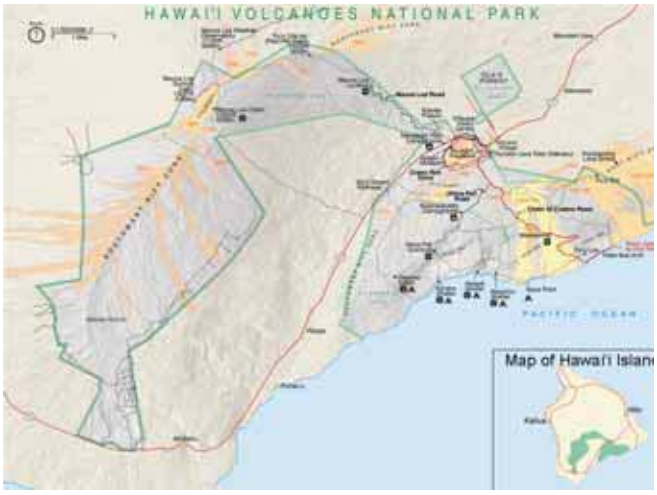
Declaration date: 1980
Surface area: 134.818 ha
Administrative division: US Federal Government, Department of the Interior, National Park Service

Human activities:

- Recovery and monitoring of endemic species and ecosystems
- Alien species management
- Ecological Restoration Research
- Voluntourism: Interpreter/guiding, alien species control and native species restoration
- Environmental education

Protection classifications:

At the national level, the area was declared as a national park in 1916.



Ecological characteristics:

- Ecosystems are very diverse, varying from rain forest to desert scrub and coastal strand to alpine. Volcanism encourages the emergence of diversity, resulting in a mosaic of successional and climax stages throughout the biosphere reserve.
- The islands have had a global importance in the history of evolutionary biology and are continuing to serve as crucial sites for evolutionary studies.
- The biosphere reserve focuses on the protection and management of the endemic biological diversity and public education on Hawaiian natural history.
- Alien species constitutes a major problem for nature conservation. The Hawaii Islands' evolutionary isolation from the continents, and their modern role as a commercial hub of the Pacific, make them particularly vulnerable to invasion by alien species.
- The biosphere reserve is a major player in numerous partnerships to control alien species and restore native ecosystems. One example is the Three Mountain Alliance, a partnership among federal, state, county and private landowners to protect watershed on the Island of Hawai'i.

© Hawaiian Islands BR

Contact information:

Hawai'i Volcanoes National Park
P.O. Box 52
Hawaii National Park, HI 96718-0052
United States of America
Tel: 1-808-985-6026
Fax: 1-808-967-8186
Email: havo_superintendent@nps.gov

United States of America

Isle Royale

Declaration date: 1980
Surface area: 231.399 ha
Administrative division: Isle Royale National Park National Park Service

Human activities:

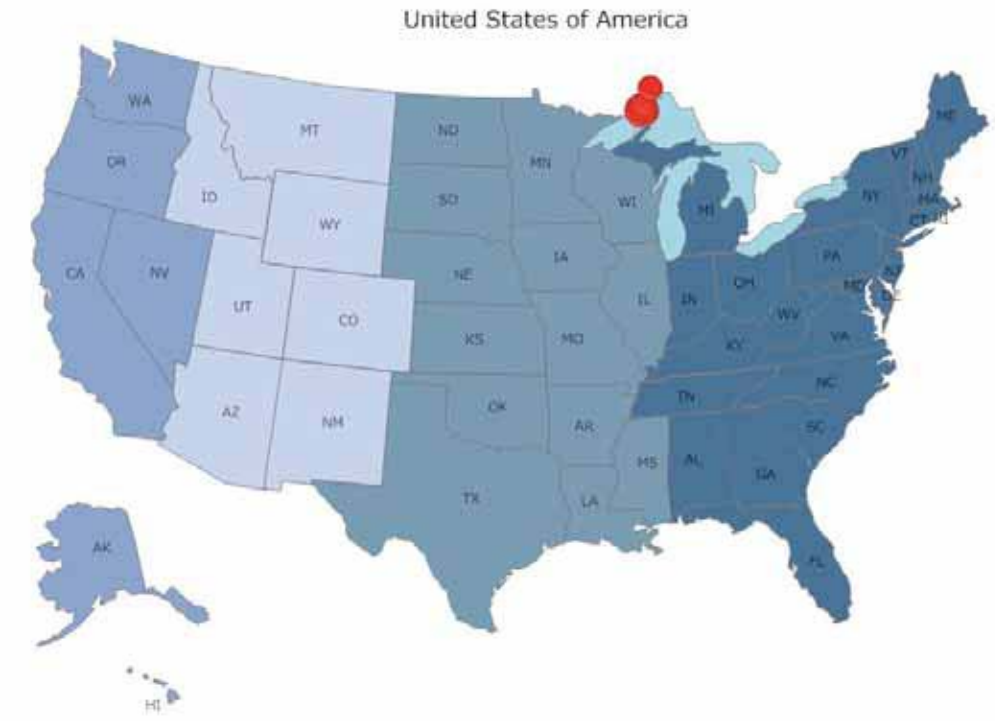
The park offers outstanding possibilities for research in a remote ecosystem where human influences are limited.

Contact information:

Phyllis Green
Isle Royale National Park
800 E. Lakeshore Drive
49931-1869 Houghton, Michigan
United States of America
Tel.: (1.906) 482 0984 (mainland)
(1.906) 482 0986 (mainland information)
Fax: (1.906) 482 8753 (mainland information)
(1.906) 487 7102 or 482 7170 (mainland business)
E-mail: phyllis_green@nps.gov
Web site: www.nps.gov/isro/

Ecological characteristics:

Isle Royale Biosphere Reserve and National Park is a remote island archipelago, situated in the northwestern portion of Lake Superior (Michigan). Isle Royale is world renowned for its long-term wolf *(Canis lupus*)/moose (*Alces alces*) predator/prey study. Vegetation is mainly of boreal conifer and northern hardwood forest type. In the cooler and wetter areas near Lake Superior, balsam fir (*Abies balsamea*), white spruce (*Picea glauca*) and paper balsam (*Betula papyrifera*) dominate the mature forest. Sugar maple (*Acer saccharum*) and yellow birch (*Betula alleghaniensis)* dominate the warmer and drier sites in the interior of the biosphere reserve. The area's waters contain the most productive native fishery and genetically diverse trout populations in Lake Superior. Timber harvest of white pine (*Pinus strobus*) and sugar maple (*Acer saccharum*) for syrup has occurred in the past. Acid rain as well as high levels of PCB's in the lakes may have severe impacts on the natural ecosystems. An atmospheric monitoring station is situated within the national park.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Big Thicket

Declaration date: 1980
Surface area: 39.121 ha
Administrative division: Big Thicket National Preserve National Park Service

Human activities:

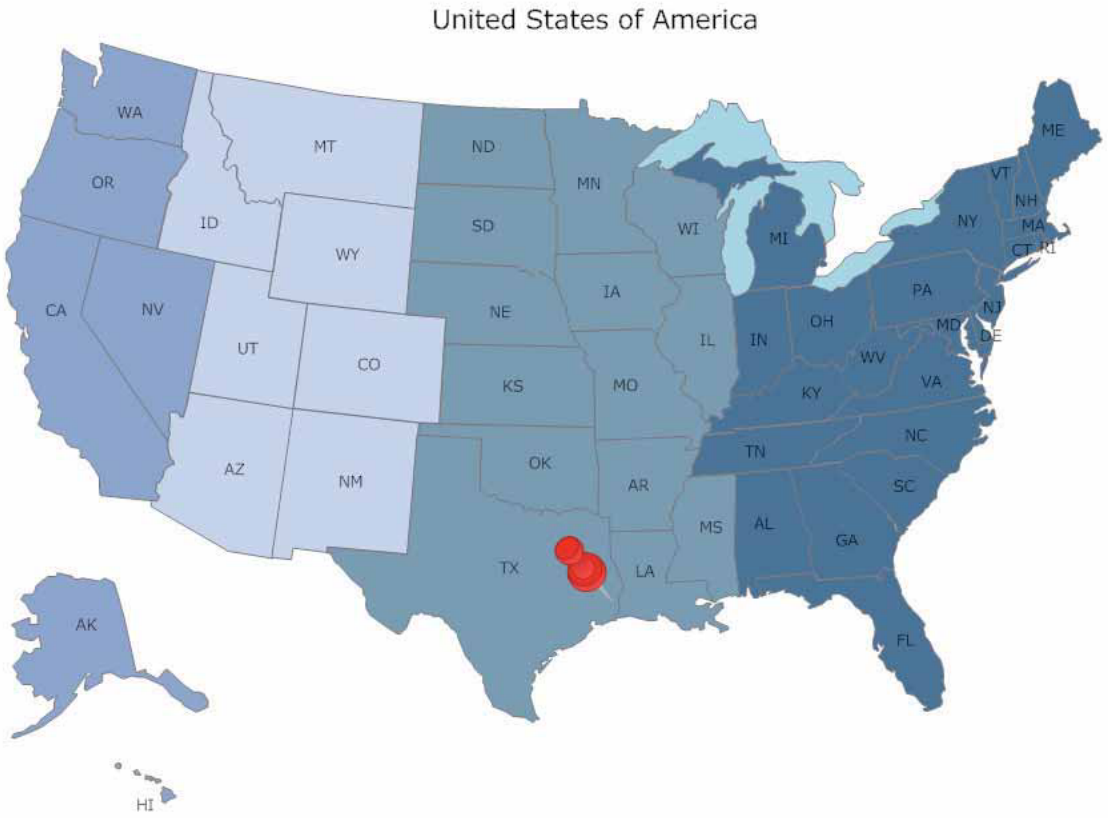
The park offers outstanding possibilities for research in a remote ecosystem where human influences are limited.

Contact information:

Richard R. Peterson
Big Thicket Natural Reserve
3785 Milam
77701 Beaumont, Texas
United States of America
Tel.: (1.409) 839 2690 ext. 225
Fax: (1.409) 839 2599
Web site: www.nps.gov/bith/

Ecological characteristics:

Big Thicket Biosphere Reserve and National Preserve is situated in south-east Texas, bounded by the Neches and Trinity Rivers to the east and west and by Woodville and Beaumont to the north and south. The southern units of the area are flat, low and poorly drained, while the northern units are hilly with moderate drainage. The Big Thicket area of east Texas, often referred to as a 'biological crossroad', is a transition zone where southeastern swamps, eastern deciduous forest, central plains, pine savannas, and dry sandhills meet and intermingle. This giant ecotone provides habitat for rare species and favors unusual combinations of plants and animals. The main disturbances and threats to the ecosystem include gas and oil exploration and extraction, population growth, and hunting and trapping. There are numerous research projects being conducted to gather baseline information of flora, fauna, geology, archaeology and history. Monitoring activities include e.g. climate, soils, hydrology, air quality and selected plant communities.



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United States of America

Guanica

Declaration date: 1981
Surface area: 4.000 ha
Administrative division:
Guanica Commonwealth Forest, Puerto Rico Department of Natural Resources

Ecological characteristics:

Situated in the south-west of Puerto Rico, the Guanica Biosphere Reserve comprises coastal areas with several mangrove cays as well as subtropical dry forest.

Human activities:

The biosphere reserve is managed as a multiple use area to achieve harmonious relationships between human activities and the maintenance of the natural ecological integrity. Monitoring, research, education and training activities are encouraged to support sustainable development in this part of Puerto Rico.
The Guanica forest serves the recreation needs of tourists and people living in eight near-by municipalities with a total population of over 330,000 people (1982). Of conservation concern is the large increase of visitors in coastal areas bringing developmental pressures such as residential and tourist housing projects, the expansion of the municipal landfill and loss of biological corridors. The intense use of coastal and marine ecosystems for recreation has accelerated damage to coral reefs from anchorage, land erosion and related sedimentation.
The challenge of the biosphere reserve is to educate the growing population to appreciate and maintain Guanica's biological diversity. Several community-based projects were carried out with the involvement of different stakeholders in order to develop strategies that will economically benefit the municipality of Guanica and the region by means of sustainable development and conservation projects.

© José Oquendo

United States of America

California Coast Ranges

© *Jackson Demonstration State Forest*

Declaration date: 1983
Surface area: 62.098 ha
Administrative division: University of California Natural Reserve System

Human activities:

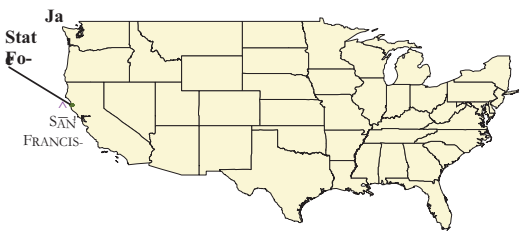
San Francisco is a focal point for coastal industry and trade. Tourism, some agriculture and fisheries, transportation, manufacturing, military installations, and research and educational institutions are also important to the regional economy.

© *Jackson Demonstration State Forest*

Ecological characteristics:

Located in the San Francisco Bay area, this biosphere reserve includes a highly diverse complex of evergreen sclerophyllous woodland, coastal, estuary and marine ecosystems. The primary aim of the biosphere reserve is to develop a commitment to ecosystem management among the various management agencies. Given the intense human pressure of the area, the conservation of biodiversity is very challenging. Of particular concern is to raise environmental awareness among the diverse urban communities.

© *Jackson Demonstration State Forest*



Contact information:

Alexander Glazer, University of California, 1111 Franklin Street, 6th Floor,
94607-5200 Oakland, California, United States of America
Tel.: (1.510) 987 0150, Fax: (1.510) 763 2971
E-mail: alexander.glazer@ucop.edu, Web site: nrs.ucop.edu

United States of America

Central Gulf Coast Plain

Declaration date: 1983
Surface area: 16.402 ha
Administrative division: Apalachicola National Estuarine Research Reserve, Florida Department of Environmental Protection, National Oceanographic and Atmospheric Administration.

Human activities:

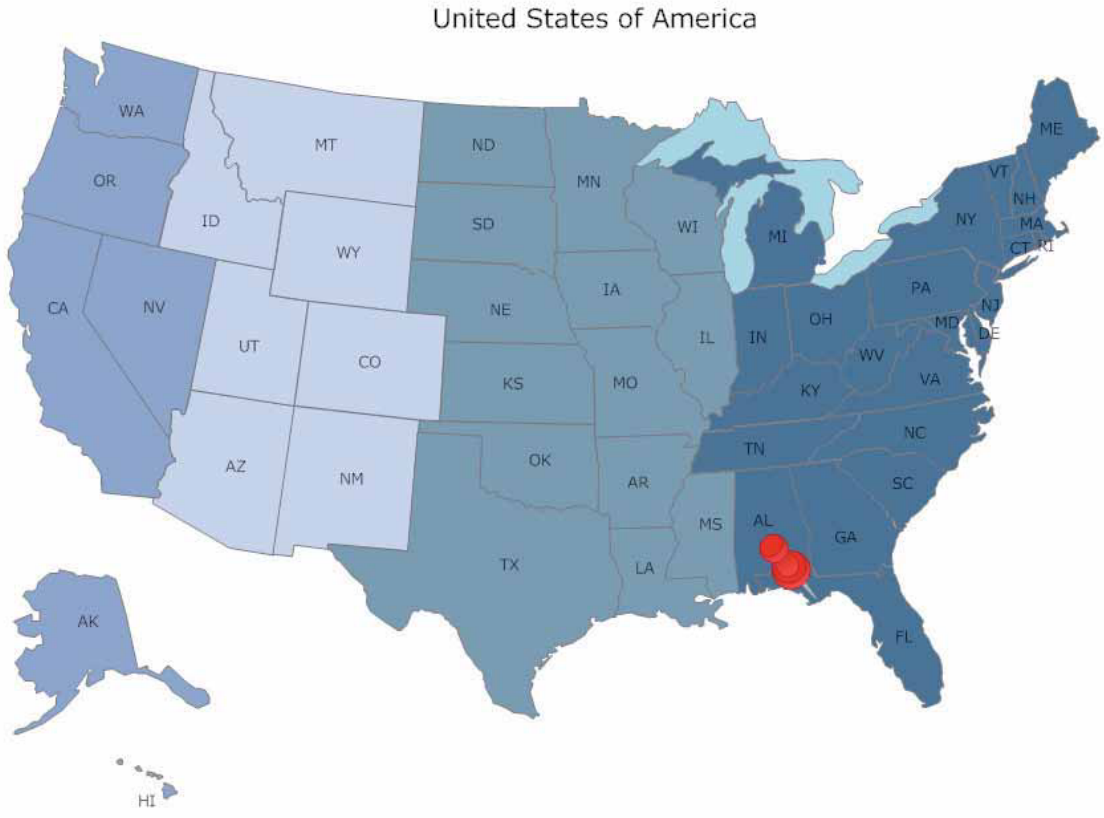
People in the area make their living mainly from fishing industry and tourism.

Contact information:

Woodard W. Miley, II
Apalachicola National Estuarine Research Reserve
350 Carroll Street
32328 Eastpoint, Florida
United States of America
Tel.: (1.850) 670 4783
Fax: (1.850) 670 4324
E-mail: wmiley@gtcom.net

Ecological characteristics:

This biosphere reserve is situated on the coast of the northwestern part of the Florida Peninsula within the Apalachicola River floodplain. It comprises Apalachicola Bay which is one of the most productive estuarine systems in the northern hemisphere. There are typical estuarine and coastal formations with river channels, slough, backwaters, bay islands and swamp hardwood forests. The Apalachicola Basin has the highest species density of amphibians and reptiles in all of North America (north of Mexico). The Apalachicola Reserve, which is part of the biosphere reserve, is involved in various research and monitoring projects. It is also active in resource management, particularly in land acquisition and a prescribed burning program to restore upland areas. Increased demand for water by large upstream cities and agriculture now puts pressure on the floodplain ecosystem.



** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

South Atlantic Coastal Plain

© *T. Thom*

Declaration date: June 30, 1983
Surface area: 10.832 ha
Administrative division: Richland County, South Carolina

Human activities:

© *T. Thom*

- Hiking, camping, canoeing, kayaking, fishing
- Birdwatching, nature photography
- Scientifi c research related to fl oodplain forest ecosystems
- Ranger led interpretive programs (both daytime & evening programs)
- Standards-based education programs focused on scientifi c literacy

Protection classifications:

At a national level, Congaree National Park was recognized as a National Natural Landmark in 1974, a National Monument in 1976, and a National Park in 2003. In 1988, 6,075 hectares of the Park were nominated as a National Wilderness Area. Internationally, Congaree National Park was designated as part of the South Atlantic Coastal Plain Biosphere Reserve in 1983 and was nominated as a Wetland of International Importance in 1996 under the Ramsar Convention. Congaree National Park is recognized by the American Bird Conservancy in 1998 as a Globally Important Bird Area.

© *A. Leist*

© *T. Thom*

Ecological characteristics:

© *J. Fuller*

- Congaree National Park protects the largest remaining old-growth bottomland hardwood forest left in North America;
- Hydrologic activities (primarily flooding) are critical for maintaining the structure and function of the dynamic Congaree fl oodplain ecosystem;
- Based on forest community inventories and soil classifi cations, 22 unique vegetation communities are found within Congaree National Park;
- Congaree National Park is home to over 90 species of trees, over 700 types of vascular plants, more than 180 species of birds, more than 50 species of fi shes, more than 50 species of reptiles and amphibians, approximately 35 species of mammals, and thousands of species of invertebrates including spiders, terrestrial and aquatic insects, and freshwater mussels;
- Congaree National Park is located at the lower end of a 36,260 km2 watershed, downsteam of urban areas including Columbia, the state capital.

Contact information:

Congaree National Park
100 National Park Road
Hopkins, SC 29061
United States of America
Telephone: (803) 776-4396
Fax: (803) 783-4241
Email: cosw_information@nps.gov
Website: http://www.nps.gov/cong

United States of America

Mojave and Colorado Deserts

Declaration date: 1984
Surface area: 2.388 ha
Administrative division: California

Human activities:

Tourism to national- and state-designated areas, mining, trespass grazing by cattle, and off-road vehicles are the main human influences in the area.

Protection classifications:

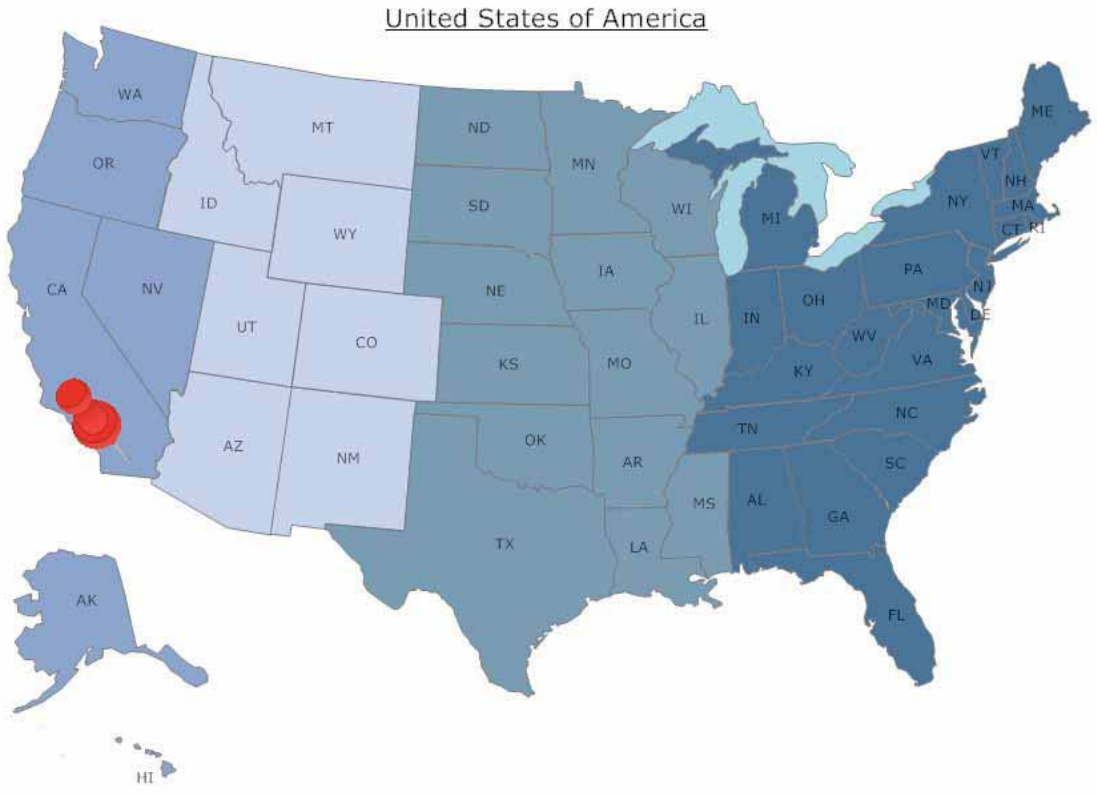
Several federal and state management units comprise this biosphere reserve: Death Valley National Park and Joshua Tree National Park, both protected by the U.S. National Park Service; a portion of the Santa Rosa and San Jacinto Mountains National Monument, protected by the USDA Forest Service (as part of the San Bernardino National Forest) and USDI Bureau of Land Management; and Anza-Borrego Desert State Park, protected by California State Parks. Additionally, a portion of the Boyd Deep Canyon Desert Research Center lies within this biosphere reserve and is protected as part of the University of California Natural Reserve System.

Ecological characteristics:

Warm desert is this reserve's main ecosystem type; major habitats are creosote scrub and Sonoran desert. Death Valley, the hottest, driest, and lowest location in North America, is the principal feature of the biosphere reserve, encompassing a substantial portion of the northern Mojave Desert. Joshua Tree National Park straddles the transition area between Mojave and Colorado Deserts and is known for its Joshua tree woodlands.

Contact information:

Boyd Deep Canyon Desert Research Center, Natural Reserve
System, University of California, P.O. Box 1738, Palm Desert, California 92261, United
States of America



United States of America

Carolinian South Atlantic

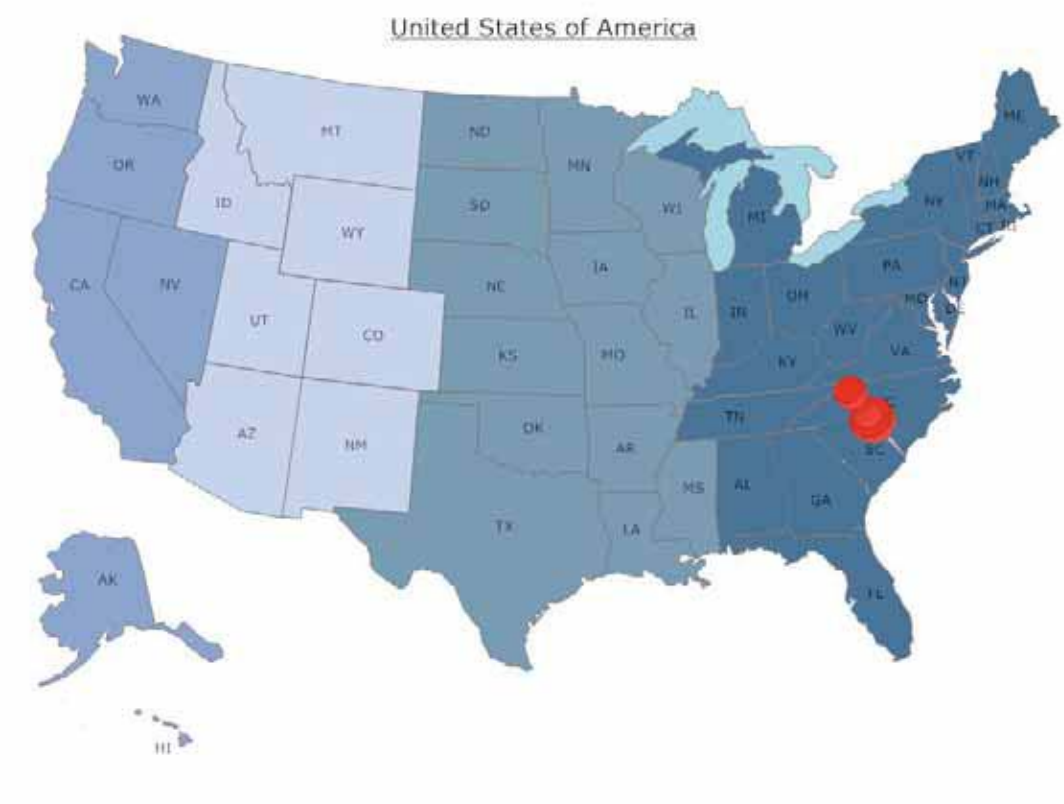
Declaration date: 1986
Surface area: 125.545 ha
Administrative division:

Human activities:

The marshlands throughout the biosphere reserve have been modified by rice culture in the 19th century. Major land uses today, which need to be harmonized with nature conservation, are tourism, commercial and recreational fishing and boating.

Ecological characteristics:

Bordered to the east by the Atlantic Ocean, this biosphere reserve is situated in the lower coastal plain in the Carolinian-South Atlantic region close to the city of Charleston. This biosphere reserve comprises several units (Yawkey Wildlife Center, Santee Coastal Reserve, Washoo Reserve, Capers island and Hobcaw Barony, Cape Romain Refuge) among which the Refuge makes up the biggest part. Habitats in the biosphere reserve comprise barrier islands, beach and sand dunes, salt marshes, maritime forests, tidal creeks, fresh and brackish water impoundments and open water areas. The area supports important habitats for many species, notably various waterfowls, brown pelicans (Pelecanus occidentalis), loggerhead sea turtles (Caretta caretta) and red wolf (Canis rufus).



Contact information:

Sally Hopkins-Murphy
Non-Game and Heritage Trust
P.O. Box 12559
29412 Charleston, South Carolina
United States of America
Tel.: (1.803) 796 6350
Fax: (1.803) 762 5007

United States of America

Glacier Bay-Admiralty Island

© *Glacier Bay-Admiralty Is. BR*

Declaration date: 1986
Surface area: 1.515.015 ha
Administrative division: USDA Forest Service, Admiralty Island National Monument. National Park Service, Glacier Bay National Park and Preserve.

Human activities:

Ecotourism and environmental education: sea kayaking tours, whale watching, cruise ship tours.
Recreation: kayaking, hiking and mountaineering, wildlife watching, recreational and subsistence fishing and hunting.
Research & management: climate study, glaciology, forestry and ecological succession, terrestrial and marine biology research, physical oceanography.

Protection classifications:

Glacier Bay declared a national monument in 1925, expanded and re-designated national park and national preserve in 1980. Admiralty Island declared a national monument in 1978, and wilderness in 1980.
The Kluane Icefield World Heritage Site was extended to include Glacier Bay National Park and Preserve in 1992.

© *Glacier Bay-Admiralty Is. BR*

Ecological characteristics:

© *Glacier Bay-Admiralty Is. BR*

Glacier Bay National Park and Preserve contains a complex mix of landforms ranging from active glaciers and icefields, freshwater lakes, glacial outwash rivers, wet and alpine tundra, and coastal western hemlock-Sitka spruce forest. Marine ecosystems include continental shelf, wave-beaten coasts, and deep cold fjord estuaries. Park lands were formed by repeated glacial advance and the most recent retreat beginning 200 years ago. Glacier Bay provides important habitats for marine mammals, migratory sea birds, Pacific salmon (Onchorynchus sp), moose (Alces alces), gray wolf (Canis lupus), black bear (Ursus americanus), and brown bear (Ursus arctos). Admiralty Island contains one of the greatest remaining blocks of old growth temperate rainforest on earth, comprised of Sitka spruce (Picea sitchensis) and western hemlock (Tsuga heterophylla) forest. The Monument harbors an internationally significant population of coastal brown/grizzly bear, and surrounds the traditional Tlingit (Alaska Native) village of Angoon. Admiralty Island's forests emerged from glacial ice centuries before Glacier Bay. Within the Reserve, the geographic history of SE Alaska can be traced from Pleistocene glaciers and alpine icefields to tundra, muskeg, and coastal temperate rainforest.

Contact information:

US Forest Service, Admiralty Island National Monument
8510 Mendenhall Loop Rd. Juneau,
AK 99801 USA
Tel: 907-789-6224
http://www.fs.fed.us/r10/tongass/districts/admiralty/

Glacier Bay National Park and Preserve
PO Box 140
Gustavus, AK 99826
Tel: 907-697-2230
Website: http://www.nps.gov/glba/

United States of America

Golden Gate

© *Golden Gate BR*

Declaration date: 1988
Surface area: 212.022 ha
Administrative division: California

Human activities:

© *Golden Gate BR*

This reserve is the only U.S. biosphere reserve completely integrated within a major metropolitan landscape. GGBR terrestrial and marine resources provide access to outdoor recreation and education, drinking water, and many other important ecosystem services to San Francisco Bay Area inhabitants and visitors. GGBR attracts researchers from the international scientific community. Ongoing studies include investigations of global change ecology, conservation biology, invasion biology, ocean productivity, pollution and stress ecology, and watershed management. The reserve has also cooperated with the Iroise Biosphere Reserve (France) in a comparison of coastal ecosystem recovery after human-use changes.

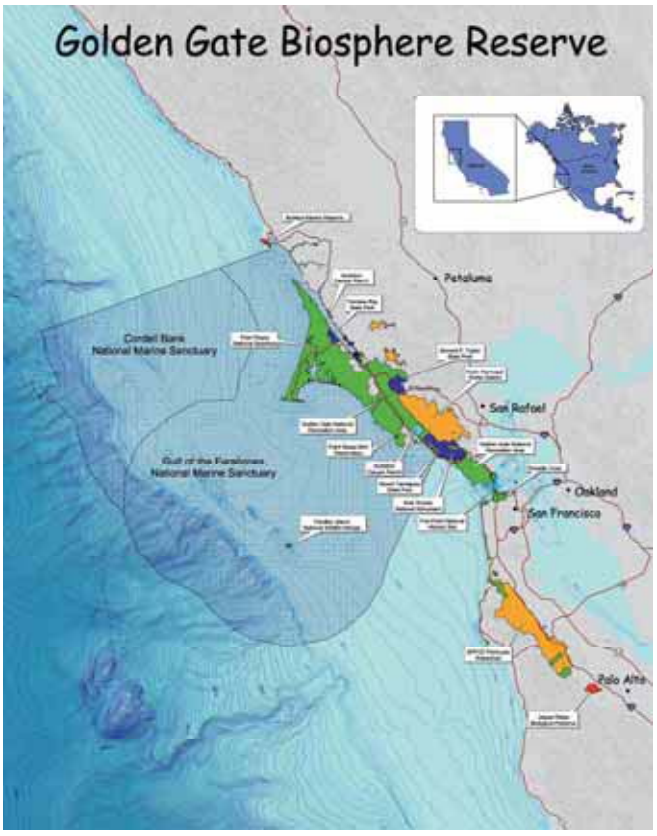
Protection classifications:

This reserve is a partnership of 13 protected areas whose administrative authorities include: Audubon Canyon Ranch; University of California; National Oceanic and Atmospheric Administration; U.S. Fish and Wildlife Service; U.S. National Park Service; Stanford University; Marin Municipal Water District; California Department of Parks and Recreation; San Francisco Public Utilities Commission; Point Reyes Bird Observatory; Presidio Trust. Historically, the reserve has been organized under an association with three councils responsible for management, research, and education projects.

Ecological characteristics:

© *Golden Gate BR*

The reserve has a Mediterranean-type climate and the area's major ecosystem type is evergreen sclerophyllus woodland. However, habitats supported by this reserve are diverse and include: forests (mixed evergreen, redwood, Douglas-fir, Bishop pine, oak), woodlands, savannas, coastal scrub, chaparral, coastal dune, coastal strand, tidepools, kelp forests, grasslands, and marshes. On an active fault zone and the Pacific Ocean, terrestrial habitats are divergent, with sharp soil, elevation and climate gradients that contribute to high levels of biodiversity. This biodiversity has been recognized by Conservation International, and the reserve is within a CI designated global biodiversity hot spot.



Contact information:

Golden Gate Biosphere Reserve Association, c
/o Jasper Ridge Biological Preserve,
Stanford University, Stanford,
California 94305-502 0, United States of America

United States of America

New Jersey Pinelands

© New Jersey Pinelands BR

Declaration date: 1988
Surface area: 438.210 ha
Administrative division: Pinelands National Reserve Pinelands Commission (complex ownership)

Human activities:

© New Jersey Pinelands BR

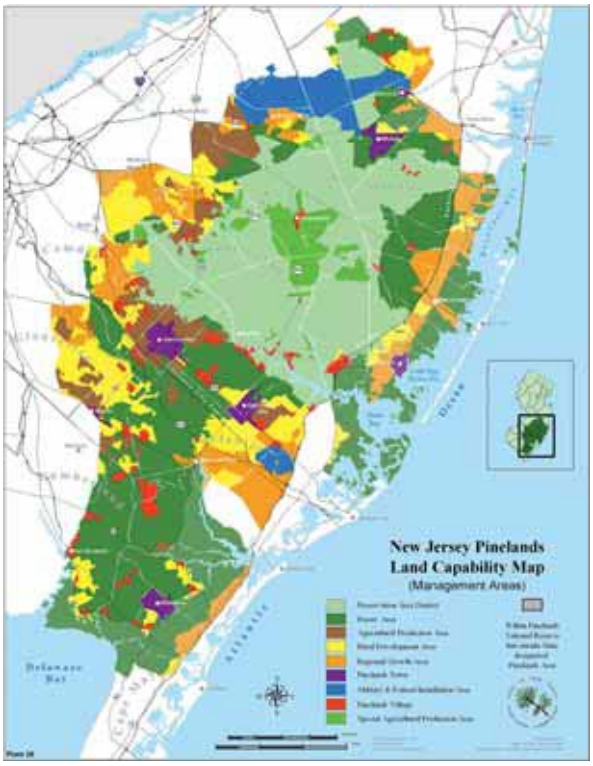
• The Pinelands National Reserve encompasses approximately 1.1 million acres covering portions of seven counties and all or parts of 56 municipalities. The reserve is home to approximately 700,000 residents.
• The region's natural, cultural and historic resources are protected, preserved and enhanced through the implementation of the Pinelands Comprehensive Management Plan. The plan establishes 9 different land-use management areas. This ranges from the Preservation Area District, an environmentally-sensitive region where most development is prohibited, to Regional Growth Areas that can support development.
• Four state forests are located within the Reserve and offer interpretation, camping, hiking, biking, swimming, canoeing, kayaking and other recreational and educational opportunities.

Protection classifications:

• The Pinelands National Reserve (PNR) was created by Congress under the National Parks and Recreation Act of 1978. The PNR is the first National Reserve in the United States.
• The New Jersey Pinelands Protection Act created the New Jersey Pinelands Commission, which a state agency that oversees land-use, development and natural resource protection through its implementation of the Pinelands Comprehensive Management Plan.

Ecological characteristics:

• The region features some of the largest unbroken tracts of forest in the eastern United States.
• Thirty-nine species of mammals, 299 bird, 59 reptile and amphibian species and 91 fish species have been identified as occurring within the Pinelands. They include 43 animal species listed as threatened or endangered by the New Jersey Division of Fish and Wildlife.
• The region is home to 850 species of plants, including 92 threatened and endangered plant species that are known to occur in the Pinelands. Three species of Pinelands plants are currently found nowhere else.
• Wetlands comprise approximately 35 percent of the reserve.
• The Pinelands lie above the Kirkwood-Cohansey aquifer, which contains an estimated 17.7-trillion gallons of pure water.
• The Pinelands has a high propensity for forest fires. Upland forests are dominated by pitch pine and other fire-adapted species.
• The 15,000-acre Pine Plains are the most extensive pygmy forest of its type in the United States.



Contact information:

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Telephone: (609) 894-7300, Fax: (609) 894-7330
E-mail: info@njpines.state.nj.us

United States of America

Southern Appalachian

© *Great Smoky Mountains National Park*

Declaration date: 1988
Surface area: 15.195.341 ha
Administrative division: Southern Appalachian Man and the Biosphere Cooperative (SAMAB)

© *Great Smoky Mountains National Park*

Human activities:

Regional population growth in the region exceeds the national average but is unevenly distributed. Good health care facilities and recreational opportunities are attracting retirees. Younger, well-educated people are finding jobs in cities. However, many of the long-term residents are finding fewer job opportunities as the traditional resource extraction and textile industries decline. These factors contribute to poorly planned land development and degradation of natural resources. Growing tourism pressure, urbanization, air and water pollution, changing patterns of land use, fragmentation of wildlife habitats, and invasion of alien species are main challenges which faces the region today.

Ecological characteristics:

Straddling the border of six states of the Southern Appalachians (Northern Georgia, northeastern Alabama, western South Carolina, eastern Tennessee, western North Carolina, and southwestern Virginia), this biosphere reserve encompasses mainly second growth temperate forests and contains a diversity of habitats ranging from remnant prairie grasslands and swamp forests to high elevation spruce-fir forests and grassy meadows. The biosphere reserve consists of six units (e.g. Great Smoky Mountains National Park) which independently manage their resources.

© *Great Smoky Mountains National Park*

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Web site: samab.org

United States of America

Champlain-Adirondak

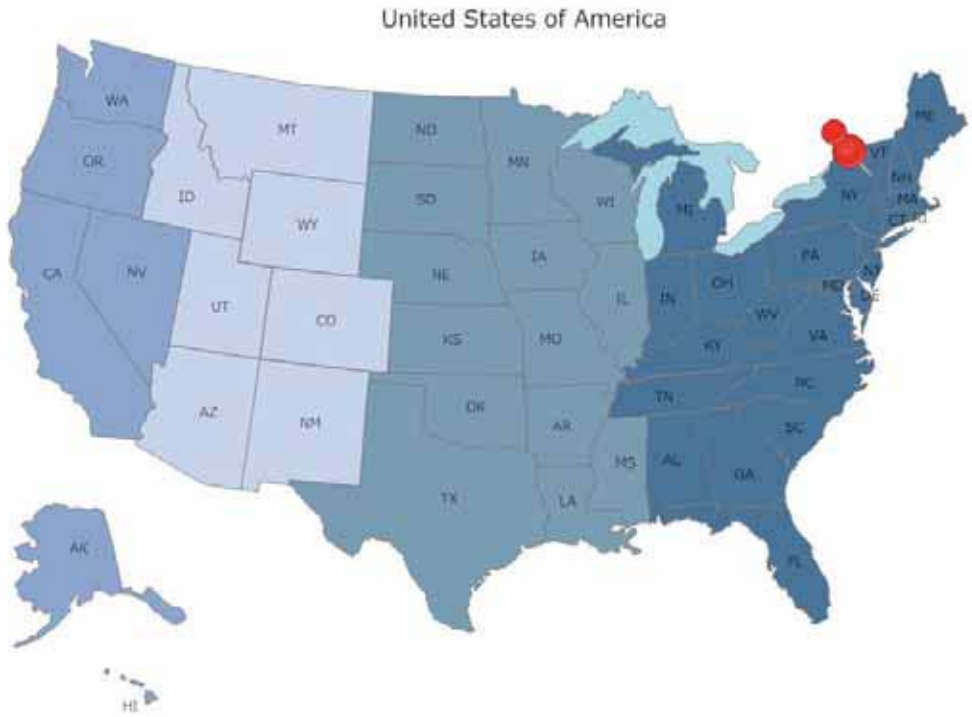
Declaration date: 1983
Surface area: 3.990.000 ha
Administrative division: Adirondack Park Agency; U.S. Department of Agriculture, Forest Service; Vermont Agency of Natural Resources

Human activities:

The biosphere reserve and its outlying areas are inhabited by over 400,000 people (1994) and are within a day's drive of 60 million people living in the U.S. and Canada. Forestry and tourism are the economic base in the Adirondack region on the New York side of Lake Champlain. The more diverse economy on the Vermont side of the lake is based on forestry, farming, tourism, light manufacturing, and production of specialty agricultural products.

Ecological characteristics:

The Champlain-Adirondack Biosphere Reserve straddles the border of north-central New York and northwestern Vermont. Lake Champlain, the sixth largest lake in the United States, and the Adirondack and Green Mountains are the central features of the biosphere reserve. It includes extensive temperate coniferous and deciduous forests as well as large numbers of lakes, bogs, and freshwater wetlands. The primary goal of the Champlain-Adirondack Biosphere Reserve is to use education, research, and demonstration projects to encourage social and economic vitality and to preserve and improve the environmental health of the region.



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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Mammoth Cave Area

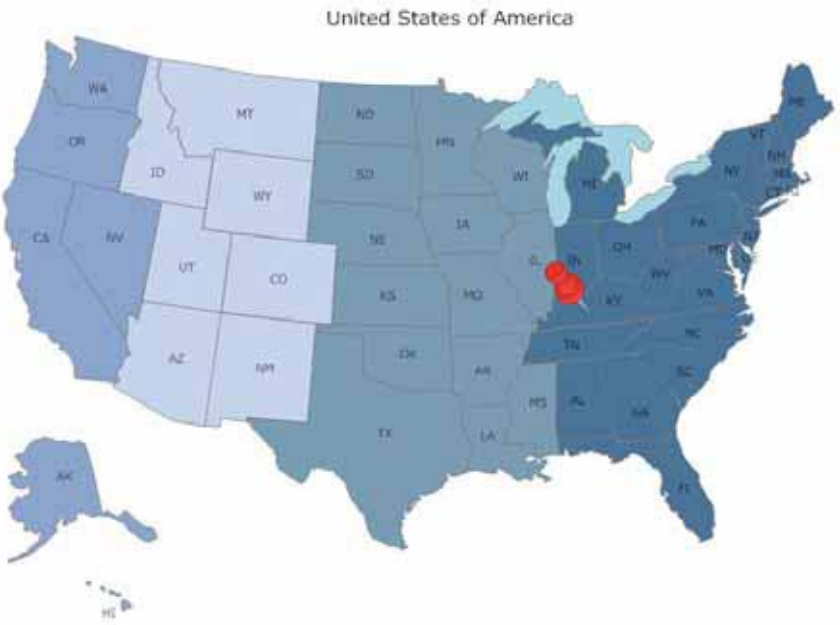
Declaration date: 1990, extension 1996
Surface area: 367.979 ha
Administrative division: Mammoth Cave National Park/ Barren River Area Development District, BRADD

Human activities:

The biosphere reserve is a rural area where farming has been an economic mainstay since prehistory. In more recent times, also light industry, service industry and tourism become increasingly important for the about 67,600 people living in the biosphere reserve (1996). The most significant issue for the biosphere reserve is to achieve sustainable development that improves the economic and social well-being of local people, and is compatible with conservation values.

Ecological characteristics:

Situated in Kentucky, the Mammoth Cave Area Biosphere Reserve represents a karst system characterized by complex underground water courses and a multilayered cave system with unique fauna and mineralization features. It is also of interest from a cultural point of view since prehistoric peoples explored and extracted minerals from the caves, used them for shelter, and cultivated the surface area. The biosphere reserve serves as a framework for supporting the local community's needs for economic development within the context of ecosystem management. Of particular concern to the Mammoth Cave Area is the impact of agricultural, commercial, and residential land use on ecosystems - especially with respect to the effects of groundwater pollution on cave biota. A major emphasis of the biosphere reserve programme is to assist landowners to improve their land-use practices. A Biosphere Reserve Cooperative coordinates the programme in the biosphere reserve that features monitoring for water pollution sources, establishing a regional geographic information system, and educational and cultural heritage projects.



Contact information:

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

United States of America

Land Between The Lakes

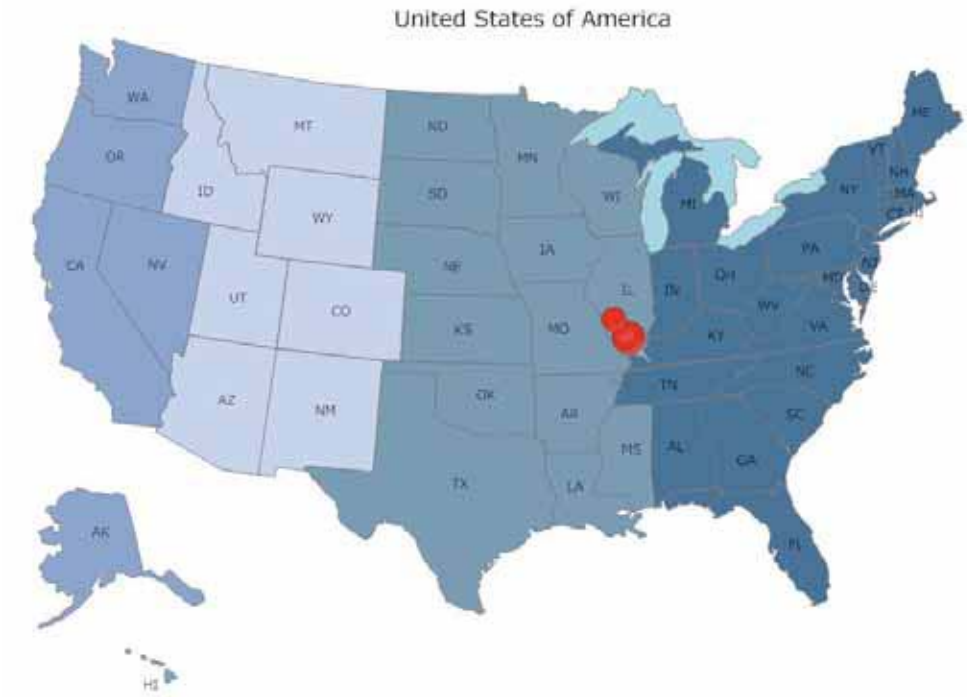
Declaration date: 1991
Surface area: 68.800 ha
Administrative division: Land Between The Lakes US-DA - Forest Service

Human activities:

The economy of the region is built upon tourism, light industry and agriculture. It is visited by more than 2,2 million visitors annually (1994) that benefit from a wide variety of recreational opportunities, including camping, hunting, fishing, swimming, hiking, bicycling, and sightseeing. Other attractions are a living history farm, an enclosure with American bison and the Woodlands Nature Center. The area has a long history of research, primarily by local universities.

Ecological characteristics:

Situated between western Kentucky and Tennessee, the Land Between the Lakes Biosphere Reserve is bounded on the east by Lake Barkley, an impoundment of the Cumberland River, and on the west by Kentucky Lake, an impoundment of the Tennessee River. The majority of the land is forested; however the area also represents a variety of open land types such as row cropped fields, hay fields and managed prairie areas. The area is intensively used for hunting, fishing, trapping, tree-cutting, berry and mushroom picking, and nut gathering. Off-highway vehicle use is permitted in a designated area. The primary challenge of this multiple use area is to achieve sustainable development while conserving the cultural and economic values and traditions of the area.



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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Latin America and Caribbean

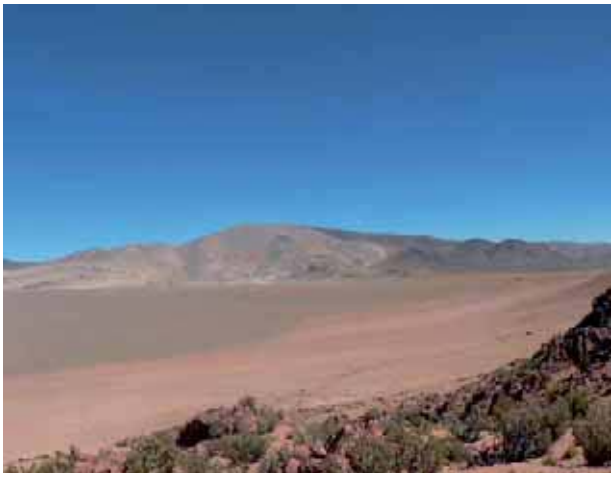
- Argentina
- Bolivia
- Brazil
- Chile
- Colombia
- Costa Rica
- Cuba
- Dominican Republic
- Ecuador
- El Salvador
- Guatemala
- Honduras
- Mexico
- Nicaragua
- Panama
- Paraguay
- Peru
- Uruguay
- Venezuela

Country	Biosphere reserve	Year of creation	Pag.
ARGENTINA	San Guillermo	1980	477
	Laguna Blanca	1982	478
	Parque Costero del Sur	1984	479
	Ñacuñán	1986	480
	Pozuelos	1990	481
	Yabotí	1995	482
	Parque Atlántico Mar Chiquito	1996	483
	Delta del Paraná	2000	484
	Riacho Teuquito	2000	485
	Laguna Oca del Río Paraguay	2001	486
	Las Yungas	2002	487
	Andino Norpatagónica	2007	488
	Pereyra Iraola	2007	489
BOLIVIA	Apolobamba (Ulla Ulla)	1977	490
	Pilón Lajas	1977	491
	Estación Biológica del Beni	1986	492
BRAZIL	Mata Atlântica	1991 - Extension 2002	493
	O Cerrado do Distrito Federal	1993 - Extension 2000/2001	494
	Pantanal	2000	495
	Caatinga	2001	496
	Amazônia Central	2001	497
	Serra do Espinhaço	2005	498
CHILE	Archipiélago de Juan Fernández	1977	499
	Fray Jorge	1977	500
	Torres del Paine	1978	501
	Laguna San Rafael	1979	502
	Lauca	1981	503
	Araucarias	1983	504
	La Campana-Peñuelas	1984	505
	Cabo de Hornos	2005	506
	Bosques Templados Lluviosos de los Andes Australes	2007	507
COLOMBIA	Cinturón Andino	1979	508
	El Tuparro	1979	509
	Sierra Nevada de Santa Marta	1979	510
	Ciénaga Grande de Santa Marta	2000	511
	Seaflower	2000	512
COSTA RICA	La Amistad	1982	513
	Cordillera Volcánica Central	1988	514
	Agua y Paz	2007	515
CUBA	Sierra del Rosario	1984	516
	Baconao	1987	517
	Cuchillas de Toa	1987	518
	Península de Guanahacabibes	1987	519

Country	Biosphere reserve	Year of creation	Pag.
	Buenavista	2000	520
	Ciénaga de Zapata	2000	521
DOMINICAN REPUBLIC	Jaragua-Bahoruco-Enriquillo	2002	522
ECUADOR	Archipiélago de Colón (Galápagos)	1984	523
	Yasuní	1989	524
	Sumaco	2000 - Extension 2002	525
	Podocarpus-El Condor	2007	526
EL SALVADOR	Apaneca-Llamatepec	2007	527
	Xiriualtique-Jiquitisco	2007	528
GUATEMALA	Maya	1990	529
	Sierra de las Minas	1992	530
HONDURAS	Río Plátano	1980	531
MEXICO	La Michilía	1977	532
	Mapimí	1977	533
	Montes Azules	1979	534
	El Cielo	1986	535
	Sian Ka'an	1986	536
	Sierra de Manantlán	1988	537
	Alto Golfo de California-eL Pinacate	1993 - Extension 1995	538
	El Triunfo	1993	539
	El Vizcaíno	1993	540
	Islas del Golfo de California	1995	541
	Sierra Gorda	2001	542
	Banco Chinchorro	2003	543
	Sierra La Laguna	2003	544
	Ría Celestún	2004	545
	Ría Lagartos	2004	546
	Arrecife Alacranes	2006	547
	Bahías de Huatulco	2006	548
	Barranca de Metztitlán	2006	549
	Bosque La Primavera	2006	550
	Chamela-Cuixmala	2006	551
	Cuatrociénegas	2006	552
	Cumbres de Monterrey	2006	553
	La Encrucijada	2006	554
	Laguna Madre y Delta del Río Bravo	2006	555
	La Sepultura	2006	556
	Los Tuxtlas	2006	557
	Maderas del Carmen	2006	558
	Mariposa Monarca	2006	559
	Pantanos de Centla	2006	560
	Región de Calakmul	2006 - Calakmul, extended and renamed in 2006	561

Country	Biosphere reserve	Year of creation	Pag.
	Selva El Ocote	2006	562
	Sierra de Huautla	2006	563
	Sistema Arrecifal Veracruzano	2006	564
	Volcán Tacaná	2006	565
	Sierra de Alamos-Río Cuchujaqui	2007	566
	Islas Marietas	2008	567
	Lagunas de Montebello	2009	568
	Islas Marías	2010	569
	Los Volcanes	2010	570
	Neha Metzabok	2010	571
NICARAGUA	Bosawas	1997	572
	Río San Juan	2003	573
	Isla de Ometepe	2010	574
PANAMA	Darién	1983	575
	La Amistad	2000	576
PARAGUAY	Bosque Mbaracayú	2000	577
	El Chaco	2005	578
PERU	Huascarán	1977	579
	El Manu	1977	580
	Noroeste	1977	581
	Oxapampa-Ashaninka-Yanesha	2010	582
URUGUAY	Bañados del Este	1976	583
VENEZUELA	Alto Orinoco-Casiquiare	1993	584
	Delta del Orinoco	2009	585

Argentina
San Guillermo



Llano de los Leones

Declaration date: 1980
Surface area: 981.460 ha
Administrative division:
Buffer and Transition zones fall within the San Guillermo Provincial Reserve. The San Guillermo National Park corresponds to the Core zone.

Human activities:

These are related with mining (in the transition zone), animal husbandry, scientific research and incipient tourism throughout the area.

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Email: lruiz@apn.gov.ar

Zona Buffer y Transición:
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Argentina
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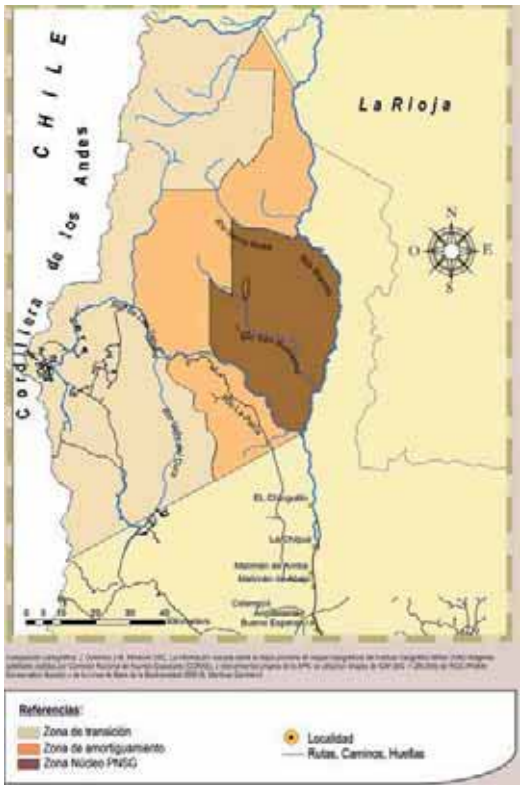
Cel. 0264 154581319
Email: conservacionyareasprotegidas@yahoo.com.ar

Ecological characteristics:

Three eco-regions are present in the San Guillermo Biosphere Reserve: High Andean, Puna and Woodland (Monte). The convergence of these three eco-regions gives the area its special features, creating a singular mosaic of deserts and high altitude grasslands exposed to low temperatures, with low valleys characterised by a flora including thorny bushes and a somewhat warmer climate. This cold desert is the Vicuña's most southerly range. Conservation values to be considered are:

- Water: presence of the main watershed headwaters in the north of San Juan and humid habitats (vegas) that are essential for the development of biodiversity.
- It hosts the largest populations of Vicuña and Guanaco in Argentina, with both populations on the increase. In the future their fibres could be exploited by the local communities.
- It hosts endemic species of flora and fauna and unexplored sites where scientific finds are very probable.
- It is the largest arid ecosystem in South America, with a complete ensemble of native fauna.
- It contains an important archaeological heritage.
- It has highly valuable landscapes, fauna and flora from the standpoint of tourism
- It contains endangered species, some of which are of importance for tourism and scientific purposes.



Argentina
Laguna Blanca

Vicuñas and the snow-capped Laguna Blanca

Declaration date: 12 August 1982
Surface area: 710.000 ha
Administrative division: Natural Provincial Reserve, Province of Catamarca

Human activities: The main economic activity is sheep, goat and llama-raising. Wool and fibres are used for crafts. Vicuñas living in the wild are also caught and shorn

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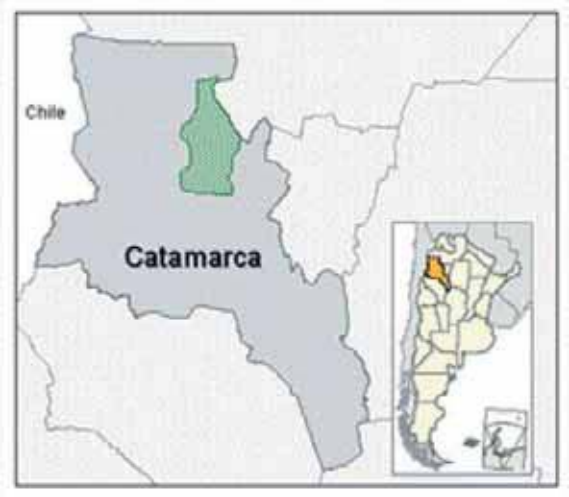
Ecological characteristics:
The Laguna Blanca Biosphere Reserve is located in the Highlands or Puna, in the Province of Catamarca, northeast Argentina. This environment is characterized by large plateaux separated by mountain chains. Lakes as endoreic basin terminals appear in the flat areas, such as Laguna Blanca, Pasto Ventura, Grande and Colorada. These high plains are located at a minimum altitude of 3,200 m above sea level, such as "Campo de la Laguna Blanca," and other plains at a higher level, including "Peña Fría," while the mountain chains can reach a height of up to 6.000 m above sea level as in the case of the "Nevado de Laguna Blanca." The climate is dry and cold with frequent winds and scant rainfall in the summer and minor snowfall in the winter. The environment between 3,200 and 3,800 m above sea level is known as “Puna” and is mainly an open bushy steppe, while between 3,800 and 5,000 m above sea level the open, mainly grassy steppe, is known as High Andean. In association with water (lagoons and rivers) vegetation with more ground cover known as "vegas" is to be found. The fauna mainly comprises Vicuña – the BR was created to foster its rehabilitation – and the Suri or Cordilleran Rhea, Chinchilla Rats (*Abrocomidae*) and many aquatic birds in the lagoons, the most conspicuous being the Parina or Puna Flamingo.

Parinas in Laguna Grande

Community catching of vicuña



Argentina
Parque Costero del Sur

Declaration date: 15 February 1985
Surface area: 30.000 ha
Administrative division: Municipality of Punta Indio, Municipality of Magdalena, Province of Buenos Aires

Human activities:

Tourism. Various rural activities. Artisan fisheries

Protection classification:

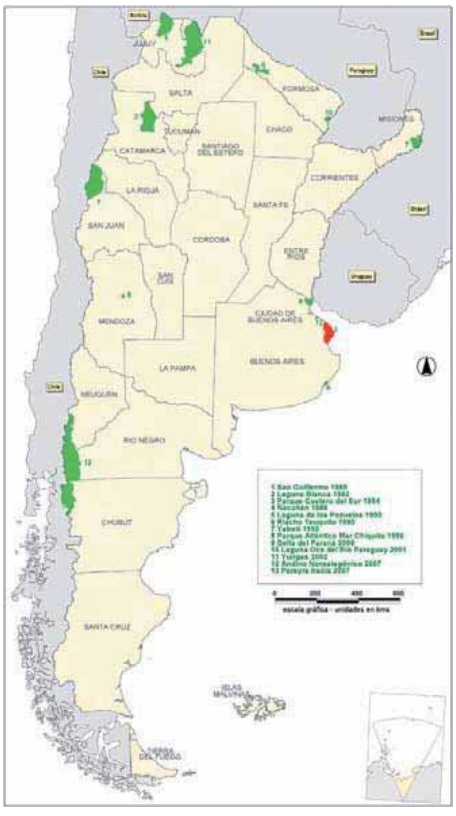
Natural Reserve

Ecological characteristics:

The landscape structure falls within three dominant structures:

- Coastal landscape: floodable areas, alternating with fine yellow sandy beaches and calcareous escarpments
- The landscape comprising ridges of shell debris or shell belts, shaped by the successive action of marine erosion, forms the backbone of route 11, where the last spurs of the "Tala" *(Celtis spinosa)* gallery forest grows
- Western slope and basins, a complex of wetlands harbouring a wealth of fauna and shell debris dunes with Tala formations.

A. Tala groves / Grassy openings
B. Reed-beds/ Sedges / Ridges of Ceibo (*Erythrina crista-gally*) / Willow / Coast of the Rio de la Plata.
C. Grasslands.
D. Woodlands of Mollo (longleaf peppertree - *Schinus longifolius)*, Coronillo (*Scutia buxifolia Reiss*) and Tala (*Celtis tala*) / grasslands with scattered trees / humid prairies / scrubland / reed-beds / Coast of the Rio de la Plata.
E. Pure Tala groves.
F. Wetlands, (including Solanetum, humid prairies, aquatic vegetation).



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Argentina
Ñacuñán

View of the Biosphere Reserve S. Claver

Declaration date: 1986
Surface area: 12.300 ha
Administrative division: Mendoza, Santa Rosa

Human activities:

The small community of Ñacuñán has a school-hostel attended by children from a wide area. The inhabitants have set up a cooperative, building and selling solar cookers thus saving gas and firewood. The main economic activity in the area around the reserve is cattle ranching and studies on the rational use of pasture land and cattle management are aimed at this activity.

Pink fairy armadillo
F. Videla

Patagonian Mara

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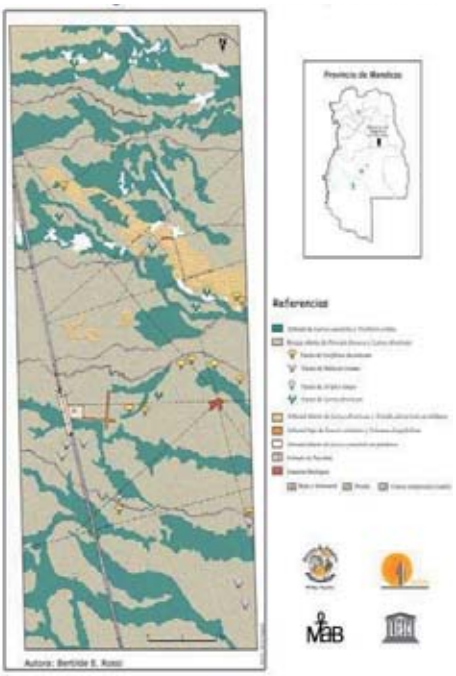
Ecological characteristics:

The Ñacuñán Biosphere Reserve belongs to the warm desert and semi-desert biome and to the Monte (or Argentine thorn-scrub) biographical province. It is located in the centre-east of Argentina in a vast inter-mountain plain at 540 m above sea level, formed by sediments from mountain rock weathering. Wind and water processes are manifest in the sandy loam soil and in the sand dunes, depressions and temporary furrows marking the undulated terrain. The climate is warm temperate desert with a mean annual rainfall of 330 mm, mainly in the summer and high evapotranspiration showing a negative water balance. The plant community comprises open forest of *Prosopis flexuosa* and *Larrea spp.* dominating the tree stratum, accompanied by a rich variety of grasses. There are some 190 species of wild fauna living either permanently or temporarily in the biosphere reserve. Some vulnerable species such as the Chaco Tortoise (*Geochelone chilensis*), the Pink Fairy Armadillo (*Chlamydophorus truncatus*) and the Grey fox (*Dusicyon griseus*) are protected in the Reserve, together with the Patagonian Mara (*Dolichotis patagonum*) Iguanas and Pumas. Many species have developed strategies to adapt to the desert, such as underground life, night habits and physiological mechanisms to reduce loss of water. The forest, logged at the beginning of the twentieth century for charcoal, is now in full rehabilitation.



Vegetation Map of the Ñacuñán Biosphere Reserve

Argentina
Pozuelos

Declaration date: 1990
Surface area: The basin itself covers 380.000 ha and the mirror of water 7.000 ha (the Pozuelos Lagoon)
Administrative area: Province of Jujuy

Human activities:

The main activity is migratory sheep and llama grazing in accordance with the carrying capacity of each productive unit. There is a trend towards prioritizing llama raising because of its economic potential (meat and fibre) when considering comparative advantages vis-à-vis other exotic animals in the Basin.

Sheep production and breeding, the predominant activity carried out under natural agro-ecological conditions.

Ecological characteristics:

The Laguna de Pozuelos Biosphere Reserve is part of the highlands of the Southern Central Andes, included within Dinerstien's Arid Puna ecosystem, identified as a conservation priority and is located in the extreme north of the Province of Jujuy at 3,600 m above sea level and at 66º 00´ longitude West and 2º19´ latitude South. Pozuelos is a typical highland lagoon, with shallow brackish waters and scant vegetation. At its centre the depth is no more than 100 cm and it is located in the middle of a vast high plateau, surrounded by high mountain chains, acting as a limit to the basin that covers some 380,000 ha at between 3,600 and 4,700 m above sea level. The surface area of the waters is approximately 7,000 ha when the lagoon is full and its size increases and decreases seasonally due to rainfall which occurs exclusively in the summer. In addition to the seasonal changes in the volume of the body of water, other less predictable changes occur, such as droughts that can lead to the lagoon drying up completely.
Five main environments can be found within the BR: lagoon, paleo-lagoon, foothills, volcanic relief, eastern sierras, western sierras (main massif and river valleys). The Corporation for the Development of the Pozuelos Basin is promoting the comprehensive development of its inhabitants through plans and programmes aimed at making better use of the natural resources (llamas, sheep) without neglecting the conservation function.

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Email: codepo_juy@hotmail.com

Argentina
Yabotí

Declaration date: 1993
Surface area: 236.313 ha
Administrative division: Province of Misiones. Extreme northeast of the Argentine Republic

Human activities:

Forestry activities. Research, Tourism. Monitoring. Environmental Education, Training, Traditional Guarani community activities, Small-hold farming.

Moconá Falls J. Molina

Protection classification:

Contact information:

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Argentina
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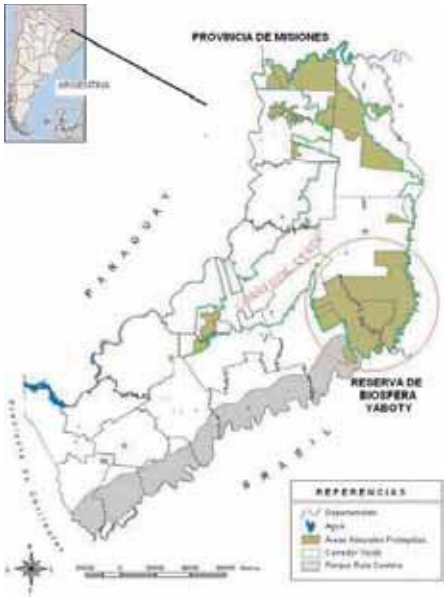
Cel: 03751 15411983

Ecological characteristics:

This BR forms part of the Inner Mata Atlântica, a vast forest mass which originally ranged from La Serra do Mar (Brazil) to eastern Paraguay and Misiones in Argentina. The Province of Misiones now conserves the largest part, with 44% of its original area. The Yaboty Biosphere Reserve with its 236,313 ha is approximately 21.5 % of this remnant.
The geographical location, pluviometric regime, topography, hydrographic system and climate of this Biosphere Reserve are all factors that combine to its multiplicity of ecosystems. Biodiversity studies carried out show the presence of numerous plant species, fish, amphibians, birds, mammals, and innumerable invertebrates. Endangered species are to be found in the RB, such as the Yaguareté (*Panthera onca*), the Harpy Eagle, the Tapir and the Brown Howling Monkey (*Alouatta guariba).*
The most outstanding flora in Yaboty are the Araucarias, the communities of Tree-fern (*Dicksonia sellowiana)*, the Assai Palm (*Euterpe edulis*), and species such as Cedar, Brazilian Ash (*Apuleia leiocarpa*, the Ibyrá Pytá (*Peltophorum dubium*), Laurel trees, the *Loasa tricolor var. placei* and the Ambay *(Cecropia Adenopus)*, that develop together with other emblematic species of the Misiones forest such as the orchids, climbers, lianas, and Tacuara bamboo. The beauty of its scenery and landscape are just another added value.



Argentina

Parque Atlántico Mar Chiquito

Declaration date: 1996
Surface area: 26.488 ha
Administrative division: Municipality of Mar Chiquita

Human activities:

Various land uses are made in the Parque Atlántico Mar Chiquito Biosphere Reserve, which have been conserved in varying degrees since its creation in 1996. Identified uses are: agriculture, livestock-raising, tourism, nautical sports, angling, military operations, mining, transport, forestry and scientific research.

Ecological characteristics:

Sea coast, beaches, coastal dunes, grasslands, reservoir lagoons and Pampean wetlands, relict humid coastal grasslands of the Southeast of the Province of Buenos Aires. The Albufera (reservoir) is a unique environment in the Argentine Republic, it has a surface area of 5880 hectares spanning approximately 27 km. It was formed during the Holocene by the action of the wind shaping great chains of dunes that enclosed the waters, resulting in a coastal lagoon linked to the sea. Its ecological function is vital in the regional continental and marine water cycle (replenishment and discharge). It is a stopping area for migratory Arctic birds and a breeding area for sea fish. It harbours a variety of species, including 178 species of birds, 9 species of amphibians, 8 species of reptiles, 28 species of mammals and 56 species of fish.

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Argentina
Delta del Paraná

Declaration date: November 2000 (extension 2007)
Surface area: 109.200 ha
Administrative Division: Province of Buenos Aires, 2nd and 3rd Sections, Buenos Aires Delta Islands under the jurisdiction of the Municipality of San Fernando

Human activities:

The Delta has records of human presence in close relationship with the environment going back 250 years. Main activities include forestry, horticulture, fruit farming, animal husbandry, fishing, beekeeping, plantations of willow and flax, and characteristic crafts that are identified with the region and thus recognizable throughout the country .

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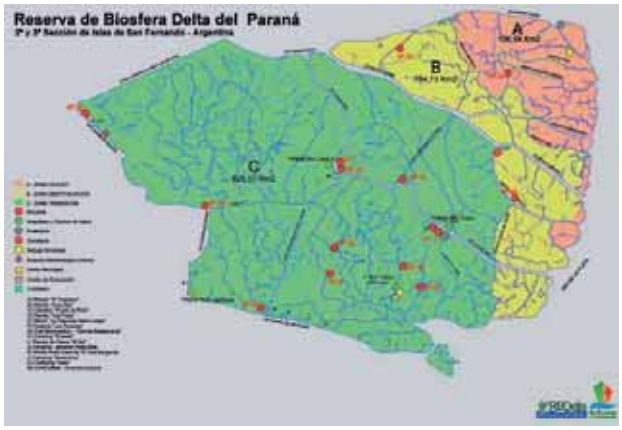
Ecological characteristics:

This is a unique wetland system in constant alluvial growth. A territory has been set aside in the Core Zone for the preservation of populations of Wild Marsh Deer, Capybara, the Neotropical River Otter, the Wild Cat and the Dusky-legged Guan, with locations of particular ecological interest as the last remains of white forest or riparian forest and Coral tree (*Erythrina crista-galli*) forests under regeneration. There are also floating islands, the habitat of the surviving deer. In the Buffer Zone, ecologically sustainable agricultural activities are carried out, together with crafts and new eco-tourism enterprises. Forestry activities and animal husbandry are fully developed under protocols of good environmental practices in the Transition Zone.

Protection classification:

The Delta BR does not have a formal classification protecting it beyond its condition as a Biosphere Reserve, but the local community and its institutions have developed great commitment to its protection .



Argentina
Riacho Teuquito

Forestry use

Declaration date: 10 November 2000
Surface area: 81.000 ha
Administrative division: Government of the Province of Formosa, Sub-secretariat for Natural Resources and Ecology, through the Management Council and Consultative Advisory Body (Consejo de Gestión y el Órgano Consultivo Asesor)

Human activities:

Incipient tourism: adventure tourism. Animal husbandry: small subsistence farming (goat and cattle). Bee-keeping. Forestry harvesting: use of the Transition Zone in accordance with sustainable use standards. Aboriginal crafts using autochthonous handicraft materials.

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Validation centre

Ecological characteristics:

The Riacho Teuquito Biosphere Reserve is located in the southwest of the Province of Formosa, in the centre of the American Gran Chaco, on the vastest plain of Latin America. The Biosphere Reserve area is environmentally very heterogeneous, with a complex mosaic of ecological systems representative of the dry tropical forest region. Within this general framework the BR belongs to the Chaco domain, with a continental-type climate and medium to low rainfall taking place in the spring and summer. The winters are mild and the summers warm. The Chaco Region comprises five sub-regions divided into ecological zones, with the BR classified in the Semi-arid Chaco subregion. Seventy-five to eighty percent of the area of the BR is covered by forest masses in different stages of exploitation. Forestry resources could become one of the basic components of development for this region's underprivileged communities, aiming at comprehensive management of the natural resources based on economic growth, social equity and care for the environment.

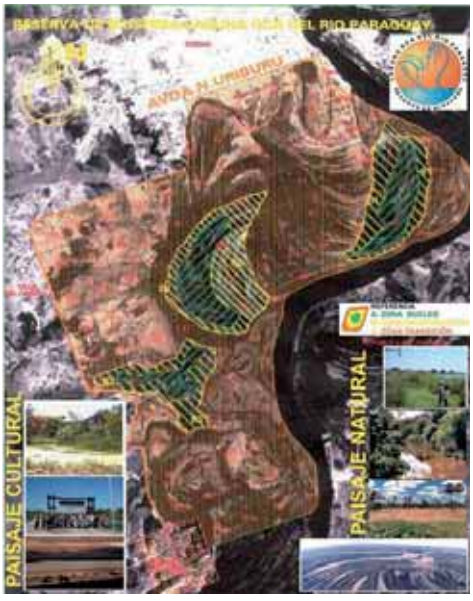
Protection classification:
Formosa Natural Reserve

Argentina

Laguna Oca del Río Paraguay

Declaration date: 10 November 2001
Surface area: 18.500 ha (being extended)
Administrative division: Province of Formosa

Human activities: As part of the area is peri-urban, there are many weekend and one family houses. Among other uses, the land has been given over to flower-growing, market gardens, open range cattle raising, beekeeping and, in the lake systems, aquiculture and frog-breeding. Leisure pastimes are increasing while the landscape has improved its value and the objective of "merging the edges" has been accomplished, not only structurally but also culturally and the symbiosis city-natural hinterland has been recovered with changes in habits and the affective links of the inhabitants towards their river. The City has become reconciled with its River and Lagoons. This change is demonstrated in the eco-engineering works, some already finished, some still ongoing. The implementation of the Master Sanitation Plan (provision of water and sewers), Comprehensive Plan for Waste



Contact information:

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Ecological characteristics:
With regards to Ecological Zones, this area comes within the Flood Plain of the Paraguay and Parana Rivers and in biogeographical terms, it is included in the Gran Chaco Province, Humid Chaco Sub-region. The wealth of geomorphological, forest and savannah flora covering it, the diversity of fauna it hosts and the importance of its environmental services as a social asset because of its proximity to the city, set this Biosphere Reserve apart as an Experimental Sustainable Urban Development Area. Near the lagoon and the streams which are constantly flooded the vegetation is an extension of subtropical forests. A great mass of hydrophilic trees and bushes form associated communities with enormous reed-beds, where *Panicum prionitis, Talia geniculata,* Mexican Papyrus, *Cyperus giganteus,* Cattail *Typha dominguensis*, and the anchored Water Hyacinth, *Eichhornia azurea* predominate, together with the emblematic Water Lily *Vitoria regia* predominate. In the areas protected from river flooding, the Black Lapacho (*Tabebuia ipe*), the Pacara Earpod tree (*Enterolobium contortosiliquum*) and the Ibirá-pitá (*Peltophorum dubium*) are dominant. The gallery forests contain a great diversity of lianas and epiphytes with noteworthy orchids and briophytes.

Argentina
Las Yungas

Declaration date: November 2002
Surface area: 1.330.000 ha
Administrative division: Salta, Jujuy

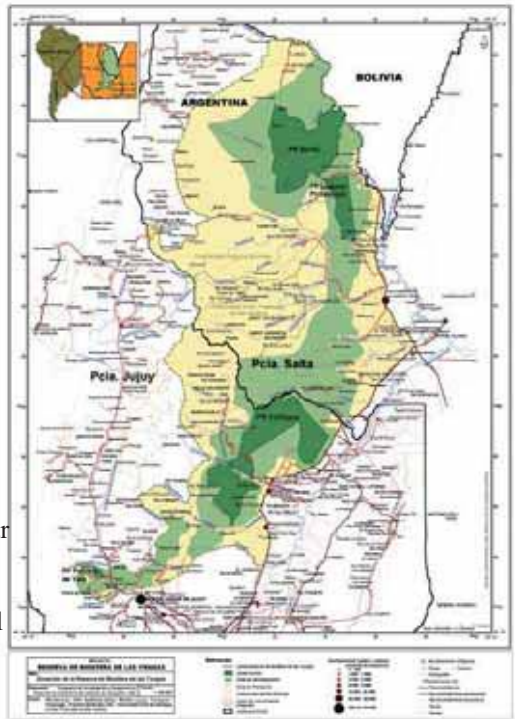
Human activities:

The present population mainly comprises peasant farmers. There are small and medium-sized land owners, as in the case of Los Toldos, or community owners, as in the case of Finca Santiago, lease-holders and workers who live on farms as well as large land-owners of traditional farms and technical production companies. Near the agricultural areas semi-rural settlements house labourers working in the production companies. In general, greater social heterogeneity and productive dynamics are observed towards the south of the RB.

Ecological characteristics:

The RB corresponds to the bio-geographical unit of the Yungas Province within the Amazonian Domain (Cabrera & Willink, 1973), also known as Andean Yungas eco-region (Dinersten et al., 1995) and Mountain Yungas Province (Udvardy, 1984). The Las Yungas BR also includes a portion of high Andean grasslands corresponding to the Andean-Patagonian Domain (Cabrera & Willink, 1973). This formation is to be found to the extreme south of the mountain forests that developed on the eastern slopes of the Andes Cordillera, covering a long narrow strip of over 4000 km running along the meridian, from the Andean mountain forests of Venezuela (7º latitude N) to the Argentine Province of Catamarca (28º latitude S).
This location includes very heterogenic landscapes, ranging from exuberant subtropical mountain forests harbouring great biodiversity, through cloud grasslands, where horizontal precipitation is a fundamental climatic factor, to high Andean ecosystems including species adapted to extreme environmental conditions.

Protection classifications:
Baritú National Park, El Nogalar de los Toldos Natural Reserve, Calilegua National Park



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Argentina
Andino Norpatagónica

Declaration date: September 2007
Surface area: 2.266.942 ha
Administrative Division: The Provinces of Chubut and Rio Negro

Human activities:

Productive and subsistence agriculture and livestock raising, forestry (wood and non-wood products), tourism-leisure activities geared to people from the main cities, carried out in the less disturbed rural and sub-rural sectors.

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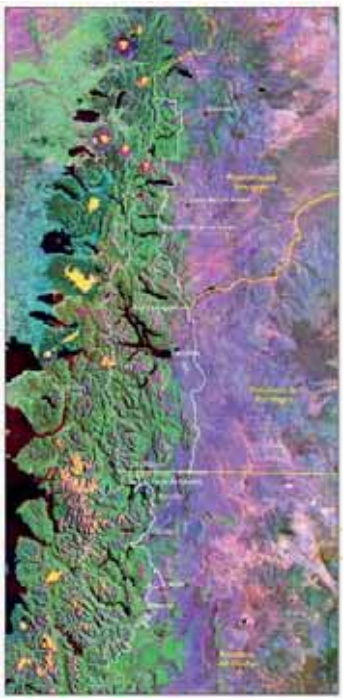
Ecological characteristics:

The Valdiviana eco-region, located between latitudes 35° and 48° South, show a great range of environmental variability due to the heterogeneous physical environment and a marked climatic gradient, both in terms of temperature (associated with changes in latitude and altitude), and pluviometry (rainfall dropping over less than 80 km, from 3000 mm in the Andes, to 500 mm in the Patagonian plateau). The Biosphere Reserve encompasses humid temperate forest formations of Nothofagus and Araucaria, xeric forests with Cordillera Cyprus, high Andean communities, wetlands and steppes, with all their diversity of living organisms.
These environments play a key role in protecting the high basins, defining the eastern distribution of many species that have established glacial refuges. The environment is still generally untouched and of critical importance in the preservation of the eco-region and the genetic variability of many of its relevant species.
The area is highly singular from the bio-geographic standpoint, with many endemic species including 76% of its amphibians, 50% of its fish, 36% of its reptiles, 33% of its mammals, 30% of its birds and 34% of its woody plants. The Biosphere Reserve also includes strict endemic species such as the Social Tuco Tuco (*Ctenomys sociabilis*) and the Challhuaco Frog, vulnerable species such as the Larch and Pehuen- and endangered species such as the Huemul (*Hippocamelus bisulcus*) and the Southern River Otter



Protection classification:

National Parks and Reserves of Lanín, Nahuel Huapi, Los Arrayanes, Lago Puelo.

Argentina
Pereyra Iraola

Declaration date: 20 September 2007
Surface area: 10.248 ha
Administrative division: Province of Buenos Aires

Human activities:

Various rural traditions, customs and tasks are still practiced in the Pereyra Iraola Biosphere Reserve, such as horseback skills, branding, breaking-in, music, dances, rural crafts and traditional agricultural production. It is also a venue for various recreational activities.

Ecological characteristics:

The communities to be found in the Pereyra Iraola Biosphere Reserve are the last functional and representative portion of a succession of environments that used to characterize the inner coastal estuary of the Rio de la Plata, which have progressively disappeared because of the encroaching urban front.
It contains the greatest biodiversity existing in the Province of Buenos Aires: approximately 69 % (288 species) of the Buenos Aires birdlife, 41 % (46 species) of mammals, 84 % (26 species) of amphibians, 56 % (31 species) of reptiles and 41% (870 species) of the Province's native plants are to be found in this area.
Furthermore, the biosphere reserve comprises significant portions of the watersheds of various rivers and, because it is surrounded by densely populated urban areas, it is the greatest source of local replenishment for the Puelche aquifer that provides drinking water to an enormous percentage of the Buenos Aires suburbs.
Finally, the Pereyra Iraola Biosphere Reserve is the largest green lung set in a distinctly urban environment. Its importance on a regional scale is tangible because of its enormous mass of vegetation covering approximately 3,200 hectares of forests containing both native and exotic species and almost 1,800 hectares of floodable scrubland.

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Bolivia
Apolobamba (Ulla Ulla)

Declaration date: 1977
Surface area: 483.744 ha
Administrative division: Department of La Paz

Human activities:

The most important management programme was the Vicuña Management Plan. Since 1998, annual censuses took place: the Vicuña were caught and shorn and their wool used. However, in 2002 the Management Plan concluded.

Ecological characteristics:

Four major physiographic regions may be distinguished: the Andean Zone, the Sub-Andean Zone, the Andean Foothills, and the Alluvial Plain Lake System. Within these regions, minor units may be identified considering parameters such as altitude, drainage and degree of dissection. The Biosphere Reserve mainly occupies the Apolobamba Cordillera region, stretching to the humid cloud forest and Yungas area of Carijana. Of the estimated approximately 1,500 species of flora, 807 have been recorded. The BR includes the nival and Periglacial environments of the Cordillera Real, humid high Andean grasslands, marshlands and peat bogs, the Yungas Paramo, the Cloud Forest and remnant forests of *Polylepis racemosa*.
Two hundred and seventy-five species of fauna have been recorded, among these various species that are threatened or endangered such as the Vicuña (*Vicugna vicugna*), the Spectacled Bear (*Tremarctos ornatus*), the Peruvian Guamal (*Hippocamelus antisensis*), the Deer (*Odocoileus virginianus*), the Dwarf Brocket (*Mazama bricenii chunyi*), the Andean Cat (*Felis jacobita*), the Puma (*Felis concolor*), the Giant Coot (*Fulica gigantea*), the Andean Goose (*Chloephaga melanoptera*) and the Torrent Duck (*Merganetta armata*), in addition to other species of birds such as the Andean Tit Spinetail (*Lepthastenura andicola),* the White-tailed Shrike Tyrant (*Agriornis andicola),* *(Satenes humilis)* and the Rufus-faced Antpitta *(Grallaria erythrotis)* which is endemic to the region.

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Bolivia
Pilón Lajas

Declaration date: 1977
Surface area: 400.000 ha
Administrative division: Departments of Beni and La Paz

Human activities:
Potentially, wildlife management programmes and sustainable community development projects could be implemented, such as the wildlife management projects undertaken with indigenous Chiman and Moseten communities.

Ecological characteristics:

This Biosphere Reserve is located in the Sub-Andean North biogeographical region, on the last foothills of the eastern Andes Cordillera where it meets the Beni Alluvial Plain. It has three important habitats:
- Amazon forest (lower tropics, 0 - 500 m above sea level).
- Foothill tropical forest (500 a 900 m above sea level).
- Upper tropical forest (900 – 1,600 m above sea level).

New species of birds appear as altitude is gained, while the upland forest is richer in animal species. The number of vertebrates drops dramatically in the floodplain and swampy forests.
There are 162 species of timber trees, including fancy species such as Big-leafed Mahogany (*Swietenia macropylla*), Cedar (*Cedrela sp.*) and *Amburana cearensis*; 20 species of palm trees, such as the Geonoma palm (*Geonoma deversa*) and *Jessenia bataua*. There are 85 species of mammals recorded such as the Black Spider Monkey (*Ateles paniscus*), the Spectacled Bear (*Tremarctos ornatus*), the Giant Otter (*Pteronura brasiliensis*) and the Dwarf Brocket (*Mazama chunyi*).
A preliminary list has been drawn up of 502 bird species, among them three endemic species: *Simoxenops striatus, Myrmotherula grisea* and *Hermitricus spodiops*. Ninety-three species of reptiles have been recorded, such as the Yellow-spotted River Turtle (*Podocnemis unifilies*), the Black Caiman (*Melanosuchus niger*), the Yacare Caiman (*Caiman yacaré*); amphibians such as *Leptodactylidae*, *Centrolenidae* (*Cochranella sp*) and *Dendrobatidae*. One hundred and three species of fish have been recorded, among which: Barred Sorubim (*Pseudoplatystoma fasciatum*), Black prochilodus, (*Prochilodus nigricans*), and *Brycon sp*.

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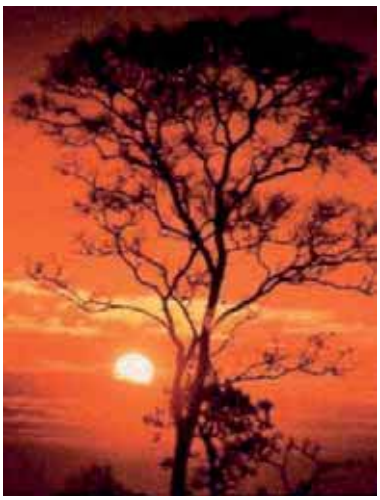
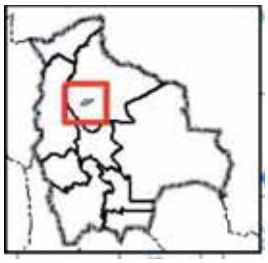
Bolivia
Estación Biológica del Beni



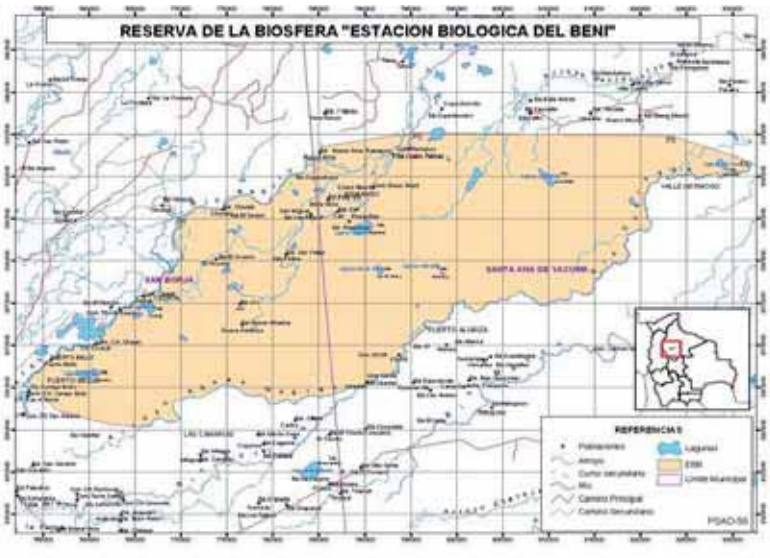
Declaration date: October 1986
Surface area: 135.000 ha
Administrative division: Department of Beni

Human activities:
Presently 120 Chiman families and 20 Camba families live in the BR (approximately 600 people). Inside the present limits, there are some 12 small farms and ranches.



Ecological characteristics:

Three biogeographical regions converge in the Beni Experimental Station Biosphere Reserve (RB-EBB): Amazon, Chaco and Cerrado. It is located in the biogeographical sub-region of Madeira Rainforest and has an insular biogeographical position, that is to say, it is an archipelago of alluvial forests surrounded by savannahs and wetlands. It contains three types of habitat: the forest complex, the savannah complex and the swampland complex. In terms of flora and fauna, 815 species of higher plants have been recorded and it is estimated that there are approximately 1,500 species. Among the species of flora, mention can be made of Big-leaf Mahogany (*Swietenia macrophylla*), Santa Maria Hardwood (*Calophyllum brasiliense*), Cedar (*Cederla odorata*), Sandbox or Possum-wood tree (*Hura crepitans*), Caribbean Trumpet tree (*Tabebuia heptaphylla*), *Astronium sp.*, Cashapona or Stilt-palm (*Socratea exorrhiza*) and the Geonoma palm (*Geonoma sp*). Eight hundred and fifty-two species of fauna have been recorded. Worth mentioning are the Giant Armadillo (*Priodontes maximus*), the Black Spider Monkey (*Ateles paniscus*), the Red Howler (*Alouatta seniculus*), the Jaguar (*Panthera onca*), the Marsh Deer (*Odocoileus dichotomus*), the White-winged Nightjar (*Caprimulgus candicans)*, the Harpy Eagle (*Harpia haryja*), the Muscovy Duck (*Cairina moschata*), the Unicoloured Thrush (*Turdus haplochrous)*, the Yellow-spotted River Turtle (*Podocnemis unifiles*), the Yacare Caiman (*Caiman crocodilus yacare*) and the Black Caiman (*Melanosuchus niger*). Four hundred and eighty species of birds have also been identified.



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Brazil
Mata Atlântica

Serra do Mar, between Sao Paulo and Rio de Janeiro

Declaration date: 1991 (5 extensions)
Surface area: 35.000.000 ha
Administrative division: 16 of the 17 States having Mata Atlântica in Brazil

Human activities:

One hundred and twenty million Brazilians live in the Mata Atlântica area, and most of the cities, industrial, tourist and agricultural centres in Brazil are located in this area. Close on 40% of these ecosystems are included in the Mata Atlântica Biosphere Reserve.

Golden Lion Tamarin or Golden Marmoset (*Leontopithecus rosalia*)

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Ecological characteristics:

The Mata Atlântica is one of the Planet's most beautiful and endangered tropical forests. It extends over 17 Brazilian States as well as parts of Argentina and Paraguay. In Brazil it has been fragmented and reduced to less than 8% of its original area. Even so reduced, the Mata Atlântica holds record biodiversity including up to 450 species of trees per hectare and over 8000 plants have already been identified. The fauna, one of the most diverse in the world, includes 185 (that is to say 70%) of the 265 species considered to be endangered in Brazil. The Mata Atlântica comprises a great mosaic of forest formations as associated ecosystems, including mangroves, dunes and highland vegetation. It stretches along 5 thousand km of Brazilian coast, including areas from sea level up to 2,500 m above sea level.

Protection classification:

- Law for the National Conservation Unit System
- Mata Atlântica Federal Law
- National Programme for the Conservation and sustainable use of the Mata Atlântica
- National and State Protected Areas (Parks, Reserves, etc.)

Ecotourism training, Vale do Ribeira, SP

Brazil

O Cerrado do Distrito Federal

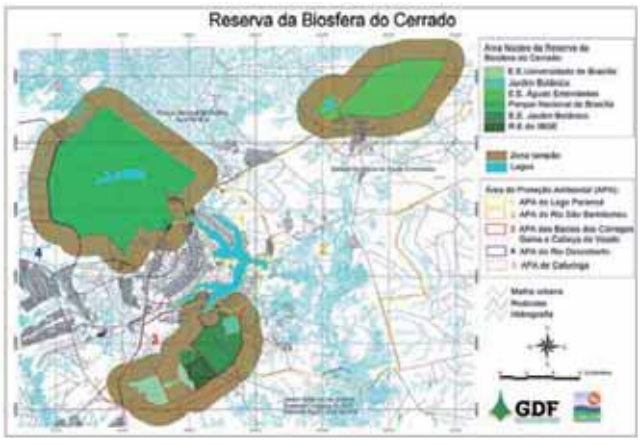
Declaration date: 28 July 1994
Surface area: 230.000 ha
Administrative division: Federal District

Human activities:

The Core Zones of the BR C-DF comprise Fully Protected Conservation Units. Dwelling in these units is not permitted with the exception of administrative buildings for the use of the management body officials. The Buffer and Transition Zones are home to 30,000 and 480,000 inhabitants respectively, with intensive land use and man-made sites containing urban areas. Agricultural and forestry activities predominate, in addition to significant land use for livestock raising.

Ecological characteristics:

The Cerrado is a savannah with the richest biodiversity in the world, hosting approximately one third of all Brazilian plants. The native flora of the Cerrado offer great economic potential and can be used both for biochemical and medicinal purposes. Although there has been no systematic study in this field, at least 250 types of plants have been recognized as potentially marketable – and mostly endemic. It is estimated that there are over 6000 species of trees and 800 species of birds, in addition to a great variety of fish in this Biosphere Reserve. Because of this exceptional biological wealth, the Cerrado is considered to be one of the world's hotspots as it is one of the planet's richest biomes in biodiversity and one of the most endangered. The BR C-DF comprises five Conservation Units, two District Units – the Experimental Station of Aguas Emendadas covering 10,547 ha and the Brazilian Botanical Garden Experimental Station covering 5,000 ha and three Federal Conservation Units – the Brasilia National Park covering 30.000 ha, IBGE's Experimental Station covering 1,360 ha and the University of Brasilia's Fazenda Água Limpa covering 4,340 ha, totalling 51,247 ha. Around the core zones are the buffer and transition zones, representing the Environmental Protection Areas of the Basin of the larger São Bartolomeu and Descoberto Rivers and the smaller Gama, Cabeça de Veado and Cafuringa Rivers.



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Brazil
Pantanal

Declaration date: 9 November 2000
Surface area: 60.000.000 ha
Administrative division: States of Mato Grosso and Mato Grosso do Sul

Human activities

Traditional animal husbandry, mining, mechanized grain harvesting, tourism, heavy vehicle transport, artisanal fishing and alcohol production.

Protection classifications:
Pantanal do Matogrosso National Park
Chapada dos Guimarães National Park
Emas National Park
Serra da Bodoquena National Park

Contact information:

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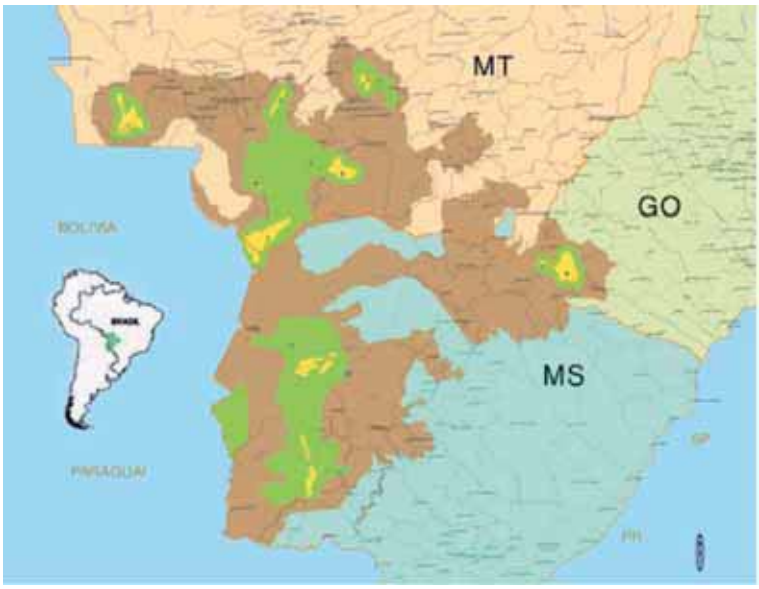
Ecological characteristics:

In the Pantanal, the Paraguay River Basin includes one of the planet's greatest extensions of marshy areas covering 147,574km². It is the link between the Brazilian Cerrado and the Bolivian and Paraguayan Chaco. The Pantanal is a mosaic of landscapes with a predominantly Cerrado influence in the East. It receives the influence of the Mata Atlântica's flora, also in the East, of the Amazon to the North and of the Chaco to the West. Some areas contain fragments of Caatinga. However, in the Planalto, the Cerrado predominates. Birdlife is abundant, particularly aquatic birds that gather round seasonal food resources or in nursery areas, very often forming large nesting areas. Mammals are widely distributed and find food and reproductive niches in the Pantanal Plain. The rate of endemic species is low, although there are species officially listed as endangered. The water regime is of fundamental importance for the system's operation and ecological productivity is determined by the dynamics of the rivers' hydrological dynamics with their physical, chemical and microbiological substratum properties, where the communities of flora and fauna are adapted to flooded or water-logged soils.



Brazil
Caatinga

Declaration date: 2001
Surface area: 19.899.000 ha
Administrative division: The BR covers nine States in the Northeast of Brazil (Piauí, Maranhão, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia),in addition to the north region of the State of Minas

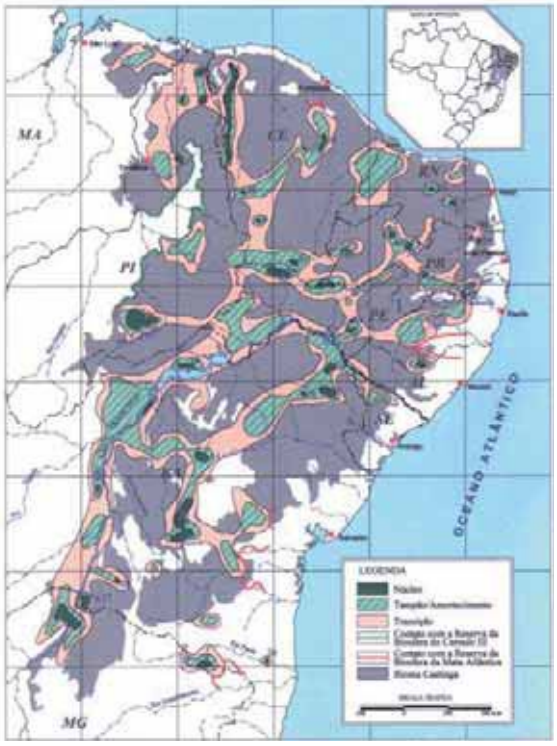
Human activities:

The economy is based on dry and irrigated agriculture. Cultural expressions found in this Reserve stem from the origins of the ethnic groups in this semi-arid environment. Leather, earthenware, wood and knitted crafts are noteworthy.

Ecological characteristics:

The Caatinga biome is exclusively Brazilian, located in a semi-arid region, covering an area of 103,751,780 ha, encompassing 1280 municipalities with a population of 28 million inhabitants. It totals 60% of the Northeast area and 13% of Brazil. It is the largest dry forest in Latin America. The Caatinga Biosphere Reserve is characterized by Caatinga vegetation (in the language of the indigenous Tupi, Caatinga means white woodland). The vegetation mainly comprises small-sized woody and herbaceous species, generally bearing thorns and mainly deciduous, losing their leaves at the start of the dry season, in addition to cactus and bromeliads, the typical vegetation of the semi-arid northeast region of Brazil. The rivers are mostly intermittent and their flow is limited and insufficient for irrigation. The altitude in the region varies from 0 to 600 m above sea level. The temperature ranges between 24 and 28ºC and mean rainfall is between 250 and 1000 mm, the water deficit being high throughout the year. The Buffer and Transitions zones of the the Caatinga Biosphere Reserve contain ecological corridors between the various Core zones, linking them to continuous areas of the Mata Atlântica and Cerrado biomes. The BR is implementing a strategy to promote biodiversity preservation and the development of environmental research, education and monitoring.

The craftsman and his work
Cícero Alves dos Santos, the
"Old Man"



Contact information:

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Brazil
Amazônia Central

A pink Amazon river dolphin at Novo Airão/AM

Declaration date: 2001
Surface area: 20.859.978 ha (core zone: 4.039.149 ha, buffer zone: 7.435.687 ha, transition zone: 9.385.142 ha)
Administrative division: The whole area of the ACBR is included in the State of Amazonas, Brazil.

Human activities:

The population is culturally very heterogeneous, ranging from small farmers, many of them installed near their region of origin in the Northeast, riparian dwellers, indigenous people, tappers and fisher-folk. The main productive activities are extractivism and small-scale agriculture, breeding of small animals and tourist activities related with visits to the Conservation Units such as the Jau National Park, and angling.

Marcio Amorim/PC

Contact information:

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Ecological characteristics:

The Biosphere Reserve is located in the greater region of influence of the Rivers Negro and Solimões and the transition zone in the Amazon Plain and Guyana Shield. To the west is a várzea region (forests that are periodically flooded by white waters), at the intersection of the Rivers Solimões and Japurá and the right bank of the Juruá River. ESEC das Anavilhanas, which comprises the archipelago with the same name, is located in the centre of PARNA Jaú, at the intersection of the Rivers Solimões and Negro. To the centre-south are the reserves near the city of Manaus. To the east is REBIO Uatumã and APA da Caverna do Maroaga, encompassing the Balbina Hydroelectric Dam. The State and Federal Conservation Units are considered to be the core zone. The indigenous peoples' lands have been excluded from the Biosphere Reserve as they have their own specific legislation. Throughout this region, forests are divided into three types: Upland forest, igapó (forests that are periodically flooded by black water rivers) and várzea (periodically flooded by white-water rivers).

Protection classification:

Uatumã Biological Reserve, Rio Negro Ecological Reserve, Jaú National Park, Juami-Japurá Ecological Reserve, Javari-Solimões Ecological Reserve.

Marcio Amorim/PC

Brazil

Serra do Espinhaço

Date of declaration: June 2005
Surface area: 3.076.458 ha
Administrative division: 53 Municipalities in Minas Gerais, Brazil

Human activities:

This region is one of the most exploited mineral regions in the world. Other activities include open range cattle raising, subsistence agriculture, and plant extractivism. Tourism and scientific research are gaining ground in the context of the region's cultural and historical significance.

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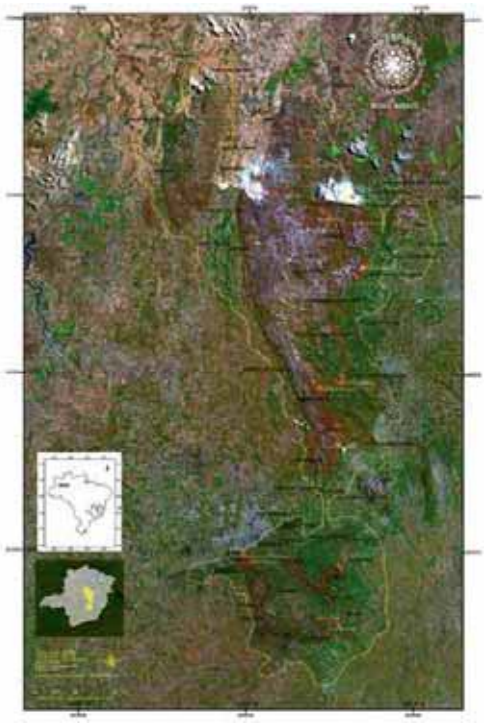
Ecological characteristics:

The Serra do Espinhaço is the most extended and continuous mountain range in Brazil. It stretches, like an ecological corridor, along close on 1,200 km N-S from the State of Minas Gerais to the northern limits of Bahia with the States of Pernambuco and Piaui. Its altitude varies between 1,000 and 1,500 m, with peaks reaching up to 2,017 metres. It is one of the greatest sources of water for Brazil's main hydrographical basins, draining directly into the Atlantic Ocean. This fabulous natural monument is host to three Brazilian biome that are highly relevant for biodiversity conservation: Caatinga, Cerrado and Mata Atlântica. The vegetation known as Campos Rupestres distinguishes Serra do Espinhaço from other regions in the world. These rock fields are flower-dotted highland grasslands which develop on bedrock, stony or sandy soils crossed by rivers and gushing waterfalls. The Campos Rupestres are formed by a rich mosaic of plant communities, only controlled by the local topography, the nature of the substratum and the microclimate. Knowledge is still very limited due to their mega-diversity. Present studies of the flora estimate between 2 to 3 thousand species with about 30% endemic and some 350 endangered species. This ecosystem is extremely fragile with very low resilience and, because of its singularity and complexity, studies should be carried out to designate Campos Rupestres as a new Brazilian biome.

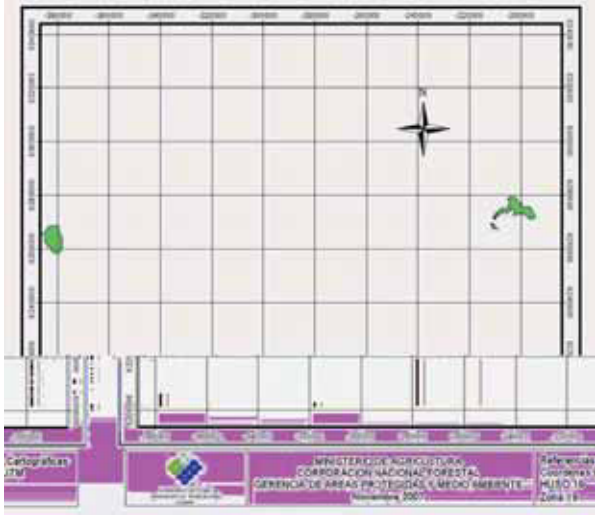


Chile
Archipiélago de Juan Fernández

Date of declaration: 1977
Surface area: 9.967 ha
Administrative division: Valparaiso Region, Province of Valparaiso

Human activities:

Socio-economic activities are carried out outside the Reserve but very close to it. They mainly consist of eco-tourism over land and sea, heritage tourism and hotel services, artisanal fishing, trade and municipal public services.



Contact information:

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Chile

Ecological characteristics:

This Reserve corresponds to an insular ecosystem, characterized by the presence of 131 endemic plant species (62% of the native vascular flora). Remnants of the past are worth mentioning, such as *Lactoris fernandeziana* and *Thursopteris elegans*; and ten endemic species: *Cuminia, Dendroseris, Juania, Lactoris, Megalachne, Podophorus, Robinsonia, Selkirkia, Thyrsopteris,* and *Yunquea*.
An outstanding characteristic of the Juan Fernández forest is the fact that 100% of its tree species only exist in the Archipelago, that is to say it is 100% endemic. Fauna includes the Juan Fernandez Firecrown (*Sephanoides fernandensis*), the Juan Fernandez Tit-Tyrant (*Anairetes fernandezianus*) and the Juan Fernandez Fur Seal (*Arctocephalus philippi*).

Protection classification:

Juan Fernández Archipelago National Park

Chile
Fray Jorge

Declaration date: 1977
Surface area: 9.959 ha
Administrative division: Coquimbo Region, Province of Limari

Human activities:

The main activity is tourism, with close on 15,000 visitors per year. Research activities and environmental education also take place in the Biosphere Reserve.

Protection classification:

Fray Jorge National Park

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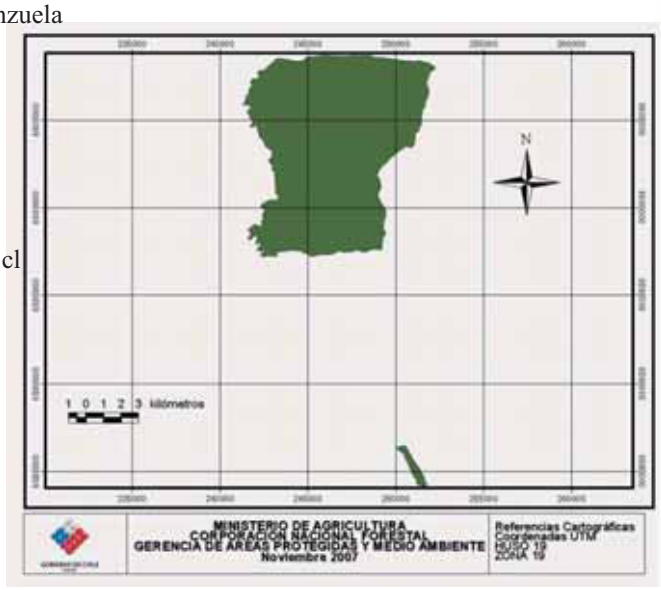
Ecological characteristics:

This Biosphere Reserve represents the dwarf coastal cloud shrubland habitat, harbouring succulents and thorny shrubs comprised in the arid and semi-arid Mediterranean type plant formation of Mediterranean Chile. Biomes such as river, estuary (the mouth of the Limari River), coastline, semi-arid sclerophyll shrubland and evergreen relict forest are represented in this BR. The evergreen relict forest comprises a hygrophyll forest with plant species characteristic of the south of Chile, over 1,000 km away, such as the Olivillo (*Aextoxicon punctatum*) and Winter's bark or Canelo (*Drimys winteri*). There are 440 species of native flora, of which 266 are endemic to Chile, 10 are listed as endangered and 84 as vulnerable species.



Chile
Torres del Paine

Declaration date: 1978
Surface area: 184.414 ha
Administrative division: Magallanes and Chilean Antarctic Regions, Province of Ultima Esperanza

Human activities:

The Biosphere Reserve has a variety of tourist services, offered by 15 private concessions mainly geared to lodging, restaurants, transport and recreation. It receives approximately 115,000 visitors per year.

Protection classification:

Torres del Paine National Park

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Jefe Prov. Ultima Esperanza
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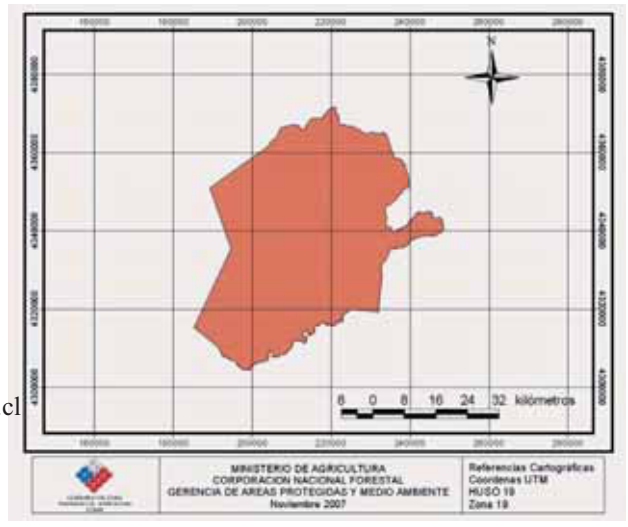
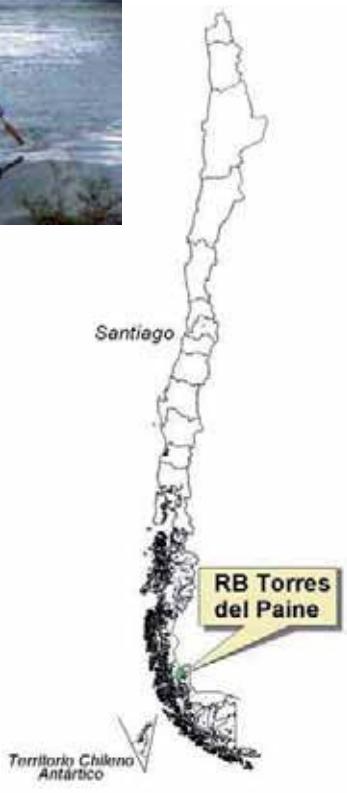
Ecological characteristics:

The Biosphere Reserve has four well defined ecological zones:

- Pre-Andean scrubland: present in the plains and plateaux-like formations, the species found here are mostly adapted to economizing water due to their exposure to strong winds.
- Deciduous Magellan Forest: all the tree and shrub communities in this community belong to this ecosystem, where Lenga (*Nothafagus pumilio*) is the dominating species.
- Patagonian Steppe: to be found in the plains and plateaux-like formations, with a semi-arid cold climate and rainfall of up to 400 mm per year. Here perennial medium to low height grass communities are to be found, growing in ditch-like depressions.
- Andean desert: corresponding to a zone where vegetation only develops up to a height of 1,50 m, with cover ranging from 30% to 0% due to the extreme climatic conditions and the altitude. The association of *Mulinetum espinosum* (pre-Andean scrub) should be noted. Part of the flora is exclusive to the Reserve and the Province of Ultima Esperanza, with *Adesmia campestris* as a rare and exclusive species.





Chile
Laguna San Rafael

Declaration date: 1979
Surface area: 1.742.000 ha
Administrative division: Aysen Region, Provinces of Aysen, Capitan Prat and General Carrera

Human activities:

Tourism: this area is an archipelago with no roads reaching it, however some 20,000 people visit the area annually on large boats.

Ecological characteristics:

This Biosphere Reserve contains high ecosystem diversity. Of the ten plant formations existing in the Aysen Region, seven are to be found in the Reserve: High mountain deciduous shrubland; Aysen deciduous forest; Puyahuapi Evergreen forest; Baker mixed evergreen forest; evergreen coastal shrubland; Periglacial shrubland; Messier Canal peat-bogs and swampy evergreen shrubland. As most of the Reserve is coastal, its relevant characteristics are its many estuaries, mudflats, and coastal and beach lands, in addition to a large area of other wetlands, such as peat-bogs, swamps, lakes, lagoons and rivers. The whole of the North Patagonia Ice Fields is included, covering over 400,000 ha with numerous glacier break-offs, with the well-known San Rafael, the main tourist attraction of the XI Aysen Region and one of the most outstanding glaciers in the country.

Protection classification:

Laguna San Rafael National Park

Contact information:

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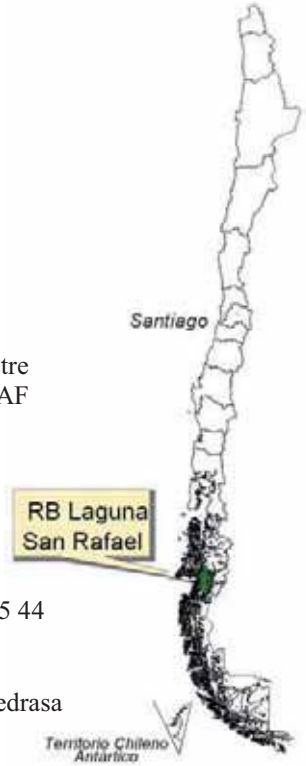
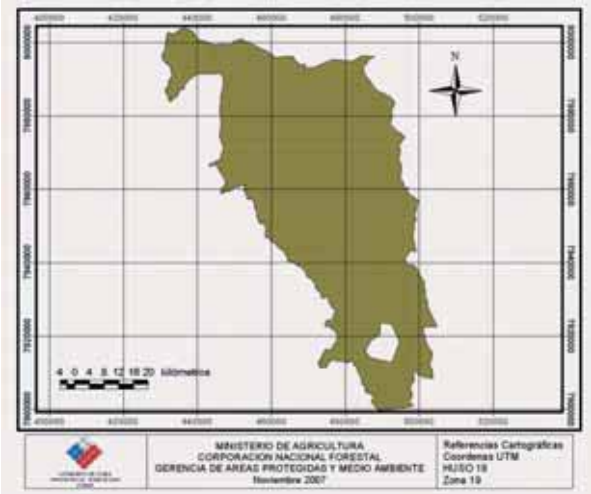




Chile
Lauca

Declaration date: 1983
Surface area: 358.312 ha
Administrative division: Arica and Parinacota Region, Province of Putre

Human activities:

Livestock raising of domestic camelids (Llamas and Alpacas), obtaining meat and wool for marketing and domestic consumption for the indigenous Aymara communities. Use is also made of Vicuña (*Vicugna vicugna*)fibre

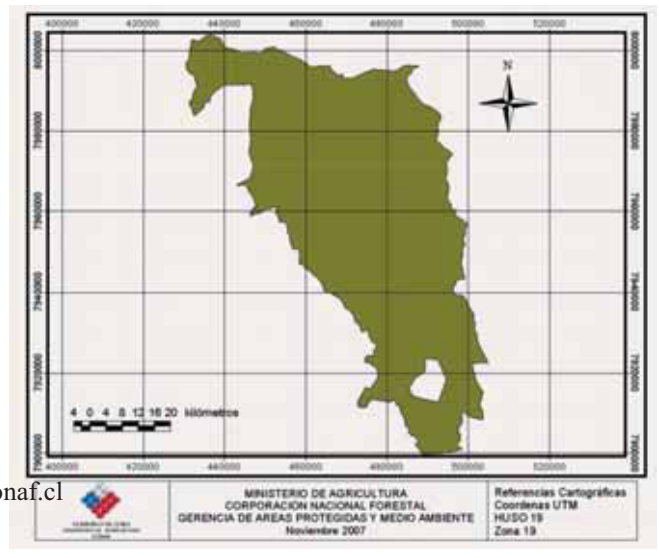
Ecological characteristics:

The following plant formations are to be found: ·
- Low "Tolar" scrubland: characterized by shrub-like plants with resinous leaves and branches, with stunted growth forming relatively dense scrubland with dominant trees reaching up to one metre high. ·
- High "Queñoal" scrubland: small trees of up to 5 m high, growing on the slopes of the mountain ranges;
- Humid "Bofedal" steppe: this comprises the vegetation above 4,000 m above sea level where running water exists. It includes the association of *Oxychloe andina* characterized by its marshy cushion form.
- Pulvinate plants: at altitudes of 3,800 m above sea level and above, includes the association of *laretia compacta - parastrephia quadrangularis*. Its main species, "Laretia", grows in a very compact cushion, and may measure up to 2 m diameter and one metre high.

One of the most important habitats are the “Bofedales” or highland wetlands as they are a source of food and water for both wild and domestic fauna. The native fauna is a very important resource making it attractive both ecologically and as a landscape. There is a great variety of birdlife, close on 150 species, that is to say about 30% of the total number of species in this group in the country.

Protection classification:

Lauca National Park
Las Vicuñas National Reserve



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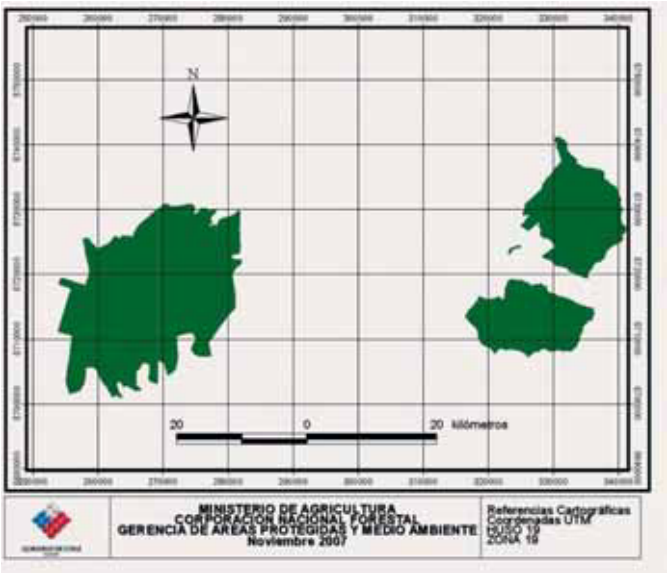
Chile
Araucarias

Declaration date: 1983
Surface area: 93.833 ha
Administrative division: Araucania Region, Provinces of Malleco and Cautín

Human activities:

Recreational activities such as excursions, angling, swimming, skiing and environmental education take place in the area where there are trails and Environmental Information Centres.



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Ecological characteristics:

The prevailing climate in the Conguillio sector is warm, temperate with less than four dry months. It has continental characteristics, with great temperature oscillations in the summer, accompanied by rainfall that varies between 2,000 and 3,000 mm a year and in the winter snowfall can reach up to 2 m in some areas. In the Alto Biobio sector an icy climate predominates because of the altitude, with marked steppe characteristics. The following forest formations are to be observed:
· Araucaria associated with steppe comprising *chusquea spp.* This habitat is exclusive to this region of the country, only to be found in the Alto Biobio sector. The fauna is typical of steppe environments.
· Pure Araucaria forests and Araucaria associated with Lenga Beech (*Nothofagus pumilio*), *N. dombeyi* and the Antarctic Beech (*N. Antártica*), which host a rich amphibian fauna, reptiles, birds and mammals and various groups of invertebrates.

The Araucaria is a very important ethno-botanical species as its territory coincides with the distribution of the Pehuenche people, who have historically used its seeds (piñón) as a seasonal source of food, and continue to do so today.

Protection classification:

Conguillio National Park

Chile
La Campana-Peñuelas

Declaration date: 1984
Surface area: 17.095 ha
Administrative division: Valparaíso Region, Valparaíso and Quillota Provinces

Human activities:

Activities carried out in this BR are mainly of a recreational nature, with 80,000 visitors per year, and also include environmental education. Projects for forest manage-

Protection classification:

Uatumã Biological Reserve, Rio Negro Ecological Reserve, Jaú National Park, Juami-Japurá Ecological Reserve, Javari-Solimões Ecological Reserve.

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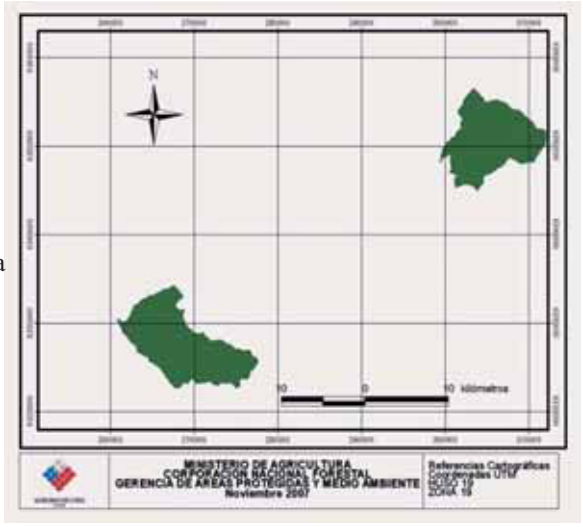


Ecological characteristics:

This Biosphere Reserve includes various ecosystems, all hosting endemic species:

- Hygrophyll forests are present in the lower parts of gullies and on humid slopes, with species such as: *Crinodendron patagua*, *Persea lingue*, *Dasyphyllum excelsum* and *Beilschmiedia miersii*;
- Sclerophyll forests hosting *Cryptocarya alba*, Boldo (*Peumus boldus*) and the Soapbark tree (*Quillaja saponaria*);
- Deciduous forests of *Nothofagus maccrocarpa*;
- Palm forests with the Chilean palm species *Jubaea chilensis*;
- Spiny shrub formations with *Acacia caven* and *Schinus polygamus*;
- Xerophyllous and *chusquea culeou* shrubland;
- Highland steppe shrubland; formation of large Puyas or ‘‘chaguales’’ (*Puya chilensis, P. coerulea, P. berteroniana*).

There is also a body of water with a surface area covering 1,600 in good years, forming an important wetland for migratory birds and occasional resident ones, where 125 species of aquatic, riparian and terrestrial birds have been recorded.

Chile
Cabo de Hornos

Declaration date: 2005
Surface area: 4.884.273 ha
Administrative division: Magallanes Region and Chilean Antarctic, Chilean Antarctic Province

Human activities:

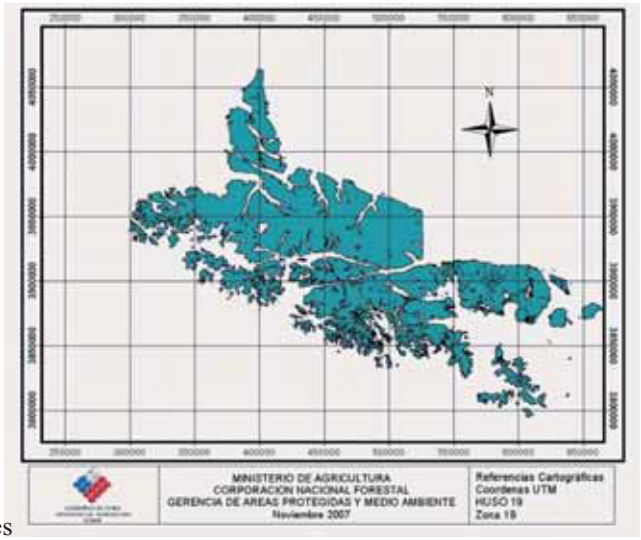
Cattle raising (approximately 300 heads), artisanal fishing, a source of employment for the over 350 local fisher-folk, tourism (particularly navigation through the channels and around Cape Horn).

Ecological characteristics:

This Biosphere Reserve is part of the Magallanes Sub-Polar (or Sub-Antarctic) Evergreen Rainforest, with a mosaic of contrasting ecosystems and unique and singular characteristics on a world level. The most representative type of ecosystems are: Magallanes sub-Polar Evergreen Rainforests, sub-Antarctic Antarctic Beech (*Nothofagus Antarctica*) forests, Deciduous Lenga Beech forests, Mixed Lenga Beech and Magallanes *Nothofagus dombeyi* forests, High Andean habitats and Magallanes tundra complex. The marine ecosystems contain a mosaic of coastal and marine areas representative of the Sub-Antarctic region, favouring its biodiversity. The Sub-Antarctic eco-region includes a very great diversity of Chilean non-vascular flora and is a hotspot for bryophyte diversity on a world level, with over three hundred hepatic species and over 450 species of moss. These 750 bryophyte species represent over 5% of the bryophytes known all over the world.

Protection classification:

Cape Horn National Park
Alberto de Agostini National Park



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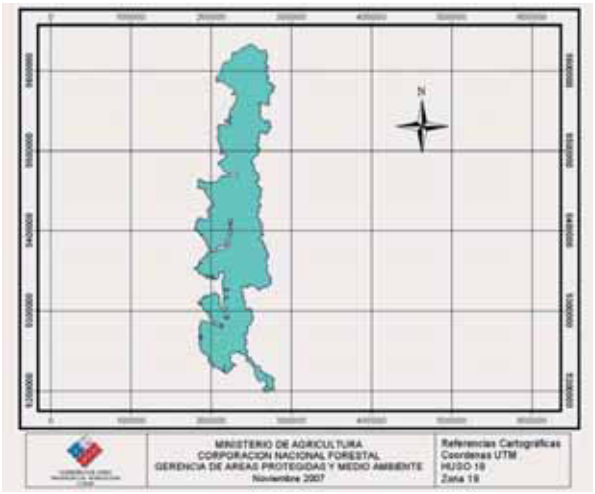
Chile

Bosques Templados Lluviosos de los Andes Australes

Declaration date: 2007
Surface area: 2.168.956 ha
Administrative division: Los Lagos and Los Ríos Regions

Human activities:

The main activities are ecotourism, rural tourism, fishing, animal husbandry, farming, forestry management and aquiculture.

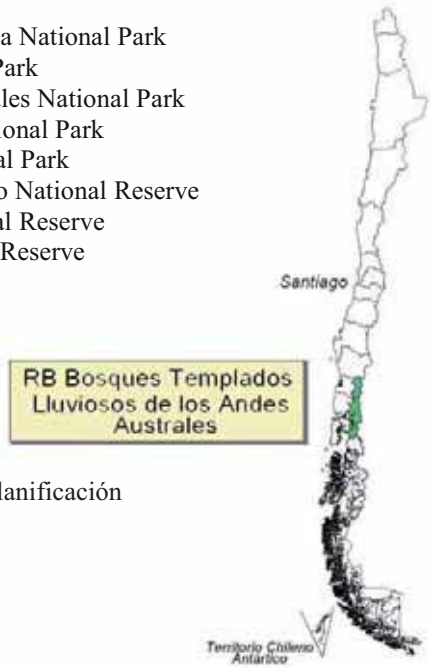


Ecological characteristics:

This Biosphere Reserve corresponds to a section of the Valdivian eco-region (WWF, 2006), and is a rich mosaic of ecological systems due to its considerable latitudinal and altitudinal gradients compressed in a narrow belt, giving rise to varied climatic, hydrological and soil conditions and a great variety of species and processes. This BR contains four of the eleven biogeographical sub-regions identified for this eco-region: Andean Araucaria Forests; Mixed Nothofagus Forests; Andean Larch Forests and Aysen Coastal Forests. Various species of conifers are on the List of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), among them *Fitzroya cupressoides, Araucaria araucana* and *Pilgerodendron uviferum*. The first two have been declared "Natural Monuments." The area covered by this Reserve was included in a list of 238 eco-regions, among the 800 throughout the world, hosting the planet's most extraordinary and representative biodiversity (Dinerstein et al. 1995).

Protection classification:

Part of the Villarrica National Park
Puyehue National Park
Vicente Pérez Rosales National Park
Alerce Andino National Park
Hornopiren National Park
Mocho-Choshuenco National Reserve
Llanquihue National Reserve
Futaleufú National Reserve



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Colombia
Cinturón Andino

Declaration date: 1979
Surface area: 855.000 ha
Administrative division: Department of Huila, Cauca, Caquetá and Tolima

Human activities:

Open-range cattle raising which has led to fragmentation of Andean and High Andean forests and Paramos. Hunting, mainly for skins but also for other parts of the animal. Slash and burn agriculture (maize, beans, vegetables, coffee, grasses, Andes berry (*Rubus glaucus*), Lulo (*Solanum quitoense*), potatoes and tree-tomato or Tamarillo) with loss and fragmentation of habitats.

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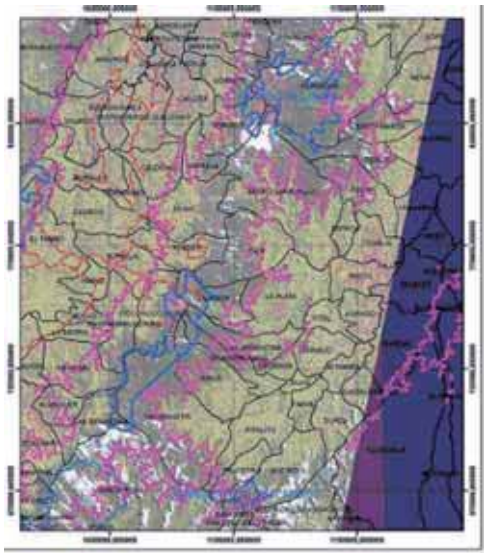
Ecological characteristics:

The Cinturón Andino (Andean Belt) Biosphere Reserve is located in the Colombian massif, on the Andean mountain range in the south of Colombia. It comprises three natural national parks as its core area (PNN Cueva de los Guacharos, PNN Nevado del Huila, and PNN Puracé) and buffer zones. It contains sub-Andean and Andean forest zones, sub-Paramo, Paramo and supra-Paramo and snow zones in gullies with steep slopes. In the Paramo area there are vast areas of wetlands with large lakes giving origin to the rivers feeding the region's main water basins (Magdalena, Cauca and Caquetá Rivers). The PNN Cueva de los Guacharos includes complex geological formations and caves forged by the waters of the Suazas River. The land form is steep, covered by cloud forests. The BR also includes snow-capped peaks in the PNN Nevado del Huila, with an altitude of 5750 m above sea level. Vegetation ranges from sub-hygrophilic levels to snow vegetation, cloud forests and high barren plains. The BR is particularly rich in birdlife, among the most outstanding species are the Andes Condor (*Vultur gryphus*), the emblematic national bird, the Semi-Collared Hawk (*Accipiter collaris*) and, among the mammals, the Tapir (*Tapirus pinchaque*). The mountain range of the PNN Puracé, includes 7 craters with thermal springs and a complex lagoon system (30 lagoons) and waterfalls flowing into the basins of the Magdalena, Cauca and Caquetá Rivers.

Protection classification:

3 Natural National Parks: Nevado del Huila, Puracé and Cueva de los Guacharos.



Colombia
El Tuparro

Declaration date: 1979
Surface area: 918.000 ha
Administrative division: Department of Vichada

Human activities:

Unsustainable commercial fisheries in the Orinoco River, both of ornamental fish and fish for consumption. Hunting and illegal trading of species of flora and fauna. Deforestation and contamination of water sources and soil due to the establishment of illegal crops. Extraction of building materials from rocky Guyana outcrops. Natural and manmade fires. Encroaching agricultural and cattle ranching frontiers. Poverty and lack of income-generating alternatives in the populated centres.

Protection classification:

El Tuparro Natural National Park

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Ecological characteristics:

The El Tuparro Biosphere Reserve is located in the eastern plains of Colombia, in the Department of Vichada, on the frontier with Venezuela. Its borders are the Rivers Orinoco in the east, Tome in the north, Tuparro and Tuparrito in the South. A considerable part of the lowlands are flooded most of the year. Eighty-five percent of the area is covered by natural pastures and along the rivers there are riparian forests rich in flora and fauna. The main plant formation is the *Mauritia flexuosa* palm as a relevant species. The main species of fauna are the Armadillo, Tapir, Peccary, Puma, Jaguar, Fox, Caiman, Capybara, Turtle and species of Primates. The region is also characterized by the rocky outcrops of the Guyana shield, including active dunes and fossils. Natural fires are frequent especially during the dry season. The soils are limited by very low natural fertility, a deficit of humidity during dry seasons and moderate susceptibility to erosion. The soils are mostly unsaturated, strongly acid and with low to very low fertility but containing high concentrations of aluminium and low organic content, poor in N, P & K Ca, Mg, and P, with a very low capacity for cationic exchange except in areas having slow drainage (*Mauritia flexuosa* palm areas or gallery forests).

Colombia

Sierra Nevada de Santa Marta

Declaration date: 1979
Surface area: 2.115.800 ha
Administrative division: Departments of la Guajira, Magdalena and Cesar

Human activities:

Agriculture: trade (Sugar Cane, Coffee and Cacao), subsistence (Potato, Arracacha (*Arracacia xanthorriza*), fruit trees, Guineo (banana), Malanga(*Xanthosoma*) and trees for timber. Grazing, artisanal and industrial fisheries, tourism, slash and burn, land clearance, hunting wildlife, illegal crops.

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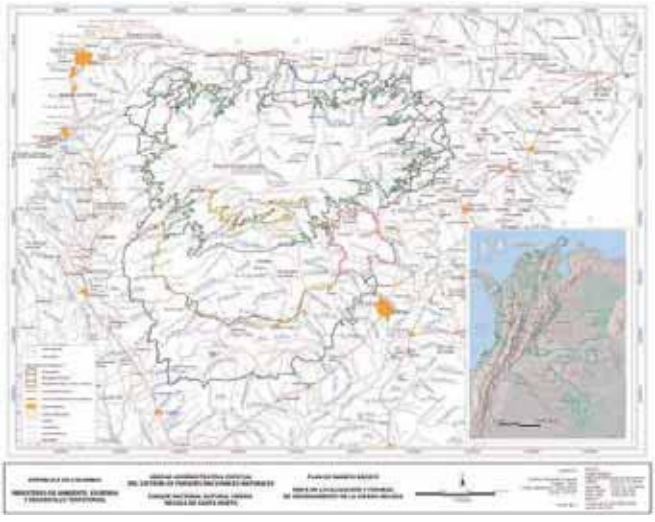
Ecological characteristics:

The Biosphere Reserve covers the entire altitudinal gradient, ranging from sea level to the maximum altitude of the Sierra (5775 m). The chains of peaks with permanent snow are oriented on an east-west axis; above 3000 m many lakes of glacier origin are to be found, where rivers are formed that descend along the three major slopes (north, west and south).
The Biosphere Reserve covers almost all the Neotropical life zones, from thorny, semi-desert shrubland, mangroves, dry tropical forests and montane forests and Paramos, up to the permanent snow line. Considerable rainfall over the middle and high zones of the Sierra make this orographic system a highly performing hydrographical star, spanning thirty important rivers. The fauna in the Sierra Nevada de Santa Marta Natural National Park is mainly represented by species such as Baird's Tapir, White-tailed Deer *(Odocoileus lasiotis),* Squirrel, Coypu, and birds such as the Condor, the Blue-billed Currasaw and the Black Tinamou (*Tinamus osgoodi*). Several ecosystems are represented in the Tayrona NNP such as tropical dry forests, xerophytic and sub-xerophytic formations, wetlands, mangroves, sedimentary flats, rocky coasts, sandy beaches, sea grass beds and coral reefs. The Sierra Nevada de Santa María hosts some 100 species of mammals, among which the Little Spotted Cat (*Leopardus tigrinus*), Deer, and rare birds such as the Condor, the Harpy Eagle and the White eagle and endemic species of amphibians, birds, reptiles and plants.



Colombia

Ciénaga Grande de Santa Marta

Declaration date: 2000
Surface area: 493.150 ha
Administrative division: Department of Magdalena: municipalities of Ciénaga, Pueblo Viejo, Sitio Nuevo, Remolino, Salamina, El Piñón, Cerro de San Antonio, Pivijay, El Retén and Aracataca

Human activities:

Artisan fishing. Port sector related activities. Commercial agriculture: Banana trees, African Palm, Coffee, Rice, Cacao, fruit-trees and small-scale agriculture. Expanding animal husbandry, cattle raising. Mining: salt mining and production of bricks for the building industry. Commercial nursery breeding of some wildlife species, such as the Spectacled Caiman, the Iguana and the American Caiman.

Protection classification:

It comprises Salamanca Island Natural National Park and the Fauna and Flora Sanctuary of Ciénaga Grande de Santa Marta

Ecological characteristics:

The Ciénaga Grande de Santa Marta Biosphere Reserve corresponds to the delta plain on the right-hand side of the Magdalena River and the continental shelf located in northern Colombia. It is one of Latin America's largest coastal wetlands, and includes coral reefs and mangroves. The BR has 130,000 ha in water: 73,000 ha are marshlands and channels and 57,000 ha are marine areas. From the geo-morphological and hydrological standpoint, the BR falls in 5 geo-morphological units: the Magdalena River flood plain (a swampy area surrounding the lagoon complex, these are flats that are seasonally flooded by the Magdalena River); the lagoon system of the present delta (marshland and lagoons, mangrove swamps and channels); the marginal lagoon system (marshlands and lagoons, mangrove swamps, salt flats and channels); beach and barrier island (beaches, barrier beaches between the sea and the inland lagoons, salt-flats, mangrove swamps and dunes (this area includes erosion escarpments and fallen mangroves) and; alluvial foothill plains (a flat, homogenous area with rivers and artificial dikes). The Biosphere Reserve has two types of plant formations: very dry tropical forest and dry tropical forest with riparian forests, marshlands, swamps, and tropical dry forest, sub-xerophytic forest and mangroves.

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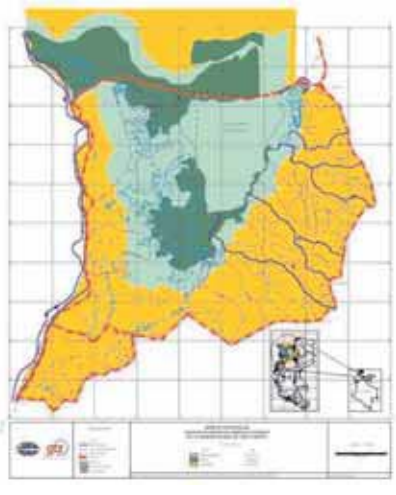


Colombia
Seaflower

Declaration date: 10 November 2000
Surface area: 30.000.000 ha
Administrative division: Departments of Archipiélago de San Andrés, Providencia and Santa Catalina

Human activities:

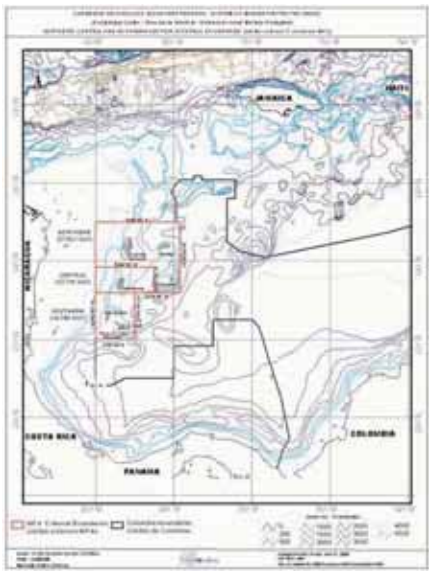
Seaflower has a resident population of 71,000 inhabitants. They are engaged in traditional agriculture and subsistence activities and artisanal fisheries. Tourism is the largest industry. Activities in the Biosphere Reserve implement pilot projects with local participation, education and training programmes. Significant ecosystem rehabilitation takes place in Seaflower, with protected area management, green markets, socio-economic monitoring, ecological Reserve defence clubs and on-going awareness campaigns.

Ecological characteristics:

The Seaflower Biosphere Reserve is located in the Archipelago of San Andres, Providencia and Santa Catalina in the western Caribbean. It is one of the most isolated archipelagos of the Americas, with three inhabited islands and various cays covering a terrestrial area of 5,700 ha and a marine area of 30,000,000, representing 10% of the Caribbean Sea. Patches of coral reefs, barriers, mangroves and sea grasses surround the inhabited islands. The Seaflower BR has one of the most extensive and bio-diverse reef barriers in the Western Atlantic, with barrier reefs, atolls, lagoons and isolated patches of over 500 km. The levels of biodiversity and marine endemism are very high in the BR, with several vulnerable, threatened and endangered species, such as the Red Snapper, Seahorse, Marine turtle and Queen Conch (*Strombus gigas*). The land and sea area (reefs) of the Seaflower Biosphere Reserve have been identified as a Western Caribbean Hotspot and were declared an Important Bird Area for Migratory Birds in 2004. In addition to mangroves and beaches, terrestrial ecosystems include tropical dry forests and transition forests.

Protection classification:

Legal mandate contained in paragraph 2, Article 37, Law 99 of 1993. Subsequently and in order to implement the Biosphere Reserve appropriately, 3 regional parks, a protected marine area (PMA), and a watershed were declared, involving concrete management plans in various areas to improve conditions in the BR.



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Costa Rica

La Amistad

Declaration date: August 1982
Surface area: 612.570 ha
Administrative division: San José, Cartago, Puntarenas, Limón

Human activities:

Land is used for different crops such as maize, beans, tubers, plantains, bananas, cacao, small-scale coffee growing and monoculture pineapple plantations, trees for timber and poultry, pig and cattle raising in the transition zone of La Amistad BR The population also fishes and hunts for food, and receives payment for environmental services by protecting the forest both in rural communities and indigenous territories.

Protection classification:

- La Amistad International Park
- Chirripó National Park
- Barbilla National Park
- Tapantí Macizo de la Muerte National Park

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Director de Reserva
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Sistema Nacional de Areas de Conservación (SINAC)
Área de Conservación La Amistad Pacífico (ACLAP)
Provincia de San José, cantón de Pérez Zeledón, Barrio Villa Ligia, de la Universidad Estatal a Distancia 100 mts al este y 100 mts al sur.
Costa Rica
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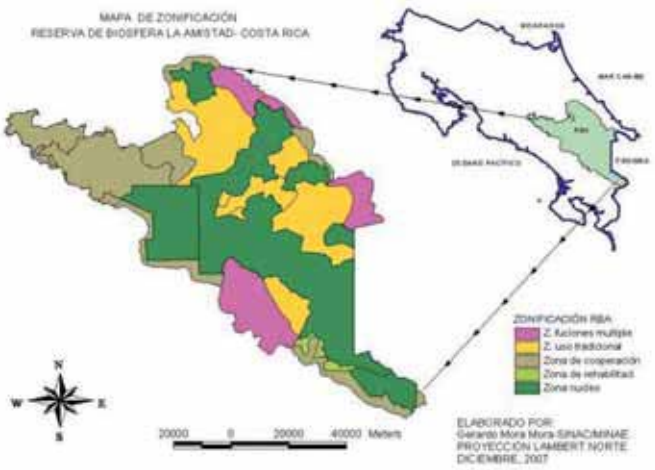
Ecological characteristics:

In absolute terms, according to the Holdridge Life Zone system, the Biosphere Reserve contains 9 vegetation formations belonging to 5 altitudinal levels, ranging from tropical moist forest, tropical wet forest, rainforest to sub-Alpine Paramo rainforest, with plant associations that are unique in the country, such as Paramos, cold marshlands, wetlands, high altitude savannahs, oak groves, riparian forests, peat bogs, lakes of glacial origin, among others. This area is among those containing the country's greatest biodiversity and even those of Central America, with studies identifying over 10,000 species of higher plants, that is to say 90% of Costa Rica's flora in this group.



Costa Rica

Cordillera Volcánica Central

Guayabo National Observatory Monument—Rodolfo Tenorio J.

Declaration date: 27 January 1988
Surface area: 101.754 ha. In 2008 a proposal for extension was submitted to UNESCO, involving 552.678 additional hectares
Administrative division: San José, Heredia, Alajuela, Cartago and Limón

Human activities:

The CVCBR with its proposed transition zone includes different land uses such as: industrial zones, urban zones, agriculture and forestry production, protected wildlife areas, biological corridors, research, ecotourism, use of water resources. The population has an impact on the natural resources but also benefits from them in different ways.

View of the Braulio Carrillo National Park - Marlon Delgado

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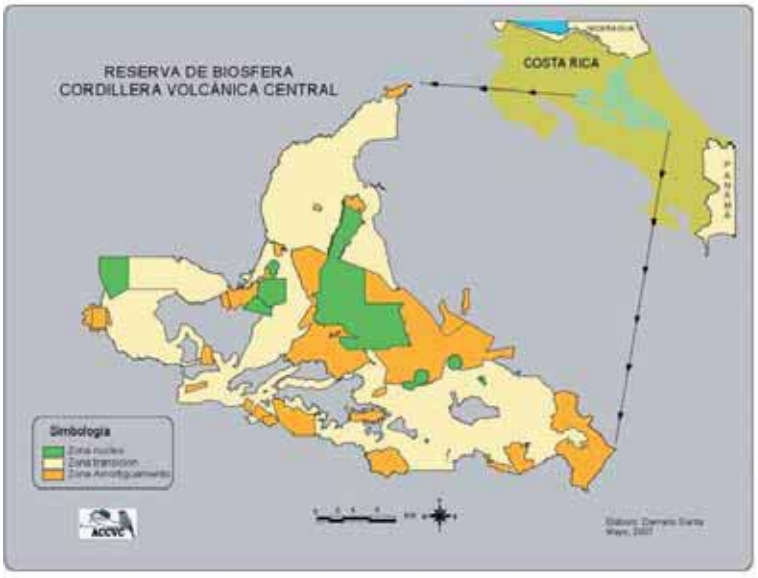
Ecological characteristics:

In the northern sector of the Biosphere Reserve, the land is low-lying with flat plains that are semi-flooded most of the year. The central sector consists of highlands and rolling to gully landforms, with altitudes ranging from 1,200 m (the Pacific) and 700 m (the Caribbean) to 2,900 m. The Cordillera is of recent volcanic origin. A total of 6,000 species of plants have been reported, 50% of the species estimated for the whole country and 515 species of resident and migratory birds, that is to say 60% of the total number of bird species reported for Costa Rica. It is one of the most important regions in the country in terms of endemic species both of birds and terrestrial vertebrate groups. Also to be noted is the rich herpetofauna comprising 28 species, mainly salamanders. The Biosphere Reserve is characterized by its considerable potential for water, where very important replenishment and discharge areas have been defined, supplying over 53% of the urban Costa Rican population.

Protection classification:

- Braulio Carrillo National Park
- Volcán Irazú National Park
- Volcán Turrialba National Park



Botos Lagoon,
Volcan Poas National Park
Marcela Alarcón Ri

Costa Rica

Agua y Paz

Declaration date: September 2007
Surface area: 916.000 ha
Administrative division: Provinces of Alajuela, Guanacaste and Heredia

Human activities:

Main crops are monoculture pineapple, sugarcane and orange plantations. In the high areas, vegetables and legumes are grown, while the low areas are given over to tubers. There are also sustainable forest crops. The high areas are used for dairy farming, while the low areas are grazing lands for beef cattle. Ecological tourism in the region is increasing and community rural tourism has started operating.

Ecological characteristics:

At high altitudes with steep slopes where there is heavy rainfall, humidity and cloudiness the forest is dense and evergreen. The trees have short trunks, full of epiphytes (bromeliads, orchids and mosses) and the understory contains a large number of both ground and tree ferns and many palm trees. This habitat protects mammals, birds and herpetofauna. The forests have abundant springs, cataracts, rivers and gullies with crystal-clear water at a maximum altitude of 2300 m above sea level. Low areas include innumerable wetlands with Yolillo palm (*Raphia taedigera*) and Guanandi (*Callophilum brasiliensis*), lagoons with water lilies and large numbers of fish, reptiles and amphibians. Among the mammals there are three species of monkey, five feline species together with tapirs, peccaries and deer. The Great Green Macaw (*Ara ambigua*) is protected together with *Dipterix panamensis*, the tree that provides this bird with food and shelter. The living fossil, Tropical Gar (*Atractosteus tropicus*) is also to be found in this area. It is a gene bank for populations of wild rice (*Oryza glumaepatula*) on a world level.

Protection classification:

Volcán Tenorio National Park, Volcán Arenal National Park, Juan Castro Blanco National Water Park

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Ciudad Quesada, San Carlos, Alajuela, Costa Rica.

2 - Sede San José.
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Universidad para la Cooperación Internacional.
200 metros este y 150 sur de la rotonda del Farolito.
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Cuba

Sierra del Rosario

Declaration date: 15 February 1985
Surface area: 25.000 ha
Administrative division: Eighty percent of the surface area corresponds to the Province of Pinar del Río and the remaining 20%.to the Province of Havana

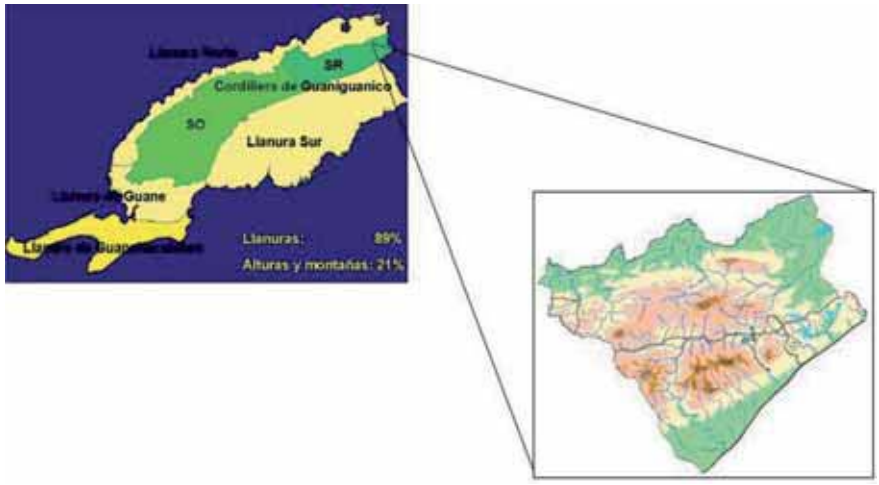
Human activities:

Tourist activities (ecotourism), forestry activities (reforestation), cattle raising, agriculture, beekeeping.

Ecological characteristics:

The Sierra del Rosario Biosphere Reserve (SRBR), is located in an area characterized by low-lying Jurassic and the Cretacic mountains. This formation is well localized at the centre of the SRBR, particularly Sierra Borrego at 408m, Las Peladas at 420m, El Taburete at 432m, El Mulo at 482m, La Caoba at 534m and the highest of these mountains, El Salón at 565m. This chain of mountains is the central watershed, not only of the Biosphere Reserve but also of our island. The Sierra del Rosario contains several plant formations such evergreen forests, semi-deciduous forests, pine forests, dry sclerophyllous low forests, a "mogotes" complex (remnants of eroded limestone sedimentary layers) and secondary vegetation. The most widespread is the evergreen tropical forest, with trees of up to 40 m high, very similar to Neotropical forests. The flora in the Reserve includes a total of 889 plant organisms, of which 608 are higher plants (trees, bushes and herbaceous plants) and 281 lower plants (fungus, mosses and lichens). Vertebrate fauna in the SRBR is characterized as in the rest of the country by a paucity of mammals and a greater abundance of birds, reptiles, amphibians and invertebrates. One hundred and seventeen species of birds have been reported in 17 orders and 30 families, of which 12 are endemic. Of the 33 existing species of reptiles, 27 are endemic with 81.8% endemism. In general there are 16 species with 81.7% endemism grouped in one order and four families. Bats are the best represented mammals with 11 species in addition to two representatives of the *Capromys* genus.

Protection classification:
Managed Resource Protected Area



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Cuba
Bacanao

Declaration date: 1987
Surface area: 82.330 ha (76.695 ha on land and 5.635 ha in the sea)
Administrative division: Provinces of Santiago de Cuba and Guantanamo

Human activities:

Agriculture (coffee plantations, vegetables and fruit-trees), animal husbandry and forestry activities, the latter carried out mainly by the Integral Gran Piedra Baconao Company, 38 cooperatives and 96 individual peasant farmers. Tourist activities are noteworthy in La Gran Piedra and along the coast. Other activities include research, monitoring, environmental education, reforestation and ecological rehabilitation.

Ecological characteristics:

The Biosphere Reserve covers the Sierra de la Gran Piedra, to the east of Santiago de Cuba, on the southwest border of the Island of Cuba. It is crowned by an enormous block of volcanic brecchia at 1,225 m above sea level. The Sierra includes semi-deciduous forests, evergreen forests and montane rainforests. Located on the coastal side is a system of plateaux and isolated limestone hills, which on their southern side have terraces leading down to the sea. The coastal vegetation comprises xeromorphic and semi-deciduous microphyll forests, including isolated mangroves and sea-grapes (Coccolobetea uviferae). A system of caves and caverns has developed in this zone, hosting what is considered to be Cuba's most diverse fauna. To the north, the majestic landscape of the Farallones de Santa Maria del Loreto harbours populations of endemic melocactus. The geological and soil diversity, together with climatic conditions give rise to a high diversity of ecosystems and species, where of particular interest are the 496 species of ferns and some 1900 flowering plants. Of the latter, approximately 300 species are endemic to this BR and some strictly to the area, as are 27 species of fern and 4 mosses.

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Cuba
Cuchillas de Toa

Declaration date: 1987
Surface area: 208.300 ha
Administrative division: Provinces of Guantánamo and Holguín, involving 6 and 2 municipalities respectively

Human activities:

Forestry. Mining. Coffee. Protected Areas. Coconut. Cacao. Various Crops. Services. Sheep and Goats.

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Ecological characteristics:

- Cuchillas del Toa harbours the highest levels of biodiversity and endemic species in the Antilles
- It is considered to be a main evolutive centre, a biogeographical bridge and refuge for Caribbean and American biota.
- It is one of the most extensive and best conserved remnant mountain ecosystems of the Antilles region, including 15 hydrographical basins, 32 sub-basins and over 300 third order well protected water courses. ·
- A representative example of the combination of neotectonic evolution in developing conditions.
- A rare sample of the development of karst formations and systems on non-carbonated lithology.
- An important representation of plant formations of an azonal nature (humid forests and scrubland on peridotites and serpentinites). ·
- Large populations (sometimes unique) of endangered species of flora and fauna. Habitat of three of the smallest species of vertebrates in the world. ·
- Cuchillas del Toa is a conjunction of mountains with well conserved broad-leafed woodlands and pine forests in a rainy fresh environment. ·
- The Biosphere Reserve is large and well preserved enough to guarantee the indefinite functioning of vital ecological processes and the survival of the species that live in it.

Protection classification

Alejandro de Humboldt National Park

Cuba

Peninsula de Ganahacabibes

Declaration date: 1987
Surface area: 121.572 ha
Administrative division: Province of Pinar del Río, Sandino Municipality

Human activities:

Forestry use. Tourist activities: contemplative diving and hiking. Bee-keeping, extensive cattle raising, traditional breeding of wild pigs, tobacco plantations and other crops.

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Ecological characteristics:

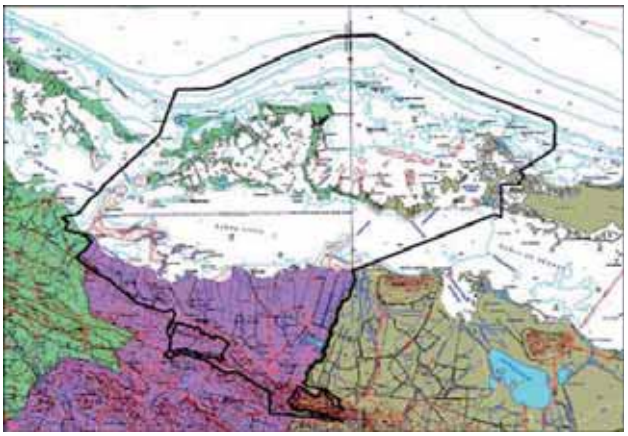
This is a karstic plain of very recent geological formation. It has no rivers or mountains but comprises a vast area of lagoons and marshlands and many sinkholes or cenotes, formed by the sinking or collapsing of a cave roof. The BR harbours a great variety and wealth of ecosystems with a marked predominance of marine-coastal and tropical dry forest ecosystems, with a variety of plant formations. Among them of particular interest the semi-deciduous and evergreen forests, mangroves, coastal and sub-coastal xeromorphic shrubland, coastal sandy and rocky vegetation complexes and anthropic savannahs. The semi-deciduous forest that developed on sandstone outcrops in the main karstic nucleus is the predominant formation here and the most important one because of its capacity for conservation. It is a great forestry reserve including over 200 timber species. The territory hosts a variety of endemic, endangered species or species requiring special protection, including rare botanical species such as the restricted range grass *Goerziella minima*, locally endemic and a unique species and gender. The Bee Humming-bird *Mellisuga helenae*, the smallest bird in the world is found here in relative abundance but with very small populations in the rest of the country. It is an active migratory flyway for birds and a nursery area for 4 species of sea turtles. The marine area protects one of the best conserved coral reef ecosystems in the country and one of the most diverse in the Caribbean, with spectacularly beautiful sea beds.

Cuba
Buena Vista

Declaration date: 2000
Surface area: 319.638 ha (69.695 ha on land and 249.943 ha in the marine area)
Administrative division: Provinces of Villa Clara, Sancti Spíritus and Ciego de Ávila.

Human activities:

Agriculture (sugar cane and various other crops), cattle-raising, forestry, fisheries, tourism, services, light industry.



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Sancti Spiritus
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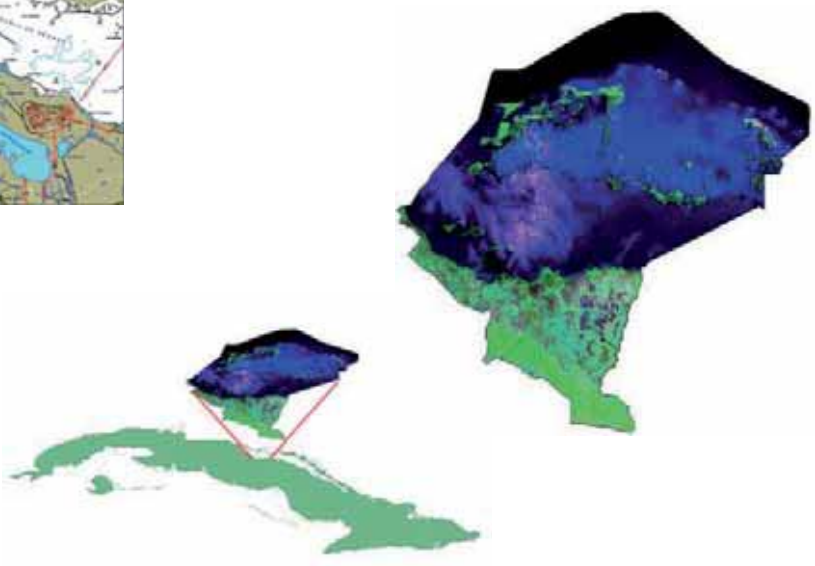
Ecological characteristics:

"Buenavista" has a wide diversity of geographical regions reflected in its terrestrial, coastal and marine areas of great significance as highly sensitive ecological locations, containing a wealth of biodiversity and notorious gene pool, added to the outstanding value of its flora, fauna, speleology and landscape. The core zones are very diverse with habitats such as mangroves, coral reefs, active dune areas, swamps. The area operates as a reserve for various species, especially resident and winter migratory (birds) fauna, generally proceeding from the neo-Arctic region. Eight hundred and seventy-three species have been recorded, of which 176 are endemic and of these, 20 are locally endemic. Of the total number of species, 25 are recorded as endangered according to the UICN and 20 appear in CITES appendixes.

Protection classifications:

The area has been recognized internationally as a Biosphere Reserve and Ramsar Site and has 10 core areas. Five of these are of National Significance and the other five of Local Significance, with the following management categories established for Cuba: the "Caguanes" and "Los Caimanes" National Parks, the "Las Loras" and "Este de Cayo Santa María" Fauna Refuges, the "Dunas de Cayo Guillermo," "Boquerón,","La Chucha" and "Lomas de Tasajeras" Outstanding Natural Elements and the "Jobo Rosado" and "Buenavista". Managed Resource Protected Area.



Cuba

Ciénaga de Zapata

Declaration date: 21 January 2000
Surface area: 659.300 ha
Administrative division: Ciénaga de Zapata Biosphere Reserve is located in the south of the province of Matanzas, Cuba and covers the entire municipality of Ciénaga de Zapata and part of the municipalities of Jagüey Grande, Unión de Reyes and Calimete.

Human activities:

Silviculture – forestry, geared to timber extraction. Fisheries, mainly based on scale fish and crab catches. Nature tourism: contemplative diving, bird-watching, angling, hiking, and sun and beach tourism. ,

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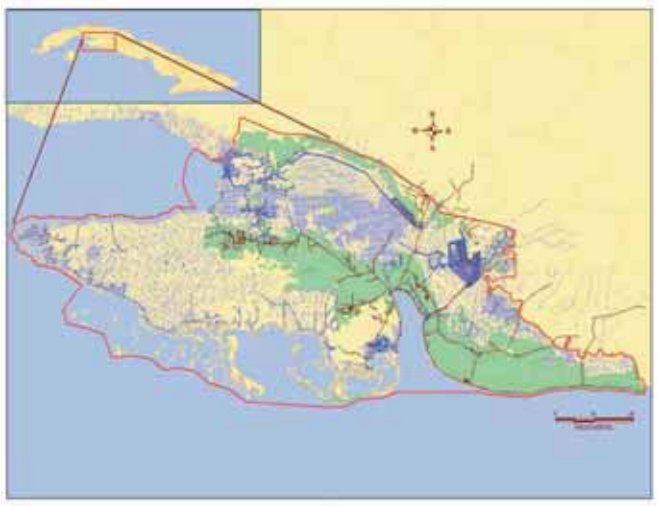
Ecological characteristics:

The Ciénaga de Zapata is one of Cuba's most outstanding geographical units because of its expanse, integrity and the development of its ecosystems. The landform is flat and the level of the water table is very close to the surface and therefore easily flooded. It is the largest and most complex karstic drainage system in Cuba where numerous hydrological phenomena take place. In ecological terms, the territory has very peculiar characteristics, a great diversity of habitats among which mention can be made of the marsh grasslands, semi-deciduous forest, coastal xeromorphic forest, marine zone with coral reefs, lagoons, rivers, mangroves and flooded caves. The flora and fauna associated with these habitats is of great value for the conservation of the global ecosystem. The mean annual temperature is 24.5°C with a mean minimum of 18°C and a mean maximum of 38°C. Mean annual rainfall is 1500 mm. The northeast part of the Ciénaga is one of the country's rainiest zones with a maximum rainfall of 1700 mm. Relative humidity is particularly high with mean values ranging at 75-85 %. The natural resources of this BR are of vital importance for the subsistence of the human populations settled there and also for neighbouring populations.



Dominican Republic

Jaragua-Bahoruco-Enriquillo

Declaration date: 6 November 2002
Surface area: 577.000 ha
Administrative division: The Jaragua-Bahoruco- Enriquillo Biosphere Reserve covers part of four Provinces and 10 Municipalities

Human activities:

Agriculture, animal husbandry, tapping of forest species and timber, subsistence and commercial fisheries in the marine and lake areas, mining and tourism.

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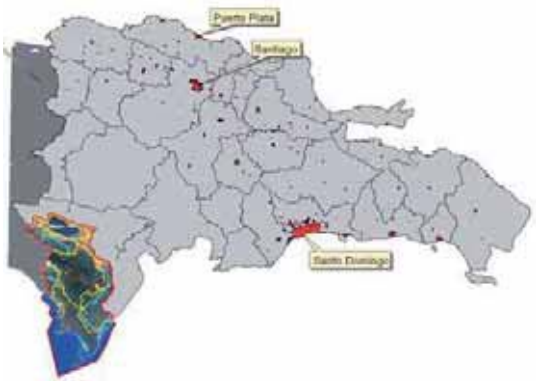
Ecological characteristics:

The Jaragua-Bahoruco-Enriquillo Biosphere Reserve is considered to be the richest area of the country in terms of biodiversity and ecosystems. The greatest expanses of virgin forests are located here, distinguished by their continuity and scant fragmentation. It is recognised and centre for endemic species of flora and fauna, unique on a national, regional and world level. The different types of vegetation: dry forest, broadleaved woodlands, pine forests, wetlands and marine coastal areas cover an altitudinal succession ranging from 40 m below sea level in Lake Enriquillo to 2,300 m above sea level in the Sierra de Bahoruco are affected by the climate and type of soil. The Reserve is exceptional because of its great wealth of species, where the main conservation units are the core zones. Nine hundred and nineteen vascular plants have been identified in the Sierra de Bahoruco, 105 in Lago Enriquillo and 400 in the Parque Jaragua. With regards to the fauna, 19 species of amphibians, 68 species of reptiles, 98 species of aquatic birds, 106 other species of birds and 15 species of mammals have been identified in the area of the Biosphere Reserve. The Reserve, including the Massif de la Selle in Haiti, is considered to be a centre for many endemic species of plants and animals, among which, 14 plants, 18 amphibians and 18 reptiles have been reported. It is of major importance for the protection of some 47 species of plants and 72 species of endangered fauna.

Protection classification:

The protection classification corresponds to that of a National Park which includes the Reserve's three core zones: Jaragua, Sierra de Bahoruco and Lago Enriquillo National Parks.



Ecuador

Archipiélago de Colón (Galápagos)

Declaration date: 1984
Surface area: 14.000.000 ha
Administrative division: Province of Galapagos or Colon Archipelago

Human activities:

Tourism is the main economic activity in the Galapagos eco-region. Other important human activities are fishing, agriculture and animal husbandry, scientific research and conservation.

Ecological characteristics:

The whole archipelago is of volcanic origin and was never attached to any continental mass. It is located at 600 miles from the coast of Continental Ecuador with the equator crossing it. The climate in the Galapagos is exceptionally dry for the tropics and has two seasons, each of them with a determinant effect on the vegetation. Winter goes from January to June and is characterized by high temperatures, cloudless skies and some heavy rainfall, whereas the dry season is colder, the sky is cloudy and rains are scarce in the lower areas. Recent assessments based on geographical origins show that a high proportion of plants, 87% of the endemic ones and 97% of the native species, descend from widely spread tropical species. The fauna in Galapagos comprises a relatively low number of species, with the evident absence of amphibians and a very low representation of mammals. The most represented group is the insect group, which includes 1,555 species, followed by arachnids and nematodes (Roque, 2007). Taxa for vertebrates are low at approximately 117 taxa, with 59% general endemic species. Reptiles are one of the most significant groups in Galapagos both because of their size and their high rate of endemism. Of particular interest are the 11 species of giant tortoises existing at present (three others are already extinct), seven species of lava lizards, four species of snakes and two species of land iguanas.

Protection classification:

National Park: occupying 97% of the insular area.
Marine reserve: 13,300,000 ha, including the archipelago's inland waters and a 40 nautical mile wide strip.

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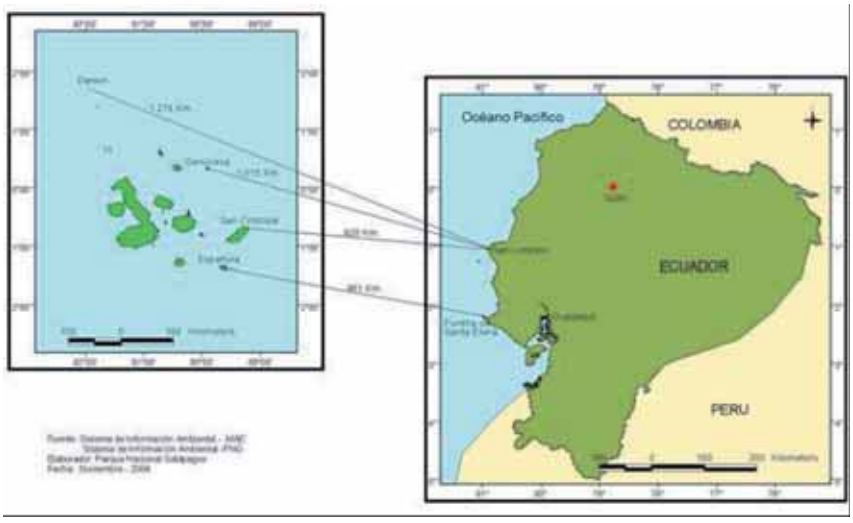


Ecuador
Yasuni

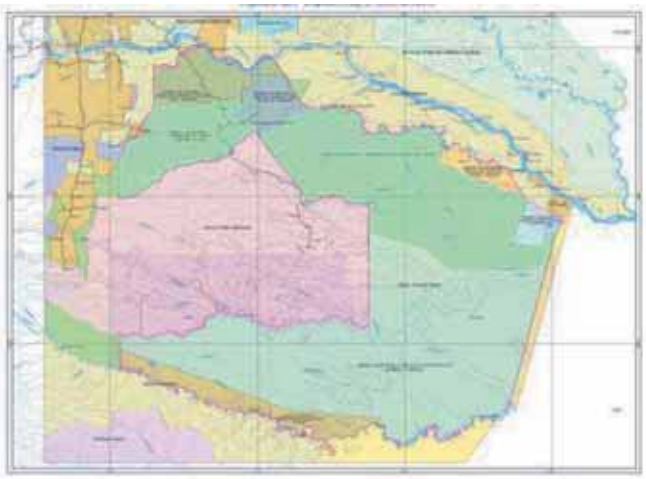
Declaration date: May1989
Surface area: 1.600.000 ha
Administrative division: Provinces of Pastaza and Orellana

Human activities:

Tourism is one of the most promising activities in this Biosphere Reserve and alternative projects, *inter alia* the breeding in captivity of wildlife species such as the Yellow-spotted River Turtle (*Podonnemis unifilis*)

Ecological characteristics:

The geological formations that outcrop in the study area are sedimentary, deposited at the end of the Tertiary Era. The climate is typical of tropical moist forests, normally warm and humid with a mean annual temperature of around 24°-26° C and annual rainfall at 3.000 mm. The Reserve hosts 621 species of birds, that is to say 41% of the country's bird species. In this group, 11 new species have been recorded (8 Passeriformes, 2 Piciformes and 1 Apodiforme). The most diverse order is that of the Passeriformes, with 353 species grouped into 26 families. There are 173 species of mammals, grouped into 11 orders and 31 families. The most diverse order is that of bats or chiropters with 81 species grouped into 7 families. There are 111 species of amphibians and 107 species of reptiles, grouped into 8 orders and 28 families. A new species for science has been reported of the genus *Atelopus* and 6 new species for the country: 3 *Hylidae*, 1 *Leptodactylidae* and 1 *Microhylidae*. The best represented group is that of the Hylidae or Tree Frogs, with 43 species. There are also 85 species of fish (241) and invertebrates (144).



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Ecuador
Sumaco

Declaration date: 10 November 2000
Surface area: 931.930 ha
Administrative divisions: Provinces of Napo (Tena, Archidona, Quijos, El Chaco and Carlos Julio Arosemena Tola Cantons), Francisco de Orellana (Loreto and Orellana Cantons) and a small area in Sucumbíos (Gonzalo Pizarro Canton)

Human activities:

Farming for domestic consumption and marketing. Tapping and marketing of forest products. Cattle raising. Aquiculture: breeding and marketing of Trout, Tilapia and Cachama (*Piaractus brachypomus*. Production and marketing of edible Oyster Mushrooms (*Pleurotus ostreatus)*. Agro-industrial micro-enterprises. Manufacture and marketing of crafts made from forest products. Ecotourism: rafting, kayaking, adventure tourism among others.

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Ecological characteristics:

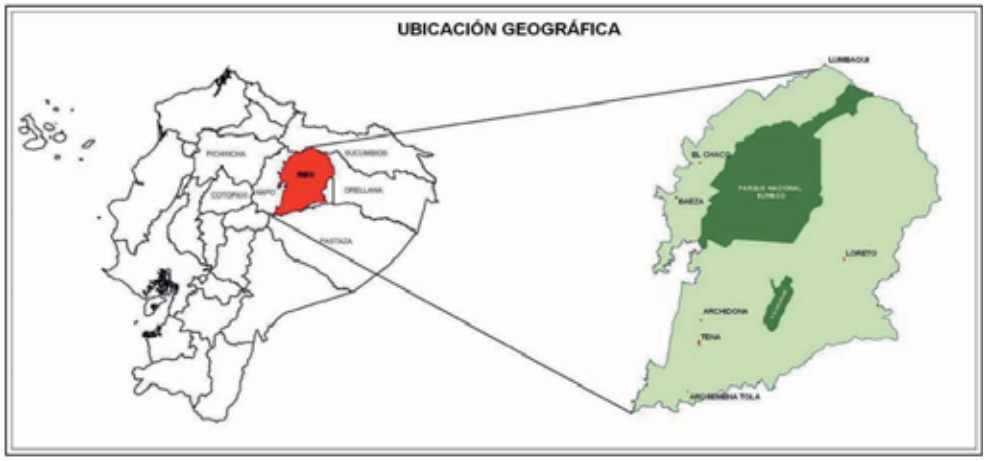
Tropical Moist and Very Moist Forests: altitude under 600 m above sea level; mean temperature above 24ºC and annual rainfall between 2000- 4000 and 4000-6000 mm respectively. · Pre-Montane Very Moist Forest and Rainforest: altitude 600-2000 m above sea level., mean temperature between 16-24ºC and annual rainfall between 2000-4000 and 4000-6000 mm respectively. Lower Montane Rainforest: altitude 2000-3000 m above sea level; mean temperature 12-18ºC and annual rainfall 4000- 6000 mm. Montane Rainforest: altitude between 3000 - 3732 m above sea level; mean temperature 6-12ºC and annual rainfall 2000- 4000 mm. ·Sub-Andean Wet Paramo: altitude 3500 - 3732 m above sea level; mean temperature 6-8º C and annual rainfall between 2000- 4000 mm.

Lagoon in the Wawa Sumaco

River Ollín Loreto, Archidona, Napo, Ecuador

Protection classification:

Sumaco Napo-Galeras National Park (core zone)



Ecuador

Podocarpus-El Cóndor

Lagunas del Compadre. Podocarpus National Park.
Naturaleza y Cultura Internacional

Declaration date: 18 September 2007
Surface area: 1.140.080 ha
Administrative division: Provinces of Loja and Zamora Chinchipe, on the frontier with Peru

Human activities:

In the transition zone, crops mainly consist of maize, sugar cane, organic coffee, medicinal plants and ancestral poly-cultures, also cattle raising for dairy products and beef. Another traditional activity is artisanal gold-mining. Community tourism and generation of clean energy are activities foreseen for the future.

Protection classification:

Podocarpus National Park

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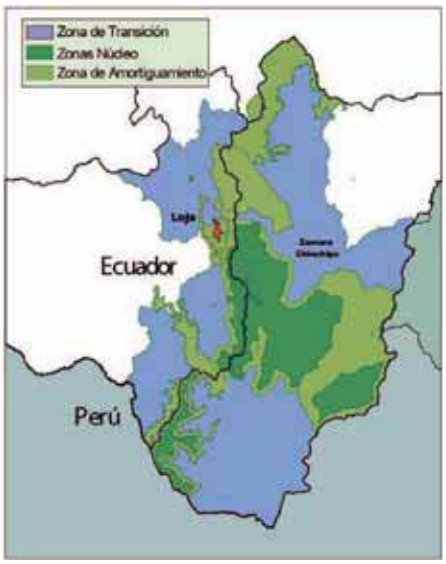
Ecological characteristics:

The Biosphere Reserve is located in the south of Ecuador, where the Andes Cordillera is considerably lower and abruptly changes direction. The Amazon, the upper Andes and the Paramo all converge in this area. The altitude ranges between 700 and 3,790 metres above sea level and rainfall varies on an average between 380 and 8,000 mm/year. These conditions have shaped 48 different types of ecosystem harbouring exceptional biodiversity. The area, only 4% of the national territory, is estimated to include some 7,000 species of vascular plants and half the Ecuadorian bird species (800). The core zone is Podocarpus National Park, a protected area containing the greatest number of endemic plants in Ecuador. Four bi-national rivers start in the Biosphere Reserve's Paramos and Cloud Forests, supplying water to over 900,000 people in Ecuador and Peru. Recent scientific discoveries class it as one of the research priorities in the Neo-tropics. For this reason, various international research and academic training programmes are taking place in the Reserve. The transition zone includes territories belonging to the indigenous Shuar and Saraguro people, the cities of Loja and Zamora and religious and tourist cultural centres (El Cisne,Vilcabamba and Nangaritza).

Shuar children. Yacuambi River basin
Naturaleza y Cultura Internacional



El Salvador
Apaneca - Ilamatepec

Declaration date: 18 September 2007
Surface area: 59.056 ha
Administrative division: Departments of Ahuachapan, Santa Ana and Sonsonate

Human activities:

Certified traditional, gourmet and organic coffee-growing; Research and biodiversity monitoring in the core zones; Responsible tourism linked to organic crop-growing; Retrieving and promoting indigenous culture; Traditional crop-growing of basic grains, sugar-cane production and fisheries; Crafts, pottery, furniture-making, wood-carving; Tourist-related services.

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Ecological characteristics:

This Biosphere Reserve hosts important ecosystems for conservation and species and has highly diverse habitats, *inter alia* the Paramo Montane Forests, Cloud Forests, vegetation on volcanic lava flow and conifer forests. It includes forest plantations, coffee plantations, grassland and crops. There are 12 species of endangered flora and 58 threatened species as well as 12 endemic species of birds and other vertebrate groups. Also found in the Reserve are species of fungi, bromeliaeds, orchids, briophytes, agaves and extermophile bacteria. Other ecosystems worth mentioning are the wetlands of importance to the country: Lake Coatepeque, the Laguna Verde and the Laguna Las Ninfas. All these have aquatic vegetation ecosystems and aquifer replenishment areas because of current volcanic activity. Almost 4,000 ha are allocated to conservation as natural protected areas (the 9 core zones), and 39,500 ha correspond to shade-grown coffee plantations that interconnect the core zones to enable a flow of flora and fauna and are thus a fundamental part of the Mesoamerican Biological Corridor (MBC). It has been submitted as a geographical unit in itself by the Land Planning and Development Plan for the Republic of El Salvador. However, the Reserve goes beyond the limits of the Conservation Area. Small indigenous populations have been identified that maintain their traditions and autochthonous language.

El Salvador

Xirihualtique-Jiquilisco

Declaration date: 18 September 2007
Surface area: 101.607 ha
Administrative division: Department of Usulután

Human activities:

Vegetable and sugar-cane growing, cattle, pigs, bee-keeping, poultry. Artisan fishing. Biodiversity research and monitoring in the core zones. Responsible tourism related with the beauty of the mangroves, water transport, crafts, pottery, furniture-making, wood-carving. Tourist-related services.

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Ecological characteristics:

Two fundamental processes are maintained contributing to landscape and ecosystem conservation. The first is the presence of El Salvador's largest mangrove expanse. This ecosystem is also a priority on a world level because it represents 46.82% of the Mangroves of the Dry North Pacific Coast in Mesoamerica, an ecoregion that has been declared Critically Endangered (WWF 2006). It is widely known that innumerable natural processes fundamental in maintaining environmental services provided to communities develop in these ecosystems. They are also the means of living of most of the local communities in the area. The other process is the conservation of two "sweet" forest ecosystems of great importance on a regional and national level: the Evergreen Broad-leaved Forests and the Semi-Deciduous Mixed Broad-leaved Forest. The former provide a habitat to the only remaining species of primate in El Salvador, *Ateles geofrogii,* While remnants of the most extensive and least fragmented Semi-deciduous Mixed Broad-leaved Forests are to be found in the Xiriualtique - Jiquilisco Biosphere Reserve. Thirty-seven endangered species are conserved in the Biosphere Reserve in addition to 58 threatened species.

Guatemala
Maya

Declaration date: 5 February 1990
Surface area: 2.112.940 ha
Administrative division: Department of Peten, in the north of the country

Human activities:

Non-woody resource use (Xate, Chicle, Pepper, *Aechmea magdalenae*, medicinal plants) Tourism. Agricultural Use: agriculture, cattle raising, use of timber resources (fancy woods, cedar, mahogany, etc.), hunting and fishing. Oil production

Contact information:

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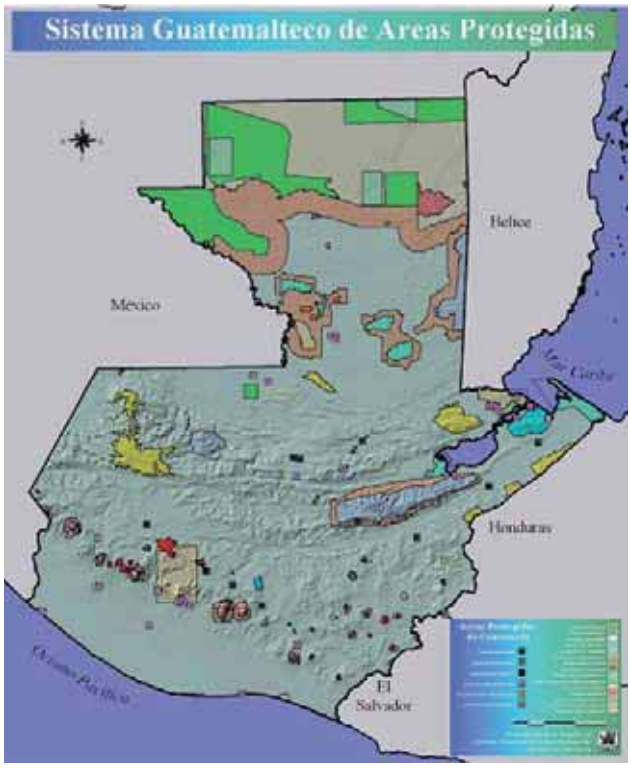
Ecological characteristics:

The quantity and diversity of the fauna in the Maya Biosphere Reserve makes it one of the regions with the greatest biological wealth in Peten. Because of the quality and abundance of its wildlife habitats this area is a critical point for conservation and shelter for many of the animals that in other regions of Peten are decreasing in numbers. Within the MBR 20 conservation elements have been identified, of which nine correspond to land systems, nine to marshland and fresh water systems and two are groups of cultural elements.
Land systems. The MBR's warm and humid climatic conditions, with annual variations in temperature and rainfall have led to the development of five land systems at landscape level and three specific systems. Within the systems, the MBR's tropical forest is characterized by a broadleaved species of vegetation, with a combination of evergreens and deciduous species, highland and midland interhill or plain forests, lowland plain forest, highland and midland forest on hills, flooded savannahs, pine forests and cenotes (sinkholes).
Freshwater and marshland systems: The depressions caused by the process of erosion of the karstic soil have led to the formation of freshwater systems typical of the MBR: lakes, lagoons, permanent and intermittent rivers, wetlands.



Guatemala
Sierra de las Minas

Declaration date: 4 October1990
Surface area: 242.642 ha
Administrative division: The Biosphere Reserve covers part of the following five Departments: Alta Verapaz, Baja Verapaz, El Progreso, Izabal and Zacapa

Human activities:

The Biosphere Reserve is occupied by various ethnic groups: Q´eqchí and Poqomchí indigenous people, located in the north and northeast of the Reserve, while the Ladinos (non-indigenous Guatemalan people) mostly reside on the southern side. The most important economic activities are: perennial agriculture (Coffee, Rubber tree (*Hevea brasiliensis),* Jamaica pepper (*Pimenta dioica*), Cardamom, fruit, citrus), and annual agriculture (Maize, Beans and vegetables), forestry management and use, cattle (beef and dairy), mining exploitation (marble) and building of hydroelectric plants.

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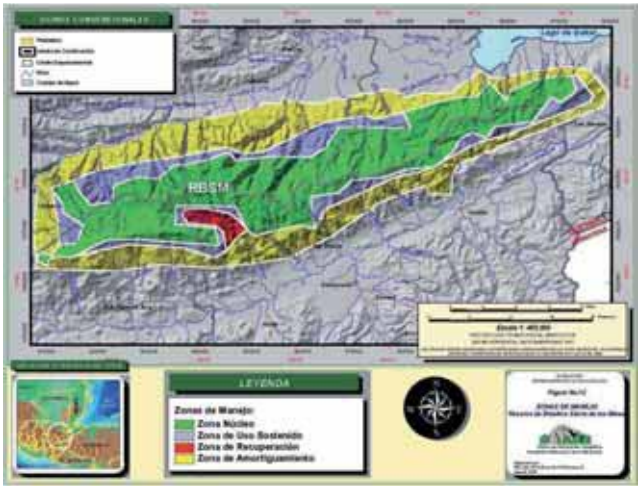
Ecological characteristics:

The Biosphere Reserve is located in the northeast of Guatemala, between the valleys of the Polochic River and the Motagua River. Running from east to west, it extends over a length of approximately 13 km and its width varies between 10 and 30 km, with elevations from sea level to up to 3,015 m above sea level. The Sierra de la Minas is an area where geographical isolation and the great variety of elevations form a wide diversity of habitats for flora and fauna, which are the equivalent of genetic evolution isles harbouring a high number of endemic species. The vegetation in the Sierra de las Minas is a mix of Nearctic and Neotropical associations and a spectacular example of the co-existence of Pine, Oak and diverse populations of *Lauraceae* with abundant associations of mosses, ferns and epiphytes. The largest mass of primary forest comprises broad-leaved cloud forest, located in the highest parts of the Sierra. The Biosphere Reserve contains over 600 km^2 of cloud forest, the greatest expanse of habitat still existing in the country for the Quetzal. It is an important forest seed bank with at least 15 species of tropical conifers. The Biosphere Reserve harbours at least 885 species of mammals, birds and reptiles (close on 70% of all the species of these groups recorded for Guatemala and Belize).



Honduras

Rio Platano

Declaration date: 13 July 1980
Surface area: 832.032 ha. Core Zone: 210.430 ha. Buffer Zone: 197.440 ha. Cultural Zone: 424.162 ha
Administrative division: Intersection of the Departments of Gracias a Dios, Olancho and Colón

Human activities:

The main activities are agriculture, animal husbandry, fishing, hunting, extraction of building materials, forestry use, gathering of fruit and ornamental plants, gold prospecting and planning.

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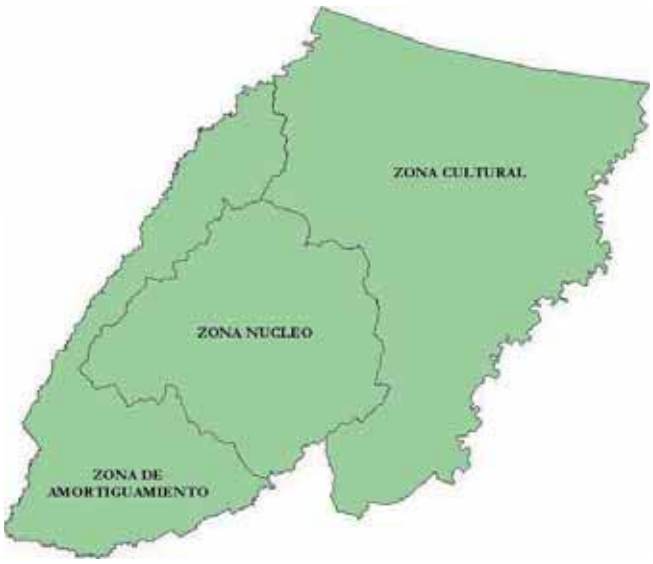
Ecological characteristics:

In wide terms based on Holdridge's classification, the Reserve corresponds to tropical moist forest and tropical wet forest, including important coastal marine areas and a variety of habitats rich in biodiversity, as well as expanses of Mangrove, associations of Pine and Tique forests, savannahs, wetlands, lagoons, coral reefs and cays. However, most of Rio Platano is covered by rainforests, harbouring the Reserve's greatest biodiversity. The forests include trees such as Mahogany, Laurel, Carapa andTeocote Pine (*Pinus teocote*).Five hundred and eighty-six species of plants have been identified, of which 23 are reported as new on the records of Honduran flora. Additionally, the reserve harbours 130 species of mammals, 36% of the reptile species, 57 % of the bird species and 70% of the fish species found in Honduras. It also hosts cultural diversity with the ethnic Garifuna, Misquito, Tawahka and Pech groups living in the Reserve. Annual rainfall ranges between 2,000 and 4,000 mm, the average annual temperature is 20-26º C. Natural landscapes fall into three broad categories: coastal plains, high mountain lands and inland mountains. Eco-regions located in the biosphere reserve: Wetland eco-region with a great variety of systems such as mangroves, lagoons, fresh water and saline marshland, seasonal creeks, swampy woodland and the coastal strip. Pine savannah ecoregion: Atlantic Broad-leaved forest ecoregion. Highland Pine forest ecoregion. Maritime Zone ecoregion.



Mexico
La Michilía

Declaration date: 1977
Surface area: 9.421 ha
Administrative divisions: Municipalities of Suchil and Mezquital, State of Durango

Human activities:
Animal husbandry and agriculture.

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Ecological characteristics:

The Biosphere Reserve is located in one of the branches of the Western Sierra Madre. Its physiographic limits are two mountain chains: the Sierra Michis and the Sierra Urica. The area between these two Sierras has several plateaux and small hills, separated by valleys and canyons of varying depth. There are five types of vegetation in the Reserve: Conifer forest (*Pinus, Quercus-Pinus, Pseudotsuga spp, Cupressus* and *Juniperus*), Oak (*Quercus*) forest, grasslands, xerophyllus shrubland, and aquatic and subaquatic vegetation. Its forests act as a catchment area for two basins that are important for the region's agriculture. The Reserve hosts 770 species of vascular plants. The fauna in the reserve is predominantly of Nearctic origin with North American affinities. The Imperial Woodpecker (*Campephilus imperialis*) used to live in the area but is now extinct. The Mexican Gray Wolf (*Canis lupus baileyii*) and the American Black Bear (*Ursus americanus*) have been reintroduced in the Reserve. Among the most important vertebrate species are the White-tailed Deer (*Odocoileus virginianus*), the Puma (*Puma concolor*), the Coyote (*Canis latrans*), the Wild turkey (*Meleagris gallopavo*), the Thick-billed Parrot (*Rhynchopsitta pachyrhyncha*) and the Golden Eagle (*Aquila chrysaetos*).

Mexico
Mapimí

Declaration date: 1977
Surface area: 342.388 ha
Administrative division:
Municipalities of Tlahualillo and Mapimí in the State of Durango, Municipality of Jiménez in the State of Chihuahua and Municipality of Sierra Mojada in the State of Coahuila

Human activities:

Salt mining, animal husbandry and agriculture.

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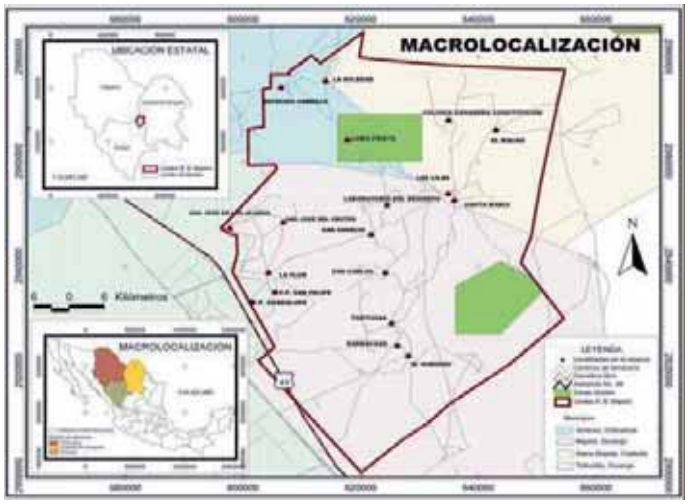
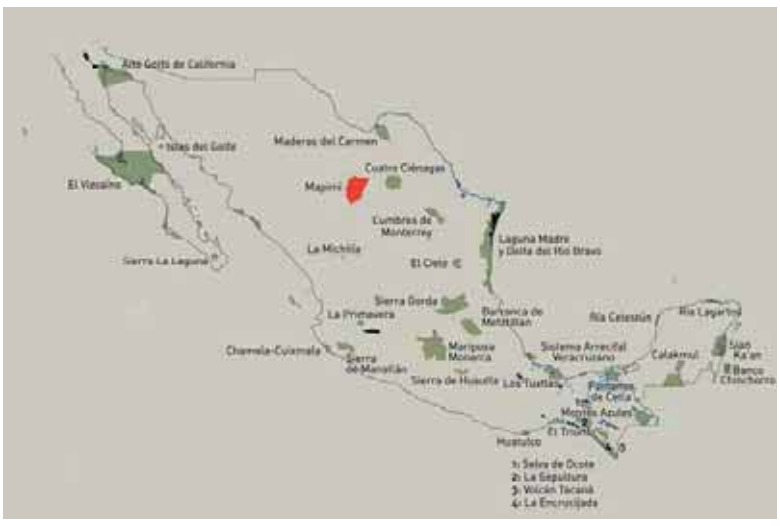
Ecological characteristics:

This Biosphere Reserve includes the desert ecosystems of the central part of the Chihuahua Desert, where there is a predomination of xerophyllus microphyllus scrubland and chaparral with various compositions forming mosaics of halophyte vegetation in the lower parts. Biologically rich, it includes 403 plant species. Noteworthy are the 39 cactus species and 200 species of birds, 5 species of amphibians, 36 species of reptiles and 28 species of mammals. Endemic species identified are 9 for the Cactaceae family, one for the *Cochlospermaceae* family and one for the *Fouquieriaceae* family. Particularly charismatic are the Bolson Tortoise (*Gopherus flavomarginatus*), the Kit Fox (*Vulpes macrotis*), the Mexican Fringe-toed Lizard (*Uma paraphigas*), the Mule Deer (*Odocoileus hemionus*), the American Badger (*Taxidea taxus*), the Puma (*Puma concolor*); and birds such as the Golden Eagle (*Aquila crhysaetos*).





Mexico
Montes Azules

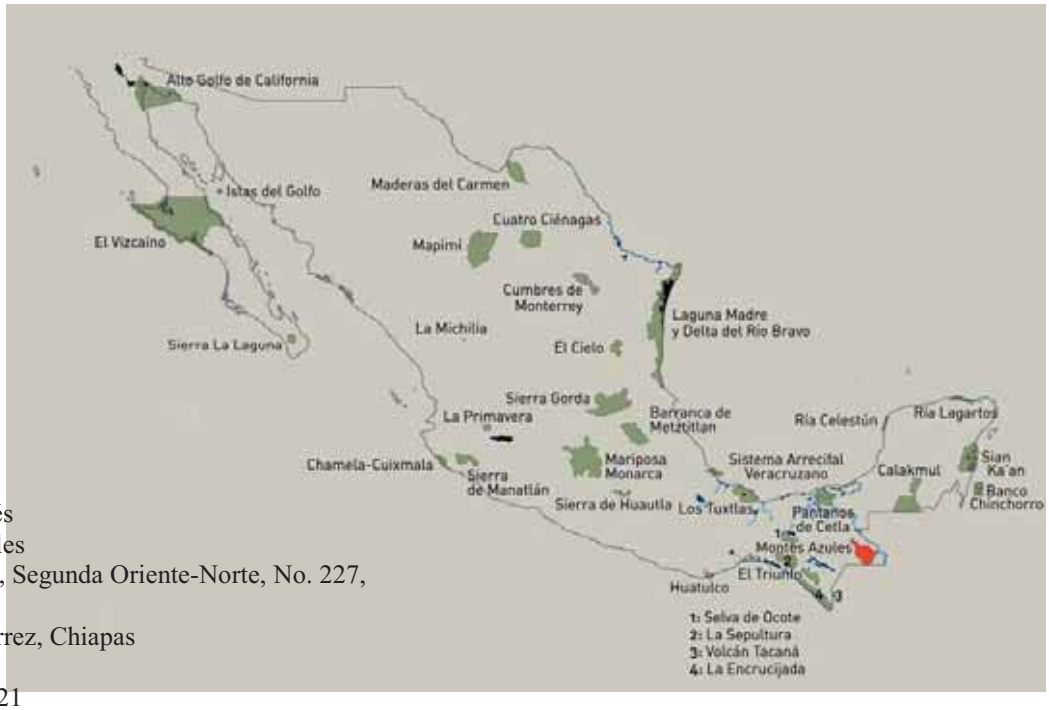
Declaration date: 1978
Surface area: 331.200 ha
Administrative division: Municipalities of Ocosingo, Las Margaritas and Maravilla Tenejapa, State of Chiapas.

Human activities:

Agriculture, animal husbandry, artisanal fishing, provision of tourist services, management of wildlife units, tapping of both timber and non-timber forest resources

Ecological characteristics:

The Biosphere Reserve is the northernmost distribution boundary for a great number of biota proceeding from the Pleistocene refuges of Polochic in Guatemala and Chiriqui in Panama. It contains relevant species such as *Lacandonia schismatica* and is the last refuge for vulnerable species such as the Scarlet Macao (*Ara macao*). The area contains the greatest amount of biodiversity in Neotropical Mexico: it covers 16% of the national territory and includes 20% of the country's plant diversity, with approximately 4,300 species; 25% of the bird species, with 345 species and 27% of the mammals, with 114 species. In terms of invertebrates, for butterflies alone its 800 daytime species represent 44% of the total for Mexico. A new family of fish have been recorded in the area: the *Lacantunidae*. It is the habitat of a species endemic to Mesoamerica, Baird´s Tapir (*Tapirus bairdii*), of rare species such as the Harpy Eagle (*Harpia harpija*) and of such emblematic species such as the Jaguar (*Phantera onca*), Geoffroy's Spider Monkey (*Ateles geoffroyi*), the Mexican Black Howler Monkey (*Alouata pigra*), Morelet's Crocodile (Crocodylus moreletii), Kapok (*Ceiba pentandra*) and Mahogany (*Swetenia macrophylla*).



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Mexico
El Cielo

Declaration date: 1986
Surface area: 144.530 ha
Administrative division: Municipalities of Gómez Farías, Llera, Ocampo and Jaumave, State of Tamaulipas

Human activities:

Agriculture, animal husbandry, floriculture and silviculture.

Ecological characteristics:

The "El Cielo" Biosphere Reserve includes various transition ecosystems with characteristic temperate zone elements. The main aim is to protect the vegetation of the montane cloud forest because of its wealth of species and scant extension in the country (1%). Other types of vegetation are the sub-deciduous tropical forest, the pine-oak forests and the xerophyte shrubland containing threatened or endangered endemic species. The mammals in the Biosphere Reserve include *Eira barbara, Panthera onca, Leopardus pardalis, Leopardus wiedii, Herpailurus yagouaroundi, Ursus americanus, Bassariscus astutus, Galucomis volans,* and *Odocoileus hemionus*; among the bird species, mention may be made of *Accipiter striatus, Ara militaris, Asio clamator, Atthis heloisa, Bubo virginianus, Crax rubra, Falco peregrinus, Otus asio, Oxyura dominica* e *Icterus graduacauda*; reptiles include *Phrynosoma cornutum, Gopherus berlandieri* and species of the *Crotalus* genus. The Biosphere Reserve contains the following plant species: *Ariocarpus agavoides, Astrophytum myriostigma, Ceratozamia kuesteriana, Zamia fishcheri, Magnolia schiedeana, Encyclia cochleata, Laelia anceps, Laelia speciosa, Lycaste deppei, Ferocactus hamatacactus.*

Protection classification:
State reserve

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Mexico
Sian Ka'an

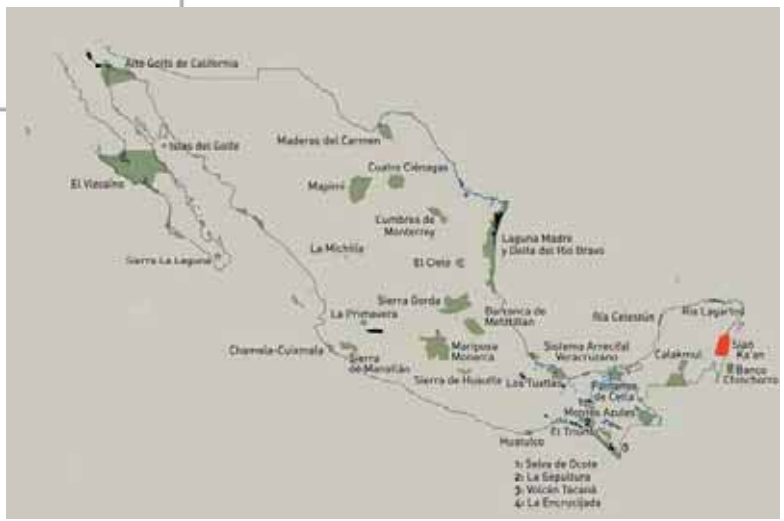
Declaration date: 1986
Surface area: 528.148 ha
Administrative division: Municipalities of Felipe Carrillo Puerto and Othón P. Blanco, State of Quintana Roo.

Human activities:

Fishing and nautical sports tourism

Ecological characteristics:

In Mayan, Sian Ka'an means "The sky's birthplace." The Biosphere Reserve is located in the most recent strip of the Yucatan Peninsula. It has a 120 coral reef barrier, an area of sea grasses, seasonal creeks, mangroves, coastal lagoons, swamps, fresh-water savannahs, inland lakes and seasonally flooded forests. It contains close on 150,000 ha of protected deciduous and sub-evergreen forests. The flora is very similar to that of the region of the Gulf of Mexico and the Antilles, with 1,048 species including algae, mosses, ferns and higher plants. Fauna inventories show 103 species of mammals, 339 species of birds with 219 of them residents and 120 migrant or temporary species, 90 species of native bees, 47 species of dragonflies, 74 of beetles, 310 species of dipterans and 318 species of daytime butterflies. Among the marine invertebrates, mention should be made of the 84 species of coral and the 276 species of crustaceans. Recently new species of soil fauna have been described which have been named after the Biosphere Reserve. It appears to be the location in Mexico with the most similarity to the Antilles. It is a nesting area for turtles, sea and marshland birds, and is notorious for its special life developing in underground, flooded galleries.



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Mexico
Sierra de Manantlán

Declaration date: 1988
Surface area: 139.577 ha
Administrative division: Municipalities of Autlán, Cuautitlán, Casimiro Castillo, Tolimán and Tuxcacuesco in the State of Jalisco and Minatitlán and Comala in the State of Colima

Human activities:

Agriculture, forestry and animal husbandry.

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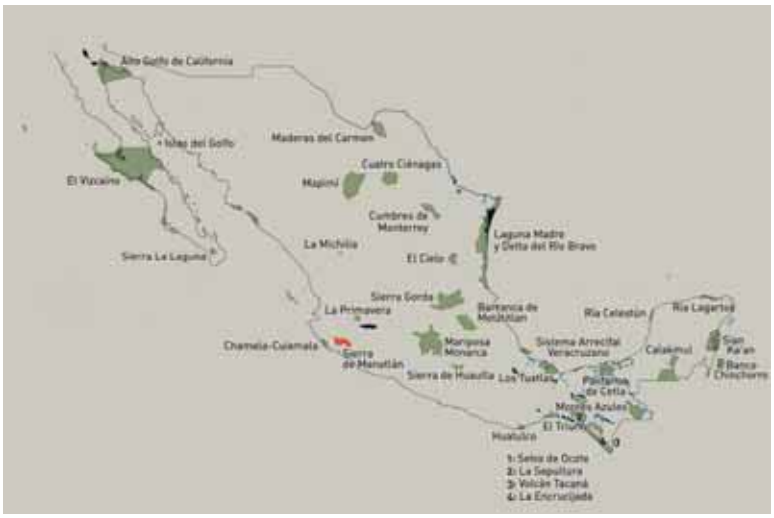
Ecological characteristics:

The Sierra de Manantlán Biosphere Reserve is located to the extreme north of the inter-tropical zone. The climate in the region is influenced by various factors in addition to its latitudinal location, such as its proximity to the coast, the effect of its landform – orographic shade – and the breadth of the altitudinal range, which partly goes to explain the high regional biodiversity and the presence of numerous plant formations ranging from tropical forests to those of temperate-cold climates. The Sierra de Manantlán's varied and complex plant cover harbours a great wealth of flora. There are over 2900 species of vascular plants belonging to 981 genuses. Wildlife is one of the important components of the high biodiversity in this Reserve. Among the main values of the Sierra de Manantlán, in addition to its great wealth of species and its unique biogeographical characteristics, particular mention should be made of the presence of endangered or useful endemic species. So far 110 species of mammals have been reported, among which the Mexican Vole *Microtus mexicanus neveriae* and the Pocket Gopher *Cratogeomys gymnurus russelli*, in addition to other mammals such as the Oncilla, the Jaguarandi, the Ocelot, the Puma, the Bobcat, the Jaguar and four species of nectarivorous bats. Three hundred and thirty-six species of birds have been reported, among them 36 which are endemic to Mexico, such as the charismatic species: the Crested Guan *Penelope purpurascens*, the Military Macaw *Ara militaris*, the Red-lored Amazon *Amazona autumnalis* and the Mexican national symbol, the Golden Eagle. In terms of herpetofauna, 85 species have been recorded; of these it is known that 13 are endemic to the western and central region of Mexico: the Rattlesnake, the Black Iguana, the Frog *Shyrrhopus modestus,* the Beaded Lizard *Heloderma horridum* and the Autlan Rattlesnake *Crotalus lannomi,* an endemic species only reported for the area of Puerto de Los Mazos. Of the 16 species of fish identified, 13 are native and four of these are endemic to the region.



Mexico

Alto Golfo de California-El Pinacate

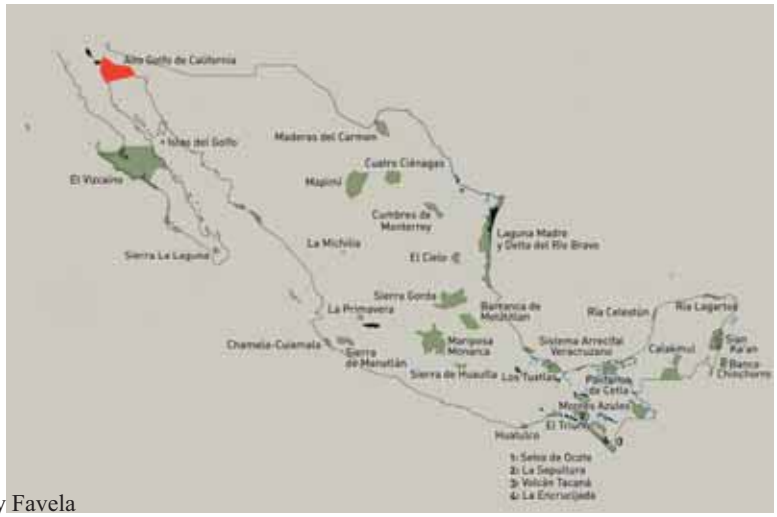
Declaration date: 1995
Surface area: 1.652.110 ha
Administrative division: Municipality of Mexicali in the State of Baja California and Municipalities of Puerto Peñasco and San Luis Río Colorado in the State of Sonora

Human activities:

Animal husbandry, agriculture, mining, fishing, wildlife and development of ecotourism.

Ecological characteristics:

The variety of species in the zone ranges from marine through coastal to land species. Located in the coastal zone are flats, beaches and dune systems, granite sierras and the volcanic shield communities. The land fauna of the reserve is diverse, due to the varied mosaic of its vegetation, ranging from that associated with wetland areas to more inhospitable sites found in the sandy areas of the Great Desert. The Colorado River is the main habitat for the Hog fish (*Lachnolaimus maximus*). This location is one of the few places in North America where the Fringe-toed Lizard (*Uma inornata*) is distributed, in addition to being the western limit for the distribution of the Gila Monster (*Heloderma suspectum)*. Among the reptiles, the Diamond Rattlesnake, the Coral Snake, the Chameleon and the Desert Tortoise are worth mentioning. Birdlife is well represented with at least 80 species of land and aquatic birds, both resident and migratory, characterizing the area with high diversity. The land mammals are mainly representative of the Sonora and San Bernardina biotic provinces: White-tailed Deer, Mule Deer (*Odocoileus hemionus*) Big-horned Sheep (*ovis canadensis cremnobates),* the Pronghorn (*Antilocapra americana*), the Javelina, and the Long-nosed Bat, among others. Species of vegetation include the Saguaro cactus, the Strawberry Hedgehog Cactus (*Echinocereus engelmannii*), the Thorny Biznaga cactus, the Mexican Palo Verde (*Parkinsonia aculeata*), and the Ironwood tree, among many others. The marine species include the Porpoise or Vaquita (*Phocoena sinu)s*, protected by Mexican law as an endangered species, the Totoaba and the Yuma Clapper Rail.



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Mexico
El Triunfo

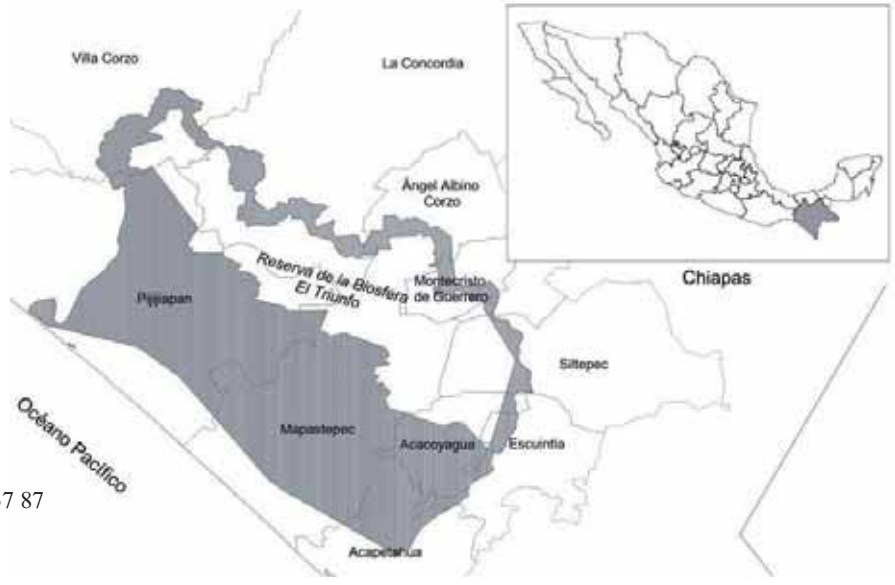
Declaration date: 1993
Surface area: 119.177 ha
Administrative division: Municipalities of Acacoyagua, Angel Albino Corzo, La Concordia, Mapastepec, Villa Corzo, Pijijiapan and Siltepec, State of Chiapas

Human activities:

Organic coffee growing, animal husbandry, agriculture, tapping of non-woody natural resources and ecotourism.

Ecological characteristics:

The El Triunfo Biosphere Reserve protects 10 of the 19 types of vegetation reported for the State of Chiapas. Among them are two of the most endangered ecosystems in Mexico, the cloud forest and the rainforest. El Triunfo's cloud forest is reported to be one of the most extensive remnants in the country and contains the greatest diversity of tree species in North and Central America. The Sierra Madre de Chiapas where El Triunfo is located is one of the regions in the country that receives the most rainfall. The dense forest cover acts like a sponge, absorbing moisture from the rain and dense mist, thus making a high contribution to the rivers irrigating the coastal plain of the Pacific and the State's Central Depression. Knowledge of the flora in the BR is still fairly incomplete but 977 species have been reported. Regarding fauna, there are 548 terrestrial vertebrate species, representing 45% of those reported for Chiapas and 22% of those reported for Mexico. Twenty-two species of amphibians have been recorded, comprising 23% of those recorded for Chiapas and 7.5% of those for the country. As for reptiles, 63 species are known, corresponding to 32% of those known for Chiapas and 9% of those reported for the country. One hundred and twelve species of mammals have been recorded, that is to say 56% of those for Chiapas and 23% of those for Mexico. In general, invertebrates have been the least studied group of fauna in the Reserve. For the Sierra Madre de Chiapas 588 species of daytime Lepidoptera butterflies have been identified, corresponding to 49% of those identified for Chiapas.



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Mexico
El Vizcaíno

Declaration date: 1993
Surface area: 2.546.790 ha
Administrative division: Municipality of Mulegé, Baja California Sur

Ecological characteristics:

The diversity of physical and climatic environments has led to the development of very rich wildlife, both in form and in its adaptation to this arid region, typical of what is known as the Sonora Desert, one of North America's four deserts. Four hundred and sixty-three species of flora have been found in the terrestrial part of the Reserve and 37 are known to be endemic to the geographical area in general. The greatest number of plant associations of the whole peninsula is concentrated in this region. Approximately 8.3% of the flora is known to be endemic to the geographical region of the El Vizcaino Desert. The Biosphere Reserve contains three subdivisions of the Sonora Desert. The sub-Province "Vizcaino Desert" is the best represented, covering almost 95% of the area of the Reserve; the sub-Province "Gulf Coast" occupies a narrow strip along the eastern borders of the sierras to the east of the Reserve; and "Magdalena Region" only covers one percent. Its lagoon complex is the Gray Whale's calving and mating site and harbours healthy populations of Mexicana Bighorn Sheep, Mule Deer, Puma, Coyote and 64 other species of mammals. It is also a refuge for 125 species of migratory birds and the transition zone between tropical and temperate climates.

Human activities:

Salt mining, fishing and aquiculture, sustainable wildlife use, ecotourism, animal husbandry and agriculture.

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Mexico

Islas del Golfo de California

Declaration date: 1995
Surface: 314.736 ha
Administrative division: the States of Baja California; Baja California Sur; Sonora and Sinaloa

Human activities:

Riparian fishing and ecotourist services

Contact information:

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Ecological characteristics:

The Gulf of California and its present features are geologically recent: it is thought that they are approximately 4.5 million years old. The Gulf comprises a series of extended basins arising from the separation of the Baja California Peninsula from the mainland. Presently the average rate of separation is between 4 and 6 cm per year. The islands are arid and abrupt, with irregular coastlines, steep cliffs of varying heights and some of their beaches are sandy, gravelly or pebbly but most of them are rocky. They are included in the Sonora Desert and approximately 665 species of plants have been identified. Cactus and other succulent plants prevail and are the most notorious island flora. Some of the islands with swampy areas or protected bays, such as along the east coast of Isla Tiburon, contain low mangroves. Some of the islands with sandy beaches have coastal dune vegetation, protecting the soil from erosion. The reptile group is the most relevant of the land vertebrates with a high level of endemic species. There are 115 species of reptiles representing close on 10% of Mexico's herpetological diversity. Coyotes and Mule Deer are among the larger mammals. Large colonies of California Sea Lions are among the marine mammals living in the coastal zone of the islands. There are approximately 154 species of land birds representing 30 families. Among these no endemic species are found because of their ability to move between the islands and the continent, thus not forming populations differing from those found in the peninsula or in the continent. Approximately 50% of the total number of species of land, beach and water birds are migratory.

Mexico
Sierra Gorda

Declaration date: 2001
Surface area: 378.227 ha
Administrative division: Municipalities of Arroyo Seco, Jalpan de Serra, Landa de Matamoros, Penamiller and Pinal de Amoles, State of Querétaro

Ecological characteristics:

The rugged topography of this Biosphere Reserve, with altitudes ranging from 260 to 3,100 m above sea level, rainfall fluctuating between 350 and 1,800 mm and its location in the convergence of the Nearctic, Neotropical and Mountain Mesoamerica realms, all contribute to a wide mosaic of habitats. The Reserve harbours 15 types of vegetation: evergreen forest, sub-evergreen forest, sub-deciduous forest, deciduous forest, sub-montane shrubland, cloud forest, oak forest, pine forest, juniper forest, fir forest, Alpine chaparral, temperate grasslands, xerophyllus grassland, xerophyllus scrubland and riparian gallery forest. The fauna and flora include 1,718 species of vascular plants and 124 species of macromicetes, in addition to 131 species of mammals, 363 species of birds, 72 species of reptiles and 23 species of amphibians. It is estimated that 30% of Mexican daytime butterflies are present in this area, with approximately 600 species. The Reserve is home to the Jaguar, the Yucatan Brown Brocket, the Mexican Black Bear, the Spider Monkey, the Otter, the Great Curassow, the Crested Guan, the Bearded Wood Partridge *Dendrortyx barbatus*, the Military Macaw *Ara militaris*, the Red-crowned Amazon *Amazona viridigenalis*, the Tucan, the Emerald Toucanet and the American Crocodile. It also hosts endemic species such as the Querétaro Pocket Gopher *Pappogeomys neglectus*, the *Autochton siermadrior* butterfly and a great number of fish and troglobitic arthropods.

Human activities:

Agriculture, livestock raising, forestry and fishing

Contact information:

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Mexico
Banco Chinchorro

Declaration date: 2003
Surface area 144.360 ha
Administrative division: Municipality of Othon P. Blanco, State of Quintana Roo

Human activities:

Fishing and nautical-leisure tourism

Ecological characteristics:

Banco Chinchorro is a coral complex forming part of the great Western Atlantic reef belt. The reef lagoon is superficial and has sandy bottoms covered by vast sea grass meadows of *Thalassia testudinum* and *Syringodioum filiforme*, algae areas with the genus *Laurencia, Lobophora, Penicillus* and *Udotea*. Among its fauna, the reef includes coral species such as the Elkhorn coral, the Fire coral, the Boulder star coral, the Great Star coral, the Lettuce coral, the Brain coral and the Stag-horn coral. There are also two species of great economic importance, the Mexican Gant Snail and the Caribbean Spiny Lobster. The most common fish are the Chromides, Labrus, and Lora fish. The dominating terrestrial vegetation is Red Mangrove and Coconut groves. There are also typically continental species such as *bumelia retusa* and the Gumbo-limbo (*Bursera simaruba*), shrubs such as the Sikimay, herbaceous and creepers of the Ipomea genus. In the terrestrial area, lizards of the *Anolis* genus and Iguanas are to be found. The sandy cays are nesting sites for Loggerhead, Hawksbill and Green sea turtles and for the *Crocodylus moreletii* Crocodile

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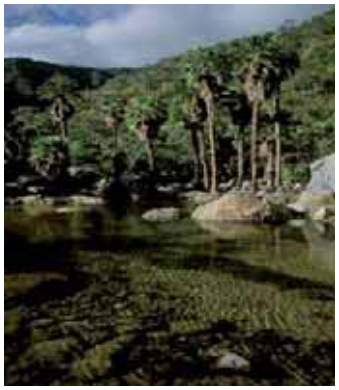
Mexico
Sierra La Laguna

Declaration date: 2003
Surface area: 79.317 ha
Administrative division: Municipalities of La Paz and Los Cabos, State of Baja California Sur.

Human activities:

Agriculture, animal husbandry, saddlery, and fruit-growing



Ecological characteristics:

The Sierra La Laguna is a mountain massif with very rugged land forms. The geomorphology of this mountain system comprises deep canyons from east to west, giving rise to intermittently flowing streams. The Reserve is located in the division between the runoff draining towards the Pacific Ocean and that draining towards the Gulf of California or Mar de Cortés. Physical and environmental factors favour the development of different kinds of vegetation, characterized by scrubland, lowland deciduous and subdeciduous forest, oak forest, mixed pine-oak forest, gallery riparian vegetation and natural grasslands. Within this type of vegetation, 79 endemic species of flora have been identified. In terms of fauna, a total of 42 species of herpetofauna have been reported, with 8 endemic species. A total of 59 species of resident birds have been recorded, 8 of which are endemic. Forty-five species of mammals have been recorded.

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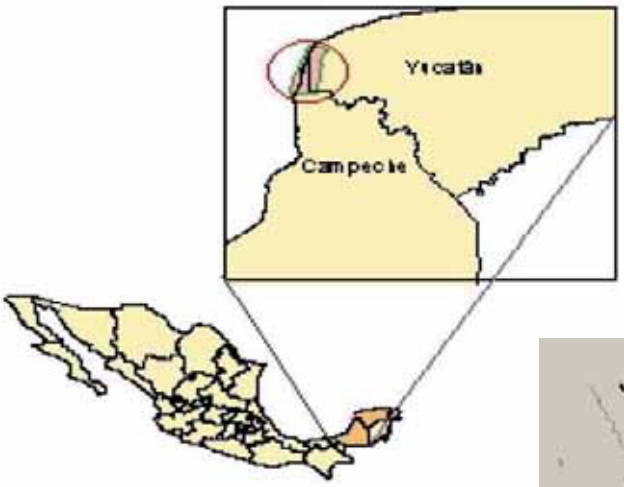
Mexico
Ría Celestún

Declaration date: 2004
Surface area: 81.481 ha
Administrative division:
Municipalities of Celestún, Holocho and Maxcanú, State of Yucatán and Municipality of Calkini, State of Campeche.

Human activities:
Artisanal salt-mining, artisanal fisheries and tourism



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Ecological characteristics:

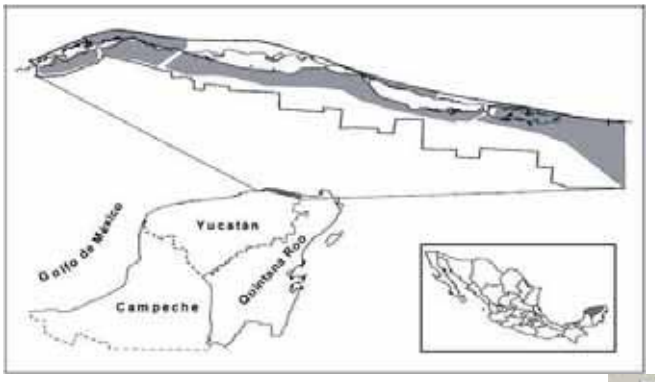
The importance of Ría Celestún as a Biosphere Reserve is due to its great diversity of habitats and its location in a coastal environment involving various interdependent ecosystems such as: low depth continental shelf, coastal dunes, mangroves, coastal lagoon, marshlands, hummock forest, seasonally flooded grasslands, lowland seasonally flooded forests and a strip of sub-deciduous lowland forest, all considered to be critical habitats for a great diversity of species. Such a wide variety of ecosystems supports a diversity of fauna representative of the region. Within this fauna, birdlife is exceptional, comprising 304 species between resident and migrant species with many coastal and wetland birds such herons and bitterns (*Ardeidae*), ducks (*Anatidae*), seagulls and a wealth of migratory passerine and shore birds from neighbouring countries to the north of the continent – the United States and Canada – on their winter migratory route. Special mention should be made of the fact that this area is a favourite site in Mexico for resting, feeding and breeding of the Pink Flamingo (*Phoenicopterus ruber ruber*). Its population is estimated to reach as many as 23,000 birds of the 28,000 estimated during the months of December to February in their natural area of distribution in the Yucatán Peninsula. Biological diversity comprises 1,149 species identified, including 546 species of flora and 600 species of the various vertebrate groups.

Mexico
Ría Lagartos

Declaration date: 2004
Surface area: 60.348 ha
Administrative division: Municipalities of Tizimín, Río Lagartos and San Felipe, State of Yucatan

Human activities:

Fishing, animal husbandry, agriculture, salt mining and tourism



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Ecological characteristics:

The Ría Lagartos Biosphere Reserve contains numerous species with a geographical distribution spanning from the Central American countries to the southern Mexican States, including the Yucatan Peninsula. The Reserve has a wide diversity of ecosystems such as the medium altitude sub-evergreen forest, medium altitude sub-deciduous forest, lowland forest (deciduous, thorny deciduous and seasonally flooded) mangroves, coastal dune scrubland, savannahs and sea grass vegetation. Also present are formations characteristic of the coastal zones of the Yucatan Peninsula known as "Petenes" (hummock forest). The flora in the Reserve includes many species common to the Caribbean, some of which are only found in Mexico in the States bordering the Caribbean Sea (Yucatan and Quintana Roo). Among these are the Plumeria (*Plumeria obtusa*) the Cherry Palm (*Pseudophoenix sargentii*), the Green Thatch Palm (*Thrinax radiata*), the paurotis palm, (*Acoelorrhaphe wrightii*), and the Royal Palm (*Roystonea regia*). The Reserve holds records of over 715 species of flora of the 2,575 recorded for the Yucatan Peninsula. Sixty-three are endemic to the Yucatan Peninsula and 203 are traditionally used in the region. The presence of a mosaic of flora gives rise to a great diversity of fauna, representing species from the 5 vertebrate groups. Of the 557 species reported for the Reserve, 142 are endemic to Mesoamerica, of which 15 are endemic to Mexico and one to Yucatan.

Mexico

Arrecife Alacranes

Declaration date: 2006
Surface area: 333.768 ha
Administrative division: Municipality of Progreso, State of Yucatán

Human activities:

Fishing and tourism

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Ecological characteristics:

Most of the reef volume has been built by Hard-rayed Corals (*scleranctinia*) or with superimposition of colonies of various species over thousands of years, with the help of calcareous algae, both cementing algae and those producing sandy sediments. In broad terms, the reef comprises three zones: The east side or windward side, composed of both inner and outer bars; the central zone or reef pediment and the leeward cliff on the west side. There are also five sandy islands covering an area of 59,16 ha in total. On the islands of Alacranes Reef over 116 species of birds, including residents, migratory and occasional visiting species have been recorded: Significant seabird nesting colonies exist and trans-Gulf migrants primarily use the islands for resting as they are the only sites on the flyways passing through the Gulf of Mexico. In the reefs, 34 species of corals have been identified, such as *Plexaura homomalla, Plexaurella dichotoma, Acropora cervicornis* and *Acropora palmata*. One hundred and thirty-six species of Teleostei and 24 species of Shark have been recorded. The area is also used as a feeding ground for 4 species of marine turtles: the Hawksbill Turtle, the Leatherback Turtle, the Loggerhead Turtle and the Green sea Turtle. The Alacranes reef complex also contains the greatest specific wealth of molluscs (49 bivalves and114 gastropods) recorded in the area in comparison with other areas in the Mexican Caribbean. Nine species of sea mammals have been recorded in the areas, which would indicate that the site is a potential refuge for them.

Protection classification:

National Park

Mexico
Bahias de Huatulco

Declaration date: 2006
Surface area: 11.890 ha
Administrative division: Municipality of Santa Marta Huatulco, State of Oaxaca

Human activities:

Agriculture, animal husbandry, fishing and provision of tourist services

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Ecological characteristics:

Vegetation types present in the Reserve form a gradient ranging from the coasts to the tops of the low sierras and hills. In the part nearest sea level, the dunes are located on sandy soil with sea influence, harbouring pioneer herbaceous beach communities with abundant creeping species and some grasses; behind the dune the vegetation is thorny scrubland; on sandy ground inland and protected from the salt-filled winds are deciduous low forests and the lower floodable areas harbour wetland vegetation, manzanillo groves and mangroves. In the marine environment 18 coral communities have been identified, in what represents approximately 1% of the Reserve's marine area. In the terrestrial part of the reserve, 430 species of flora, 15 species of amphibians, 72 species of reptiles, 291 bird species and 130 mammals have been recorded and in the marine area records show 14 species of coral, one of which is probably endemic and several more only recorded for Mexico, together with 58 species of marine invertebrates and 116 varieties of fish. The area has natural elements that are highly important for conservation on a national and international level, regarding its tropical dry woodlands or "dry forests" and coral reefs. It is one of the three most important bioregions in the country, with the predominant presence of dry forests.

Protection classification:

National Park

Mexico
Barranca de Metztitlán

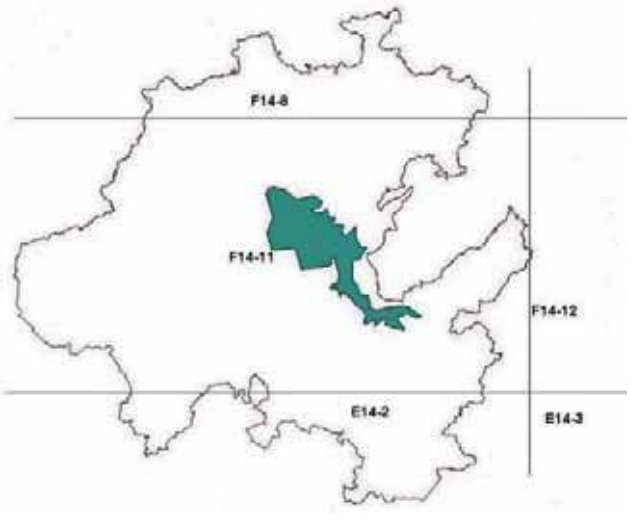
Declaration date: 2006
Surface area: 96.043 ha
Administrative division: Municipalities of Metepec, Acatlán, Huasca de Ocampo, Atotonilco el Grande, San Agustín Metztquititlán, Zacualtipán de Ángeles, Metztitlán and Eloxochitlán, State of Hidalgo.

Human activities:

Agriculture, animal husbandry and fishing.

Ecological characteristics:

The Reserve is considered to be a Pleistocene refuge for Mexican desert biota as it has affinities showing the strong relationship that existed in the past with the Chihuahua and Sonora deserts and presently functions as a biological corridor for arid zones in the country's central highlands. Its ecosystem diversity is represented by xerophilous scrubland, tropical deciduous forest, lower montane shrubland, conifer forest, grasslands and riparian vegetation. It has generated a high rate of endemic species that grow in the Barranca de Metztitlán. For the cactus family, 62 species have been identified. The fauna includes different species of mammals, birds, reptiles and amphibians. In the mammal group, 60 species have been reported, with 21 species of bats and 19 species of rodents. Birds include 215 species. Reptiles include a group of 46 species and there are 17 species of amphibians, most of them endemic to Mexico.
The presence of superficial water currents have favoured intensive agriculture and feed the Metztitlán lagoon, a natural reservoir, recognized as an internationally important wetland. Noteworthy throughout the Reserve are the cave paintings and rock engravings representing a deeply rooted and important historical and cultural background. Its orography, topography and physiographic conditions, give the Barranca de Metztitlán a stunning and outstandingly beautiful landscape.



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Mexico
Bosque la Primavera

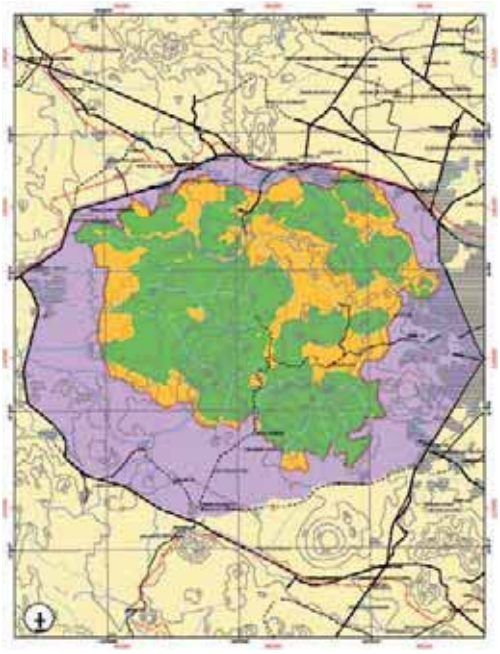
Declaration date: 2006
Surface area: 30.500 ha
Administrative division: Municipalities of Zapopan, Tala, Tlajomulco de Zuñiga and El Arenal, State of Jalisco

Human activities:

Ecotourism

Ecological characteristics:

Sixty-nine percent of the surface area is covered by Oak and Pine associations, 5.6% is an Oak forest and 1.2% is pure Pine. Other plant associations also exist. The diversity of ecosystems to be found in the forest are influenced by the forest's geographical location, located in the overlapping area of two floristic provinces: the Western Sierra Madre and the Southern Sierras or Transverse Volcanic Axis l (volcanic belt) and in turn, these provinces are located in the Mesoamerican Mountain Region, formed by the convergence of the two major Nearctic and Neotropical kingdoms. So far, within the study area, 961 species of vascular plants have been recorded. It functions as a critical habitat for species of flora and fauna that are representative of the region, a genetic reservoir and biological corridor between the region's natural systems, maintaining biological diversity and the genetic heritage and favouring the continuity of evolutive processes. The Biosphere Reserve is a living laboratory for scientific research activities.



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Mexico
Chamela-Cuixmala

Declaration date: 2006
Surface area: 63.950 ha
Administrative division: Municipality of La Huerta, State of Jalisco

Human activities:

Agriculture, animal husbandry and tourism

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Ecological characteristics:

The Biosphere Reserve includes a wide variety of environments that comprise one of the most diverse and heterogeneous landscapes of the American Continental Pacific coast. Outstanding because of its wide coverage, conservation of dry or deciduous tropical forest, it is considered to be one of the world's most threatened ecosystems. It contains various types of plant associations among which, the sub-deciduous tropical forests, xerophile scrubland, mangroves, riparian vegetation and wetlands, in addition to the human-made agro-ecosystems. There are also insular ecosystems and beach zones allocated to the protection and rehabilitation of various species of sea turtles. Biological diversity of species is well known for groups as well as for vascular plants where the presence of some 1,200 species for animals has been identified, such as vertebrates with approximately 500 species including fish, amphibians, reptiles, birds and mammals. In addition to the great wealth of species there is another element of great value in conserving the region's biodiversity related to the high number of endemic species. Some 26% of the vascular plants are endemic to Mexico and similar or higher levels have been described for groups such as reptiles (47%), amphibians (58%), birds (9%), or mammals (28%). The reserve is recognized as the area including the greatest number of endemic species in the whole Neotropical eco-zone.

Mexico
Cuatrociénegas

Declaration date: 2006
Surface area: 84.347 ha
Administrative division: Municipality of Cuatrociénegas, State of Coahuila

Human activities:

Agriculture, animal husbandry, tapping of non-woody resources and mining.

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Ecological characteristics:

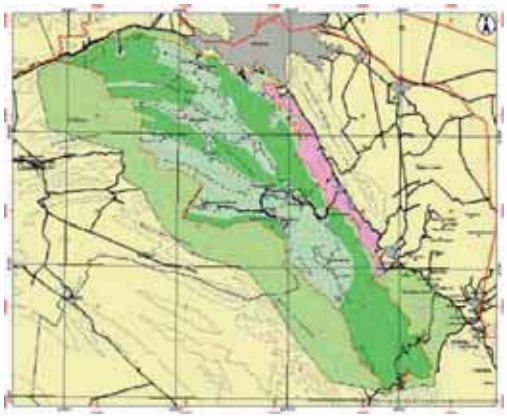
The Reserve is a valley in an arid zone, with some 500 ponds or "pozas" surrounded by mountains where unique species have developed. These ponds harbour 33 endemic species, mainly aquatic (11 species of fish, 13 species of molluscs and 8 crustaceans) and semi-aquatic (2 species of turtles) species. The wetland includes communities of stromatolites, archeo-bacteria or primitive bacteria representing true living fossils of those organisms that gave origin to life.
The Reserve has relevant resources such as gypsum outcrops that in some places appear as dune fields – the second largest in America – where some endemic gypsophile species are located. The area includes 714 plant species, 12 of them endemic and 368 species of fauna, of which 42 species are endemic. .Five plant associations characteristic of the Chihuahua Desert have been identified: Desert Rosette Scrubland, Desert Microphilia Scrubland, Desert Transition Scrubland, Halophyte Vegetation and Gypsophile Vegetation. The latter two are very specific to the Cuatrocienagas Valley and comprise species, many of them endemic, that have adapted to the high concentrations of mineral salts present in the soil of this Valley. The Chihuahua Desert is one of the American Continent's largest deserts

Mexico
Cumbres de Monterrey

Declaration date: 2006
Surface area: 277.396 ha
Administrative division: Municipalities of Allende, García, Montemorelos, Monterrey, Rayones, Santa Catarina, Santiago, San Pedro Garza García, in the State of Nuevo León

Human activities:

Orchards, agriculture, animal husbandry, tourism.



Contact information:

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Ecological characteristics:

This Biosphere Reserve is formed by a series of intermountain gorges oriented from north-northeast to south-southwest. The slope and orientation characterize a variety of types of vegetation, the most outstanding being the pine forests with a predominance of *Picea sp., Pseudotsuga sp.* and *Abies sp.*, with areas of Chaparral, Sub-montane scrubland, Desert rosette scrubland and others. There is a great diversity of types of vegetation and species of phytogeographic importance such as *Pinus greggii*, species of *Abies sp., Pseudotsuga sp., Juniperus sp.* and endemic species such as *Pinus culminicola* and the *Astragalus* and *Lupinus* genus. Most of the species are endangered in differing degrees. This is a priority land area, considered to be a biogeographic island. The mountain formation is also known as the "Monterrey Curve" due to the change in direction of the mountain folds. The area is part of the migratory route of the Monarch butterfly and various duck species, as the forests in the Park are the first mountain massif with forest habitat that they find on their way south. The area neighbours with the city of Monterrey and the protected area, thanks to its topography and difficulty of access, has enabled the ecosystems to maintain a good state of conservation with very little human pressure. It is hard to believe that species can be found so close to a great urban zone, such as the Maroon-fronted parrot (*Rhynchopsitta terrisi*), the Puma Jaguarundi (*Herpailurus yaguarondi*) and even the Mexican Black Bear (*Ursus americanus eremicus*).

Protection classification:
National Park

Mexico
La Encrucijada

Declaration date: 2006
Surface area: 167.310 ha
Administrative division: Municipalities of Arriaga, Tonalá, Villaflores, Villacorzo, Jiquipilas and Cintalapa, State of Chiapas

Human activities:

Fishing, agriculture, animal husbandry and tourism

Ecological characteristics:

This Biosphere Reserve comprises two great coastal lagoon systems where the natural ecosystems are mangroves (*Rhizophora mangle, Rhizophora harrisonii, Conocarpus erectus, Laguncularia racemosa*) Money-tree forests (*Pachira acuatica*), Tular vegetation and freshwater and brackish swamps, in addition to patches of medium forest, coastal dunes and palm groves. Biological diversity is of great relevance and fauna such as the Jaguar *Panthera onca*, the American Crocodile *Crocodylus acutus* and the Caiman *Caiman crocodylus fuscus*, Geoffroy's Spider Monkey (*Atteles geofroyii)*, the Boa Constrictor and the White-tailed Deer (*Odocoileus virginianus*) are to be found. It also harbours over three hundred species of birds, of which one hundred are migratory. There is a great wealth of fisheries in Biosphere Reserve, mainly crustaceans: the Pacific White shrimp (*Litopenaeus vannamei)*, the Yellow-leg shrimp (*Litopenaeus californiensis)*, the Blue shrimp (*Litopenaeus stylirostris)*, the Pink shrimp (*Litopenaeus brevirostris)*. Also to be mentioned are fish with scales, such as the Tropical Gar *Atractosteus tropicus*, the Flathead mullet (*Mugil) cephalus*, the Widehead sea catfish *Arius guatemalensis*, the Snapper *Lutjanus sp.,*the Crevalle Jack *(Caranx hippos),* the Flowerhorn

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Mexico

Laguna Madre y Delta del Rio Bravo

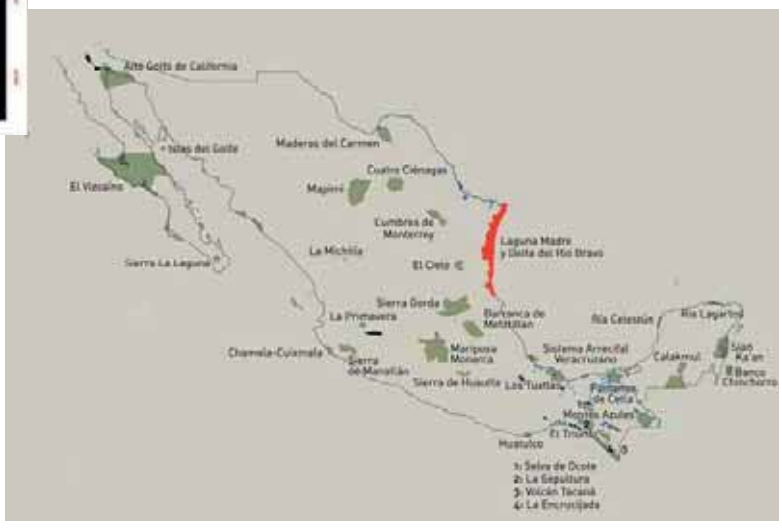
Declaration date: 2006
Surface area: 572.808 ha
Administrative division: Municipalities of Matamoros, San Fernando and Soto la Marina, State of Tamaulipas

Human activities:

Fishing, agriculture and animal husbandry

Ecological characteristics:

Together with the one in Texas, in the United States, this is the largest hyper-saline coastal wetland in North America and one of seven in the whole world. It harbours a wealth and diversity of species and ecosystems, due to the fact that the lagoon is located between two biogeographical regions, the Nearctic and the Neotropical regions, with the influence of the Carolinian and the Caribbean marine provinces giving rise to various types of soil, climate and rainfall regimes and relative humidity. This region is the northern limit for the distribution throughout the Gulf of Mexico of tropical vegetation, such as mangroves, lowland and midland forests. Added to this is a type of terrestrial vegetation unique to northeast Mexico: the Tamaulipas Scrubland. The area serves as a natural corridor for migratory aquatic birds as the region is located along the Gulf migratory route, the most important one in the continent for birds of prey. It is considered to be the best conserved habitat, operating as a biological corridor in the Gulf of Mexico for species such as: the Jaguar, Ocelot, Oncillo, Puma and Lynx. It is a basic location for survival, mating, breeding, or simply resting for 450 species of birds. Thirty-six percent of the world population of the Redhead duck and the largest winter population of migratory waterfowl arriving in Mexico (15%) converge in this Reserve.



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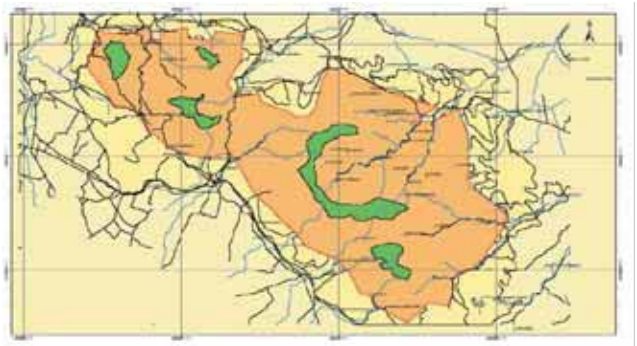
Mexico
La Sepultura

Declaration date: 2006
Surface area: 167.310 ha
Administrative division: Municipalities of Arriaga, Tonalá, Villaflores,Villacorzo, Jiquipilas and Cintalapa, State of Chiapas

Human activities:

Animal husbandry, agriculture (maize and beans), coffee growing, forest timber management, exploitation of Xate palm leaves (*Chamaedora spp*)



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Ecological characteristics:

The Biosphere Reserve has a range of ecosystems and various types of natural habitats representing important biogeographical regions, added to local traditional forms of land allocation that involve different uses in managing and preserving the site: lowland deciduous forest or tropical dry forest, midland sub-evergreen forest or evergreen tropical forest, midland sub-deciduous and mixed forests (Pine-Oak- Liquidambar) and relict ecosystems such as the montane cloud forest or evergreen cloud forest, cloud shrubland or high altitude Paramo and pine savannah. It harbours over 90 species of migratory birds, six species of palms of world economic importance and four species of cicadas and various species of orchids. Worth noting are the following tree species: *Ulmus mexicana, Manilkara zapota, Triplaris melaenodendron, Cedrela odorata, Liquidambar styraciflua, Haematoxylon brasiletto* and *Croton guatemalensis*; five species of felines: the Oncilla, the Jaguarundi, the Ocelot, the Jaguar, the Puma and also the Spider monkey, Tapir, Brocket deer, the Tamandua Anteater; birds such as the Gray Hawk, Swainson's Hawk, the Solitary Eagle, the King Vulture, the Peregrine Falcon and various species of psitacids: the White-fronted Parrot and the Yellow-naped Parrot and also reptiles such as the Boa, the Rattlesnake, the Coral Snake, the Green Iguana and the Black Iguana.

Mexico
Los Tuxtlas

Declaration date: 2006
Surface area: 155.122 ha
Administrative division: Municipalities of Catemaco, Hueyapan de Ocampo, Mecayapan, Pajapan, San Andrés Tuxtla, Santiago Tuxtla, Soteapan, Tatahuicapan, Acayucan, Soconusco, Chinameca and Ángel R. Cabada, State of Veracruz

Human activities:

Agriculture (chillies, maize, beans, citrus, tobacco for export, sugar cane, carpet grass, meat and dairy cattle, silviculture. Other important activities are fishing and tourism.

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Ecological characteristics:

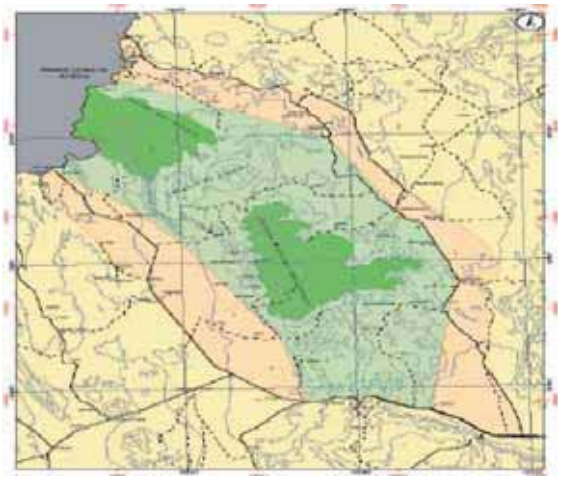
This Biosphere Reserve hosts significant ecosystem diversity and nine types of primary vegetation. It is the northern limit of the moist forest in the American continent and is a unique case for Mexico and North America due to the connection of different types of forests and woodland from the coast to the volcano tops. It is a catchment area as it is one of the rainiest parts of the country. Within the Reserve, 2,698 species of vascular plants, 877 species of vertebrates (46 amphibians, 122 reptiles, 140 mammals and 569 birds), 133species of odonata and 860 species of butterflies have been identified. Among the fauna, 21 species are endemic. It is a key area for birds migrating from North America, 223 of the 569 species of birds registered in the area are Nearctic and Neotropical migrants. The Biosphere Reserve contains endemic species and endangered species of flora and fauna. An example of the endangered species of flora are: *Chironectes minimus, Vampyrum spectrum, Alouatta palliata, Ateles geoffroyii, Cyclopes didactylus*. Among the birds: *Jabiru mycteria, Cairina moschata, Sarcoramphus papa, Harpyhaliaetus solitarius, Harpya harpyja, Spizastur melanoleucus*. The Reserve also contains abundant ichthyofauna with endemic taxa such as *Bramocharax caballeroi, Poecilia catemaconis, Poeciliopsis catemaco* and *Priapella olmecae*.

Mexico
Maderas del Carmen

Declaration date: 2006
Surface area: 208.381 ha
Administrative division: Municipalities of Ocampo, Acuña and Múzquiz, State of Coahuila

Human activities:

Animal husbandry, tapping of non-woody resources and farming for domestic consumption.



Ecological characteristics:

From the physiographic standpoint, the Sierra del Carmen is an island as it consists of a very high mountain massif standing in the middle of desert plains. It is located in the convergence point of three physiographic regions: in the West the Chihuahua Desert, in the Southeast the Tamaulipas thorny scrubland and the central region of Coahuila plains. This situation leads to a variety of natural environments in a relatively small space, ranging from riparian ecosystems at 500 m above sea level, to the Chihuahua desert plains and typical thorny scrubland of Tamaulipas rosette vegetation, grasslands, Oak and Juniper Chaparral at 1500 m above sea level and Oak, Pine, Pseudotsuga and Abies forests above 2000 m above sea level. It is a refuge for migratory species of Neotropical and Nearctic birds and birds of prey. It harbours the Golden Eagle, the Peregrine Hawk, the Black Bear, the White-tailed Deer and the Mule Deer and small endemic and relict mammals such as the Gray Shrew, moles, opossums, armadillos, squirrels, castors, the North American Porcupine and the Kit Fox, among many others. On the chalkstone hills healthy populations of Candelilla *Eophorbia antisyphilitica* can be found.

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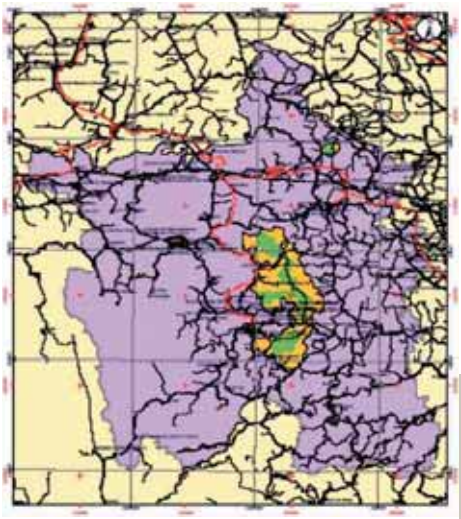
Mexico
Mariposa Monarca

Declaration date: 2006
Surface area: 56.259 ha
Administrative division:
Municipalities of Aporo, Angangueo, Ocampo, Zitácuaro, Senguio and Contepec, in the State of Michoacán and Municipalities of Villa de Allende, San José del Rincón, Temascalcingo and Donato Guerra in the State of Mexico

Human activities:

Silviculture, agriculture, animal husbandry, trout-farming and tourism.



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Ecological characteristics:

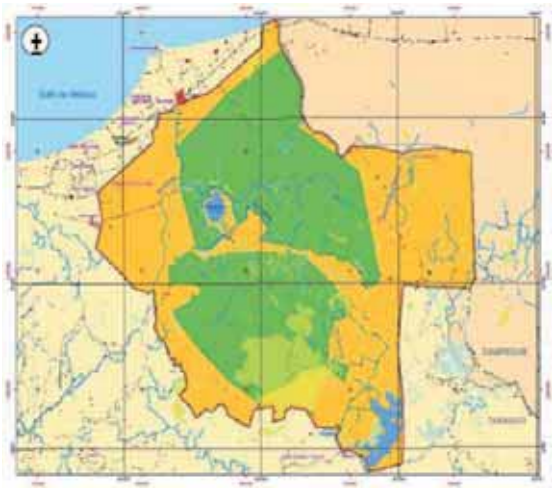
The Biosphere Reserve is located in a region where conservation of the natural heritage is a challenge because of its unique physical, geomorphological, climatic, hydrological and biogeographic features, but more especially because it is here that every year millions of Monarch butterflies (*Danaus plexippus*) complete their migratory cycle, migrating from Canada and the United States. The mountains in the region are mainly covered by Oak forests up to 2900 m, Pine and Oak and Pine forests between 1500 and 3000 m, and Sacred Fir *Abies religiosa*, at an altitude of between 2400 and 3600 m above sea level. Other less represented associations are the Cedar and Juniper forests and the grasslands. It is an important catchment area for rainfall, feeding numerous water bodies in the States of Michoacán and Mexico. It is also the habitat of various endemic species from the centre of the country and particular mention may be made of *Pinus martinezii, Ambystoma ordi-narium* and *Regulus calendula*. As it is a transition zone between the Nearctic and Neotropical regions, attached to the Southern Sierras Province of the Mesoamerican Mountain Region, it hosts an enormous biodiversity due to the convergence of flora and fauna from both biogeographical regions. Partial studies have reported 198 species of vertebrates, 493 species of vascular plants and some 100 species of fungi.

Mexico
Pantanos de Centla

Declaration date: 2006
Surface area: 302.706 ha
Administrative division: Municipalities of Centla, Jonuta, and Macuspana, State of Tabasco

Human activities:

Riparian fishing, poultry, agriculture, animal husbandry and fruit-growing. Also, 21% of the sweet gas piped out of the Southeast region of the country comes from this area.



Contact information:

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Ecological characteristics:

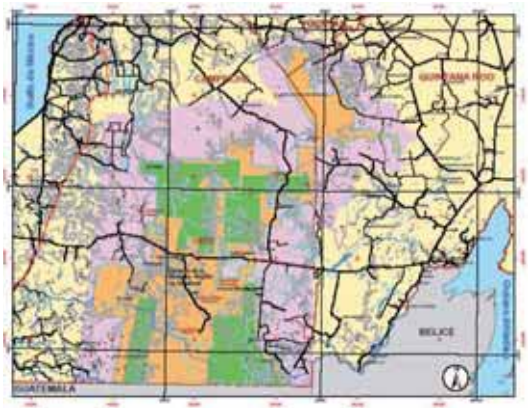
The Biosphere Reserve safeguards 569 identified species of flora, belonging to 8 main associations, with both Monocotyledons and Dicotyledons pertaining to aquatic and land systems, *inter alia*: hydrophilic communities (they occupy over one third of the Centla swampy region); the medium altitude and lowland sub-evergreen forests of Black Olive trees *(Bucida buceras*) and Logwood (*Haematoxylon campechianum*); the most outstanding species in economic terms within these two association are: *Spondias mombin*, *Tabebuia rosea*, *Lonchocarpus hondurensis*, Bitter Angelim (*Vatairea lundelii*), Gumbo-Limbo (*Bursera simaruba*), Guanandis (*Callophyllum brasiliensis*), Mahogany (*Swietenia macrophylla*), Cedar (*Cedrella odorata*). Mangroves grow in locations where brackish water from the Gulf of Mexico enters and the soils where they settle contain large concentrations of organic matter and nutrients that give life and feed the marine species that live among their roots. There are four species of mangroves: the Red Mangrove, the White Mangrove, the Black Mangrove and the Button Mangrove. Regarding the fauna, 52 species of fish, 68 species of reptiles, 27 species of amphibians, 104 species of mammals and 255 species of birds, have been identified so far (this last figure includes both migratory and resident species from aquatic and land habitats). The most representative species among the group of birds are the Jabiru stork, the Maguari stork, the Páspaque, the Ruddy Ground Dove (*Columbina talpacoti*), the Muscovy Duck (*Cairina moschata*), the Black-bellied Whistling Duck, the *Podilymbus podiceps*, the Peregrine Hawk and the Ibis, among others. The most important rivers in the Reserve are the Grijalva and the Usumacinta, annually discharging 90 million m3 of water, placing this hydrographical region seventh in the world. Associated to this discharge is an average 7.3 million m3 of sediments and nutrients, favouring fisheries in the Gulf of Mexico.

Mexico
Región de Calakmul

Declaration date: 2006
Surface area: 1.371.766 ha
Administrative Division:
Municipalities of Calakmul, Candelaria, Champotón, Escárcega and Holpechén in Campeche; José Ma. Morelos and Othon P. Blanco in Quintana Roo; Tekax in Yucatán

Human activities:

Reforestation, recreation, ecotourism, agriculture, animal husbandry, bee-keeping, forestry, fishing, hunting and farm-forestry



Ecological characteristics:

The Biosphere Reserve is characterized by its size, good state of conservation and continuity with other regions in the Yucatán Peninsula, Chiapas, Guatemala and Belize. It is considered to be the largest forest mass in Mexico and, together with the forests of Guatemala and Belize, the second largest remnant forest left in Latin America after the Amazon. Its great diversity of species responds to regional heterogeneity, where in spite of its scant land forms, high and medium altitude sub-evergreen (moist) forests, medium altitude sub-deciduous (dry) forests (with a predominance of Holywood Lignum-vitae (*Guaiacum sanctum*)); lowland deciduous forests and savannahs can be found. This group of forests harbours Mexico's largest populations of fauna and flora, comprising charismatic or flagship species of biological and ecological importance for the region, such as the Jaguar, the Puma, the Tapir, the White-lipped Pecary, the Howler Monkey and the Spider Monkey, the King Vulture, the Ornate Hawk together with Mahogany, Cedar and Ciricote trees. There are also endemic species of economic and ecological importance for the region such as the Ocellated Turkey (*Meleagris ocellata*) Gray Brocket Deer (Galindo-Leal, 1999). Ninety percent of the amphibian species and over 50% of the reptile species reported for the Peninsula are to be found in the region. The land area is very important for birds with over 360 species recorded and it is also considered to be an important geographical area for Neotropical migratory species. (Galindo-Leal, 1999; Berlanga and Wood, 2001).

Protection classification:

Calakmul Biosphere Reserve, Balam Kú State Reserve, Balam Kin State Reserve

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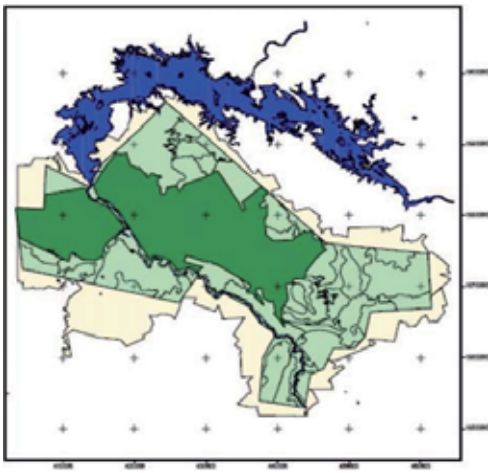
Mexico
Selva El Ocote

Declaration date: 2006
Surface area: 101.288 ha
Administrative division: Municipalities of Cintalapa, Ocozocoautla, Jiquipilas, Tecpatan, Estado de Chiapas



Human activities:

Small scale and open-range cattle raising, agriculture, aquiculture, organic and eco-friendly coffee growing, fruit-growing and ecotourism.

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Ecological characteristics:

It is one of the two regions in the country with a considerably large stretch of highland and medium altitude forest, characteristic of the Mexican humid tropics (because of its size, biological diversity and great ecological and geological relevance). It has a complex and varied cave system of karstic origin. Its karstic aquifers are considered to be the reserve for the Third Millennium with a very good quality area located in the Canyon of the La Venta River due to its isolation and the scant pressure of human settlements. Seven hundred and twelve species of flora have been described, with numerous species of economic importance: timber trees and medicinal, edible and ornamental plants. Among the trees, mention may be made of Mahogany (*Swietenia macrophylla*), Mexican Cedar (*Cedrela odorata*), Sapodilla (*Manilkara zapota*) and Mexican Yam (*Dioscorea composita*). A total of 584 species of terrestrial vertebrates have been reported, distributed as follows: 24 species of amphibians, 58 species of reptiles, 395 species of birds and 107 species of mammals, representing 48.5 % of the vertebrates of Chiapas and 23.23 % of the country's vertebrates.

Mexico
Sierra de Huautla

Declaration date: 2006
Surface area: 59.031 ha
Administrative division: Municipalities of Amacuzac, Puente de Ixtla, Jojutla, Tlaquiltenango y Tepalcingo, State of Morelos

Human activities:

Agriculture, livestock raising, silviculture and tapping of non-woody forest resources

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Ecological characteristics:

The Biosphere Reserve is located in the Basin of the River Balsas and is a rich reserve of Mexican endemic species. Its rugged topography gives rise to variations in altitude ranging from 700 to 2,240 m above sea level with a wide representation of ecosystems. Low deciduous forests, gallery vegetation and Pine and Oak forests are noteworthy for their land cover. The low deciduous forests harbour a high percentage of life forms exclusive to Mexico and the number of endemic species is higher than in other types of vegetation. Nine hundred and thirty-nine species of native vascular plants have been recorded out of the 3,345 reported for the State of Morelos. Relict populations of 44 species of butterflies, representative of a warm humid geological stage in this region are to be found here. Seventy-one species of mammals, 208 species of birds, 53 species of reptiles, 18 species of amphibians and 14 species of fish have been recorded. Relevant species of fauna are present such as the Short-horned Baronia butterfly (*Baronia brevicornis brevicornis*), the Beaded Lizard (*Heloderma horridum*), the Military Macaw (*Ara militaris*), the Rufus-backed Robin (*Turdus rufopalliatus*), the Balsas Screech Owl (*Otus seductus*), the Pileated Flycatcher (*Xenotriccus mexicanus*), the Puma (*Puma concolor*), the Ocelot (*Leopardus pardalis*), the Margay (*Leopardus wiedii*), the Bobcat (*Linx rufus*) and the Jaguarundi (*Herpailurus yagouaroundi*). Various species of wildlife endemic to the Balsas basin, Mesoamerica and Mexico are represented in the Sierra de Huautle Biosphere Reserve: 7 species of mammals, 34 species of birds, 28 species of reptiles and 6 species of amphibians.

Mexico

Sistema Arrecifal Veracruzano

Declaration date: 2006
Surface area: 52.239 ha
Administrative division: Municipalities of Veracruz, Boca del Río and Alvarado, State of Veracruz

Human activities:

Fishing and provision of tourist services

Contact information:

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www.conanp.gob.mx
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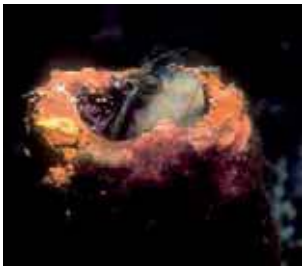
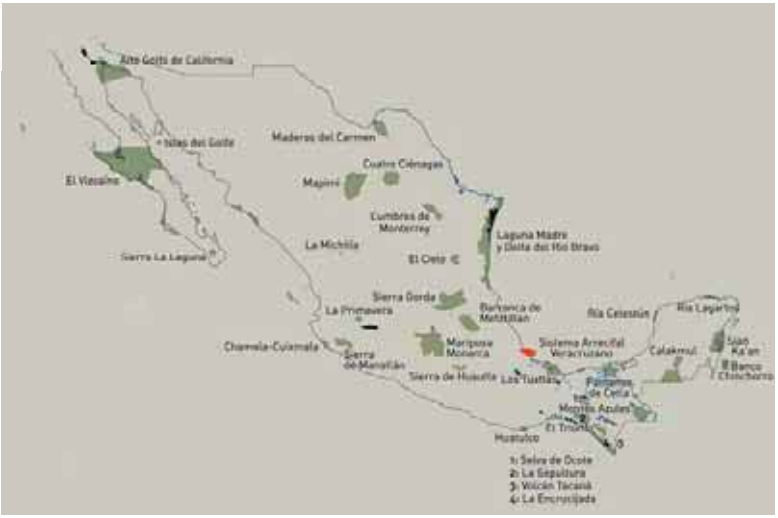
Ecological characteristics:

The Veracruz Coral Reef System comprises flats, islands and reefs located on the inner part of the continental shelf rising from a depth of close on 40 m. The area regulates the climate and operates as a barrier against waves and storms. The Biosphere Reserve harbours resident, transitory and migrant fish. The latter only cross the area as part of their annual migratory routes, such as in the case of the Atlantic Spanish Mackerel (*Scomberomorus maculatus*) and the King Mackerel (*Scomberomorus cavalla*). The importance of the coral reef system arises from its relevance for fisheries. Among the pelagic species of commercial interest, mention may be made of the Tarpon (*Megalops atlantica*), the Crevalle Jack *(Caranx hippos*), the Horse-eye Jack *(C. latus*), the Bar Jack *(Caranx ruber*), the Jurel *(Caranx cirus*), the Permit *(Trachinotus falcatus*) and the Atlantic Bonito *(Sarda sarda*). Of the species living on the sea bed, the following are of interest: the Black Grouper (*Mycteroperca bonaci*) and the Scamp *(M. phenax*), the Red Snapper *(Lutjanus campechanus*), the Goliath Grouper (*Epinephelus itajara*), and the Snappers *Lutjanus jocu, L. griseus* and *L. analis* and the Flounders *Bothus lunatus* and *B. ocelatus*. Commercial catches in the area comprise 89 species of fish, 4 species of shark, 2 species of ray, 1 species of lobster and 2 species of octopus. The taxonomical position of some of these species and ecological and fisheries information may be consulted in Jiménez et al., (in print).



Protection classification:
National Park

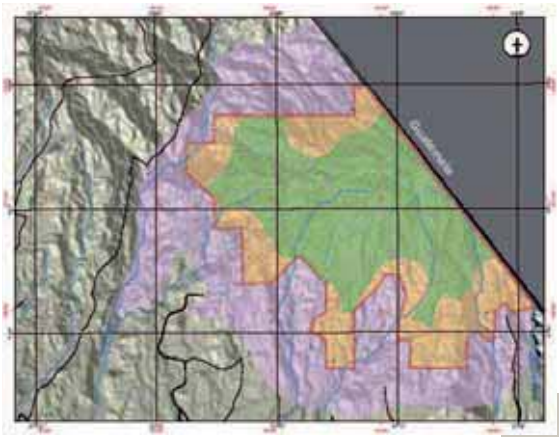


Mexico
Volcán Tacaná

Declaration date: 2006
Surface area: 6..378 ha
Administrative division: Municipalities of Cacahoatan, Tapachula and Unión Juárez, State of Chiapas

Human activities:

Coffee-growing, flower-growing, bee-keeping, agriculture and tourism



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Ecological characteristics:

The region of the Tacana Volcano, located in the core of Central America, is a rich reservoir of endemic and other species of Central and South American origin which, in Mexico, are only to be found in this area. The topography is rugged with ecosystems of evergreen medium altitude forests, cloud forests and pine, oak and fir forests. It is the only place in the country where two ecosystems are represented: the Tropical Paramo and the Chusqueal ecosystem. The Volcán Tacana Biosphere Reserve harbours a rich variety of endemic species of flora (*Chasquea martinezi*) and fauna (*Cyllopsis spp., Limanopoda cinna, Dalla sp. Lepidoptera-Rhopalocera*). Included among the biota of the Volcano are a significant number of charismatic or protected species, such as the Canaco tree (*Chiranthodendron derbianus*) and the Ornate Hawk-Eagle (*Spizaetus ornatos*). There are innumerable species of orchids and bromeliads. The rich biodiversity and high number of endemic species are particularly obvious in the high mountain ecosystems and landscapes and in the volcanic edifice which has geophysical features of great scientific and esthetical value, representative of the humid environments of Andean origin to be found in Mexico. Average annual rainfall can amount to 2,000 - 5,000 mm, as in the case of Soconusco.

Mexico
Sierra de Álamos-Río Cuchujaqui

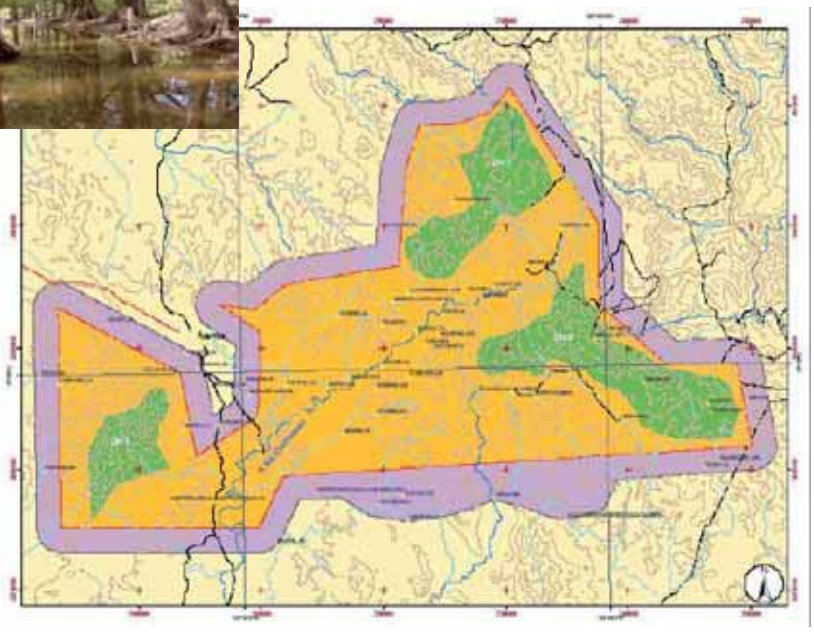
Declaration date: 2007
Surface area: 92.890 ha
Administrative division: Municipality of Álamos, State of Sonora

Human activities:

Open-range cattle- raising, subsistence agriculture, forestry activities, tourism, crafts, mining, fishing and aquiculture.

Ecological characteristics:

This Biosphere Reserve is located in an enclave in one of the Municipalities harbouring the most biodiversity of the State of Sonora. It has mixed plant communities such as the Deciduous Tropical Fores (Lowland Deciduous Forest), the Sinaloa Thorny Shrubland, and the Evergreen Sierra Madre Forest (Pine and Oak Forests). It contains extraordinary biological wealth, with a total of approximately 1,200 species of plants in 566 genus and 148 families (Rzedowski, 1991). In terms of fauna, the area contains approximately 557 species of vertebrates. Because of the biological diversity, the area is considered to be very rich both at State and national level (Rzedowski, 1991). Among the species of wildlife, the following can be mentioned: *Guaiacum coulteri*, the palm *Brahea sp.*, the Cycad *Dioon tomaselli*, the Magnolia *Magnolia pacifica*, the Gila monster *Heloderma suspectum*, the scorpion *Heloderma horridum*, the Alamos mud turtle *Kinosternon alamosae*, the Golden Eagle *Aquila chrysaetos*, the Humming bird *Amazilia violiceps*, the Great Blue Heron *Ardea herodias*, the Eared Quetzal *Euptilotis neoxenus* and the freshwater shrimp *Macrobrachium sp*. Also to be found are mammals such as the Jaguar *Panthera onca*, the Ocelot *Leopardus pardalis*, the Otter *Lontra longicaudis*.



Contact information:
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Mexico
Islas Marietas

Declaration date: 2008
Surface area: 1.383 ha
Administrative division: Bahía de Banderas

Human activities:

Fishing and tourism based on nautical sports

Protection classification:

National Park

Contact information:

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Parque Nacional Islas Marietas
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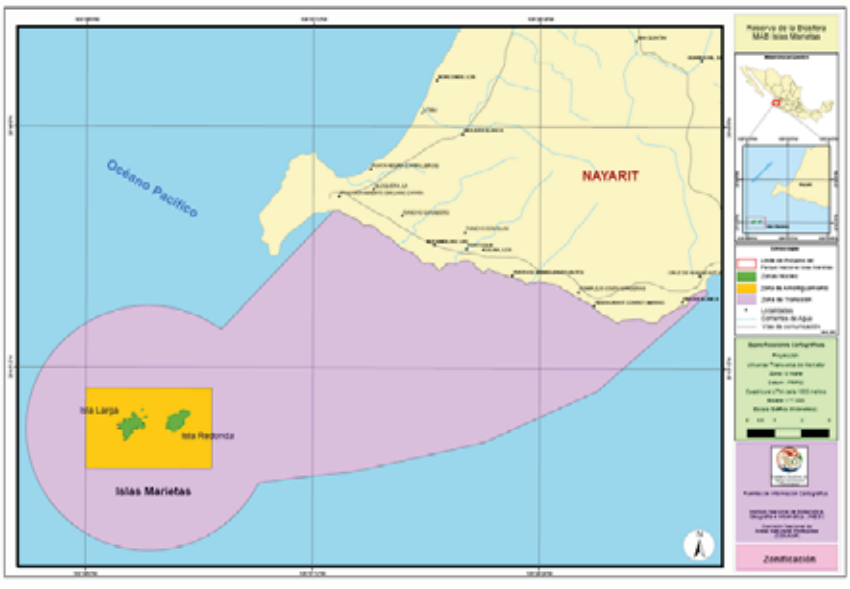
Tel: 01 323 285 1003

Ecological characteristics:

The Marieta Islands are an archipelago comprising two larger and two smaller islands. They are located in an area where three water masses converge: the California Current, the Costa Rican Coastal Current, and the mass of water from the Gulf of California. This convergence has enabled a habitat to develop where marine species characteristic of the Mexican centre and south Pacific cohabit with those from the Gulf of California and the Pacific Coast of Baja California. The islands are characterized by their wealth of bird and fish fauna. They are a fundamental part of the reproductive processes of endangered species, such as the Humpbacked Whale (Megaptera novaeangliae), the Olive Ridley (Lepidochelys olivacea) and harbour the largest nesting colonies in Mexico of the Brown Booby (*Sula leucogaster)*, the Bridled Tern (Sterna anaethetus) and the Brown Noddy (*Anous stolidus*); and for the Pacific, the Laughing Gull (*Larus atricilla).*



Mexico

Lagunas de Montebello

© A. Vital-Rumebe, Lake and forest aspect

Declaration date: November 1959
Surface area: 6.425 ha
Administrative division: Chiapas State

Human activities:

Main directions in conservation activities in the National Park:
- Protection of the terrestrials and wetlands ecosystems diversity and restoration on disturbed zones
- Protection and recover vulnerable, endangered or in risk of flora or fauna species
- To drive strategies of sustainable management viable handling of the ecosystems
- Promotion of scientific research and the generation of new biological an ecological knowledge
- Promotion a culture for conservation by means of ecological education and information on the base of ecological paths
- Develop a sustainable tourism as an opportunity to proportionate ecological education.

Surrounding the Park, there are numerous communities that maintain some ancestral traditions that make an interesting cultural region, such as Chujs, the principal ethnic group in the region. Because its scenic beauty Montebello receives annually around 200,000 national and foreign.

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Ecological characteristics:

Lagunas de Montebello National Park is located in the southeast region of Chiapas State, in the Sierra Madre de Chiapas physiographic province, in the Guatemala's borderline. Geographical coordinates: 16° 04' - 16° 10' North latitude and 91° 37' - 91° 47' West longitude. Altitude: 1 500 m above sea level. The weather is temperate, 23.6 is the annual average temperature. The summer are very rainy, the average annual precipitation is 1862 mm for year. The principal ecosystems represented in the park are coniferous forest, cloud forest, aquatic and sub aquatic vegetation. Montebello forms part of a high priority to conservation hydrological basin. Constitute a wetland with 59 lakes with different colors. Also, as important terrestrial priority region, represent an important biological mesoamerican corridor and habitat to several migratory and resident species that include at least 277 species of birds, 65 species of mammals, 35 species of reptiles. Vegetation is represented mainly by 208 species of trees, 50 species of orchids and an important number, epiphytic and ferns. 106 species are recognized as endangered and 27 as endemic.

© A. Vital-Rumebe, Orchids in Montebello

Protection classifications:

In México, the category of National Park has the strictest regulations in natural areas management.

Mexico
Islas Marías

Declaration date: 2010
Surface area: 641.284,73 ha
Administrative division:
Comisión Nacional de Áreas Naturales Protegidas

Human activities:

Since 1905 a Federal Penitentiary Colony has operated on Maria Madre Island, using the island's natural resources. The Colony is mainly engaged in agriculture, animal husbandry, forest harvesting and fishing. In this respect, in order to protect and conserve the Reserve's natural resources and the ecological processes that take place there, it is important to promote sustainable resource use and guarantee ecosystem conservation and integrity to enable the population of the Penitentiary Colony to remain on the island in the long term.
One of the strategic lines established in the Reserve's Conservation and Management Plan is to include environmental conservation in the social re-adaptation process promoted by the penitentiary authorities, by involving the inhabitants of the penitentiary in natural resource protection and sustainable management activities.

Contact information:

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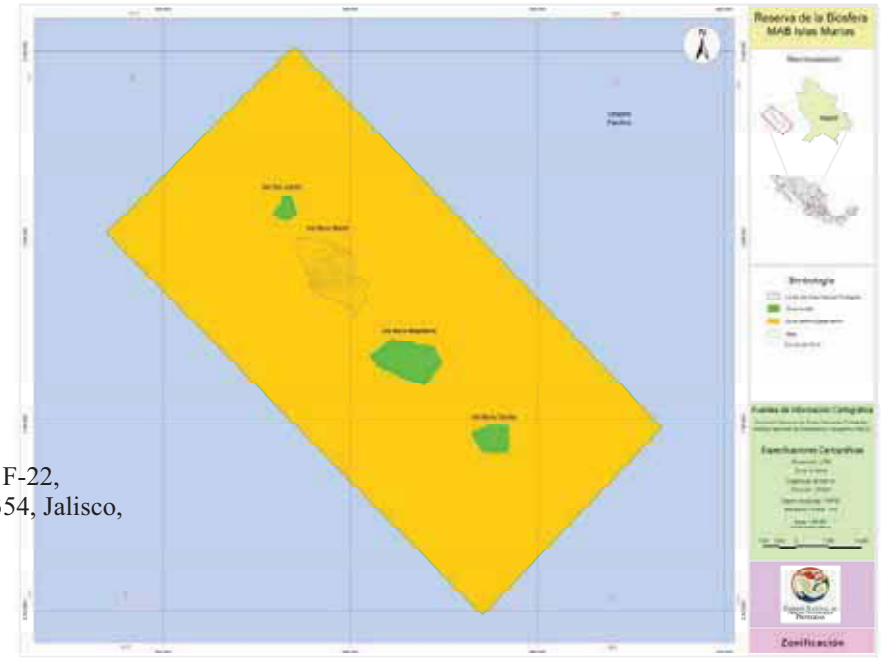
Ecological characteristics:

The Islas Marias Biosphere Reserve includes ecosystems with a great wealth of species of biological, economic, scientific and cultural relevance. Its biological wealth is to be found in the dry forests of its landscape, in the mangroves, the succulent rosette scrubland, the reefs, coasts and pelagic environments it harbours. Because of its isolation for over eight million years, its importance as an ecosystem is manifest in its function as a reservoir to Mexico of endemic species. Fifty-four species of land and marine fauna are protected under some risk category and of these, 19 are endemic. Regarding the flora, 11 endemic or restricted distribution taxa have been recorded, together with six species (one endemic) that are included in a risk category according to NOM-059-SEMARNAT-2001. Furthermore, the Reserve is an important refuge, nesting and feeding site for large colonies of sea birds. The marine environment is highly productive, reflected in the great diversity of organisms to be found, such as coral reefs, reef-fish, sharks, rays, turtles and marine mammals.



Mexico
Los Volcanes

Declaration date: 2010
Surface area: 171.774,4 ha
Administrative division:
Iztaccíhuatl Popocatépetl Zoquiapan National Park

Human activities:

Within the reserve, the core zone comes under federal jurisdiction, the buffer zone under each State's land planning and a combination of ejido, communal and small landowners. The transition zone is the property of the ejidos, communities and small landowners. The transition zone is the only part with human settlements, including 31 480 inhabitants and land given over to farming, stock-raising, forestry, harvesting or other uses.
The Ecological Planning Programme for Popocatépetl Volcano and its Area of Influence covers a surface area of approximately 283,192,53 hectares involving 34 municipalities in three States, namely: Ixtapaluca, Tlalmanalco, Cocotitlán, Temamatla, Tenango del Aire, Ayapango, Amecameca, Ozumba, Tepetlixpa, Atlautla and Ecatzingo, in the State of Mexico; Acteopan, Atlixco, Atzizihuacan, Calpan, Cohuecan, Chiautzingo, San Nicolás de los Ranchos, San Salvador El Verde, Santa Isabel Cholula, Tianguismanalco, Tlahuapan, Tochimilco, Domingo Arenas, Huaquechula, Huejotzingo, Nealtican, San Felipe Teotlancingo and San Jerónimo Tecuinapan, in the State of Puebla; Ocuituco, Temoac, Tetela del Volcán, Yecapixtla and Zacualpan de Amilpas in the State of Morelos.

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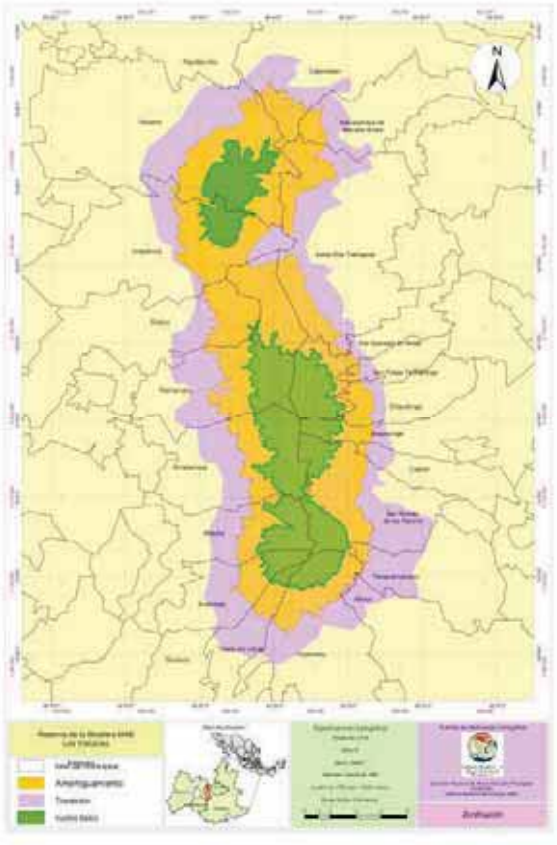
iztapopo@conanp.gob.mx

Ecological characteristics:

The importance of this site arises from the fact that it is located within the Transverse Volcanic Axis in its centre – east part, making it the biogeographical boundary between the Nearctic and Neotropical regions. It includes a very marked ecosystem gradient deriving from the variations in altitude, favouring enormous specific wealth and the presence of endemic species. Its diverse ecosystems consist of pine, Sacred Fir (Abies religiosa, *Oyamel* in Nahuatl) forests and high-mountain prairies. Its geological formations, (hills, volcanic cones and slopes) are of volcanic origin with a predomination of basalt and andesitic rocks. The altitude varies between 2,589 m above sea level and 5,452 m above sea level.



México
Nahá-Metzabok

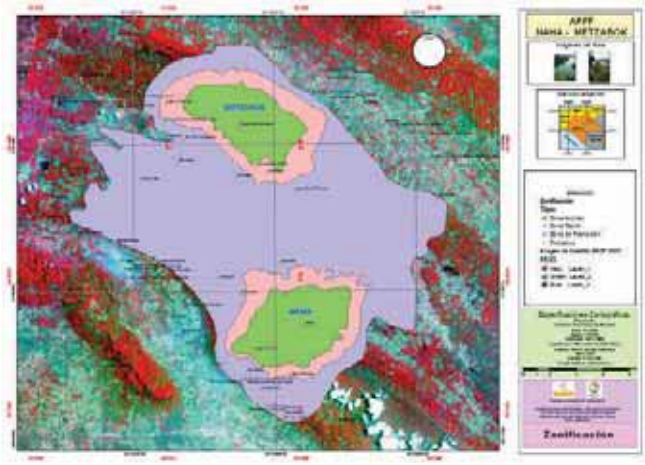
Declaration date: 2010
Surface area: 43. 362 ha
Administrative division:
National Commission for Protected Natural Areas

Human activities:

Nahá-Metzabok, includes three ethnic groups, the Maya-Lacandon, Tzeltals and Choles. The first group that have inhabited this region of the Lacandona Forest since ancestral times are considered by many authors to be an indigenous group which remained in isolation for a long time in the forest. At present the group is estimated at 365 people in the northern part of the Lacandona forest. It is important to note that they are located in the core zones of Nahá-Metzabok, within the sub-communities of Nahá and Puerto Bello Metzabok, two of the 5 sub-communities that comprise the Communal Goods of the Lacandona Forest. Their land tenure regime is of a communal type and within this regime the Government recognizes the rights over a land area of a specific group of applicants. In the transition zone, land tenure is of the ejido-type. In this type of legal regime the Government grants land tenure to a specific group of applicants. Additionally, the Tzeltal and Chole people have a population estimated at 6500 inhabitants living in the buffer and transition zones, under the ejido-type land tenure regime.

Ecological characteristics:

From a physiographic standpoint Nahá-Metzabok is characterized by the presence for the most part of strongly folded and faulted calcareous hills, ,giving the landscape a rugged configuration. The calcareous folds are well defined and oriented from northeast to southeast forming long strongly dissected ranges, with large karstic plateaux on their peaks and narrow valleys at the bottom of the ravines (CIEDAC, 1991). Physigraphically, Metzabok includes a plain-hill-plateau sequence with an altitudinal gradient ranging from 840 m above sea level in the plains to 1,280 m above sea level for the plateaux. The region is the result of a karstification process. Underground hydrology plays an active role in dissolving limestone in the internal layers, creating cenotes that subsequently become endorheic-type lakes. The lacustrine system comprises lakes of varying dimensions, mostly temporarily or permanently intercommunicated. Due to their importance as a wetland, both areas were placed on the list of RAMSAR sites in 2003.



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Nicaragua
Bosawas

The Coco River

Declaration date: 29 October 1997
Surface area: 1.992.800 ha
Administrative division: Eight municipalities have their territory in the Bosawas Biosphere Reserve, 4 belong to the Atlantico Norte Autonomous Region (RAAN), Bonanza, Siuna and Waslala and Waspam partially, three belong to the Department of Jinotega; El Cúa, San José de Bocay and Wiwilí de Jinotega and one to the Department of Nueva Segovia; Wiwilí

Human activities:
The main activities in the Bosawas Biosphere Reserve are coffee-growing and cacao-growing, agro-forest-pastoral systems and industrial and artisanal mining.

A Sloth

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Ecological characteristics:

The BBR is a physical area where the flora and fauna of North and South America converge. Botanical diversity is very high although the exact number of existing species is still unknown, but judging from preliminary data from inventories carried out, it is estimated that there are thousands of tree and vascular species. Likewise, entomo-fauna has not been explored, but a rough calculation shows between 100 thousand to 200 thousand species of insects. According to Holdridge's Life Zone Classification, the area of the Bosawas Biosphere Reserve includes three Life Zones: Tropical moist forest, tropical pre-montane wet forest, and low montane wet forest. These three life zones are very important eco-regions in terms of the biodiversity they host and, at the same time, are considered to be vulnerable regarding their final state of conservation.

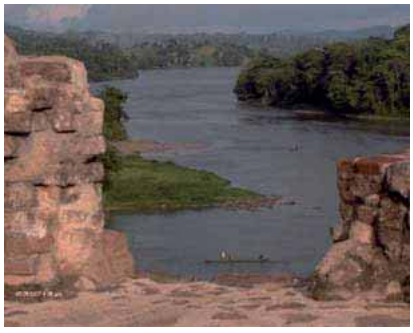
Protection classification:
Legal protection for the Bosawas Biosphere Reserve is set out in the Regulation for Protected Areas (decree 01-2007) establishing the National Category of Biosphere Reserves and Law 407 of 24 December 2001, declaring and defining the Bosawas Biosphere Reserve.

A hut

Nicaragua
Río San Juan

Declaration date: 15 September 2003
Surface area: 1.834.000 ha
Administrative division: Administration is shared by the Atlantico Sur Autonomous Region (RAAS) with the Municipalities of Bluefields, Rama, Nueva Guinea and the Department of Rio San Juan incorporating the Municipalities of El Almendro, San Miguelito, Morrito, San Carlos, El Castillo and San Juan de Nicaragua

Human activities:
Towards the west of the Biosphere Reserve agricultural areas predominate (staple grain crops), mixed with locations of extensive (dairy and beef) cattle raising, fragments of natural forests and secondary forests in various degrees of succession. Moving towards the east, there is less human presence and forest and wetland cover increases until the core zone "Indian Maize Biological Reserve" is reached, where practically no human intervention takes place.



Contact information:

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Fax (505) 583 0296

Ecological characteristics:
The Biosphere Reserve includes different land, sea and continental water ecosystems. Among the most representative are the tropical moist forests with various plant formations, the coastal wetlands with mangroves, estuaries, coastal lagoons, seasonally flooded grassland savannahs, deltas or river mouths, among others. The Biosphere Reserve also includes marine ecological systems such as coral reefs, banks of sea algae, rocky formations on the sea bed and great sand banks of vital importance for migration of the Caribbean Spiny Lobster. The continental region comprises rivers, streams, gullies and rivulets that play a very important role as part of the wetland or tropical moist forest ecological system. There are also fresh-water lagoons where fish, manatees, crocodiles and a great variety of birds find their ecological niche in this enourmous habitat. Towards the west of the Biosphere Reserve slow-running rivers predominate, flooding vast plains and forming various types of wetlands (peat bogs, flooded forests, flooded savannahs, small lagoons) where a great number of species of wildlife, both migratory and resident, breed, feed and rest.

Nicaragua
Isla de Ometepe

Declaration date: 2010
Surface area: 53.860,3 ha
Administrative division:
Ministerio del Ambiente y Recursos Naturales (MARENA)

Human activities:
The island has a population of 29,684 inhabitants living in two municipalities (Altagracia and Moyogalpa). In terms of archaeology and culture, this is one of Central America's important areas preserving invaluable pre-Conquest remains (rock engravings, statues, ceramics), spread all over the Island of Ometepe. The natural resources to be found on Ometepe provide a wide range of goods and services to the local, national and international community (production of oxygen, carbon trapping, food, tourist values and attractions, sources of water) contributing to the economic, social, cultural and environmental development of its society.

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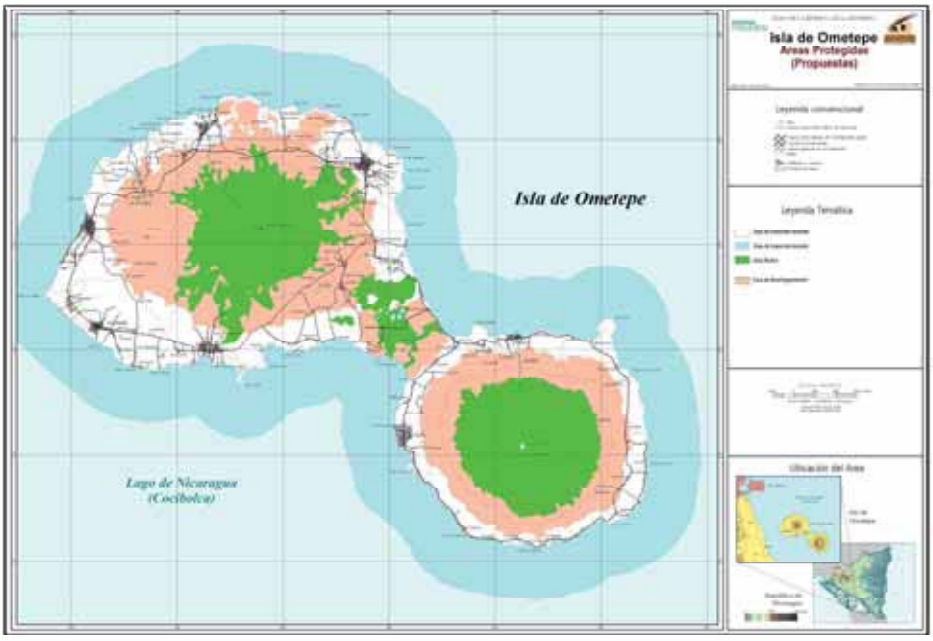
Ecological characteristics:
The Island of Ometepe Biosphere Reserve is located in the Pacific region of Nicaragua on Lake Cocibolca (which covers an area of 8,264 km²). The island itself is 276 Km² (32.18 km long and 14.48 km wide), shaped like an irregular eight. The landform of the island is variable and irregular, from very steep and craggy to well drained lowland fertile lands, rocky outcrops and wetlands. This gives rise to a wide variety of flora and great ecological and biological wealth of national and international interest. The name Ometepe is of Náhuatl origin and means "Island of two hills or two volcanoes" and in fact Ometepe has two volcanoes: Maderas and Concepción, connected to each other by the Isthmus of Istian. The Island of Ometepe Biosphere Reserve includes three core zones: the Maderas Volcano National Park, the Peña Inculta- Istian Wetlands Wildlife Shelter and the Concepcion Volcano Natural Reserve. It also contains a buffer zone on land and a transition zone covering land and lake areas. Due to its geographical location and because it is an island, Ometepe is a transition area between the dry Pacific region and the humid Atlantic region of Nicaragua. These characteristics provide it with a rich biodiversity in addition to a variety of ecosystems giving the island a unique combination. Among the ecosystems is the country's best preserved cloud forest, home to representative Caribbean species, a humid-dry transition forest, possibly the only unaltered one of this type in Nicaragua and the typical dry forest of the Pacific region.
This small space also includes crater lakes, wetlands and their associated vegetation and exuberant beaches. Associated with these ecosystems is a wide genetic diversity of threatened and/or endangered flora and fauna, in addition to endemic fauna and flora (*Bolitoglosa insularis, Ardisia Ometepensis*) or restricted to Mesoamerica.



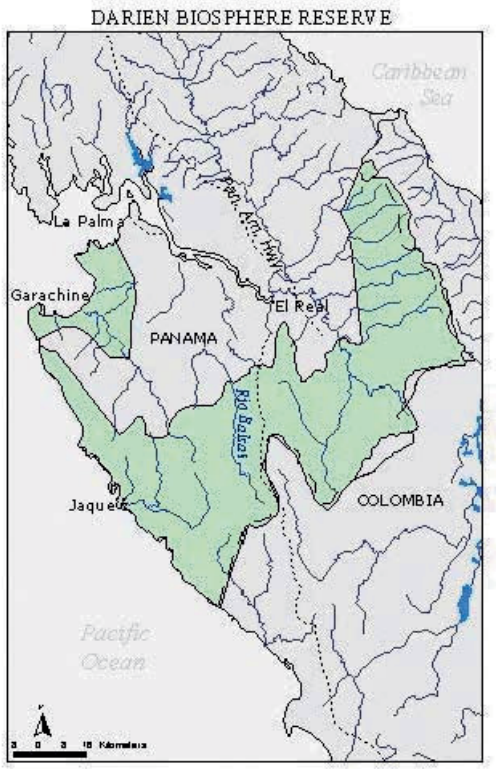
Panamá
Darien

Declaration date: June 1983
Surface area: 859.334 ha
Administrative division: Province of Darien
.

Human activities
Population living in the Biosphere Reserve: The indigenous Embera, Wounaan and Kunas ethnic groups live within the Reserve together with Afro-Antillean Groups and Settlers. In the Buffer zone: 16 communities; in the Transition Zone: 49 communities. Their farming activities include animal husbandry, basic subsistence farming with plantain, maize and rice as their main crops. Very small-scale marketing

Protection classification:
Darien National Park

Ecological characteristics:
A lowland broad-leaved tropical shade-tolerant evergreen forest ecosystem covers the greater part of the territory. So far 1,383 species of flora have been identified, belonging to 146 families. This number of species seems very low compared to the number of species identified for Panama; however this can be explained by the fact that scant research has been carried out in this protected area. Regarding the fauna the Reserve harbours 63 % of the fauna identified for Panama. One hundred and seventy-four species of mammals have been identified, with endangered species of scientific interest such as the Jaguar or the Tiger (*Panthera onca)*, and Baird's Tapir (*Tapirus bairdii*). As to birds, 592 species have been recorded, corresponding to 63.7% of the birdlife reported for the country. Two areas have been identified as locations of endemic species of birds: the lowlands and the highlands. Particular mention can be made of the Harpy Hawk (*Harpia harpyja*). Regarding amphibians and reptiles, 84 species of amphibians and 135 species of reptiles have been identified in Darien National Park. There is no doubt that this area is of great importance in the conservation of biodiversity in the country and in the world. For example out of the 522 species of the country's fauna classified as under threat (vulnerable, endangered and critically endangered), 345 species are to be found here, that is to say 66%.



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Panamá
La Amistad

Declaration date: 4 February 1982
Surface area: 207.000 ha
Administrative division: Bocas del Toro, Chiriquí and the Ngöbe-Buglé region.

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Panamá
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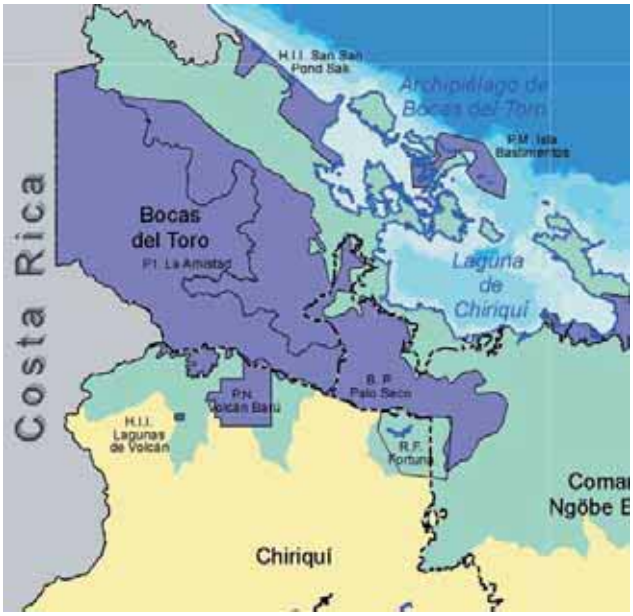
Ecological characteristics:
La Amistad Biosphere Reserve contains one of the Central America's largest and most intact tropical forests and for this reason it was designated as a World Heritage Site by United Nations. The incredible and exuberant biological diversity includes 115 species of fish. Many of these fish from the Teribe River and the rivers of the Changuinola River Basin depend on access to the ocean and vice-versa to complete their life cycles. Currently, dams are hindering this migration and preventing fish migrating downriver to the estuary or upriver to the upper basin of the Changuinola River, directly affecting successful spawning and the recruitment of new members of this fish population



Paraguay
Bosque Mbaracayu

Grazing lands

Declaration date: 10 November 2000
Surface area: 280.000 ha
Administrative division: Department of Canindeyú: Ygatimí, Corpus Cristi, YpéJhú, Katueté and Curuguaty

Human activities:
Small-scale farming and animal husbandry in the Ava Guarani and Ache peasant and indigenous communities, large-scale monoculture plantations and extensive cattle raising by Paraguayan and Brazilian landowners, forest development.

Protection classification:
The core zone and its surroundings are protected by Law of the Nation 112/91. The Bosque Mbaracayu Natural Reserve (RNBM) is *ipso jure* part of the Paraguayan National System for Protected Wildlife Areas (SINASIP).

Ecological characteristics:
The Bosque Mbaracayu Biosphere Reserve protects a representative sample in an excellent state of conservation of the Upper Parana Atlantic Forest (BAAPA) – globally a highly threatened ecosystem – and Cerrado. Its core zone, the Natural Reserve (RNBM) includes trees rising up to 35 m high, such as the Lapacho (*Tabebuia spp.*), Cedar (*Cedrela spp.*), Yellow Poinciana (*Peltophorum dubium*), *Pterogyne nitens*, *Myrocarpus frondosus*, Albizia (*Albizia hassleri*), Tigerwood (*Astronium fraxinifolium*), *Ptagonula americana* and Cancharana (*Cabralea canjerana*). It contains some 1.088 plant species, 8 of which are endangered and 222 are of some economic value. The Smithsonian Institute has designated it as one of the 250 areas in the world with very high plant diversity (2004). It is also a "Key Area for Bird Conservation" according to Birdlife International, and it is one of the 51 units in the world for the conservation of Jaguars, selected by the Wildlife Conservation Society (2000). Of the 411 species of birds, 30 are threatened, such as the Black-fronted Piping-guan (*Pipile yacutinga*), the Bare-throated Bellbird (*Procnias nudicollis*) and the Harpy Eagle (*Harpia harpyja*). One of the three populations identified worldwide of the White-winged Nightjar (*Eleothreptus candicans*) lives in the Cerrado. The Biosphere Reserve harbours some 89 species of mammals, of which 19 are threatened, such as the Jaguar (*Panthera onca*), Puma (*Puma concolor*), Tapir (*Tapirus terrestris*) the Maned Wolf (*Chrysocyon brachyurus*), in addition to numerous amphibians, reptiles, fish and insects.

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Paraguay
El Chaco

Declaration date: 2005
Surface area: 7.200.000 ha
Administrative Division: Departments of Boquerón and Alto Paraguay

Human activities: Communities of indigenous Guarani Ñandeva, Ayoreo and Ishr peoples live in the Biosphere Reserve and are engaged in extracting honey, hunting, fishing and small-scale farming. Small-scale farmers also live in the area, either Mennonites or other groups engaged in extensive cattle raising and small-scale growing of a few crops for forage, domestic consumption and marketing. Honey extraction is for domestic consumption and marketing of excess honey. Cheese, crafts, wooden posts and logs are also marketed.

Protection classification: (core zones) National Park: 1,489,972 ha; Natural Reserve: 125,823 ha

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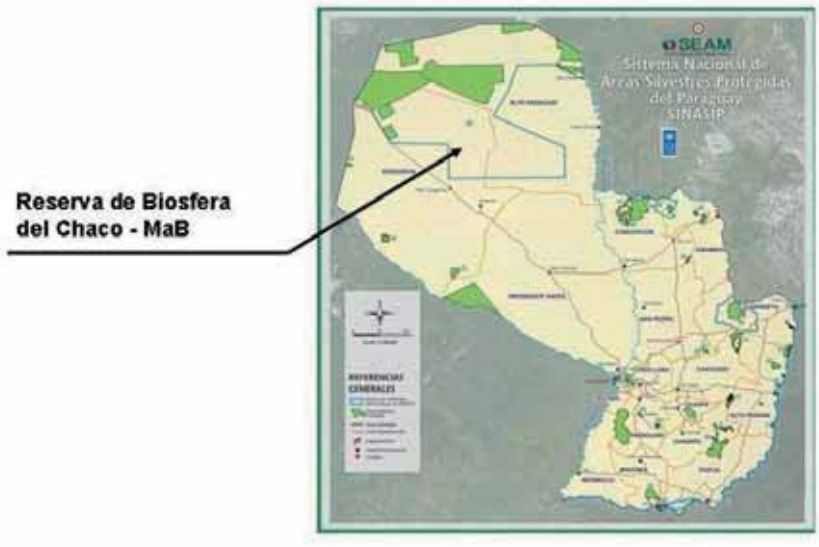
Ecological characteristics:
The Chaco Biosphere Reserve contains a very high level of biodiversity, with well preserved and important ecosystems and habitats. It also includes an ample representation of the most characteristic ecosystems of the Chaco region. These cover dry or deciduous tropical forests. Scientific research carried out in the Reserve, has enabled 17 plant formations to be identified so far. Worth special mention are the forests in sandy areas of the north western Chaco, transitional forests in the northern Chaco to the Chiquitania on sand, transitional forests in northern Chaco to the Chiquitanía on hills, transitional Chiquitania forests to the Chaco on well drained land, forests on poorly drained land in the north west Chaco, seasonally flooded palm groves in the northern Chaco, seasonally floodes riparian forests in the Chaco, hygrophyte forests in the northern Chaco, open hygrophyte and seasonally flooded open savannahs, Neotropical aquatic and lake vegetation in the Chaco, open hygrophyte and seasonally flooded savannahs in the Cerrado. As many as 862 species of flora and 603 species of fauna have been identified in the Chaco Biosphere Reserve.



Perú
Huascaran

Declaration date: 1 March 1977
Surface area: 1.155.800 ha
Administrative division: Ancash Region

Human activities: Research, environmental education, forestation with native species, monitoring of tourist activities, implementation of check points (monitoring and surveillance), organization of natural pasture users and cattle monitoring, other minor activities.

Protection classification:
National Park (core zone) World Natural Heritage Site (core zone)

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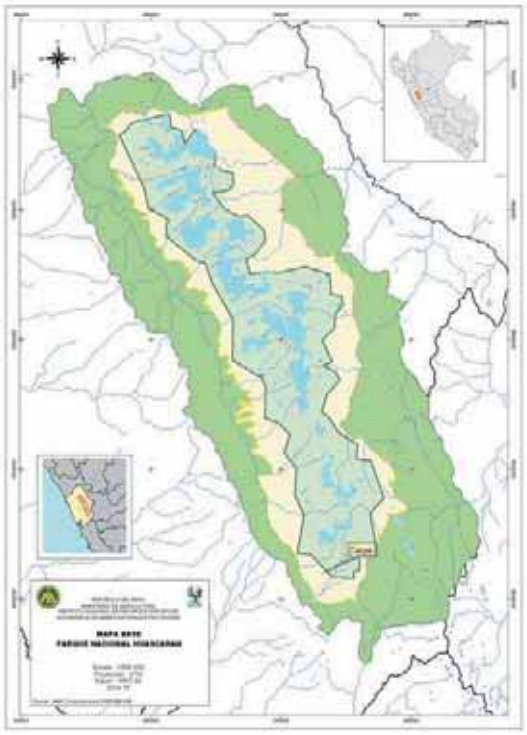
Ecological characteristics:
Within Holdridge's system of plant formations applied to Peru, most of the Cordillera Blanca corresponds to the following formations: sub-Alpine wet Paramo, Alpine and Nival Pluvial Tundra and for the most part, the ravines are moist Montane forest formations. The Reserve's soils are alluvial, colluvial-alluvial, glacio-fluvial, residual material soils and anthropogenic soils. In the area of the Huascaran National Park glaciers are distributed along approximately 180 k from Nevado Tuco in the south to the proximity of Nevado Champara in the north with a series of imposing mountains capped by glaciers. Some 27 glaciers are at over 6 000 m above sea level and about 200 glaciers at over 5 000 m above sea level. Around 296 lagoons have been identified within the limits of the Natural Protected Area, representing an area of 28.14 square kilometres. Among the most representative vegetation in the area are the *Polylepis* forests and Queen of the Andes (*Puya raimondii)*. Fauna represented in the area includes the northern Vizcacha *Lagidium peruanum,* Rodents *(Rodentia),* the Culpeo or Andean Fox *Pseudalopex culpaeus,* the Spectacled Bear *(Tremarctos ornates),* the White-tailed Deer *Odocoileus virginianus* and the Peruvian Guemal *Hippocamelus antisensis.* The Cordillera Blanca is considered to be the most extensive tropical cordillera in the world, with a great wealth of flora and fauna, geological formations, snow-capped peaks and scenic beauty.



Perú

El Manu

Declaration date: 1977
Surface area: 1.909.800 ha
Administrative division: The Biosphere Reserve is part of the Provinces of Pucartambo and Manu, the former in the Department of Cusco and the second in the Department of Madre de Dios

Human activities: The Cocha Cashu Experimental Station is located in the core zone of the Manu Biosphere Reserve. For more than 25 years now ecological and anthropological research has been carried out at this Station. In the area of culture, sustainable development and resource management, recreation, tourism and environmental education activities take place.

Ecological characteristics:
The Manu Biosphere Reserve (MBR), is located approximately at 12º S and 75º W. It occupies 1,909,800 ha divided into two major areas: the National Park as the core zone, covering an area of 1,692,137.26 ha (proposal for incorporation of the Reserved Zone) and the Transition and/or Cultural Zone covering an area of 217,663 ha. Its altitude ranges from 3,800 m above sea level at the top of Apu Kañahuay down to 300 m. above sea level where the Manu River converges with the Alto Madre de Dios. The predominant plant formations are the highland Punas above 3,500 m, then a transition belt of woody scrubland down to 2,600 m above sea level, followed by low montane forest between 2,200 and 2,650 m above sea level. Below this lies montane rainforest down to 600 m above sea level and finally the tropical moist forest or lowland forest stretching along the great Amazon plains between 300 and 600 m above sea level. Manu is considered to be among the sites in the world containing most bird species biodiversity, with 860 species identified in the surroundings of the Cocha Cashu Experimental Station.

Protection classification:
The National Park is a World Natural Heritage Site.

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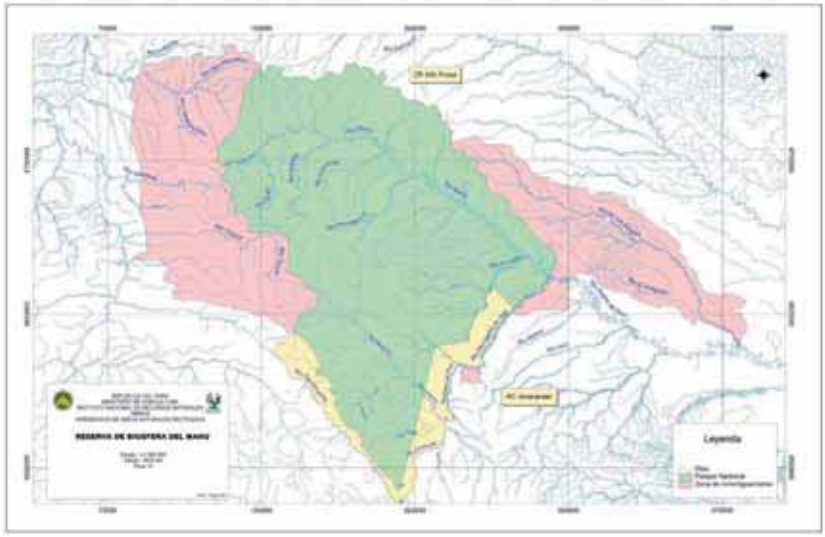

Perú
Noroeste

Declaration date: 1 March 1977
Surface area: 231.402 ha
Administrative division: Districts of Matapalo, Pampas de Hospital, San Juan de la Virgen, San Jacinto, Casitas, Marcavelica and Lancones

Ecological characteristics:
The Noroeste (Northeast) Biosphere Reserve (RBNO) is located in the ecoregion known as Dry Forests of Tumbes/ Piura, Ecuador - Peru. According to Brack's (1988) classification the RBNO is part of the Tropical Sea eco-region where the mangrove zone and 5 mile marine zone, the Ecuadorian Dry Forest and Tropical Pacific Forest are noteworthy. According to Holdridge's Life Zone Classification System (20), the following zones are to be found within the RBNO: Tropical very dry forest, Tropical dry forest, Tropical pre-montane dry forest, Tropical desert scrubland, Tropical thorny shrubland, Pacific desert and a transition between the Tropical pre-montane desert scrubland and the Tropical desert scrubland. The biological wealth of the RBNO is one of the characteristics of the Tumbes Region, where 55 species of endemic birds make it one of the four most important areas of endemism on a world level

Protection classification:
The Biosphere Reserve was established on the territory of the Cerros de Amotape National Park, El Angolo Game Preserve and what is now Tumbes National Reserve

Present map (1977)

Proposed map*

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*Note: In 1994 the Tumbes Reserve Area was established on the basis of the Tumbes National Park and categorized in 2006 as an extension of the Cerros de Amotape National Park and Tumbes National Reserve

Perú

Oxapampa-Ashaninka-Yanesha

© Cesar Laura, Nazarategui River – Puerto Bermúdez - Oxapampa-Ashaninka-Yanesha, Peru

Declaration date: 2010
Surface area: 94.814 ha
Administrative division:
Servicio Nacional de Áreas Naturales protegidas por el Estado

Ecological characteristics:
This Biosphere Reserve is a representative sample of the Peruvian Upper Amazon Forest region (Tropical Andes). The Reserve is located within the Tropical Yungas biogeographic province and includes a high concentration of species of flora and fauna of restricted distribution and a wide diversity of Life Zones and Transitions. This transitional location between Amazon low forest and montane cloud forest, with its uneven physiographic characteristics and high rainfall, has resulted in a complex range of flora, including epiphytes, lianas, grasses, shrubs and trees. An example of its rich fauna is the Harpy Eagle (*Harpia harpyja*), the largest predator of tree top fauna and an indicator of the integrity of some of the ecosystems

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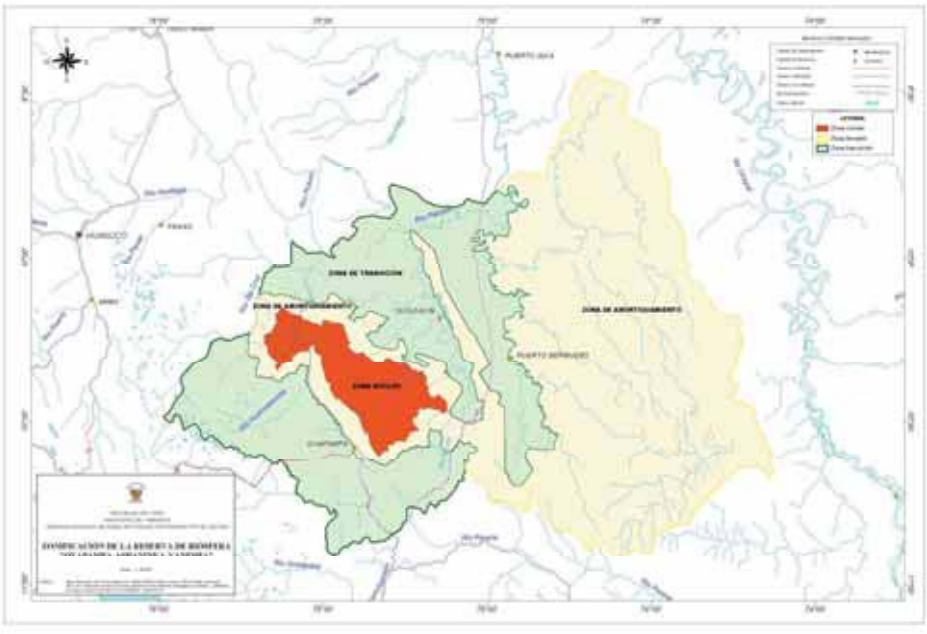
Human activities:

The presence of the native cultures of the Yanesha and Ashaninka ethnic groups that keep alive their ancestral knowledge of resource management in this environment; the progressive adoption of productive systems of forest management, agro-forestry, ecotourism and crafts by the indigenous and settler population; the presence of rural development projects promoted both by the State and by non-governmental organizations (NGOs); and the recent practice of participative planning promoted by the local governments, have shaped a propitious outlook for the implementation of a dynamic and appropriate environmental management process.

In terms of its cultural value, the Biosphere Reserve is also a site of ancestral significance for the Yanesha and Ashaninka ethnic groups. The same option for cultural recognition has been granted to the social groups located in the Reserve's transition zone, with their production methods and features typical of their place of origin, be they descendents of European origin, Andean groups or riparian groups. An expression of this recognition and in a search for social integration, the name "Oxapampa – Ashaninka – Yanesha" has been proposed for the Biosphere Reserve. "Oxapampa" is the name of the Province where the descendents of European settlers, the descendents of Andean migrants and coastal migrants have converged and where they cohabit with the Yanesha and Ashaninka.



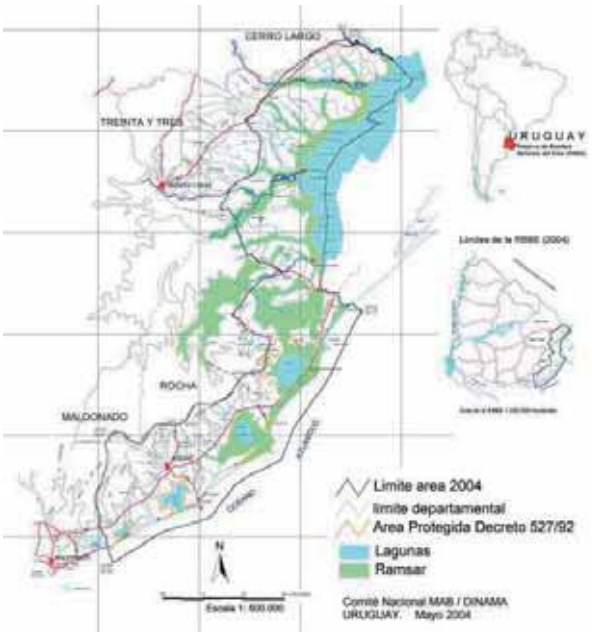
Uruguay
Bañados del Este

Declaration date: 1976
Surface area: 1.250.000 ha
Administrative division: the Biosphere Reserve covers parts of the Departments of Cerro Largo, Maldonado, Rocha and Treinta y Tres

Ecological characteristics:
The Bañados del Este Biosphere Reserve includes gullies and hills, seasonally flooded lowlands, wetlands and marshlands and also a chain of coastal lagoons, dunes and vast sandy beaches along the Atlantic coast. The whole area is outstandingly high in biodiversity and forms a great genetic reserve for reptiles, amphibians, mammals and birds. The Butia palm is to be found in the Reserve, covering an area of 70,000 ha. It is the largest population in the world of Butia (*Butia capitata*) palms, unique in dimension and density. The Eastern Wetlands are an internationally important site as a refuge for Nearctic and Neotropical migratory birds, where they stop to feed and rest during their intercontinental flights.

Human activities: The activities in the BR area are directed towards agriculture and animal husbandry and rice growing. Second in importance is sun and beach tourism

Protection classification:
The Biosphere Reserve includes different protection classifications: Area of Protection and Ecological Reserve, Flora and Fauna Reserve, and National Park among others. Some of these areas (Cabo Polonio, the Rocha Lagoon, etc.) are presently undergoing a process of incorporation into the National System for Protected Areas.



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Venezuela

Alto Orinoco Casiquiare

Declaration date: 1993
Surface area: 8.700.000 ha
Administrative division: The State of Amazonas, between the Municipalities of Alto Orinoco and Rio Negro

Ecological characteristics:
The combination of the relief and climatic factors has led to different plant formations, ranging from the savannah in the northern zone to the forest containing an great variety of species. Forest wealth is enormous and represents almost 60% of the national volume. Wildlife in the Biosphere Reserve is one of the richest and most exuberant in the country as a result of the multitude of habitats and ecological niches it contains. Among the mammals, the following are particularly interesting: the Two-toed and the Three-toed Sloth, the Puma, the Jaguar, the Ocelot, the Olingo (*Bassaricyon gabii*), the Giant Otter (*Pteronura brasiliensis*), the Venezuelan Kinkajou *(Potos flavus meridensis*), the Coati, the Little Red Brocket, the Amazon River Dolphin, the Paca, the Black Agouti, the Venezuelan Spiny Rat and the Yellow-throated Squirrel. The Reserve contains a great diversity of birds, among which special mention can be made of the Jabiru, the Northern Helmeted Curassow, the Harpy Eagle, the Blue and Yellow Macaw and the Scarlet Macaw. Among the reptiles present in the reserve are the Orinoco Crocodile, the Spectacled Caiman, the Anaconda and the Savannah Side-necked Turtle.

Human activities: This Biosphere Reserve is home to the totality of the Venezuelan Yanomami ethnic people and part of the Ye'kuana ethnic people. These peoples were previously engaged in shifting agriculture, hunting, fishing and gathering fruit. However, following the foundation of the missions in the mid-eighteenth century, their life style progressively changed towards settlement and concentration in communities.

Protection classification:
Duida-Marahuaca National Park
Sierra La Neblina National Parks
Parima Tapirapeco National Parks

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Venezuela

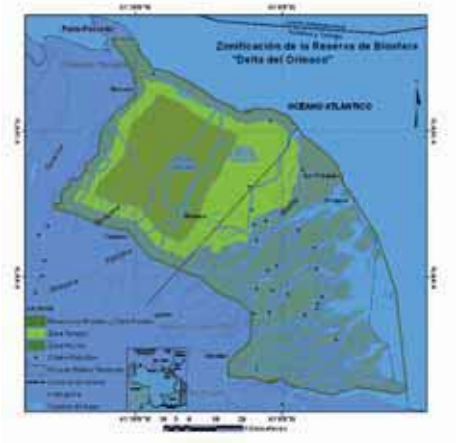
Delta del Orinoco

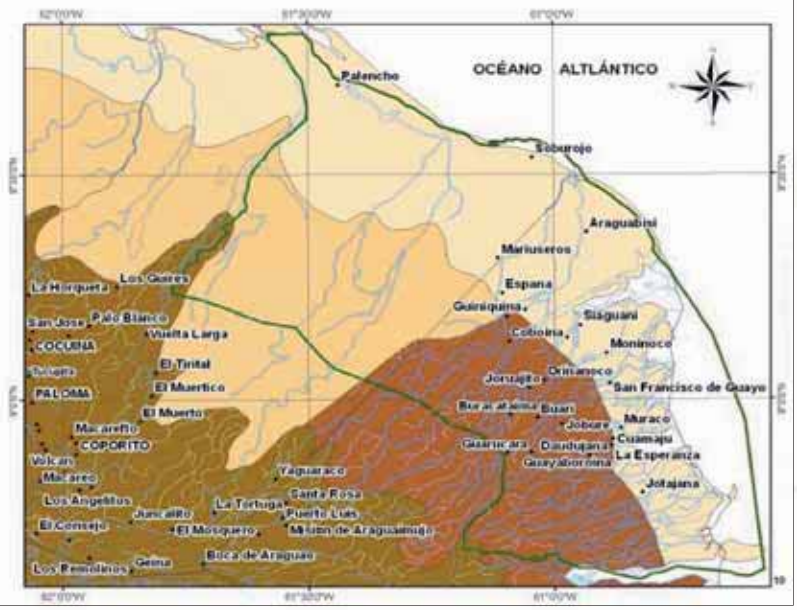
Declaration date: 2009
Surface area: 8.778.500 ha
Administrative division: Ministry of People's Power for the Environment

Human activities:
Most of the population and Warao settlements are scattered in the eastern sector of the Delta. They comprise most of the Warao population (approximately 20,000 Warao inhabitants). Fishing, hunting, harvesting of forest products and material to make handicrafts and for agriculture are the main land uses in the territory of these settlements.
Presently in Venezuela there is a governmental programme called "Guaicaipuro Mission" which aims at demarking and providing land deeds for the habitat and lands of the indigenous communities and peoples and at promoting comprehensive development of the indigenous peoples

Protection classification:
Duida-Marahuaca National Park
Sierra La Neblina National Parks
Parima Tapirapeco National Parks

Ecological characteristics:
The Delta del Orinoco Biosphere Reserve (RBDO) was set up by Decree No 1,633 of 05-06-1.991 (Official Gazette Nº 34.812 of 3-10-1991) and covers a surface area of 1,125.000 ha, including the core, buffer and transition zones, representing close on 31 % of the whole area of the State of Delta Amacuro. The land and water ecosystems of the Orinoco Delta are characterized by great biological diversity. They harbour varied vegetation, with an estimated 2,000 species of plants and very rich land and water fauna, including 151 species of mammals, 464 species of birds, 76 species of reptiles, 39 species of amphibians and 410 species of fish. There are also many land and water invertebrates. Most of the Delta has not been disturbed by human action. It is considered to be one of the best conserved ecosystems in the world and the Delta del Orinoco Biosphere Reserve contains a good part of this diversity of flora and fauna. To a certain degree, its geographical, physical and natural features prevent it from becoming intensively exploited.





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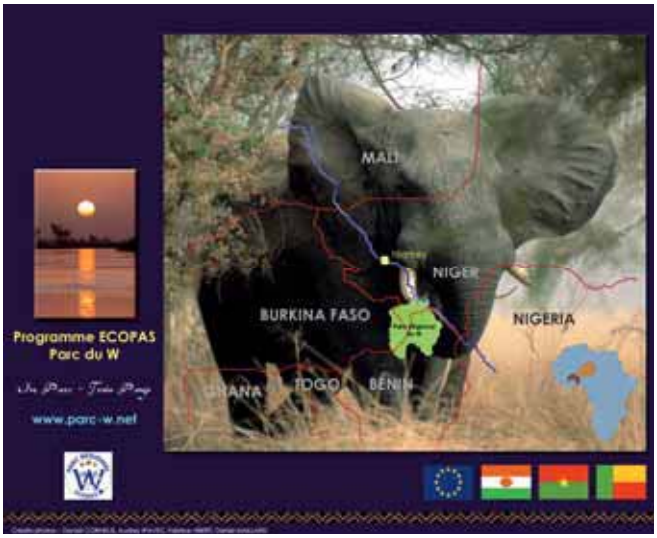
Transboundary Biosphere Reserves (TBR)

- Benin - Burkina Faso - Niger
- Czech Republic - Poland
- France - Germany
- Mauritania - Senegal
- Morocco - Spain
- Poland - Slovakia
- Poland - Slovakia - Ukraine
- Portugal - Spain
- Romania - Ukraine

Country	Biosphere reserve	Year of creation		Pag.
BENIN - BURKINA FASO - NIGER	W' Region	2002	Région "W" du Niger established 1996, extensions in Benin and Burkina Faso as a TBR in 2002	589
CZECH REPUBLIC - POLAND	Krkokonose/Karkonosze	1992		590
FRANCE - GERMANY	Vosges du Nord / Pfälzerwald	1998	Voges du Nord established in 1988 and Pfälzerwald in 1992	591
MAURITANIA - SENEGAL	Delta du Fleuve Sénégal	2005		592
MOROCCO - SPAIN	Intercontinental Biosphere Reserve of the Mediterranean /Reserva Intercontinental del Mediterraneo	2006		593
POLAND - SLOVAKIA	Tatra	1992		594
POLAND - SLOVAKIA - UKRAINE	East Carpathians	1998	East Carpathian / East Beskid (P/S) established 1992	595
PORTUGAL - SPAIN	Geres - Xures	2009		596
ROMANIA - UKRAINE	Danube Delta	1998	Danube Delta (Roumania) Established 1979, extended 1992 Dunaisky (Ukraine), established 1998	597

Benin - Burkina Faso - Niger

'W' Region



Declaration date : 1996
Surface area : 322.313 ha
Administrative division :
Benin: Directeur du Parc National du W reporting to Centre National de Gestion des Réserves de Faune (CENAGREF);
Burkina Faso: Direction de la Faune et des Chasses (DFC), Direction Régionale de l'Environnement et des Eaux et Forêts de l'Est (DREEF-E);
Niger: Ministère des Eaux et de l'Environnement.

Human activities :

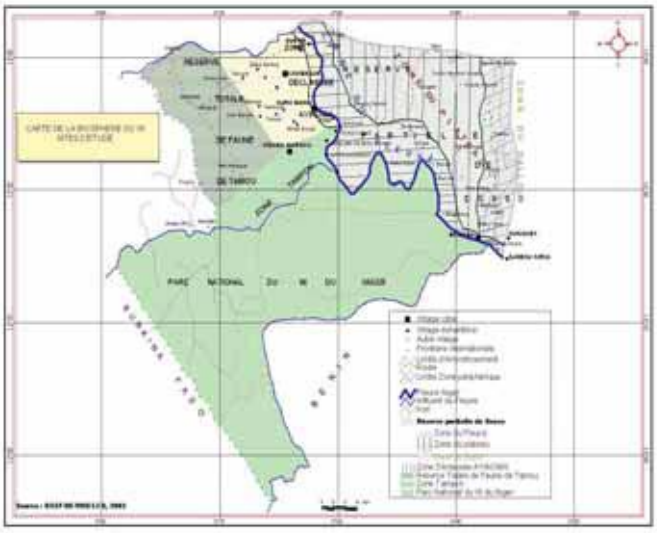
- Animal husbandry
- Agriculture
- Fishing
- Bee-keeping
- Gathering

Ecological characteristics :

The reserve is located in the transition zone between the Sudanese area and the forested Guinean area. It includes shrub savannahs and tree savannahs and gallery forests along the water courses. The climate is tropical with an average annual rainfall of between 500 and 800mm. The average temperatures for the coldest month (January) range between 31.2°c and 10.7°c. For the hottest month (May) these values are 44 °c and 26 °c respectively.
Geologically, the reserve mainly comprises a sandstone formation prolonging the Burkina Voltaïen (Infra-Cambrian). The sandstone is overlaid by Siderolithic conglomerates of Adrar Doutchi dating from the Continental Terminal in its central part.
The riparian part of the reserve (3500 ha) includes the most important permanent humid zones in West Africa, which have been recognized as a RAMSAR site. The reserve also hosts a rich and varied fauna, including over 70 species of mammals, 114 species of fish, over 367 species of birds and landscapes of great natural beauty.

Protection classification :

Comprehensive protection
- Category II IUCN ;
- Established decree of 04.08.1954 ;
- Law 98-07 of 29 April 1998



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Czech Republic - Poland

Krkokonose/Karkonosze

© *Krkokonose/Karkonosze BR*

Declaration date: 1992
Surface area: 60.400 ha (CZ: 91 %, PL 9 %)
Administrative division: Hradec Kralove and Liberec Counties, CZ Jelenia Gora County, PL

Human activities:

tourism and recreation (esp. ski activities), forestry, agriculture, collecting herbs and mushrooms

The Krkonose Mts. are visited by 7–8 million tourists per year. This high number of visitors creates a strong pressure for construction of new ski areas and high capacity recreational buildings. Serious problems have been caused by the large-scale impact of industrial air pollution, which has damaged or completely destroyed vast areas of spruce forests at higher altitudes.

Protection classification:

Karkonosze National Park (PL): 56 km2 (1959)
Krkonose National Park (CZ): 548 km2 (1963)
Ramsar sites (Krkonose Peatlands): 2.1 km2 (1993)
Natura 2000 – SPA (EU Birds Directive): 465 km2 (2004)
Natura 2000 – SCI (EU Habitats Dir8.): 604 km2 (2004)

© *Krkokonose/Karkonosze BR*

Ecological characteristics:

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The Krkonoše/ Karkonosze Mountains are part of the Sudeten in the north-east Bohemia, a mountain system shared by the Czech Republic and Poland. The area is known for its high biodiversity in four altitudinal vegetation belts, from submontane to alpine. The mountains constitute a kind of ecological island of arctic and alpine ecosystems whose counterparts are found in the Alps and north and north-west Scandinavia. In Karkonosze especially valuable are the highest mountain belts: subalpine and alpine which are under strict protection. These are the most interesting areas encompassing: the highest situated in Europe high bogs, postglacial cirques, block fields, ponds, granite rocks and dwarf pine shrubs. Especially important for biodiversity are unique in the global scale ecosystems with endemic and relicts species: *Saxifraga moschata ssb. basaltica, Pado sorbetum, Saliceti lapponum, Pendicularis sudetica, Saxifraga nivalis*.

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http://www.krnap.cz

France - Germany

Vosges du Nord/Pfälzerwald

© *Vosges du Nord BR*

Declaration date: 1998
Surface area: 301,800 ha
Administrative division:
France: Parc Naturel Régional des Vosges du Nord, syndicat mixte (sycoparc)
Germany: Verein Naturpark Pfälzerwald e.V.; Ministry of Nature protection and forest management

Human activities:

About 76,140 people live in the French part of the biosphere reserve (2000), whereas 160,000 inhabitants live in the German part (1991).

© *Vosges du Nord BR*

Ecological characteristics:

© *Vosges du Nord BR*

Located along the French/German border, the Vosges du Nord/Pfälzerwald share three natural features: water, sandstone and forests. Sandstone outcrops characterize the vast forest belt where people manage beech, oak and pine forest. Springs, streams and lakes are found in the humid valleys. The occurrence of lynx (Lynx lynx), the peregrine falcon (Falco peregrinus) and the bog arum (Calla palustris) gain much attention from a nature conservation perspective. The Natural Parc of Vosges du Nord (France) was designated as a biosphere reserve in 1988, and the Pfälzerwald Natural Park (Germany) in 1992. These two parks have for some time prepared the creation of a transboundary biosphere reserve and in 1998 this goal was achieved. The objective of this transboundary biosphere reserve is to develop methods for the sustainable management of natural resources and to establish a new relation between people and the environment. This is being done through research and education, all with the participation of local communities. The two units of this transboundary biosphere reserve are now jointly cooperating for example to establish long-term monitoring sites of water and air, to create a strictly protected forest reserve and to maintain the lynx population. The support of local employment initiatives and testing methods of sustainable economic development, such as sustainable tourism are other goals of cooperation.

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Mauritania-Senegal

Delta du Fleuve Sénégal

Declaration date: 2005
Surface area: 641.768 ha
Administrative division: Secrétariat général du Ministère du développement rural, de l'hydraulique et de l'environnement et Direction nationale des parcs nationaux.

Human activities:

There are some 375 000 inhabitants in the biosphere reserve belonging mainly to three ethnic groups: Wolofs, Moors and Peuls. The cultural interest of the area includes the city of Saint Louis and the sites that the population considers as having a true value with regards to beliefs, traditions or history. Saint Louis is registered on the list of historical sites and monuments of Senegal and is also a World Heritage Site.

Ecological characteristics:

Situated in the Delta of the Senegal River, this transboundary biosphere reserve presents few variations in altitude, but owes its diversity to its vast hydrographic network, which is divided into several basins. The landscape is very diverse and includes floodplains fed by water from natural or artificial rising of the river (through hydraulic works), backwaters, lakes, and by the sea. Continental and coastal dunes slightly mark the relief. The floodplains are deprived of vegetation in the dry season. The importance of the area with regards to conservation can be perceived through the great variety of protected areas that have been designated here. Migratory birds find refuge in the delta and more than 350 species have been recorded in the 'Oiseaux du Djoudj' National Park with a bird population of over 3 million individuals from November to May. The core areas of the biosphere reserve include national parks and natural reserves that are part of the national network of protected areas, such as the 'Oiseaux de Djoudj' National Park (Senegal), which is also a World Heritage site and a Ramsar Wetland, and the Diawaling National Park and the Chat TBoul Reserve (Mauritania), which are both Ramsar Wetlands. The buffer zones are managed in accordance with their statutes defined by the same texts as the core areas, except the Gandon Forest (Senegal), which is a Community Natural Reserve. The transition area is public or state property, and also includes private lands. In the delta, the agricultural landscape is dominated by irrigated rice farming and cultivation of sugar cane. Livestock raising, fishing and harvesting of natural resources are also important human activities. The management of the biosphere reserve is assured by three inter-state bodies and a national committee in each country, which participates and is implicated in the planning and monitoring of the execution of the activities. A transboundary coordinating committee is in charge of the policy guidelines: it mobilizes the budget and means necessary for the functioning of the transboundary biosphere reserve.

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Morocco and Spain

Intercontinental Biosphere Reserve of the Mediterranean

Declaration date: 27 October 2006
Surface area: 423.535 ha (414.287 ha on land, 9.248 ha marine) in Spain; (core: 5 %; buffer: 83 %; transition 12 %). 489.454 ha in Morocco (core: 14%; buffer: 60%; transition 26%)
Administrative divisions: Spain (Provinces of Cadiz and Malaga, 61 Municipalities); Morocco (Provinces of Tanger, Larache, Tetuán and Chauen)

Human activities: This location maintains traditional and wide-ranging activities such as stock-raising, agriculture, fishing and products from forest resources such as timber, beekeeping, aromatics), together with more modern uses such as tourism. In Morocco the Cannabis monoculture has threaten stock-raising, agriculture and forestation activities. However efforts to establish a sustainable agriculture have been made.

Protection classifications:
Spain:
Natural Park (4)
Biosphere Reserve (2)
Marruecos:
Natural Park du Talassemtane

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Pinsapo. Consejería de Medio ambiente. Junta de Andalucía

Chaouen, Marocco. Agueda Villa

Ecological characteristics:

The Biosphere Reserve falls within the Mediterranean region, with a vegetation including groves of Cork Oak, Holm Oak, wild Olive, and Portuguese Oak, dune and marshland communities and a great variety of plant formations such as Mastic (*Pistacia lentiscus*), Kermes Oak, Spanish Fir (*Abies pinsapo)*, Savin Juniper, Spanish Gold Broom, common Juniper, etc. The entire range of this Biosphere Reserve shares one of the most outstanding ecosystems of the Iberian Peninsula and Northern Morocco, shaped by the peculiarity of its strategic position between two continents. This convergence of factors provides the physical environment with great specificity which explains, *inter alia*, the significant and varied presence of water (snow, rainfall, brooks and springs...) and the ever-present *Abies pinsapo*, the region's endemic conifer. In the Moroccan part, 40% of the region has forest cover. Above the sparse coastal Thuya conifers stretch vast Cork-oak forests as well as Holm oak and Maritime pine forests and, providing the area with a true regional touch, brought over from Spain are the Fir trees, the Algerian oak (*Quercus canariensis*) and the Pyrenean oak (*Quercus pyrenaica*) . Scrubland is dominant with heather, cistus rockrose and dwarf palm trees.

Poland - Slovakia

Tatra

© *Tatra BR*

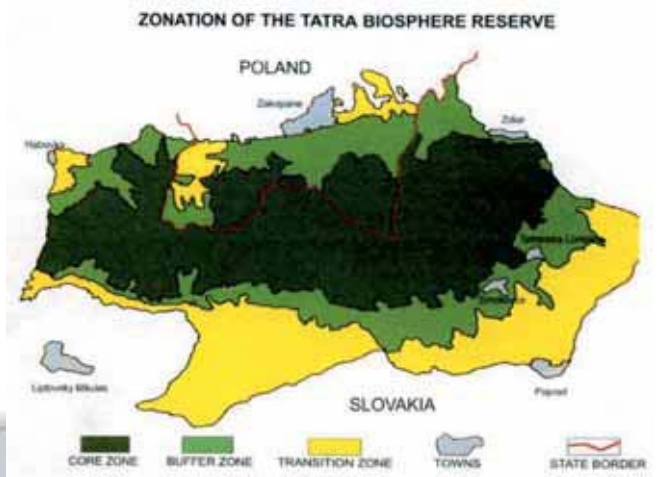
Declaration date: 1992
Surface area: 56.992 ha
Administrative division:
Poland: Tatra National Park, Ministry of Nature Protection, Natural resources and Forestry
Slovakia: Tatry National Park Administration. It reports to Ministry of the Environment through the Headquarters of the State Nature Conservancy

Human activities:

On the Polish side, tourism plays a major economic role with over 3 million visitors in 1999, each paying an entrance fee to the national park. The larger Slovak part of the biosphere reserve is also very frequented by visitors (3-4 million per year), however visitors pay no entrance fee. Main employment is provided in the tourism sector, but also in forest management. The Tatras Chamois Rescue Project was set up in order to stabilize the endangered chamois population, supported by monitoring, research and education activities. With the creation of the transboundary biosphere reserve it is hoped that tourism development will be balanced with the maintenance of the Tatra ecosystem.

Ecological characteristics:

The Tatra Mountains are the highest mountains in the long Carpathian range that stretches from Slovakia into Romania, via Poland, Ukraine and Hungary. The territory of the biosphere reserve covers two national parks on each side of the political boundary between Poland and Slovakia. Within this transboundary biosphere reserve, a variety of natural features are represented, such as karst topography in dolomites and limestone, canyons and waterfalls, a dwarf pine belt, alpine meadows, lakes and rocky peaks.



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Poland - Slovakia - Ukraine

East Carpathians

Declaration date: 1998
Surface area: 213.211 ha
Administrative division:
Poland: Bieszczady National Park in Ustrzyki Gorne Administration of the Carpathian Landscape Parks in Krosno
Slovakia: Administration of Poloniny National Park in Snina, which reports to: State Nature Conservancy, and Ministry of the Environment, (informed being also National MAB Committee of the Slovak Republic).
Ukraine: Direction of National Nature Park "Uzhans'ki", Regionalniy landshaphtniy park "Nadsans'ki"; National Nature Parks and Protected Areas Administration in Kyiv.

Human activities:

Population density of the different areas ranges from vast wild spaces on the Polish side to the relatively densely populated Ukrainian side with cultivated valleys, hay meadows, pastures and deciduous forests. Forestry remains the main local economic activity. Agriculture is limited to cattle raising, sheep breeding and small-scale organic farming utilizing traditional land-use patterns. Tourist services are rapidly developing, especially on the Polish side. Sustainable development projects in the biosphere reserve aim especially at the development of sustainable nature-oriented tourism (e.g. in providing training on ecotourism and management skills for local entrepreneurs).

Ecological characteristics:

The East Carpathians is a transboundary mountain biosphere reserve with significant value for biodiversity conservation in Central Europe. Within the biosphere reserve, four distinct vegetation types are found: beech forest (*Fagetum sylvaticae*), beech-fir forest (Fageto-Abietum), dwarf-shrublands with green alder (*Alnetum viridis*), and a belt of treeless 'poloniny' - subalpine meadows dominated by Prata subalpina. The mixed Carpathian forest provides suitable conditions for large mammals such as brown bear (*Ursus arctos*), European bison (*Bison bonasus*), lynx (*Lynx lynx)* and wolf (*Canis lupus*) and over 100 species of birds live in the area such as the black stork (*Ciconia nigra*) and the golden eagle (*Aquila chrysaetos).* This first trilateral biosphere reserve was designated in 1998, uniting the bilateral Polish-Slovak one (designated in 1992) with the Ukrainian part. In order to support the transboundary co-operation, the Foundation for the Eastern Carpathians Biodiversity Conservation (ECBC) was established in 1995. Conservation projects have focused on the management of nature reserves, mountain meadow maintenance and protection, conservation of old monumental trees, river corridors and water ecosystem protection, lowering the impact of tourism on the core area and restoration of historical buildings. A biodiversity conservation project with positive influence on local sustainable tourism development is the reintroduction of the Hutzul horse. Planned reintroduction of the European bison and beaver to the Carpathians could again raise tourist attractiveness and facilitate development of nature-based tourist services. Future sustainable tourism development will only be successful if all partners implement common tourism services development strategy. Another important task is to establish a common GIS (Geographic Information System) database as a tool to approach the East Carpathians as one coherent natural area in order to facilitate common decisions.

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** Details found on this information sheet are derived directly from the UNESCO website and are not a communication from the biosphere reserve.*

Spain and Portugal

Geres-Xurés

Declaration date: 2009
Surface area: 259.496 ha (62.916 ha in Spain and 196.580 ha in Portugal)
Administrative division:
Comision de Acompañamiento del Parque Transfronterizo Gêres-Xurés

Human activities:

Traditionally, the main livelihood of the population has been small-hold farming, complemented by grazing. Presently, although some of the autochthonous breeds are in decline, such as Barrosa and Cachena Cattle, they are still an important source of income. The activities of these communities are now related with the secondary sector (building and small industries). The main activity is that of the service sector due to increased tourism.

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Portugal:
Departamento de Gestão de Áreas Classificadas Do Norte (Portugal)
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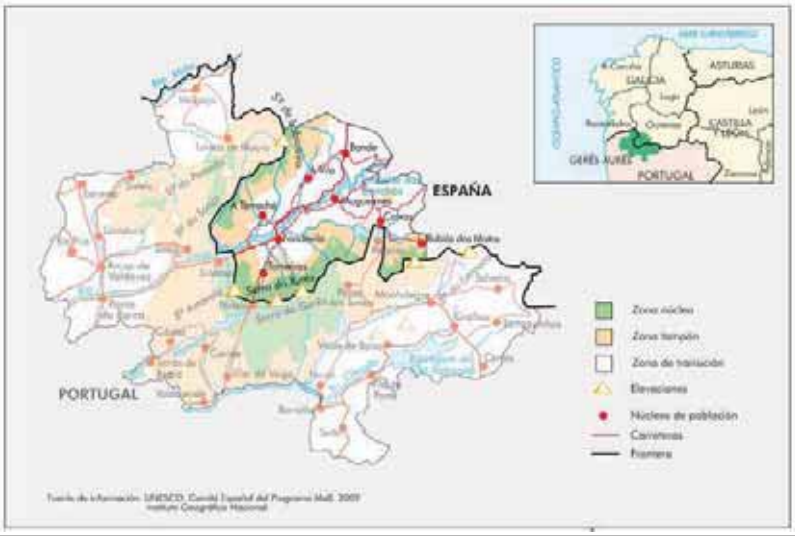
Ecological characteristics:

On the Galician side the Gerês-Xurés Transboundary Biosphere Reserve is located around a series of Galaico-Miñota foothills: (Serra de Laboreiro, Serra do Xurés and Serra da Pena). In spite of the fact that the frontier with Portugal was established along these hills, from the environmental standpoint and from that of land use made by the human populations, it is very difficult to separate it from the rest of the Galaico-Miñota Mountains on the Portuguese side.
The importance of the Biosphere Reserve in terms of landscape, species and genetic diversity conservation is reflected in the fact that the core and buffer areas are part of the LIC Baixa Limia, of which the Baixa Limia - Serra do Xurés Natural Park forms part on the Galician side and the Peneda - Gerês National Park forms part on the Portuguese side, in recognition of the great value of their natural heritage together with the need to preserve and study the territory.
One of the great attractions of the Gerês-Xurés Transboundary Biosphere Reserve lies in its landscape, with its altitudinal contrasts and its morphology of peaks and valleys, with heights varying from 350 m above sea level in the River Limia valley, the flat areas at a height of between 800 and 1000 m and the Serra do Xurés towering at over 1,500 m above sea level. The relief is formed by a flat area built by the tectonics and cut by fluvial morphogenesis, glacier and periglacier modelling. Crags and granite balls balanced on each other forming towers of singular beauty, alluvial moraines in the basins of the Limia and Caldo Rivers with their famous hot springs, are just some of the natural phenomena.



Romania - Ukraine

Danube Delta

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Declaration date: 1998
Surface area: 626.403 ha
Administrative division:
Romania: Danube Delta Biosphere Reserve Authority
Ukraine: Administration of the Danube Biosphere Reserve; The Ministry for Ecology and Nature Resources of Ukraine; National Academy of Science of Ukraine

Human activities:

- Nature protected activities
- Research activity (conservation of nature processes in the protected nature complexes, studying of nature processes with a purpose of preservation)
- Environmental education
- Different types of nature use (reed's storage, fishery, hunting , recreation and ecological tourism, pasture, navigation, etc.)

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Ecological characteristics:

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The most important factor, which defines the natural value and the originality of the DBR territories, is the ceaseless here process of delta creation and the forming of new lands – the youngest territories in the whole Europe. The main part of the reserve is occupied by reed-bed ecosystems that are mainly slightly mosaic with a weak water flow. Grassland ecosystems are located on the higher places of a riverine bars, and also on the edges of reed-beds, adjacent to the coastal bars. Water ecosystems of the reserve are very diverse. They are fresh water ecosystems of the watercourses, limans and numerous lakes and bays, as well as brackish water ecosystems in the front delta of the Kiliya Arm. Contact zone between the Danube River and the Black Sea is a specific ecosystem of the seaside. The ecosystems of Zhebriyanska Range are peculiar due to both natural reasons and anthropogenic influence (the main ecosystems here are planted forest on the sand together with remaining of sand steppe). The ecosystem of Zhebriyanska Spit could be characterised as sandy and littoral.

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