

**Edition Lammerhuber** 



LAUNCHED IN 1971, UNESCO's Man and the Biosphere Programme (MAB) is an Intergovernmental Scientific Programme that aims to establish a scientific basis for the improvement of relation-ships between people and their environments.

MAB's work engages fully with the international development agenda – specially with the Sustainable Development Goals and the Post 2015 Development Agenda – and addresses challenges linked to scientific, environmental, societal and development issues in diverse ecosystems; from mountain regions to marine, coastal and island areas; from tropical forests to drylands and urban areas urban areas.

This publication summarizes the activities undertaken by the MAB Programme and its World Network of Biosphere Reserves in 2016 and 2017.

## MAN AND THE BIOSPHERE PROGRAMME **BIENNIAL ACTIVITY REPORT 2016 – 2017**











## FOREWORD BY THE DIRECTOR OF THE DIVISION OF ECOLOGICAL AND EARTH SCIENCES, SECRETARY OF THE MAN AND THE BIOSPHERE (MAB) PROGRAMME

UNESCO'S MAN AND THE BIOSPHERE (MAB) PROGRAMME is a rare UN entity, one that includes both a strategic comprehensive vision for sustainable development and a powerful implementation tool endorsed and adhered to by Member States. Through the MAB Programme, UNESCO promotes the sustainable use of terrestrial ecosystems, including sustainable forest management and efforts to combat desertification and halt biodiversity loss. The MAB biosphere reserves are learning sites for sustainable development, where interdisciplinary approaches are tested to understand and manage interactions between social and ecological systems, and solutions are promoted to reconcile the conservation of biodiversity with its sustainable use.

In 2016–17, the MAB Programme underwent a number of important developments at the international, national and regional level. The key event during this period was the 4th World Congress of Biosphere Reserves, which took place in Lima, Peru, and resulted in the adoption of the Lima Declaration and a new 10-year Action Plan for UNESCO's Man and the Biosphere (MAB) Programme. These documents will guide the MAB Programme for the next 10 years. Also during this biennium, the World Network of Biosphere Reserves (WNBR) added 44 new biosphere reserves, including three transboundary sites. With the organization of the 1st MAB Youth Forum and its declaration, the MAB Programme sent out a clear message underlining its engagement with future generations of biosphere reserves. In addition, the BIOPALT project in the threatened region around the Lake Chad places the MAB Programme in a central position to safeguard and sustainably manage the hydrological, biological and cultural resources of the Lake Chad Basin, thereby contributing to reducing poverty and promoting peace.

The WNBR now encompasses 669 sites in 120 different countries, including 20 transboundary sites. These cover over 735,000 km2 of terrestrial, coastal and marine areas, representing all major ecosystem types and diverse development contexts, which are home to approximately 250 million people (ranging from rural local communities and indigenous peoples to urban dwellers). The vision of the MAB Programme is a world where people are conscious of their common future and interaction with our planet, and act collectively and responsibly to build thriving societies in harmony within the biosphere. The MAB Programme and its World Network of Biosphere Reserves serve this vision both within and beyond biosphere reserves.

This publication is intended to present an overall picture of MAB activities during 2016–17 and the significant role and values of the WNBR, highlighting in particular newly designated sites. It is our hope that this report will enable people to obtain a clearer idea of the actions and added value of UNESCO's MAB and its WNBR within the global agenda for sustainable development.

## **Miguel Clüsener-Godt**





**IN 2015,** the 193 United Nations member states broke new ground by adopting the Agenda for Sustainable Development 2030 and its 17 global Sustainable Development Goals (SDGs). By means of the MAB Strategy (2015-2025) and the Lima Action Plan (2016–2025), the MAB Programme and its World Network of Biosphere Reserves (WNBR) are well placed to the implementation of Agenda 2030 and the SDGs. The scale of climate change in our time confronts our society with unprecedented challenges. The goal set in the Paris climate protection agreement (2015) necessitates fundamental changes in all aspects of everyday life and the economy. In this context, biosphere reserves can become effective tools for climate protection and for adapting to climate change.

The Austrian MAB Committee supports the biosphere reserves' initiatives aimed at reducing energy consumption and the expansion of renewable energies and thus has recently published a "Position Paper for Using Renewable Energies in Austrian Biosphere Reserves". The paper is intended to provide recommendations and guidelines on sustainable production of renewable energies for anyone involved in the administration of a biosphere reserve and for lawmakers. This is to give biosphere reserves the chances and opportunities to guide and support Austria's 'energy transition' in a way that is largely free from conflict and will enable them to become model regions for the socially and ecologically sustainable production of renewable energy. The Austrian MAB Committee invites the members of global MAB community to use this paper and to adapt it according to their own framework and national situation. We are convinced that biosphere reserves can become shining examples for the kind of contributions that can be made by a region and its inhabitants in order to replace fossil fuels by alternative models, with the goal to achieve sustainable energy provision.

Furthermore, to work towards the implementation of the SDGs, the Austrian Academy of Sciences' international research programmes (including MAB, IHP and IGCP) and its three National Committees have recently launched a call on "Water in Mountain Regions", which is in line with the intentions of United Nations' International Decade (2018–2028) for Action – Water for Sustainable Development and UNESCO's Guidelines on Sustainability Science in Research and Education.

Austria, as one of the first nations to become involved in the MAB Programme, has supported this UNESCO flagship programme for more than 40 years and is committed to contribute to the success of the programme worldwide.

## Arne Arnberger

Chair of the Austrian MAB National Committee Günter Köck Austrian delegate to the MAB-ICC Werner Piller Chair of the Austrian National Committee for Geo/Hydro-Sciences **Roland Psenner** Chair of the Austrian Global Change National Committee





The Man and the Biosphere Programme 4th World Congress of Biosphere Reserves The Man and the Biosphere networks Working on education and capacity-building Meeting global challenges through collaborative w New biosphere reserves in 2016 New biosphere reserves in 2017 Map of the World Network of Biosphere Reserves MAB projects and activities around the world Biosphere reserves: a global observatory for clima Communication: spreading the word about the MA and its World Network of Biosphere Reserves Main publications

MAB on the field

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## IMPROVING THE RELATIONSHIP BETWEEN PEOPLE AND THEIR ENVIRONMENTS.

Launched in 1971, UNESCO's Man and the Biosphere Programme (MAB) is an intergovernmental scientific programme that aims to establish a scientific basis for the improvement of relationships between people and their environments. MAB combines the natural and social sciences to improve human livelihoods and to safeguard natural and managed ecosystems, thus promoting innovative approaches to economic development that are socially and culturally appropriate, and environmentally sustainable. It also promotes greater involvement of science and scientists in policy development concerning the wise use of biological diversity.

MAB's work engages fully with the international development agenda – in particular with the United Nations Sustainable Development Goals and the 2030 Agenda for Sustainable Development, and specifically with Goal 15 to 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss' – and addresses challenges linked to scientific, environmental, social and development issues in diverse ecosystems. MAB provides a unique platform for cooperation on research and development, capacity-building and networking to share information, knowledge and experience on three interlinked issues: biodiversity loss, climate change and sustainable development.

In 2016, the MAB Programme hosted its 4th World Congress on Biosphere Reserves (March 2016 in Lima, Peru) and launched the Lima Action Plan, structured according to the MAB Strategy, which will guide the Programme and its World Network of Biosphere Reserves during 2016–2025.

How does the Man and the Biosphere programme work? UNESCO's intergovernmental structure provides the MAB programme with a framework to support national governments in the planning and implementation of research and training programmes, through technical assistance and scientific advice.

Participating countries are invited to establish MAB National Committees and designate MAB focal points, which ensure national participation in the international programme by defining and implementing a country's priorities and activities. The MAB Programme currently operates through 158 MAB National Committees established among the 195 Members States and nine Associate Members States of UNESCO.

The agenda of the MAB programme is defined by its main governing body, the International Co-ordinating Council. The MAB Council consists of 34 Member States elected by UNESCO's General Conference. The Council elects a chair and five vice-chairpersons from each of UNESCO's geopolitical regions, one of which functions as a rapporteur. These constitute the MAB Bureau.

The MAB Secretariat is based at UNESCO's Division of Ecological and Earth Sciences, and works closely with different field offices around the world to coordinate the work of the MAB Programme at national and regional levels. Its staff members draw on expertise in many and varied disciplines.

MAB is funded through the regular budget of UNESCO and mobilizes funds-in-trust granted by Member States, bilateral and multilateral sources, and extra-budgetary funds provided by countries, the private sector and private institutions. MAB-related activities are nationally and regionally financed. The programme can grant seed funding to assist countries in developing projects and/or to secure appropriate partnership contributions. Vision and Mission of MAB. Our vision is a world where people are conscious of their common future and their interactions with the planet, and act collectively and responsibly to build thriving societies in harmony within the biosphere. The MAB Programme and its World Network of Biosphere Reserves (WNBR) serve this vision through biosphere reserves and beyond.

## Our mission for the period 2015–2025 is to:

- Develop and strengthen models of sustainable development through the WNBR;
- Communicate experiences and lessons learned, and facilitate the global diffusion and application of these models;
- Support evaluation and high-quality management of biosphere reserves, strategies and policies for sustainable development and planning, and accountable and resilient institutions:
- Help Member States and stakeholders to achieve the Sustainable Development Goals by sharing experiences and lessons learned related to exploring and testing policies, technologies and innovations for the sustainable management of biodiversity and natural resources, and mitigation and adaptation to climate change.

A new roadmap for the MAB Programme. To ensure a strong response to contemporary development challenges and opportunities in the coming years, the MAB Council adopted the new MAB Strategy (2015-2025) and the Lima Action Plan (2016-2025). Together, they constitute a roadmap to help implement the 2015 Paris Climate Change Agreement and Agenda 2030, and achieve the Sustainable Development Goals.

The MAB Strategy focuses on supporting Member States and stakeholders to conserve biodiversity, restore and enhance ecosystem services, and foster the sustainable use of natural resources. The Lima Action Plan includes targeted outcomes, actions and outputs that will contribute to the effective implementation of the Strategic Objectives contained in the MAB Strategy. It also specifies the main entities responsible for implementation, together with time frames and performance indicators.

Process of excellence and enhancement. In May 2013, the MAB International Coordinating Council (MAB-ICC) adopted the Exit Strategy. Its purpose is to improve the credibility and quality of the World Network of Biosphere Reserves and to help Member States establish the required standards for their biosphere reserves, in order to become fully functional and conform to criteria set by the Statutory Framework for Biosphere Reserves. All concerned Member States engaged in this process and demonstrated their commitment to the MAB programme and the WNBR.

In June 2017, MAB-ICC agreed to finalize the Exit Strategy by 2020 and to institute a 'Process of excellence and enhancement of the WNBR as well as quality improvement of all members of the World Network'. This aims to ensure that the WNBR will serve as a model for implementation of the 2030 Agenda and the Sustainable Development Goals (SDGs).

The World Network of Biosphere Reserves: sites of excellence. The WNBR consists of a dynamic and interactive network of sites of excellence. It works to foster the harmonious integration of people and nature for sustainable development through participatory dialogue, knowledge sharing, poverty reduction, increased human well-being, respect for cultural values and enhanced capacities to cope with climate change. It promotes North-South, South-South and South-North-South collaboration and represents a unique tool for international cooperation through the exchange of experiences and know-how, capacity-building and the promotion of best practices.

The WNBR is a network of socio-ecosystems dedicated to interdisciplinary research, capacity-building, and management and experimentation that comprises innovative combinations of economic, environmental, social and energy alternatives for sustainable development.

There are 669 biosphere reserves in 120 countries of which 20 are transboundary sites. As of the present moment, there are:

- 75 biosphere reserves in 28 countries in Africa
- 31 biosphere reserves in 11 countries in the Arab States
- 147 biosphere reserves in 24 countries in Asia and the Pacific
- 287 biosphere reserves in 36 countries in Europe and North America
- 129 biosphere reserves in 21 countries in Latin America and the Caribbean

The total terrestrial and marine area covered by biosphere reserves around the world amounts to over 735 million hectares. Almost 250 million people live in biosphere reserves worldwide.

What are biosphere reserves? Biosphere reserves are 'learning places for sustainable development'. They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are places that provide local solutions to global challenges.

Biosphere reserves include terrestrial, marine and coastal ecosystems. Each site promotes solutions reconciling the conservation of biodiversity with its sustainable use.

Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located. Their status is internationally recognized.

They consist of three interrelated zones that aim to fulfil three complementary and mutually reinforcing functions:

- The core area(s) comprises a strictly protected zone that contributes to the conservation of landscapes, ecosystems, species and genetic variation.
- The buffer zone surrounds or adjoins the core area(s), and is used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.
- The transition area is where communities foster socio-culturally and ecologically sustainable economic and human activities.





THE 4TH WORLD CONGRESS OF BIOSPHERE RESERVES: A NEW VISION FOR THE DECADE 2016-2025. UNESCO BIOSPHERE RESERVES FOR SUSTAINABLE DEVEL-**OPMENT** took place from 14 to 17 March 2016 in Lima, Peru. It was organized by the Secretariat of the MAB Programme, the Ministry of Environment of Peru (MINAM) and its National Service of Natural Areas Protected by the State (SERNANP), and the MAB National Committee of Peru.



Opening of the 4th World Congress of Biosphere Reserves, Lima, Peru, 14-17 March 2016. D SERNAN

The Congress brought together more than a thousand representatives of governments, biosphere reserves, local communities, UN agencies, NGOs, academic institutions, and organizations and institutions from 115 countries working with the MAB Programme.

The 4th World Congress of Biosphere Reserves ended on 17 March with the adoption of the Lima Declaration and a new 10-year Action Plan for UNESCO's Man and the Biosphere (MAB) Programme and its World Network of Biosphere Reserves. Four types of parallel sessions took place at the Congress, each of which consisted of seven side events/workshops. The MAB Regional Networks focused during their workshops on the working papers of the World Congress as well as the Lima Action Plan.

The Lima Declaration was adopted by consensus by some 1,000 participants attending the Congress. It sets out to promote synergies between biosphere reserves and the United Nations' 2030 Sustainable Development Goals and the Agreement on Climate Change, adopted in Paris in late 2015. The text recommends a 'wider and more active role' for local communities in the management of the reserves and the establishment of 'new partnerships between science and policy, between national and local governance, public and private sector actors'. It also calls for greater involvement of citizen groups and organizations, notably indigenous and youth communities, and stresses the need for collaboration with scientific institutions such as universities and research centres. The Lima Declaration expresses the commitment to 'identify and designate one biosphere reserve in each state that had not established one yet.'

'Biosphere reserves provide the United Nations with a unique model for the hands-on realization of sustainable development', declared Flavia Schlegel, Assistant UNESCO Director-General for Natural Science. 'The Declaration and Action Plan that have just been adopted provide us with a framework that concerns all actors involved in the management of biosphere reserves: states, local authorities, indigenous communities, youth and the private sector.'

The Declaration and Action Plan were developed over four days in some 20 workshops held during the World Congress, organized by UNESCO in cooperation with Peru's Ministry of the Environment (MINAM) and its National Service of Natural Areas Protected by the State (SERNANP).



The first World Congress to be organized outside Europe featured 13 side events, which showcased the role of biosphere reserves as testing grounds in the fight against climate change, and highlighted environmental education, sustainable tourism for economic development, and cooperation with local communities.

4th World Congress of Biosphere Reserves SFRNAN

Meeting of the ArabMAB Network in Algiers,

Algeria, May 2017.

INESCO

A VARIETY OF REGIONAL, SUB-REGIONAL AND THEMATIC NETWORKS provide support to the World Network of Biosphere Reserves. During 2016–2017 the different networks undertook the following activities:

The ArabMAB Network was officially launched in 1997 and represents 18 Arab countries. The regional meeting of the ArabMAB network, which celebrated the 20th anniversary of the network, was held in Algiers, Algeria, from 22 to 24 May 2017 and gathered together around 50 participants.



The participants included members of the National Committees for MAB, national focal points for MAB and biosphere reserve managers from Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine, Qatar, Saudi Arabia, Sudan, Syria and Tunisia, as well as countries from other networks, such as Ghana (AfriMAB) and Kazakhstan (Asia-Pacific).

The member states of the ArabMAB network reached an agreement regarding the renewal of the network's structure to ensure a new dynamic in the coming years. A steering committee for the network was elected and will consist of five members (Jordan, Tunisia, Egypt, Saudi Arabia) and chaired by Algeria for the coming two years.

The meeting and following thematic workshop on governance and green economy reached their objectives in terms of enabling a dynamic exchange between member states on best practices tested in their biosphere reserves, and worked in groups on the Lima Action Plan to establish a regional Action Plan in a participative manner.

The African Biosphere Reserves Network (AfriMAB) was created in 1996 and comprises 33 African countries. The 5th Session of the General Assembly of AfriMAB was hosted by the Nigerian MAB National Committee in Ibadan on 12-15 September 2017 under the theme 'Improving Governance of UNESCO's MAB Programme and its Biosphere Reserves in Africa'. Government representatives, biosphere reserve managers and experts came together to share the results of innovative projects in African biosphere reserves and to expand regional cooperation.

The participants shared lessons learned through case studies and projects across Africa, notably the Green Economy in Biosphere Reserve project, which aims to conserve biodiversity by reducing the immediate adverse effects of local reliance on forest products (such as fuel wood), reduce poverty by diversifying the economy, and promote sustainable development by building the capacity of the communities in a holistic manner to ensure sustainable biodiversity businesses. It was implemented in three sub-Saharan biosphere reserves with similar ecosystem types: tropical humid forests in Bia (Ghana) and Omo (Nigeria), and tropical submontane and evergreen forests in the East Usambara



(Tanzania). Participants visited the Omo biosphere reserve to familiarize themselves with four green economy initiatives first hand.

The meeting provided an opportunity to present a new project aiming to promote peace in the Lake Chad basin through the sustainable management of its resources. Over 30 million people depend on this critical ecosystem for water and livelihood, which is now facing environmental, social, and economic and security issues, as a result of land and water degradation, overuse, pollution and climate change, leading to loss of job opportunities and livelihoods. The project will apply the lessons learned in biosphere reserves and World Heritage sites to strengthen the capacities of Cameroon, the Central African Republic, Chad, Niger and Nigeria to safeguard and sustainably manage their hydrological, biological and cultural resources.

The East Asian Biosphere Reserve Network was launched in 1994 and consists of China, the Democratic People's Republic of Korea, Japan, Kazakhstan, Mongolia, the Republic of Korea and the Russian Federation. The 15th meeting of the East Asian Biosphere Reserve Network (EABRN) on 'Providing Models of Sustainable development' took place from 29 May to 2 June 2018 in Almaty, Kazakhstan.

EuroMAB was created in 1987 and consists of 53 countries that form a network of biosphere reserves in Europe and North America. The 15th EuroMAB meeting took place in the Bassin de la Dordogne Biosphere Reserve, France, on 4–7 April 2017 under the theme

AfriMAB Network in Ibadan, Nigeria, September 2017. **UNESCO** 



15th EuroMAB meeting, Bassin de la Dordogne Biosphere Reserve, France, April 2017. MAB-France

'Building a Sustainable Future Together'. During the four-day meeting, 370 people from 41 different countries discussed the outcomes of the 4th World Congress of Biosphere Reserves and the Lima Action Plan. Through 15 thematic workshops, the EuroMAB participants worked to define how biosphere reserves can contribute to the SDGs, multilateral environmental agreements and the Paris Agreement on climate change. Among the shared findings of these workshops, it was demonstrated that biosphere reserves need to work in three key directions to achieve the Sustainable Development Goals: (i) bridging the gaps in scientific knowledge, especially on socio-ecological interdependencies; (ii) obtaining better recognition of biosphere reserves and their actions in order to heighten awareness of the importance of biodiversity conservation actions and management of sensitive natural areas; and (iii) strengthening consultations with a view to improving mechanisms for dialogue and co-construction of territorial approaches.

The Ibero-American MAB Network (IberoMAB) was created in 1992. It comprises 24 countries from Latin American and the Caribbean, Portugal and Spain. The 17th IberoMAB meeting took place during the 4th World Congress of Biosphere Reserves in Lima, Peru.

Representatives of IberoMAB countries presented the state of biosphere reserves in their different countries including successful experiences, and discussed the new MAB Strategy and the future of IberoMAB. The meeting also focused on the contributions of IberoMAB to the 4th World Congress of Biosphere Reserves as well as the Lima Action Plan.

The Pacific Man and the Biosphere Network (PacMAB) was created in 2006 and comprises the Federated States of Micronesia, Kiribati, Palau, Papua New Guinea, Samoa and Tonga. The last PacMAB meeting took place on 23–25 April 2014 in Nadi, Fiji, to discuss the role of biosphere reserves in sustainable development in the Pacific.

The South and Central Asia MAB Network (SACAM) was created in 2002 and comprises Afghanistan, Bangladesh, Bhutan, India, Iran, Kazakhstan, Maldives, Nepal, Pakistan and Sri Lanka. The 8th SACAM meeting was organized on 24-25 October 2016 in Almaty, Kazakhstan, by the Kazakhstan National Commission for UNESCO and ISESCO and the Kazakhstan National MAB Committee in association with the SACAM Secretariat, UNESCO New Delhi, the Economic Cooperation Organization Science Foundation (ECOSF) and Al-Farabi Kazakh National University. The theme of the meeting was 'Biosphere Reserves



and Sustainable Development'. Representatives from the MAB Programme in the South and Central Asian region, including MAB National Committees and biosphere reserve managers and experts from national and international organizations, attended the meeting. The aim was to discuss how to jointly promote biosphere reserves to serve as models for sustainable development, including how to better apply the Sustainability Science framework in biosphere reserves from the region, and how the MAB Programme could collaborate with other relevant UNESCO scientific programmes and designated sites such as Global Geoparks and World Heritage Sites, and other internationally designated sites (e.g. RAMSAR sites).

The Southeast Asian Biosphere Reserve Network (SeaBRnet) was created in 1998 and comprises Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand,



8th SACAM meeting in Almaty, Kazakhstan, October 2016. INESCO

10th SeaBRnet meeting in Jakarta, Indonesia, May 2017. ©UNESCO/G. Mulya

Timor Leste and Viet Nam. The 10th SeaBRnet meeting was organized in Jakarta, Indonesia, by UNESCO Office Jakarta with support from Japanese Funds-in-Trust, during 16 and 17 May 2017, under the theme 'Interaction among UNESCO Programmes toward the Sustainable Development of Biosphere Reserves'. The meeting gathered together around 50 MAB National Committees, biosphere reserve managers and other stakeholders from across Southeast Asia, along with representatives from UNESCO programmes such as UNESCO Global Geoparks and World Heritage sites. Participants discussed possibilities for cooperation among different programmes, including the benefits and challenges that multiple designations and integrated approaches bring.

Among the most important achievements of the meeting was the identification by all participating member countries of national priorities under the Lima Action Plan. These priorities will serve as a basis for the development of national action plans that draw on the objectives, contents and structure of the Lima Action Plan, but reflect the particular needs and conditions in each member state. The importance of effectively integrating biosphere reserves into national legislative frameworks and engaging the local community in the management of the biosphere reserves were mentioned as priorities across multiple countries in the network.

**The World Network of Island and Coastal Biosphere Reserves** was established in 2012 and comprises 22 countries. The 6th meeting of members of the World Network of Island and Coastal Area Biosphere Reserves took the form of a workshop on islands and coastal areas, which took place during the IV Congress of the World Network of Biosphere Reserves, held in Lima (15 March 2016).

In line with the vision and mission of the MAB Programme, the World Network of Island and Coastal Biosphere Reserves aims to work and act as a model for sustainable development and conservation, helping the localities, countries and regions to achieve the Sustainable Development Goals, the Aichi targets and other international and multilateral agreements.



7th meeting of the World Network of Island and Coastal Biosphere Reserves, Jeju Island, Republic of Korea, September 2017. ©UNESCO/ Miquel Clüsener-Godt The World Network of Island and Coastal Biosphere Reserves will continue its work to gather more members and promote communication, share experiences and develop common research and training and capacity-building activities, including education for sustainable development and conservation. Special attention will be given to local issues. Training and capacity-building programmes should consider local specificities and help to resolve persistent local problems.

The 7th meeting of the World Network of Island and Coastal Biosphere Reserves took place on Jeju Island, Republic of Korea, on 12–14 September 2017. During the meeting an agreement was signed between the three parties (Jeju, Menorca and UNESCO) to maintain the Network for another five years.

The specific work plan for the Network has been discussed and a regulatory framework has been approved that defines its objectives, functions, composition and organization. An agreement ceremony was held where Minorca and Jeju committed to continue their annual contributions to the Network of €50,000 and €100,000, respectively, over the next five years.

The World Network of Island and Coastal Biosphere Reserves currently includes more than 70 island or coastal area biosphere reserves, which represent 10% of the total biosphere reserves worldwide. Despite the different characteristics, locations and dimensions, they share a level of vulnerability to climate change and sea level rise among other common threats. On this basis, the networking project aims to promote mitigation and adaptation strategies in the biosphere reserve members. THE MAB PROGRAMME CONTRIBUTES TO GLOBAL EFFORTS for education and capacity-building through workshops, training courses, educational programmes and partnerships with professional and educational institutions.



nternational Category II Centre on Mediterranean iosphere Reserve, Castellet I la Gornal, Spain hertis Foundation

## **CATEGORY II CENTRES**

International Category II Centre on Mediterranean Biosphere Reserve. The Category II Centre located within the premises of the Abertis Foundation in Castellet I la Gornal, Kingdom of Spain, was officially inaugurated in April 2014.

This first Centre of the MAB Programme under UNESCO auspices serves as a model for scientific cooperation between the two shores of the Mediterranean and provides an excellent platform for information exchange and sharing on all issues related to biosphere reserves and their sustainable development.

The Centre, which is collaborating closely with the Ministry of Agriculture, Food and Environment and its Autonomous Organism for National Parks (OAPN), is the first of its kind, combining public engagement and private financial support under UNESCO's auspices.

It also provides a unique setting of two coastlines united by their culture and nature. Located in the medieval castle of Castellet, restored by the Abertis Foundation, the Centre documents scientific research and knowledge on all biosphere reserves in the Mediterranean basin.

The Centre acts as a platform for training and transferring advanced knowledge on environmental and societal issues between developed and developing countries in the Mediterranean basin, and facilitates joint programmes between biospheres reserves.

The primary objectives of the Centre is to collect, structure, synthesize and disseminate the experience acquired in all the biosphere reserves of the Mediterranean area, in order to contribute to advancing scientific knowledge within the World Network of Biosphere Reserves. It hosts the Network of Mediterranean Biosphere Reserves (BRMed) the main goal of which is to provide support to each of the member biosphere reserves. There are currently around 70 biosphere reserves from 15 countries in the BRMed.

## **Regional School on Integrated Management of Tropical Forests and Territories**

(ERAIFT). In 2015, the General Conference approved the establishment of ERAIFT as a Category II Centre under the auspices of UNESCO. This was the second MAB Category II Centre and the first in Africa.

UNESCO launched a postgraduate training course in tropical forest management in 1999 at the University of Kinshasa in the Democratic Republic of Congo. Named ERAIFT (École régionale post-universitaire d'aménagement et de gestion intégrés des forêts tropicales), the school trains some 30 specialists from francophone and lusophones countries in Africa each year and offers courses at Masters (DESS) and PhD (doctorate) levels. The ERAIFT DESS diploma is recognized by the CAMES (Conseil africain et malgache pour l'enseignement supérieur).

The school is training a new generation of African specialists and decision-makers to apply the ecosystem approach in situ to forest management in Africa. The curriculum covers, in particular integrated management of tropical forests, collaboration with local communities, improving conditions for local populations and sustainable development.

Through capacity-building, knowledge sharing and research, this Category II Centre is providing a valuable and unique contribution to the implementation of UNESCO's strategic



ERAIFT Students

programme objectives for the benefit of African Member States. In September 2017, ERAIFT initiated a one-year capacity building programme in support of forest policy formulation and monitoring of timber exploitation under FLEGT (Forest Law Enforcement, Governance and Trade).

University Twinning and Networking Programme/UNESCO Chairs. There are currently 48 UNITWIN/UNESCO Chairs related to biosphere reserves and sustainable development.

During 2016–2017 a new biosphere reserve chair was created: the UNESCO Chair on World Heritage and Biosphere Reserve Observation and Education at the Heidelberg University of Education (Pädagogische Hochschule Heidelberg), in Heidelberg, Germany. The purpose of the Chair is to promote an integrated system of research and its application, training and education, based on modern geo-information technologies and geo-ecological methods, in order to analyse, model and visualize environmental changes at UNESCO designated sites.

In July 2017, UNESCO organized a conference in Geneva to mobilize UNESCO Chairs in the Natural Sciences. This conference brought the Chairs together for the first time, to contribute to reflection on sustainable development. During the conference, the Chairs and Networks built synergies and pooled resources towards the implementation of the 2030 Agenda and the Sustainable Development Goals.

MAB Young Scientists Award: helping young people help the planet. Since 1989, MAB has presented annual awards of up to US\$ 5,000 to young researchers in support of their research on ecosystems, natural resources and biodiversity. Through the MAB Young Scientists Awards, the MAB programme has invested in a new generation of scientists worldwide, whose work is vital to addressing ecological and sustainability issues.

## The young scientist and projects recognized in 2016 were:

- Disaorn Aitthiariyasunthon (Thailand): 'Gender roles in Ranong Biosphere Reserve management'.
- Ina Aneva (Bulgaria): 'Conservation and sustainable management of medicinal plants in biosphere reserves in Pirin and Slavyanka Mountains, southwestern Bulgaria'.
- Ajat Mohd Mokrish (Malaysia): 'Assessment of zoonotic disease awareness among primary and secondary schools students in Malaysia'.
- Fatimatou Sow (Guinea): 'Assessment of chemical and bacteriological pollution in the waters of the Haut Niger Biosphere Reserve'.

- Anna Yachmennikova (Russian Federation): 'Study of infectious diseases of the red fox (Vulpes vulpes), one of the key carnivore animals in tundra ecosystems at the territory of Kronotsky Biosphere Reserve'.
- Belarbi Zohir (Algeria): 'Compatibility between conservation and tourism at UNESCO World Heritage sites'.

## And in 2017, the following young researchers and projects received awards:

- Isma Merad (Algeria): 'Impact of human activity on Lake El Mellah (El Kala, Algeria): health assessment using the Cerastoderma glaucum (Mollusca, Bivalvia) as a sentinel species'.
- Stella Marlène B.F. Sokpon (Benin): 'Involvement of local communities in ecotourism activities and attitudes regarding conservation at the Pendiari biosphere reserve'.
- Marie Florence Sandrine Ngo Ngwe (Cameroon): 'Genetic and biochemical features of forests at the Dia Biosphere Reserve to improve knowledge and conservation of its biodiversity'.
- Amirhosein Mosavi (Hungary): 'Monitoring and assessing sustainability in Biosphere Reserves utilizing sustainable business models'.
- Luiza Abdurasulova (Kazakhstan): 'Study on the biodiversity, monitoring and management of insects of the Karatau Biosphere Reserve'.
- Eduardo Luna Sanchez (Mexico): 'Case studies of organizations that implement natural resource management projects in the Sierra Gorda Biosphere Reserve'.
- Adeeb Hayyan (Malaysia): 'Physiochemical properties and cellular toxicity of oil plant seeds available in Tasik Chini Biosphere Reserve as an alternative for conventional natural oils with regards to nutraceutical and food industry'.

The Michel Batisse Award is awarded in memory of Dr Michel Batisse for excellence in the management of biosphere reserves, in line with the recommendations of the MAB Strategy 2015-2025. Following the decision made by the MAB Council at its 29th session in June 2017, case studies must be submitted for every second MAB-ICC Council session.



In 2016, the US\$ 6,000 Award was given to Qu Shuguang (China), Director of the Wudalianchi Biosphere Reserve, for his study on the Wudalianchi ecomigration project and its efforts to protect the environment and improve the population's means of subsistence. In 2017, the award was given to Vladimira Fabriciusova (Slovakia), coordinator of the Polana Biosphere Reserve, for her case study 'Biosphere Reserves: an Opportunity for Humans and Nature.'

Vladimira Fabriciusova (Slovakia) winner of the 2017 Michel Batisse Award UNESCO/Isabelle Bruanon

The purpose of the UNESCO Sultan Qaboos Prize for Environmental Preservation is to afford recognition to outstanding contributions by individuals, groups of individuals, institutes or organizations in the management or preservation of the environment, consistent with the policies, aims and objectives of UNESCO, and in relation to the Organization's programmes in this field (i.e. environmental and natural resources research, environmental education and training, creation of environmental awareness through the preparation of environmental information materials and activities aimed at establishing and managing protected areas such as biosphere reserves and natural World Heritage sites).



The National Parks Board of Singapore, laureates of the 2017 UNESCO Sultan Qaboos Prize for Environmental Preservation ©Singapore National Parks Board

The Prize is awarded every two years. As of 2015, the financial reward amounted to US\$70,000, a donation graciously made by His Majesty Sultan Qaboos Bin Said of Oman.

The laureates of the 2017 UNESCO Sultan Qaboos Prize for Environmental Preservation were the National Parks Board of Singapore.

An international jury elected to honour the Singapore government agency in charge of nature reserves and parks for its significant contribution to environmental preservation. The National Parks Board promotes biodiversity in an urban environment through the restoration of habitats and species. It also supports teaching on biodiversity at all levels of education. The applied research conducted by the Board has also helped to identify new endemic species of plants and terrestrial invertebrates.

The National Parks Board manages the World Heritage site of the Singapore Botanical Gardens alongside 350 parks and four natural reserves. Working with the Secretariat of the Convention on Biological Diversity, it has developed the Singapore City Biodiversity Index, a self-assessment tool for cities' biodiversity conservation efforts.

## ACTIVITIES

The role of universities in supporting UNESCO-designated sites: beacons of sustain-

ability. Greece hosted a debate among 38 experts from nine countries on the role of universities and UNESCO-designated sites as incubators of sustainability. Global discussions led to a call for synergy and collaboration to address the complex issues faced by modern society encapsulated in the Sustainable Development Goals. The regional meeting was co-organized by the UNESCO Regional Bureau for Science and Culture in Europe, the Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), the Mediterranean Education Initiative for Environment and Sustainability (MEdIES Initiative), the Greek National MAB Committee and the UNITWIN MedUnNET, and was hosted on 18-19 January 2016 by the National and Kapodistrian University of Athens. The intensive workshop featured professors, researchers and administrators, as well as managers from UNESCO-designated sites that host or are closely related to universities from Europe and the Mediterranean area.



The meeting in Athens called on universities to urgently adjust their culture, curricula and operations, and to propose long-term innovative approaches to very complex issues. Universities need to strengthen their links with society at local, national and global levels. They should play a more active role as promoters of Education for Sustainable Development and as agent of change for sustainable development. One way to address some challenges could be to effectively link universities with the functions of certain UNESCO-designated sites – specifically World Heritage sites, biosphere reserves and UNESCO Global Geoparks. Such a relationship could generate 'beacons of sustainability' and 'education laboratories', offering a 'win-win' sustainable interaction model for people, ecosystems, and cultural and natural heritage.

## UNESCO Biosphere Excursion: learning experience for young environmentalists from

Ethiopia and the United Arab Emirates. The second part of the first UNESCO Biosphere Excursion, a bi-national programme in the United Arab Emirates (UAE) and Ethiopia, took place in April 2016. A group of 16 inspired students and young professionals from Ethiopia and the UAE met on 6 April for an excursion to protected areas in Abu Dhabi, Dubai, Fujairah and Sharjah. The same group had previously travelled to Ethiopia in

UNESCO-designated sites as incubators of sustainability ©UNESCO/P. Pypaert



UNESCO Biosphere Excursion in the Marawah Biosphere Reserve, United Arab Emirates ©UNESCO/Sami Maieed

November 2015 to learn about environmental management issues in the Kafa and Lake Tana Biosphere Reserves.

The two parts of the Biosphere Excursion enabled participants to carry out multiplier projects designed to disseminate knowledge throughout their own communities. The projects included awareness-raising activities and exercises with school and university students on waste segregation, reforestation activities with schoolchildren, artistic outreach activities using sand sculptures to create awareness of marine pollution, and projects with local communities to improve wetland management. On 21 April 2016, the UAE National Commission for UNESCO in cooperation with the Ministry of Education coordinated an experience-sharing session with outstanding secondary school students in Fujairah to discuss the importance of environmental protection.

Experts from the Abu Dhabi Environment Agency, the Dubai Desert Conservation Reserve, the Emirates Wildlife Society in association with WWF, the Fujairah and Dibba municipalities, the Global Green Growth Institute, the Sharjah Environment and Protected Areas Authority, and Zayed University shared their knowledge with the group, including through on-site sessions. A visit to Bu Tinah Island – one of the core zones of the Marawah Biosphere Reserve in Abu Dhabi, which is accessible only for research and monitoring activities – was a highlight of the trip. In Wadi Wurayah National Park (Fujairah), the group verified camera traps used for wildlife monitoring. In addition to training sessions, participants also had the chance to meet with local stakeholders during research assignments in the aforementioned locations.

This educational and cultural exchange was made possible by generous funding from the Global Citizen Foundation and in-kind support from the Environment Agency Abu Dhabi, the Emirates, Fujairah Municipality and Zayed University, as well as other Ethiopian donors.

## Integrated management approaches for biosphere reserves at Summer University

of Samothraki 2016. In 2016, the island of Samothrace in Greece hosted a Summer University on the themes of Aquatic and Social Ecology: Theory and Practice (Course A), and Integrated Water and Coastal Management – Educational and Participatory Approaches (Course B). The University was organized within the framework of an en-



during collaboration with the UNESCO Chair and Network on sustainable development management and education in the Mediterranean in Athens, and the Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), and was held from 9 to 22 July. Supported by the UNESCO Regional Bureau for Science and Culture in Europe, the University provided high-quality education to postgraduate students and young scientists from European and South-East European countries on Integrated Management practices of biosphere reserves and various other categories of protected areas. The Island of Samothrace, or Samothraki as it is often referred to, is among the rare remaining examples of natural island beauty among the Greek Aegean Archipelago. Water and water management were at the core of the Summer University of Samothraki 2016, which was organized within the scope of integrated management approaches for biosphere reserves.

Over 12 days, the Summer University deepened the understanding of the value of biosphere reserves as laboratories and catalysts of sustainable development. It highlighted the rich natural and cultural diversity and heritage of Samothrace and support the proposal for its inclusion in the World Network of Biosphere Reserves.

Gulf Cooperation Council training on biosphere reserves. UNESCO Doha Office, in partnership with the Ministry of Municipality and Environment Qatar, organized a four-day regional MAB training course for Gulf Cooperation Council (GCC) Member States in April 2017. The training reinforced the technical capacities of the Gulf Countries' institutions and stakeholders and was specifically designed for National stakeholders involved in the management of Protected Areas in the Arab Gulf region, with a focus on MAB concepts and application requirements.

Participants from Bahrain, Oman, Qatar, Saudi Arabia and the United Arab Emirates were trained in the Planning and Management of Protected Areas and Nature Reserves and Best Practices.

UNESCO Doha also followed closely the preparation of nominations for new biosphere reserves in the United Arab Emirates in 2016-2017. UNESCO supported visits to the Fujairah and Dubai Emirates, in cooperation with their respective municipalities, for two possible biosphere reserves. Guidelines and information on how to prepare new

Summer University Samothraki ©UNESCO/P. Pypaert



Regional MAB training course for Gulf Cooperation Council Member States in April 2017. ALINESCO

nominations were shared following the visit. The nominations were further refined in coordination with partners including the Environment Agency of Abu Dhabi and the National Commission in the UAE. Following the GCC-wide training in April, UNESCO Doha coordinated the preparation of new MAB site nominations and the establishment of a MAB Committee in the UAE, where relevant stakeholders received training. A nomination for Wadi Wurayah was submitted in late 2017 with support from UNESCO Doha.

Summer School in Sustainable Tourism Strategies – Sardinia 2017. The Summer School on Integrated Management Approaches and Sustainable Tourism Strategies for Biosphere Reserves took place in Sardinia, Italy, on 13-20 July 2017, at the newly established Tepilora, Rio Posada and Montalbo Biosphere Reserve (Italy). The Summer School was co-organized by the UNESCO Regional Bureau for Science and Culture in Europe; the UNESCO Chair and Network on Sustainable Development Management and Education in the Mediterranean of the National and Kapodistrian University of Athens; the Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), especially, its educational initiative MEdIES; and the Tepilora Regional Park.

Twenty-six postgraduate students, young scientists and managers of biosphere reserves from 16 different countries, participated in an intensive, multidisciplinary and experiential training course that aimed to develop the understanding and competencies of the trainees on the multiple values of biosphere reserves as 'laboratories' and 'catalysts' of sustainable development, and to deepen their understanding of the application of integrated management approaches and sustainable tourism strategies. The Summer School also used interactive methodologies to encourage participants to contribute to the development of the first biosphere reserve management/action plan, with a focus on the development and logistical components of sustainable tourism. At the end of the Summer School, the participants provided the local authorities and stakeholders with ideas and suggestions relating to the promotion of the new biosphere reserve, as well as communication and educational initiatives to increase awareness and a sense of belonging among the community.



UNESCO biosphere reserves and Global Geoparks: hubs for seed preservation in arid ecosystems. The International Symposium on Native Seeds in Restoration of Dryland Ecosystems, held in Kuwait on 20-23 November 2017, was the setting for researchers and practitioners from across the world to promote collective efforts to enable the UNESCO Biosphere Reserve Network in the Arab States, UNESCO Global Geoparks and other relevant resources to function as the hosts of living seed and gene banks in the region. The event was organized by the Kuwait Institute for Scientific Research (KISR) in close partnership with the International Network for Seed-based Restoration (INSR), the Kuwait National Focal Point, the Kuwait Foundation for the Advancement of Sciences (KFAS) and the Islamic Development Bank (IDB).

The Symposium brought together scientists to present their work on seed ecology and propagation techniques and protocols, as well as studies on ecological restoration and seed bank accessions. The UNESCO Regional Office for Sciences in the Arab States highlighted the importance of native plant conservation and selection, as well as the ways in which biosphere reserves and geoparks could function as hubs for seeds preservation in arid ecosystems. The importance of these sites as observatories to learn about seed ecology and ecological restoration in the Arab States was also discussed.

Swedish biosphere reserves as arenas for implementing the 2030 Agenda. The Swedish Environmental Protection Agency recently published the report *Swedish Biosphere* Reserves as Arenas for Implementing the 2030 Agenda: Analysis and Practice, written by Lisen Schultz and Malena Heinrup of the Stockholm Resilience Centre. The report demonstrates how biosphere reserves help to implement the 2030 Agenda for Sustainable Development and provides examples of integrated sustainable development practices from Swedish biosphere reserves.

## Seminar on funding sources to ensure the sustainable development of biosphere

reserves. The annual seminar of the Network of National Committees and Biosphere Reserves of Ibero-America and the Caribbean (IberoMAB Network) took place from 7 to 11 November 2016 in La Antigua, Guatemala. The aim of the event was to bring together representatives of IberoMAB with public and private entities that have the capacity

Integrated Sustainable Tourism Strategies for Biosphere Reserves, Sardinia, Italy, July 2017. ©UNESCO/Ceas Posada

Summer School on



eminar on funding sources to ensure the sustainable development of biosphere reserves, La Antigua, Guatemala, November 2016

to finance different types of projects related to the conservation of biodiversity and sustainable socio-economic development. The seminar also promoted the exchange of experiences on project funding among the representatives of the different participating countries.

The event was organized by the Spanish Agency for International Cooperation for Development (AECID), the Autonomous National Parks Authority (OAPN) of Spain, and the MAB Programme through its BRESEP (Biosphere Reserves as a Tool for Coastal and Island Management in the South-East Pacific Region) project.

Over 40 participants from 20 different countries attended the seminar, including MAB focal points and national committees, representatives of national systems of protected areas, the IberoMAB Secretariat, United Nations organizations, UNESCO chairs, universities, foundations and associations, and managers of Ibero-American biosphere reserves.

During the seminar, the participants identified potential donors, sources and funding lines, as well as partners for project development in biosphere reserves. They also analysed the possibility of creating a portfolio of projects for development in Ibero-American biosphere reserves, in accordance with the guidelines of the Lima Action Plan.

The main thematic lines identified during the seminar for the design and development of projects were mitigation and adaptation to climate change, sustainable economies, and institutional and community development.

The seminar concluded by emphasizing the importance of funds that enable biosphere reserves, MAB national committees, focal points and the IberoMaB Network to carry out innovative projects that contribute to the well-being of the population living in and around the reserves, and of activities that have a regional impact and transform biosphere reserves into strategic centres for sustainable development.

## Seminar on Green Economies and Quality Brands in Ibero-American Biosphere

Reserves In order to promote and support sustainable economic activities in Ibero-American biosphere reserves, a seminar on green economies and quality brands was held at the Spanish Cooperation Training Centre in Cartagena de Indias, Colombia, from

23 to 27 October 2017. The event was organized by the National Parks Autonomous Agency (OAPN) of Spain and the Spanish Agency for Development Cooperation (AECID), in collaboration with the Association of Regional Autonomous Corporations and Sustainable Development of Colombia (ASOCARS) and the MAB Programme through its project 'Biosphere Reserves as a Tool for Managing Coastal Areas and Islands in the Eastern South Pacific' (BRESEP).

The seminar brought together representatives from biosphere reserves and international cooperation and non-governmental organizations of 20 Ibero-American countries, in order to encourage the creation and management of brands that recognize the quality of products and services of biosphere reserves. New models and tools were also identified to promote economic activities with business projects that are beneficial both for the local population and the conservation of natural heritage.

The participants also made a field visit to the Natural Park of Los Corales del Rosario and San Bernardo to learn about the practical experience of community ecotourism.

At the end of the event, the participants concluded that biosphere reserves are privileged sites for sustainable development, and that brands can be a tool to provide visibility and add value to these territories. The participants also stressed the importance of increasing efforts to enhance the visibility of biosphere reserves. Finally, the experts concluded that systematized data should be generated to measure the social, environmental and economic impacts of designating a territory as a biosphere reserve.

Mexican biosphere reserves are trained in the good management of their sites Representatives of 15 Mexican biosphere reserves attended a workshop held from 4 to 6 December 2017 in Mexico City, Mexico. The workshop provided training in conducting and submitting Periodic Review reports for biosphere reserves and the Process of Excellence and Improvement of the World Network of Biosphere Reserves. The National Commission of Protected Natural Areas (CONANP) organized the workshop with the support of the MAB Programme.

The Periodic Review is an important event in the life of a biosphere reserve. It is performed every 10 years and assesses the functioning and zoning of the biosphere reserve, as well as the involvement of populations living in the site. It represents an opportunity to carry out a qualitative survey of implemented actions and their results, and to take stock of progress made by the biosphere reserve, especially regarding the state of knowledge, skills and expertise in resource and ecosystem management. It also provides an opportunity to discuss the zonation system and assess its relevance, question its objectives and management policies, and examine issues and problems tied to implementation. Lastly, it affords time to discuss challenges and analyse how to overcome them.

From 2015 to 2017, 22 Mexican biosphere reserves submitted Periodic Review reports, representing an unprecedented effort. Five reserves are due to submit their reports in 2018.

During the workshop, the representatives of the Mexican biosphere reserves analysed their experiences arising from this process and explored ways to support reserves still working on their Periodic Review. They also discussed the next steps in the elaboration of the Mexican Biosphere Reserves Action Plan, and how to frame their biosphere reserves within the Lima Action Plan and IberoMaB Action Plan, as well as in different international agreements.



Ria Lagartos Biosphere Reserve; Mexico ©CONANP

## MEETING GLOBAL CHALLENGES THROUGH **COLLABORATIVE WORK AND PARTNERSHIPS**

**MEETING GLOBAL CHALLENGES** and creating sustainable and long-term impacts is only possible through the collaborative work of a broad partnership.

During 2016–2017, MAB continued to work with other UN agencies, international and national partners, different governments, NGOs, academia and the private sector, and promoted North-South and South-South cooperation. The following section presents some examples of such partnerships.



st MAB Youth Forum, Po Delta Biosphere Reserve, Italy, September 2017. ©UNESCO/ Christian Leone

Engaging with youth: the first ever MAB Youth Forum in the Po Delta Biosphere **Reserve.** The first MAB Youth Forum took place from 18 to 23 September 2017 in Italy's Po Delta Biosphere Reserve. It involved almost 300 youth delegates from 85 different countries underlining the determination of the MAB Programme to involve youth in its activities and to engage youth in the governance of its biosphere reserves. All the youth delegates that attended the forum either live or work in a biosphere reserve. The forum was fully aligned with the UNESCO's Operational Strategy on Youth, which aims 'to ensure that young women and men are engaged in policies and programmes affecting them, and lead action to promote peace and sustainable development in their countries and communities'. The forum favoured a highly participatory and bottom-up approach based on listening to the participants, letting them express their needs and requests, and collecting their proposals.

A key outcome of the forum was the MAB Youth Forum Declaration, which calls on the World Network of Biosphere Reserves to share scientific and indigenous knowledge widely and to support knowledge transmission to future generations. The MAB Youth Forum delegates were particularly concerned with fostering attractive and long-term employment opportunities linked to the intrinsic values of biosphere reserves, such as the conservation of biodiversity and habitat restoration. They encouraged biosphere reserve managers to work with schools to develop specific programmes and to strengthen ties between research institutions and local stakeholders. The young participants made a commitment to organize events with local communities on diverse cultural, environmental and economic issues, and to train and encourage young people to become more active in their biosphere reserves. They will also act as ambassadors of their biosphere reserves and develop tools to promote values and good practices.

This forum has mobilized young people in biosphere reserves to unite and promote the SDGs within and beyond biosphere reserve territories across the world. Since the forum, the MAB Youth community has demonstrated a very high level of energy and motivation, as well as a great sense of commitment to MAB values and a desire to contribute more to the programme. Accordingly, it is essential that this community be

given opportunities to become involved on a consistent basis in the governance of the MAB Programme and their biosphere reserves, rather than being restricted to events or activities specifically targeting MAB Youth.



The full report of the MAB Youth Forum, its final declaration, a detailed report on the pre and post-event online surveys, videos and testimonies from participants can be found at the MAB Youth web page: https://en.unesco.org/mab-youth

Great Apes Survival Partnership (GRASP). Through the Great Apes Survival Partnership (GRASP) UNESCO's Man and the Biosphere Programme ensure the long-term survival of gorillas (Gorilla beringei, G. gorilla), chimpanzees (Pan troglodytes), bonobos (Pan paniscus) and orangutans (Pongo abelii, P. pygmaeus) across their ranges in Equatorial Africa and Southeast Asia.



Coordinated by UNESCO and the UN Environment Programme (UNEP), GRASP is a unique alliance of nearly 100 national governments, conservation organizations, research institutions, UN agencies and private companies.

Great Apes are found in 21 biosphere reserves, including Mountain gorillas in the Volcans Biosphere Reserve in Rwanda, chimpanzees in the Haut Niger Biosphere Reserve in Guinea, and Sumatran orangutans in the Gunung Leuser Biosphere Reserve in Indonesia.

Participants to the MAB Youth Forum discussing about youth engagement in biosphere reserves issues. UNESCO/Christian Leone

Hamerlvnck

These sites are 'living laboratories' that enable better understanding of great apes. Studies are underway in different biosphere reserves.

One of the most important populations of wild chimpanzees lives in the Taï Biosphere Reserve in Côte d'Ivoire, where zoologists have been studying their behaviour since 1979. Much of what we know today about orangutan tool-making is the result of studies in the Tanjung Puting Biosphere Reserve in Indonesia. These studies are combined with a variety of projects to reconcile conservation with the needs of local communities.

With the generous support of the French government, UNESCO has organized a variety of GRASP activities, including the organization of the 12th Executive Committee, which took place on 11-12 July 2017 at UNESCO Headquarters in Paris.

Under the UNESCO-Kyoto University Agreement, UNESCO is working on the possibility of obtaining six-month secondments for Masters and doctoral degree students to UNESCO Headquarters, where they will be dedicated to the GRASP programme.

Gaggo Leche, the first milk chocolate to blend raw materials from two UNESCO biosphere reserves: Entlebuch and Gran Pajatén. The Swiss start-up Choba Choba, renowned for its dark chocolate which is produced in the Alto Huayambamba valley in the heart of the Peruvian Amazon, has now created its first milk chocolate, Gaggo Leche. The three ingredients used to make dark chocolate – trinitario cocoa from Peru's Gran Pajaten Biosphere Reserve, unrefined sugar cane and cocoa butter – have been



First milk chocolate to blend raw materials from two UNESCO biosphere reserves. . Jicolas Villaum

blended with milk provided by 200 dairy producers in the Entlebuch Biosphere Reserve in Switzerland. The name 'Gaggo Leche' has been chosen to represent the unique relationship between the two UNESCO biosphere reserves: Gaggo means cocoa in Swiss German and Leche means milk in Spanish.

International workshop: biosphere reserve branding through high-quality food products and gastronomy. In August 2016, the Appennino Tosco Emiliano Biosphere Reserve, Italy, organized a workshop to discuss and exchange opinions on the topic of biosphere reserve branding of high-quality food products produced in the reserves and their use in gastronomy. The high-quality products discussed by the workshop are renowned not only for their delicious taste and reputation, but also for the integration of their supply chain with the landscape and local communities.



Two days of rich discussions and inspiring presentations on biosphere reserve branding and labelling experiences, and case studies from Austria, Ethiopia, Japan, Italy, Morocco and Spain, led to conclusions and related recommendations for future steps to be followed. An exhibition by the UNESCO Venice Office on Food Security, as well as visits to the Alma International Cooking School, the Carra di Casatico winery, the Parma ham and Parmigiano Reggiano cheese factories, the Rosa dell'Angelo farm and the Parma City Administration, all added to the variety and success of the workshop.

The workshop emphasized that high-quality food products and gastronomy in biosphere reserves play a key role in enabling the UNESCO MAB Programme to fulfil its vision and mission statements. In particular, high-quality food products and gastronomy help to build and maintain thriving societies in harmony with biodiversity, cultural landscapes and traditions, contributing to the identity and recognition of biosphere reserves.

Protecting water in German biosphere reserves. In 2016 and 2017, the German Commission for UNESCO and Volvic promoted projects to secure water resources in biosphere reserves. The German Commission for UNESCO and Volvic have promoted water protection projects in German biosphere reserves since 2008. To date, 18 projects have received support.

There are currently 15 UNESCO biosphere reserves in Germany promoting sustainable living between people and nature. In the Spreewald Biosphere Reserve two ponds are being restored with the support of Danone Waters Deutschland, while in southeast Rügen a dam is being renewed in a moor area to make it easier for the local fauna to pass through.

Parmesan cheese in Appennino Tosca Emiliano Biosphere Reserve; Italy Giuseppe Carfaana



## **NEW BIOSPHERE RESERVES IN 2016**

BIOSPHERE RESERVES are areas comprising terrestrial, marine and coastal ecosystems. Each reserve promotes solutions to reconcile the conservation of biodiversity with its sustainable use. They serve as places to test different approaches to integrated management of terrestrial, freshwater, coastal and marine resources and biodiversity. Biosphere reserves are thus sites for experimenting with and learning about sustainable development.

Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located.

In 2016, the International Coordinating Council (ICC) of the UNESCO Man and the Biosphere Programme added 19 new sites including one transboundary site to the World Network of Biosphere Reserves at its 28th session held in Lima, Peru, on 18–19 March.

One year later, the ICC added a further 24 sites including four transboundary sites to the World Network of Biosphere Reserves (WNBR) at its 29th session, held in Paris on 12–15 June.

During the same year, Bulgaria and the United States decided to withdraw sites from the Network. The withdrawn sites are Doupkata, Kamtchia and Koupena in Bulgaria, and Aleutian Islands, Beaver Creek, California Coast Ranges, Carolinian South Atlantic, Central Plains, Coram, Desert, Fraser, H.J. Andrews, Hubbard Brook, Konza Prairie, Land Between the Lakes, Niwot Ridge, Noatak, Stanislas-Tuolumne, Three Sisters and Virgin Islands in the United States (designated in 1976).

The WNBR now consists of 669 biosphere reserves including 20 transboundary sites in 120 countries.

## THE BIOSPHERE RESERVES ADDED IN 2016 WERE AS FOLLOWS:



©Tlemcen Mountain Biosphere Reserve

**Tlemcen Mountains Biosphere** 

ALGERIA

**Reserve** encompasses the same area as the Tlemcen National Park, which is located in the province of Tlemcen in north-western Algeria. The reserve covers almost 100,000 hectares and has a rich biodiversity and a semi-arid climate. The biosphere reserve includes valuable archaeological sites, cultural landmarks and caves. It has a total population of 191,544 inhabitants who engage in agricultural activities such as livestock and grain farming, and administrative and commercial activities, as well as handicrafts.

est and upland habitats provide optimal habitats for bison, deer, elk and moose, as well as diverse and abundant waterfowl, as well as an abundant beaver population. Thirty-six plants and six plant communities within the moraine are considered sensitive due to low distribution within the province. Agriculture provides a livelihood to most of the biosphere's 12,000 permanent inhabitants.



©Patrick Kane

tion Dene Déline, whose name means 'where the water flows'. Their community of 600 is established on the western shore, living of harvesting and limited tourism activity.



Lake Bosomtwe Biosphere Reserve, situated in Ghanas Ashanti region, is one of six meteoritic lakes in the world. The southernmost section of the site overlaps with the northern section of the Bosomtwe Range Forest Reserve, creating a combination of forest, wetland and mountain ecosystems. The biosphere reserve sustains 35 tree species, some of which are used for timber. The site ©Environmental Protection Agency Ghana is also home to a great diversity of wildlife and over 50,000 inhabitants whose main economic activities are farming, fishing and tourism (the lake is a major national tourist destination). The area is widely used for research especially on climate change, as well as environmental education for schools and universities.

Beaver Hills Biosphere Reserve is located in the province of Alberta in western Canada. This morainic landscape developed its characteristic Boreal-zone features of abundant wetlands, shallow lakes and rock formations during the progressive retreat of glaciers some 12,000 years ago. The reserve comprises a mixture of lands modified by agricultural activity, mixed wood forests, grasslands and wetlands. The diversity of for-

Tsá Tué Biosphere Reserve, located in Canada's Northwest Territories, is the homeland of the Sahtúto'ine (the Bear Lake People) and constitutes the first indigenous-run biosphere reserve. It includes Great Bear Lake, the last pristine arctic lake, and part of its watershed. The Taiga that covers much of the site is a vital habitat for wildlife species including the muskox, general moose and caribou. The only human residents of the site are the traditional First NaCANADA

CANADA

GHANA



©La Hotte Biosphere Reserve



©Varkey Parakkal

and Neyyar – are located in the site, as well as the Kalakad Mundanthurai Tiger reserve. A number of tribal settlements with a total population of 3,000 inhabit the biosphere reserve. They rely largely on biological resources for their sustenance, although recent projects have been set up to reduce their dependence on the forests.



©LIPI

## Belambangan Biosphere Reserve

in the province of East Java encompasses three national parks (Alas Purwo, Baluran and Meru) and one nature reserve (Kawah Ijen), with terrestrial and marine ecosystems featuring karst landscapes and savannah, as well as alpine/subalpine, upper, dry and lower montane (mountain), lowland, coastal and mangrove forests. The site also includes seagrass beds and coral reefs. The main economic activities are food crops, horticulture and agroforestry (teak and mahogany).

HAITI

INDIA

**INDONESIA** 



©Ali Mohajeran



©Ippolito Ostellino

riparian woods hosting various species. These natural features are of particular value in the densely populated environment close to the city of Turin, which has 900,000 inhabitants, and other nearby towns.



©Roman Jashenko

# La Hotte Biosphere Reserve is lo-

cated in the south-east of Haiti. It encompasses both terrestrial and marine areas. The region is a biodiversity hotspot due to its wide climate, ranging from humid to subtropical dry. The reserve covers six mountain peaks the highest of which reaches 2,347 m, as well as a coastal and marine ecosystem in the north (Iles Cayemites) and south (Ile-à-Vache). It is home to more than 850,000 inhabitants whose main economic activities are farming, agroforestry, fisheries, commerce and handicrafts.

## Agasthyamala Biosphere Reserve,

located in the Western Ghats in the south of India, has peaks reaching 1,868 m above sea level. Consisting mostly of tropical forest, the site is home to 2,254 species of higher plants including about 400 that are endemic. It is also a unique genetic reservoir of cultivated plants, in particular cardamom, jamune, nutmeg, pepper and plantain. Three wildlife sanc-

tuaries – Shendurney, Peppara

Hamoun Biosphere Reserve is ISLAMIC REPUBLIC located in the southeast of the country. It includes terrestrial and wetland ecosystems with a total of seven habitat types, including desert and semi-desert areas and the marshlands and watersheds of Hamoun Lake. The three wetlands of the biosphere reserve are the most important in the region. The area is also a hotspot for migratory birds (183 species) and is home to 30 mammal species and 55 plant species. The site is of significant cultural value due to the presence of important historical monuments and ancient temples.

Collina Po Biosphere Reserve is located in the north Italian Piedmont Region and covers the entire stretch of the River Po near Turin including its main tributaries and the Collina Torinese hillside. The River Po is the main reservoir of biodiversity on the Turin plain, due in part to the myriad wetlands along its course. Its physical and geological characteristics have led to the formation of numerous gravelly shores, oxbows and

Barsakelmes Biosphere Reserve

is situated in the Sahara-Gobi Desert zone of the Aral Sea basin. The Aral Sea is a priority area for wetland conservation as bird migration routes converge over the region. The territory of the proposed biosphere reserve includes approximately 2,000 species of invertebrates, 30 mammal species, 178 bird species and 20 reptile species, and is a key location for the preservation of biodiversity in the Aral Sea. The reserve also includes four nomadic Kazakhs medieval archaeological sites that formed part of the Silk Roads.

## **OF IRAN**

ITALY

**KAZAKHSTAN** 



Belo-sur-Mer – Kirindy-Mité Biosphere Reserve, situated on the western coast of the island, includes an upstream watershed and marine and coastal ecosystems downstream. It comprises a mosaic of rich but fragile ecosystems such as dry forests, thickets, thorn forests, savannahs, salty swampy depressions known as 'tannes', mangroves and coral reefs. The reef is a feeding area for spectacular marine megafauna including

Isla Cozumel Biosphere Reserve,

situated off the southeastern

coast of the country. The reserve

encompasses diverse marine and

terrestrial ecosystems rich in am-

phibian and reptile species. The

main terrestrial ecosystems are

medium semi-deciduous forests and mangroves. The biosphere

reserve forms part of the second

largest reef system in the world,

the Mesoamerican Reef, which

is home to 1,192 marine species.

©Madaaascar National Parks

whales (humpback), dolphins, dugongs and marine turtles. People in the area rely on these natural resources for their livelihood and income. The site's marine biodiversity, islands and two sacred salted lakes are also home to the Lesser Flamingo (Phoenicopterus minor), making them valuable assets for tourism. Aquaculture, pelagic fishing and salt production also contribute to the development potential of the biosphere reserve.



## ©CONANP

Nearly 80,000 people live in the biosphere reserve, mainly in the city of San Miguel. Tourism is the most developed sector on the island, which has close to 40 Mayan archaeological sites.



©Atlas Cedar Biosphere Reserve

Atlas Cedar (Cèdre de l'Atlas) Biosphere Reserve, situated in the central Atlas Mountains, is home to 75% of the world's majestic Atlas cedar tree population. It is rich in ecosystems, and its peaks, which reach up to 3,700 m, provide the region with critically important water resources. Fruit plantations, modern agriculture and tourist activities, which have taken the place of semi-nomadic pastoral traditions, are taking their toll on scarce water resources. The rich local Berber culture is particularly strong in this area.

## MADAGASCAR

MEXICO

MOROCCO



*⊜*∧*M*P/

to an archaeological site in the Andean cloud forests of Peru, which provides insights into pre-Inca society. The biosphere reserve is also home to more than 170,000 people, whose main economic activities are agriculture (cacao, coffee), livestock and mining.



©Mervin V. Gutierez

cies of seaweed or macro-algae, and 10 species of sea grass. Five of the world's seven species of marine turtles are also found in Albay. Agriculture is the main source of income in the reserve.



©Fajas de Sao Jorge invertebrate, terrestrial arthropod, mollusc and bird species, as well as 9,000 people.

Gran Pajatén Biosphere Reserve, Located in the Central Cordillera. is characterized by high altitudes and a pristine ecosystem. It encompasses the National Park del Río Abiseo, which is inscribed on UNESCO's World Heritage List. The site is home to fauna and flora of rainforests characteristic of this region of the Andes and has a high level of endemism. It is the only place on Earth where the yellowtailed woolly monkey, previously thought to be extinct, is found. Gran Pajatén also lends its name

Albay Biosphere Reserve, located at the southern end of the Luzon Island, covers some 250,000 hectares. The terrestrial elevation of the site culminates at 2,462 m, while the marine part of the reserve reaches a depth of 223 m below sea level. The site's high conservation value is tied to 182 terrestrial plant species, 46 of which are endemic. Its marine and coastal ecosystems include 12 species of mangrove, 40 spe-

Fajãs de São Jorge Biosphere Reserve covers the entire Island of São Jorge, the fourth largest island in the Archipelago of the Azores. The highest elevation on the island is the Pico da Esperança at 1,053 m. The island's rugged coastal cliffs form a unique landscape of highland meadows, peat bogs and scrubs. The combination of high altitude and coastal ecosystems has resulted in a wealth of endemic terrestrial flora. The reserve is also inhabited by diverse

## PERU

## PHILIPPINES

PORTUGAL



Tejo/Tajo Internacional Transboundary Biosphere Reserve is located in the western part of the Iberian Peninsula. The area is shared between Portugal and Spain with the Tajo River as its main axis. Low altitudes and sharp relief characterize the reserve, whose vegetation consists largely of cork oak formations and patches of scrub, as well as cultivated areas and pastures. Typical Mediterranean fauna include many rare species,

Jozani – Chwaka Bay Biosphere

Reserve contains the only national

park on the island of Zanzibar. Its

landscape is a mosaic of man-

groves, tropical forests and coral

rug forests, as well as groundwa-

ter, salt marshes, and agricultural

and residential areas. The site is a biodiversity hotspot home to reef

fish species, dolphins and 168 spe-

cies of birds, including 30 species

of global and regional importance.

Out of the site's 291 known plant

species, 21 are considered to be endangered. The inhabitants of

the most important of which are the European imperial eagle, Bonelli's eagle, the black stork, the black vulture and the otter. Livestock and forestry are the main sources of income for the island's small population.



©Olivier Leiade

the reserve live mainly from activities related to tourism, fishing, beekeeping, butterfly rearing and crab fattening.

of European eel, Atlantic cod and basking sharks, among others. In the countryside,

farming activities centre on sheep and cattle livestock, as well as arable areas. The sea

is harvested for shellfish. The island has been a popular tourist destination since the late nineteenth century and has experienced notable developments in services and



©∆llan Brown

Isle of Man Biosphere Reserve, UNITED KINGDOM located in the Irish Sea, is home to more than 80,000 people. Cliffs, stacks, islets and long beaches shape the coastline. The hills have important peat reserves and are deeply cut by wooded glens in the east, while grasslands, pools and wetlands cover the coastal plain in the north. The site's marine environment is rich in biodiversity and harbours important populations

OF GREAT BRITAIN AND NORTHERN IRELAND

PORTUGAL

SPAIN

## UNITED REPUBLIC

**OF TANZANIA** 

## **EXTENSION AND RENAMING OF EXISTING BIOSPHERE RESERVES**

The Honduran part of the Tri-national Trifinio Frate Reserve, which is shared between El Salvador, Gua tended. The area contains an important water catchi and covers a surface area of 278,762.89 ha includir

Designated in 2004 as the Selve Pisana Biosphere, sphere Reserve is located along the Mediterranea extension of the reserve will add more than 43,000 area and lands in Monte Pisani. The extension should tion of sustainable activities in agriculture, silvicult

The Mount Hakusan Biosphere Reserve was design subalpine and montane zones located around Mon 2,700 m. The extension represents a four-fold incre Historic Villages of Shirakawa-go and Gokayama V reserve is home to 17,000 people.

Designated in 1980 under the name Yakushima, th Jima Biosphere Reserve, located 60 km south of the its primeval Yaku cedar forest. It encompasses the Heritage List under the name of Yakushima, and wi entire island as well as the island of Kuchinoerabu

Designated as Mount Odaigahara and Mount Omir Mount Odaigahara, Mount Omine and Osugidani insula of Honshu Island is a mountainous area when agriculture. The extension increases the surface area to its initial area of 36,000 ha.

## The Noroeste Amotapes-Manglares Biosphere Rese

of Peru, was designated in 1977 as the Noroeste B the Cerros de Amotape National Park, Coto El Angolo Area. The extension covers a surface area of 1,115,94

Designated in 1982, the Mount Sorak Biosphere Res Baekdudaegan Mountain Range, which includes the its extension, the biosphere reserve now covers an ar inhabited areas, forests and agricultural lands arou

One thousand islands have been added to the arc Biosphere Reserve, which was designated in 2009 of the country. The extension includes tidal flats an

Formerly known as Beinn Eighe, the Wester Ross B northwest of Scotland, was designated in 1976. Wit site now includes Loch Maree, international recogniz diver population.

## 48 MAN AND THE BIOSPHERE PROGRAMME BIANNUAL ACTIVITY REPORT 2016-2017

manufacturing over recent decades.

HONDURAS	rnidad Transboundary Biosphere Itemala and Honduras, is being ex- ment shared by the three countries ng six national protected areas.
ITALY	the <b>Selve Costiere di Toscana Bio-</b> an coast of Italy, west of Pisa. The ha covering two plain zones, a hilly d pave the way for the implementa- ure and tourism.
JAPAN	ated in 1980 and comprises alpine, unt Hakusan, whose peak reaches ease of the site and will include the Vorld Heritage site. The biosphere
JAPAN	he <b>Yakushima and Kuchinoerabu</b> e Island of Kyushu, is renowned for entire area inscribed on the World ith the recent extension covers the and the surrounding marine area.
JAPAN	ne Biosphere Reserve in 1980, the <b>Biosphere Reserve</b> in the Kii Pen- re forestry is more developed than of the site to 120,000 ha, compared
PERU	<b>erve,</b> located off the northern coast biosphere Reserve. It now includes and Tumbes Mangroves Protected 47 ha.
REPUBLIC OF KOREA	<b>serve</b> is located in the centre of the e highest peak in the country. With rea of 76,000 ha and encompasses and Mount Sorak National Park.
REPUBLIC OF KOREA	chipelago of the <b>Shinan Dadohae</b> , and is situated in the south-west ad other natural protected areas.
UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	<b>Biosphere Reserve</b> , situated in the th the addition of 530,000 ha, the zed for its important black-throated

## **NEW BIOSPHERE RESERVES IN 2017**



Mono Transboundary Biosphere Reserve, located in the southern parts of Benin and Togo, stretches over the alluvial plain, delta and coast of the Mono River. It brings together Benin's and Togo's national biosphere reserves of the same name and features a mosaic of landscapes and ecosystems, mangroves, savannahs, lagoons and flood plains, as well as forests, some of which are sacred. The biosphere reserve is home to 2 million people, whose main activity

is small-scale farming (palm oil and coconuts), livestock grazing, forestry and fishing.



© Savegre Biosphere Reserve

ate and avocado. During recent years, ecotourism has increased and has become a source of socio-economic growth in the region.



### ©Thomas Ix

other wild fruit, contribute to the socio-economic development of communities in the area. Ecological tourism is an activity that could be exploited further.

**Savegre Biosphere Reserve** is located on the central Pacific coast, 190 km from the capital, San José. The reserve has high biodiversity value, hosting 20% of the total flora of the country, 54% of its mammals and 59% of its birds. It is home to approximately 50,000 inhabitants, whose main activities are agriculture and livestock rearing. Crop production is significant in high altitude areas, including

plantations of apple, pomegran-

Møn (Moen) Biosphere Reserve

is located in Inner Mongolia and

represents an important part

of the Taiga distributed across

China. It protects the diversity of both forest and wetland ecosys-

tems, extending over a total area

of 148,948 hectares. The natural

vegetation is intact, owing to very

limited interaction with human-

kind. The cold temperate conifer-

ous forest is the best-preserved

forest type in China and is of high

scientific value. Forest products

from this site, such as bilberry and

DENMARK

COSTA RICA

BENIN TOGO



©Dieufort Deslorges



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one of the most important biodiversity hotspots in the world. This region has 59 endemic species of which 14 are threatened. Most of its 617,000 inhabitants make a living from livestock and tourism.



©UNESCO/ Benno Boer

La Selle-Jaragua-Bahoruco Transboundary Biosphere Reserve includes the reserve of La Selle in Haiti, designated in 2012, and the reserve of Jaragua-Bahoruco in the Dominican Republic, designated in 2002. These two reserves constitute ecological corridors divided by a political and administrative frontier. Their unification is designed to enable better management of the environment..

Bosques de Paz Transboundary Biosphere Reserve, located in the southwest of Ecuador and in the northwest of Peru, covers a total area of 1,616,988 ha. It includes territories in the western foothills of the Andes, with altitudes reaching up to 3,000 m, which have generated biodiversity with a high degree of endemism. The biosphere reserve encompasses the seasonally dry forests of Peru and Ecuador, which form the heart of the Endemic Region of Tumbes, e world. This region has 59 endemic

The Majang Forest Biosphere **Reserve,** located in the west of the country, covers of the most fragmented and threatened regions in the world. The landscape is characterized by Afromontane forests and also includes several wetlands and marshes. The vegetation at altitudes above 1,000 m chiefly consists of ferns and bamboo, while palm trees cover the lower altitudes. This biodiversity-rich region is home to 550 higher plant species, 33 species of mammal and 130 species of birds, alongside a human population of about 52,000 inhabitants.

## HAITI DOMINICAN REPUBLIC

ECUADOR PERU

**ETHIOPIA** 



<sup>©</sup>Hansen



©ICF



©Torpe

## Black Forest Biosphere Reserve,

located in the south of the country, encompasses low mountain ranges, forests shaped by silviculture, lowland and mountain hay meadows, and lowland moors. The total surface area of the site covers 63,325 ha, 70% of which is forested. About 38,000 inhabitants live in the area, preserving its traditions and maintaining a significant craft industry. Sustainable tourism is widely encouraged.

### San Marcos de Colón Biosphere

Reserve covers a surface area of 57,810 ha and is located some 12 km from the Nicaraguan border at an altitude of 500 to 1700 m. The reserve is characterized by significant biodiversity and the presence of several endemic species of fauna. 18 villages are located on the site with a local population of 26,350 inhabitants. Their principal activities are horticulture, fruit and coffee production, ornamental plant growing, cattle rearing and dairy production. The region is also known for its saddlery products (belts, harnesses, boots, etc).

**Tepilora, Rio Posada and Montalbo Biosphere Reserve,** located in Sardinia, has a total surface area of over 140,000 ha, with mountainous areas to the west including the Montalbo massif and a flat strip to the east, along with rivers and coastal areas. Around 50,000 people live on the reserve.

## GERMANY

HONDURAS

ITALY





©Minakami Biosphere Reserve



©Roman Jashenko

marshes. About 4,000 inhabitants reside in the reserve and make their living mainly from agriculture and cattle rearing, as well as ecotourism and recreational tourism.

The Sobo, Katamuki and Okue Biosphere Reserve forms part of the Sobo-Katamuki-Okue mountain range, and is characterized by precipitous mountains. Forests cover 85% of the 243,672 ha of the site, which is a hotspot of biodiversity in the region. The area has fewer than 100,000 inhabitants whose livelihoods comes from farming and exploiting forest resources, including wood production, shitake mushroom cultivation and charcoal production.

**Minakami Biosphere Reserve** is located on the island of Honshu where the main river is divided by a 2,000 m-high mountain range. Significant environmental differences between the eastern and western slopes and the mountainous and lowland regions have created distinctive areas of biological and cultural diversity. More than 21,000 people live on the reserve, which covers a total of 91,368 ha. The main activities are agriculture and tourism.

## Altyn Emel Biosphere Reserve

covers the same areas as the Altyn Emel state national nature park, one of the country's protected areas. The site includes a large number of endemic plants and is therefore considered to be highly important for the conservation of the region's biological diversity. The reserve features a variety of different landscape types including desert, riparian forest and floodplains of the Ili River, deciduous and spruce forests, and salt serve and make their living mainly purism and recreational tourism. JAPAN

JAPAN

KAZAKHSTAN



Karatau Biosphere Reserve is located in the central part of the Karatau ridgeway, a branch of the Northwestern Tien Shan - one of the world's largest mountain ranges. It covers a total surface area of 151,800 ha and is inhabited by 83,000 people. The reserve's ecosystems are considered to be extremely important for the conservation of West Tien Shan biodiversity. Karatau is also foremost among Central Asian regions

©Roman Jashenko

in terms of wealth of endemic species. The region's economy rests primarily on cattle rearing, agriculture, ecotourism and recreational tourism.



The Great Altay Transboundary Biosphere Reserve represents the fusion of the Katunskiy Biosphere Reserve (Russian Federation, designated in 2000) and the Katon-Karagay Biosphere Reserve (Kazakhstan, designated in 2014). The transboundary reserve has a surface area of over 1.5 million ha, where the inhabitants make their living from livestock rearing, grazing, red deer farming, fodder production and apiculture. Tourism,

©Great Altav Biosphere Reserve

hunting, fishing and the collection of non-timber forest products are also widespread.



### ©Yarzaryeni

## The Indawgyi Biosphere Reserve

covers a total surface area of 133,715 ha. It includes the largest body of freshwater in Myanmar, Indawgyi Lake, which features floating vegetation areas, as well as a swamp forest and seasonally flooded grasslands. Subtropical moist broadleaf forests cover the hills surrounding the lake and harbour a number of threatened forest birds and mammals, including primates. The local population derives most of its income from farmlands bordering the lake.

## KAZAKHSTAN

**KAZAKHSTAN** 

FEDERATION

MYANMAR

RUSSIAN



©Gadabedii Biosphere Reserve



©Itaipu Binacional

wealth of species and the presence of primary forest cover. It is home to large predators such as harpies, jaguars and pumas, and large herbivores such as tapirs. It has a permanent population of over 450,000 inhabitants.



Castro Verde Biosphere Reserve, located in southern Portugal in the hinterland of the Baixo Alentejo region, covers an area of almost 57,000 ha. It includes the most important cereal steppe area in Portugal – one of the most threatened rural landscapes in the Mediterranean region. The flora is characterized by a high degree of endemism. The bird community encompasses some 200 species, including steppe birds such as the ©LPN great bustard and endemic species such as the Iberian Imperial eagle, one of the most endangered birds of prey in the world. Some 7,200 inhabitants make a living from the extensive production of cereals and livestock rearing in the reserve.

Gadabedji Biosphere Reserve is located in the centre of Niger. It extends over an area of 1,413,625 ha. It consists of a mosaic of savannahs, depressions, pits and sand dunes. Its fauna includes mammals such as the dorcas gazelle, pale fox and golden jackal. The human population of the reserve totals almost 20,000 inhabitants, and consists of two main ethnic groups, the Touaregs and Peulhs, whose main activity is nomadic pastoralism.

Itaipu Biosphere Reserve, located in the east of the country, covers a surface area of over a million hectares. It comprises an area of semi-deciduous sub-tropical forest also known as the Upper Paraná Atlantic Forest. It is one of the most important ecosystems for the global conservation of biological diversity, due to its significant number of endemic species, the

NIGER

PARAGUAY

PORTUGAL



©Tatiana Shemyakina



©Kizlyar Bay Biosphere Reserve



© Igor Georgievskiy

Khakassky Biosphere Reserve is located at the heart of the Eurasian continent and renowned for its rich biodiversity. It has a surface area of almost 2 million hectares, 80% of which is covered by mountaintaiga. The reserve is home to 5,500 permanent inhabitants, whose main economic activities include sustainable forest management and agriculture, beekeeping and tourism.

Kizlyar Bay Biosphere Reserve is one of the largest bays in the Caspian Sea and one of the most important migratory routes for birds in Eurasia. It includes a diversity of marine, coastal and desert-steppe ecosystems, including populations of threatened animals such as the Caspian seal, many species of birds and sturgeons. The surface area covers 354,100 ha, and is home to a permanent population of 1,600 inhabitants who depend on fishing, land use (grazing and

haymaking), hunting and tourism.

Metsola Biosphere Reserve, located at the border with Finland, covers a surface area of 345,700 ha and incorporates the Kostomukshsky Reserve. It boasts one of the oldest intact north-taiga forests in north-west Russia, which plays a vital role in the reproduction of many bird species. Some 30,000 permanent inhabitants live in the reserve and make their living from forestry, agriculture, fishing, hunting and the gathering of nontimber forest products.

RUSSIAN FEDERATION

RUSSIAN FEDERATION

RUSSIAN FEDERATION



alluvial wetlands, as well as flood-protected forests. The main activities of the 147,400 inhabitants are agriculture, forestry and industry.



**Garden Route Biosphere Reserve** is a biodiversity hotspot and forms part of the Cape Floristic Region. The reserve includes the Knysna estuary, which plays an important role in the conservation of this biodiversity. The eastern part of the biosphere reserve is characterized by the presence of wetlands, which face potential negative impacts from farming practices and urban development. The faunal diversity ©Garden Route Biosphere Reserve includes large mammals such as elephants, rhino and buffalo. The reserve covers a total area of 698,363 ha and has a population of over 450,000.



© Jebel Al Dair Biosphere Reserve

SERBIA

Backo Podunavlje Biosphere Reserve. located in the north-western part of Serbia, has a surface area of 176,635 ha and extends over the alluvial zones of the central Danube plain. It is composed of remnants of historic floodplains and human-made landscapes influenced by agriculture and human settlements. The floodplain includes alluvial forests, marshes, reed beds, freshwater habitats and

## Jebel Al Dair Biosphere Reserve

encompasses the Al Dair massif, dry savannah woodlands, forested ecosystems and a network of streams. It is one of the last remaining areas with rich biodiversity in the semi-arid North Kordofan. The site hosts 112 plant species, most of which have medicinal and aromatic uses. There are also 220 bird species and 22 mammal and reptile species.

## SOUTH AFRICA

SUDAN

## EXTENSION AND RENAMING OF EXISTING BIOSPHERE RESERVES

Extension and renaming of the former Fitzgerald River National Park Biosphere Reserve. Located in the state of Western Australia, the <b>Fitzgerald Biosphere Reserve</b> was origi- nally designated in 1978. With its extension, the reserve will now cover a total surface area of 1,530,000 ha. The main ecosystems represented are forests, river basins, small mountain ranges, wetlands and estuaries.	AUSTRALIA	Designated in 1983, the <b>Marismas del Odiel Biosp</b> of Cadiz in the southwestern part of the Iberian Pe has been increased from 7,158 ha to 18,875 ha and The biosphere reserve occupies the mouth of the C as well as a coastal fringe.
Located in the centre of the country, the <b>Central Balkan Biosphere Reserve</b> encom- passes four existing biosphere reserves: Steneto, Tsaritchina, Djendema and Boatin, all designated in 1977. The new reserve includes the Central Balkan national park and contains rare and endangered wildlife species. It contains the most important old beech forest massif in the country (71% of the national park). The main activities in- clude transhumance, grazing and hiking tourism. The total area of the reserve covers 369,000 ha with a population of 129,600 inhabitants.	BULGARIA	Designated in 1981, the <b>Lake Manyara Biosphere F</b> Rift Valley. It has a surface area of 346,741 ha and a ants. It includes the Lake Manyara National Park an Area, while the presence of Maasai pastoralists ca century. It is home to many animal species such a and the common genet, as well as several threate
Designated in 1977, the <b>Chervenata Stena Biosphere Reserve</b> will now cover a surface area of 65,409 ha with the extension. Located in the south Bulgarian mountains, it contains mid-mountainous forest landscapes as well as high mountain meadows. The main activities of the reserve's 60,000 inhabitants are organic agriculture, stockbreed-ing and ecotourism.	BULGARIA	The <b>Serengeti-Ngorongoro Biosphere Reserve</b> co and was originally designated in 1981. It includes Ngorongoro Conservation Area in the north of Tar wildebeest, 900,000 Thompson gazelle and 300,0 antelopes and primates are also well represented main predator species including lions, leopards,
Designated in 1977, the <b>Srébarna Biosphere Reserve</b> is located in the northeast of the country and covers a surface area of 52,000 ha with a population of 61,365. It has a high level of biodiversity. The existing biosphere reserve has been extended to include the municipality of Silistra, which hosts numerous cultural events and traditional festivals.	BULGARIA	The <b>East Usambara Biosphere Reserve</b> , designate ecosystem that includes fragments of tropical for
About 3,700 people live in the <b>Uzunbudzhak Biosphere Reserve,</b> which has a surface area of 78,425 ha, and was designated a biosphere reserve in 1977. The landscape is among the most representative of Europe, characterized by temperate forests with evergreen laurel undergrowth. The reserve includes the Strandja National Park which is rich in biodiversity and karst caves.	BULGARIA	water source for neighbouring communities and a surface area of 83,994 ha and a human population species such as the Usambara eagle owl, the Usan <b>Congaree Biosphere Reserve</b> – Renaming of the So
<b>Kerry Biosphere Reserve</b> – Renaming of the Killarney Biosphere Reserve, designated in 1982.	IRELAND	Reserve, designated in 1983. <b>Crown of the Continent Biosphere Reserve</b> – Renan
<b>Meggido Biosphere Reserve</b> — Renaming of the Ramat Menashe Biosphere Reserve, designated in 2011.	ISRAEL	The two Brazilian biosphere reserves of <b>São Paulo G</b>
Designated in 1977, the <b>Manu Biosphere Reserve</b> is located between the regions of Cusco and Madre de Dios. It has a large diversity of ecosystems ranging from high grasslands to tropical rainforests and cloud forests. It contains almost all the ecosystems, flora and fauna of the Peruvian Amazon. With this extension the area of the reserve increases from 1,881,200 ha to 2,438,956 ha.	PERU	were formerly joined under the name of Mata Atlä separate and distinct biosphere reserves.
The <b>Masurian Lakes Biosphere Reserve,</b> originally designated in 1976 as Lake Luknajno Biosphere Reserve, is located in northern Poland. The extension increases the area of the reserve from 1,400 ha to 58,693 ha. The reserve is home to a population of nearly 8,300 people.	POLAND	

SPAIN	<b>here Reserve</b> is located in the Gulf insula. The surface area of the site is home to a population of 33,700. diel River in the province of Huelva,
TANZANIA	eserve is located in the East African population of over 257,000 inhabit- d the Burunge Wildlife Conservation n be dated back to the eighteenth the spotted hyena, hippopotamus ned species.
TANZANIA	vers a surface area of 4,397,314 ha he Serengeti National Park and the zania. It supports about 1.5 million o zebra. Topis, giraffes, black rhino, . The large herbivores support five sheetahs, spotted hyenas and wild aasai people. It has a fast-growing
TANZANIA	d in 2000, is a representative forest ests and forms part of the Eastern ts. The mountains are an important he city of Tanga. The reserve has a of 184,253, and is home to endemic bara weaver and the African violet.
UNITED STATES	uth Atlantic Coastal Plain Biosphere
UNITED STATES	ing of the Glacier Biosphere Reserve,
BRAZIL	een Belt and Mata Atlântica, which

## MAP OF THE WORLD NETWORK OF BIOSPHERE RESERVES



## WORLD NETWORK OF BIOSPHERE RESERVES 2017 – 2018

## ALB – Albania

Ohrid-Prespa, tb. with Former Yugoslav Republic of Macedonia, 2014

## **ARE – United Arab Emirates**

Marawah, 2007

## ARG – Argentina

San Guillermo, 1980 Laguna Blanca, 1982 Costero del Sur, 1984 Nacuñán, 1986 Laguna de Pozuelos, 1990 Yabotí, 1995 Mar Chiquita, 1996 Delta de Paraná, 2000 Laguna Oca y Herraduras del Río Paraguay, 2001, ext.&ren. 2014 Riacho Teuquito, 2001 Las Yungas, 2002 Andino Norpatagónica, 2007 Perevra Iraola, 2007 Valdés, 2014 Patagonia Azul, 2015

## AUS – Australia

Croajingolong, 1977 Kosciuszko, 1977 Prince Regent River, 1977 Riverland, 1977, ext.&ren. 1995&2004 BOL – Bolivia Uluru, Ayers Rock-Mount Olga, 1977 Unnamed, 1977 Yathong, 1977 Fitzgerald River, 1978 Hattah-Kulkyne & Murray-Kulkyne, 1981 Wilson's Promontory, 1981 Mornington Peninsula and Western Port, 2002 Barkindji, 2005 Noosa, 2007 Great Sandy, 2009

## AUT – Austria

Großes Walsertal, 2000 Wienerwald, 2005 Salzburger Lungau und Kärntner Nockberge, 2012

## **BEN** – Benin

Pendjari, 1986 W Region, 1996, ext.&tb. with Burkina Faso and Niger 2002

## **BFA** – Burkina Faso

Mare aux hippopotames, 1986 W Region, 1996, ext.&tb. with Benin and Niger 2002

## BGR – Bulgaria

Alibotouch, 1977 Bistrichko Branichté, 1977 Central Balkan, 1977, ren. and ext. by three separate biosphere reserves, 2017 Doupki-Djindjiritza, 1977 Mantaritza, 1977 Uzunbudzhak, 1977, ext. 2017 Parangalitza, 1977 Srébarna, 1977, ext. 2017 Chervenata Stena, 1977, ext. 2017 Tchoupréné, 1977

## BLR – Belarus

Berezinskiy, 1978 Belovezhskaya Puschcha, 1993 West Polesie, 2003; ext., ren., and tb. with Poland and Ukraine, 2012

Pilón - Lajas, 1977 Ulla Ulla, 1977 Beni, 1986

## BRA – Brazil

Mata Atlântica, 1993, ext. 2002 & 2009 Cerrado, 1994, ext. 2000&2001 Pantanal, 2000 Caatinga, 2001 Central Amazon, 2001 Espinhaco Range, 2005 São Paulo City Green Belt, until 2017 registered as part of Mata Atlântica. Fanjingshan, 1986

## CFA – Central African Republic

Basse-Lobaye, 1977 Bamingui-Bangoran, 1979

## CAN – Canada

Mont Saint Hilaire, 1978 Waterton, 1979 Long Point, 1986 Riding Mountain, 1986 Charlevoix, 1988 Niagara Escarpment, 1990 Clayoquot Sound, 2000 Lac Saint-Pierre, 2000 Mount Arrowsmith, 2000 Redberry Lake, 2000 South West Nova, 2001 Thousand Islands - Frontenac Arch, 2002 Georgian Bay Littoral, 2004 Fundy, 2007 Manicouagan Uapishka, 2007 Bras d'Or Lake, 2011 Beaver Hills, 2016 Tsá Tué, 2016

## CHE – Switzerland

Val Müstair - Parc Naziunal, 1979, ext.&ren. 2010 Entlebuch. 2001

## CHL – Chile

Fray Jorge, 1977, ext. 2012 Juan Fernández, 1977 Torres del Paine, 1978 Laguna San Rafael, 1979 Lauca, 1981 Araucarias, 1983, ext. 2010 La Campana-Peñuelas, 1984, ext. 2009 Cabo de Hornos, 2005 Bosques Templados Lluviosos de Los Andes Australes, 2007 Corrredor Biológico Nevados de Chillán - Laguna de Laja, 2011

## CHN – China

Changbaishan, 1979 Dinghushan, 1979 Wolong, 1979 Wuyishan, 1987 Xilin Gol, 1987 Bogeda, 1990 Shennongjia, 1990 Yancheng, 1992 Xishuangbanna, 1993 Maolan, 1996 Tianmushan, 1996

Fenglin, 1997 Jiuzhaigou Valley, 1997 Nanii Islands, 1998 Baishuijiang, 2000 Gaoligong Mountain, 2000 Huanglong, 2000 Shankou Mangrove, 2000 Baotianman, 2001

Saihan Wula, 2001 Dalai Lake, 2002 Wudalianchi, 2003 Yading, 2003 Foping, 2004 Qomolangma, 2004 Chebaling, 2007 Xingkai Lake, 2007 Mao'er Mountain, 2011 Jinggangshan, 2012 Niubeiliang, 2012 Snake Island - Laotie Mountain, 2013 Hanma, 2015

## CIV – Republic of Côte d'Ivoire

## Comoé, 1983

CMR – Cameroon Waza, 1979 Benoué, 1981 Dja, 1981

Taï, 1977

## COD – Democratic Republic

of the Congo Luki, 1976 Yangambi, 1976 Lufira, 1982

COG – Congo Odzala, 1977 Dimonika, 1988

## COL – Colombia Cinturon Andino, 1979 El Tuparro, 1979 Sierra Nevada de Santa Marta, 1979 Ciénaga Grande de Santa Marta, 2000

## CRI – Costa Rica

Seaflower, 2000

La Amistad, 1982 Cordillera Volcánica Central, 1988, ext. 2010 Agua y Paz, 2007

## CUB – Cuba

Sierra del Rosario, 1984 Baconao, 1987 Cuchillas de Toa, 1987 Península de Guanahacabibes, 1987 Buenavista, 2000 Ciénaga de Zapata, 2000

### CZE – Czech Republic

Krivoklátsko, 1977 Trebon Basin, 1977 Lower Morava, 1986, ext.&ren.2003 Sumava, 1990 Krkonose/Karkonosze, tb. with Poland, 1992 Bílé Karpaty, 1996

## **DEU** – Germany

Flusslandschaft Elbe, 1979 Vessertal-Thüringer Wald, 1979, ext.&ren. 1987&1990 Berchtesgadener Land, 1990, ext.&ren. 2010 Schleswig-Holstenisches Wattenmeer, Halligen, 1990, ext.&ren. 2004 Schorfheide-Chorin, 1990 Rhön, 1991, ext. 2014 Spreewald, 1991 Südost-Rügen, 1991 Hamburgisches Wattenmeer, 1992 Niedersächsisches Wattenmeer, 1992 Vosges du Nord/Pfälzerwald, 1992; tb. with France, 1998 Oberlausitzer Heide- und Teichlandschaft, 1996 Schaalsee, 2000 Bliesgau, 2009 Schwäbische Alb, 2009

## DNK – Denmark North-East Greenland, 1977

DOM – Dominican Republic

DZA – Algeria Tassili N'Ajjer, 1986 El Kala, 1990

Djurdjura, 1997 Chrea, 2002 Gouraya, 2004 Taza, 2004

Jaragua-Bahoruco-Enriquillo, 2002

Belezma, 2015 Monts de Tlemcen, 2016

## ECU – Ecuador

Archipiélago de Colón, Galápagos, 1984 Yasuní, 1989 Sumaco, 2000, ext. 2002 Podocarpus - El Cóndor, 2007 Macizo del Cajas, 2013 Bosque Seco, 2014, tb. Bosques de Paz with Peru, 2017

## EGY – Egypt

Omayed, 1981, ext. 1998 Wadi Allagi, 1993

## ESP – Spain

Grazalema, 1977 Ordesa-Viñamala, 1977, ext. 2013 Montseny, 1978 Doñana, 1980 La Mancha Húmeda, 1980 La Palma, 1983, ext.&ren. 1997&2002 Las Sierras de Cazorla y Segura, 1983 Marismas del Odiel, 1983 Urdaibai, 1984 Sierra Nevada, 1986 Cuenca Alta del Río Manzanares, 1992 Lanzarote, 1993 Menorca, 1993, change in zonation 2004 Sierra de las Nieves y su Entorno, 1995 Cabo de Gata-Nijar, 1997 Isla de Hierro, 2000 Bardenas Reales, 2000 Muniellos, Gran Cantábrica, 2000, ext. 2003 Somiedo, 2000 Redes, 2001 Las Dehesas de Sierra Morena, 2002 Terras do Miño, 2002 Valle de Laciana, Gran Cantábrica, 2003 Monfragüe, 2003 Picos de Europa, Gran Cantábrica, 2003 Valle de Jubera, Leza, Cidacos y Alhama, 2003 Babia, Gran Cantábrica, 2004 Alto de Bernesga, Gran Cantábrica, 2005 Área de Allariz, 2005 Gran Canaria, 2005 Los Argüellos, Gran Cantábrica, 2005 Los Valles de Omaña y Luna, 2005 Sierra del Rincón, 2005

Las Sierras de Béjar y Francia, 2006 Los Ancares Leoneses, Gran Cantábrica, 2006 Los Ancares Lucenses y Montes de Cervantes, Navia y Becerrea, Gran Cantábrica, 2006 Reserva de la Biosfera intercontinental del Mediterraneo, Gorges du Gardon, 2015 tb. with Morocco, 2006 Rio Eo, Oscos y Terras de Buron, 2007 **FSM – Federated States** Fuerteventura, 2009 Gerês, tb. with Portugal, 2009 La Gomera, 2012 Las Ubinas - La Mesa, 2012 Marinas Corunesas e Terras do Mandeo, 2013 Terres de l'Ebre, 2013 Real Sitio de San Ildefonso – El Espinar, 2013 Macizo de Anaga, 2015 Meseta Ibérica, tb. with Portugal, 2015 Tejo/Tajo Internacional, tb. with Portugal, 2016

## EST – Estonia

West-Estonian Archipelago, 1990

## ETH – Ethiopia

Kafa, 2010 Yayu, 2010 Sheka, 2012 Lake Tana, 2015

## FIN – Finland

North Karelian, 1992 Achipelago Sea Area, 1994

## FRA – France

Camargue, Rhône-Delta, 1977, ext.&ren. 2006 Commune de Fakarava, 1977, ext.&ren. 2006 Vallée du Fango, 1977, ext. 1990 Cévennes, 1984 Iles et Mer d'Iroise, 1988, ext.&ren. 2012 Vosges du Nord / Pfälzerwald, 1988; tb. with Germany, 1998 Mont Ventoux, 1990

Archipel de la Guadeloupe, 1992 Luberon-Lure, 1997, ext.&ren. 2010 Fontainebleau et du Gâtinais, 1998. ext.&ren. 2010 Bassin de la Dordogne, 2012 Marais Audomarois, 2013 Mont-Viso, tb. with Italy, 2013

## of Micronesia Utwe, 2005 And Atoll, 2007

GAB – Gabon Ipassa-Makokou, 1983

## **GBR** – United Kingdom

Wester Ross, 1976, ext.&ren. 2016 Braunton Burrows - North Devon, 1976, ext. 2002 Biosffer Dyfi, 1976, ext.&ren. 2009 Galloway and Southern Ayrshire, 2012 Lake Fertö, 1979 Brighton and Lewes Downs, 2014 Isle of Man. 2016

## GHA – Ghana

Bia, 1983 Songor, 2011 Lake Bosomtwe, 2016

## GIN – Guinea

Massif du Ziama, 1980 Monts Nimba, 1980 Badiar, 2002 Haut Niger, 2002

### GNB – Guinea-Bissau Boloma Bijagós, 1996

## GRC – Greece

Gorge of Samaria, 1981 Mount Olympus, 1981

## GTM – Guatemala

Maya, 1990 Sierra de Las Minas, 1992 Trifinio Fraternidad, tb. with El Salvador and Honduras, 2011, ext. 2016

## HND – Honduras

Río Plátano, 1980 Trifinio Fraternidad, tb, with El Salvador and Guatemala, 2011. ext. 2016 Cacique Lempira, Señor de las Montañas, 2015

## HRV - Croatia

Velebit Mountain, 1977 Mura Drava Danube, tb. with Hungary, 2012

## HTI – Republic of Haiti

La Selle, 2012, tb. with Dominican Republic 2017 La Hotte, 2016

## HUN – Hungary

Aggtelek, 1979 Hortobágy, 1979 Kiskunság, 1979 Pilis, 1980 Mura Drava Danube, tb, with Croatia, 2012

## IDN – Indonesia

Cibodas, 1977 Komodo, 1977 Lore Lindu, 1977 Tanjung Puting, 1977 Gunung Leuser, 1981 Siberut, 1981 Giam Siak Kecil - Bukit Batu, 2009 Wakatobi, 2012 Bromo Tengger Semeru-Arjuno, 2015 Taka Bonerate-Kepulauan Selayar, 2015 Balambangan, 2016

## IND – India

Nilgiri, 2000 Gulf of Mannar, 2001 Sunderban, 2001 Nanda Devi, 2004 Nokrek, 2009 Pachmarhi, 2009 Similipal, 2009 Achanakmar-Amarkantak, 2012 Great Nicobar, 2013 Agasthyamala, 2016

## IRL – Ireland

Dublin Bay, 1981; ren. 2015 Kerry, 1982, ren. 2017

## IRN – Islamic Republic of Iran

Arasbaran, 1976 Arjan, 1976 Geno, 1976 Golestan, 1976 Hara, 1976 Kavir, 1976 Lake Oromeeh, 1976 Miankaleh, 1976 Touran, 1976 Dena, 2010 Tang-e-Sayad and Sabzkuh, 2015 Hamoun, 2016

## ISR – Israel

Mount Carmel, 1996 Megiddo, 2011, ren. 2017

## ITA — Italy

Circeo, 1977 Collemeluccio-Montedimezzo, 1977 Miramare, 1979 Cilento and Valle di Diano, 1997 Somma-Vesuvio and Miglio d'Oro, 1997 Valle del Ticino, 2002 Tuscan Islands, 2003 Selva Pisana, 2004 Area della Biosfera del Monviso, tb. with France 2013 Sila, 2014 Ledro Alps and Judicaria, 2015 Po Delta, 2015 Appennino Tosco-Emiliano, 2015 Collina Po, 2016

## JOR – Jordan Dana, 1998

Mujib, 2011

## JPN — Japan

Mount Hakusan, 1980, ext. 2016 Mount Odaigahara, Mount Omine and Osugidani 1980, ext.&ren. 2016 Shiga Highland, 1980, ext. 2014 Yakushima and Kuchinoerabu Jima. 1980, ext&ren. 2016 Aya, 2012

Minami Alps, 2014 Tadami, 2014

## KAZ – Kazakhstan

Korgalzhyn, 2012 Alakol, 2013 Ak-Zhayik, 2014 Katon-Karagay, 2014, tb. Great Altay with Russia, 2017 Aksu-Zhabagly, 2015 Barsakelmes, 2016 Altyn Emel, 2017 Karatau, 2017

## KEN – Kenya

Mount Kenya, 1978 Mount Kulal, 1978 Malindi-Watamu, 1979 Kiunga, 1980 Amboseli, 1991 Mount Elgon, 2003

## KGZ – Kyrgyzstan

Sary-Chelek, 1978 Issyk Kul, 2001

KHM – Cambodia Tonle Sap, 1997

## KNA – Saint Kitts and Nevis St. Mary's, 2011

## KOR – Republic of Korea

Mount Sorak, 1982, ext. 2016 Jeju Island, 2002 Shinan Dadohae, 2009, ext- 2016 Gwangneung Forest, 2010 Gochang, 2013

## LBN – Lebanon

Shouf, 2005 Jabal Al Rihane, 2007 Jabal Moussa, 2009

## LKA – Sri Lanka

Hurulu, 1977 Sinharaja, 1978 Kanneliya-Dediyagala-Nakiyadeniya, 2004 Bundala, 2005

LTU – Lithuania Zuvintas, 2011

LVA – Latvia North Vidzeme, 1997

MAR – Morocco

Arganeraie, 1998 Oasis du sud marocain, 2000 Réserve de Biosphère intercontinentale de la Méditerranée, tb. with Spain, 2006 Atlas Cedar, 2016

MDG – Madagascar

Mananara Nord, 1990 Sahamalaza-Iles Radama, 2001 Littoral de Toliara, 2003 Belo-sur-Mer-Kirindy-Mitea, 2016

MDV – Republic of Maldives

Baa Atoll, 2011

MEX – Mexico

Mapimí, 1977 La Michilía, 1977 Montes Azules, 1979 El Cielo, 1986 Sian Ka'an, 1986 Sierra de Manantlán, 1988 Région de Calakmul, 1993, ext.&ren. 2006 Alto Golfo de California, 1993, ext. 1995 El Triunfo, 1993 El Vizcaíno, 1993 Islas de Golfo de California, 1995 Sierra Gorda, 2001 Banco Chinchorro, 2003 Ría Celestún, 2003 Sierra La Laguna, 2003 Ría Lagartos, 2004 Barranca de Metztilán, 2006 Chamela-Cuixmala, 2006 Cuatro Ciénagas, 2006 Cumbres de Monterrey, 2006 Huatulco, 2006 La Encrucijada, 2006 Laguna Madre y Delta de Río Bravo, 2006 La Primavera, 2006 La Sepultura, 2006 Los Tuxtlas, 2006 Maderas del Carmen, Coahuila, 2006 Mariposa Monarca, 2006 Pantanos de Centla, 2006 Arrecife Alacranes, 2006

Sistema Arrecifal Veracruzano, 2006 Selva El Ocote, 2006 Sierra de Huautla. 2006 Volcan Tacaná, 2006 Sierra de Alamos -Rio Cuchujagui, 2007 Islas Marietas, 2008 Lagunas de Montebello, 2009

Islas Marías, 2010 Los Volcanes, 2010 Nahá-Metzabok, 2011 Tehuacán-Cuicatlán, 2012 Isla Cozumel, 2016

MKD – Former Yugoslav Republic of Macedonia Ohrid - Prespa, tb. with Albania 2014

MLI – Mali Boucle du Baoulé, 1982

MMR – Myanmar Inlay Lake, 2015

MNE – Montenegro Tara River Basin, 1976

## MNG – Mongolia

Great Gobi, 1990 Boghd Khan Uul, 1996 Uvs Nuur Basin, 1997 Hustai Nuruu, 2002 Dornod Mongol, 2005 Mongol Daguur, 2007

MRT – Mauritania

Delta du Fleuve Sénégal, tb. with Senegal, 2005

MUS – Mauritius Macchabee / Bel Ombre, 1977

MWI – Malawi Mount Mulanje, 2000 Lake Chilwa Wetland, 2006

## MYS – Malaysia

Tasik Chini, 2009 Crocker Range, 2014

## NER – Niger

W Region, 1996; ext.&tb. with Benin and Burkina Faso, 2002 Aïr et Ténéré, 1997

NGA – Nigeria 0mo, 1977

## NIC – Nicaragua

Bosawas, 1997 Río San Juan, 2003 Ometepe Island, 2010

NLD – Netherlands Wadden Sea Area, 1986

PAK – Pakistan Lal Suhanra, 1977 Ziarat Juniper Forest, 2013

PAN – Panama Darién, 1983 La Amistad, 2000

PER – Peru Huascarán, 1977 Manu, 1977, ext. 2017 Noroeste Amotapes – Manglares, 1977, ext.&ren. 2016, tr. Bosques de Paz with Ecuador 2017 Oxapampa-Ashaninka-Yanesha, 2010 Al-Reem, 2007 Gran Pajatén, 2016

PHL – Philippines Palawan, 1977 Puerto Galera, 1977 Albay, 2016

PLW – Palau Ngaremeduu, 2005

## POL – Poland

Babia Gora, 1976, ext. 1997&2001 Bialowieza, 1976, ext. 2005 Masurian Lakes, 1976, ext.&ren. 2017 Tsentral'nochernozem, 1978 Slowinski, 1976 Karkonosze, tb. with Czech Republic, 1992 Tatra, tb. with Slovakia, 1992 East Carpathians, tb. with Slovakia and Ukraine, 1998 Puszcza Kampinoska, 2000 West Polesie, 2002; ext., ren. & tb. with Ukraine and Belarus, 2012 Tuchola Forest, 2010

PRK – Democratic People's **Republic of Korea** Mount Paekdu, 1989

Mount Kuwol, 2004 Mount Myohyang, 2009 Mount Chilbo, 2014

PRT – Portugal

Paúl do Boquilobo, 1981 Corvo Island, 2007 Graciosa Island, 2007 Flores Island, 2009 Xurés, tb. with Spain, 2009 Berlengas, 2011 Santana Madeira, 2011 Meseta Ibérica, tb. with Spain, 2015 Fajãs de São Jorge, 2016 Tejo/Tajo Internacional, tb. with Spain, 2016

PRY – Paraguay Bosque Mbaracayú, 2000 El Chaco, 2005

OAT – Oatar

ROU – Romania Pietrosul Mare, 1979 Retezat, 1979

Danube Delta, 1992; tb. with

Ukraine 1998 **RUS** – Russian Federation Kavkazskiy, 1978 Okskiy, 1978, pt. of Oka until 2000 Prioksko-Terrasnyi, 1978, pt. of Oka until 2000 Sikhote-Alin, 1978 Astrakhanskiy, 1984 Kronotskiy, 1984 Laplandskiy, 1984 Pechoro-Ilychskiy, 1984 Sayano-Shushenskiy, 1984 Sokhondinskiy, 1984 Voronezhskiy, 1984 Tsentralnolesnoy, 1985 Baikalskyi, 1986, pt. of Lake Baikal until 2000 Barguzinskyi, 1986, pt. of Lake Baikal until 2000 Tsentralnosibirskiy, 1986

Chernyje Zemli, 1993

Taimyrsky, 1995 Daursky, 1997 Teberda, 1997

Ubsunorskaya Kotlovina, 1997 Katunskiy 2000, tb. Great Altay with Kazakhstan 2017 Nerusso-Desnianskoe-Polesie, 2001 Visimskiy, 2001 Vodlozersky, 2001 Darvinskiy, 2002 Commander Islands, 2002 Nijegorodskoe Zavolje, 2002 Smolensk Lakeland, 2002 Ugra, 2002 Far East Marine, 2003 Kedrovaya Pad, 2004 Kenozersky, 2004 Valdaiskiy, 2004 Khankaiskiy, 2005 Middle Volga Integrated Biosphere, 2006 Great Volzhsko-Kamsky, 2007 Rostovsky, 2008 Altaisky, 2009 Wolga-Akhtuba Floodplain, 2011 Bashkirskiy Ural, 2012 Khakassky, 2017 Kizlyar Bay, 2017 Metsola, 2017

RWA – Rwanda Volcans, 1983

SDN – Sudan Dinder, 1979 Radom, 1979

SEN – Senegal Samba Dia, 1979 Delta du Saloum, 1980 Niokolo-Koba, 1981 Delta du Fleuve Sénégal, tb. with Mauritania, 2005 Ferlo, 2012

SLV – El Salvador

Apaneca - Llamatepec, 2007 Xiriualtique - Jiquitizco, 2007 Trifinio Fraternidad, tb. with Guatemala and Honduras 2011, ext. 2016

SRB – Serbia Golija-Studenica, 2001

STP – São Tomé and Príncipe The Island of Príncipe, 2012

SVK – Slovakia

Slovenskiý Kras, 1977 Polana, 1990 Tatra, tb. with Poland, 1992 East Carpthians, tb. with Poland and Ukraine, 1998

SVN – Slovenia

Julian Alps, 2003 The Karst, 2004 Kozjansko and Obsotelje, 2010

SWE – Sweden

Kristianstad Vattenrike, 2005 Lake Vänern Archipelago, 2010 Blekinge Archipelago, 2011 Nedre Dalälven River Landscape, 2011 East Vättern Scarp Landscape, 2012

SYR – Syria Lajat, 2009

TGO – Togo Complexe Oti-Keran / Oti-Mandouri, 2011

THA – Thailand

Sakaerat, 1976 Hauy Tak Teak, 1977 Mae Sa-Kog Ma, 1977 Ranong, 1997

TKM – Turkmenistan Repetek, 1978

TUN – Tunisia Djebel Bou-Hedma, 1977

Diebel Chambi, 1977 Ichkeul, 1977 Iles Zembra et Zembretta, 1977

TUR – Turkey Camili, 2005

## TZA – Tanzania

Lake Manyara 1981, ext. 2017 Serengeti-Ngorongoro 1981, ext. 2017 East Usambara 2000, ext. 2017 Jozani-Chwaka Bay, 2016

UGA – Uganda Queen Elizabeth, 1979 Mount Elgon, 2005

## UKR – Ukraine

Chernomorskiy, 1985 Askaniya-Nova, 1985 Carpathian, 1992 Danube Delta, tb. with Romania, 1998 East Carpathians, tb. with Poland and Slovakia, 1998 West Polesie, 2002; ext., ren. & tb. with Poland and Belarus, 2012 Desnianskyi, 2009 Roztochya, 2011

## URY – Uruguay

Bañados del Este, 1976 Bioma Pampa-Quebradas del Norte, 2014

## USA – United States

Big Bend, 1976 Cascade Head, 1976 Channel Islands, 1976 Denali, 1976 Everglades, 1976 Crown of the Continent, 1976, ren. 2017 Jornada, 1976 Luquillo, 1976 Olympic, 1976 Organ Pipe Cactus, 1976 Rocky Mountain, 1976 San Dimas, 1976 San Joaquin, 1976 Sequoia-Kings Canyon, 1976 Yellowstone, 1976 University of Michigan Biological Station, 1979 Virginia Coast, 1979 Hawaiian Islands, 1980 Isle Royale, 1980 Big Thicket, 1981 Guanica, 1981

Central Gulf Coast Plain, 1983 Congaree, 1983, ren. 2017 Mojave and Colorado Deserts, 1984 Glacier Bay-Admiralty Islands, 1986 Golden Gate, 1986 New Jersey Pinelands, 1988 Southern Appalachian, 1988 Champlain-Adirondak, 1989 Mammoth Cave Area, 1990, ext. 1996 Magaliesberg, 2015

UZB – Uzbekistan Mount Chatkal, 1978

VEN – Venezuela Alto Orinoco-Casiquiare, 1993 Delta Orinoco, 2009

VNM – Viet Nam Can Gio Mangrove, 2000 Dong Nai, 2001, ext.&ren. 2011 Cat Ba, 2004 Red River Delta, 2004 Kien Giang, 2006 Western Nghe An, 2007 Cu Lao Cham - Hoi An, 2009 Mui Ca Mau, 2009 Langbiang, 2015

YEM – Yemen Socotra Archipelago, 2003

Bura'a, 2011

ZAF – South Africa Kogelberg, 1998 Cape West Coast, 2000, ext. 2003 Kruger To Canyons, 2001 Waterberg, 2001 Cape Winelands, 2007 Vhembe, 2009 Gourlitz Cluster, 2015

ZWE – Zimbabwe Middle Zambezi, 2010

TRANSBOOUNDARY **BIOSPHERE RESERVES** 

Poland, Slovakia Tatra, 1992

Poland, Czech Republic Krkonose / Karkonosze, 1992

Germany, France Vosges du Nord / Pfälzerwald, 1998

Poland, Slovakia, Ukraine East Carpathians, 1998

Romania, Ukraine Danube Delta, 1998

Benin, Burkina Faso, Niger W Region, 2002

Mauritania, Senegal Delta du Fleuve Sénégal, 2005 Morocco, Spain Réserve de Biosphère Intercontinentale de la Méditerranée, 2006

Portugal, Spain Gerês / Xurés, 2009

El Salvador, Guatemala, Honduras Trifinio Fraternidad, 2011, ext. 2016

Poland, Ukraine, Belarus West Polesie, 2012

Croatia, Hungary Mura Drava Danube, 2012

France, Italy Mont-Viso / Area della Biosfera Del Monviso, 2013

Albania, Former Yugoslav Republic of Macedonia Ohrid-Prespa, 2014

Portugal, Spain Meseta Ibérica, 2015 Tejo/Tajo Internacional, 2016

Benin, Togo Q Mono, 2017

Ecuador, Peru R Bosques de Paz, 2017

Kazakhstan, Russian Federation S Great Altay, 2017

Dominican Republic, Haiti La Selle, 2012

Abbreviations: ext.=extended, ren.=renamed, pt=part, tb.=transboundary



## MAB PROJECTS AND ACTIVITIES AROUND THE WORLD

BIOsphere and Heritage of Lake Chad (BIOPALT) project. The BIOPALT project aims to strengthen the capacity of Member States of the Lake Chad Basin Commission (LCBC) to safeguard and sustainably manage the hydrological, biological and cultural resources of the Lake Chad Basin, thereby contributing to reducing poverty and promoting peace. The Lake Chad Basin is of vital importance both economically and ecologically. Located at the crossroads of Cameroon, Chad, the Central African Republic, Niger and Nigeria, it provides livelihoods to more than 40 million people. Its diverse ecosystems shelter a high diversity of wildlife.

The project involves a wide range of activities ranging from the establishment of an early warning system for droughts and floods, to the restoration of degraded ecosystems such as the habitats of elephant and Kouri cattle (Bos taurus longifrons) – the latter an emblematic endemic species that plays an important role in social cohesion. BIOPALT also focuses attention on income-generating activities through the promotion of a green economy and the development of the basin's natural resources. In particular, the project will help states prepare their application files for the creation of a transboundary biosphere reserve in the basin and nomination files for the designation of Lake Chad as a World Heritage site.



Local communities of Lake Chad. OUNESCO

A financing agreement was signed between UNESCO and the Lake Chad Basin Commission on 29 May 2017 at the LCBC headquarters in N'Djamena, Chad. The three-year project started in October 2017, and is financed by the African Development Bank to the amount of US\$6,456,000 and is implemented via a multi-sectoral approach involving all UNESCO sectors at headquarters and in the field.

## Economic valuation of ecosystem services in African Man and the Biosphere reserves.

In early 2017, the MAB Programme and the Belgian Federal Science Policy Office (BEL-SPO) launched a research project on the Economic valuation of ecosystem services in African Man and the Biosphere reserves (EVAMAB).

The general objective of this 30-month project (March 2017 – mid-2019) is to assess the economic value of ecosystem services and, more specifically, to test and adapt rapid assessment tools, and formulate pertinent stakeholder engagement and policy advice for biosphere reserve managers and decision-makers. The project will be implemented in four African biosphere reserves: Pendiari in Benin, Lake Tana in Ethiopia, Lake Manyara in Tanzania and Mount Elgon in Uganda.



This project is financed within the framework of a Memorandum of Understanding between BELSPO and UNESCO to support implementation of the MAB Programme in Africa, including through research activities in biosphere reserves.

Green Economy in Biosphere Reserves project in Ghana, Nigeria and Tanzania. The Green Economy in Biosphere Reserves project (GEBR) ran from 2013 to 2017 and was implemented in three sub-Saharan African countries: Ghana, Nigeria and Tanzania. The project was financed by the Korea International Cooperation Agency (KOICA) through a funds-in-trust agreement and was implemented by the MAB Programme.

The main aims of the project were the conservation of biodiversity, poverty reduction and sustainable development through green economies.

The UNESCO Accra Office hosted about 35 participants at the project's final international workshop, held from 27 to 28 June 2017 at the Golden Tulip Hotel in Kumasi. Participants included implementing partners from all three beneficiary countries and direct beneficiaries from Ghana and Nigeria.

The first day of the workshop was dedicated to the presentation of reports from the three countries on the implementation of project activities since commencement in November 2013. The presentations emphasized capacity-building interventions, the rollout of the alternative or additional livelihood activities for beneficiaries, and exit strategies in place to ensure the sustainability of the various interventions.

On the second day, participants undertook a field trip to the Bia Biosphere Reserve (Ghana's project site) where participants visited some of the project intervention sites. Two communities around the Bia Biosphere Reserve, Elluokrom and Esuopri, have been provided

Economic valuation of ecosystem services in African biosphere reserves. , Ronia Krebs



Inauguration of a Palm Fruit Processing Center in Bia Biosphere Reserve, Ghana ©UNESCO/ Melody Ocloo

with palm fruit processing machines. These machines were procured as part of the livelihood support provided to beneficiaries of the project. In addition, a mushroom incubator house was constructed at the Bia Biosphere Reserve headquarters in Kunkumso to ensure the sustainability of the production and a supply of inoculated mushroom substrates to project beneficiaries who opted for the mushroom production livelihood.

**No plastic. A small gesture in our hands.** In February 2014, the Biosphere Reserve of the Island of Príncipe (São Tomé and Príncipe) and UNESCO jointly launched an awareness and mobilization campaign entitled 'No plastic. A small gesture in our hands'.

The campaign aims to reduce plastic waste and promote access to drinking water in the biosphere reserve, by encouraging the whole population to collect plastic bottles. Fifty plastic bottles can be exchanged for a 'Principe Biosphere Bottle', a reusable stainless steel bottle made from safe, plastic-free materials. These bottles can be replenished at various treated water points installed across the island of Principe.



Children with reusable bottles in Principe Biosphere Reserve ©Antonio D. Abreu During a meeting with representatives of the MAB programme and the Spanish Ministry of Agriculture, Food and Environment, the Regional President of the Government of Principe announced that the Island of Principe would become 'plastic-free' by 2020, and that this project would serve as a model for future activities.

The 'No plastic campaign' targets children as future advocates for a healthy environment. For this reason, the campaign is promoted in towns and schools throughout the autonomous region of the Island of Principe.

After a four-year-long campaign, a total of 600,000 plastic bottles were removed, 13 safe water fountains were established and 7,000 'Principe Biosphere Bottles' were distributed among the local population.

The campaign represents a partnership between the Regional Government of Principe through the Island of Príncipe Biosphere Reserve, UNESCO's Man and Biosphere (MAB) programme, the Spanish Ministry for Agriculture, Food and the Environment, and the HBD group.

## Unveiling the unexplored potential of biosphere reserves around the Mediterra-

**nean.** The international workshop on 'Unveiling the unexplored potential of Biosphere Reserves around the Mediterranean' was co-organized by the UNESCO Regional Bureau for Science and Culture in Europe, the Samaria Gorge Management Body and the Region of Crete, with the support of the MAB Secretariat and the Greek MAB National Committee, and took place in Chania, Crete (Greece) on 3-5 October 2016. The objective of the workshop was primarily to facilitate the exchange of experiences and good practices among biosphere reserves facing common issues such as climate change, tourism development and seasonal migrations, water resource management and so on. The workshop featured the participation of Croatia, France, Greece, Italy and Spain, and aimed to strengthen the knowledge and skills of key biosphere reserve stakeholders,



International workshop 'Unveiling the unexplored potential of Biosphere Reserves around the Mediterranean', Chania, Crete, Greece, October 2016. ©UNESCO/P. Pypaert

with a view to enhancing their managerial and communication capacities in addressing the current emerging challenges faced by island and coastal biosphere reserves. The workshop laid the ground for joint action towards sustainable tourism.

The Wakatobi Recommendations: supporting Local Governments in Implementing the Lima Action Plan for Biosphere Reserves. As a follow up to the 4th World Congress of Biosphere Reserves, the UNESCO Jakarta Office and the Indonesia MAB National Committee, organized the 'Wakatobi International Workshop for Strengthening the Role of Local Governments in Implementing the Lima Action Plan', with support from the Japanese Funds-in-Trust. The workshop was held on 2-4 June 2016 in Wakatobi Biosphere Reserve, Indonesia. Sixty participants from nine countries (Australia, Indonesia, Japan, Republic of Korea, Malaysia, Myanmar, Thailand, the United Kingdom and Viet Nam) attended the workshop to discuss the roles of local governments in implementing the Lima Action Plan.



International Workshop for Strengthening the Role of Local Governments in Implementing the Lima Action Plan', Wakatobi Biosphere Reserve. Indonesia, June 2016. DUNESCO / Ioana Vitorica

The result of the workshop was a series of recommendations forwarded to the MAB International Coordinating Council – and through it to the wider MAB community – regarding the role of the local governments in implementing the Lima Action Plan, with a focus on three main areas: governance and local government platforms, natural resource management and sustainability, and green economies and green job creation.

## International Expert Meeting for Biosphere Reserve Managers Around the Caspian

Sea. In 2017, the UNESCO Tehran Office organized an expert meeting for biosphere reserve managers from around the Caspian Sea. The meeting was held in Tehran and Anzali, Iran from 25–27 July 2017. More than 50 participants and representatives from the Republic of Azerbaijan, the Islamic Republic of Iran, Kazakhstan and the Russian Federation attended the meeting. The participants shared their experiences from the UNESCO World Network of Island and Coastal Biosphere Reserves, as well as cooperation around the Black Sea, among other discussions. The objectives of the meeting were to:

- Take stock of environmental threats, their causes and consequences around the Caspian Sea;
- Identify possible challenges and opportunities for regional cooperation around the Caspian Sea under the umbrella of the MAB Programme;
- Develop a roadmap of future steps to be taken towards regional cooperation in environmental protection around the Caspian Sea.

During the three-day meeting, participants had the chance to discuss and review the ecological situation in the Caspian region and highlight innovative areas that needed the immediate and collective attention of the Caspian littoral countries. Recommendations made by the participants of the meeting included: green energy initiatives to boost tourism in the coastal zones; the designation of new UNESCO sites as biosphere reserves, Geoparks or World Heritages; and the use of branding in UNESCO-designated sites.

The meeting concluded with a request from the representatives of the Caspian littoral countries to UNESCO to explore the possibility of developing a regional network of biosphere reserves around the Caspian Sea. This project would promote regional cooperation, experience sharing (among countries and from other regions such as the Black Sea), consultancies, regular meetings of the littoral countries and capacity building.

Biosphere Reserves as a Tool for Coastal and Island Management in the South-East Pacific Region (BRESEP). The Man and the Biosphere (MAB) Programme coordinates the BRESEP Project with the financial support of the Flemish Government of Belgium and the support of UNESCO's Intergovernmental Oceanographic Commission (IOC). The goal of the project is to develop tools and training for the integrated management of coastal areas. The project was launched in 2014 and will end in 2018.

The objective of the BRESEP Project is to create and strengthen existing biosphere reserves in coastal zones and islands in the South-East Pacific in Chile, Colombia, Ecuador, Panama and Peru.



The project promotes biosphere reserves as a tool of sound innovative practices from a social, cultural and environmental viewpoint that bring added value to local socioeconomic activities and, in this way, improve the livelihoods of the region's populations.

The BRESEP project aims to build the capacities of the actors involved and create a collaborative network between the five participating countries, with a view to comparing information, knowledge and experience on themes such as loss of biodiversity, marine

Fisherman in the Noroeste Amotapes-Manglares Biosphere Reserve, Peru.

and coastal management, and improvement in the standard of living of populations through local, sustainable socio-economic activities.

In 2016, the BRESEP project organized the workshop 'Biosphere Reserves' Products and Services, tools to improve living conditions' in Bogota, Colombia. The purpose of the workshop was to identify the products and services made possible by biosphere reserve classification, in order to add value to local socio-economic activities.



Turtle research in Archipiélago de Colon (Galapagos) Biosphere Reserve; Ecuador DUNESCO/Sarah Del Ben

The BRESEP project also organized a workshop entitled 'Biosphere reserves as a tool for sustainable development on the Pacific coast' in cooperation with the Instituto de Investigaciones del Pacífico (IIAP) of Colombia. The workshop was held in Nuquí (northwest Colombia) on 1–2 August 2017. The workshop, which attracted more than 100 participants, aimed to present experiences and lessons learned from biosphere reserves in Colombia, Ecuador, Panama and Peru to the communities of Bahía Solano and Nuquí, which are working together with the IIAP and the Ministry of Environment and Sustainable Development (MADS) of Colombia on the nomination file for the country's first biosphere reserve on the Pacific coast.

In addition, the BRESEP project organized an 'International Workshop on Lessons Learned and Good Practices in Wildfires in Biosphere Reserves', which was held from 26 to 28 September 2017 in Santiago, Chile. The event brought together managers of biosphere reserves and protected wildlife areas, as well as professionals from Chile, Costa Rica, Ecuador, Italy, Peru, Spain and the United States, who work to prevent and fight forest fires in different parts of the world.

The event presented and discussed progress in scientific research and technical development, and community experiences in confronting this type of disaster, as well as the exchange of data on ecological restoration plans following forest fires. Over 80% of the participants stated that this was their first opportunity to participate in an international workshop on wildfires. They also noted that they were glad to see concrete action from UNESCO on an issue of real concern to the region.

One of the major outcomes of the project in 2017 was the nomination of the Bosques de Paz Transboundary Biosphere Reserve. This first transboundary biosphere reserve in South America, located in the southwest of Ecuador and the northwest of Peru, seeks to be a model of participatory and citizen management, strengthening peace, sustainability and ecological connectivity between the countries. The site promotes sustainable development for the benefit of the more than 600,000 Peruvians and Ecuadorians that live in this area.



Celebrating cultural and biological diversity in biosphere reserves. In 2016, the MAB Programme and the Culture Sector of the UNESCO Montevideo Office organized a discussion on 'Biosphere Reserves and World Heritage, two UNESCO protection systems' and a panel entitled 'Cultural and Biological Diversity in Argentinean Biosphere Reserves'. The event was held on 19 May at the UNESCO Villa Ocampo Observatory, Argentina, within the framework of the International Day of Biological Diversity (22 May) and the International Day of Cultural Diversity for Dialogue and Development (21 May).

Both events highlighted the importance of cultural and biological diversity for the sustainable development of societies and the achievement of the SDGs of the 2030 Agenda, and how UNESCO sites play a relevant role in this regard.

At the events, experts on World Heritage, representatives of indigenous peoples, NGOs, administrators, biologists and anthropologists involved in biosphere reserves reflected on the complementarity of the mechanisms of preservation of cultural and biological diversity at the service of sustainable development, highlighting the key role of local communities.

## Private companies in biosphere reserves: key actors for sustainable development.

Within the framework of the Latin America and the Caribbean Open Science Forum 2016, held in Montevideo, Uruguay on 7-9 September 2016, the UNESCO Montevideo Office organized the event, 'Private companies in Biosphere Reserves: key actors for sustainable development', with the aim of highlighting the importance of public-private partnerships in the management and peaceful resolution of conflicts in biosphere reserves.

Workshop on Biosphere Reserves and World Heritage, two UNESCO protection systems, UNESCO Villa Ocampo Observatory. Argentina, May 2017 DUNESCO

Representatives of the Mata Atlantica Biosphere Reserve and the multinational Votórantim (Brazil), as well as representatives of the Las Yungas Biosphere Reserve and the national company Ledesma (Argentina), presented their joint projects with a view to developing responsible and sustainable productive activities in biosphere reserves. In so doing, they demonstrated how the private sector could play a positive and integral role in the management of biodiversity and ecosystem services, by integrating public and private reserves that involve workers and local communities, and creating synergies that promote participatory management for local development and conservation issues.



Biosphere reserve products. ©Pro Yungas

Biosphere Reserves for the Sustainable Management of the Territory. In 2017, the UNESCO Montevideo Office and the Colombian Ministry of Environment and Sustainable Development organized the regional MAB workshop on 'Biosphere Reserves for the Sustainable Management of the Territory', held in Cali, Colombia from 19 to 21 June. During the event, the biosphere reserves of Latin America and the Caribbean discussed successful experiences of sustainable management, cooperation between different actors, conflict prevention and the implementation of the Lima Action Plan in the region.



This activity was attended by the Ministry of Environment and Sustainable Development of Colombia, Mr Luis Gilberto Murillo Urrutia, and the Assistant Director-General for Natural Sciences, Ms Flavia Schlegel.

UNESCO ADG for Natural Sciences Ms. Flavia Schlegel and Mr. Luis Gilberto Murillo Urrutia, Minister of Environment and Sustainable Development, Colombia. ©UNESCO

**International Seminar on Business Management in Biosphere Reserves and other areas of high environmental value.** From 19 to 20 October 2017, UNESCO, the Argentine Business Council for Sustainable Development and the company Ledesma jointly organized an international Seminar 'Business Management in Biosphere Reserves and other areas of high environmental value'. The event, which was held in Jujuy, Argentina, forms part of efforts by UNESCO Montevideo Office to develop the involvement of the private sector in biosphere reserves.

Through the exchange of experiences and a debate on issues related to the contribution of the business sector to the Sustainable Development Goals (SDGs) and nature conservation, the seminar highlighted the contribution of the business sector to the SDGs in general, and the conservation of ecosystem goods and services in particular.

The seminar targeted business sectors in Argentina, Brazil and Paraguay, and helped to identify the need and willingness among businesses to build a Network of Friendly Companies of Biosphere Reserves of Latin America and the Caribbean.

**International Workshop on Renewable Energies and Biosphere Reserves.** The Bliesgau Biosphere Reserve in Germany organized the 'International Workshop on Renewable Energies and Biosphere Reserves' from 11 to 13 September 2017. The workshop fostered the exchange of experiences and good practices related to renewable energy production, distribution and consumption in and around biosphere reserves, in the overall context of the 2030 Agenda for Sustainable Development.



International workshop on renewable energies, Bliesgau Biosphere Reserve, Germany ©Anita Naumann The workshop was inspired by the RENFORUS Initiative, which provides the international community with global climate change field observatory sites involving the sustainable use of environmentally sound renewable energy sources at UNESCO sites (biosphere reserves and World Heritage Sites).

## MAB France rewards original sustainable development initiatives in biosphere

**reserves.** Each year, the French MAB National Committee and the MAB Programme present the winners of the French Biosphere Reserve Trophies in a ceremony that takes place at UNESCO Headquarter in Paris.

The Biosphere Reserve Trophies rewards original initiatives carried out by local actors in the field of sustainable development in French biosphere reserves. They encourage commitment to the sustainable management of natural resources, biodiversity, sustainable development and combating climate change, and are accompanied by financial support. The trophies promote the establishment of exchanges and partnerships between biosphere reserves and local actors to support the organization of a network.

The MAB France Trophies represent a great opportunity to highlight positive and concrete action taking place in biosphere reserves. Examples of winning laureates include an activity for people with reduced mobility (2016) and the project 'Garden, art and biodiversity' in Cevennes Biosphere Reserve, which aims to recover and support the ecological, social and cultural roles of the village garden (2017).



Participants worked on questions related to solar energy, hydropower, wind energy and biomass. A roundtable highlighted the themes of climate protection, renewable energies and biosphere reserves from the point of view of different stakeholders. The participants also visited the biomass power station St. Ingbert and a photovoltaic plant in a former chalk-mine near Gersheim.

The workshop concluded by stating that renewable energies are a central topic for biosphere reserves, both in terms of climate change mitigation and improving access to safe energy. Biosphere reserves are well placed to promote renewable energies, as model sites for sustainable development and places for innovation, participation, creation of local value, negotiation of interests, education and public awareness. However, biosphere reserves should strengthen and upscale their work on renewable energies using Agenda 2030 as a framework.

MAB France Biosphere Reserve trophies. ©UNESCO

## BIOSPHERE RESERVES: A GLOBAL OBSERVATORY FOR CLIMATE CHANGE MITIGATION AND ADAPTATION

**THE MAB PROGRAMME,** together with its World Network on Biosphere Reserves functions as a Global Observatory for Climate Change Mitigation and Adaptation. It adds value to the fight against climate change by promoting integrated monitoring, multidisciplinary approaches and participatory activities supporting climate change management, and field learning on climate change impacts and related solutions.

Arab and African Biosphere Reserves Joining Hands to Support Climate Change Initiatives. The UNESCO Regional Office for Sciences in the Arab States in close cooperation with the UNESCO Office in Rabat, ISESCO, ALECSO and the Government of Morocco organized the 2nd IHP-MAB initiative meeting to promote the biosphere reserve as an observatory to monitor climate change and to share lessons learned on sustainable development in the Arab and African region. The meeting gathered together more than 50 participants from the Arab and African countries in Agadir, Morocco from 17 to 19 November 2017. A field visit to the Arganeraie Biosphere Reserve showcased community involvement, biodiversity conservation and ecosystems restoration, as well as the importance of indigenous knowledge and cultural preservation. The IHP-MAB initiative stemmed from UNESCO's COP initiative entitled 'Changing minds, not the climate'.



2nd IHP-MAB initiative meeting to promote biosphere reserves as an observatory to monitor climate change, Tangier, Morocco, October 2016. GUNESCO

The initiative aims to boost efforts and enhance trans-regional cooperation. The 2nd joint IHP-MAB meeting focused on the implementation of the recommendation of the 1st joint meeting (Tangier, Morocco, 18-20 October 2016) concerning biosphere reserves as laboratories for monitoring climate change and the SDGs with water being a primary focus. This 2nd meeting better contextualized the IHP-MAB joint initiative and provided insights on concrete actions to be adopted and implemented during the upcoming period through the Arab African Biosphere Reserve Network Initiative (AABRI). The initiative was presented globally in November at the UNESCO pavilion hosted by the 23rd Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 23).

## Youth Camp in Biosphere Reserve for Fostering Leadership in Addressing Climate

**Change.** During 2016 and 2017, UNESCO Office Jakarta in collaboration with UN CC:Learn and UNITAR organized a youth leadership programme in two Indonesian biosphere reserves under the theme 'Youth Camps for Fostering Leadership for Addressing Climate Change'.

The leadership programme included three youth camps designed to build the knowledge and skills of 150 Indonesian students aged between 17 and 25 years old. The camps took place consecutively during February 2017 in two biosphere reserves and one World Heritage site — Cibodas Biosphere Reserve, Gunung Leuser National Park and Bukit Barisan Selatan National Park. Each camp lasted three days and included training sessions on climate change and its impacts on agriculture and the energy, marine, fisheries and forestry sectors; workshops to strengthen confidence and communication skills including the development of videos and social media strategies; group discussions and field visits.



Follow-up activities, such as the organization of peer learning forums, helped the students to continue their engagement with the issues after the end of the workshop. Special recognition was awarded to the three most active and committed participants. This took the form of sponsored participation in a week-long Climate Camp held in the United States of America during mid-2017.

## Mainstreaming Climate Change in Regional and National Policies in the Arab Region

**at COP23.** During the 23rd Conference of the Parties (COP23) to the United Nations Framework Convention on Climate Change (UNFCCC), held in Bonn, Germany, the UNESCO Cairo Office organized a side event on 10 November 2017 in partnership with the League of Arab State (LAS) in Egypt, the United Nations-Economic and Social Commission for West Asia (UNESCWA) in Lebanon and the United Nations for Environment Regional Office for West Asia in Bahrain. The event served to foster dialogue among Arab representatives on ongoing initiatives aimed at mainstreaming regional and national policies on climate change in the region.

The side event presented capacity-development initiatives undertaken in the Arab region to ensure the effective engagement of Arab delegates in climate change negotiation at COP23. In addition, it highlighted regional initiatives and success stories to ensure Arab negotiators and officials possessed the necessary information and knowledge about climate change impact and vulnerability assessments in key sectors. This information informed key negotiations based on establishing a science policy interface. The main outcome was the strengthening of existing partnerships with a view to ensuring the alignment and implementation of climate changes policies in the region. It reinforced

Youth Camp in Biosphere Reserve for Fostering Leadership in Addressing Climate Change, Gunung Leuser National Park, Indonesia. ©UNESCO/ Siti Rachmania the role of biosphere reserves as observatories for monitoring climate change impacts and sustainable development.

Energy Observer - the first hydrogen vessel around the world. During COP23 (Bonn, Germany on 6–17 November 2017), UNESCO launched its partnership with the Energy Observer. This hydrogen vessel will have the support of UNESCO as it carries out its mission to promote renewable energies and raise awareness of energy transition challenges. The Energy Observer will sail across the world during six years without using a drop of fossil fuel. There are 101 stops planned between 2017 and 2022 at the world's maritime capitals, historic ports, biosphere reserves and major international events.

UNESCO representatives will be involved in the development and implementation of the mission through the Energy Observer Steering Committees. This promising and ambitious partnership will be symbolized by a stopover in New York, where the ship might moor on the Hudson at the foot of the United Nations Headquarters.

World Alliance for Efficient Solutions. COP23 also witnessed the announcement of a partnership between UNESCO and the World Alliance for Efficient Solutions. The World Alliance, established by the Solar Impulse Foundation, brings together the main actors involved in developing, financing or promoting products, services, processes and technologies that protect the environment in a profitable way.



Partnership between UNESCO and the World Alliance for Efficient Solutions. ©UNESCO/P. Dogse

Through its MAB Programme and its World Network of Biosphere Reserves, UNESCO intends to identify local and regional enterprises, innovators and start-ups, investors and multipliers operating in these areas of common interest that may be willing to join the World Alliance as members. The World Alliance aims to identify members that can contribute to solving challenges faced by UNESCO, with particular attention to members of MAB's World Network of Biosphere Reserves.

**The importance of indigenous knowledge for biosphere reserves.** In 2017, the Local and Indigenous Knowledge Systems (LINKS) Programme and the MAB Programme of the Montevideo Office, together with the University for International Cooperation (UCI) and the UNESCO Office in San José, organized a regional meeting held from 11-13 December 2017 in San José, Costa Rica, under the theme 'Management of indigenous knowledge on the environment and climate change in biosphere reserves in Latin America'.

The event invited over 20 participants from indigenous organizations, universities, research centres and governmental institutions in Colombia, Costa Rica, Guatemala, Honduras, Mexico, Nicaragua, Panama and El Salvador to exchange good practices on biodiversity management and adaptation to climate change. The participants discussed how to foster synergies to highlight the importance of indigenous knowledge, its systems of governance and territorial management in biosphere reserves.



Meeting on 'Management of indigenous knowledge on the environment and climate change in biosphere reserves in Latin America', San José, Costa Rica, December 2017. ©UNESCO San José Office

## COMMUNICATION: SPREADING THE WORD ABOUT THE MAB PROGRAMME AND ITS WORLD NETWORK OF BIOSPHERE RESERVES

**DEVELOPING A NEW COMMUNICATION PLAN FOR THE MAB PROGRAMME AND ITS** WORLD NETWORK OF BIOSPHERE RESERVES. The MAB Secretariat in conjunction with the expert advice of the communication company WITHIN People has been working to develop a communication and branding project to determine and further clarify common values and messages on biosphere reserves that can be used as communication tools at both local and international levels. Support and guidance is provided in the 'UNESCO MAB Brand & Story Toolkit' available on the MAB webpage.



Communication workshop in the Vhembe Biosphere Reserve, South Africa O I INESCO

The communication and branding project and its toolkit have been tested with volunteer pilot biosphere reserves that have different languages, challenges, ecosystems and target audiences.

Specific workshops have been held at several events and in certain biosphere reserves with local stakeholders since 2014. Over the last two years workshops have been organized in the Megiddo Biosphere Reserve (Israel) in February 2016; the World Congress of Biosphere Reserves in Lima, Peru in March 2016; Costa Rica in February 2017; the EuroMAB 2017 Meeting (France) in April 2017; the MAB Youth Forum (Italy) in September 2017; and Vhembe Biosphere Reserve (South Africa) in November 2017.

Wiki Loves Earth Biosphere Reserves. UNESCO partnered with Wiki Loves Earth to launch 'Wiki Loves Earth Biosphere Reserves', a photography competition that encouraged people to create images of UNESCO biosphere reserves. All images are free for use on Wikimedia Commons, the media site for Wikipedia. The competition was launched in 2016 and continued into 2017. Ten images were selected each year and shared on the MAB social media before being entered into the international 'Wiki Loves Earth' competition (see www.wikilovesearth.bio).



Social media. The MAB Facebook page @manandbiosphere was launched in 2014 and currently has around 8,200 likes (May 2018), most of which come from Italy, India, Mexico, Portugal and Spain. The Twitter account @UNESCO\_MAB was reopened in mid-2015 and currently has around 2,300 followers (May 2018). An Instagram account @UNESCO\_MAB was launched mid-2017 and currently has around 1,000 followers (May 2018).

The MAB Facebook, Instagram and Twitter accounts have improved communication among members of the World Network of Biosphere Reserves through the exchange of experiences, news, campaigns such as #BiosphereReserveOfTheDay, and Facebook communities such as 'MAB is #ProudToShare' and 'MAB Youth Forum 2017'.

The number of page visits and the level of interaction have improved weekly, along with growth in the number of likes and followers, especially during the last year (the Facebook page experienced an increase of 3,000 likes or 60% in 2017).

World Network of Biosphere Reserves maps. The World Map of the WNBR is produced every year in English, French, Spanish and German thanks to the German National Commission for UNESCO. The Korean and Russian MAB National Committees have produced a version of the World Map 2017-2018 in their respective languages.

MAB Brochure. A MAB Programme brochure has been regularly updated and printed yearly since 2014. The brochure is available in the six UN languages – Arabic, Chinese, English, French, Russian and Spanish – and explains the work and activities of the MAB Programme and its World Network of Biosphere Reserves.

One of the selected pictures, taken in Yading Biosphere Reserve, China ©Toni Wöhrl and Sana Caiz







Reserves Network (APBRN) Strategic Meeting: Final Report UNESCO Jakarta



A New Roadmap for the Man and the Biosphere (MAB) Programme and its World Network of Biosphere Reserves UNESCO Man and the Biosphere Programme



Biosphere Excursion: Ethiopia - United Arab Emirates; Final Excursion Report, 2015-2016 Vera Maria Hänsel



and UNESCO Global Geoparks. Thomas Schaaf and Diana Clamote Rodrigues



Sustainable Management of the Lake Bosomtwe in the Ashanti region of Ghana António D. Abreu, Alberto Hernandez Salinas and Miguel Clüsener-Godt



**Coastal Biosphere Reserve** 

Jeju Special Self-Governing Province, Jeju Secretariat of WNICBR and Jeju World Natural Heritage Centre

Examples of public-private partnerships in 7 biosphere reserves in Latin America. UNESCO Montevideo Office.

## Compilation of Good Practices in Biosphere Reserves of Latin America and the Caribbean

28 good practices implemented in 24 biosphere reserves of 17 countries in Latin America and the Caribbean UNESCO Montevideo Office

## MAIN PUBLICATIONS

## Fostering collaboration between UNESCO in the Field and Networks towards the Agenda 2030 in conjunction with The 3rd Asia Pacific Biosphere

## Managing MIDAs: Harmonising the Management of Multi-internationally Designated Areas; Ramsar Sites, World Heritage sites, Biosphere Reserves

## The Impact of Climate Change and Sustainable Development of Island and

## Partnerships for Sustainable Development in Biosphere Reserves



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Last, but not least, we would like to thank all the interns, volunteers, trainees and experts that have helped us throughout the 2016–2017 period. Thank you, Ignasi Rodriguez Galindo, Marti Boada Junca, Huizi Ouyang, Xiaoxuan Shi, Kodzue Kinoshita, Gaku Ohashi, Ava Meggle, Anne-Elise Lenne, Julien Hamon and Gilda Amade.

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In recognition of Indonesia's exceptional support of UNESCO's Man and the Biosphere Programme by hosting the 30th session of the MAB International Coordinating Council (ICC), the editors of the report have decided to reserve all large-format images in the report for pictures of Indonesian biosphere reserves.

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## Published in 2018

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ISBN Spanish Version 978-3-903101-57-9 ISBN French Version 978-3-903101-58-6 ISBN English Version 978-3-903101-56-2

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**This report is to be cited as:** Cárdenas Tomažič, M.R., Clüsener-Godt, M., Köck, G., Van Ryssegem, V. (2018). Man and the Biosphere Programme Biannual Activity Report 2016 – 2017. Edition Lammerhuber, Baden (Austria), 100pp

