



BIOSPHERE RESERVES

The team of the Thematic Group on Biosphere Reserves brings you recent news

May 2019 – Edition 3



Most of the photos in this newsletter are the property of UNESCO and refer to the biosphere reserves designated in 2017 and 2018.

Dear BRTG member,

We are pleased to bring you the third issue of the Newsletter of the Thematic Group on Biosphere Reserves of the IUCN Commission on Ecosystem Management (CEM). Our aim is to better connect the work of the CEM regarding issues such as ecosystem-based assessment, ecosystem governance, and resilience to activities within biosphere reserves, and to enhance collaboration between IUCN and UNESCO. One way to do this is through the exchange of information and good practices, so we invite you to read this newsletter and contribute to future issues – and let us know your proposals for future collaborative activities.

Martin Price (martin.price@perth.uhi.ac.uk) and Esperanza Arnés (esperanza.arnes@gmail.com), Co-chairs

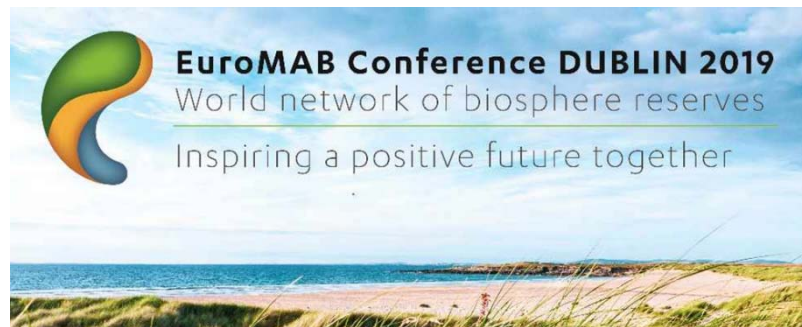


EuroMAB 2019, DUBLIN (IRELAND)

1. Assessing ecosystem services

Liette Vasseur

UNESCO Chair in Community Sustainability: From Local to Global, Brock University and CEM-IUCN Vice Chair (North America)/ Chair (Ecosystem Governance)



Canada is a member of EuroMAB and I had the opportunity to chair a workshop with Gerry Clabby from Ireland National Parks and Wildlife Service on “Assessing Ecosystem Services”. I first presented the document that we had prepared for the Canadian Commission for UNESCO on how to assess ecosystem services in biosphere reserves (<https://en.ccunesco.ca/-/media/Files/Unesco/Resources/2019/03/AssessingEcosystem.pdf>), also available in French and soon in Spanish). Through the Canadian Commission for UNESCO, my co-author Robert Siron from Ouranos produced a document that aimed to present a simple way to assess ecosystem services in biosphere reserves. Ecosystem services represent the various benefits that we receive from our natural environment and sustain life on the planet. In this document, we first introduce the concepts and categories of ecosystem services and then discuss how they can be viewed through it is now labelled as Nature contributions to people. The document explains how it is possible to use a simple method that is inclusive and interactive to assess, with the community, the ecosystem services that are the most pertinent for a particular biosphere reserve. The tool can be used to also monitor these services in the long term, and help define actions that may better contribute to sustainable development. I should underline the participation of a great working group who contributed significantly to the discussion and the additional examples from Mont St-Hilaire and Clayoquot Sound Biosphere Reserves on how this approach can be used. At EuroMAB, participants to the workshop wanted to already download the paper and it was suggested that each biosphere reserve should try a pilot to see how to implement it. So, more work is to come!



BRTG ARTICLES

1. The Shouf Biosphere Reserve

Mrs. Lina Sarkis

Vision: “A biosphere reserve where protection of human health, wealth, and the environment are overarching goals - where boundaries are delineated, land-use regulations enforced, climate change alleviated, ecosystem services maximized, biodiversity conserved and natural resources protected.”



The Al-Shouf Cedar Nature Reserve was declared in 1996. In July 2005, UNESCO designated this nature reserve, as well as the 22 surrounding villages and the Ammiq Wetland, a Ramsar site and one of the last remaining wetlands in the Middle East, as Shouf Biosphere Reserve (SBR). It has an area of approximately 50,000 hectares – 5% of the total area of Lebanon.

SBR is under the authority of the Lebanese Ministry of Environment (MOE), which manages it through the Appointed Protected Area Committee (APAC) that includes among its members the Al-Shouf Cedar Society (ACS), the mayors of the larger villages, and independent environment experts.

SBR is home to 1054 identified plant species in 111 families, is one of the last remaining areas in Lebanon where the larger mammals that once roamed the region can still be found, and has 31 reptile species. 250 bird species have been recorded, given that the wetland is a Ramsar site and Important Bird Area. Moreover, SBR has led the first reintroduction operation in Lebanon, of the Nubian Ibex, a grazing mammal (wild goat) that had become extinct in the area, but whose presence is vital for the restoration of wild life corridors at high altitudes.

Local people living in the surrounding villages have been able to preserve Lebanese culture and are well connected to the reserve and the ecotourism activities.

In our first contribution to this newsletter, we will focus on the Forest Landscape Approach, on the occasion of the launching of the Guidelines.

This approach has been adopted by the SBR as a comprehensive ongoing process that aims to recover the landscape after disturbances that have affected it due to series of ecological, socioeconomic, and cultural



modifications, combined with water deficit, extreme weather events, and large-scale disturbances due to climate change and causing irreversible shifts towards undesirable conditions, all affecting human well-being.

It is based on 8 principles, focusing on the entire landscape, addressing the root causes of its degradation, engaging all concerned actors and supports participatory governance, restoring multiple functions for multiple benefits, investing in capacity building and knowledge generation, considering a wide range of implementation with a cost benefit view, maintaining and enhancing natural ecosystems within the landscape and managing adaptively for long-term resilience.

Lessons learned on sustainable cultural practices become ACS Publications: With the aim of sharing know-how, best practices, and lessons learned with practitioners and other protected areas in Lebanon and in the region, ACS published “Forest and Landscape Restoration Guidelines”. It is a compilation of the work of 6 fruitful years. The 260 pages guide us through the management of the landscape as one unit, based on 7 globally adopted principles. <http://bit.ly/FLRguidelines>

2. Marico Biosphere Reserve

Jean-Pierre Le Roux

The Endangered Wildlife Trust

The Marico Biosphere Reserve (known locally as a Biosphere) was approved on 25th July 2018 by the International Coordinating Council (ICC) of UNESCO’s Man and Biosphere (MAB) Programme during its 30th session. The reserve is South Africa’s 10th biosphere and is situated in the North West Province of South Africa, within Ngaka Modiri and Bojanala District municipalities. It has an area of 447,269 ha.



During the first few months of the Biosphere being in operation, the number of people joining the initiative has grown significantly. This led to the formation of the Biosphere Conservation interest group. Its aim is to facilitate networking in the broader catchment area. Various non-profit and conservation organizations have joined to streamline the implementation of projects in the reserve. The first meeting of the group was on 27th March 2019 and covered topics such as climate change, the formation of a citizen science project, tree routes in the reserve, snake conservation, green living initiatives, functions of the dolomitic aquifer, and the activities of the Endangered Wildlife Trust's Marico catchment Conservation project.

A wetland training event was also held to inform members of the public about the sensitivity and importance of wetland in the biosphere. The training was hosted by North West University, which covered both practical and legislative information regarding wetlands. This will assist landowners and community members in the area to better understand the threat of unsustainable development threatening the catchment.

3. Dinder Biosphere Reserve

Dr. Ameer Awad Mohammed

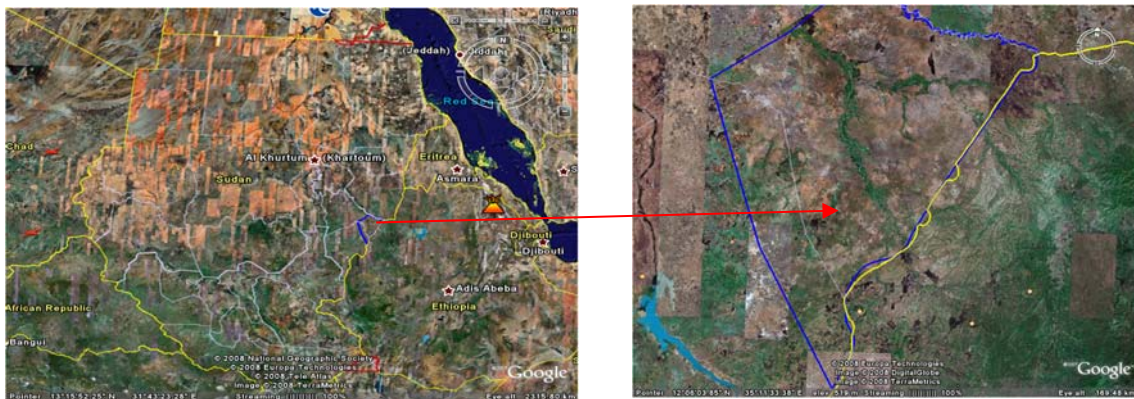
Dinder Biosphere Reserve is one of the oldest parks in Africa; it was established in 1935 following the London convention (1933) for the conservation of African flora, and designated as a Biosphere Reserve since 1979 and Ramsar site in 2005.

Dinder National Park supports a large population of animals during the dry season and a lesser number during the wet season. The most important are tiang (*Damaliscus lunatus tiang*), reedbuck (*Redunca redunca*), waterbuck (*Kobus ellipsiprymnus defasa*), roan antelope (*Hippotragus equines*), oribi (*ourebia ourebia*), warthog (*Phacochoerus africanus*) and buffalo (*Syncerus caffer*): these are the major herbivores that inhabit the park. Other animals such as baboon (*Papio anubis*) and hussar monkey (*Cercopithecus aethiops*) are frequent. Greater Kudu (*Tragelaphus strepsiceros*) and red-fronted gazelle (*Gazella rufifrons*) are restricted to certain locations. The major predators of the park are lion (*Panthera leo*), striped hyaena (*Hyaena hyaena*), spotted hyaena (*Crocuta crocuta*) and jackal (*Canis mesomelas*).

Elephants are believed to migrate from Ethiopia to the southern part of the park during the rainy season, as has been indicated by their tracks in the dry season. The Nile crocodile python, Monitor lizard and various species of snakes represent reptile species that occur in the park.

Dinder National Park also hosts more than 160 species of birds, such as ostrich (*Struthio camelus*), greater bustard (*Ardeotis kori*), lesser bustard (*Eupodotis senegalenses*), crown crane (*Balearica pavonina*), Egyptian goose (*Atopochen aegyptiacus*), guinea fowl (*Numida meliagris*), marabou stork (*Leptopilos crumenerus*) and grey heron (*Ardea cinerea*).

Map of Dinder National Park



Habitat and Ecosystems

1- *Mayas ecosystem:*

Mayas are defined as sub-irrigated and dry meadows occupying low-lying basins, meander and oxbow lakes along the rivers and principal streams and khors. Mayas are filled during floods in the rainy seasons and sometimes store water until the second rainy season.

Dinder Biosphere Reserve has more than 40 Mayas. They vary in size and duration of storing water – from few months after the rainy season to almost year-round. The edges of all Mayas are surrounded by trees in a consistent pattern.

2- *The riverine ecosystem:*

The riverine ecosystem occurs on silt, clay loam and sands along the banks of the Dinder and Rahad rivers and the large seasonal streams. This ecosystem is composed of multi-layered forest which varies in depth according to local conditions of soil and relief.

3- *The woodland ecosystem:*

The woodland ecosystem constitutes the remaining area of the park. The dominant tree species are *Acacia seyal*, *Compretum* spp. and *Balanities aegyptiaca* in pure or mixed stands.

The global significance of Dinder Biosphere Reserve is:

- It falls between two important ecological zones: the Sudano–Sahelian and the Ethiopian.
- It has important wetland areas (Mayas) and is located in the flyway of migratory bird species from Eurasia to Africa.
- It is much closer to the Middle East and European countries than the central and Southern African National Parks.

4. La Encrucijada Biosphere Reserve

Dra. Sara Barrasa

Centro de Investigaciones en Geografía Ambiental (CIGA-UNAM).

During the 1990s, there was a boom in the declaration of Natural Protected Areas in Mexico. These include La Encrucijada Biosphere Reserve, declared in June 1995 by an official decree based on the Ley General de Equilibrio Ecológico y Protección del Ambiente (Ecological Balance and Environmental Protection Law). It covers 144,848 hectares within eight municipalities on the coast of Chiapas,



in the Pacific coastal lowlands of southern Mexico. Its two core areas (La Encrucijada and Palmarcito) correspond to two large coastal lagoon systems. The conservation values of La Encrucijada are a wide variety of natural ecosystems, including the tallest mangroves and last zapotonales (*Pachira aquatica*) in Mesoamerica, tule swamps and marshes, as well as patches of tropical seasonal forest, coastal dunes and palm trees. In 2006, the site was designated by UNESCO as a Biosphere Reserve (BR), with the same name as the one declared under Mexican legislation, but with different management requirements - although for both, the main objective is to promote solutions reconciling the conservation of biodiversity with sustainable use. While UNESCO BRs



have three interrelated zones (core areas, buffer zones, and transition area), the Mexican model includes two interrelated areas: core and buffer, in which local people live and develop traditional productive activities.

La Encrucijada BR has become a paradigm for studying the effects of the competition between conservation and development policies, as well as the perceptions of the population regarding changes in the landscapes resulting from the application of such policies over time. The main objective of our research is to identify the perceptions of people living in the BR regarding changes in the landscape.

The main productive activities in the ejidos (communal land used for agriculture) are farming and cattle ranching. Fishing is the activity of people who do not own land. We



used semi-structured interviews to identify the attitudes and perceptions of older people regarding their landscapes and relationships with their environment. The region began to be colonized for settlement: houses were constructed, the land was cultivated, and a community was formed.

This coastal area mainly produces maize, beans, sesame, sugar cane, and

fruits such as cantaloupe, watermelon, mango, banana, and pineapple for sale and self-consumption. Deforestation and land use change continue to alter ecosystems, and the migratory processes accelerated by the expansion of the communications network led to a process of transculturation and alteration of traditional models of using natural resources. In the last decades of the 20th century, the cultivation of African oil palm (*Elaeis guineensis*), sesame, and sugarcane was promoted by various governmental institutions, increasing the pressures on local rural communities and the wetlands. The generalized discourse among peasants in the region is in favor of development rather than environmental conservation. But there is also a feeling of longing for what was before: a person can talk about initiatives for planting sugarcane or palms and, later on, talk with nostalgia about how the forest and its animals used to be.

5. Ecoregional planning for natural protected areas of the Sierra Madre de Chiapas, Mexico

Dr. Marco Antonio Altamirano-González Ortega

Coord. General de Espacios de Exhibición. Secretaría de Medio Ambiente e Historia Natural. Mexico.

At the end of last year, we published the article "El Triunfo Biosphere Reserve: pioneer in management for conservation and ecoregional development", in issue 141 of the bimonthly bulletin of the National Commission for the Knowledge and Use of Biodiversity (CONABIO). This bulletin reaches hundreds of readers, ensuring that the results of science in Mexico reach the people interested in learning and knowing more about the natural wealth of the country. It includes articles on general aspects of biodiversity as well as social topics that involve the management and sustainable use of natural resources. Our interest in disseminating the experience of ecoregional planning for the Triunfo Biosphere Reserve (BR), in Chiapas, Mexico, comes from its Advisory Council. This is a participatory institution that has become the main means by which people who use ecosystems can support and strengthen the work of the management of this protected natural space.

Reserva de la Biosfera
EL TRIUNFO:
 pionera en el manejo para la conservación
 y el desarrollo ecorregional de la Sierra
 Madre de Chiapas

MARCO ANTONIO ALTAMIRANO GONZÁLEZ ORTEGA¹, ALEJANDRA RIECHERS PÉREZ²
 Y MIRIAM JANETTE GONZÁLEZ GARCÍA²

Las Áreas Naturales Protegidas (ANP) son regiones de tierra o agua en nuestro país donde existen reglas para conservar, proteger y restaurar los ecosistemas. Los documentos que marcan las directrices para que las poblaciones que habitan estas áreas, y sus alrededores, logren obtener beneficios mediante la producción de subproductos para la vida, sin deterioro de los recursos naturales que protegen, son llamados Programas de Manejo.¹ Reflexionar acerca de los programas de manejo de las áreas naturales protegidas en México es reducir en la disyuntiva sobre su función y efectividad.² Mucho se ha dicho al respecto y las opiniones son divergentes, sin embargo, se reconoce que es una de las estrategias que contribuye en mayor medida en la conservación de los recursos naturales de nuestro país.³

Las disposiciones legales de carácter ambiental aplicables en México, así como la Ley General del Equilibrio Ecológico y la Protección al Ambiente (LGEPA), junto con otras leyes que definen las condicionantes y modalidades a las que se deben sujetar las actividades que se realicen dentro de las reservas, son la base fundamental en el territorio nacional. Paradójicamente, la LGEPA no considera a las ANP un instrumento de política ambiental,⁴ sin embargo, ésta es la mejor herramienta con que cuenta México para conservar la biodiversidad y los servicios ambientales que ésta proporciona a la sociedad.

La Reserva de la Biosfera El Triunfo (RBIATF)⁵
 La historia y cronología de la RBIATF comienza en 1972, cuando el gobierno de Chiapas decretó la creación del Área Natural y Tipo Tipo Ecológico Bosque de Nublado El Triunfo. El 13 de marzo de 1980 se estableció como Reserva de la Biosfera, con una superficie de 119 177 hectáreas. En su inicio, la RBIATF fue administrada por el Instituto de Historia Natural y actualmente lo es por la Comisión Nacional de Áreas Naturales Protegidas de México, con el apoyo de un Consejo Asesor, constituido en 1994, que apoya a la Dirección de la Reserva en la toma de decisiones colegiadas, relacionadas con el manejo, conservación y desarrollo.



The article presents general characteristics of the El Triunfo BR, aspects of its management program, achievements, the perspective of integrated management of the protected natural areas of the Sierra Madre de Chiapas region – El Triunfo, La Sepultura and El Volcán Tacaná BRs; the Forest Protection Zone La Frailescana; and the Ecological Conservation Area Pico El Loro-Paxtal – and the social actors committed to its conservation. The ecoregional approach is based on the Strategy for the Conservation and Sustainable Use of Biodiversity of the State of Chiapas, published in 2013, as a tool to influence public policies that strengthen the capacities of understanding and appreciation towards the natural areas of Chiapas. This initiative is based on a vision of conservation and large-scale development of the territory, which identifies priorities for action and the need to focus on the integration and actions of government institutions, civil

organizations, and citizens in the face of current environmental threats.

Link: <http://bioteca.biodiversidad.gob.mx/janium/Documentos/14830.pdf>

6. Vulture population dwindling in Nilgiris Biosphere Reserve

Davidson Sargunam

Nilgiris Biosphere Reserve (BR) in India has four kinds of vultures: White rumped Vulture, Long billed vulture, Red headed Vulture and Egyptian Vulture.

These birds have their habitats in the Mudumalai, Sathyamangalam and Bandipur Tiger Reserves and their dense forest fringes. They live in the tall trees and cliffs deep inside the dense jungle. Their survival depends on kills by tiger, leopard, hyena and dhole (wild dogs).

The prey base of these carnivorous animals includes spotted deer, Indian gaur, sambar, wild boar. Kills of these prey animals are the food source for these forest scavenging birds.





According to Charles Corfield, the Forest Range Officer who served there in 2007, he recorded about 800 vultures in the BR – but he says that the population has drastically dwindled.

A team of environmentalists and wildlife photographers led by Charles Corfield in 2018, consisting of Davidson Sargunam, Mac Mohan, Nelson Diaz and Arun Sankar, made a field study of the population of these vultures, habitat range and foraging localities. They spotted only 62 birds.

A major cause of the population reduction is attributed to the activities of the forest dwellers and those in fringe pockets, who dispose of the corpses of cow and buffalo in the dense forests. When vultures consume the carcasses, they die soon afterwards. A detailed

diagnosis revealed that the kidneys of vultures were affected by the anti-inflammatory Diclofenac administered to the bovine population, and that this resulted in the death of the vultures.

Consequently, Diclofenac was banned in the BR and the fringe areas.

Efforts with species specific conservation are vital to save the vultures, which have a vital role in the food chain in the forest ecosystem in the Nilgiris BR.



(*) The images of this article was taken by Fulvio Eccardi, who donated them for inclusion and wide dissemination.



WHAT'S ON THE CALENDAR?

1. The first global book on Biosphere Reserves

Maureen G. Reed and Martin F. Price

'UNESCO Biosphere Reserves: Supporting Biocultural Diversity, Sustainability and Society', edited by Maureen Reed and Martin Price, will be published this summer. It includes many contributions from members of the BRTG.

The book has 25 chapters, divided into three sections. It starts by outlining the origins and history of BRs and the MAB Programme, showing how they contribute to advancing sustainable development. The second section documents the evolution of BRs around



20% off with this flyer!

UNESCO Biosphere Reserves

Edited by **Maureen G. Reed and Martin F. Price**

UNESCO Biosphere Reserves are geographical regions of global socio-ecological significance. They are designated within UNESCO's Man and Biosphere Programme, and form an international, intergovernmental network that supports the aims of sustainability science. This book shows their global relevance and outlines lessons learned about biocultural diversity, sustainability, and society. It is relevant to a wide audience of professionals and advanced students in environmental management, ecology, sustainability science and geography.

20% Discount Available - enter the code FLR40 at checkout*

Hb: 978-1-138-36931-3 | £88.00
Pb: 978-1-138-36932-0 | £31.99

* Offer cannot be used in conjunction with any other offer or discount and only applies to books purchased directly via our website.

For more details, or to request a copy for review, please contact: <http://pages.email.taylorandfrancis.com/review-copy-request>.

the world, including 15 case studies, from each of the five UNESCO world regions. Each case study demonstrates how conservation, sustainable development and the role of scientific research have been interpreted locally. The book concludes with seven chapters that discuss thematic lessons to help understand the challenges and opportunities associated with sustainability science, providing a unique platform from which lessons can be learned. This includes how concepts become actions on the ground and how ideas can be taken up across sites

at differing scales.

Angela Andrade, Chair of CEM, describes the book as "A much needed publication about the relevance of Biosphere Reserves as nature-based solutions that implement emerging and key concepts for our planetary challenges – such as governance and

cultural practices for ecosystem management – in a continuous search for ecosystem resilience”.

Further information about the book is available at <https://www.routledge.com/UNESCO-Biosphere-Reserves-Supporting-Biocultural-Diversity-Sustainability/Reed-Price/p/book/9781138369320> - where you can also order copies at a 20% discount if you enter the code FLR40 at the checkout!

2. World Conservation Congress 2020

The open Call for Proposals for the IUCN World Conservation Congress, to be held in Marseille, France, on 12-15 June 2020, is now open. Proposals for three types of sessions – Thematic stream sessions, Speaker pitches, and Campus sessions – have to be submitted by **17 July 2019**.



All information about the Congress is available on the [IUCN Congress website](#) - including the [Congress themes](#), the [Forum's objectives](#), and the [selection criteria](#) to submit proposals.

If you have an idea for a session on biosphere reserves, please contact Martin Price martin.price@perth.uhi.ac.uk by the end of May with suggestions of the type of session, topic, and who/which organisation(s) you would like to involve.

We look forward to your ideas!



PUBLICATIONS

- Leticia Durand. 2019. Power, identity and biodiversity conservation in the Montes Azules Biosphere Reserve, Chiapas, Mexico. *Journal of Political Ecology* 26:1. <https://journals.uair.arizona.edu/index.php/JPE/article/view/23160/21887>
- José López-García, Rafael M. Navarro-Cerrillo. 2019. Disturbance and forest recovery in the Monarch Butterfly Biosphere Reserve, Mexico. *Journal of Forest Research*. <https://doi.org/10.1007/s11676-019-00964-3>
- Sarah Marie Müller, Jasmin Peisker, Claudia Bieling, Kathrin Linnemann, Konrad Reidl, Klaus Schmieder. 2019. The Importance of Cultural Ecosystem Services and Biodiversity for Landscape Visitors in the Biosphere Reserve Swabian Alb (Germany). *Sustainability* 11(9), 2650; <https://doi.org/10.3390/su11092650>
- Tharmalingam Ramesh, Riddhika Kalle, Kalyanasundaram Sankar, Qamar Qureshi, Anthony J. Giordano, Colleen Thelma Downs. 2019. To resettle or not?: Socioeconomic characteristics, livelihoods, and perceptions toward resolving human-tiger conflict in the Nilgiri Biosphere Reserve, India. *Land Use Policy* 83: 32-46. <https://doi.org/10.1016/j.landusepol.2019.01.019>
- Fabiana Ribeiro, Fontenelle Satie Taniguchi, Josileneda Silva, Rafael Andre Lourenço. 2019. Environmental quality survey of an industrialized estuary and an Atlantic Forest Biosphere Reserve through a comparative appraisal of organic pollutants. *Environmental Pollution* 248: 339-348. <https://doi.org/10.1016/j.envpol.2019.02.023>
- Elina Viirret, Kaisa J. Raatikainen, Nora Fagerholm, Niina Käyhkö, Petteri Vihervaara. 2019. Ecosystem Services at the Archipelago Sea Biosphere Reserve in Finland: A Visitor Perspective. *Sustainability* 11(2), 421; <https://doi.org/10.3390/su11020421>