

Report for the Periodic Review of Corvo  
UNESCO Biosphere Reserve 2017



# Corvo Island Biosphere Reserve

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## PART I: SUMMARY

a) Name of the biosphere reserve: [Corvo Island Biosphere Reserve](#)

b) Country:

[Portugal](#)

c) Year of designation:

[2007](#)

d) Year(s) of periodic review(s):

[2017](#)

e) Previous recommendation(s) made by the International Co-ordinating Council (MAB- ICC), if applicable:

[No recommendations were made since the nomination in 2007 by the International Co-ordinating Council \(MAB-ICC\).](#)

f) What follow-up actions are completed and if not completed/initiated, please provide justifications.

[The actions/proposals for intervention that were identified when putting together the application dossier have mostly been fully achieved, with the direct participation of the bodies responsible for managing the Biosphere Reserve, with the involvement of a range of local and regional stakeholders, as detailed below:](#)

### **a) Plans, studies and monitoring**

- [The provision in 2010 of the online Geographic Information Portal of the Regional Directorate for the Environment <http://sig-sraa.azores.gov.pt/>, which allows all citizens and entities, public or private, to research, visualise and explore geographic information about the Azores archipelago, in particular in the areas of land use planning, water resources and environmental occurrences, in addition to offering a Web Map Service \(WMS\);](#)

- The elaboration in 2008 of a Regional Land Management Plan for the Azores (PROTA), which led to the publication of Regional Legislative Decree No. 26/2010/A of 12 August;
- In 2012 the Regional Hydrographic Management Plan for the Azores (PGRH-Azores);
- In 2013, the Sectorial Land-Use Plan for Mining Activities in the Autonomous Region of the Azores (PAE), which resulted in the publication of Regional Legislative Decree No. 19/2015/A of 14 August;
- In 2014, the Strategic Plan for the Prevention and Management of Waste in the Azores (PEPGRA), published as Regional Legislative Decree No. 6/2016/A of 29 March;
- In 2015, the Regional Hydrographic Management Plan of the Azores 2016-2021 (PGRHA 2016-2021);
- And, in 2016, the Flood Risk Management Plan of the Autonomous Region of the Azores (PGRIA), which led to the publication of Regional Legislative Decree No. 20/2016/A of 10 October.

**b) - Surveillance and monitoring:**

- Reinforcing the surveillance and monitoring of the classified areas (core areas of the Biosphere Reserve), with the hiring of two operational assistants in 2013 and 2014;
- The opening of a tender procedure for the recruitment of a Nature Inspector in late 2016;
- Continued support for the Department of Oceanography and Fisheries of the University of the Azores (DOP/UAç);
- The LIFE07 NAT/P/000649 Project – "Island Haven for Seabirds" ran between 2009 and 2012, as a pioneering project for the conservation of seabird colonies in the Azores through the rehabilitation of their habitat and measures for controlling and eradicating introduced invasive species. It was coordinated by the Portuguese Society for the Study of Birds (SPEA), while the Regional Secretariat for the Environment and the Sea (SRAM), Corvo Municipal Council and the Royal Society for the Protection of Birds (RSPB) partnered the project.

- The Post-LIFE Project Action Plan, "Island Haven for Seabirds", coordinated by the SPEA in partnership with Corvo Municipal Council and the Regional Government of the Azores, has been implemented since January 2013. Since September 2015 the Post-Project Action Plan has been implemented through Contract no. 5/DRAM/2015 for the Provision of Services for Implementing the Post-LIFE Project Action Plan "Island Haven for Seabirds" signed between the Regional Directorate for Sea Affairs (DRAM) and SPEA, continuing the commitments of the LIFE Island Haven for Seabirds project.

### **c) Management and conservation of nature and promotion of sustainable development**

#### **1 - Management of species and habitats:**

- Worthy of note is the implementation of PRECEFIAS, the Regional Plan for Eradication and Control of Invasive Plant Species in Sensitive Areas, focusing on protected areas (core areas of the Biosphere Reserve) or areas submitted for classification, including the core area of the Corvo Biosphere Reserve that form part of Corvo Nature Park;
- A number of studies have been conducted, of which the following Master's theses are particularly worthy of note:
  - The Ecological Dimension of Wetlands in the Management and Conservation of the on-land SACs of the Azores;
  - A survey of cliff habitats on the island of Corvo for the conservation of cagarro (Cory's shearwater - *Calonectris borealis*);
  - Changes in the feeding and reproduction of cagarro (Cory's shearwater - *Calonectris borealis*) in the Azores;
  - The impact of predators introduced into the island of Corvo on the reproductive success of populations of cagarro (Cory's shearwater - *Calonectris borealis*);
  - The use of an acoustic monitoring system to estimate the numbers of cagarro (*Calonectris borealis*) in the Azores;
  - Proposal for a sustainable energy system for Corvo Island – Instituto Superior Técnico (Technical University of Lisbon) The aim of the project was to study the incorporation of endogenous energy sources in isolated areas, based on the study of Corvo Island.

- Master's dissertation on Human Ecology and Contemporary Social Issues – “The Island of Corvo and its Biosphere Reserve: what relationships exist between the islanders and the Reserve?”
- Analysis of the threats and conservation plans for selected endemic Azorean plants on Corvo: *Myosotis azorica*, *Euphrasia azorica*, *Solidago azorica* and *Azorina vidalii*.
- Scientific article published in the journal *Biological invasions* – review and research into drives to eradicate rodents on inhabited islands;
- Publication of an article on “Exotic mammals on the island of Corvo: is eradication technically possible?”
- Publication of the "Corvo Rarities Checklist" for distribution to the birdwatchers who flock to Corvo every year to watch migratory birds. The list was started as part of the LIFE project;

## **2 - Intervention in economic activities:**

- Attribution of usage rights for the trademark and logo “Biosfera Açores” (Azores Biosphere), as regulated in Ordinance No. 27/2011 (Regulation of the “Biosfera Açores” brand);
- “System of Incentives for Traditional Landscapes of Viniculture in Plots and Terraces, and of Orchards of Traditional Species in Protected Landscape Areas and Coastal Fajãs forming part of Island Nature Parks and Biosphere Reserves”, approved by Regional Regulatory Decree No. 24/2014/A, of 15 December.

## **c) Support for visitors and environmental information**

### **1 - Infrastructure to support visitors:**

- The Corvo Cultural and Environmental Interpretation Centre (CIACC) was opened on 21 June 2007;
- With the opening of the Wild Bird Rehabilitation Centre on Corvo (in October 2010), the Autonomous Region of the Azores gained a pioneering facility for the rescue and recovery of wild birds, in order to return them to the wild at a later date. This centre enables Corvo Nature Park to play an important role in the recovery of birds and thus contribute towards nature conservation.
- Classification/approval of 2 pedestrian routes on Corvo Island, making up the Regional Pedestrian Route Network;

- Building of infrastructure in classified areas, such as the construction of lookouts, fences and the demarcation of parking areas;
- The recovery and restoration of the last traditional mill on Corvo in July 2015, in an area adjacent to the CIACC, is another reason to visit the island.

The preservation of this structure, on an island that is also a Biosphere Reserve, is testament to the harmonious coexistence of mankind and the natural surroundings.

## **2 - Information and environmental awareness**

- Implementation on Corvo Island of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA) by the Corvo Eco-library, part of the Regional Network of eco-libraries of the Azores (RREA) and created by the Regional Directorate of the Environment;
- The launch of a documentary on DVD entitled “Corvo Island, Biosphere Reserve” made an important contribution towards promoting the island of Corvo in general and its biosphere reserve in particular. This multimedia tool (sold in the shops at the environmental centres) was released by the Regional Secretariat for the Environment and the Sea in 2012;
- The holding of various events relating to entrepreneurship and tourism, in particular the Entrepreneurship and Sustainable Tourism Workshop (2012);
- The organisation of two meetings of the Scientific Committee, also as part of the LIFE project, attended by experts in the recovery of the islands of Macaronesia (2010 and 2012).
- These events were organised by the Portuguese Society for the Study of Birds (SPEA) as part of the project Island Haven for Seabirds – LIFE07 NAT/P/000649, which ran between 2009 and 2012 on the island of Corvo.

g) Update on the implementation of measures to achieve the objectives of the biosphere reserve.

It is considered that the objectives proposed at the time of the creation of the Biosphere Reserve have been fully achieved and even surpassed in terms of their scope, diversity and intensity. Knowledge and awareness about the importance of the endemic and indigenous species, habitats, the landscapes and the natural resources in general has increased attracting more research and supporting experiences on ecotourism and other socioeconomic activities based on the natural resources.

Based on the experience of these first 10 years and in the context of the present periodic review process, the Corvo Island Biosphere Reserve is promoting an update of the action plan with a participatory model that includes the main local stakeholders and a public discussion phase. In this way the future action plan will incorporate the principles and proposals foreseen in the new MAB Strategy and the Lima Action Plan.

h) Briefly describe the process by which the current periodic review has been conducted:

This report was prepared as part of an initial interactive process with external consultants and members of the Management Board of the Corvo Island Biosphere Reserve, who compiled information and analysed the main projects, actions and changes that have occurred in the last 10 years. This was followed by a second phase of consultations with a significant number of relevant local entities and public discussions that resulted in important contributions to both the review and the future programming of the Biosphere Reserve.

i) Area and spatial configuration:

There has been no change in the area and zoning of the Biosphere Reserve since its integration into the UNESCO World Biosphere Reserve Network.

	Previous report (nomination form or periodic review and date)	Proposed changes (if any)
Area of terrestrial Core Area(s)	825.2 ha	-
• Area of terrestrial Buffer Zone(s)	859.04 ha	-
• Area of terrestrial Transition Area(s)	75.5ha	-
• Area of marine Core Area(s)	2249.9 ha	-
• Area of marine Buffer Zone(s)	21890.6	-
• Size of marine Transition Area(s)	0.00 <sup>1</sup>	-

<sup>1</sup> No measure is indicated for the marine transition zone as no external limit was established at the time of the nomination.



j) Human population of the biosphere reserve:

	Previous report (nomination form or periodic review and date)	At present (please state date of census or other source)
Core Area(s) (permanent and seasonally)	0	0
• Buffer Zone(s) (permanent and seasonally)	0	0
• Transition Area(s) (permanent and seasonally)	425 *	430 ***

\*Censos 2001

\*\*Censos 2011

k) Budget (main sources of funds, special capital funds) and international, regional or national relevant projects/initiatives carried out or planned.

Budget in the previous report (nomination form or periodic review) and date	Initial Budget (2007/2011)	Current Budget (2017 in €)
<b>a) Studies and monitoring</b>	<b>211,150 €</b>	<b>16,135.032</b>
1 – Studies:	38,650 €	14,427
2 - Surveillance and monitoring	172,500	150,605
<b>b) Management and conservation of nature and promotion of sustainable development</b>	<b>355,000 €</b>	<b>10,148.124</b>
1 - Management of species and habitats	200,000 €	251,406
2 - Intervention in economic activities	155,000 €	9,89678
<b>c) Support for visitors and environmental information</b>	<b>12,750 €</b>	<b>100,436</b>
1 - Infrastructure to support visitors:	7,500 €	100,000
2 - Information and environmental awareness	5,250 €	436
<b>Programme management</b>	<b>636,790 €</b>	<b>11,462</b>
<b>Promotion of economic and social development</b>	<b>--</b>	<b>3,149.207</b>

l) International, regional, multilateral or bilateral framework of cooperation. Describe, where applicable, the contribution of the biosphere reserve to achieve objectives and developing mechanisms that contribute to the implementation of international or regional bilateral or multilateral agreements, conventions, etc.

Since it first started to be developed, the Corvo Island Biosphere Reserve has made local, national and international cooperation a priority, acting as an active partner in thematic and regional networks and participating in the 13th meeting of the REDBIOS Network, which was held on the island of São Jorge in 2014. In August 2015 this reserve also participated in the international seminar organised by the candidature committee for the biosphere reserve, with the involvement of representatives of various reserves from the national MAB committees and the Portuguese National Commission for UNESCO, with the aim of promoting networking, fostering exchange of experience and knowledge and exploring possibilities for joint work in the future.

The participation of the Corvo Island Biosphere Reserve in the different thematic networks and bilateral partnerships has promoted cooperation and knowledge transfer among biosphere reserves, with special emphasis on joint actions in the field of nature and landscape conservation. In addition to ongoing collaboration with the Azores Biosphere Reserves Network (Biosphere Reserves of Corvo, Graciosa, Flores and Fajãs de São Jorge), the Corvo Island Biosphere Reserve actively participates in the following networks and/or organisations:

- National Committee for the Man & Biosphere (MaB) Programme;
- National UNESCO Biosphere Reserves Network;
- European Biosphere Reserves Network (EuroMAB);
- Biosphere Reserves Network of Portugal, Spain, Latin America and the Caribbean (IberoMaB);
- Biosphere Reserves Network of Macaronesia and West Africa (REDBIOS);
- Territorial Custody Network in Biosphere Reserves of Macaronesia;
- World Network of Island and Coastal Biosphere Reserves - WNICBR.

## **PART II: PERIODIC REVIEW REPORT**

### **1. BIOSPHERE RESERVE:**

#### **1.1 Year designated:**

2007

#### **1.2 Year of first periodic review and of any following periodic review(s) (when appropriate):**

2017 is the year of the first periodic review.

#### **1.5 Describe in detail the process by which the current periodic review has been conducted**

The periodic review process was developed in an interactive process involving the two Azores Biosphere Reserves under review (Corvo and Graciosa) and involved all local stakeholders forming part of the management bodies, advisory bodies or that are associated in some way with either Biosphere Reserve.

The review process was coordinated and conducted by the Biosphere Reserve Management Board and began with the compilation and analysis of activities and major changes in the last 10 years. The analysis of the 10 year history of each Reserve took place in the context of the current UNESCO MAB Programme and is a result of the approval of the Strategy of the MAB Programme and the Lima Action Plan, taking the opportunity to enhance both the training of technical staff involved in the management of the Reserve and the public actions that promote the objectives of the MAB Programme and the Biosphere Reserve. The process also allowed for the revision and/or updating of the Biosphere Reserve Vision and Mission for the immediate future.

During the second phase, consultations were held with relevant local entities with a view to developing a document supporting presentation and public consultation. This resulted in contributions to both the validation of the periodic assessment report and to the future programming of the Biosphere Reserve.

The simultaneous review processes of the two Biosphere Reserves were used to strengthen the network operations of the Biosphere Reserves of the Azores, as those responsible for management of the reserves of Flores Island and the São Jorge Fajãs were also active participants throughout the review process.

Given that the Biosphere Reserve Coordinators are members of the Portuguese MAB Committee, the review process also benefited from contributions arising from the reflections of this Committee. Generally, the actions/proposals of the intervention formulated in the original application dossier have been fully achieved, in the context of both direct actions by the Regional Government of the Azores and of interventions by various local and regional agents.

All actions carried out were reviewed and contributed to a stock of information that allowed for an analysis of activities and partnerships, demonstrating that the goals initially formulated were fully achieved and even exceeded in terms of the number and diversity of actions and partners involved during the first 10 years of the Biosphere Reserve.

#### 1.5.1 Which stakeholders were involved?

The following bodies took part at an institutional level:

- The Government of the Azores, through departments dedicated to the areas of:
  - The Director of the Corvo Nature Park;  
Nature conservation and environmental awareness;
  - Land-use planning;
  - Water resources and forests;
  - Maritime affairs;
  - Fisheries;
  - Tourism;
  - Scientific research.
- The local authorities, through Corvo Municipal Council;
- Civic and business associations, namely:
  - Núcleo Empresarial das Flores e Corvo (business association);
  - Cooperativa Agrícola do Corvo (agricultural cooperative)
  - Associação Agrícola do Corvo (farmers' association)
  - Associação de Pescadores da ilha do Corvo (fishermen's association)
  - Business association;
  - Farmers' association;
- Other departments of the Government of the Azores, local and national Authorities:
  - Representative for the Economy;
  - Representative for Agriculture;
  - Representative for Forests;
  - Representative for Corvo Municipal Council;
  - The National Republican Guard – Nature and the Environmental Protection Service (SEPNA).

Individual citizens, businesses and other local and national organisations also had the opportunity to follow and participate in the process, in particular in the public consultation phase.

1.5.2 What methodology was used to involve stakeholders in the process (e.g., workshops, meetings, consultation with experts)

.

The interactive process was developed during the meetings of the Corvo Island Biosphere Reserve Management Board, where the main stakeholders/local entities are formally represented.

1.5.3 How many meetings, workshops, etc. occurred throughout the process of conducting this review?

The Corvo Island Biosphere Reserve Management Board has convened regularly twice a year since its incorporation in 2012. In 2017, the Management Board met three times specifically for undertaking the ongoing periodic evaluation.

1.5.4 Were they well attended, with full and balanced representation?  
(Describe participation and stakeholders).

The participation of different stakeholders, essentially through the Management Board, is considered to be generally positive, however it can and should be more active and committed. Although the diminutive size of the island may be one of the factors that explains the inertia and lack of preparation that can inhibit broader participation on the part of some advisers, this attitude was particularly noticed in the process of drafting the periodic evaluation report in the face of intrinsic difficulties in understanding some of the themes and concepts discussed. However, this was of limited relevance owing to the inherent informality that is customary to the inhabitants of Corvo Island.

## **2. SIGNIFICANT CHANGES IN THE BIOSPHERE RESERVE DURING THE PAST TEN YEARS:**

2.1 Brief summary overview: Narrative account of important changes in the local economy, landscapes or habitat use, and other related issues. Note important changes in the institutional arrangements for governance of the biosphere reserve area, and changes (if any) in the coordinating arrangements (including the biosphere reserve organization/coordinator/manager) that provide direction for the biosphere reserve. Identify the role of biosphere reserve organization/coordinator/manager in initiating or responding to these changes.

There were no significant changes to the main types of socio-economic activity in the Corvo Island Biosphere Reserve, as the systems of production associated with beef cattle and polyculture systems predominate in the primary sector. Fishing activity is also an important sector in the island's economy.



There is growing interest in the use of the "Biosfera Açores" brand, which has since been created, as a tool for promoting products and services in the primary sector and in other areas of socio-economic activity.

The study implemented by the Government of the Azores in mid-2016, with the aim of gauging interest in the "Biosfera Açores" brand, indicates that consumers are willing to pay more for beef from areas classified as a biosphere reserve.

In the tourism sector, following the growth of the range of tourist accommodation establishments between 2013 and 2015, which was accompanied by a growth in demand, the last two years have been marked by the stabilisation of the supply and moderate increases in overnight stays, along with continuous rise in occupancy rates.

According to the 2011 census, the island of Corvo has seen a slight population increase of 1.2% compared to the previous decade.

It is important to highlight the rise in the number of businesses in the accommodation and restaurant sector registered on Corvo in 2012, in comparison to 2008.

In 2011 the island of Corvo recorded a higher rate of ageing to that of the whole Autonomous Region of the Azores. The largest age group is 25–64 years.

In terms of the life expectancy index, the council surpasses the regional average, at 54.9%.

In terms of population renewal, Corvo saw a sharp fall from the regional average of 55%.

According to the 2011 census, the island of Corvo has an illiteracy rate below 4%, placing it among the lowest in the archipelago.

Corvo is the municipality with the highest level of employment within the region, at 64.2%.

Between 2001 and 2011 Corvo saw the largest growth in the region for the number of new buildings.

The area of nature and biodiversity conservation saw a significant improvement, particularly as the result of actions and projects carried out by various agents, whether locally based or outside the island. These included the LIFE – Island Haven for Seabirds project, aimed at the conservation of seabird colonies in the Azores through the rehabilitation of their habitat and measures for controlling and eradicating introduced invasive species.

With the creation of the Corvo Biological Reserve (RBC) and the Altitude Reserve (RBA) in the core area of the Biosphere Reserve, the island's terrestrial vegetation was recovered. Once an anti-predator fence was built (in order to establish an artificial seabird colony), around a hundred artificial nests were put in place with the aim of attracting birds of the Procelariformes order, specifically the frulho (Audubon's shearwater - *Puffinus assimilis*), estapagado (Manx shearwater - *Puffinus puffinus*) and the roque-de-castro (band-rumped storm petrel - *Oceanodroma castro*).

In addition, another hundred nests were provided for the cagarro (Cory's shearwater - *Calonectris borealis*).

As an example of the measures aimed at the conservation of seabirds, acoustic systems were installed (comprising a solar panel, batteries, an mp3 reader, megaphone and small speakers) programmed to reproduce the calls of the different birds.

Over the coming years, these systems for attracting birds will continue to be set up at the beginning of the breeding seasons for these birds, so as to encourage them to come to and settle in this area.

A programme of neutering and tagging Corvo's cats, one of the main predators of seabirds in the island, was put in place, with the aim of protecting seabirds. In the initial phase, the initiative was aimed at domestic cats, before being rolled out to feral cats.

The opening of the Corvo Waste Processing Centre in 2012, together with the distribution of 3 separate mini bins to all of the town's homes, has made a major contribution towards the process of managing and separating refuse.

The sealing of the rubbish dump on Corvo had an indirect positive effect not only on improving the general salubrity of the island, but also by reducing the population of Azorean yellow legged gull (*Larus michahellis atlantis*).

In tandem with the sealing of the dump, a landfill site was also created under the Strategic Waste Management Plan for the Azores, which has solved environmental problems caused by the open-air dump, in particular its impact on air and water quality, public health and the landscape.

The construction of the landfill site also provided Corvo with the right conditions for the deposition of construction and demolition waste produced on the island.

In terms of the flora and the rehabilitation of the conservation status and biodiversity of endemic species, a small greenhouse was acquired, enabling plants to be grown in nursery conditions, for later transplantation to areas of major conservation interest.

Regular implementation of measures to eradicate or control invasive flora species, particularly in protected areas (core area), has led to the resurgence and establishment of various species of native flora.

The implementation of PRECEFIAS (Regional Plan for the Eradication and Control of Invasive Plant Species in Sensitive Areas) in protected areas of Corvo Nature Park has been ongoing since 2009 and has become one of the most important nature conservation projects on Corvo Island.

Classified area	Invasive species	Photo
Protected Area for the Management of Habitats and Species of Costa e Caldeirão do Corvo. (Corvo Island Biosphere Reserve Core Area)	Hydrangea ( <i>Hydrangea macrophylla</i> )	
PTZPE0020 Costa e Caldeirão  (Corvo Island Biosphere Reserve Core Area)	Sweet pittosporum ( <i>Pittosporum undulatum</i> ); ginger lily ( <i>Hedychium gardnerianum</i> ); wild blackberry ( <i>Rubus ulmifolius</i> ); hydrangea ( <i>Hydrangea macrophylla</i> )	
Protected Area for the Management of Habitats and Species of Costa e Caldeirão. (Corvo Island Biosphere Reserve Core Area)	Giant cane ( <i>Arundo donax</i> ), ginger lily ( <i>Hedychium gardnerianum</i> ) and ice plant ( <i>Carpobrotus edulis</i> ).	
Protected Area for the Management of Habitats and Species of Costa e Caldeirão. (Corvo Island Biosphere Reserve Core Area)	Sweet pittosporum ( <i>Pittosporum undulatum</i> ), ginger lily ( <i>Hedychium gardnerianum</i> ) and wild blackberry ( <i>Rubus ulmifolius</i> ).	

In the context of the landscape, the implementation of various territorial management instruments has reinforced the safeguarding of natural resources and values and a management regime compatible with the sustainable development of the territory, in particular the publication of the

Land-Use Plan for the Coastal Zone of Corvo Island and the creation of the Corvo Island Nature Park.

On the governance sector, the legal and management system for the protected areas throughout the Autonomous Region of the Azores has also been restructured, and now falls within the legal framework of the respective Regional Network of Protected Areas, under the terms defined in Articles 51 and 54 of the Regional Legislative Decree no. 15/2012/A of 2 April, administered as part of the Island Nature Park on which they are located, which is responsible for providing the necessary logistical and administrative support necessary for its operation.

As such, the biosphere reserves have an autonomous management structure, namely a Management Board headed by the director of the Nature Park, with the composition and competencies set out in Article 54 of Regional Legislative Decree no. 15/2012/A of 2 April.



**Figure 1: Meeting of the Corvo Island Biosphere Reserve Management Board.**

In forming part of the management board, the stakeholders assume an important role in implementing and managing the biosphere reserve, given that this body has the task of advising on the management plan and its execution, monitoring such management, promoting and authorising the use of the brand and the associated logos on products and services, and proposing action and initiatives for boosting and promoting the aims of the biosphere reserve.

Since the publication of that legal statute in 2012, the Corvo Island Biosphere Reserve Management Board has met, in accordance with regional legislation and the respective operating regulations.

The governance model now in place has been developed and created over the past decade at the local, regional and national levels. Hence, when a new legal regime for nature conservation and biodiversity was established in the Azores in April 2012, the governance model for the

respective Biosphere Reserves was also created, based on the decentralised model of the island's Nature Parks. This regime appoints the manager of the Biosphere Reserve and the other members of its management board, who serve essentially as the representatives of the island's primary living forces. The new legal regime thus established the Corvo Island Biosphere Reserve Management Board in 2012, which performs its functions in accordance with regional legislation and respective operating regulations.

## 2.2 Updated background information about the biosphere reserve.

Since its creation, the Corvo Island Biosphere Reserve has maintained its area and zonation scheme, in total accordance with the framework of the MAB Programme and the development of the regional system of protected areas. The Biosphere Reserve corresponds with the whole of Corvo island, the smallest island in the Azores, situated at the extreme north-eastern end of the archipelago and comprising the whole area of the island above water and a surrounding marine area, covering a total area of 25,853 hectares and containing landscapes and environmental features of regional, national and international importance.

Long-standing settlement, farming and animal husbandry have resulted in a humanised landscape of great cultural importance, while at the same time preserving areas as a haven for unique biological features and ecosystems.

At the centre of the island is the crater of an extinct volcano, called the “Caldeirão”, formed of steep-sloped walls and an elliptically shaped crater with a maximum depth of 300 metres and a lake at its centre. The area inside and outside the crater harbours a diverse array of internationally important habitats, which has resulted in around 41% of the island area above water being classified as a Special Conservation Zone and Special Protection Zone within the EU Natura 2000 Network. In addition to this key territory, classified at European level, the reserve has another 3 areas where gathering limpets is forbidden, indicative of regional efforts to preserve natural resources.

It is also worth highlighting the existence of a Voluntary Marine Reserve, locally known as the “Caneiro dos Meros”, which, despite lacking formal status, is a good example of the efforts of the local people to conserve the natural heritage and their appreciation that it is necessary for the proper management of ecosystems.

Since 2008 the island of Corvo has been part of the Corvo Island Nature Park, under the legal framework of the Regional Network of Protected Areas of the Autonomous Region of the Azores, adopting the nomenclature of the International Union for Conservation of Nature (UCN).

Regional Legislative Decree no. 44/2008/A of 5 November refers to two of the categories of the aforementioned Regional Network of Protected Areas: the Protected Area for the Management of Habitats and Species and the Protected Area for Resource Management. The Nature Park also includes Important Bird Areas (IBAs) on the Corvo Coast, classified by Bird Life International.



Despite the reclassification of these protected areas, the criteria and objectives that governed the initial creation of the respective Nature Park were maintained, including those relating to the marine area. This includes the area of the Caldeirão and cliffs on land, as well as a rectangle demarcated by the geographical coordinates set out in the provisions for the creation of Corvo Island Nature Park, which includes the Biosphere Reserve within its limits. This area contains diverse marine and coastal habitats, evergreen forests and altitude vegetation.

18 natural habitats have been identified that are listed in Annex I of the Habitats Directive, of which 4 are considered to be priority habitats.

The island of Corvo has a significant abundance of endemic terrestrial flora, counting 95 endemic species, of which 59 are endemic to the Azores archipelago, 19 are endemic to Macaronesia, and 17 are endemic to Europe. Endemic invertebrates are also present, giving the island a marked richness.

In terms of terrestrial arthropods, there are 24 species endemic to the Azores and 6 endemic to Macaronesia. With respect to terrestrial molluscs, there are 6 endemic species (5 to the Azores and 1 to Macaronesia).

There are 8 subspecies of birds endemic to the Azores and 1 subspecies endemic to Macaronesia.

Corvo has areas of international importance as nesting sites for important bird species, many of which are listed in Annex I of the Birds Directive. Due to its geographical position on the American tectonic plate (like the island of Flores), almost equidistant between the Iberian Peninsula and Newfoundland, accidental migratory birds from North America and the Arctic appear with some frequency. These birds find conditions to rest and feed on the island of Corvo. To round off the long list of endemic species found on Corvo, it is also worth highlighting the presence of a bat endemic to Macaronesia.

The activities undertaken by the people of Corvo are closely linked to the sustainable use of natural resources, and they often carry out several activities as a way of securing their livelihoods. They raise cattle, grow corn, potatoes and vegetables, and fish for tuna, red sea bream, black grouper, snowy grouper and snapper, using traditional fishing methods. In addition, there is also a cheese factory, and services for local people and tourists.

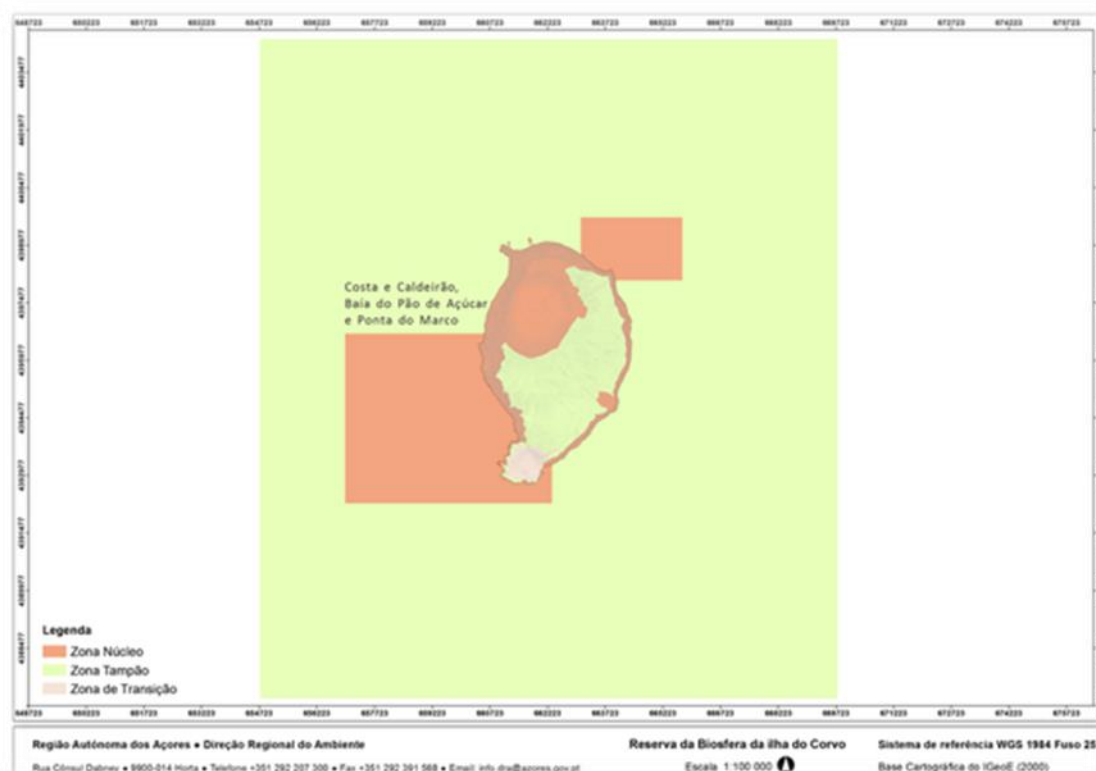
From an early age, the people of Corvo realise that they live in a special place and that they need to make sure that their actions remain in balance with nature if they are to survive.

2.2.1 Updated coordinates (if applicable). If any changes in the biosphere reserve's standard geographical coordinates, please provide them here (all projected under WGS 84):

Cardinal points:	Latitude	Longitude
Most central point:	662394.84	4396167.33
Northernmost point:	662151.44	4399078.57
Southernmost point:	661753.23	4392745.60
Westernmost point:	660419.03	4396385.81
Easternmost point:	664409.74	4396955.12

2.2.2 If necessary, provide an updated map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve. Map(s) shall be provided in both paper and electronic copies. Shape files (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form.

If applicable, also provide a link to access this map on the internet (e.g. Google map, website).



Map 1 – Biosphere Reserve zones

There have been no changes to the zoning of the Corvo Island Biosphere Reserve since its designation in 2007.

### 2.2.3 Changes in the human population of the biosphere reserve.

Most recent census data:

The resident population on the island of Corvo declined over a century to around half, primarily due to several waves of emigration, which reached their peak between 1960 and 1980 and had a direct impact on the population due to the departure of individuals, and an indirect effect through the decline in the birth rate. In 2007, the year of the application to Biosphere Reserve, the island had a population of 450 inhabitants.

According to the analysis of the census data from 2001 and 2011 and in view of the trend of changes to the resident population of the island of Corvo, it is evident that there is a trend of population growth on the island, albeit slight. According to the 2011 census, the population of Corvo grew 1.2%, going from 425 inhabitants in 2001 to 430 inhabitants a decade later.

This demographic trend remains today, with the resident population in 2015 estimated to be 459 inhabitants.

### 2.2.4 Update on conservation function, including main changes since last report. (Note briefly here and refer to 4 below).

Since its creation, the Corvo Island Biosphere Reserve has maintained the same area and zoning, in total accordance with the regional system of protected areas. With the revision in 2007 of the Regional Network of Protected Areas of the Autonomous Region of the Azores and the subsequent creation of Corvo Nature Park in 2008 (Regional Legislative Decree No. 44/2008/A of 5 November), all core areas were classified as protected areas within the nature park, thereby implementing the classification adopted by the International Union for Conservation of Nature (IUCN).

In 1989 a section of the island was classified based on its natural heritage for the first time, when a Special Protection Zone (PTZPE0020) was created: Costa e Caldeirão. In 1998 the Site of Community Interest (already transposed in SAC – PTCOR0001) – Costa e Caldeirão do Corvo was established, along with the EU Natura 2000 network, by Regional Regulatory Decree no. 5/2009/A of 3 June.

It is also worth highlighting that in June 2008 the wetlands of Caldeirão do Corvo were classified as a Ramsar site under the Ramsar Convention, due to the richness of its ecosystem.

The island is also home to several migratory bird species, many of which are listed in Annex I of the Birds Directive. For this reason, the majority of Corvo's protected areas are also classified as Important Bird and Bird Diversity Areas (IBA).

The richness of Corvo Island's landscape, natural and cultural heritage led to the creation of the Corvo Nature Park by the Regional Government of the Azores.

This statutory legal protection promotes the conservation of the island's ecosystems, habitats, and species, by means of the definition of two levels of protected areas,

Corvo Island Biosphere Reserve Core Area	Corvo Nature Park Protected Area
Costa e Caldeirão	- Protected Area for the Management of Habitats and Species of Costa e Caldeirão do Corvo.
Pão-de-Açúcar Bay	- Protected Area for the Management of Resources of Costa do Corvo;
Ponta do Marco	- Protected Area for the Management of Resources of Costa do Corvo;

In addition to this key territory, classified at European level, the Corvo Biosphere Reserve has another 3 ZICLs (No-Gathering Limpets Zones), indicative of regional efforts to preserve natural resources. It is also worth highlighting the existence of a Voluntary Marine Reserve, which, despite lacking formal status, is a good example of the efforts of the local people to conserve the natural heritage and their appreciation that it is necessary for the proper management of ecosystems.

The Corvo Island Biosphere Reserve corresponds to the entire terrestrial area of the island of Corvo and a surrounding marine area whose outer boundary lies three miles from the coastline. This marine area corresponds to the zone set aside for local fishing, in which the use of long lines of any kind and line fishing from boats measuring over 14 metres are prohibited, according to Ordinance No 50/2012, of 27 April.

The creation of a Biosphere Reserve on Corvo Island has resulted in an additional contribution to the protection level afforded to those landscapes, species and ecosystems, which have been recognised as having a significant environmental, geological and cultural importance at the local, regional, national, and even international level.

With the creation of the GEOAÇORES – Azores Geopark Association in May 2010, island-wide delegations were implemented for the Azores Geopark as part of the Island Nature Park Services. The association's various objectives include carrying out activities aimed at protecting, conserving and promoting the natural heritage, with a particular emphasis on geological heritage.

To this end, monitoring was implemented for the top-priority geosites, a task carried out monthly by the island-based delegations, aimed at conservation, through the preservation of geosites of particular significance, exploring and developing geoconservation methods with a view to protecting the geological heritage for future generations.

The Regional Hydrographic Management Plan for the Azores 2016/2021, approved by Regional Legislative Decree no. 1-A/2017/A of 6 February, created the Water Quality Monitoring Network for Corvo Lake, carried out by the laboratory of the Water Resources and Land Use Planning Directorate of the Regional Directorate for the Environment, with the intention of creating an information base that would support more targeted and effective management of the areas of the basin that pose a substantial environmental risk associated with the eutrophication process of the lake in the Caldeirão, making a specific contribution towards knowledge of the effect of changes to land use in the development of the lake's trophic conditions.

In addition to the aforementioned monitoring, monitoring of inland and transitional waters is also carried out by the Analysis Laboratory of the Azores Institute for Technological Innovation - Inova.

The monitoring of bodies of water in each hydrographic region is focused on meeting the obligations arising from Directive no. 2000/60/EC of the European Parliament and the Council of 23 October (Water Framework Directive), transposed to national law by Law no. 58/2005 of 29 December (Water Law) and, subsequently, complemented by Decree Law no. 77/2006 of 30 March. This is aimed at monitoring the quality of water resources, verifying compliance with national and Community regulations, the effectiveness of planning and management measures and, as a result, supporting the proper management and planning of regional water resources, as well as making the information collated directly available to citizens and other bodies, and thus making an important contribution towards participatory management and citizenship.

Due to environmental issues, particularly those arising from eutrophication problems in some lakes, checking the causes of eutrophication is a priority for the regional administration, which has been promoting permanent monitoring of water quality, especially in the lakes on Pico, Flores and Corvo.

As part of the laboratory activities of the Regional Directorate for the Environment / Water Resources and Land Use Planning Directorate, the Government of the Azores acquired a multiparametric probe that can obtain analytical data in a swift and ongoing manner, with a view to the monthly monitoring of the trophic status of the lakes on the islands of Pico, Flores and Corvo, as well as allowing the effectiveness of the measures implemented in the respective hydrographic basins to be assessed.

Access to the chemical and biological data for inland bodies of water that make up the RH9 can be found on the water resources portal at <http://www.azores.gov.pt/Gra/srrn-drotrh/menus/principal/Monitorizaçao/>.





**Figure 2 – Collection of water samples from the Caldeirão Lake**

These monitoring efforts, having originally been carried out by the laboratory team, with backing from the Nature Park, were, after a period of training, fully performed by the services of Corvo Nature Park.

In terms of waste, it is worth highlighting the implementation of the LIXAZ project, which continues the work of another scientific project called AZORLIT, which sought to determine the quantity of marine waste (micro and macro plastics) reaching the coastal zone of the Azores between 2015 and 2016, among other things, and to study the impact of this on the food ecology of marine species.

This scientific project will monitor the development of marine waste in the Azores up until 2019, in order to determine whether there was an increase or reduction in the amount of litter along the Azorean coastline.

This monthly monitoring is carried out by the Corvo Nature Park team, which is also responsible for monitoring efforts carried out under the OSPAR Convention, coordinated by the Department of Oceanography and Fisheries of the University of the Azores.



**Figure 3 – Monitoring of marine waste on the Praia da Areia**

In relation to marine waste, the aim of OSPAR, as envisaged in the Strategy for the Protection of the North-east Atlantic Marine Environment 2010–2020, is to substantially reduce the amount of marine waste in the OSPAR maritime zone to levels at which its properties and quantities do not have a negative impact on the marine environment.

2.2.5 Update on the development function, including main changes since last report.  
(Note briefly here and refer to 5 below).

The Biosphere Reserve Status has made a significant contribution towards promoting the island both nationally and internationally, increasing the value of local products and demand for the island and tourism activities in recent years. As such, the classification of Corvo island as a biosphere reserve 10 years ago has assisted greatly in the island's development and regional cohesion.

These have contributed to increase awareness of and concern for the preservation of local ecosystems and have resulted in greater investment in sustainable development, generating gains for the local economy and also for the island's natural assets, which must obviously be preserved and used in a sustainable manner.

Corvo Island provides exceptional conditions, in terms of natural, cultural and heritage resources, for the promotion of sustainable development.

This is particularly true in the area of responsible tourism, combining sightseeing and the enjoyment of a unique landscape with biodiversity, a rich cultural heritage (cuisine, music, traditions) in terms of tourist animation and a wide array of high quality agricultural and fish products to complement this singular experience.

Restructuring and diversification, coupled with the modernisation and revitalisation of the local economy, have been an important achievement by local entrepreneurs, the municipal council and the regional government, with their planning and implementation supported by various instruments, including territorial management instruments and activities, in particular the Municipal Master Plan (PDM, recently revised), the Operational Programme for the Azores 2014–2020, the Specific Options Programme addressing Distance and Insularity in Madeira and the Azores (POSEIMA), Regional Land Management Plan for the Azores (PROTA), the Rural Development Programme for the Autonomous Region of the Azores (PRORURAL), the PROPESCAS Programme, based on creating conditions for competitiveness and sustainability in the regional fishing sector, and PROEMPREGO and the Azorean Agenda for the Creation of Employment and Business Competitiveness.

The **PDM** is aimed at formulating the spatial structure model for land in each municipality. **POSEIMA** envisages a specific system for providing support for local agricultural production and includes aid for livestock production, vegetable crops and processing, with an emphasis on subsidies for marketing and the private storage of cheese. At a regional level, the strategic objectives of **PROTA** are to develop national policy options for land-use and sectorial policies, thus reflecting the overarching economic development, social and environmental objectives of the Autonomous Region of the Azores (RAA) in spatial terms. **PRORURAL** is developed along 4 axes: increasing competitiveness and sustainability in the farming and forestry sectors; improving the environment and rural landscape; quality of life in rural areas and economic diversification; and taking a leading approach. At this point in time, PRORURAL+ is now in place for the 2014–2020 period. **PROPESCAS** aims to apply biologically and ecologically sustainable exploitation regimes, better organisation of the catch, processing and commercialisation, strengthening productive activity, diversification and addition of value and quality assurance of fishery product.

The guidelines for the development of the region's fisheries sector assume the inclusion of the following priorities in PROPESCAS: Priority axis 1 - adaptation of the regional fishing fleet; Priority axis 2 - aquaculture, processing and marketing of fishery products; Priority axis 3 - measures of general interest; and Priority Axis 4 - sustainable development of fishing areas. **PROEMPREGO** is structured in 6 intervention areas: youth employability; consolidation of the employability conditions in the private sector; modernisation of the productive fabric and support for entrepreneurship; employability and entrepreneurship based on R&D; regional competitiveness in the information and knowledge society; and social inclusion through qualification, employment

and entrepreneurship, plus the Azores Agenda for Job Creation and Business Competitiveness, which envisages various incentive policies, of which the following are relevant here:

- The creation of the new system of incentives for developing handicrafts, with the aim of promoting the improved quality of products made by craft businesses in the Azores, taking into account the structural changes arising from the creation of the status of artisans and craft production units, thus boosting support for the development of this sector of activity;
- The creation of a system of incentives for external promotion and marketing, with the aim of boosting the external competitiveness of regional products and increasing intra-regional trade;
- Commitment to the special Azores brand, identifying the region as a brand synonymous with quality and excellence as a strategy for attracting and retaining markets. Azorean products, whether traditional marketable goods such as meat, dairy products or tuna, among others, or services such as tourism, must be distinguished from other direct competitors by virtue of coming from a region with a low carbon footprint, giving them greater environmental cachet;
- 50% reduction of the air cargo tariff and 77% reduction in the handling fee for fresh produce from the region (vegetables, fruit, eggs, fresh dairy products – yoghurts, fresh cheese, etc.), originating from and destined for the Cohesion Islands (São Jorge, Graciosa, Santa Maria, Flores and Corvo);
- The implementation of a training programme to encourage entrepreneurship relating to sectors and products specific to the Azores, such as fishing and its by-products, agribusiness relating to dairy products, tourism, other sea-based activities and renewable energy;
- The creation of the Terra-Açores project to create a stock of public land on each island available for young farmers to establish themselves, promoting the creation of hubs of nascent agricultural enterprises and thus promoting regional agricultural diversification;
- The creation of the Agir Agricultura and Agir Indústria projects, aimed at combating unemployment and creating new jobs.

The existence of ecological and environmental features that are important to biodiversity conservation both at regional and global level, in conjunction with the presence of a long-standing human population in a concentrated and restricted urban core, limited in numbers but therefore easy to mobilise, makes Corvo island a site that is particularly well geared towards fostering human economic development in an ecologically and culturally sustainable way.

Thanks to these characteristics, the island of Corvo has been a pilot place for the testing and implementation of environmental management measures integrated with human development. Various environmental and cultural projects have been developed over several years within the Corvo Island Biosphere Reserve, with the participation of the island's people, local economic enterprises, the University of the Azores, the Portuguese Society for the Study of Birds (an environmental NGO responsible for coordinating the "Island Haven for Seabirds" project – LIFE07



NAT/P/000649 and the Post Life Project Action Plan), the municipal council and the Regional Government of the Azores.

This work has made the island more widely known as a model of sustainable development at both local and international level. The obtained results have been considered into the drafting of management measures and have contributed towards the development of conservation and development policies adopted by the Government of the Azores.

The implementation of the Biosphere Reserve has facilitated the creation of a common arena for the discussion and coordination of various actions and activities that have made an important contribution towards the restructuring of human activities with a view to achieving the goal of development that is compatible with the conservation of natural spaces and the population's cultural identity.

2.2.6 Update on logistic support function, including main changes since last report.  
(Note briefly here and refer to 6 below).

Various infrastructures and facilities have been installed in recent years, providing support for a diverse array of activities in environmental research, conservation, education, information and others, and thus constitute a significant strengthening of the Biosphere Reserve's capacities. Of these investments, it is worth highlighting the Corvo Environmental and Cultural Interpretation Centre, opened in 2007, which combines interventions that are not only associated with natural resources and nature conservation, but also with sociocultural aspects in an integrated way.

These investments have served as an incentive for attracting local and foreign research teams in various areas of intervention. 2010 also saw the opening of the Corvo Wild Bird Rehabilitation Centre (CERAS/Corvo), which made an important contribution not only to environmental education, but also to nature conservation.



**Figure 4 – Environmental Interpretation Centre and CERAS/Corvo**



2.2.7. Update on governance management and coordination, including changes since last report (if any) in hierarchy of administrative divisions, coordination structure.  
(Note briefly here and refer to 7 below).

One of the most significant changes in terms of strengthening the management of biosphere reserves in the Azores is the fact that since 2012 these have had an autonomous management structure, that is, a management board led by the director of the Island Nature Park, with the composition and competencies set out in article 54 of Regional Legislative Decree number 15/2012/A of 2 April.

#### Organisational chart – management board



The board is responsible for overseeing the preparation and execution of the biosphere reserve's management plan; overseeing the management of the biosphere reserve; promoting and authorising the use of the biosphere reserve's logos on products and services; and recommending actions and projects to promote and meet and objectives of the reserve.

2.3 The authority/authorities in charge of coordinating/managing the biosphere reserve:  
(Comment on the following topics as much as is relevant).

The Biosphere Reserves of the Autonomous Region of the Azores fall under the scope of the legal regime for nature conservation and protection of biodiversity, and are administered under the purview of the Nature Park of the island where they are located, which is responsible for providing the logistical and administrative support required for its functioning. Nevertheless, the Biosphere Reserves have an autonomous management structure, that is, a Management Board led by the Director of the Island's Nature Park.

The Director of the Island's Nature Park oversees the coordination and management of the Biosphere Reserve in partnership with other entities that belong to the Management Board, which include representatives of public, private and non-governmental institutions, government and municipal departments, agricultural association, fishing association, police and military authorities, the scouts, and the business community of Flores and Corvo.

### 2.3.1 Updates to cooperation/management policy/plan, including vision statement, goals and objectives, either current or for the next 5-10 years.

During the periodic review process, and reaffirming the duty of the people of Corvo to be aware of their importance to the achieving a joint future in harmony with the dynamic balance of the planet, a broad-based debate was encouraged with a view to updating and establishing the vision and priorities for the Biosphere Reserve for the next 6 years.

Corvo Island Biosphere Reserve is now in an important phase, one in which this periodic evaluation is enabling us to reflect on the path that has been taken and to make equally important efforts to define a strategy for the coming decade.

The population of Corvo must be aware of its duty to be conscious of the reserve's importance in the common future, in harmony with the dynamic equilibrium of the planet and the importance of their actions for the sustainable and responsible societal development within the Biosphere.

The main objectives of the Biosphere Reserve include the conservation and sustainable use of biodiversity at a genetic level and at the level of the species, habitats, ecosystems and landscapes, making them a central component of Corvo Island's sustainable development model. In addition to supporting good environmental quality, they also serve as instruments for generating economic opportunities by creating fair and stable employment relevant for the local economy. Efforts will be made to exploit the potential of the Biosphere Reserve by attracting and retaining scientific research teams in the environmental, cultural and social fields, by developing environmental education and information programmes, and by promoting sustainable tourism based on robust studies on the carrying capacities and specific aptitudes of each area, monitored by systems of reliable indicators that have been adapted to the local level.

As an active member of the Azores Autonomous Region's Network of Biosphere Reserves and the "Biosfera Açores" (Biosphere Azores) brand, Corvo Island Biosphere Reserve has made regional cooperation with its counterparts a priority (Graciosa, Flores and Fajãs de São Jorge Biosphere Reserves), such that it will act as an integral partner of this network, forging close collaboration among members and orienting its activities towards implementing the "Biosfera Açores" brand in an affirmative manner. The efforts of this regional network should be based on the sharing of experiences and knowledge, which are crucial to the development of joint actions in the future.

As part of this evaluation, the Corvo Island Biosphere Reserve Management Board discussed and agreed on a Vision and Mission for 2018-2024.

### **Vision of the Corvo Island Biosphere Reserve**

The vision of the Corvo Island Biosphere Reserve has been developed around a fragile island territory that strives to become a place of excellence, that conserves its tangible and intangible resources and strengthens its identity-based values and those of a community open to the world, to people and to the times and that ensures local socio-economic development that favours co-existence, as a reservoir of life, a protector of society and of participatory management that improves the quality of life and the well-being of its ultimate beneficiaries: people, (both residents and visitors).

Implementation of this overall vision of Corvo Island Biosphere Reserve should be based on firm foundations that combine management of scientific research and innovation with the traditional knowledge of the local population while integrating the diverse sensitivities of various sectors.

### **Mission of the Corvo Island Biosphere Reserve**

The mission of the Corvo Island Biosphere Reserve is to promote, execute and demonstrate a balanced relationship between people and the biosphere reserve at different scales by functioning as a site for experimenting and learning methods of conservation and sustainable development and fomenting planned and coordinated management with the effective and concerted participation of its various social partners. As such, it must assume an ethical commitment and serve a protective function through research, innovation and practices that are appropriate for the efficient use of resources, the aim being the preservation of environmental, cultural and social values that identify and favour the sustainable development of the Corvo community.

The sustainability of its environment, economy, society, culture and identity will only be achieved if this mission is supported by a diverse array of priority initiatives, which are as follows:

#### **Mission (1) – Conservation (of landscapes, ecosystems and species)**

**- Conservation of natural resources:** to actively promote the conservation of natural elements to allow them to continue into the future. To promote the conservation of biodiversity, including both wild and domesticated species, by preserving their populations (in particular the rarest species) and genetic diversity and by eradicating alien and invasive species. To favour actions aimed at restoring or preserving spaces with important geological and/or geomorphological features. To take measures for monitoring populations and the conservation plans, promoting research into natural resources.

**- Functionality of ecosystems:** to promote actions that deter the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of exotic and invasive species.

To develop initiatives to promote ecological restoration via the recuperation of species, control of contaminants, maintenance of the water and carbon cycles and soil conservation.

**- Land management:** to develop actions that promote sensible and sustainable land use by planning human activities in such a way as to maintain biological and cultural diversity. To strive to maintain the spatial continuity of ecosystems and prevent fragmentation, and to maintain traditional land use practices that prevent erosion.

**- Landscape:** to use landscape as a structural element for zoning and social cohesion, taking measures aimed at its protection, management and planning. To maintain the inherent values, both natural and cultural, of landscapes by minimising harmful impacts and preventing the loss of landscapes.

**Mission (2) – Development** (economic and human that is culturally, socially and environmentally sustainable)

**- Quality economy:** production, distribution and use of goods and services in a way that does not subject future generations to serious environmental risks or to significant ecological threats. The small farms on Corvo do not allow the production of items which are competitive on the general market, but the development of products of guaranteed environmental quality allows them to be exploited in specific markets which value quality over cost.

Promotion of territoriality as an inherent singularity of the product, good or service.

**- Responsible tourism:** based on the promotion of a quality offer which respects the environment and targets a market seeking high quality tourism. Promotion of birdwatching as an important market niche in low season, characterised by efficient use of resources.

**- Energy sustainability:** changing the paradigm from one of road mobility based on an external dependence on fossil fuels to one based on clean energy and reduced carbon dioxide emissions, by promoting the use of electrical vehicles.

Corvo Island and its Biosphere Reserve must implement an integrated alternative energy system, combining solar panels, wind and hydroelectric energy, creating a sustainable energy project which will contribute to the sustainable development of the Azores.

**Mission (3) – Logistical** (supporting research, monitoring and education)

**- Enhancement of knowledge:** Corvo Island Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, with the support and collaboration of the University of the Azores in conducting projects involving research, training and environmental education, with the aim of implementing sustainable development models on the island.

**- Traditional knowledge:** to identify and validate cultural elements, customs and traditions as constituents of identity and distinctive elements of the Corvo population to counteract the homogenising effect of globalisation, which appears to replace local identities and cultures.

Through the publication of Regional Government Council Resolution No. 65/2017 of 22 June, the Regional Government of the Azores approved the preparation of Action Plans for the Azores Biosphere Reserves, as set out in article 52 of Regional Legislative Decree No. 15/2012/A of 2 April.

2.3.2 Budget and staff support, including approximate average annual amounts (or range from year-to-year); main sources of funds (including financial partnerships established (private/public), innovative financial schemes); special capital funds (if applicable); number of full and/or part-time staff; in-kind contribution of staff; volunteer contributions of time or other support.

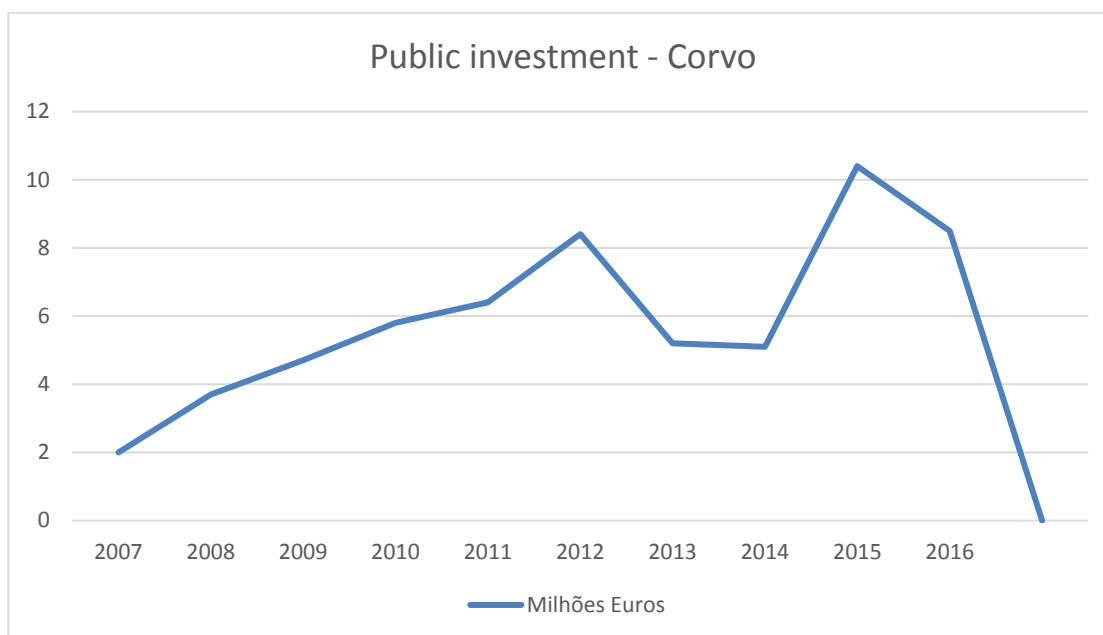
The primary sources of funding for the Corvo Island Biosphere Reserve stem from the various departments of the Azores Government, the Municipality of Corvo and the private sector.

Part of the investment may come from EU co-financing under the scope of existing programmes at the regional (FEDER, FEOGA, FEAMP), national (POSEUR) and transnational (PCT-MAC) level.

The department within the Azores Government that oversees environmental issues is responsible for providing the logistical and administrative support required for the functioning of the Biosphere Reserve under the terms of Article 53 of Regional Legislative Decree No. 15/2012/A of 2 April.

Funding also comes from private investment, part of it co-financed through regional incentive schemes such as PRORURAL+, Competir+, the Programme to Support Restaurants and Hotels in the Purchase of Regional Products, programmes to support handicrafts, incentive schemes to restore and maintain traditional landscapes and the Programme to Support the Local and Coastal Fishing Fleet, among others.

In 2015 the Investment Plan of the Government of the Azores includes disaggregated funding of 10.4 million Euros for the island of Corvo.



**Diagram 1**

The Corvo Biosphere Reserve has an average annual budget of around 71,093.12 Euros, covering the costs of staff, facilities, equipment and investment activities.

Corvo's Environmental Service has 5 technicians/staff (1 technician, 1 nature inspector and 3 operational assistants) who are allocated to the activities of the Biosphere Reserve.

Through volunteering and participation in projects and activities, local organisations provide human resources and materials when needed and if available.

2.3.3 Communications strategy for the biosphere reserve including different approaches and tools geared towards the community and/or towards soliciting outside support.

The communication strategy regarding the Biosphere Reserves of the Azores is based on the creation of the "Biosfera Açores" brand. This allowed for the creation of a common identity to be used in communication and marketing actions. The "Biosfera Açores" brand was created in 2011 and published by Ordinance No. 27/2011, of 28 April, which regulates it, using it to highlight the distinctive factors of the Region: Biodiversity and Geodiversity of excellence; Unexplored calm and nature; Sea life; Diversity of islands and landscapes and Local products, enabling this "Brand" be placed in the service of increasing the attractiveness of the "nature tourism" product and the Azores as a destination, contributing to implement a strategy aimed at the sustainable development of this tourist destination.





Together with the National Committee of the Man and the Biosphere Programme and the National UNESCO Commission, the Corvo Island Biosphere Reserve was also promoted through the shipment of local products certified with the "Biosfera Açores" brand, for various events including the "40th anniversary of the Man and Biosphere Programme (MaB)" celebration, which took place on 3 November 2011 at the UNESCO headquarters in Paris, the "Mostra da Rede Portuguesa de Reservas da Biosfera" (*The Portuguese Network of Biosphere Reserves Show*), which took place at the Assembly of the Republic between 2 and 5 July 2013, or the BTL - International Tourism Fair, which took place in Lisbon from 15 to 19 March 2017.

More recently, the Corvo Island Biosphere Reserve participated in the Portuguese exhibition on the "National UNESCO Biosphere Reserves Network", which was held on 1 May 2017 at the UNESCO headquarters in Paris.

In December 2016 this Biosphere Reserve published the article "O Parque Natural da Ilha do Corvo" [Corvo Island Nature Park] in issue no. 40 of the journal of the "Os Montanheiros" association. The article also made reference to the Corvo Biosphere Reserve: "The island of Corvo is Biosphere Reserve!"

The March issue of the magazine *I Like This* (no. 16) also contained an article on the theme of "Sustainable development: 17 territories – 17 objectives", which presented and described the Corvo Island Biosphere Reserve.

2.3.4 Strategies for fostering networks of cooperation in the biosphere reserve that serve as connections ("bridging") among diverse groups in different sectors of the community (e.g. groups devoted to agricultural issues, local economic development, tourism, conservation of ecosystems, research and monitoring).

The establishment and functioning of the Management Board, including all sectors and living forces of the Biosphere Reserve, is the guarantor of permanent cooperation at the Biosphere Reserve level and allows a constant and transversal dialogue on the management of the Reserve and the stimulation of its activities.

Since the 2012 publication of Regional Legislative Decree No. 15/2012/A, of 2 April, which established the legal regime for nature conservation and the protection of biodiversity, the

Management Board meets ordinarily once every six months, as established in the same legal document.

There are also sectorial projects involving local agents and those from other regions and countries, such as the cross-border cooperation project on landscape stewardship (with Madeira and the La Palma Biosphere Reserve in the Canary Islands), which aims to introduce this concept to the Autonomous Region of the Azores for the first time through actions to rehabilitate and promote the landscape.

2.3.5 Particular vision and approaches adopted for addressing the socio-cultural context and role of the biosphere reserve (e.g. promotion of local heritage resources, history, cultural and cross-cultural learning opportunities; cooperation with local population; reaching out to recent immigrant groups, indigenous people etc.).

The Corvo Island Biosphere Reserve, in addition to its conservation and development work, also seeks to contribute to the appreciation of the island's identity, culture and heritage, through various initiatives.

In late 2016 the Corvo municipality carried out the rehabilitation and rebuilding of various fountains, drinking fountains and washing places that were a fixture of everyday life in bygone times. The initiative was intended to promote the work of the “Improvements Committee”, a group of citizens that carried out important work in constructing public facilities in the late 19th century, in particular by installing such structures. The construction of these facilities not only mitigated the inconvenience caused by the lack of running water in homes, but also contributed towards improving the quality of life for the people of Corvo.



**Figure 5 – Fountain – Rua do Jogo da Bola**



**Figure 6 – Fonte de Cima communal washing facility**

Recently, the Government of the Azores has promoted a study which indicates that consumers are ready to pay more for beef from sites classified as a Biosphere Reserve, which will enable the meat that is to be obtained on these islands and marketed with the Biosphere Reserve distinction to have a specific place in the market and a greater economic value.

### 2.3.6 Use of traditional and local knowledge in the management of the biosphere reserve.

Whenever possible, the management of the Biosphere Reserve seeks to value and put local traditions and knowledge into practice as a way of promoting the cultural identity of Corvo Island. The incorporation of educational activities based on traditional practices is one of the most characteristic interventions of the Biosphere Reserve.

The Regional Directorate for the Environment promotes the following programmes on an annual basis through the Nature Parks: Parque Escola, an educational initiative by the Nature Parks, aimed at school pupils, along with Parque Aberto. Both are linked to the array of activities promoted in the Nature Parks on the islands, whether through their teams or their partners. They are designed to involve the whole community and aimed at raising awareness and combining efforts towards a society with behaviours that are more sustainable and environmentally friendly that should introduced in the traditional production.

The different activities often include initiatives based on traditional practices and customs, normally called “Remembering the Corvo of the past”, with guided tours of the island’s built heritage, such as the tour to Corvo’s last mill, where flour was produced for consumption up until the mid-20th century, and the tours to the whaling boathouse, traditional Corvo windmills, the island’s threshing floors, a place where grains were once threshed and sifted after harvesting, in order to separate the chaff and other waste from the cereal grains.

Such events are excellent opportunities for the younger generations to learn about the whaling tradition, how windmills work and the places where their ancestors worked and spent their time. Particularly noteworthy is the work carried out by the “casa do artesanato” enterprise, which makes the famous woollen caps locally known as “barretas”, and which also makes the typical wooden locks, a quintessential work of local craftsmanship that has maintained its importance down the centuries and is now inextricably associated with the history of the region and that of the people of Corvo.

This product was recently certified under the Azores Crafts brand, having previously been granted a permit to use the “*Biosfera Açores*” brand and logo.

### 2.3.7 Community cultural development initiatives. Programmes and actions to promote community language, and, both tangible and intangible cultural heritage. Are spiritual and cultural values and customary practices promoted and transmitted?

In addition to promoting various initiatives of a cultural nature, the Corvo Biosphere Reserve is playing host to an array of different activities, both cultural and spiritual, and in terms of customs and traditions, organised by a number of bodies.

Of particular note are the music concerts, interpreting different musical genres, folkloric performances, processions to mark the local saints, exhibitions, religious feasts, the establishment of demonstration studios, events promoting art and cultural or folk traditions that

promote intergenerational relations, so that the young people can benefit from the knowledge and experience of the older citizens.

Activities in this vein have been carried out by different bodies, from the Regional Directorate for Culture and the Regional Crafts Support Centre, which is responsible for implementing regional policy in the area of local crafts, to the municipal council, non-governmental organisations, business organisations and even individuals who are invested in keeping certain island traditions alive. One good example of this is the “Bodo de Leite” and the “Sopas de Espírito Santo” organised by members of the community that make up the Brotherhood of the Holy Spirit, which invites the people to take part in a lunch gathering.



**Figure 7 - Corvo folk dancing**



**Figure 8 - Popular parade to celebrate the saints**

Other festivities that bring together the religious dimension with the profane include the “Reis” celebration, in which ethnographic groups go from house to house singing traditional songs (“reis”) and being invited in to enjoy a little celebration by the household.

Recent years have seen various craft enterprises that focus on raw materials found on the island, particularly flowers made of fish scale, berets and caps, embroidery, creative dressmaking, corn leaf dolls, weaving and cardboard crafts, among others.

It is also worth noting that in terms of crafts, the wooden locks made on Corvo appear on the list of 100 products certified as “Handicrafts of the Azores”.

2.3.8 Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the biosphere reserve. Has there been a change in the number of spoken and written languages? Has there been a revitalization programme for endangered languages?

Portuguese is the official language, and no other traditional languages are spoken or written.

2.3.9 Management effectiveness. Obstacles encountered in the management/coordination of the biosphere reserve or challenges to its effective functioning.

The main constraints of the Corvo Island Biosphere Reserve in terms of its management are related to the nature and size of the island itself, limited by the lack of critical mass and difficulties

in accessing sources of financing or programmes at both national and European level, for which applications from an island like Corvo are not always eligible or accessible.

The island's small size ensures ongoing communication and collaboration, which greatly facilitates coordination and the level involvement across all activities.

2.4 Comment on the following matters of special interest in regard to this biosphere reserve: (Refer to other sections below where appropriate).

2.4.1 Is the biosphere reserve addressed specifically in any local, regional or/and national development plan? If so, what plan(s)? Briefly describe such plans that have been completed or revised in the past 10 years.

Corvo Island Biosphere Reserve falls within sustainable development and cohesion strategies at local, regional and national level.

To this end, the Government of the Azores has devised a vast range of incentives, programmes, policies and strategic documents aimed at developing, supporting and stimulating the economic, social, cultural and environmental sectors of the region, which includes the island of Corvo and its distinctive features, not only in terms of its socio-economic situation, but also its typical products such as Corvo cheese, its crafts and its unique landscape.

The sectorial policy instruments in force include:

- Regional Legislative Decree No. 44/2008/A, of 5 November, which creates the Corvo Island Nature Park;
- Sectorial Plan of the Natura 2000 Network (PSRN 2000) in the Autonomous Region of the Azores;
- Regulation of the “Biosfera Açores” brand;
- Regional Legislative Decree No. 15/2012/A, which establishes the legal regime for nature conservation and the protection of biodiversity;
- Regional Land Management Plan for the Azores Territory (PROTA);
- Strategic Plan for the Cohesion of the Azores;
- Sectorial Land-Use Plan for Mining Activities in the Autonomous Region of the Azores;
- Municipal Master Plan (PDM) (awaiting the publication of the new DRR with the revised PDM);
- Land-Use Plan for the Coastal Zone (POOC).

A brief description of the most relevant Plans is provided below:

### **Corvo Nature Park (PNC)**

- The Corvo Nature Park created by Regional Legislative Decree No. 44/2008/A, of 5 November, is the management unit of all of the protected areas of the island included in the Network of Protected Areas of the Azores;

### **Natura 2000 Network Sectorial Plan**

The Natura 2000 Sectorial Plan focuses specifically on the Special Areas of Conservation (SAC) and the Special Protection Areas (SPA) legally established in the Autonomous Region of the Azores, which sets out the following general objectives:

- To protect the wild states of species and ecosystems;
- To undertake scientific research and maintain environmental services;
- To safeguard specific natural and cultural features;
- To ensure compatibility between nature conservation, tourism, recreation and leisure;
- To undertake awareness-raising and environmental-education actions;
- To use existing resources in natural ecosystems in a sustainable manner.

On the island of Corvo, the provisions of the Natura 2000 Network Sectorial Plan apply to the Costa e Caldeirão SAC and SPA. The main actions jeopardising the integrity of these ecosystems are the intensification of farming and cattle raising and the unbalanced use of water resources. The PSRN2000 indicates mitigating and preventative measures including sustainable land use in terms of farming and cattle raising practices, by way of intensifying farming, the establishment of protected areas in wetland zones where grazing is prohibited, namely the Caldeirão, and the drafting of a Lake Basin Land-Use Plan.

### **Regulation of the “Biosfera Açores” brand**

The Manual of Procedures and corresponding declaration model, approved by Ordinance No. 27/2011, of 28 April. This regulation establishes the conditions for the use of the "Biosfera Açores" logo and brand, with the purpose of promoting and disseminating local resources, products, goods and services, both locally and abroad, including agro-food, handicrafts, and tourism promotion with a view to the sustainable development of the local populations of the Azores islands which are classified as Biosphere Reserves by UNESCO;

### **Legal regime of nature conservation and the protection of biodiversity**

The legal regime for nature conservation and the protection of biodiversity, approved by Regional Legislative Decree 15/2012/A of 2 April, contributes to ensure biodiversity through the conservation or restoration of natural habitats and of wild fauna and flora in a favourable status of conservation, protection, management and control of wild species, and the regulation of their exploitation. It also has the objective of regulating culture or breeding in captivity and the



introduction into nature of species of flora and fauna that do not occur naturally in the wild in the regional territory, as well as the creation of adequate measures of control and eradication of those that have become invasive species or which involve known ecological risk.

### **Regional Land Management Plan for the Azores Territory (PROTA)**

PROTA, adopted by Regional Legislative Decree no. 26/2010/A of 12 August, translates the major sustainable economic and social development objectives devised for the archipelago into concrete terms, and also establishes regional measures for joining up the policies set out in the National Programme for Land-Use Policy (PNPOT) and the existing or drafted sectorial plans, as well as regionally significant policies and measures included in the special land-use plans (PEOT) and the PMOT, culminating in the target of serving as a frame of reference for special, intermunicipal and municipal land-use plans.

### **Strategic Plan for the Cohesion of the Azores**

Regional cohesion was designated by the Government of the Azores as a strategic factor of governance and an element that brings people together and improves the conditions offered in the different physical spaces of the Region. These promote the settlement of people and families, including their enhancement (social cohesion), and also provide conditions for the development of entrepreneurial activities that generate wealth and employment (economic cohesion).

Participating islands in the Cohesion Plan are: São Jorge, Graciosa, Santa Maria, Flores and Corvo. In the specific case of the island of Corvo, the Strategic Plan for the Cohesion of the Azores proposes a set of factors to be considered in a cohesion strategy.

### **Sectorial Land-Use Plan for Extractive Activities in the Autonomous Region of the Azores (PAE)**

The Sectorial Land-Use Plan for Extractive Activities in the Autonomous Region of the Azores, adopted by Regional Legislative Decree no. 19/2015/A of 14 August 2015 is aimed at the integrated land-use and management of the extraction of non-metal mineral resources in the Autonomous Region of the Azores and is based on the principle that these geological materials are strategically useful for the development of the region.

The general development objective set out in the PAE is to make exploitation of non-metal mineral resources compatible with the promotion of environmental and landscape values and socio-economic development.

### **Land-Use Plan for the Coastal Zone of Corvo**

The Land-Use Plan for the Coastal Zone of Corvo, adopted by Regional Regulatory Decree no. 14/2008/A of 25 June, covers the intervention area of “inland coastal marine bodies of water and

their respective beds and banks”, including the “protected terrestrial area”, which has a maximum width of 500 m from the line marked out by the edge of the sea; and the “maritime protection range”, which goes up to the 30 m bathymetric line.

The following specific objectives are set out in the POOC Corvo:

- To define prevention criteria for areas at risk;
- To advocate the preservation of the natural heritage of island spaces;
- To promote appreciation of the coast and enjoyment of the coastline by the local people;
- To encourage diversity in tourist practices;
- To promote and build upon the geographical closeness of Corvo and Flores;
- To reclassify the existing bathing areas;
- To propose measures for mitigating the specific impacts of the management of solid urban waste.

### **Municipal Master Plan for Corvo (PDM CORVO)**

The PDM Corvo, adopted by Resolution no. 95/94 of 14 July, was amended by Declaration no. 27/94 of 20 October, and is currently being revised. As this process of revision is now close to complete and there is already a draft plan, it is worth highlighting some of its strategic guidelines:

- To preserve and value the municipality's natural and built heritage;
- To promote agro-forestry land-use;
- To improve the system of water resources;
- To improve the basic sanitation infrastructure.

#### **2.4.2 Outcomes of management/cooperation plans of government agencies and other organizations in the biosphere reserve.**

The plans described above are legal instruments for territorial or sectorial planning and management, which in turn are strategically aligned with the Azores 2020 Operational Plan.

The Biosphere Reserve gives local expression to these instruments in the sectors of conservation and socio-economic promotion.

The most recent planning and management instruments are associated to corresponding monitoring programmes, control indicators and others considered pertinent, which will allow the implementation of the actions and the strategy defined in the aforementioned plans to be evaluated.

### 2.4.3 Continued involvement of local people in the work of the biosphere reserve. Which communities, groups, etc. How are they involved?

Each of the biosphere reserves of the Autonomous Region of the Azores has a management board that includes all of the forces active on the island, so that the biosphere reserve itself is an ongoing space for dialogue, cooperation and consultation.

Corvo's people are very engaged, partly due to the smallness of the population and partly due to the geographical remoteness of the island.

This culture of engagement is evident in the very existence until recently of an informal "council" made up of elderly and notable figures of the community.

Public participation in the discussion of measures or issues affecting the community is usually very high thanks to the involvement of most of the population.

In addition to the bodies represented on the Management Board, it is worth noting the involvement of the different departments of the Government of the Azores focusing on matters concerning environmental quality, nature conservation, land use, water resources, and forests, marine affairs including fisheries, scientific research and tourism.

In brief, and looking only at years 2015 and 2016, over the course of those two years we have recorded around 100 activities on the island involving over 600 participants, across the various regional programmes and campaigns: Parque Escola (activities for school pupils from pre-primary to secondary education); Parque Aberto, Açores Entre-Mares Campaign, SOS Cagarro Campaign; Azores Waste Week, Azores Geopark, commemorative days, and other initiatives.

By way of example, we might mention the case of the SOS Cagarro Campaign in 2016, in which over 150 volunteers participated over the course of three (3) weeks, joining the night Cory's Shearwater rescue teams on a rolling basis, in a clear example of civil involvement as part of an iconic campaign that has been running for over 20 years.



**Figure 9 – Volunteer activity – SOS Cagarro Campaign**



**Figure 10 – Açores Entre-Mares Campaign**



**Figure 11 – Workshop – Cardboard recycling**

In addition to the aforementioned involvement, it is worth highlighting the marked participation and collaboration of different entities and bodies intervening in the local setting, such as the Santa Casa da Misericórdia do Corvo, the National Scouting Association (CNE), Corvo Youth Association, Mouzinho da Silveira Primary and Secondary School, hotel and tourism businesses, all involved in various activities within different areas (conservation, culture, tourism, etc.), together with active and regular participation by the local people.

Notable examples of such participation include:



**Figure 12 – Planting of endemic species**



**Figure 13 – Eco Escola Programme**

Almost 20 years since the creation of the Caneiro dos Meros Voluntary Reserve, it remains forbidden to fish at this site. Besides the exceptional abundance of black grouper here, these waters are also home to other marine wildlife, with a concentration and abundance of demersal and pelagic species that is rare in the waters around the Azores.

This reserve, created by a group of young people from Corvo in 1998, has long been respected due to garnering goodwill from the fishing and hunting community and stakeholders in tourism.





**Figure 14 – Caneiro dos Meros Voluntary Reserve**

Caneiro dos Meros is the only voluntary reserve in the Azores. Today the diving spot is reputed to have the greatest abundance of black grouper (*Epinephelus marginatus*) in the archipelago, and it is possible to dive with around a dozen of these curious giants.

As a result, awareness was raised among the fishing community, which decided not to fish in this spot in order to conserve a significant marine ecosystem.

2.4.4 Women's roles. Do women participate in community organizations and decision-making processes? Are their interests and needs given equal consideration within the biosphere reserve? What incentives or programmes are in place to encourage their representation and participation? (e.g. was a "gender impact assessment" carried out? Are there any studies that examine a) whether men and women have different access to and control over sources of income and b) which sources of income do women control? If so, provide reference of these studies and/or a paper copy in an annex.

Article 13 of the Constitution of the Portuguese Republic sets out the principle of equality, and no one is privileged, favoured, injured, deprived of any right, or exempt from any duty because of his ancestry, sex, race, language, territory of origin, religion, political or ideological convictions, education, economic situation, social condition or sexual orientation.

The legal system in force ensures full rights and gender equality.

2.4.5 Are there any changes in the main protection regime of the core area(s) and of the buffer zone(s)?

After September 2007, there were several legal documents that, in some way, established a supplementary means of safeguarding the core zone areas of the Biosphere Reserve.

In this context, and soon afterwards, in 2008, the **Corvo Island Coastal Area Land-Use Plan (POOC Corvo)** was approved by Regional Regulatory Decree No. 14/2008/A, of 25 June, which establishes the rules to be followed for the occupation, use and transformation of the soils of the intervention area, which covers a terrestrial protection zone with a width of 500 metres and a maritime protection range that has a limit of half a nautical mile.

That same year, the **Corvo Nature Park (PNC)** was created, approved by Regional Legislative Decree No. 44/2008/A, of 5 November, which constitutes the management unit of all the protected areas of the island included in the Network of Protected Areas of the Azores, and aims to establish mechanisms for the conservation, preservation and management of ecosystems, biodiversity and the natural, scenic, scientific and spiritual values and resources of the Azores and to contribute to the creation of a fundamental network of nature conservation that coordinates the various regimes of protection and safeguarding of natural resources and values.

In 2012, Regional Legislative Decree No.15/2012/A, of 2 April, was published, which establishes the legal regime for nature conservation and the protection of biodiversity, contributing to ensuring biodiversity through the conservation or restoration of natural habitats and of wild fauna and flora in a favourable status of conservation, protection, management and control of wild species, and the regulation of their exploitation.

2.4.6 What research and monitoring activities have been undertaken in the biosphere reserve by local universities, government agencies, stakeholders and/or linked with national and international programs?

In the last 10 years, the following research and monitoring activities have been developed in the Corvo Island Biosphere Reserve territory, with special attention being paid to nature conservation and the sustainable management of resources and land:

**Since 2004** – CLIMAAT “Climate and meteorology of the Atlantic archipelagos” project, in the context of the INTERREG IIIB Programme (INTERREG IIIB – MAC/2.3/A3), coordinated by the Centre for Climate, Meteorology and Global Changes - University of the Azores. Implementation of a scientific cooperation project aimed at developing specific methodologies for the study of meteorology and climate in Atlantic island regions and their adjacent areas, as well as the collection, compilation and processing of relevant information on climate and its dissemination to the public.



**2004–2008** – The LIFE Marine IBAs Project, coordinated by the SPEA, seeks to define the most important areas in Portugal for seabirds in terms of feeding and resting areas, along with other behaviours relating to their life at sea.

Objectives:

- To determine the distribution and abundance of seabirds in Portugal, including the Azores and Madeira;
- To identify and analyse the variables that influence distribution and abundance patterns for seabirds at sea;
- To identify general methods for identifying important areas for birds and defining the criteria that apply to the IBAs programme;
- To determine which marine IBAs meet the designation criteria, including threats and conservation and management measures for these areas;
- To issue the national marine IBAs Inventory for applying the SPA designation at sea in the future.

<http://lifeibasmarinhas.spea.pt/pt/>

**2007-2009** – REMAx project – Experimental network for marine education in the Azores", coordinated by the IMAR Centre at the University of the Azores and financed by the Regional Secretariat for the Environment and the Sea, aims to develop marine education initiatives and stimulate future cooperation between education providers and society.

This project aims to create the Marine Education Network of the Azores.

**2009–2012** – LIFE “Island Haven for Seabirds” LIFE07 NAT/P/000649, coordinated by the Portuguese Society for the Study of Birds in partnership with the Regional Secretariat for the Environment and the Sea (SRAM), Corvo Municipal Council and the Royal Society for the Protection of Birds (RSPB). Project funded with assistance from the LIFE financing instrument of the European Community.

Pioneering project for the conservation of seabird colonies in the Azores through the rehabilitation of their habitat and measures for controlling and eradicating introduced invasive species.

<http://life-corvo.spea.pt/pt/>

**2011-2012** – To assess the risk to marine birds in the Azores, in particular shearwaters, from exposure to haemosporidian parasites, especially avian flu.

**2012** – Research Project on the "Development and implementation of a monitoring programme for the collection of information and assessment of the conservation status of habitats listed in Annex I and species listed in Annexes II, IV and V of the Habitats Directive related to land areas".

**2012-2015** – AZORPI project - Study to provide information on the ecology and taxonomic and conservation status of *Columba palumbus azorica*; Collection and transportation of remaining terrestrial birds and dead bats to other ongoing research projects.

**2013-2017**– Implementation Plan for the LIFE Post-Project "Island Haven for Seabirds". The Post-Project Action Plan Life is implemented through Contract no. 5/DRAM/2015 for the Provision of Services for Implementing the Post-Project Action Plan LIFE "Island Haven for Seabirds" signed between the DRAM and the SPEA, continuing the commitments of the LIFE Island Haven for Seabirds project (LIFE07 NAT/P/000649).

**2013-2015** – Collection of seeds for conservation at the Regional Germplasm Bank of Faial Botanical Gardens.

**2015-2018** – The LIFE EuroSAP II project brings together 10 European countries, including Portugal, with the aim of forming synergies to address the new challenges and threats that some of our iconic birds are facing. 13 partners are participating in the project. The SPEA is representing the project in Portugal. Objective: To assess the current situation and define the action plan for painho-de-monteiro (Monteiro's storm petrel). In the last two years a project with the reproduction of calls from this species has been undertaken in Corvo Island in order to detect the presence of the bird.

**2016** – The project *Seabirds and Wind: The consequences of Extreme Prey Taxis In A Changing Climate* had the following main objectives: To understand the impact of wind on the movement, distribution and demographics of various seabird species; to understand the significance to birds and the ecology of the marine area located in international waters north-east of the Azores; to understand the role of birds in the transportation and recycling of marine nutrients; and to understand the effects of climate change on the aforementioned objectives.

**2016** – The "*Impacts of Marine Litter in the Azores (LIXAZ)*" project, aimed at assessing the impact of marine waste on the Azores.

**2016** – The "*PaleoModes*" project, a study of the spatial and temporal development of large-scale climate patterns responsible for the climatic variability of the Iberian Peninsula and the Azores archipelago.

**2016** – PhD project – Department of Geoscience at the University of the Azores – "CO<sub>2</sub> emissions in volcanic lakes in the Azores: quantification and hydro geochemical implications". Study of the interaction between bodies of water (lakes) and volcanic activity in the Azores. This objective will be achieved through two secondary goals, as follows: (1) quantification of the CO<sub>2</sub> emitted in

volcanic lakes in the Azores; (2) hydro geochemical profiling of the lakes under study. The second main objective of the project is to help to mitigate natural risks and monitor active volcanic systems.

Determining the volume of CO<sub>2</sub> released in lakes on the islands of São Miguel, Terceira, Pico, Graciosa, Flores and Corvo is of major scientific importance, as the impact of these emissions has not been analysed in the context of an estimation of carbon emissions associated with volcanic activity in the Azores, or in the context of the global carbon balance, which is relevant in the context of research on climate change.

**2017 (June)** – International project PaleoModes emerges from a collaboration between several regional, national and international research centres.

Over the course of a week, a scientific team made up of two researchers based in the region at Cibio-Açores – University of the Azores and other scientific institutions in Portugal (IDL-FCUL) and Spain (ICTJA-CSIC; UB; UC) studied the lake in the Caldeirão on the island of Corvo. The main objective of this expedition was to describe the spatial and temporal development and the interrelationships present, from major climatic systems that govern the climatic variability of the Iberian Peninsula and the Autonomous Region of the Azores, with a particular emphasis on the North Atlantic Oscillation (NAO) and El Niño–Southern Oscillation (ENSO) and the resulting impact on aquatic and terrestrial ecosystems, by performing a multidisciplinary study of lake readings for the last 2,000 years.

To this end, a platform – the only one in the Iberian Peninsula – was installed at the centre of the Caldeirão Lake in order to collect lake sediment for subsequent analysis.

**2016-2017**– Mystic Seas I project coordinated by the FRCT and the DRAM. The aim was to review the initial assessments, knowledge gaps, the definition of GES (good environmental status) and the environmental targets established by the three Macaronesia archipelagos (Azores, Madeira and the Canaries) in the initial reports from the Marine Strategy Framework Directive (DSM) and to define the action plan and the monitoring programmes to be implemented in the second cycle of the DSM.

<http://www.mystic-seas.com/>

**2017-2019** – MISTIC SEAS II “Applying a sub-regional coherent and coordinated approach to the monitoring and assessment of marine biodiversity in Macaronesia for the second cycle of the MSFD”, financed by the DG ENV, European Commission (No. 11.0661/2017/750679/SUB/ENV.C2), coordinated by the Regional Fund for Science and Technology (FRCT), which has granted funding to the Regional Government of the Azores (Regional Directorate for Maritime Affairs). Assessing separate functional groups (D1), including

seabirds. The monitoring of seabirds includes three sub-programmes – abundance, reproductive success and survival – and five species – Cagarro (Cory's shearwater - *Calonectris borealis*), Paínho de Monteiro (Monteiro's storm petrel - *Hydrobates montei*), Paínho-da-Madeira (band-rumped storm petrel - *Hydrobates castro*), Alma-negra (Bulwer's petrel - *Bulweria bulwerii*) and the Frulho (Audubon's shearwater - *Puffinus lherminieri*).

Objective: To implement and test the monitoring methodologies/programmes established in MISTIC SEAS I in order to achieve a good environmental status (GES) in the waters of Macaronesia in the 2nd cycle of the DQEM.

**2017-2019** – INTERREG LuMinAves (MAC/4.6d/157) "Light pollution and conservation in the archipelagos of Macaronesia: reducing the harmful effects of artificial light on seabird populations". Whose main partner is the Spanish Ornithological Society (SEO/Birdlife). In the Azores, the beneficiaries are the SPEA, DRAM, FRCT and, as participants, Eletricidade dos Açores (EDA) and Corvo Municipal Council.

Three main objectives: a) to assess the conservation status of seabirds in Macaronesia; b) to promote, protect and rescue injured/dazzled seabirds; c) to reduce the impact of light pollution on seabird colonies (Macaronesia strategy).

2.4.7. How have collective capacities for the overall governance of the biosphere reserve (e.g. organization of new networks of cooperation, partnerships) been strengthened?

The current management model in the Corvo Island Biosphere Reserve includes the participation of all the island's living forces on the Management Board, so that the Biosphere Reserve itself constitutes a permanent space for dialogue, cooperation, coordination and capacity building through effective experiences, both internally and with partners from other geographical realities.

2.4.8 Please provide some additional information about the interaction between the three zones.

The interaction between the three zones of the Corvo Biosphere Reserve is formally coordinated through the planning and management tools in which the functions inherent to each type of zone are clearly identified. Conservation is the fundamental element of the planning, being compatible with the other activities, emphasising the proper functional coordination between the different categories of protected natural spaces (Natural Park, Natura 2000 Network, Geo-sites) and between these and the remaining types of classification of the territory.

2.4.9 Participation of young people. How were young people involved in the organizations and community decision-making processes? How were their interests and needs considered within the biosphere reserve? What are the incentives or programs in place to encourage their participation?

Young people are involved primarily through the link with schools for environmental education activities and programmes, as well as through the participation of various associations and scouting groups, which are long-standing partners of the Corvo Biosphere Reserve.

Within the framework of the implementation of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), promoted by the Corvo Nature Park, several environmental education programmes and actions are implemented and developed in partnerships with local authorities, schools, non-governmental environmental organisations, namely:

**Eco-Escolas Programme** - an initiative of European scope under the responsibility of the Foundation for Environmental Education, aiming to encourage actions and recognise the work developed by the School for the benefit of the Environment. The programme encompasses the entire student community on the island, from pre-primary to secondary education.

**SOS Cagarro Campaign** - aims to involve people in the rescue of juvenile Cory's shearwaters (cagarro). These types of campaigns are preceded by formal briefing sessions and/or informal contacts with potential partners involving the whole island and its people.

**Parque Escola Programme** - a regional initiative that intends to provide resources and information to the school community through actions on various themes, involving all of the schools on the island.

**Parque Aberto Programme** - a regional initiative that promotes actions and activities taking place within protected areas and/or environmental centres, encouraging the participation of the entire population. This programme also promotes actions related to the cultural and traditional aspects of the island;

Environmental Education Activities held on Corvo between 2014-2016							
No. of Activities			No. of Participants			Total	
2014	2015	2016	2014	2015	2016	Activities	Participants
20	26	72	315	265	210	120	850

Source: Azorina, S.A.



### 3. ECOSYSTEM SERVICES:

3.1 If possible, provide an update in the ecosystem services provided by each ecosystem of the biosphere reserve and the beneficiaries of these services (As per previous report and with reference to the Millennium Ecosystem Assessment Framework and The Economics of Ecosystems and Biodiversity (TEEB) Framework (<http://millenniumassessment.org/en/Framework.html> and <http://www.teebweb.org/publications/teeb-study-reports/foundations/>)).

There is no descriptive study yet of the ecosystem services provided by the natural systems of Corvo Island.

However, the following environmental services can be identified from the various ecosystems that make up the Corvo Island Biosphere Reserve:

- **Natural marine and terrestrial ecosystems:** food, climate regulation, nutrient cycle, research, leisure and tourism;
- **Agrarian ecosystems:** food, cultural heritage, humanised landscape, nutrient and water cycle;
- **Urban and humanised ecosystem:** regulation of air and water quality, leisure and tourism, cultural and religious heritage.

The main recipients of these services are the population of Corvo Island, the scientific community and visitors/tourists who visit the island.

3.2 Specify if there are any changes regarding the indicators of ecosystem services that are being used to evaluate the three functions (conservation, development and logistic) of the biosphere reserve. If yes, which ones and give details and update.

A specific system of indicators for the monitoring or evaluation of ecosystem services is not yet established and general statistical indicators are therefore generally used for the most relevant sectors (farming, fisheries, and tourism) and specific activities that can contribute to a preliminary assessment of these services.

3.3 Update description on biodiversity involved in the provision of ecosystems services in the biosphere reserve (e.g. species or groups of species involved).

**Table 1 - Species of flora involved in the provision of ecosystem services**

FLORA			ENVIRONMENT SERVICES
GROUP	ECOSYSTEM	SPECIES	
Vascular plants	Altitude	<i>Vaccinium cylindraceum</i>	Food
Spermatophyta	Coastal	<i>Azorina vidalii</i>	Research
Spermatophyta	Altitude	<i>Juniperus brevifolia</i>	Research
Spermatophyta	Coastal	<i>Tolpis spp</i>	Research
Spermatophyta	Altitude	<i>Ammi trifoliatum</i>	Research

**Table 2 - Species of fauna involved in the provision of ecosystem services**

FAUNA			ENVIRONMENT SERVICES
GROUP	ECOSYSTEM	SPECIES	
Mollusc	Marine	<i>Patella áspera</i>	Food
Cetacean	Marine	<i>Tursiops truncatus</i>	Leisure and tourism
Cetacean	Marine	<i>Delphinus delphis</i>	Leisure and tourism
Mollusc	Marine	<i>Octopus vulgaris</i>	Food
Fish	Marine	<i>Epinephelus marginatus</i>	Food / Leisure and tourism
Fish	Marine	<i>Mullus surmuletus</i>	Food
Fish	Marine	<i>Phycis phycis</i>	Food
Wader	Coastal aquatic	<i>Arenaria interpres</i>	Leisure and tourism
Wader	Coastal aquatic	<i>Calidris alba</i>	Leisure and tourism
Wader	Coastal aquatic	<i>Charadrius alexandrinus</i>	Leisure and tourism
Wader	Aquatic	<i>Tringa nebularia</i>	Leisure and tourism
Wader	Aquatic	<i>Numenius phaeopus</i>	Leisure and tourism
Egret	Wetland	<i>Egretta garzetta</i>	Leisure and tourism
Egret	Wetland	<i>Ardea cinerea</i>	Leisure and tourism
Duck	Wetland	<i>Fulica atra</i>	Leisure and tourism
Duck	Wetland	<i>Aythya fuligula</i>	Leisure and tourism
Shearwater	Marine	<i>Calonectris borealis</i>	Leisure and tourism
Shearwater	Marine	<i>Puffinus lherminieri baroli</i>	Research / Leisure and tourism
Petrel	Marine	<i>Hydrobates castro</i>	Research / Leisure and tourism
Tern	Marine	<i>Sterna hirundo</i>	Research / Leisure and tourism
Tern	Marine	<i>Sterna dougallii</i>	Research / Leisure and tourism

3.4 Specify whether any recent/updated ecosystem services assessment has been done for the biosphere reserve since its nomination/last report. If yes, please specify and indicate if and how this is being used in the management plan.

The development of a joint action of all Azorean Biosphere Reserves (Flores, Graciosa, Fajãs de São Jorge and Corvo) is planned for the development of a preliminary evaluation of the ecosystem services associated with the territories of these four Reserves.

#### 4. THE CONSERVATION FUNCTION:

[This refers to programmes that seek to protect biodiversity at landscape and site levels and/or ecological functions that provide ecosystem goods and services in the biosphere reserve. While actions to address this function might be focused on core area(s) and buffer zone(s), ecosystem dynamics occur across a range of spatial and temporal scales throughout the biosphere reserve and beyond.]

4.1 Significant changes (if any) in the main habitat types, ecosystems, species or varieties of traditional or economic importance identified for the biosphere reserve, including natural processes or events, main human impacts, and/or relevant management practices (since the last report).

No significant negative changes in the existing habitats have occurred in the last decade.

However, it is relevant to note the ongoing restoration of land habitats via the eradication and control of invasive plant species and the creation (as part of the LIFE "Island Haven for Seabirds' Project - LIFE07 NAT/P/000649) of two reserves. The first is the Biological Altitude Reserve (12 hectares) which aims to restore habitats for seabirds, with several hundreds of heather plants,

beech trees, pau-branco, lily of the valley and cedar trees planted to reforest the area, which is surrounded by an electric fence to prevent livestock from entering. The second is the Corvo Biological Reserve, where an anti-predator fence has been installed, enclosing an area of 3.5 hectares free of predators (rats and cats) and invasive plants, suitable for the creation of a seabird colony.

In order to encourage birds to nest, around 200 artificial nests have been built for cagarros (Cory's shearwaters), estagapados (Manx shearwaters), frulhos (Audubon's shearwater) and painhos (storm petrels).

Thousands of endemic plants grow in the area today, making it a haven for seabirds.



**Figure 15 - Corvo Biological Reserve (anti-predator fence) / artificial nests**

The greatest changes noted are related to the protection of the various scenic, geological and environmental assets, with the creation of the Corvo Nature Park on 5 November 2008, as part of which two protected areas were classified in line with the categories established by the International Union for Conservation of Nature (IUCN), which are as follows: the Protected Area for the Management of Habitats and Species of Costa e Caldeirão do Corvo and the Protected Area for Resource Management in Costa do Corvo.



**Figure 16 - Signposting - Corvo Nature Park (Protected Areas)**

As well as the framework established by the decree creating the Nature Park, the park also includes a Special Area of Conservation (SAC) and a Special Protection Area (SPA). The Nature Park also features Important Bird Areas in the Costa do Corvo (IBAs), labelled as such by Bird Life International. The IBA includes a coastal strip stretching from the shoreline to the edge of the cliff extending along most of the island's coastline, including the islets of Ponta do Marco. Along this coastline are habitats identified by international scientific criteria, which host seabirds with unfavourable conservation status.

The Corvo Island Biosphere Reserve includes Important Bird Areas under the international programme promoted by the Royal Society for Bird Protection..

The main habitats on Corvo are the coastal areas, marine areas, coastal cliffs, high wetlands, the eastern and southern slopes, and the urban area.



**Figure 17 - Coastal cliffs**

Corvo Island is significantly rich in endemic land plant species, and following updates carried out over the last 10 years, it now features 95 endemic species, of which 59 are endemic to the Azores, 19 to Macaronesia, and 17 to Europe.

Recently, Faial Botanic Garden, in collaboration with Corvo Nature Park, identified a species which was not previously recorded on Corvo Island: *Ophioglossum azoricum*, locally known as “língua de cobra” (snake tongue).



Peat bogs are thick layers present in various sites on Corvo, particularly within the caldera. They are relics of a time when the climate was colder. It is relevant to note that the largest and oldest peat bogs (*Sphagnum spp.*) in the country exist only on the islands of Corvo and Flores.

With regard to land fauna, the borboleta-castanha, also known as sátiro-dos-açores (Azores grayling - *Hipparchia azorina occidentalis*) is of particular note as a species at risk of extinction present only on Corvo and Flores.

The invertebrate fauna includes 34 land arthropods endemic to the Azores and 6 endemic to Macaronesia. Records also show 179 species of bryophytes, one of which, *Echinodium renauldii*, is currently considered one of the most threatened bryophytes in the world.

In terms of bird species, 8 subspecies have been recorded, as well as one subspecies endemic to Macaronesia.

The nesting of large seabird colonies is one of the reasons for the international significance of the island. Corvo is the site of the main cagarro (Cory's shearwater) colonies in the Region.



**Figure 18 - Cagarro (Cory's shearwater - *Calonectris borealis*)**

Corvo Island Biosphere Reserve features areas of international importance, where rare and vulnerable bird species nest, many of which are listed in Annex I of the European Union Birds Directive. The presence of two bat species is also relevant: one is endemic to the Azores and another endemic to Macaronesia.

One of the most significant elements of the island's natural heritage is its Geodiversity, featuring a variety of geological structures, shapes and materials, highlighted in 2010 by the creation of the Azores Geopark which lists 4 geosites on the island, 3 of which are considered priority sites.



## Map of Geosites on Corvo Island

4.2 Describe the main conservation programmes that have been conducted in the biosphere reserve over the past ten years as well as current on-going ones. Note their main goals and the scope of activities (e.g. biotic inventories, species-at-risk, landscape analyses, conservation stewardship actions). Cross reference to other sections below where appropriate).

Since Corvo Island was designated as a Biosphere Reserve, a number of projects and studies have been implemented aiming to safeguard protected species present on Corvo, whose small populations place them at risk of extinction or on the threshold of survival. These management strategies have therefore included measures and processes aimed at securing their habitats, and the active conservation of these populations.

The LIFE07 NAT/P/000649 – Island Haven for Seabirds Project was developed at Corvo Biosphere Reserve from 2009 to 2012, and was aimed at Corvo and Vila Franca Islet, located off São Miguel Island.

This pioneering project to conserve seabird colonies in the Azores by restoring their habitat and introducing measures to control and eradicate invasive species is coordinated by the Portuguese Society for the Study of Birds (SPEA) in collaboration with the Regional Secretariat for the Environment and the Sea (SRAM), Corvo Municipal Council and the Royal Society for the Protection of Birds (RSPB).

Once the project was complete, the Post-LIFE "Island Haven for Seabirds" Project Action Plan 2014-2016 was launched, also coordinated by the SPEA in collaboration with the Regional Secretariat for the Sea, Science and Technology, the Regional Secretariat for Agriculture and the



Environment and Corvo Municipal Council, in order to continue to honour the commitments made during the implementation of the project.

In 2008, due to the importance of its wet ecosystem, the Caldeirão do Corvo was classified as a Ramsar site, joining the existing 31 wetlands of international importance in Portugal.



**Figure 19 - Caldeirão wetlands (Ramsar site)**

The creation of the Wild Bird Rehabilitation Centre (CERAS/Corvo) provided the Azores archipelago with a pioneering structure aiming to rescue and rehabilitate wild birds. The Centre also plays an important role in environmental education and species conservation. This facility allows the Nature Park to rescue animals, contributing to nature conservation.

In 2015, a student at the University of Munich (under the guidance of Prof. Dr. Hanno Schäfer) wrote her Master's thesis on the threats and conservation plans concerning endemic plants in the Azores, selecting species found on Corvo: *Myosotis azorica*, *Euphrasia azorica*, *Solidago azorica* and *Azorina vidalii*.

The marine environment of Corvo displays significant potential as a reference area for scientific monitoring, due to its limited human intervention. Corvo Island is even considered one of the focal sites of the European Network for Long Term Marine Biodiversity Research (BIOMARE).

The legal frameworks applicable to these protected areas implement public policy on nature conservation, resource management, and spatial planning and management, adapting the regulation of economic activities to preserve environmental assets in order to forge a clear link between sustainability and development.

Among the conservation and species preservation measures implemented, the following are of particular note: The maintenance of the SOS Cagarro Campaign (campaign for the rescue and preservation of Cory's Shearwater populations conducted in the region for more than 20 years), Land and Sea Bird Censuses, activities relating to the Monitoring Programme and programme of measures from the Marine Strategy Framework Directive (DOP/UAç).

The naming of Corvo Island as a Biosphere Reserve has created the conditions necessary to implement and expand projects aiming to improve the quality of life of the population and ensure environmental sustainability.

4.3 In what ways are conservation activities linked to, or integrated with, sustainable development issues (e.g. stewardship for conservation on private lands used for other purposes)?

The protected areas and those of greatest conservation value are all public, with the result that links between conservation activities and sustainable development issues may be framed as part of Sustainable Development Goals 14 (Protect Life below Water) and 15 (Protect Life on Land), in the framework of the Sustainable Development Goals. An initial experimental project relating to land stewardship is underway, which aims to test actions to conserve and enhance the natural and humanised landscape as well as the cultural heritage with links to eco-tourism, as part of the Inter-regional Cooperation Programme, PCT - Macaronesia.

4.4 How do you assess the effectiveness of actions or strategies applied?  
(Describe the methods, indicators used).

Evaluation of the efficacy of the actions and strategy implemented is carried out in various ways, including analysis of the reports and results of individual actions and interventions, monitoring programmes, and checklists of endemic and indigenous fauna and flora in order to track trends in conservation status.

The management plans for protected spaces and for priority species and habitats also offer elements for the evaluation of actions and strategies.

Co-financed initiatives are also subject to audits and assessments by the co-funding bodies (e.g. European Commission, Regional Government and Municipality).

Meanwhile, with regard to conservation, some actions are framed by international programmes, directives or conventions which have regular assessment mechanisms (e.g. Natura 2000 Network, Birds and Habitats Directives, the Convention on Biological Diversity).

4.5 What are the main factors that influenced (positively or negatively) the successes of conservation efforts in the entire biosphere reserve? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be most effective for conservation for sustainable development?

The classification of Corvo Island as a UNESCO Biosphere Reserve has in itself been a positive catalyst for the development of greater awareness of conservation and for the enhancement of natural resources, particularly biodiversity, linked to economic activity such as tourism.

Meanwhile, growing interest in research on habitats and species in the Biosphere Reserve has produced information which is not only relevant to the management of biodiversity, but also to environmental education and awareness raising.

Lack of financial resources and small critical mass are the main constraints for conservation efforts that may be addressed through the increase of networking and partnership within the existing Biosphere reserve's networks.

## **5. THE DEVELOPMENT FUNCTION:**

[This refers to programmes that address sustainability issues at the individual livelihood and community levels, including economic trends in different sectors that drive the need to innovate and/or adapt, the main adaptive strategies being implemented within the biosphere reserve, and initiatives to develop certain sectors such as tourism to complement and/or compensate for losses in other markets, employment, and community well-being over the past ten years.]

5.1 Briefly describe the prevailing trends over the past decade in each main sector of the economic base of the biosphere reserve (e.g. agriculture and forest activities, renewable resources, non-renewable resources, manufacturing and construction, tourism and other service industries).

The potential to develop environmentally sustainable economic activities has grown, with an increase in demand for items produced in ecologically sustainable systems employing good practices, creating the possibility of promoting certified products.

### **AGRICULTURE AND LIVESTOCK PRODUCTION**

The primary sector also displays significant potential for sustainable development both economically and environmentally.

On Corvo Island, it is characterised by largely traditional techniques and small farms with low levels of production.



**Figure 20 - Contemporary agriculture on Corvo**

One of the mechanisms for managing agricultural activity introduced in the Region is the EAFRD - European Agricultural Fund for Rural Development, implemented in the Azores through the Prorural Programme (2007-2013) and Prorural+ (2014-2020).

This regulation, in place since 2007, is a unique instrument for funding rural development policy. Its objectives include enhancing the competitiveness of the agricultural and forestry sectors, improving the environment, and managing the rural space and quality of life, with the aim of diversifying activities in rural areas.

Prorural, through "Axis 2" for rural development, envisaged significant investment in improving the rural environment and landscape by means of four measures: a) Maintenance of agricultural activity in deprived areas; b) Agro-environment payments and Natura 2000; c) Non-productive investments; d) Management of forest areas. Prorural+ focuses on three aspects: competitiveness, sustainability and the dynamics of rural areas, aiming to achieve a more balanced rural development from an environmental and territorial perspective, which is less harmful to the climate and more competitive, innovative and balanced for rural areas.

Besides this, the PROTA (Regional Land Management Plan for the Azores) and the PDM (Municipal Master Plan) regulate the spaces and types of farming operations on the island, and the POOC (Coastal Management Plan for Corvo Island) aims to promote and enhance the coastline and allow its enjoyment by the population.

The training activities aimed at the agricultural sector which are carried out on the island also make an important contribution to the implementation of practices allowing the economic development of the activity while preserving the natural resources used.

All of the farmers to benefit from payments under the Common Agricultural Policy (CAP) have been subject to environmental cross-compliance checks as part of the Birds and Habitats Directives.

It is also relevant to note that, since 26 November 2016, national and European legislation requires that farmers and other stakeholders using pesticides undertake a compulsory training course on the application of plant protection products.

## FISHERIES

Fishing in the Azores is characterised by the application of more traditional technologies, complemented by a set of regulations such as the 3 mile law, the ban on trawl nets and deep-sea gill nets, and the ban on drift nets and purse seines.

In addition, there is a programme to implement a network of protected marine areas covering the range of habitats and ecosystems in the Azores region, from the coast to the open sea. It is small-scale fishing which enhances sustainability, with hook and line equipment predominant in the various fisheries. This policy aiming to promote the sustainable development of the fishing sector can also be seen on Corvo Island.

Fishing on Corvo Island, which is traditional and small-scale, is perfectly suited to sustainable socio-economic development.

In the fishing sector, between 12 miles and 200 miles from the coast, regulatory jurisdiction lies with the national government. The regulation of fishing activity up to 12 miles from the coast (Territorial Sea) is under the jurisdiction of the Regional Government of the Azores. The Regional Directorate for Fisheries is responsible for leading, coordinating and monitoring the implementation of policy in the fishing sector, promoting and supporting all measures necessary for the development of the sector.

Commercial fishing in the Autonomous Region of the Azores is regulated by Regulatory Decree No. 7/2000 of 30 May, which defines the characteristics of the fishing vessels, fishing gear and methods permitted. In addition to the aforementioned decree, Decree Law No. 278/87 of 7 July, as amended by Decree Law No. 383/98 of 27 November, establishes measures for the conservation, management and sustainable use of the fauna and flora resources present in the waters under Portuguese sovereignty or jurisdiction.





**Figure 21 - Fishing activity on Corvo Island**

On 4 October 2006, a proposal for a "National Ocean Strategy" was approved for a ten-year period, establishing a set of strategic actions which identify transversal measures helping to create favourable conditions for a better, more sustainable use of the sea. However, in 2013 this was replaced by a new "National Ocean Strategy" extending until 2020.

One of the objectives of Corvo Biosphere Reserve is to promote the management and safeguarding of marine resources, using suitable measures which allow essential ecological systems and the life support functions guaranteeing their sustainable use to be maintained, in order to preserve biodiversity and restore depleted or overexploited resources.

At the regional level, fishing in the Azores is characterised by its traditional, sustainable nature. Commercial fishing in the Autonomous Region of the Azores is regulated by Regulatory Decree No. 7/2000 of 30 May and by Regional Legislative Decree No. 29/2010/A of 9 November, amended by Regional Legislative Decree No. 31/2012/A of 6 July, defining the characteristics of the fishing vessels, fishing gear and methods permitted.

In addition to the aforementioned decree, Decree Law No. 218/91 of 17 July and Decree Law No. 383/98 of 27 November establish measures for the conservation, management and sustainable use of the fauna and flora resources present in the waters under Portuguese sovereignty or jurisdiction.



**Figure 22 - Pre-school children visit the Lotaçor Building**

## LOCAL PRODUCTS

The main processed product on Corvo is cheese, which has achieved considerable commercial success. This is complemented by the revival of traditional activities such as textile production of blankets, hats and other items made from wool.

The manufacturing of cheese emerged due to the inherent potential for enhancing milk by diversifying dairy products, based on the quality of milk produced in the Azores, and in this particular case, the milk produced in the Corvo Island Biosphere Reserve.

Craftsmanship is another area with the potential for growth, through the reproduction of traditional products, provided that it is better exploited and diversified. As well as handmade reproductions of items of practical use, such as wooden locks and mugs, the revival of ancient looms, the recovery of traditional tapestry and clothing production and the revitalisation of wool production are encouraged through the Corvo Eco museum Project, launched at the end of 2014, which aims to stimulate these activities and revive cultural traditions such as "Wool Day", held during the sheep shearing season.

The diversity and prestige of these handcrafted items lends considerable potential for development to these activities, primarily through the implementation of measures which ensure that they remain environmentally sustainable and guarantee environmental compliance certification.

## TOURISM

Due to its natural and cultural heritage, Corvo Island offers a diverse range of solid foundations which have allowed the development of tourism in an appropriate, varied manner, without creating dependency on a single strand of tourism. Consequently, the combination and interaction between all of the aspects constituting the reality of the island (natural and built heritage; traditions and customs; architecture; handicrafts; ethnography; local products) have allowed harmonious, sustainable growth, which has not only boosted the local economy but has also provided an example to follow for the development of the tourism industry throughout the Region.

Corvo Biosphere Reserve has contributed to the planning and regulation of tourism and recreational activities, in order to avoid the degradation of natural and scenic assets and allow sustainable development.

The POTRAA (Tourism Management Plan of the Autonomous Region of the Azores) was intended to guide the sustainable development of these activities socially, culturally and environmentally, by emphasising their heritage value and unique nature.

## RENEWABLE ENERGIES

From 2012 to 2014, the "Sustainable Corvo" Project was conducted on Corvo Island, led by Eletricidade dos Açores (EDA) with institutional support from the Regional Government of the Azores and Corvo Municipal Council, and scientific collaboration from the MIT Programme - Portugal. It was developed in the framework of the Green Islands Project.



**Figure 23 - Sustainable Corvo Project - Corvo Municipality**

The ARAAL contract signed between the Regional Government of the Azores and Corvo Municipal Council aimed to install solar panels and heat pumps to heat sanitary water in all homes on the island which are used as permanent residences.

This project meets two broad objectives. On the one hand, it reduces reliance on fossil fuels on the island and in the Region, and on the other, it makes a significant contribution to lowering household expenses.

In the near future, Corvo will have the conditions in place to develop an integrated alternative energy system, which will combine solar panels with wind and hydroelectric energy, creating a sustainable project in terms of energy.

This investment in replacing energy derived from fossil fuels with renewable energy sources will help to facilitate the sustainable development of activities on the island, by reducing the ecological footprint caused by the increase in energy consumption linked to the socio-economic development brought about by the Biosphere Reserve.

5.2 Describe the tourism industry in the biosphere reserve. Has tourism increased or decreased since nomination or the last periodic review? What new projects or initiatives have been undertaken? What types of tourism activities? What effect have these activities had on the economy, ecology and society of the biosphere reserve? Are there any studies that examine whether designation of the area as a biosphere reserve has influenced the number of tourists? Please provide the bibliographic information of any studies and/or a paper copy in an annex.

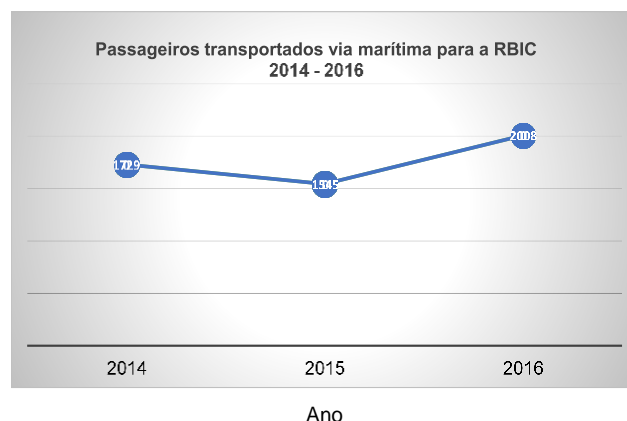
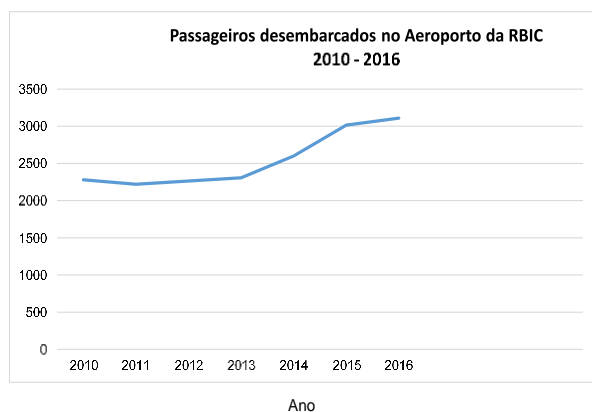
With regard to the visitors arriving on Corvo Island annually, two broad groups may be identified based on the purpose of their visit: Leisure Tourism (including open-air activities such as beach trips, ecotourism, panoramic and cultural visits) and Common Interest Tourism (including people travelling with a common interest between visitor and host - Visiting Friends and Relatives - such as relatives who have emigrated abroad and/or residents of continental Portugal).

Corvo is one of the islands with the lowest number of stays, perhaps due to the fact that visitors do not tend to spend the night, visiting for less than 24 hours from the only nearby island, Flores. The island's proximity to the neighbouring Flores Island and the sea transport offer are the factors most likely to account for this phenomenon.

Corvo's classification in terms of the number of tourists seeking to visit the island is far from mass tourism.

Indeed, the planning carried out by Tourism Management organisations in the Autonomous Region of the Azores aims to control visitor entries, taking into account the load capacity of each island.

Considering the years following the classification of Corvo as a Biosphere Reserve, and even in light of the national and international context of financial and economic crisis, tourism continued to grow as illustrated by the following graphs which show the evolution of the number of passengers disembarking at Corvo airport from 2010 to 2016, as well as the number of passengers transported by sea from 2014 to 2016.



**Graphs 2 and 3**

Current experiences are based on the principles of responsible tourism, particularly the assessment of carrying capacity and respect for the fragilities of ecosystems.

This type of tourism has been showing great potential in terms of the use of smaller-scale infrastructures such as traditional houses, instead of the construction of new hotels, which has been important for preserving the landscape.

## GROWTH IN TOURISM

Annual growth has been observed on Corvo Island since 2010 in particular, as demonstrated by the graph of the number of passengers transported by the regional airline SATA Azores Airlines.

According to data provided by the company Atlânticoline, shown on the graph of passengers transported by sea, the company transported 2,008 passengers in 2016, 463 more than in 2015. The Azores Regional Statistics Service (SREA) reports that Corvo Island recorded 752 more overnight stays in the first half of 2016 than in 2015, that is, a growth of 87%, and 1,160 more overnight stays than in 2012, a growth of 45% since that year.

However, these statistics do not include day-trippers who visit the island for just a few hours and do not spend the night, with the result that the number of visitors is higher than the statistical information available suggests, as they arrive in small recreational boats.

In 2016, Corvo Island had 8 operational tourist accommodation establishments, distributed across the following categories: traditional hotels (2), local accommodation (6) and a camp site (1). The offer in terms of new facilities in the local accommodation (LA) category has seen rapid growth over the last three years, doubling the offer. At the end of 2015, Hotel Guest House Comodoro extended its premises, significantly increasing the number of rooms. This hotel unit has held the Miosotis Azores Award since 2012, an initiative from the Government of the Azores aimed at acknowledging and promoting regional accommodation facilities which invest in sustainable tourism through the implementation of environmentally appropriate practices.



**Figure 24 - Miosotis Azores Award - Hotel Guest House Comodoro**

At the end of 2016, the accommodation capacity across all traditional hotel and local accommodation establishments exceeded 50 beds, representing a significant evolution in terms of both quantity and diversification of the offer.

The recognition of Corvo Island as a Biosphere Reserve played an important role in tourism development, primarily with regard to nature tourism which promotes the landscape and direct contact with the natural environment.

In the context of sustained activity in the Autonomous Region of the Azores linked to nature tourism, two walking trails and an interpretive trail (created in the framework of the LIFE "Island Haven for Seabirds' Project - LIFE07 NAT/P/000649) have been classified on Corvo Island in the last decade, forming part of the Regional Network of Walks.

Code	Name	Type	Distance	Hiking time	Degree of difficulty
PR1COR	Cara do Índio	Linear	4.5 km	02h30	Moderate
PRC02COR	Caldeirão	Circular	4.8 km	02h30	Moderate

#### **Registered trails on Corvo Island**





### Maps of Trails - Cara do Índio and Caldeirão (PR1COR/ PRC2COR)

The walks have a particular impact as a tourism product in a destination such as the Azores, contributing to the successive prizes awarded for excellence as a sustainable tourist destination and to the enhancement of the offer, encouraging active nature tourism, in which contemplation of the landscape is combined with enjoyment of tourist leisure activities.

The Tourism Management Plan for the Autonomous Region of the Azores proposes a focus on strategies aiming to improve the positioning of each of the islands in the context of a multidimensional tourism system of variable geometry.

To this end, it lists the following as a specific strategy for the offer/reference products of Corvo Island:

- Community;



Figure 25 - View of Corvo Island

- Environmental Reserve (Biosphere Reserve - UNESCO);



Promotional leaflet for the Biosphere Reserve (in Portuguese and English)



Promotional leaflet for Corvo Island Biosphere Reserve



Multimedia resource - Student handbook - "Planet Corvo: where tomorrow is today" exhibition

- Experience;



**Figure 26 - Haystacks (constructions supporting agriculture)**

- Relaxation;



**Figure 27 - Bathing area - Praia da Areia**



- Diving;



**Figure 28 – Diving - "Caneiro dos Meros"**

## TYPES OF TOURISM

Corvo Island features excellent conditions for promoting tourist activity of various types, not only due to its climatic conditions, but also due to its geography and natural heritage.

On this island, the most common tourist practices are Birdwatching (an advantageous form of tourism given that it is practised by people with good environmental awareness and is most popular in autumn, boosting tourist activity outside the high season), nature tourism, ecotourism, beach tourism, adventure tourism and common interest tourism (including people who travel with a common interest between visitor and host - visiting friends and relatives - with relatives who have emigrated abroad and/or residents of continental Portugal as a prime example), although numbers remain relatively low. Over the last 10 years, tourist development has included certain tourist activities beyond those attracting the highest numbers considered in the pre-candidacy phase, among which the following are most relevant:

- Boat trips;
- Recreational fishing and spearfishing;
- Diving (which can ideally be practised at Caneiro dos Meros voluntary reserve);
- Hiking;
- Culture;

- Religion (tourism in this area is particularly significant during the summer months, when the main municipal celebrations are held);
- Music concerts - Festival dos Moinhos.

## PLACES OF INTEREST

Some of the most visited places on Corvo Island are:

Caldeirão: The huge crater of the extinct volcano which created the island is filled with a lagoon featuring small islets. Located on Monte Gordo, it is 300 m deep and has a perimeter of 3,400 m.

In June 2008, the caldera was classified as a Ramsar site due to the richness of its wetlands.



**Figure 29 - Caldeirão wetlands (Ramsar site)**

Ponta do Marco: Imposing basaltic rock formations due to their height and gradient, which form part of one of the three priority geosites on Corvo.



**Figure 30 - Ponta do Marco (priority geosites)**

Windmills: Set of three windmills, located to the south of Vila do Corvo, next to Porto Novo.



**Figure 31 - Windmill - typical of Corvo Island**



Church of our Lady of Miracles: Originally built in 1795, the church has a single nave with modern elements due to its destruction by fire, and houses the image of the island's patron saint, Our Lady of Miracles, a 16<sup>th</sup> century Flemish sculpture.



**Figure 32 - Main church on Corvo**

Covas de Junça: Used as a hiding place for valuables in the past by pirates and corsairs.



**Figure 33 – Cova de Junça – At the top of the peak**

Canada da Rocha Viewpoint: located on the hillside overlooking Porto da Casa. From here, the whole bay of the commercial port can be seen, where boats arrive and depart from the island.

Caldeirão Viewpoint: A unique site, where the depths of the silence and the immensity of the landscape take your breath away.

Portão Viewpoint: Panoramic views over the whole village and the typical windmills of Corvo. The area extends across the lava slope of Corvo village and merges with the three priority geosites on the island.



**Figure 34 – View of the lava slopes - Portão Viewpoint**

The site features a viewpoint sign with images facilitating the localisation of places of interest, as well as a Quality Spots plaque, showing visitors why the Azores and Corvo Island in particular are a QualityCoast destination.



**Figure 35 - Quality Spots Plaque - QR code information**

Former Whale Watch Tower: Located on the coast to the west of the island is the last whale watch tower in Corvo.



**Figure 36 - Last whale watch tower on Corvo Island**

Whale Boat House: a facility which aims to perpetuate the historical memory of Corvo's whaling past. The highlight of the exhibition is a whaling boat built in 1965 named "Corvino", which honours the former boat used to hunt whales off the island.



**Figure 37 - "Corvino" whaling boat**

The house also displays 500 photographs of Prince Albert I of Monaco, taken during the various visits which he made to the Azores archipelago, which can be viewed by visitors.

Threshing floors - set of two circular threshing floors with an approximate diameter of 10 metres, with a floor covered in cement mortar and traces of openings in the centre to attach the prop where the cereals were placed to dry, before being threshed.



**Figure 38 – Maranhão threshing floors**

Beach: bathing area on Corvo which holds the "Gold Quality" and "QualityCoast" flags. Locally known as Praia da Areia, located to the south of the island, it is the only accessible permanent sandy area of the island.



**Figure 39 - QualityCoast and Gold Quality flags - Corvo bathing area**



## TOURISM DEVELOPMENT POTENTIAL

Corvo features a set of specific conditions which are highly appealing to certain market segments, particularly to nature lovers in search of hidden, unexplored sites. It is clear that the island displays excellent potential for tourism, albeit at a low level of occupancy and with controlled use.

Some of the main characteristics optimising tourist development on Corvo as a Biosphere Reserve are:

- Good accommodation conditions and increase in offer;
- Geographical characteristics favourable to the creation of walking trails;
- High concentration of the population in a context of low demographic potential (greater profitability in the provision of public and private services);
- Recently revised Municipal Master Plan;
- Natural diversity;
- Environmental policy implemented;
- Rich historical and cultural heritage (expansion of the offer in the short term with the adaptation of a building as an Eco museum - Museum of Time);
- Authenticity and diversity of cultural events;
- Originality of ethnographic heritage;
- Substantially improved air and sea access, particularly in the summer months.

## ACCESS AND TRANSPORT

With regard to the transport sector, and particularly to air transport, the island is served by 3 weekly flights in winter, and by daily flights from Monday to Friday in summer.

Sea transport, which saw significant improvement with the launch of the Ariel boat in 2008, has seen the emergence of a new paradigm in the sea transport of passengers, with regular links between the islands of Corvo and Flores, filling a gap in the sector.





**Figure 40 - Passenger boat - ARIEL**

## DESCRIPTION OF TOURISM FACILITIES AND THEIR LOCATION WITHIN THE BIOSPHERE RESERVE

With regard to accommodation infrastructure, Corvo Island features a 2\* hotel and a guest house, located in the village.

The hotel has 15 rooms with private bathroom, and a dining room. As mentioned previously, this company also offers five tourist apartments: four of type T1 and one T0.

The Guest House has 3 rooms, providing a total of 6 beds.

Besides these two hotel units, Corvo offers 7 units in the local accommodation (LA) category.

Meanwhile, some private individuals offer rooms or holiday homes, primarily in the summer months when visitor numbers increase considerably.

With regard to catering facilities, there has been a slight increase in the offer, with 4 restaurants/snack bars, although there is little diversity in the menus available, which are composed primarily of fish and meat dishes (fried, grilled or stewed).

Almost all of the establishments serve products from the island: cheese, sausages, seaweed tarts, fried kale and yam sausage.

The sparse existing offer is mainly linked to the low number of visitors the island receives, as well as the fact that demand is concentrated in the summer period (seasonal nature), with the result that the investment made by catering entrepreneurs is not profitable.

The municipality of Vila do Corvo is the only council in the Portuguese Republic which does not have a parish, as according to Article 136 of the Political-Administrative Statute of the Autonomous Region of the Azores, this level of territorial division does not exist on the island. The functions of the parish bodies are fulfilled by the corresponding municipal bodies.

## Tourism offer list

Type	2006 structure	2016 structure
<b>Lodging</b>	Residencial Guest House Comodoro	Hotel Guest House Comodoro 2*
		The Pirates Nest (local accommodation)
		Joe & Vera's Place I e II (local accommodation)
		Paula Dias (local accommodation)
		Luís Carlos Jorge (local accommodation)
		Fernando Câmara (local accommodation)
<b>Restaurants</b>	CaféSnack Primavera	Café – Bar BBC
	Restaurante Caldeirão	Restaurante Caldeirão
		Snack Bar “Irmãos Metralha”
<b>Nautical Activities</b>	Nauticorvo, Lda.	-----
<b>Walking trails</b>		Cara do Índio
		Caldeirão
<b>Built Heritage</b>	Nossa Senhora dos Milagres Church	Nª. Senhora dos Milagres Church
	Windmills	Windmills
	Former Whale Watch Tower	Former Whale Watch Tower
	Portão Viewpoint	Portão Viewpoint
	Espírito Santo House	Carneira Lighthouse
	Maurício House	Butter Factory
<b>Built Heritage</b>	House – Caminho Galinha	Canada da Rocha Viewpoint
	Canada Graciosa	Moinhos Viewpoint
	House – Rua da Cruz	Caldeirão Viewpoint
	House – Rua da Matriz	Espírito Santo House
	House – Porto da Casa	Casa do Bote
	House of Mariana Lopes	
	Country cottage – Avenida Nova	
	Country cottage – Canada do Graciosa	
	Houses -Rua Porto da Casa	

		Cultural and Environmental Interpretation Centre of Corvo
		Cultural Centre - Multipurpose Pavilion
		Multifunctional Park
		Municipal Library
		Quinta Park
<b>Access (air)</b>	Corvo Airport	Corvo Airport
<b>Access (sea)</b>	Porto da Casa commercial port	Porto da Casa commercial port

## INDICATION OF NEGATIVE AND POSITIVE IMPACTS OF TOURISM, CURRENT AND FUTURE

The Biosphere Reserve contributes to the policy of the Government of the Azores, which has endeavoured to encourage the development of careful tourism planning, which is vital given that it is the natural resources of the archipelago which represent the added value of its "tourism product".

This planning should be proactive and strategic in order to allow the reduction of the negative impacts of this activity, taking into account the basic principles of sustainable development, understood as “a model of development which allows present generations to meet their needs without compromising the ability of future generations to meet their own needs.”

### Positive impacts predicted

The enhancement of the tourism sector on Corvo Island has boosted the island's economy, with the increase in the number of beds creating a greater number of employment opportunities. Access has been improved, particularly in the summer months when daily flights are provided (from Monday to Friday), as well as regular sea links between the islands of Corvo and Flores.

Some existing infrastructure and facilities have been modernised to improve the support offered to visitors, such as an Environmental and Cultural Interpretation Centre, a Tourist Office, the construction of the Casa do Bote (interpretation centre of the former whaling activity in the island), the extension of the Hotel, the creation of new local accommodation projects, the improvement of the camp site and the regeneration of the bathing area.

With regard to telecommunications, an important breakthrough was made with the arrival of fibre optic cable on Corvo Island in mid-2014, which has provided significant improvements in communications, allowing access to new generation networks, particularly high-speed internet.

The implementation of the Corvo Eco museum project has contributed to restoring and preserving the built heritage which would otherwise be abandoned due to lack of use, technical support and economic resources. Tourist activity has created the need and resources to take action in this area.

At the cultural level, there has been a considerable increase in the construction and preparation of handicrafts typical of Corvo Island. The sector has seen significant growth.



**Figure 41 - Craft workshop - Wooden lock typical of Corvo Island**

### Negative impacts predicted

The Biosphere Reserve has been the driver of various awareness raising activities aimed at informing both local residents and tourists, visitors and tour operators of the need to promote responsible tourism which, linked to the reinforcement of regulation and sectorial planning, have allowed the development of tourism in the Corvo Island Biosphere Reserve, taking into account the possible negative impacts so that they may be mitigated.

For this reason, no major negative impacts have been observed, as tourist activity has been planned and regulated in various areas, particularly with regard to the use of natural resources.

The assessment of these impacts is ensured via legal frameworks such as the Tourism Management Plan of the Autonomous Region of the Azores, the Sectorial Plan of the Natura 2000 Network, the Regional Land Management Plan of the Azores and the emergence of the Regional Plan for Environmental Education and Awareness Raising of the Azores.

5.3 When applicable, describe other key sectors and uses such as agriculture, fishing, and forestry. Have they increased or decreased since the nomination or the last periodic review? What kind of new projects or initiatives have been undertaken? What effect have they had on the economy and ecology of the biosphere reserve, and on its biodiversity? Are there any studies that examine whether designation as a biosphere reserve has influenced the frequency of its activities? If so, provide the bibliographic information of these studies and/or a paper copy in an annex.

Agriculture on Corvo Island is characterised by the practice of traditional methods and techniques for land use and occupation in small farms, mainly located on the southern platform, which is the largest flat surface on the island. The cultivated area has seen a substantial reduction. The so-called Utilised Agricultural Area (UAA) was 976 hectares in 2009.

While there were 56 small rural businesses in 2009, in 2016 there were no more than 40.

In the primary sector, farming and livestock raising was the main economic activity on Corvo Island. Cattle raising is particularly prominent, but the cultivation of potatoes (including sweet potatoes), corn, yam and vegetables is also notable.

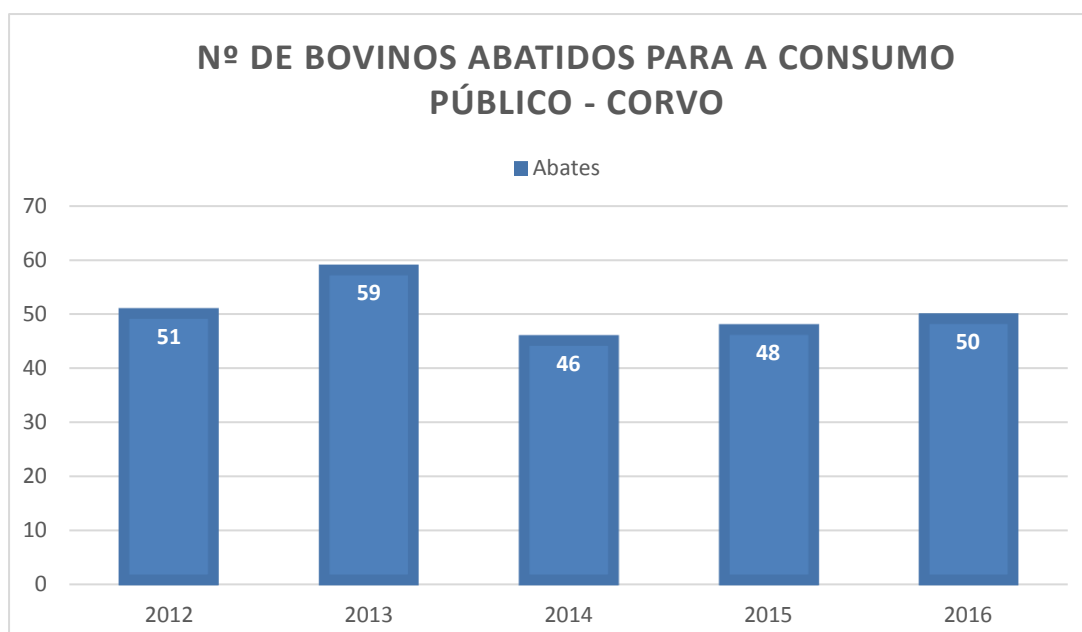
Despite farming activity focusing primarily on meat production, milk production can also be seen, with the Corvo dairy cooperative (Lacticorvo) producing around 3,300 kg of cheese, its only product, in 2015.

Over a short period of time, the number of cattle reached 1,000 animals, although it recently decreased, and according to the 2009 agricultural census, there were 982 cattle on the island.

The number of animals exported has reduced in recent years, and while in 2006 it stood at around 250 animals, in 2016 it did not reach 200.

In addition to the number of cattle exported, there was an increase in the number slaughtered for public consumption. These numbers are indicated on the graph below.





**Graph 4**

Fishing is integral to the history of the island, and carries significant weight in the local economy. The acquisition of new vessels, whose costs were financed by the Government of the Azores, as well as the rejuvenation and improved training of the fishermen, play a significant role in helping the sector to maintain its relevance in Corvo's economy.

The quantity of fish unloaded in 2014 was 17 tons, reaching 20 tons in 2015, corresponding to a gross value of 162,898 thousand Euros.

The role of air transport, whose frequency has increased dramatically in recent years, has been crucial in combating insularity and isolation.

Sea transport of passengers and merchandise has also seen dramatic improvement, both in terms of the facilities and frequency of services.

#### 5.4. How do economic activities in the biosphere reserve benefit local communities?

As the Corvo Island Biosphere Reserve covers the entire territory of the island and an adjacent marine area, every economic activity developed in the reserve, as well as its respective income or benefits, have a direct impact on the island's population, whether visitors or residents.

The aforementioned activities, particularly agriculture, livestock production and fisheries – which use extensive and traditionally small-scale methods based on specialty, high quality production – have positive impacts in terms of achieving the objectives set out for the Corvo Island Biosphere Reserve: they encourage activities that provide opportunities by associating small-scale production methods with the promotion and protection of natural landscapes, the promotion and

strengthening of cultural identity and the conservation and sustainable management of natural resources.

5.5. How do you assess the effectiveness of actions or strategies applied?  
(Describe the methods, indicators).

As the Biosphere Reserve covers the entire territory of the Corvo Island and an surrounding marine area, thus encompassing the entire population, general indicators are used, such as gross domestic product (GDP), rate of employment, number of jobs created, implementation rates regarding local and regional development programmes, and the results of other sectoral interventions coordinated by the Government of the Autonomous Region of the Azores, the Corvo municipality and local private entities.

5.6. Community economic development initiatives. What programmes exist to promote comprehensive strategies for economic innovation, change, and adaptation within the biosphere reserve, and to what extent are they implemented?

As early as 2008, in the programme of the 10<sup>th</sup> Regional Government of the Azores (2008-2012), "*the implementation of Biosphere Reserves of the Azores*" was established as an essential measure.

Subsequently, in the programme of the 11<sup>th</sup> Regional Government of the Azores (2012-2016), the importance of "*consolidating the qualification of Biosphere Reserves*" was assumed.

Regarding the government programme of the 12<sup>th</sup> Regional Government of the Azores (2016-2020), a diverse set of measures specifically oriented toward the Biosphere Reserves of the Azores were assumed, namely:

- "Consolidating and promoting the Biosphere Reserves of the Azores, in their terrestrial and marine components";
- "Continuing with the system of incentives for the maintenance of traditional landscapes of vineyards, corrals and terraces, and orchards of traditional species, located ... in Biosphere Reserves";
- "Preparing, implementing and articulating the management plans of the Islands' Nature Parks and Biosphere Reserves..., in close dialogue with the sectors concerned";
- "Encouraging partnerships with national and international Nature Parks and Biosphere Reserves";
- "Promoting Biosphere Reserves, as well as promoting and extending the use of the "Biosfera Açores" brand in products and services originating from the islands classified as such";

- “Reinforcing the carrying out of campaigns in a medium-term strategy, to promote the Meat of the Azores with the denomination of PGI and also in the association, whenever possible, of origin from an island that holds the Biosphere Reserve distinction”.

In this regard, the results of a study indicating that consumers are willing to pay more for beef originating from sites classified as Biosphere Reserves were recently presented by the Government of the Azores.

Consequently, the Regional Government of the Azores and associations of farmers from Corvo, Flores and Graciosa have agreed an action plan for meat with the "Biosfera Açores" brand. The study suggests that meat obtained from these islands and sold under the Biosphere Reserve label will find a particular opening in the market and a particular economic value.

In order to achieve these objectives, “projects for the dissemination and awareness-raising for the renewal/expansion of the Environmental Certifications granted at international level, namely Biosphere Reserves” were established in the Operational Programme for the Azores (PO AÇORES 2020), which is supported by the European Structural Funds for the 2014-2020 programming period, namely the Regional Development Fund (ERDF) and European Social Fund (ESF), under the “Environment” priority axis.

Within the Biosfera Açores brand, a system of certification of goods, products and services has been created, based on two fundamental criteria: authenticity and good practices. This initiative has already issued three certifications in the Corvo Biosphere Reserve (a hotel, a type of cheese and a local craft company), which benefit from recognition of the added value of being associated with the Biosphere Reserve. On the other hand, this certification involves training and implementation of good practices in traditional sectors, with positive results in terms of the management of resources and raw materials.

Another example of economic activities linked to conservation is the initiative for Environmental Protection and Improvement of the Azores Cliffs, which aims to combat erosion and landscape degradation, combining the restoration of habitats with landscape improvement for nature tourism.

The programme of the 11<sup>th</sup> Regional Government of the Azores - 2012/2016 confirms the following measures for the environmental sector:

## **II.2.1 – Environment**

### **II.2.1.1 – Listening to the environment**

**Objective:** To see, take action, monitor, evaluate and inspect the environment

## Measures:

- Implement the Regional Plan for climate change.
- Promote and coordinate training and technical awareness raising plans and programmes in the areas of environmental licensing and assessment.
- Create "AzMoniAmb", an internet portal for monitoring the environment of the Azores.
- Increase resources and training for inspecting bodies on the Azores.
- Strengthen partnerships with non-governmental organisations linked to environmental protection.

5.7. Local business or other economic development initiatives. Are there specific “green” alternatives being undertaken to address sustainability issues? What relationships (if any) are there among these different activities?

Climate change, the volatility of fossil fuel prices and the security need of the energy supply require an energy efficient approach and the harnessing of natural, endogenous resources. The Programme of Incentives for the Production of Energy from Renewable Sources (PROENERGIA) created in 2010 by the Regional Government of the Azores, via Regional Legislative Decree No. 5/2010/A of 23 February, was developed with the aim of encouraging the production of electrical and heat energy, primarily for self-consumption, by families, companies, cooperatives, non-profit associations and private social solidarity institutions.

PROENERGIA supports (i) investments in renewable energy resources for micro-production of electrical or heat energy using endogenous resources and (ii) investments in the use of solar power and heat pumps to produce hot water.

Following these incentives for the exploitation of renewable energy sources, an ARAAL contract (ARAAL Contract No. 10/2013 of 21 August 2013) was signed between the Regional Government of the Azores and Corvo Municipal Council, establishing the implementation of the "Sustainable Corvo" Project. This pioneering renewable energy use project aims to replace equipment running on liquefied petroleum gas with solar panels and heat pumps to heat sanitary hot water in all houses on the island used as permanent residences. The project responds to the aims of the Regional Executive in as far as it promotes the green economy and sustainability through the exploitation of endogenous energy sources as an alternative to fossil fuels.

The installation of the equipment in question has resulted in significant economic savings for families, as well as reducing emissions of gases into the atmosphere produced by the use of fossil fuels.

As well as the significant energy savings and corresponding economic savings and preservation of the environment, this project aims to reduce Corvo Island's dependence on outside energy sources, resolving the difficulties in supply owing to its isolation.

This is the first stage so that in the near future, Corvo will have the conditions to develop an integrated alternative energy system, which will combine solar panels with wind and hydroelectric energy, creating a sustainable project in terms of energy.

Following the start of operations at the Corvo Waste Processing Centre, the landfill site on Corvo was sealed and an inert landfill of inert waste was constructed in 2016.



**Figure 42 - Corvo Centre for Waste Processing**

These projects form part of the Strategic Plan for the Prevention and Management of Waste in the Azores (PEPGRA), whose main aim is to resolve environmental problems deriving from open dumping grounds, especially their impact on air and water quality, on public health and on the quality of the landscape. These facilities have made it possible to confine waste and upgrade these spaces, and have consequently drawn attention to waste, reducing production and disposal in landfill sites, and increasing separate collection and recycling.

Corvo has seen several success stories in terms of organic farming, not only that which is practised on traditional plots of land (where traditional methods and techniques for land use and occupation are used), but also that practised in greenhouses. An example of this are the greenhouses constructed in recent years by a number of farmers concerned about using more natural, environmentally friendly practices.

The most paradigmatic case arose with the implementation of the Post-LIFE Project Action Plan, coordinated by the SPEA with the participation of the Regional Secretariat for Energy, the Environment and Tourism, through Biosphere Reserve of Corvo Island, when it was noted that the need for production of endemic species would be lower and that more space would be freed up, and from then on the facility came to be used to produce other species.





**Figure 43 - Small greenhouse - production of endemic species and organic agriculture**

In this regard, the small greenhouse located on the premises of the Mouzinho da Silveira Primary and Secondary School was used to produce vegetables and aromatic plants, in order to create a small organic garden which would not only meet teaching aims, but also contribute to raising awareness among the school community of the importance of consuming natural products.

The contest “ECO Freguesia, freguesia limpa” (Eco Clean Parish) has been organised by the Biosphere Reserve on behalf of the Government of the Azores since 2010 and developed by the Regional Directorate for the Environment (DRA), with the collaboration of the Regional Directorate for Maritime Affairs (DRAM). The main purpose of this contest is to recognise and distinguish parish efforts and the collaboration of populations in the cleaning, removal and forwarding to the appropriate final destination of abandoned waste in public spaces, including from watercourses and the coastline, as well as the development and participation in programmes and actions to raise awareness and environmental education. The programme aims to recognise the cleanliness of our parishes and the positive performance of citizens and various organisations in preserving environmental quality, justified by the growing importance of the environment for the wellbeing of the population.

The participation of the Corvo local authorities since the first year is of note. This participation allowed it to win the excellence prize awarded by the contest in the last two years.

The Corvo Island Biosphere Reserve therefore sees good environmental performance by citizens and organisations participating in the contest rewarded with this important prize.

5.8 Describe the main changes (if there are any) in terms of cultural values (religious, historical, political, social, ethnological) and others, if possible with distinction between material and intangible heritage.

(c.f. UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage 1972 and UNESCO Convention for the Safeguard of the Intangible Cultural Heritage 2003

([http://portal.unesco.org/en/ev.php-URL\\_ID=13055&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=13055&URL_DO=DO_TOPIC&URL_SECTION=201.html) and [http://portal.unesco.org/en/ev.php-URL\\_ID=17716&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201.html)).

There is a growing interest amongst the local population to preserve traditional festivities, especially from young people and cultural and ethnographic organisations. Examples of this are the revival of the São Pedro Festival, the religious festival of the Soups in honour of the Divine Holy Ghost "Sopas em honra do Divino Espírito Santo" and the restoration of the tradition of singing Christmas songs, the Janeiras and Reis.



**Figure 44 - S. Pedro procession**

In terms of heritage and culture, it is relevant to note the creation of the Corvo Eco museum in 2014. This museum project aims to ensure the safeguarding and affirmation of the natural, historical, scenic and cultural heritage of Corvo Island, both tangible and intangible, while promoting local development and enhancing the quality of life of the population.

In Corvo, traditional popular festivities that were initially religious in nature are kept alive; however, they are now more significant from a cultural, artistic and social point of view.

The clearest example of this situation is the Festival in honour of the Divine Holy Ghost, in which, as well as religious rituals, a wide range of activities linking gastronomy, social interaction and other cultural displays are carried out.



**Figure 45 – Holy Spirit procession**



**Figure 46 – Holy Spirit soups**

There are other celebrations which link the religious and the profane, such as: Os Reis (Epiphany) in which the Ethnographic Groups go from house to house singing traditional songs; the São Pedro Festival at the end of June and the popular parades to the saints; the Holy Family Festival at the end of July and the Our Lady of Miracles Festival in August, when Corvo celebrates its patron saint.

The Carnival is another significant celebration, and is a period when *filhós* are produced, a highly valued desert in the Azores.



**Figure 47 - Reis traditional songs (Epiphany)**



**Figure 48 - Popular parades to the saints**

In May, around the time of the "Sopas em honra do Divino Espírito Santo" festival, the "Bodo de Leite" is held. This homage is linked to solidarity and charity - the poorest must receive the largest portion when the sweet bread is distributed, so that everyone can celebrate the Divine Holy Ghost in the same way. Throughout the summer, as well as the celebrations mentioned above, music shows also take place as part of the Festival dos Moinhos.



5.9 Community support facilities and services. What programmes in/for the biosphere reserve address issues such as job preparation and skills training, health and social services, and social justice questions? What are the relationships among them and with community economic development?

There is a long tradition of associativism and collectivism on Corvo Island.

Considering the small size of the island and number of residents, many collectives promote sport, music and religion, among other areas offering their infrastructures, facilities and services to support the activities. Thus, in Corvo Biosphere Reserve, there is a diverse range of facilities and services supporting the community, which cover the various fields of activity. These are:

#### Main associations/collectives/institutions on Corvo Island

Clube Desportivo Escolar do Corvo (school sport)	Casa do Povo da ilha do Corvo (social solidarity and culture)
Associação de Futebol da Horta (football)	Coro da Matriz do Corvo (choir)
Associação Agrícola do Corvo (farmers association)	Filarmónica Lira Corvense (music)
Associação de Pescadores da ilha do Corvo (fishermen association)	Agrupamento 1181 – Ilha do Corvo (scouts)
Associação de Desportos da Ilha do Corvo (sport)	Igreja Paroquial de Nossa Senhora dos Milagres (social solidarity - religion)
Núcleo Empresarial das Flores e Corvo da Câmara do Comércio da Horta (chamber of commerce)	Irmandade do Divínio Espírito Santo - Corvo (social solidarity - religion)
Liga dos Ex-Combatentes (war veterans)	Paróquia do Corvo (social solidarity - religion)
Núcleo de Acção Social das Flores e Corvo (social solidarity)	Páraco da ilha do Corvo (social solidarity - religion)
Santa Casa da Misericórdia do Corvo (social solidarity)	Multipurpose Cultural Centre (cultures)
Centro de Convívio da Misericórdia (social solidarity)	Posto de Turismo do Corvo (tourist office)
Rede Integrada de Apoio ao Cidadão (RIAC) (social solidarity)	Municipal Library
Rancho Folclórico da Ilha do Corvo (folk dancing)	Cooperativa Agrícola do Corvo (agricultural cooperative)
	Associação de Juventude do Corvo (youth association)

5.10 What indicators are in place to assess the effectiveness of activities aiming to foster sustainable development? What have these indicators shown?

Monitoring of the processes linked to the effectiveness of the activities aiming to foster sustainable development is carried out via censuses, implementation reports, projects, programmes and official statistics.

The Government of the Azores aims to change the competences of the Observatory on Land and Sustainability (Observatório do Território e da Sustentabilidade - OTS) to reinforce its capacity to monitor and assess sustainable development practices throughout the entire Azores archipelago, particularly in the Biosphere Reserves of the Azores.

5.11 What are the main factors that influenced (positively or negatively) the success of development efforts in the entire biosphere reserve? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be most effective?

The existing licensing and inspection system regarding activities and investments provides mechanisms for encouraging best practices, greater efficiency and the minimisation of negative environmental impacts. In addition, the Biosphere Reserve develops best practice manuals and capacity-building actions, based on environmental management systems that will be adapted to the reality of micro businesses and local producers, thereby complementing the role of municipal and governmental authorities in the regulation of these activities.

In recent years, objective, proactive and strategic action has been taken in order to allow effective reduction of the negative impacts on the Corvo Biosphere Reserve.

Technical and logistic support is provided in order to help enhancing the capacity of entrepreneurs to face environmental regulations and promoting best practices.

## **6. THE LOGISTIC FUNCTION:**

[This refers to programs that enhance the capacity of people and organizations in the biosphere reserve to address both conservation and development issues for sustainable development as well as research, monitoring, demonstration projects and education needed to deal with the specific context and conditions of the biosphere reserve.]

6.1 Describe the main institutions conducting research or monitoring in the biosphere reserve, and their programmes. Comment on organizational changes (if any) in these institutions over the past ten years as they relate to their work in the biosphere reserve.

A significant amount of the scientific work carried out on Corvo Island has been linked to regional research and management projects, which attempt to describe the ecosystem as well as the human aspects of resource use, with the aim of developing coherent management systems.

The Corvo Biosphere Reserve in line with the Natural Park provides the scope and framework for the habitat and species conservation measures that are required to meet the objectives for conserving existing natural values and social and economic development.

Since Corvo Island was nominated as a Biosphere Reserve, a number of projects and studies have been implemented aiming to safeguard protected species present on Corvo, whose small populations place them at risk of extinction or on the threshold of survival.

For that reason, management strategies have been developed that include measures and processes to secure their habitats, active conservation of these populations and sustainable management of resources and the land.



The various organisations and institutions undertaking research and monitoring in Corvo Island Biosphere Reserve include:

#### **The University of the Azores**

- Department of Oceanography and Fisheries;
- Department of Biology;
- Department of Geosciences;

#### **The Institute for Technological Innovation of the Azores**

- Analytical laboratory.

#### **The Portuguese Society for the Study of Birds (SPEA) - (Environmental NGO).**

- LIFE Project and Post-LIFE Project Action Plan "Island Haven for Seabirds" Project

#### **Royal Society for the Protection of Birds, UK – (RSPB).**

- LIFE "Island Haven for Seabirds" Project

The implementation of innovative management measures, the openness of the population to community participation in resource management and the infrastructure already installed make Corvo a unique site for research projects, resource management demonstrations and training for researchers and technicians in these areas.

The proximity of the University of the Azores, with departments on the islands of Faial, Terceira and São Miguel, allows effective access by specialised researchers to scientific equipment and facilities.

The University participates in various international projects prioritising the exchange of knowledge and training, and it is renowned for its research excellence both nationally and internationally. Research projects conducted in recent years at the Corvo Island Biosphere Reserve have been comprehensive and multidisciplinary, as opposed to disjointed activities. A significant amount of the scientific work carried out on Corvo has been linked to regional research and management projects, which attempt to describe the ecosystem as well as the human aspects of resource use, with the aim of developing coherent management systems. These projects range from studies of geological features and dynamics to the biology and ecology of several of the most significant species in the area, as well as socio-economic and cultural aspects.

6.2 Summarize the main themes of research and monitoring undertaken over the past ten years and the area(s) in which they were undertaken in order to address specific questions related to biosphere reserve management and for the implementation of the management plan (please refer to variables in Annex I).

(For each specific topic provide reference citations. Provide the full citations alphabetically by lead author at the end of Section 6 or in a separate annex).

Since Corvo Island was classified as a Biosphere Reserve, a number of projects and studies have been implemented aiming to monitor and safeguard the habitats and species present on the island. The main activities are listed below:

#### **Coordinated by the Regional Directorate for the Environment (DRA)**

##### **PRECEFIAS (Regional Plan for Eradication and Control of Invasive Plant Species in Sensitive Areas)**

The PRECEFIAS project was implemented by the DRA. In 2009, it planned the eradication and control of 16 invasive alien plant species in inventoried sensitive areas on all of the islands of the Azores archipelago (*Pittosporum undulatum*, *Hedychium gardnerianum*, *Hydrangea macrophylla*, *Arundo donax*, *Gunnera tinctoria*, *Clethra arborea*, *Carpobrotus edulis*, *Lantana camara*, *Ailanthus altissima*, *Polygonum capitatum*, *Drosera rotundifolia*, *Acacia melenoxylon*, *Ulex europaeus*, *Ipomoea indica*, *Rubus ulmifolius*, *Pteridium aquilinum*).

##### **- MoniAves (Programme to Monitor Seabird Populations in the Azores Subdivision) (2016-2020)**

This monitoring project aims to assess nesting seabird populations in the Azores Subdivision. This quantification will be conducted via regular censuses of the populations of various species, particularly of the cagarros (Cory's shearwater - *Calonectris borealis*), the garajau-rosado (roseate tern - *Sterna dougallii*) and the garajau-comum (common tern - *Sterna hirundo*).

This project will follow up the work carried out in recent decades by experts at the Department of Oceanography and Fisheries of the University of the Azores. Counting will be supplemented by information gathering on the condition of nesting populations, seeking to assess variations in annual recruitment.

#### **OBJECTIVES**

1 - To monitor populations of seabirds classed as nesting, via visual censuses and other emerging methodologies (e.g. Cory's shearwater, terns, Barolo shearwater, storm petrel, etc.).

- 2 - To assess the impact of non-native terrestrial species on the reproductive capacity of seabirds (predators and plant communities).
- 3 - To collect relevant biological parameters for the conservation and study of nesting seabirds.
- 4 - To collect biological material for other projects and studies (trophic ecology, genetics, and pollutants).

### **MoniZec – Monitoring marine SPAs in the Azores (DRCT 2012-2015)**

During the MONIZEC project, the network of coastal PMAs in the Azores was evaluated, drawing up alternative conservation strategies, and relevant information was provided to users to improve management of the marine environment in the Azores.

Inventorying/monitoring of marine species in coastal PMAs (upper infralittoral) in the Corvo Nature Park and adjacent areas by means of scuba diving in July/August 2016. Creation of the Marine Education Network of the Azores.

### **Coordinated by the Portuguese Society for the Study of Birds (SPEA)**

#### **LIFE Marine IBAs (2004-2008) (<http://lifeibasmarinhas.spea.pt/pt/>)**

The LIFE Marine IBAs project, coordinated by the SPEA, aims to identify the most important areas in Portugal for seabirds in terms of areas for feeding and rest, and other relevant behaviour to their life at sea.

### **OBJECTIVES**

- To understand the distribution and abundance of seabirds in Portugal, including the Azores and Madeira;
- To identify and analyse the variables which influence patterns of distribution and abundance of seabirds at sea;
- To identify general methods for identifying important areas for seabirds and to define the criteria applied to the IBAs programme;
- To determine which marine IBAs meet the criteria for the title, including threats and conservation and management measures for these areas;

- To publish an inventory of national marine IBAs for the future classification of SPAs at sea.

### **Electricity Lines-Azores**

Project to assess the interaction between birds and the electricity transport and distribution networks in the Azores, which aims to ensure that the overhead electricity network is compatible with bird conservation, and to minimise the impact on birds in the Azores archipelago, including alteration of certain lines to reduce their impact.

The project emerged from a partnership between the SPEA and the Azores Electricity Company (EDA), as part of the Plan for Promoting Environmental Performance in the Electricity Sector 2009/11.

### **Atlas of Nesting Birds in Portugal**

Atlas of Wintering and Passing Birds in Portugal: a partnership of 6 organisations (Portuguese Society for the Study of Birds, Ornithology Laboratory at the University of Évora, Regional Secretariat for the Environment and the Sea (Azores), Madeira Nature Park Service, Institute for Nature Conservation and Biodiversity, Portuguese Association of Bird Ringers), coordinated by the SPEA and co-financed by the 2010 EDP Biodiversity Fund.

### **LuMinAves (2017-2019)**

INTERREG LuMinAves (MAC/4.6d/157) "Light pollution and conservation in the archipelagos of Macaronesia: reducing the harmful effects of artificial light on seabird populations", whose main partner is the Spanish Ornithological Society (SEO/Birdlife). In the Azores, it operates in partnership with: the SPEA, the Regional Government of the Azores (Regional Directorate for Sea Affairs- DRAM), the Regional Fund for Science and Technology (FRCT), and also EDA – Eletricidade dos Açores and the Corvo Municipality.

The project had three main objectives: a) to assess the state of conservation of seabirds in Macaronesia; b) to raise awareness of, protect and rescue wounded/blinded seabirds; c) to reduce the impact of light pollution on seabird colonies (Macaronesia strategy).

### **Mistic Seas I (2016-2017) (<http://www.mistic-seas.com/>)**

The Mistic Seas Project is coordinated by the FRCT and the DRAM. The objective was to review initial assessments, gaps in knowledge, the definition of GES (Good Environmental Status) and environmental goals established by the three Macaronesia archipelagos (Azores, Madeira and

the Canary Islands) in the initial reports of the MSFD (Marine Strategy Framework Directive) and to draw up an Action Plan and monitoring programmes to implement the second cycle of the MSFD.

### **Mistic Seas II (2017-2019)**

MISTIC SEAS II "Applying a sub-regional coherent and coordinated approach to the monitoring and assessment of marine biodiversity in Macaronesia for the second cycle of the MSFD", financed by the DG ENV, European Commission (No. 11.0661/2017/750679/SUB/ENV.C2), coordinated by the FRCT in partnership with the DRAM. To assess different functional groups (D1), including seabirds. Seabird monitoring includes three SUB-PROGRAMMES: abundance, reproductive success and survival. It focuses on five species: cagarro (Cory's shearwater - *Calonectris borealis*), painho-de-monteiro (Monteiro's storm petrel - *Hydrobates monteiroi*), painho-da-madeira (band-rumped storm petrel - *Hydrobates castro*), alma-negra (Bulwer's petrel - *Bulweria bulwerii*) and the frulho (Audubon's shearwater - *Puffinus lherminieri baroli*).

Objective: To implement and test the monitoring methodologies/programmes established in MISTIC SEAS I in order to achieve a good environmental status (GES) in the waters of Macaronesia in the 2<sup>nd</sup> cycle of the DQEM.

### **Coordinated by the Regional Directorate for Sea Affairs (DRAM)**

### **Programme to implement the Marine Strategy Framework Directive - Biodiversity of Coastal Environments in the Azores (BALA Programme)**

To acquire the necessary information to progress to suitable quantification of the environmental status of the Azorean marine environment during the first implementation cycle of the MSFD by 2018 using the following approaches, particularly in Protected Marine Areas: i) functional groups: vertebrates, mega-invertebrates and algae; ii) characterization of the coastal habitats/biotopes in the Azores.

Objective: to enhance knowledge of the coastal species and habitats classified, in line with the various international conventions and relevant European legislation.

### **Tern Census**

The Tern Census takes place annually between mid-May and mid-June, and is currently coordinated by the Regional Directorate for Sea Affairs (DRAM), in partnership and with the support of the Environment and National Park Services on the island. This census aims to quantify the populations of the two main species of tern which nest in the Region, the garajau-comum (common tern - *Sterna hirundo*) and the garajau-rosado (roseate tern - *Sterna dougallii*).



As well as visiting accessible colonies to count nests and sitting birds, counting of more inaccessible colonies, particularly on the coastal islets which are a haven for seabirds, is also carried out at a distance from land and at sea, using binoculars and a telescope or boat trips around all of the islands, allowing the number of adults to be estimated by sounding a horn to prompt them to take flight. This census began in 1989, and has been conducted annually since 1993 in the main colonies on the initiative of seabird researchers from the DOP/IMAR. In the last decade, efforts have increased to fully monitor colonies around the whole archipelago. Since 2016, the Regional Government has taken on the coordination of the census, as the monitoring and collection of data on seabird populations with regional, European and international protection status such as the common tern and the roseate tern is a legal obligation under the Birds Directive (Natura 2000 Network) of the Marine Strategy Framework Directive, and is also stipulated by the OSPAR Convention.

**Coordinated by the Department of Oceanography and Fisheries at the University of the Azores (DOP/UAç)**

#### **REMAx – Experimental Network for Marine Education in the Azores (2007-2009)**

An initiative from the Department of Oceanography and Fisheries at the University of the Azores, financed by the Regional Secretariat for the Environment and the Sea, which aims to develop marine education initiatives and stimulate future cooperation between education providers and society. This aims to create the Marine Education Network of the Azores.

#### **Meteorological and Udometry Network**

An automated network system of meteorological and Udometry stations was recently installed.



**Figure 50 - Automated stations - Meteorological and Udometry stations**

In order to ensure the operability of all of the equipment and the reliability of the data provided by the system, the Azores Government, via the Regional Directorate for the Environment, works in collaboration with the University of the Azores and the Centre for Information and Seism volcanic Surveillance of the Azores (CIVISA) in particular to monitor and evaluate the conditions for data acquisition, transmission, reception and storage, 24 hours a day.

The data generated by the network constitutes baseline information which, following analysis and modelling by CIVISA, is used to issue and broadcast warnings in the case of danger of landslides linked to heavy precipitation, in a process which also involves the civil protection services.

The automation of the stations and teletransmission of data in real time provides, on the one hand, timely information on the hydrological cycle with rigorous data on water availability, ensuring the defence of people and property against extreme hydric phenomena which can result in floods and landslides. On the other hand, the online availability of the data allows all citizens to access up-to-date information for personal, professional or scientific purposes, contributing to participatory management and increasing citizen engagement.

The combination of the aforementioned factors and the innovative concept resulted in the awarding in 2013 of the "Green Project Awards Portugal" prize for the "Information Technology" category to the Azores Hydro meteorological Network.

## Notícias dos Açores

Noticias da Região Autónoma dos Açores e muitas outras informações de temática açoriana.

terça-feira, 29 de outubro de 2013

### **Rede Hidrometeorológica dos Açores, hoje galardoada com o "Green Project Awards Portugal", será alargada a todo o arquipélago**

O Diretor Regional do Ambiente anunciou hoje que o Governo dos Açores vai alargar, no próximo ano, a Rede Hidrometeorológica a todo o arquipélago, com a instalação de mais 40 estações hidrometeorológicas automáticas.

A Rede Hidrometeorológica dos Açores visa a monitorização do ciclo hidrológico na Região através de estações automáticas com teletransmissão de dados em tempo real e com disponibilização em plataforma on-line.

"Permite-nos, desta forma, dispor de mais e melhor informação para o planeamento e gestão eficaz dos recursos hídricos, além de ser um importante instrumento de auxílio ao ordenamento do território e ao planeamento civil de emergência", afirmou Hermâni Jorge.

A atribuição do prémio "Green Project Awards Portugal", na categoria Information Technology, ao projeto da Rede Hidrometeorológica dos Açores, é, segundo o Diretor Regional do Ambiente, o reconhecimento da inovação e da "qualidade do trabalho que o Governo dos Açores desenvolve ao nível da gestão e do planeamento dos recursos naturais".

Hermâni Jorge considerou ainda que a entrega deste galardão e de duas menções honrosas a projetos dos Açores, atribui projeção "nacional e internacional" ao trabalho que é realizado na região.

Os prémios foram hoje anunciados numa cerimónia realizada em Lisboa, durante um debate sobre o tema "Mobilizar Portugal para a Economia Verde".



Published news item: [http://noticias-acoeres.blogspot.pt/2013/10/rede-hidrometeorologica-dos-acoeres-  
hoje.html](http://noticias-acoeres.blogspot.pt/2013/10/rede-hidrometeorologica-dos-acoeres-<br/>hoje.html)

6.3 Describe how traditional and local knowledge and knowledge from relating to management practices have been collected, synthesized and disseminated. Explain how such knowledge is being applied to new management practices, and how and if it has been integrated into training and educational programmes.

Within the framework of the implementation of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), promoted by the Corvo Nature Park, several environmental education programmes and actions are implemented and in partnership with local councils, schools and environmental NGOs. These programmes have a special attention to the collection and application of traditional knowledge that is applied and transferred through the environmental and awareness activities.

Some of these activities are:

**Eco-Escolas Programme** - an initiative of European scope under the responsibility of the Foundation for Environmental Education, aiming to encourage actions and recognise the work developed by the School for the benefit of the Environment. It encompasses the entire student community of the island.



**SOS Cagarro Campaign** – aims to involve people in the rescue of juvenile Cory's shearwaters (cagarro). These campaigns are preceded by formal clarification sessions and/or informal contacts with potential partners. It involves the whole island and its population.



**Parque Escola Programme** - a regional initiative that intends to provide resources and information to the school community through actions on various themes, involving all of the schools on the island.



**Parque Aberto Programme** - a regional initiative that promotes actions and activities taking place within protected areas and/or environmental centres, encouraging the participation of the entire population. This programme also promotes actions related to the cultural and traditional aspects of the island;



The Government of the Azores is developing an electric mobility programme for the Park Rangers Team, which involves the purchase of 14 vehicles for the Azores Nature Parks.

Due to the characteristics of our islands and of some of the areas located in the Nature Parks, it is not possible to replace the whole fleet used for surveillance and environmental monitoring activities with electric vehicles, but in many circumstances they are an excellent mobility solution, while providing a positive solution to current issues such as global warming, air quality and dependence on fossil fuels. For every petrol vehicle replaced with an electric vehicle, we are contributing to an annual reduction of 2.5 tons of CO<sub>2</sub> emissions, and saving on maintenance and fuelling costs.

As part of the LIFE "Island Haven for Seabirds" project (2009-2012), environmental awareness raising activities were carried out in relation to the seabirds nesting on the Azores, for which suitable promotional and educational materials were produced. Besides these materials, leaflets, posters and videos (short documentaries) about the project were also produced. In order to maintain the structures which had been created once the project was complete, the Post-LIFE Project Action Plan was implemented.



#### - LIFE Project "Island Haven for Seabirds" Booklet – Layman's Report



#### Checklist – Rare Species – To be made available to Birdwatchers (LIFE Project)



The Regional Plan for the Eradication and Control of Invasive Flora Species in Sensitive Areas (PREFECIAS) has now been underway for a number of years, focusing on awareness raising and education among the population to avoid and reverse the spread of invasive species.

With this goal in mind, and considering the protection and conservation concerns of the relevant authorities, the Regional Directorate for the Environment implemented the PRECEFIAS, establishing effective methodologies and strategies for eradicating and controlling the aforementioned invasive species in accordance with the Proposal for a European Strategy on Invasive Alien Species adopted at the 23<sup>rd</sup> meeting of the Standing Committee of the Bern Convention, Strasbourg, from 1 to 5 December 2003.



**Figure 51 – Clearing invasive plants – Silvado (wild blackberry - *Rubus ulmifolius*) and conteira (ginger lily - *Hedychium gardnerianum*)**

Invasive alien plants are recognised as one of the main threats to the natural environment, with huge economic costs and direct effects on ecosystems including:

- Competition with native species;
- Hybridisation;
- Changes in the physical and chemical characteristics of the soil;
- Modification of natural habitats;
- Spread of pests and diseases.

This *in situ* active conservation project complements the Interreg IIIb "BASEMAC" Project and forms part of an *ex situ* conservation strategy in Macaronesia seed banks.



6.4 Environmental/sustainability education. Which are the main educational institutions (“formal” –schools, colleges, universities, and “informal” services for the general public) that are active in the biosphere reserve? Describe their programmes, including special school or adult education programmes, as these contribute towards the functions of the biosphere reserve. Comment on organizational changes (if any) in institutions and programmes that were identified in the biosphere reserve ten or so years ago (e.g. closed down, redesigned, new initiatives). Refer to programmes and initiatives of UNESCO Associated Schools networks, UNESCO Chairs and Centres where applicable.

With regard to formal education, the Mouzinho da Silveira Primary and Secondary School and "Blue Planet" Crèche and Nursery School are particularly relevant.

- Mouzinho da Silveira Primary and Secondary School, which will soon celebrate its twentieth anniversary, not only promotes but is also a partner of various initiatives linked to environmental education and awareness raising, standing out as a collaborating organisation in the LIFE "Island Haven for Seabirds" Project and now in the Post-LIFE Project Action Plan, making the school premises available for the installation of a small greenhouse where endemic species are grown before subsequently being planted in the natural environment. Due to the understanding that the project should include an educational component, environmental education and awareness raising activities began to be developed, aimed at pupils attending this teaching establishment. The evolution of the project eventually led to the implementation of a small organic garden maintained by the students, which not only meets teaching aims but also raises awareness among the school community of the importance of consuming natural products.



**Figure 52 - Organic garden on the premises of Mouzinho da Silveira School**

As well as the aforementioned activities, it is also relevant to note the work undertaken by the school as part of the Eco-Escolas Programme, an international programme which aims to encourage actions linked to Environmental Education/Sustainable Development Education, and to recognise quality work carried out in this area.

In the Azores, the Eco-Escolas Programme has been promoted by the Regional Directorate for the Environment since 1999/2000, via the Biosphere Reserve and the Natural Park.

The work carried out by the institution has been acknowledged by the awarding of a prize to schools achieving the best results.



**Figure 53 - Rota dos 20 and Eco Escolas Prize**

During each academic year, both Mouzinho da Silveira Primary and Secondary School and "Blue Planet" Crèche and Nursery School participate in the Parque Escola Programme, which is the educational arm of the Nature Parks, aimed at all levels of education, as well as in the environmental education and awareness raising activities promoted by the Portuguese Society for the Study of Birds (non-governmental organisation).



**Figure 54 - Activities from the Parque Escola Programme (Mouzinho da Silveira School and Crèche)**

These teaching establishments also participate in the activities held as part of the commemorative days organised annually by the Regional Directorate for the Environment.

In turn, Mouzinho da Silveira Primary and Secondary School holds cultural and social events each academic year, such as the Book Fair, the Minerals Fair, the Christmas Party and the Carnival procession, which are open not only to the school community but also to the wider local community.



**Figure 54 - Christmas Party and Minerals Fair at Mouzinho da Silveira School**

The school also offers adult education courses and programmes through the Reactivar Programme, an initiative from the Regional Secretariats for Education and Culture, and Work and Social Solidarity. They are currently organised as a programme aimed at providing adults with qualifications, arranged into Double Certification Pathways which provide professional certification relating to Level 1, 2 or 3 training linked to educational progression, equivalent to the 2<sup>nd</sup> and 3<sup>rd</sup> Primary School Levels or to Secondary Level, as well as a Level 4 qualification which will enable accreditation in line with the protocols adopted by higher education institutions. These courses aimed at promoting a second chance at education in informal adult education contexts are structured in accordance with the corresponding Adult Education and Training (AET) courses at the national level, regulated by Decree No. 230/2008 of 7 March.

Among the informal education institutions allowing the development of environmental activities are the Regional Eco-libraries Network, which has been incorporated into the Corvo Cultural and Environmental Interpretation Centre, the Corvo Wild Bird Rehabilitation Centre, and the Portuguese Society for the Study of Birds - a non-governmental organisation which coordinated the LIFE "Island Haven for Seabirds" Project (from 2009 to 2012), and which currently coordinates the Post-LIFE Project Action Plan.

These structures organise various activities of an environmental nature, and manage the financial and human resources required for their development.



Cultural and Environmental Interpretation Centre of Corvo (CIACC): Among the numerous activities organised by the Centre since its inauguration in September 2007, the following environmental education and awareness raising activities are of particular note:

- As part of the commemoration of the International Year of Biodiversity (2010), the Government of the Azores, via the Regional Secretariat for the Environment and Sea, prepared a mobile exhibition entitled "Biodiversity in the Azores", which travelled around the islands in the Region and around continental Portugal. In the case of Corvo Island, the exhibition was displayed at the CIACC;



**Figure 55 - "Biodiversity in the Azores" exhibition held at the CIACC**

- In 2015, Corvo Natural Park hosted the mobile exhibition "Natural History of the Vegetation of the Azores" on the premises of the Corvo Environmental and Cultural Interpretation Centre, whose main aim was to inform the school community and the general public of the importance of the location of the Azores, as well as of the emergence of its plant species. The display highlights the Azores as a meeting point for unique plant species of different origins and biological ages, while explaining the emergence of the plant species and communities present in the Azores;

With the creation by the Government of the Azores of the Regional Eco-libraries Network, in collaboration with the local authorities and environmental non-governmental organisations (ENGOS). Corvo Island joined the Network through its Environmental Interpretation Centre, which is a space open to the general public offering environmental information, training and awareness raising, with the opportunity to engage in explanatory activities, research and investigation in collaboration with other organisations, events and initiatives.

With the aim of facilitating environmental education and awareness raising activities, the Parque Escola Programme was launched (by the Regional Directorate for the Environment), bringing together the annual environmental education offer of the Government of the Azores for teaching

establishments, created as part of the Regional Plan for Environmental Education and Awareness Raising in the Azores (PRESAA).

It is implemented by the Regional Directorate for the Environment of the Regional Secretariat for Energy, the Environment and Tourism, through the activities of the Education Services of the Island Nature Parks, the Regional Eco-libraries Network and the Network of Environment Centres in the Azores.



**Figure 56 - Eco-library - Corvo Island**

The activities encompassed by the aforementioned programme were designed to complement the curriculum of primary, secondary and professional teaching establishments in the Autonomous Region of the Azores.

The offer is structured in the following way: The Park goes to the School - activities in schools; The School goes to the Park, comprising The School goes to the Centre - activities in Environment Centres - and The School goes to the Protected Areas - educational activities in protected areas, geosites and nature conservation sites.

The Programme also includes the educational offer from the Azores Geopark, as well as any requests made by schools, as long as they match the environmental education objectives of the Regional Directorate for the Environment.

The Parque Escola Programme is supplemented by the Parque Aberto Programme, which is also led by the Regional Directorate for the Environment, and which aims to aggregate all of the activities organised in the area of the Island Nature Parks, either by the park teams or by their partners. The activities are designed and tailored to involve the whole community, with the aim of raising awareness and joining forces to create a society with ever more ecological and sustainable habits.

Just like other parks in the Region, Corvo Island Natural Park has an annual programme of activities open to the public, known as "Parque Aberto".



With the dissolution of the local maritime tourism company (Nauticorvo - Nautical Tourism and Leisure, Ltd.) in 2011, the marine interpretation centre was forced to seeking support from maritime tourism companies based on the neighbouring island of Flores.

The creation of Corvo Wild Bird Rehabilitation Centre (CERAS/Corvo) in 2010 provided the Azores archipelago with a pioneering structure aiming to rescue and rehabilitate wild birds. The Centre also plays an important role in environmental education and species conservation. This facility allows the Nature Park to rescue birds, contributing to nature conservation.

Since its creation, the CERAS/Corvo has housed and treated more than 100 birds, receiving both common and wild species.

The Centre offers guided tours to observe the species recovering there, provided that potential visitors make a prior appointment.

As well as the aforementioned institutions, Corvo Island also features other services operating in the cultural and socio-economic area, which include: Corvo Eco museum; Santa Casa da Misericórdia do Corvo; National Scouting Association - Group 1181 on Corvo, and Corvo Youth Association.

- In September 2014, the Biosphere Reserve launched the Corvo Island Eco museum, a museum project which aims to ensure the safeguarding and affirmation of the natural, historical, scenic and cultural heritage of the island, promoting local development and enhancing the quality of life of the population.

**Eco museum website:** <http://www.culturacores.azores.gov.pt/ecomuseu-do-corvo/ecomuseu.pdf>



**Figure 57 - Corvo Eco museum Project (2014)**

- Santa Casa da Misericórdia do Corvo (SCMC), whose activities centre around social solidarity and assistance, plays an important socio-economic role among Corvo's residents. As well as its habitual activities, the organisation facilitates various activities open to the public, including: Trinity Week, the Soup Festival and the Christmas Market.



**Figure 58 - Christmas Market (SCMC)**



**Figure 59 - Soup Festival (SCMC)**

- Corvo Youth Association aims to develop cooperation and solidarity; stimulate initiatives from young people; promote study, research and provision of information; develop cultural, artistic, social and sporting components; promote exchanges and cooperation between the various associations; promote associativism.



**Figure 60 - Activities organised by Corvo Youth Association**

- The National Scouting Association (CNE) - Group 1181 of Corvo, which belongs to the World Scout Movement, organises diverse activities in the area of informal education for young people. Its main aim is to contribute to educating young people, both boys and girls, through a progressive self-education system based on a system of values.



**Figure 61 - Activities organised by the National Scouting Association in Corvo**

6.5 How do you assess the effectiveness of actions or strategies applied?  
(Describe the methods, indicators).

The actions applied are assessed via the specific mechanisms of the programmes they form part of, as well as by implementation and monitoring reports, which are mostly included in the activity plans of public institutions which incorporate their own assessment and monitoring mechanisms.

The number of actions and participants, as well as satisfaction surveys, are the most commonly used assessment tools.

6.5.1 Describe the biosphere reserve's main internal and external communication mechanisms/system.

Leaflets, posters, DVDs and other multimedia resources are the most commonly used materials in the Corvo Island Biosphere Reserve's internal and external communication.

6.5.2 Is there a biosphere reserve website? If so, provide the link.

<http://www.azores.gov.pt/Gra/srrn-natureza/conteudos/livres/Reserva+da+Biosfera+do+Corvo.htm>

6.5.3 Is there an electronic newsletter? How often is it published? (provide the link, if applicable)

No

6.5.4 Does the biosphere reserve belong to a social network (Facebook, Twitter, etc.)? Provide the contact.

No

6.5.5 Are there any other internal communication systems? If so, describe them.

No

6.6 Describe how the biosphere reserve currently contributes to the World Network of Biosphere Reserves and/or could do so in the future.

Since its very start, the Corvo Island Biosphere Reserve promotes the MAB programme and the World Network of Biosphere Reserves in all local, and national activities. Corvo BR also prioritizes local, national and international cooperation, and as a result has acted as a partner in different thematic and regional networks, participating in the 8<sup>th</sup> REDBIOS meeting held on Flores Island in 2009, and the 12<sup>th</sup> REDBIOS meeting held in the Azores Archipelago in 2014, on the islands of Faial, Pico and São Jorge.





**Figure 62 – 13<sup>th</sup> REDBIOs meeting held in the Autonomous Region of the Azores**



**Figure 63 - 5<sup>th</sup> meeting - Global Network of Biosphere Reserves on Islands and in Coastal Zones - Azores**

In 2015, the Corvo Island Biosphere Reserve participated in an international seminar (organised by the candidature of the Fajãs de São Jorge Biosphere Reserve) attended by various biosphere reserves, National MAB Committees and the Portuguese National Commission for UNESCO, as well as representatives of the secretariat of the UNESCO MAB Programme, with a view to encouraging networking, sharing experiences and knowledge, and exploring future channels of working together.



The Corvo Island Biosphere Reserve also participated in the 4<sup>th</sup> World Congress of Biosphere Reserves which took place in Lima, Peru, between 14 and 17 March 2016.

As part of the above mentioned congress, we participated in the International Coordinating Council of the Man and the Biosphere (MAB) Programme.

6.6.1 Describe any collaboration with existing biosphere reserves at national, regional, and international levels, also within regional and bilateral agreements.

Corvo Biosphere Reserve actively participates in the general activities of the MAB Programme and the Global Network, and its participation in the 4<sup>th</sup> World Congress of Biosphere Reserves in Lima (Peru) in 2016 is of particular note.



**Figure 64 - 3<sup>rd</sup> MaB Portugal Committee Meeting - Paul Boquilobo Biosphere Reserve (Golegã)**



**Figure 65 - 4<sup>th</sup> World Congress - Participation from the Azores Biosphere Reserves**

Corvo Island Biosphere Reserve is part of the Portuguese National Biosphere Reserves Network, as well as the Portuguese MAB Committee.



**Figure 66 - Signing of the UNESCO National Biosphere Reserve Network Agreement (Berlengas)**

This Biosphere Reserve is also part of the REDBIOS Network, the Macaronesia and West Atlantic Nature Reserve Network and the World Network of Island and Coastal Biosphere Reserves, EuroMAB and IberoMAB.

Corvo Island Biosphere Reserve also participated in the "Outlook of Cooperation between the Portuguese Biosphere Reserve Network and the UNESCO Chair at the University of Coimbra" Technical Meeting, organised by the Life Sciences Department at the University of Coimbra.



**Figure 67 - Meeting at the University of Coimbra**

The Director of Corvo Island Biosphere Reserve participated in the "Workshop: Biosphere Reserves - Spaces for Cooperation and Development", held on São Jorge Island in the Azores at the end of August 2015.



**Figure 68 - Workshop organised by the Regional Directorate for the Environment - São Jorge Island**

In the framework of these collaborations, the Corvo Island Biosphere Reserve has developed a number of joint actions relating to nature and landscape conservation, primarily through the European Union PCT-MAC Transnational Cooperation Programme.

6.6.2 What are the current and expected benefits of international cooperation for the biosphere reserve?

Among the obvious benefits are the strengthening of friendship and partnerships and the transfer of knowledge, with a particular emphasis on the areas of energy, waste management, conservation, landscape management and renewable energy.

The international promotion of Corvo Island as a tourist destination, as well as of its typical products, is another important benefit resulting from this cooperation.

6.6.3 How do you intend to contribute to the World Network of Biosphere Reserves in the future and to the Regional and Thematic Networks?

The Corvo Island Biosphere Reserve will continue to be an active member of the Reserves Networks to which it belongs, and will continue to ensure its participation in both ongoing initiatives and new actions, particularly in the areas of tourism and education with a view to promoting sustainable development.

6.7 What are the main factors that influenced (positively or negatively) the success of activities contributing to the logistic support function? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be favoured as being most effective?

In the context of Corvo Island, no significant negative or positive factors were recorded, with the exception of the size and location of the island, causing particular issues such as the lack of critical mass and difficulties accessing external funding.

6.8 Other comments/observations from a biosphere reserve perspective.

Not applicable.

## **7. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT AND COORDINATION:**

[Biosphere reserve coordination/management coordinators/managers have to work within extensive overlays of government bodies, business enterprises, and a “civil society” mix of non-governmental organizations and community groups. These collectively constitute the structures of governance for the area of the biosphere reserve. Success in carrying out the functions of a biosphere reserve can be crucially dependent upon the collaborative arrangements that evolve with these organizations and actors. Key roles for those responsible for the biosphere reserve coordination/management are to learn about the governance system they must work within and to explore ways to enhance its collective capacities for fulfilling the functions of the biosphere reserve.]

7.1 What are the technical and logistical resources for the coordination of the biosphere reserve?

The coordination of the Biosphere Reserve falls under the responsibility of the Regional Directorate for the Environment (DRA), whose mission is to contribute to defining regional policy in the areas of the environment, land-use planning and water resources, as well as guiding, coordinating and monitoring its implementation.

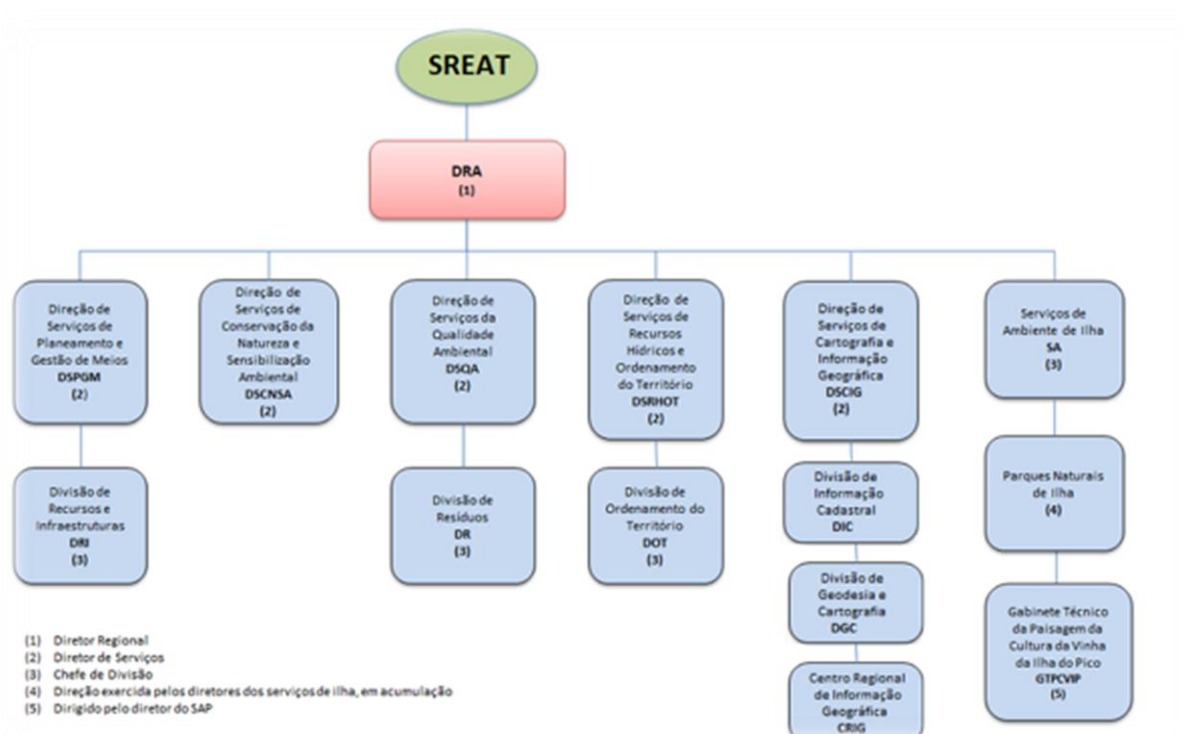
The Regional Directorate for the Environment (DRA) is responsible for the thematic areas of Nature Conservation, including the management of protected areas, species and habitats in the Natura 2000 Network, and Environmental Quality, including the management and monitoring of noise, air quality and waste.

Environmental Promotion and Education, in their various facets, are another important responsibility for this Regional Directorate.



In order to fulfil its functions, the DRA makes use of the following services:

#### Organisational chart - Regional Directorate for the Environment.



The Biosphere Reserves in the Autonomous Region of the Azores fall under the scope of the legal framework for the respective Regional Network of Protected Areas, according to Articles 51 to 54 of Regional Legislative Decree No. 15/2012/A of 2 April, and are managed as part of the Island Nature Park in which they are located.

The Biosphere Reserve has an autonomous management structure, the Management Board, which is led by the Director of the Corvo Nature Park, as stipulated by No. 1 of Article 54 of Regional Legislative Decree No. 15/2012/A of 2 April. The latter is responsible for: advising on the management plan and its implementation; monitoring management; promoting and authorising the use of the brand and its associated logos in products and services, and suggesting actions and projects to boost and promote the objectives of the Biosphere Reserve.

The Management Board usually meets at least once every six months and is always convened by the President, with the Corvo Nature Park as the unit for managing the network of protected areas on the island providing the necessary logistical and administrative support for the operation of the Corvo Island Biosphere Reserve.



With regard to the administrative authorities, the Management Board includes representatives from the Government of the Azores and the Corvo Municipal Council.

Besides their responsibilities on the Management Board, the Government of the Azores and the Corvo Municipal Council hold various responsibilities in the Corvo Island Biosphere Reserve. The Government of the Azores works primarily on the management of the Core Areas and Buffer Zones, through the department with responsibility for the environment and the Corvo Nature Park. Apart from the Corvo Island Nature Park, the Corvo Municipal Council holds administrative and licensing responsibilities in the transition areas.

7.2 What is the overall framework for governance in the area of the biosphere reserve? Identify the main components and their contributions to the biosphere reserve.

Besides their responsibilities on the Management Board, the Government of the Azores and the Municipal Council hold various responsibilities in the Corvo Island Biosphere Reserve. The Government of the Azores manages the Core Areas and Buffer Zones, through the department with responsibility for the environment and the Corvo Nature Park. Apart from the Corvo Island National Park, the Municipal Council holds administrative and licensing responsibilities in the transition areas.

7.4.2 Describe any conflicts in competence among the different administrative authorities involved in the management of the area comprising the biosphere reserve.

There are no conflicts at this level, nor are any foreseen to emerge, as the management structure of the Biosphere Reserves of the Autonomous Region of the Azores and the respective responsibilities of its members are clearly stipulated in Articles 51 to 54 of Regional Legislative Decree No. 15/2012/A of 2 April.

The management model for the Corvo Island Biosphere Reserve includes participation by public and private bodies with sectorial and administrative responsibilities, forestalling the possibility of conflicts by creating the Biosphere Reserve as a space of permanent dialogue and consultation.

7.4.3 Explain the means used to resolve these conflicts, and their effectiveness. Describe its composition and functioning, resolution on a case-by-case basis. Are there local mediators; if so, are they approved by the biosphere reserve or by another authority?

The management model for the Corvo Island Biosphere Reserve includes participation by public and private bodies with sectorial and administrative responsibilities, forestalling the possibility of conflicts by creating the Biosphere Reserve as a space of permanent dialogue and consultation.

7.5 Updated information about the representation and consultation of local communities and their participation in the life of the biosphere reserve:

The Management Board of the Corvo Island Biosphere Reserve includes exhaustive representation of all public, private, associative and corporate bodies on Corvo Island, which participate not only in the actions and initiatives developed, but in the definition of the strategy and management of the Reserve itself.

7.5.1 Describe how local people (including women and indigenous people) are represented in the planning and management of the biosphere reserve (e.g., assembly of representatives, consultation of associations, women's groups).

All inhabitants of the Island of Corvo Island are directly and indirectly engaged and represented in the management of the Biosphere reserve as well as they participate in all decisions and processes under the public access and participation regulations and procedures.

7.5.2 What form does this representation take: companies, associations, environmental associations, trade unions (list the various groups)?

The legal framework for the Azores Biosphere Reserves, established in Articles 51 to 54 of Regional Legislative Decree No. 15/2012/A of 2 April, guarantees the right to public participation by concerned parties in all phases of their development.

Under the terms of the aforementioned legal framework, the Management Board of the Corvo Island Biosphere Reserve comprises the Director of Corvo Nature Park in the role of President, the President of Corvo Municipal Council, representatives of the departments of the Government of the Azores responsible for the areas of economy, agriculture, forestry and fisheries, as well as the following organisations and associations: representative of the Flores and Corvo islands Business Hub, representative of the Corvo Farmers Association, representative of the Corvo Fishermen Association; representative of Corvo Troop 1181 of the National Scouting Association (CNE) (ENGO) and a representative of the Nature and Environment Protection Service (SEPNA) of the local National Republican Guard station of Corvo.

7.5.4 How long-lived is the consultation mechanism (e.g., permanent assembly, consultation on specific projects)?

As well as participation in the management structures, public participation and consultation procedures are also established for each type of activity or project, in accordance with current legislation in the various sectors (e.g. Environmental Impact Assessment, Land Use Plans, and Sectorial Plans). Each consultation process has established duration period according with sectorial legislation.

7.5.5 What is the impact of this consultation on the decision-making process (decisional, consultative or merely to inform the population)?

From a formal perspective, all contributions are analysed and considered in terms of their inclusion in the processes to which they relate. Meanwhile, certain public consultation mechanisms are held in advance and are binding, lending a decisive role to this public consultation and participation.

7.5.6 At which step in the existence of a biosphere reserve is the population involved: creation of the biosphere reserve, drawing up of the management plan, implementation of the plan, day to day management of the biosphere reserve? Give some practical examples.

From its design and application process to its management and strategic planning, the Corvo Island Biosphere Reserve has continuously included the main socio-economic stakeholders on the island in a participatory process.

7.6 Update on management and coordination structure:

7.6.1 Describe any changes regarding administrative authorities that have competence for each zone of the biosphere reserve (core area(s), buffer zone(s) and transition area(s))? If there are any changes since the nomination form/last periodic review report, please submit the original endorsements for each area.

The creation of the island nature parks (administrative authorities) by regional legislative decree established that they are the basic management unit of the Network of Protected Areas in the Azores.

In addition, the legal framework for the Azores Biosphere Reserves, established in Articles 51 to 54 of Regional Legislative Decree No. 15/2012/A of 2 April, stipulates that when the biosphere reserve coincides territorially with an island nature park (as is the case of the Corvo Island Biosphere Reserve), the management board of the reserve replaces the respective advisory board, assuming not only its own responsibilities, but also the legally stipulated functions of the latter body.

In this respect, the legal mechanisms in force were taken into account, specifically, the established protected areas and the corresponding conservation statutes and regulations governing the compatibility of uses and the occupation of the territory.

The zoning established for the Core Areas and Buffer Zones is entirely compatible with the boundaries of the existing protected areas, as well as with areas covered by special instruments for land use planning and management.

The Core Areas comprise areas with protected status in terms of nature conservation and biodiversity, and are fully compatible with the conservation function assigned to them, coinciding with protected areas in the Corvo Nature Park, classified by Regional Legislative Decree No.

44/2008/A of 5 November, implementing the criteria adopted by the International Union for Conservation of Nature (IUCN).

The Buffer Zones comprise areas with protected status in terms of nature conservation and biodiversity, or covered by special instruments for land use planning and management which allow them to complement core areas, coinciding with protected areas in the Corvo Nature Park, classified by Regional Legislative Decree No. 44/2008/A of 5 November, implementing the criteria adopted by the International Union for Conservation of Nature (IUCN), or integrated in the Corvo Island Coastal Area Land-Use Plan (POOC) approved by Regional Regulatory Decree No. 14/2008/A, of 25 June.

7.6.2 Update information about the manager(s)/coordinator(s) of the biosphere reserve including designation procedures.

As established in Article 54 of Regional Legislative Decree No. 15/2012/A of 2 April (Legal framework for nature conservation and biodiversity in the Autonomous Region of the Azores), each biosphere reserve has a management board led by the director of the corresponding island nature park.

7.6.3 Are there any changes with regard to the coordination structure of the biosphere reserve? (if yes, describe in details its functioning, composition and the relative proportion of each group in this structure, its role and competence.). Is this coordination structure autonomous or is it under the authority of local or central government, or of the manager of the biosphere reserve?).

See above for the current legal framework.

7.6.4 How has the management/coordination been adapted to the local situation?

The governance model for the Azores Biosphere Reserves is similar to that of the current four biosphere reserves, and derives from the publication of the regional legislative decree establishing the legal framework for nature conservation and biodiversity.

7.6.5 Was the effectiveness of the management/coordination evaluated? If yes, was it according to a procedure?

As management of the Biosphere Reserve falls under the organic functions of the Regional Directorate for the Environment, evaluation takes place within the framework established by the public body, namely, through the SIADAPRA - Integrated Performance Evaluation System of the Regional Public Administration of the Azores.

## 7.7 Update on the management/cooperation plan/policy:

7.7.1 Are there any changes with regard to the management/cooperation plan/policy and the stakeholders involved? If yes, provide detailed information on process for involvement of stakeholders, adoption and revision of the plan.

Since Corvo Island was named a Biosphere Reserve in 2007, and the establishment of the respective coordination structure in 2012, there have been no significant changes in the management/cooperation model nor in the appointed actors.

However, as part of the current periodic review process, an exercise was undertaken to establish the Vision and Mission of the Corvo Island Biosphere Reserve for the 2018-2024 period.

On June 2017, the Government Council met at the Graciosa Island and resolved that Action Plans for the Azores Biosphere Reserves should be drawn up as development tools for the sustainable development objectives for these areas established under the UNESCO MAB Programme (Government Council Resolution No. 65/2017 of 22 June).

The aforementioned Action Plans, whose legal character and form are defined in Article 52 of Regional Legislative Decree No. 15/2012/A of 2 April, must be completed within a maximum period of 18 months, with the corresponding development processes monitored by a working group comprising area managers, services of the autonomous regional administration, local authorities, various social partners and environmental non-governmental organisations.

7.7.2 Describe contents of the management/cooperation plan (provide some examples of measures and guidelines). Is the plan binding? Is it based on consensus?

In accordance with the contents established in the Vision and Mission for the Corvo Island Biosphere Reserve, the environmental, economic, social, cultural and identity sustainability pursued will be achieved by promoting a diverse range of priority actions, which are:

Mission (1) – Conservation (of landscapes, ecosystems and species)

- Conservation of natural resources: to actively promote the conservation of natural elements to enable its continuity in the future. To promote the conservation of biodiversity, including both wild and domesticated species, by preserving their populations (in particular the rarest species) and genetic diversity and by eradicating exotic and invasive species. To promote actions aimed at restoring and preserving spaces with geological and/or geomorphologic features of particular interest. To take measures for monitoring populations and the conservation plans, promoting research into natural resources.
- Functionality of ecosystems: to promote actions that deter the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of exotic and invasive species.



To develop initiatives to promote ecological restoration via the recuperation of local species, control of contaminants, maintenance of the water and carbon cycles and soil conservation. - Land management: to develop actions which promote judicious, sustainable use of the land, organising human activity in order to maintain biological and cultural diversity. To strive to maintain the spatial continuity of ecosystems and prevent fragmentation, and to maintain traditional land use practices that prevent erosion.

- Landscape: to use landscape as a structural element for zoning and social cohesion, taking measures aimed at its protection, management and planning. To maintain the inherent values, both natural and cultural, of landscapes by minimising harmful impacts and preventing the loss of landscapes.

Mission (2) – Development (economic and human i.e. culturally, socially and environmentally sustainable)

- Quality economy: to stimulate the production, distribution and use of goods in a way that does not subject future generations to serious environmental risks or to significant ecological threats. The small farms on Corvo do not allow the production of items which are competitive on the general market, but the development of products of guaranteed environmental quality allows them to be exploited in specific markets which value quality over cost.

Promotion of territoriality as an inherent singularity of the product, good or service.

- Responsible tourism: based on the promotion of a quality offer which respects the environment and targets a market seeking luxury tourism. Promotion of Birdwatching as an important market niche in low season, characterised by efficient use of resources.

- Energy sustainability: alteration of the road mobility paradigm sustained by external dependence on fossil fuels and replacement with mobility fuelled by clean energy, via incentives for the use of electric vehicles.

Corvo Island and its Biosphere Reserve must implement an integrated alternative energy system, combining solar panels, wind and hydroelectric energy, creating a sustainable energy project which will contribute to the sustainable development of the Azores.

Mission (3) – Logistical (supporting research, monitoring and education)

- Enhancement of knowledge: Corvo Island Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, with the support and collaboration of the University of the Azores in conducting projects involving research, training and environmental education, with the aim of implementing sustainable development models on the island.

- Traditional knowledge: to identify and enhance cultural elements, customs and traditions as constituents of identity and distinctive elements of the Corvo population to counteract the homogenising effect of globalisation, which appears to replace local identities and cultures.

7.7.3 Describe the role of the authorities in charge of the implementation of the plan. Describe institutional changes since the nomination form/last periodic review report. Please provide evidence of the role of these authorities.

With the creation in 2008 of the Corvo Island Nature Park, through Regional Legislative Decree No. 44/2008/A, of 5 November, a decisive step was taken towards creating an authority responsible for the management of the Corvo Island Biosphere Reserve.

The Action Plan for the Corvo Island Biosphere Reserve will be promoted according to the normal parameters of a sectorial programme, based on the consensus and active participation of all parties.

In this sense, it is the responsibility of the management structure of the Corvo Island Biosphere Reserve, as defined in Articles 51 to 54, to implement the Action Plan in partnership with other public and private entities.

7.7.4 Indicate how the management plan addresses the objectives of the biosphere reserve.

In accordance with the Government Council resolution, the process of drawing up the Action Plan is monitored by a working group comprising area managers, services of the autonomous regional administration, local authorities, various social partners and environmental non-governmental organisations.

Such broad representation of the main local stakeholders will guarantee the pursuit of the Vision established for the Corvo Island Biosphere Reserve and the respective actions that have been identified to achieve it.

7.7.5 What are the progresses with regard to the guidelines of the management/cooperation plan/policy?

The experience gathered during the first ten years of the Corvo Island Biosphere Reserve has allowed for the identification of the principles and objectives of the Biosphere Reserve within a framework of sustainable development at the local level. The approval of the vision and mission for the 2018-2024 period is a good reflection of the identity and coherence around the role that the Biosphere Reserve plays.

7.7.6 Were there any factors and/or changes that impeded or helped with the implementation of the management/coordination plan/policy? (Reluctance of local people, conflicts between different levels of decision-making).

There are no factors or difficulties in implementing or coordinating the Biosphere Reserve. The fact that the Reserve includes the entire physical space of the island and the involvement of living forces in its management and current activities are elements that facilitate the dialogue and help prevent conflicts.

7.7.7 If applicable, how is the biosphere integrated in regional/national strategies? Vice versa, how are the local/municipal plans integrated in the planning of the biosphere reserve?  
(Please provide detailed information if there are any changes since the nomination form/last periodic review report).

The Corvo Island Biosphere Reserve forms part of the strategies for sustainable development and cohesion of the Autonomous Region of the Azores.

The Government of the Azores has developed a wide range of incentives, programmes, policies and strategic documents that aim to develop, support and stimulate the economic, social, cultural and environmental dimensions of the Region, including Corvo Island and its specificities, not only in terms of their socio-economic reality, but also in terms of their typical products, such as cheese, handicrafts and its unique landscape. Corvo Biosphere Reserve acts as a catalyst and facilitator at the local level for many of the programmes established in the Azores archipelago, helping to implement the principles and objectives of many of the main strategic sectorial plans locally.

The programmes already implemented or awaiting implementation include:

- Programme of the XI Government of the Azores;
- Medium-term Guidelines 2013-2016;
- Operational Programme Azores 2014-2020;
- POSEIMA (Specific Options Programme addressing Distance and Insularity in Madeira and the Azores);
- PRORURAL (Rural Development Programme for the Autonomous Region of the Azores);
- PROPESCA (Operational Fisheries Programme for the Autonomous Region of the Azores);
- PROEMPREGO (Operational Employment Programme for the Autonomous Region of the Azores);
- The Azorean Agenda for the Creation of Employment and Business Competitiveness;
- Strategic Plan for the Cohesion of the Azores;

- Strategic Plan for the Promotion of Entrepreneurship in the Autonomous Region of the Azores 2013-2016
- Regional Strategy for Climate Change

### **Programme of the XI Government of the Azores**

The programme of the XI Government of the Azores mentions that in addition to the internal actions aimed at guaranteeing or recovering the quality of the landscape, the Azores today have a set of internationally recognised certifications that reflect the level of quality achieved. Classifications such as Biosphere Reserves, Natura 2000 Network, European Network of Destinations of Excellence, QualityCoast, among many others, demonstrate achievements to date. In this sense, it is necessary to maintain or, where appropriate, extend this type of certification.

The programme also mentions that among the environmental classifications of the Azores, Biosphere Reserves in particular represent a huge opportunity for increasing the visibility of the islands of the Azores.

Thus, as part of the objective of coordinating the Action Plans of the Island's Nature Parks, a proposal has been put forward to ensure that environmental certifications such as Biosphere Reserves, Natura 2000 Network, RAMSAR sites and others are reflected in the Action Plans of the Island Nature Parks.

In addition, and in order to increase the impact of the certifications of environmental quality, the Government Programme proposes to increase the use of the Biosphere Reserve brand in regional products originating on the relevant islands.

### **Medium-Term Guidelines 2013-2016**

The Medium-Term Guidelines 2013-2016 refer to a set of internationally-recognised certifications demonstrating the level of quality achieved by the Azores, such as the Natura 2000 Network and Biosphere Reserves, and maintaining the image of environmental quality of the Azores.

For the period 2013-2016 it is proposed that the work of the Regional Government in the field of environment and planning is based on 7 major pillars, namely nature conservation and environmental awareness, land use planning, water resources, environmental quality and world heritage, waste management, coastal rehabilitation and the monitoring, promotion, supervision and actions regarding the marine environment.

At the level of nature conservation and environmental awareness, the management of biodiversity and the natural heritage of the Azores is given special emphasis.

### **Operational Programme Azores 2014-2020**

As part of Priority Axis 6: Environment and Resource Efficiency the Operational Programme Azores 2014-2020, Investment Priority 6.3 is highlighted, referring to conservation, protection, promotion and development of the natural and cultural heritage, including several interventions aimed at enhancing and promoting sustainable tourism based on natural and cultural heritage, such as, for example, the promotion and awareness-raising projects for the renewal/expansion of internationally awarded environmental certifications, namely Biosphere Reserves, Azores Geopark, the European Destinations of Excellence Network, QualityCoast, Blue Flag, Accessible Beach and the European Charter for Sustainable Tourism.

In the Azores, the connection of culture to tourism and the environment occurs naturally, though it is necessary to articulate and coordinate the actions to be developed. Collaboration between stakeholders should be close and clear, allowing for more lasting results and progressively greater sustainability.

In addition, priority is given to Investment Priority 6.4, regarding the protection and rehabilitation of biodiversity and soils and the promotion of ecological services systems, notably through the Natura 2000 network and green infrastructure. In a territory with the characteristics of the Autonomous Region of the Azores, the protection and valuation of biodiversity and natural resources is a strategic priority for the social, economic and environmental sustainability of the territory.

#### **- POSEIMA**

The Specific Options Programme addressing Distance and Insularity in Madeira and the Azores provides a specific supply regime and measures to support local agricultural production. It supports the production of livestock, vegetables, processing (in particular storage aid for the keeping of cheese) and marketing.

#### **- PRORURAL**

The Rural Development Programme for the Autonomous Region of the Azores is developed along 4 axes: increasing the competitiveness of the agricultural and forestry sectors; improving the



environment and the rural landscape; quality of life in rural areas and diversification of the economy; and a focus on leadership. PRORURAL+ for the period 2014-2020 is available now.

#### **- PROPESCAS**

The PROPESCAS programme is based on creating the conditions for improved competitiveness and sustainability of the regional fisheries sector, taking into account the application of biologically and ecologically sustainable exploitation regimes, better organisation of the catch, processing and commercialisation, strengthening productive activity, diversification and addition of value and quality assurance of fishery products. The guidelines for the development of the fisheries sector in the Region presuppose the inclusion in PROPESCAS of the following priority axes: Priority axis 1 - adaptation of the regional fishing fleet; Priority axis 2 - aquaculture, processing and marketing of fishery products; Priority axis 3 - measures of general interest; and Priority Axis 4 - sustainable development of fishing areas.

#### **- PROEMPREGO**

PROEMPREGO is structured in 6 intervention areas: youth employability; consolidation of the employability conditions in the private sector; modernisation of the productive fabric and support for entrepreneurship; employability and entrepreneurship based on R&D; regional competitiveness in the information and knowledge society; and social inclusion through qualification, employment and entrepreneurship.

#### **Azorean Agenda for the Creation of Employment and Business Competitiveness**

The Azorean Agenda for the Creation of Employment and Business Competitiveness foresees several incentive policies, of which the following stand out:

- Creation of a new incentive system for the development of handicrafts, with the aim of promoting the quality of production of artisanal enterprises in the Azores and addressing structural changes resulting from the creation of artisan status and the artisanal production unit, thus strengthening conditions to support the development of this sector of activity;
- Creation of an incentive system for the promotion and commercialisation of local products abroad, with the aim of strengthening the external competitiveness of regional products and increasing intraregional trade;

- A focus on making the Azores brand distinct, identifying the region with a brand synonymous with quality and excellence as a strategy for attracting and retaining markets. Azorean products, whether traditional commodities such as meat, dairy products and tuna, among others, as well as services such as tourism must be distinguished from direct competitors as coming from a Region with a ecological profile of high environmental value;



- A reduction of 50% in the air freight rate and 77% in the handling rate for the Region's fresh produce (vegetables, fruit, eggs, fresh milk products - yoghurt, cheese, among others), produced and consumed on islands that are part of the Cohesion Plan (São Jorge, Graciosa, Santa Maria, Flores and Corvo);
- Implementation of an action-training programme to promote entrepreneurship related to local sectors and products of the Azores, such as fishing and its derivatives, dairy-related agroindustry, tourism, other activities related to the sea and renewable energy sources;
- Creation of the Terra-Azores project, which seeks to create a stock of public lands available on the different islands for the establishment of young farmers, promoting the creation of hubs of young agricultural enterprises and encouraging regional agricultural diversification;
- Creation of the Agir Agricultura and Agir Indústria projects with the aim of combating unemployment and creating new jobs.

### **Strategic Plan for the Cohesion of the Azores**

Regional cohesion was designated by the Government of the Azores as a strategic factor of governance and an element that brings people together and improves the conditions offered in the different physical spaces of the Region. These promote the settlement of people and families, including their enhancement (social cohesion), and also provide conditions for the development of entrepreneurial activities that generate wealth and employment (economic cohesion).

Participating islands in the Cohesion Plan are: São Jorge, Graciosa, Santa Maria, Flores and Corvo.

With this in mind, a cohesion strategy for Corvo must be based primarily on:

- Support for tourism investment linked to the observation of birds and underwater species, implying a certain increase in hotel capacity, with flexible solutions;
- Support for small entrepreneurial initiatives diversifying the local economy;

- Improvement of access routes, both by air (this has already taken place) and sea transport of merchandise;
- Maximisation of positive discrimination measures, particularly relating to support for entrepreneurship and the settlement of the young population, and technical guidance for the corresponding projects;
- Maintenance of public support for the conditions ensuring the wellbeing of Corvo's population;
- Promotion of the Social Economy institutions on the island, supporting the social conditions of the population and fighting unemployment, poverty and social exclusion.

### **Strategic Plan for the Promotion of Entrepreneurship in the Autonomous Region of the Azores 2013-2016**

The Strategic Plan for the Promotion of Entrepreneurship in the Region features the following action proposals:

START-UP AZORES - implementation of an international programme to attract qualified entrepreneurs;

EMPREENDE AZORES - implementation of an action-training programme to promote entrepreneurship related to the local products of the Azores;

INCUBA AZORES - establishment of an incubator of benchmark companies in the Azores;

BIC AZORES - establishment of a Business Innovation Centre in the Azores;

ENTREPRENEURSHIP OBSERVATORY - implementation of a structure to monitor the evolution of the Azores' entrepreneurship ecosystem;

AZORES ANGELS - creation of a Business Angels network in the Azores;

ENTERPRISE AZORES - implementation of a programme to promote the external visibility of the Azores' entrepreneurship ecosystem.

### **Regional Strategy for Climate Change**

Given the specificities and vulnerabilities of the islands of the Azores, a number of key strategic sectors have been identified in the Regional Strategy for Climate Change (ERAC), of which the following stand out: land use and coastal zones planning; biodiversity and natural heritage; marine environment and fisheries; agriculture and forestry; tourism and industry. The ERAC will be implemented through a Regional Plan for Climate Change that is composed of sectoral strategies and integrates the measures and actions considered pertinent for each of the above mentioned sectors.

## 8. CRITERIA AND PROGRESS MADE:

[Conclude by highlighting the major changes, achievements, and progress made in your biosphere reserve since nomination or the last periodic review. How does your biosphere reserve fulfil the criteria? Develop justification for the site to be a biosphere reserve and rationale for the zonation. What is lacking, and how could it be improved? What can your biosphere reserve share with others on how to implement sustainable development into practice?]

Brief justification of the way in which the biosphere reserve fulfils each criteria of article 4 of the Statutory Framework of the World Network of Biosphere Reserves:

1. “Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions”.  
(The term "major biogeographic region" is not strictly defined but it would be useful to refer to the Udvardy classification system ([http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975\\_745.html](http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html))).

Corvo Biosphere Reserve belongs to the bio-geographical region of Macaronesia, which includes the archipelagos of Cape Verde, the Canary Islands, Madeira and the Azores, as well as part of the north-western coastal area of Africa.



Figure 69 - Northwest slope - Corvo Island

With a total area of 17.13 km<sup>2</sup>, the island has a community of around 450 inhabitants, and a low population density (26.27 inhabitants/km<sup>2</sup>).



**Figure 70 - View of Vila do Corvo**

Corvo Biosphere Reserve features a complex mosaic of landscapes and ecosystems, partly due to the morphological characteristics of the island, and partly to the varying degrees of human influence, determined by the historical and current use of the land. The natural terrestrial habitats are highly diverse, including the heathland endemic to Macaronesia, active raised bogs, blanket bogs and bog woodland, which all belong to the European Union Habitats Directive and possess priority conservation status.



**Figure 71 - Peat bog (interior of the caldera)**



On the whole, Corvo Island Biosphere Reserve is highly representative of the main types of Macaronesia habitats and ecosystems, both terrestrial and marine.

The coastal habitats are marked by the presence of imposing cliffs, with flora endemic to the Macaronesia coast and shingle or stony beaches. The inaccessible cliff areas shelter fauna and flora species which are characteristic of Macaronesia, and are relatively or entirely untouched by human presence, due to their inaccessibility and uselessness for human activity.



**Figure 72 - Cliff - Northwest coast of Corvo Island**

The marine habitats display highly important natural and ecological features, and are among the least spoilt in the Azores archipelago, with high biodiversity and well conserved populations of various species of commercial interest. It is relevant to note the presence of reefs to the south of the island, whose geomorphological diversity allows the existence of multiple micro-habitats and high marine diversity, and the presence of semi-submerged arches and caves along the island's coastline.

The interior of the volcanic caldera features areas of great natural value, on the steepest slopes, close to more maintained areas. In the southern part and at the bottom, where the slope is less steep, pastures have emerged where cattle graze. At the bottom of the caldera, there are also relatively untouched wetland areas which are rich in botanic species native to the Azores.

2. “Be of Significance for biological diversity conservation”.

The rich mosaic of ecological systems of significant interest in Corvo Island Biosphere Reserve is associated with high biological diversity. The Reserve is home to a wide range of species of European and regional relevance. With regard to its flora, Corvo Island has 93 registered endemism's, featuring the largest proportion of endemism's in the archipelago. Among the botanical species recorded on this island are 19 species listed in Annex II of the European Union Habitats Directive, 3 of which are priority, and 2 species listed in Annex IV of the same Directive. There are also 8 bryophyte species listed on the European Red List of Bryophytes. One of them, *Echinodium renauldii*, is currently considered one of the most threatened bryophytes in the world. It is relevant to note that Corvo Island possesses the highest density of rare or endangered species, as well as endemic species, per km<sup>2</sup> in the whole Autonomous Region of the Azores.



**Figure 73 - Moss endemic to the Azores (*Echinodium renauldii*)**

There are 29 terrestrial invertebrates which are endemic to the Azores and 7 endemic to Macaronesia. Also notable is the presence of the rare Azores grayling butterfly (*Hipparchia occidentalis* known locally as borboleta-castanha or sátiro-dos-açores), endemic to the Azores, whose presence is limited to the islands of Corvo and Flores. This butterfly, which IUCN categorises as being of great concern - "Danger of extinction", is abundant on Corvo Island.



**Figure 74 - Borboleta castanha (Azores grayling - *Hipparchia occidentalis*)**

Among the 9 endemic subspecies of birds present on Corvo Island (8 endemic to the Azores and 1 endemic to Macaronesia), the pombo torcaz dos Açores (Azores wood pigeon - *Columba palumbus azorica*) is particularly noteworthy, as a priority species listed in Annex I of the European Union Birds Directive. The reserve also houses important seabird colonies, many listed in Annex I of the Birds Directive, which return there every year to nest.



**Figure 75 – Seabirds - Cagarro (Cory's shearwater - *Calonectris borealis*) / Frulho (Audubon's shearwater- *Puffinus lherminieri baroli*)**



Among these are the frulho (Audubon's shearwater- *Puffinus assimilis baroli*) and the cagarro (Cory's shearwater - *Calonectris borealis*), which are present in high percentages compared with the rest of the Azores archipelago. Around 14% of the Cory's shearwater population in the Azores archipelago nests on Corvo, as well as 19-35% of the Audubon's shearwater population. The only sites in the Azores archipelago where the estapagado (Manx shearwater - *Puffinus puffinus*) nests are the islands of Corvo and Flores.

Other seabirds nesting on the island are the angelito (band-rumped storm petrel *Oceanodroma castro*); the garajau comum (common tern - *Sterna hirundo*) and the garajau rosado (roseate tern - *Sterna dougallii*). The latter is a species classified as priority in Annex I of the Birds Directive. There are also other birds which use the island as a crossing point, and it is common to see accidental migratory birds from North America and the Arctic.

The morcego-dos-Açores (Azores noctule - *Nyctalus azoreum*) and the morcego-da-Madeira (Madeira pipistrelle- *Pipistrellus maderensis*), included in Annex IV of the Habitats Directive, may be found on Corvo, although their numbers are low.



**Figure 76 - Morcego-dos-Açores (Azores noctule - *Nyctalus azoreum*)**

Considering the Azores archipelago in general, Corvo Island features a comparably well preserved coastal and marine environment. Communities of coastal species are mainly determined by the morphology and type of substrate. There are various macro algae communities, whose distribution depends primarily on the depth and exposure of the substrate.

The marine invertebrate population largely features molluscs, sponges and crustaceans, and their specific richness varies according to the type of habitat. Along the length of the coast, there are various limpet communities (*Patella aspera* and *P. candei*), which are of significant commercial and cultural interest.



**Figure 77 – Lapa-mansa (*Patella candei gomesii*)/ Lapa-brava (*Patella aspera*)**

At least 63 species of fish have been identified in the coastal area of the island, including various species of commercial interest. The marine area of Corvo Biosphere Reserve also features several species of cetaceans, a group included in its entirety in Annex IV of the Habitats Directive. The main recreational marine activities include coastal line fishing, trolling and spearfishing, and harvesting of octopus (*Octopus vulgaris*), limpets (*Patella* sp.) and a mixture of shoreline algae, collectively known as "erva patinha".



**Figure 78 - Seaweed - Erva-patinha (*Ulva rigida*)**



Fishermen on Corvo Island are the main users of the marine resources surrounding the island, and focus their activity on the coastal areas, at depths of between 100 and 500 metres, and some dips located in the Corvo-Flores channel. The most commonly used fishing gear are hand lines for demersal species, pole-and-line fishing for tuna which is used as bait and, on rare occasions, bottom long line fishing for targeting species such as the goraz (black spot sea bream - *Pagellus bogaraveo*), the mero (dusky grouper - *Epinephelus marginatus*), the cherne (Atlantic wreck fish - *Polyprion americanus*) and the pargo (red porgy - *Pagrus pagrus*).



**Figure 79 - Traditional fishing on Corvo Island**

Local fishermen are the main users of the marine resources, though fishermen from nearby islands (mainly Flores, but also from the Central Group of islands in the archipelago) also carry out their activity here with some frequency. This type of fishing is considered to be artisanal and is efficiently managed, and is compatible with the preservation of the species exploited.



**Figure 80 - Mero (Dusky grouper - *Epinephelus marginatus*)**

Farming is well developed and diversified, and still uses many traditional agricultural techniques such as the exploitation of orchards. With regard to agriculture, the average size of the farms (in hectares) is 269.9% larger than the average size of farms in the Region considered as a whole.

Agriculture activity is generally extensive in small plots of land, although some stages of production are partially mechanised and the use of agricultural additives is common.



**Figure 81 - Agricultural properties on Corvo**

The classification of the area as a Biosphere Reserve has helped to preserve traditional production techniques to the detriment of modern techniques. Some destructive methods have even been replaced by the reintroduction of previously abandoned techniques, which nevertheless are efficient, such as crop rotation instead of the intensive use of chemical fertilisers.

3. “Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale”. (Including examples or learning experiences from putting sustainable development into practice).

By developing methodologies for enhancing the local natural and cultural heritage, the Biosphere Reserve has contributed decisively to the promotion of sustainable development measures in both the other islands of the Azores and in other regions of the world.

The various areas being pursued and adopted in the policy of the Government of the Azores for the sustainable development of the Region include the use of sustainable agricultural and artisanal fishing techniques, the promotion of the natural and cultural heritage through tourism and of export products through quality certification (such as the island’s cheese, for example), and the recovery of the natural and cultural heritage, particularly through Corvo Eco museum.



**Figure 82 - Traditional agriculture on Corvo Island**

Corvo Island has been the set for experiments on the integrated management of protected areas, habitat recovery and eradication of invasive species. The innovations created continue to have an impact, not only locally but also in terms of the sustainable management of natural spaces on other islands of the Azores, and have also served as an example of good practices at both the national and international level.

The implementation of a Biosphere Reserve in this area has stimulated the creation of a common platform for discussion, which has led towards achieving a socio-economic development which is compatible with the preservation of natural and cultural assets.

The various activities have prompted the development of sustainable agricultural techniques, including artisanal fishing, habitat restoration, tourism and recreation. In this regard, the area has allowed the development of test interventions via innovative, productive approaches.

The work implemented in recent years and the experience gained in managing natural resources on Corvo Island has served as an example of sustainable development, and has led to the replication of these management measures in other sites.

However, experience suggests that there is still room for these measures to be extended.

The maintenance and revival of traditional exploitation techniques, combined with adjustment of the value of the products from Corvo Biosphere Reserve to suit the international context, have been crucial in enabling demonstration to other sites.



The restructuring of activities and revitalisation of the local economy by means of enhancing natural resources through policies implemented by the Government of the Azores for the sustainable development of the Region is now a reality. In this area, the creation of Corvo Nature Park and the implementation of its Biosphere Reserve have contributed to developing sustainable economic activities and increasing the value of the products offered, including tourism products and specific agricultural products of certified quality.

Locally, facilities are already available to offer information about the Biosphere Reserve and about the sustainable development measures implemented, such as Corvo Environmental and Cultural Interpretation Centre and the Wild Bird Rehabilitation Centre, as well as the opening of the Tourist Office. These structures have placed various interpretative plaques with written information in various sites on the island.



**Figure 83 - Information plaque and board in Corvo Biosphere Reserve**

Regionally, Corvo Island is recognised as an example demonstrating the efficiency of environmental management measures in the Azores.

The implementation of socio-economic development activities enhances the island's visibility in the Autonomous Region of the Azores, serving as an important example to follow by the populations of other islands.

Meanwhile, strong collaboration on various international cooperation projects between the Regional Governments and various institutions from the Azores, Madeira and the Canary Islands archipelagos has created excellent opportunities to spread information throughout the entire Macaronesia region, which is essential to achieve good results. This potential has been (considerably) enhanced and enriched by the inclusion of the Corvo Reserve in REDBIOS (East Atlantic Biosphere Reserve Network).

4. “Have an appropriate size to serve the three functions of biosphere reserves”.

Corvo Biosphere Reserve was sized in such a way as to allow the possibility of fulfilling all of the conservation, development and logistical support functions of a Biosphere Reserve.

This Biosphere Reserve includes the total area of Corvo Island and a marine area surrounding it, in the far west of the Azores archipelago, in relation to the area above the water line. Although the area of the island is relatively small, it includes a wide variety of habitats of international importance, recognised and classified by the European Union through the Natura 2000 Network. Moreover, with Azores being an archipelago composed of 9 islands, the inclusion of the entire territory of one island, in this case Corvo, lends it a special significance in comparison with Reserves established within broader mainland territories.



**Figure 84 - Corvo Island Biosphere Reserve**

The inclusion of an extensive marine area surrounding the entire Corvo Reserve ensures the protection of important coastal systems and allows integration of the management of terrestrial and marine areas. The small size of the island and its small resident population allow effective management of resources, facilitating the monitoring of human activity and the alteration of habits to respond to the need for sustainable development.

These characteristics help to ensure the efficient functioning of Corvo Biosphere Reserve, which is reflected in the understanding and involvement of the local population with regard to sustainable local development, as an illustrative example of the way in which good management of natural and cultural heritage can contribute to socio-economic development.



Corvo Biosphere Reserve was sized in such a way as to allow the possibility of fulfilling all of the conservation, development and logistical support functions of a Biosphere Reserve. The total area proposed is 25,853 hectares (approximately 258 km<sup>2</sup>). The Core Area of 3,028 hectares (30 km<sup>2</sup>) corresponds to almost 12% of the total area, of which 2,250 hectares (22.5 km<sup>2</sup>) are sea and 825 hectares (8 km<sup>2</sup>) are land.

These dimensions, which correspond to the totality of the island and a section of the sea surrounding it, ensure the long term preservation of the natural environment, as it includes the most important areas from the point of view of the island's natural biodiversity and marine environment.

The Buffer Zone corresponds to 88% of the area of the Reserve, totalling 22,750 hectares (227.5 km<sup>2</sup>). This area, as well as functioning as a shield protecting the natural assets of the Core Area, has been an area for the demonstration and sustainable use of natural resources. The size of the area has proven sufficient to guarantee the socio-economic development of the local population via the application of sustainable methods for exploiting natural resources and rehabilitation of humanised areas.

#### **Ilha do Corvo Biosphere Reserve**

	Area (ha)	Percentage of Total Area
Core Area	3,027.745	11.7
Buffer Zone	22,749.638	88
Transition Area	75.492	0.29
<b>Total</b>	<b>25,852.875</b>	<b>100%</b>

#### **5. Appropriate zonation to serve the three functions**

The zoning of Corvo Biosphere Reserve remains unaltered with regard to the original proposal for its candidacy and classification as a Biosphere Reserve, and ensures the fulfilment of the functions of conservation, development and logistical support.

The Core Area of Corvo Biosphere Reserve is continuous, with a total of 3,027 hectares, but it includes three main areas: Costa e Caldeirão, Baía do Pão de Açúcar (on the SW coast) and Ponta do Marco (NW coast).

Part of the Core Area of Corvo Island is included in the European Union Natura 2000 Network, through the Habitats and Birds Directives. These areas, of significant international interest, fulfil the function of biodiversity conservation through the conservation of natural habitats and wild flora and fauna species considered to be threatened in the European Union.

In the Autonomous Region of the Azores, the areas classified as SPA (Special Protection Areas) were declared to the European Commission in 1990, and were transposed to the regional legal framework via Regional Regulatory Decree No. 14/2004/A of 20 May. These areas correspond to a set of areas classified under Directive No. 79/409/EEC of 2 April - Birds Directive. The SCI areas (Sites of Community Importance), already transposed to SAC (Special Areas of Conservation), correspond to a set of areas classified under Directive No. 92/43/EEC, Habitats Directive, transposed into regional law by Regional Legislative Decree No. 18/2002/A of 16 May.

The guidelines for management of these areas were integrated by means of the Natura 2000 Network Sector Plan for the Autonomous Region of the Azores, which was implemented via Regional Legislative Decree No. 20/2006/A of 6 June.

The conservation objectives are linked to the preservation of land and marine environmental assets, primarily the wetlands of the Caldeirão (caldera), classified as a Ramsar site in 2008, with particular emphasis on the heathland endemic to Macaronesia, the active raised bogs, the blanket bogs and the bog woodland, and the coastal areas which feature high species diversity, displaying a good state of preservation placing them among the best in the Azores.

Conservation problems within the Core Area have been identified in the Natura 2000 Network Sector Plan for the Autonomous Region of the Azores and the conservation objectives outlined are organised at different levels. In this regard, measures aiming to halt and reverse the degradation factors detected in the Core Area have been implemented, promoting the monitoring of human activity in the surrounding areas in order to protect the Core Area. In order to achieve this desired outcome, planning of the humanised land was undertaken, as well as activities promoting changes in land use practices in order to guarantee the long term maintenance and restoration of natural habitats in the Core Area, as well as in surrounding areas, which is achieved through the promotion of training and awareness raising activities among the local population.

The Buffer Zones occupy a total area of 22,750 hectares, including a marine and terrestrial area, and correspond to the area established in the decree creating Corvo Nature Park (DLR No. 44/2008/A of 5 November), benefiting from legal protection status.

The terrestrial Buffer Zone is located on the eastern slope of the island, and largely comprises pasture fields, divided by dry stone walls or hydrangea hedges, interspersed with small agricultural buildings supporting livestock activity or by non-compartmentalised fields, part of a common land system. At the foot of this slope, taking advantage of more fertile soils, there are several agricultural plots which guarantee part of the subsistence of Corvo's population, along with the plots in Vila do Corvo.

The marine Buffer Zone corresponds to a rectangular area surrounding the whole island and marine area of the Core Area, defined by the geographic coordinates stated in the decree creating Corvo Nature Park (DLR No. 44/2008/A of 5 November).

The terrestrial Buffer Zone features municipal land, publicly owned land and private land, whose use is limited primarily by the land use planning instruments.

The marine area up to 12 nautical miles from the coast (Territorial Sea) is under the jurisdiction of the Regional Government of the Azores, with extractive activities regulated by various legal instruments.

The general conservation goals of the terrestrial area derive from the implementation and application

of various land management instruments, including the Municipal Master Plan, the Coastal Management Plan, the Regional Land Use Plan for the Azores, the Regional Sustainable Development Plan for the Autonomous Region of the Azores and the Natura 2000 Network Sector Plan in the Autonomous Region of the Azores. The various land management measures deriving from these instruments include the monitoring of human activities in the areas surrounding the Core Area, planning of humanised land and activities and, where necessary, implementation of changes to land use practices in order to ensure the long term maintenance of natural habitats and the restoration of natural habitats in areas bordering the Core Area, by promoting training and awareness raising among the population.

The main objectives in the Marine Buffer Zone are, in addition to the protection of the Core Area, to maintain environmental quality through the sustainability of the activities carried out there, to recover resources and habitats, to gradually phase out and transform mining-related activities in order to reclaim the value of resources and to promote training and awareness to the population. Other general objectives for the Buffer Zones are to achieve a common understanding among the various local stakeholders and users of the importance of using these areas in a way which has a positive impact on the Core Area and on the development of human activities, via the implementation of sustainable activities such as ecotourism and the creation of products valued for their sustainable use of the environment.

The Transition Area corresponds to the area with the human settlements and activities and it covers an area of 75.5 hectares, corresponding to Vila do Corvo and the agricultural areas to the west. It is bounded to the north by the foot of a hill, and to the south by an irregular line close to the coastline. The Vila is a concentrated urban agglomeration, primarily comprising traditional buildings, located on the only platform on the island with the sufficient size to enable human settlement. Here live the 459 inhabitants of the island, according to data from the Regional Statistics Service of the Azores (SREA).

Due to the physical characteristics of the island, the Transition Area covers almost all of the area which could potentially see the expansion of the urban area, guaranteeing efficient planning of the area's management, in line with the objectives of Corvo Biosphere Reserve.

6. "Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve".

In 2012, Regional Legislative Decree No. 15/2012/A, of 2 April created a management body made up of local representatives of the stakeholders for the management of the Corvo Island Biosphere Reserve.

The population of Corvo Island has a deeply rooted culture of participation, partly due to the small size of the population and partly to the island's geographical isolation. This participatory culture is evident in the existence until very recently of an informal 'council' made up of elders and public figures.

Public participation in the discussion of measures or issues affecting the population is normally very high, involving the majority of the population.

The Advisory Board for the Biosphere Reserve, made up of representatives of local stakeholders, participates in the management of Corvo Island Nature Park, as well as the Biosphere Reserve. Besides this, due to the ease in contacting the population and the significant public participation characteristic of Corvo Island, the most important management measures are generally presented directly to the population and discussed widely in order to obtain the greatest possible consensus between environmental and cultural conservation objectives and development objectives.

#### 7. Mechanisms for implementation:

- a) Mechanisms to manage human use and activities.
- b) Management policy or plan.
- c) Authority or mechanism to implement this policy or plan.
- d) Programmes for research, monitoring, education and training .

An advisory body made up of representatives of local stakeholders participating in the management of Corvo Biosphere Reserve was created in 2012 (Regional Legislative Decree No. 15/2012/A of 2 April). This body is composed of significant public entities, representatives of the local community and main interest groups related to the Biosphere Reserve.

The Island's small population allows for efficient consultation processes and for the active participation of various groups with an interest in the Reserve.

The most important management measures are presented to the population and widely discussed in order to obtain the best possible consensus between environmental and cultural preservation objectives and those of development.

#### **a) Mechanisms to manage human use and activities in the buffer zone(s)**

There are several mechanisms to manage the activities in the terrestrial buffer zones of the reserve, such as the EAFRD - European Agricultural Fund for Rural Development 2007-2013 (Code of good agricultural practice), implemented in the Azores through the ProRural Programme. At the regional level, the POOC - Coastal Management Plan, the Natura 2000 Network Sector Plan, the POTRAA - Tourism Management Plan for the Autonomous Region of the Azores (in the discussion phase), the PRA - Regional Water Plan and the PROTA - Regional Land Management Plan for the Azores (currently being developed) are particularly relevant, as well as the PDM - Municipal Master Plan at the municipal level.

#### **b) Management policy or plan of the area as a Biosphere Reserve**

The lines of action which have already been initiated with the nomination of the Biosphere Reserve will be continued, namely those established in the Regional Land Management Plan for the Azores, the Regional Sustainable Development Plan for the Autonomous Region of the Azores, the Tourism Management Plan for the Autonomous Region of the Azores and the Natura 2000 Network Sector Plan in the Autonomous Region of the Azores.

For the Buffer Zones and Transition Areas, in addition to the aforementioned plans, the PDRu Azores - Rural Development Plan for the Autonomous Region of the Azores is also included in the set of instruments for the management of human activities.

#### **c) Authority or mechanism to implement this plan or policy**

Several integrated mechanisms cooperate on the implementation of the Biosphere Reserve. The integration is ensured by the Management Board that brings together the management unit responsible for the daily management and all relevant stakeholders in the island. The Management Board approves the main strategy, priorities and programmes that are implemented by the management unit.

In the Region, the Network of Protected Areas in the Azores, the classification by the International Union for Conservation of Nature (IUCN) was adopted, adapting it to the specific geographic, environmental, cultural and political-administrative characteristics of the Azores archipelago.



Considering the diversity of situations resulting from the implementation of the Natura 2000 Network in the Autonomous Region of the Azores and the need to adopt a model based on management criteria that standardise the diversity of designations of areas classified as protected and which concentrate competences into an island territorial unit as a management base unit, the legal regime for classification, management and administration of the Protected Areas of the Region was reformulated through Regional Legislative Decree No. 15/2007/A, of 25 June, later rectified by the Declaration of Rectification No. 79/2007, of 21 August.

The Island Nature Parks and the Azores Archipelago Marine Park, regulated by Regional Legislative Decree No. 28/2011/A of 11 November, structured the Azores Marine Park (PMA), contributing to ensure the protection and good management of the marine areas protected for environmental and maritime reasons which are located in the seas of the Azores and whose management is the responsibility of the departments of the Government of the Autonomous Region of the Azores.

Consequently, the first alteration to Regional Legislative Decree No. 28/2011/A was created, structuring the PMA through Regional Legislative Decree No. 13/2016/A of 19 July.

Due to their inclusion in the corresponding Island Nature Parks (PNI), the marine areas located in the territorial sea adjacent to each of the archipelago's islands were excluded from the Azores Marine Park.

#### **d) Research, monitoring, environmental education and training programmes**

Research has been carried out as part of various research and higher education programmes organised primarily by the University of the Azores. A number of research projects are currently underway examining the biology and ecology of various species, ecological modelling, habitat recovery, seismology, volcanology, meteorology and climate.

Due to the importance of Corvo Island in the natural context of the Azores archipelago, as well as in the North Atlantic, the work accumulated and the interest in research has grown.

Several Environmental Education and Training Programmes have been developed at both local and regional level. Since 1999, the Regional Government of the Azores has set up a Regional Network of Eco-libraries, in collaboration with municipalities and Environmental Non-Governmental Organisations (ENGOS). In 2008, Corvo Island Biosphere Reserve joined the Network through its Environmental and Cultural Interpretation Centre, which is a space open to the general public offering environmental information, training and awareness raising, with the opportunity to engage in explanatory activities, research and demonstrations.

The University of the Azores and the Regional Government of the Azores have carried out environmental awareness raising activities aimed at the resident and temporary population of Corvo Island through various projects.

The Government of the Azores sporadically organises training and information activities on Corvo in the areas of agriculture and fisheries, in order to improve and streamline these activities of significant socio-economic interest for the island.

Does the biosphere reserve have cooperative activities with other biosphere reserves (exchanges of information and staff, joint programmes, etc.)?

At the national level:

The Corvo Island Biosphere Reserve is part of the Azores Biosphere Reserves Network, the National Biosphere Reserves Network and is represented in the National MAB Committee where cooperation and transfer knowledge is promoted between all Portuguese Biosphere Reserves.

At the regional level:

The Corvo Island Biosphere Reserve is a member of REDBIOS, the Macaronesia and Western Atlantic Biosphere Reserves Network and the World Network of Biosphere Reserves on Islands and in Coastal Zones. It also participates in the activities of the EuroMAB and IberoMAB Networks.

Through twinning and/or trans boundary biosphere reserves:

The Corvo Island Biosphere Reserve is preparing to twin with REDBIOS Biosphere Reserves La Palma and Fuerteventura in the Canary Islands and Príncipe Island, in São Tomé and Príncipe.

Within the World Network:

World Network of Island and Coastal Biosphere Reserves (WNICBR)

Main objectives of the Biosphere Reserve:

Describe the main objectives of the biosphere reserve integrating the three functions and the sustainable development objectives for the coming years.

As a result of the vision and mission defined and agreed upon for the Corvo Island Biosphere Reserve, the envisioned environmental sustainability, economic, social, cultural and identity goals will be pursued over the next six years through a diverse set of priority actions which are listed below:

**Mission (1) – Conservation** (of landscapes, ecosystems and species)

- **Conservation of natural resources:** to actively promote the conservation of natural elements to allow them to continue into the future. To promote the conservation of biodiversity, including both wild and domesticated species, by preserving their populations (in particular the rarest species) and genetic diversity and by eradicating exotic and invasive species. To favour actions aimed at restoring or preserving spaces with important geological and/or geomorphological features. To take measures for monitoring populations and the conservation plans, promoting research into natural resources.

- **Functionality of ecosystems:** to promote actions that deter the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of exotic and invasive species.

To develop initiatives to promote ecological restoration via the recuperation of species, control of contaminants, maintenance of the water and carbon cycles and soil conservation.

- **Land management:** to develop actions that promote sensible and sustainable land use by planning human activities in such a way as to maintain biological and cultural diversity. To strive to maintain the spatial continuity of ecosystems and prevent fragmentation, and to maintain traditional land use practices that prevent erosion.

- **Landscape:** to use landscape as a structural element for zoning and social cohesion, taking measures aimed at its protection, management and planning. To maintain the inherent values, both natural and cultural, of landscapes by minimising harmful impacts and preventing the loss of landscapes.

**Mission (2) – Development** (economic and human i.e. culturally, socially and environmentally sustainable)

- **Quality economy:** production, distribution and use of goods and services in a way that does not subject future generations to serious environmental risks or to significant ecological threats. The small farms on Corvo do not allow the production of items which are competitive on the general market, but the development of products of guaranteed environmental quality allows them to be exploited in specific markets which value quality over cost.

Promotion of territoriality as an inherent singularity of the product, good or service.

- **Responsible tourism:** based on the promotion of a quality offer which respects the environment and targets a market seeking high quality tourism. Promotion of Birdwatching as an important market niche in low season, characterised by efficient use of resources.

- **Energy sustainability:** changing the paradigm from one of road mobility based on an external dependence on fossil fuels to one based on clean energy and reduced carbon dioxide emissions, by promoting the use of electrical vehicles.

Corvo Island and its Biosphere Reserve must implement an integrated alternative energy system, combining solar panels, wind and hydroelectric energy, creating a sustainable energy project which will contribute to the sustainable development of the Azores.

### **Mission (3) – Logistical** (supporting research, monitoring and education)

- **Enhancement of knowledge:** Corvo Island Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, with the support and collaboration of the University of the Azores in conducting projects involving research, training and environmental education, with the aim of implementing sustainable development models on the island.
- **Traditional knowledge:** to identify and validate cultural elements, customs and traditions as constituents of identity and distinctive elements of the Corvo population to counteract the homogenising effect of globalisation, which appears to replace local identities and cultures.

## **9. SUPPORTING DOCUMENTS:**

[List of the annexes submitted with periodic review report.]

### **(1) Updated location and zonation map with coordinates**

[Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84). Provide a map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shape files (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form. If applicable, also provide a link to access this map on the internet (e.g. Google map, website...)].

The cartographic base map with the precise location and delimitation of the three zones of the Corvo Island Biosphere Reserve is attached to this form, as well as the shape files (in the WGS 84 projection system) used to produce the map.

This map can also be accessed on the Internet via the following link:

<http://www.azores.gov.pt/Gra/srrn-natureza/conteudos/livres/Reserva+da+Biosfera+do+Corvo.htm>

(2) Updated vegetation map or land cover map

[A vegetation map or land cover map showing the principal habitats and land cover types of the biosphere reserve should be provided, if available.]

The vegetation, land use and occupation maps of the Corvo Island Biosphere Reserve are attached to this form.

(3) Updated list of legal documents (if possible with English, French or Spanish synthesis of its contents and a translation of its most relevant provisions)

[If applicable update the principal legal documents since the nomination of the biosphere reserve and provide a copy of these documents..]

The list of the main legal instruments and normative acts authorising the creation and governing the use and management of the Corvo Island Biosphere Reserve is attached to this form. Also provided are copies of the respective documents.

(4) Updated list of land use and management/cooperation plans

[List existing land use and management/cooperation plans (with dates and reference numbers) for the administrative area(s) included within the biosphere reserve. Provide a copy of these documents. It is recommended to produce an English, French or Spanish synthesis of its contents and a translation of its most relevant provisions.]

The list of management plans and land use and management plans of the Corvo Island Biosphere Reserve is attached to this form.

(5) Species list (to be annexed)

[Provide a list of important species (both endangered species or species with an economic value) occurring within the proposed biosphere reserve, including common names, wherever possible.]

The list of the main species that are found in the Corvo Island Biosphere Reserve is attached to this form.

(6) Updated list of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the proposed biosphere reserve.]

The list of primary bibliographical references relevant to the Corvo Island Biosphere Reserve is attached to this form.

(7) Further supporting documents

The annex to this form contains the letter from the "Division of Ecological and Earth Sciences" from the Man and the Biosphere (MAB) Programme (Ref. SC/EES/MB/16/5864/526 of 16 December 2016) requesting the submission of Periodic Review Reports from the Biosphere Reserves of Corvo and Graciosa Islands, until 30 September 2017.



## 10. ADDRESSES:

### 10.1 Contact address of the proposed biosphere reserve:

[Government agency, organization, or other entity (entities) to serve as the main contact to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: [DIREÇÃO REGIONAL DO AMBIENTE](#)

Street or P.O. Box: [Rua Cônsul Dabney, Colónia Alemã, Apartado 140](#)

City with postal code: [9900-014 Horta - Faial](#)

Country: [Portugal \(Autonomous Region of the Azores\)](#)

Telephone: [\(+351\) 292 207 300](#)

E-mail: [info.dra@azores.gov.pt](mailto:info.dra@azores.gov.pt)

Web site: <http://www.azores.gov.pt/Portal/pt/entidades/sreat-dra/>

### 10.2 Administering entity of the core area(s):

Name: [PARQUE NATURAL DA ILHA DO CORVO](#)

Street or P.O. Box: [CANADA DO GRACIOSA S/N](#)

City with postal code: [9980-031 VILA DO CORVO](#)

Country: [PORTUGAL](#)

Telephone: [+351282596051](#)

E-mail: [parque.natural.corvo@azores.gov.pt](mailto:parque.natural.corvo@azores.gov.pt)

Web site: <http://parquesnaturais.azores.gov.pt/pt/corvo>

### 10.3 Administering entity of the buffer zone(s):

Name: [PARQUE NATURAL DO CORVO](#)

Street or P.O. Box: [Canada do Graciosa s/n](#)

City with postal code: [9980-031 Vila do Corvo](#)

Country: [Portugal](#)

Telephone: [\(+351\) 292 596 051](#)

E-mail: [parque.natural.corvo@azores.gov.pt](mailto:parque.natural.corvo@azores.gov.pt)

Web site: <http://parquesnaturais.azores.gov.pt/pt/corvo>

10.4 Administering entity of the transition area(s):

Name: [PARQUE NATURAL DO CORVO](#)

Street or P.O. Box: [Canada do Graciosa s/n](#)

City with postal code: [9980-031 Vila do Corvo](#)

Country: [Portugal](#)

Telephone: [\(+351 292 596 051\)](#)

E-mail: [parque.natural.corvo@azores.gov.pt](mailto:parque.natural.corvo@azores.gov.pt)

Web site: <http://parquesnaturais.azores.gov.pt/pt/corvo>

**Annex I to the Biosphere Reserve Periodic Review  
February 2013  
MABnet Directory of Biosphere Reserves**

**Administrative details**

**Country:** Portugal (PT)

**Name of BR:** Corvo Island Biosphere Reserve

**Year designated:** 2007

**Administrative authorities:** (7.6) Parque Natural da Ilha do Corvo /Direção Regional do Ambiente

**Name Contact** (10.1): Direção Regional do Ambiente (Secretaria Regional da Energia, Ambiente e Turismo da Região Autónoma dos Açores)

**Contact address** (Including phone number, postal and email addresses):

Rua Consul Dabney - Colónia Alemã

Apartado 140

9900-014 HORTA

PORTUGAL

**Telephone:** (+351) 292 207 300

**Email:** [info.dra@azores.gov.pt](mailto:info.dra@azores.gov.pt)

**Related links** (web sites):

<http://www.azores.gov.pt/Gra/srrn-natureza/conteudos/livres/Reserva+da+Biosfera+do+Corvo.htm>

**Social networks:** (6.5.4) No

**Description**

**General description:**

Approximately 25 lines

Corvo Island is geographically located at the western extreme of the Azores archipelago, on the North American Plate and to the north of Flores Island.

As the smallest island in the Azores, it has a maximum length of 6.24 kilometres and maximum width of 3.99 kilometres, with an oval-shaped surface elongated in a north-south direction, occupying an area of 17.1 km<sup>2</sup>. It is inhabited by 430 residents (2011 Census).

The Corvo Island Biosphere Reserve exhibits the following zoning:

**Core Areas:** Three adjacent Core Areas are defined (Costa e Caldeirão, Baía do Pão-de-Açúcar and Ponta do Marco). These are classified sites under Corvo Nature Park, the European Union's Natura 2000 Network, the Ramsar Convention and Azores Geo-Park.

**Buffer Zones:** The terrestrial Buffer Zone is located on the eastern slope of the island and largely comprises pasture fields. The marine Buffer Zone corresponds to a rectangular area surrounding the whole island and the marine area of the Core Area. The Buffer Zones comprise public and private land, whose use is limited primarily by the land use planning instruments.

The Transition Area, including Vila do Corvo and the agricultural areas to the west, is bounded to the north by the foot of a hill, and to the south by an irregular line close to the coastline. The Vila is a concentrated urban agglomeration, primarily comprising traditional buildings, located on the only platform on the island with the sufficient size to enable human settlement.

**Major ecosystem type:** Average altitude, active raised bogs, blanket bogs, bog woodland.

**Major habitats & land cover types:** Endemic Macaronesia heathland, coves, reefs, sea caves, perennial vegetation on shingle beaches, cliffs, endemic flora of the Macaronesia coasts, and Macaronesia mesophyll grasslands.

**Bioclimatic zone:** The geographic location of the islands of the Azores, in the context of global atmospheric and oceanic circulation, conditions the climate of the archipelago. The atmospheric circulation is controlled by the Azores Anticyclone, the position, intensity, development and orientation of which influences the meteorological conditions felt in the archipelago. Thus the climate in the Azores is characterised by high air humidity, thermal amenity, low sunshine rates, regular and abundant rainfall and strong winds. The relief of the island is one of the most important climatic factors, which as well as modifying the speed of the wind, also causes damp air to rise along the cliffs and slopes, causing the formation of relief clouds, fog and orographic precipitation.

**Location** (latitude & longitude):

Cardinal points:	Latitude	Longitude
Northernmost point	662151.44	4399078.57
Southernmost point	661753.23	4392745.60
Westernmost point	660419.03	4396385.81
Easternmost point	664409.74	4396955.12

**Total Area (ha):** 25,852.875 ha

**Core Area(s):** 3,027.745 ha

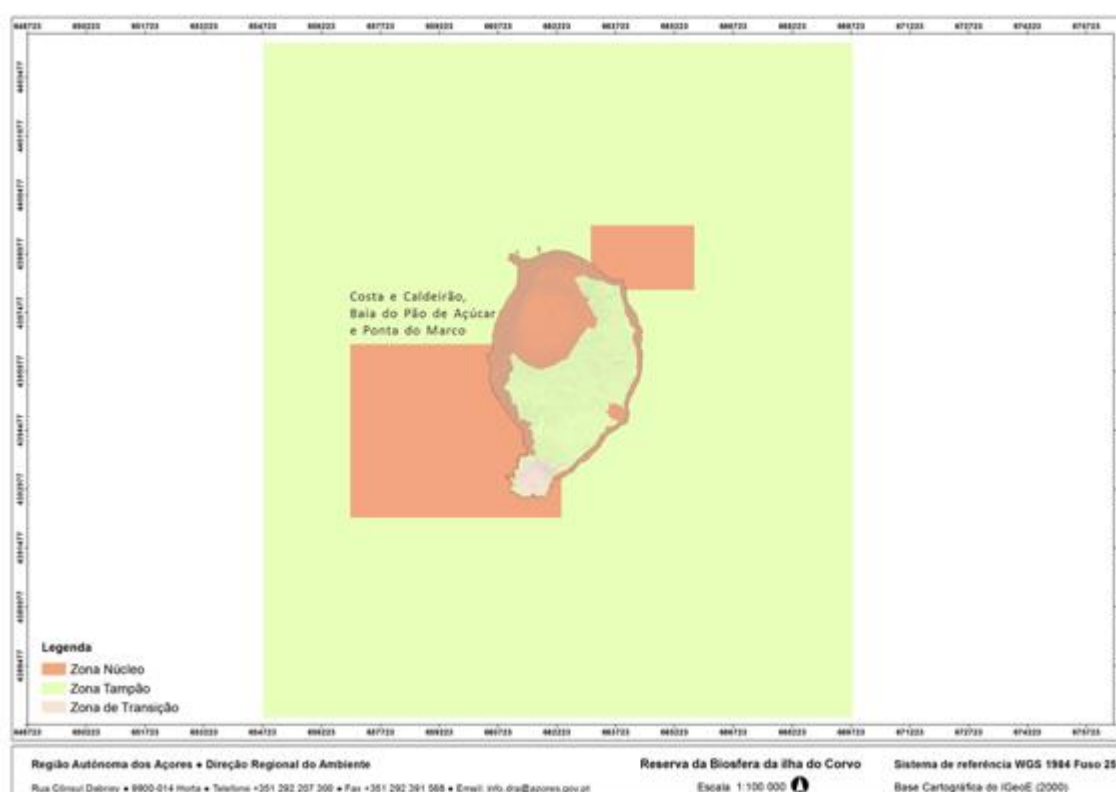
**Buffer zone(s):** 22,749.638 ha

**Transition area(s):** 75.492 ha

**Different existing zonation:** The zonation defined for the Corvo Island Biosphere Reserve has taken into account the natural, social, economic and cultural characteristics of the island of Corvo, taking as its main reference point the vulnerability of (marine, coastal and terrestrial) environments in relation to human activities and the implications of these activities for the territory.

**Altitudinal range** (metres above sea level): 718 m

**Zonation map(s):** (refer to section 2.2.2):



## **Main objectives of the biosphere reserve**

### **Brief description:**

Approximately 5 lines

The main objectives of the Corvo Island Biosphere Reserve include the conservation and sustainable use of biodiversity both at the genetic level and at the species, habitats, ecosystems and landscapes level, making them a central component of Corvo Island's sustainable development model. In addition to supporting good environmental quality, they also serve as instruments for generating economic opportunities by creating fair and stable employment relevant for the local economy. In this context, the activities related to livestock production, fisheries and nature tourism stand out.

## **Research**

### **Brief description:**

Approximately 5 lines

For over two decades now, Corvo Island has served as an experimental laboratory for biodiversity conservation and, due to the islands unique natural characteristics, it is frequently visited by national and international scientific expeditions. Past and ongoing experiments in resource management, eradication of exotic species and natural habitat restoration, as well as the existing infrastructures, contribute to make the Corvo Island Biosphere Reserve an ideal site for research projects, natural resource management actions and showcases, and for training researchers and technicians in the field.



## Monitoring

### Brief description:

Approximately 5 lines

Many of the ongoing scientific research projects have a monitoring focus on species, habitats and ecosystems of interest to conservation. On the other hand, as part of the expansion of the Hydro meteorological Network of the Azores to all the islands of the archipelago, three stations were installed (1 meteorological station, 1 limnographic station and 1 Udometry station).

Specific variables (fill in the table below and tick the relevant parameters)

Abiotic		Biodiversity	
• Groundwater		• Algae	✓
• Air quality		• Amphibians	
• Global change	✓	• Degraded areas	
• Climate, climatology	✓	• Coral reefs	
• Contaminants		• Biodiversity aspects	✓
• Acidic deposition/Atmospheric factors		• Autecology	
• Erosion		• Birds	✓
• Speleology		• Benthos	✓
• Abiotic factors	✓	• Biogeography	✓
• Geophysics	✓	• Biology	✓
• Geology	✓	• Biotechnology	
• Geomorphology	✓	• Conservation	✓
• Glaciology		• Breeding	
• Hydrology	✓	• Desertification	
• Indicators	✓	• Modelling	
• Heavy metals	✓	• Ecology	✓
• Meteorology		• Ecotones	
• Modelling		• Endemic species	✓
• Nutrients		• Alien and/or invasive species	✓
• Physical oceanography	✓	• Rare/Endangered species	✓
• UV radiation		• Community studies	✓
• Monitoring/methodologies		• Vegetation studies	✓
• Drought		• Evolutionary studies/Palaeoecology	
• Siltation/sedimentation		• Ethology	✓
• Soil		• Ecosystem assessment	✓
• Habitat issues	✓	• Evapotranspiration	
• Air temperature		• Fauna	
• Topography	✓	• Phenology	✓
• Toxicology		• Phytosociology/Succession	
		• Flora	✓
		• Afforestation/Reforestation	
		• Ecosystem	✓
		• Population genetics/dynamics	✓
		• Fungi	
		• Fires/fire ecology	
		• Indicators	✓
		• Species inventorying	✓
		• Invertebrates	✓

		• Home gardens	
		• Lichens	✓
		• Mammals	✓
		• Microorganisms	✓
		• Genetically modified organisms	
		• Fish	✓
		• Perturbations and resilience	
		• Pests/Diseases	
		• Plankton	✓
		• Plants	✓
		• Migrating populations	✓
		• Pollination	
		• Productivity	
		• Natural medicinal products	
		• Genetic resources	✓
		• Natural and other resources	✓
		• Species (re) introduction	✓
		• Reptiles	✓
		• Restoration/Rehabilitation	✓
		• Monitoring/methodologies	
		• Ecosystem services	
		• Arid and semi-arid systems	
		• Coastal/marine systems	✓
		• Island systems/studies	✓
		• Freshwater systems	✓
		• Boreal forest systems	
		• Temperate forest systems	
		• Tropical dry forest systems	
		• Dune systems	
		• Wetland systems	
		• Mangrove systems	
		• Mountain and highland systems	
		• Beach/soft bottom systems	
		• Temperate grassland systems	
		• Tropical grassland and savannah systems	
		• Sub-tropical and temperate rainforest systems	
		• Tropical humid forest systems	
		• Mediterranean type systems	
		• Tundra systems	
		• Forest systems	
		• Lagoon systems	✓
		• Polar systems	
		• Volcanic/Geothermal systems	✓
		• Taxonomy	✓
		• Wildlife	✓

Socio-economic		Integrated monitoring	
• Aquaculture		• Conflict analysis/resolution	✓
• Agriculture/Other production systems	✓	• Institutional and legal aspects	✓
• Agroforestry		• Environmental changes	
• Archaeology		• Climate change	
• Cultural aspects	✓	• Carrying capacity	✓
• Social/Socio-economic aspects	✓	• Infrastructure development	
• Bioprospecting		• Modeling	
• Hunting	✓	• Education and public awareness	
• Demography	✓	• Ecosystem approach	
• Capacity building		• Biogeochemical studies	✓
• Natural hazards		• Impact and risk studies	✓
• Modeling		• Integrated studies	✓
• Quality economies/marketing	✓	• Interdisciplinary studies	✓
• Economically important species	✓	• Watershed studies/monitoring	
• Anthropological studies		• Indicators	✓
• Economic studies	✓	• Indicators of environmental quality	✓
• Ethnology/traditional practices/knowledge	✓	• Landscape inventorying/monitoring	✓
• Livestock and related impacts	✓	• Mapping	✓
• Indicators	✓	• Planning and zoning measures	✓
• Indicators of sustainability	✓	• Transboundary issues/measures	
• Industry		• Remote sensing	
• Cottage (home-based) industry		• Monitoring/methodologies	
• Small business initiatives		• Geographic Information System (GIS)	✓
• Stakeholders' interests	✓	• Rural systems	
• Sustainable development/use		• Urban systems	
• Micro-credits		• Management issues	
• Human migration	✓	• Policy issues	
• Mining	✓	• Land tenure	
• Local participation		• Land use/Land cover	✓
• Pastoralism		• Sustainable development/use	✓
• Fisheries	✓		
• Poverty			
• Firewood cutting			
• Non-timber forest products			
• Recreation	✓		
• People-Nature relations	✓		
• Role of women			
• Human health	✓		
• Monitoring/methodologies			
• Forestry			
• Energy production systems			
• Sacred sites			
• Indigenous people's issues			
• Transport	✓		
• Tourism	✓		
• Resource use	✓		

**Annex II to the Biosphere Reserve Periodic Review, January 2013**  
**Promotion and Communication Materials**  
**For the Proposed Biosphere Reserve**

*Provide some promotional material regarding the proposed site, notably high quality photos, and/or short videos on the site so as to allow the Secretariat to prepare appropriate files for press events. To this end, a selection of photographs in high resolution (300 dpi), with photo credits and captions and video footage (rushes), without any comments or sub-titles, of professional quality – DV CAM or BETA only, will be needed.*

*In addition, return a signed copy of the following Agreement on Non-Exclusive Rights. A maximum of ten (10) minutes on each biosphere reserve will then be assembled in the audiovisual section of UNESCO and the final product, called a B-roll, will be sent to the press.*



UNESCO Photo Library  
**Bureau of Public Information**

Photothèque de l'UNESCO  
**Bureau de l'Information du Public**

AGREEMENT GRANTING NON-EXCLUSIVE RIGHTS

Reference:

1.
  - a) I the undersigned, copyright-holder of the above mentioned photo(s) hereby grant to UNESCO free of charge the non-exclusive right to exploit, publish, reproduce, diffuse, communicate to the public in any form and on any support, including digital, all or part of the photograph(s) and to licence these rights to third parties on the basis of the rights herein vested in UNESCO
  - b) These rights are granted to UNESCO for the legal term of copyright throughout the world.
  - c) The name of the photographer will be cited alongside UNESCO's whenever his/her work is used in any form.
2. I certify that:
  - a) I am the sole copyright holder of the photo(s) and am the owner of the rights granted by virtue of this agreement and other rights conferred to me by national legislation and pertinent international conventions on copyright and that I have full rights to enter into this agreement.
  - b) The photo(s) is/are in no way whatever a violation or an infringement of any existing copyright or licence, and contain(s) nothing obscene, libellous or defamatory.

Name and Address: [Hernâni Hélio Jorge](#)  
[Regional Director for the Environment](#)  
[Rua Cônsul Dabney - Colônia Alemã \(Apartado 140\)](#)  
[9900-014 HORTA - PORTUGAL](#)

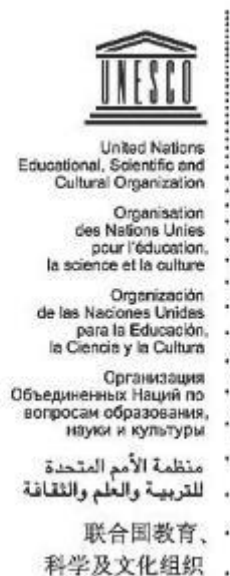
Date:

Signature:

(Sign, return to UNESCO two copies of the Agreement and retain the original for yourself)

Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP, Direct Telephone: 00331 – 45681687





Direct Fax: 00331 – 45685655; E-mail: [photobank@unesco.org](mailto:photobank@unesco.org)

**UNESCO Photo Library  
Bureau of Public Information**

**Photothèque de l'UNESCO  
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[Regional Director for the Environment](#)  
[Rua Cônsul Dabney - Colônia Alemã \(Apartado 140\)](#)  
[9900-014 HORTA - PORTUGAL](#)

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Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP, Direct Telephone: 00331 – 45681687  
Direct Fax: 00331 – 45685655; E-mail: [photobank@unesco.org](mailto:photobank@unesco.org)

## **Annex III to the Biosphere Reserve Periodic Review, February 2013**

### **Statutory Framework of the World Network of Biosphere Reserves**

#### **Introduction**

Within UNESCO's Man and the Biosphere (MAB) programme, biosphere reserves are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere reserves are designated by the International Coordinating Council of the MAB Programme, at the request of the State concerned. Biosphere reserves, each of which remains under the sole sovereignty of the State where it is situated and thereby submitted to State legislation only, form a World Network in which participation by the States is voluntary. The present Statutory Framework of the World Network of Biosphere Reserves has been formulated with the objectives of enhancing the effectiveness of individual biosphere reserves and strengthening common understanding, communication and co-operation at regional and international levels.

This Statutory Framework is intended to contribute to the widespread recognition of biosphere reserves and to encourage and promote good working examples. The delisting procedure foreseen should be considered as an exception to this basically positive approach, and should be applied only after careful examination, paying due respect to the cultural and socio-economic situation of the country, and after consulting the government concerned.

The text provides for the designation, support and promotion of biosphere reserves, while taking account of the diversity of national and local situations. States are encouraged to elaborate and implement national criteria for biosphere reserves which take into account the special conditions of the State concerned.

#### **Article 1 - Definition**

Biosphere reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which internationally recognized within the framework of UNESCO's programme on Man and the Biosphere (MAB), in accordance with the present Statutory Framework.

#### **Article 2 - World Network of Biosphere Reserves**

1. Biosphere reserves form a worldwide network, known as the World Network of Biosphere Reserves, hereafter called the Network.
2. The Network constitutes a tool for the conservation of biological diversity and the sustainable use of its components, thus contributing to the objectives of the Convention on Biological Diversity and other pertinent conventions and instruments.
3. Individual biosphere reserves remain under the sovereign jurisdiction of the States where they are situated. Under the present Statutory Framework, States take the measures which they deem necessary according to their national legislation.

### **Article 3 - Functions**

In combining the three functions below, biosphere reserves should strive to be sites of excellence to explore and demonstrate approaches to conservation and sustainable development on a regional scale:

- i) Conservation: contribute to the conservation of landscapes, ecosystems, species and genetic variation.
- ii) Development: foster economic and human development which is socio-culturally and ecologically sustainable.
- iii) Logistic support: support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development.

### **Article 4 -Criteria**

General criteria for an area to be qualified for designation as a biosphere reserve are the following:

1. Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions.
2. Be of Significance for biological diversity conservation.
3. Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale
4. Have an appropriate size to serve the three functions of biosphere reserves, as set out in Article 3.
5. It should include these functions, through appropriate zonation, recognizing:
  - a) a legally constituted core area or areas devoted to long-term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives;
  - b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place;
  - c) an outer transition area where sustainable resource management practices are promoted and developed.
6. Organizational arrangements should be provided for the involvement and participation of a suitable range of *inter alia* public authorities, local communities and private interests in the design and carrying out the functions of a biosphere reserve.
7. In addition, provisions should be made for:
  - a) mechanisms to manage human use and activities in the buffer zone or zones;
  - b) a management policy or plan for the area as a biosphere reserve;

- c) a designated authority or mechanism to implement this policy or plan;
- d) programmes for research, monitoring, education and training.

### **Article 5 -Designation procedure**

1) Biosphere reserves are designated for inclusion in the Network by the International Coordinating Council (ICC) of the MAB programme in accordance with the following procedure:

- a) States, through National MAB Committees where appropriate, forward nominations with supporting documentation to the secretariat after having reviewed potential sites, taking into account the criteria as defined in Article 4;
- b) the secretariat verifies the content and supporting documentation: in the case of incomplete nomination, the secretariat requests the missing information from the nominating State;
- c) nominations will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC;
- d) ICC of the MAB programme takes a decision on nominations for designation. The Director-General of UNESCO notifies the State concerned of the decision of ICC.

2. States are encouraged to examine and improve the adequacy of any existing biosphere reserve, and to propose extension as appropriate, to enable it to function fully within the Network. Proposals for extension follow the same procedure as described above for new designations.

3. Biosphere reserves which have been designated before the adoption of the present Statutory Framework are considered to be already part of the Network. The provisions of the Statutory Framework therefore apply to them.

### **Article 6 -Publicity**

- 1. The designation of an area as a biosphere reserve should be given appropriate publicity by the State and authorities concerned, including commemorative plaques and dissemination of information material.
- 2. Biosphere reserves within the Network, as well as the objectives, should be given appropriate and continuing promotion.

### **Article 7 -Participation in the Network**

- 1. States participate in or facilitate co-operative activities of the Network, including scientific research and monitoring, at the global, regional and sub-regional levels.
- 2. The appropriate authorities should make available the results of research, associated publications and other data, taking into account intellectual property rights, in order to ensure the proper functioning of the Network and maximize the benefits from information exchanges.
- 3. States and appropriate authorities should promote environmental education and training, as well as the development of human resources, in co-operation with other biosphere reserves in the Network.

## **Article 8 - Regional and thematic sub networks**

States should encourage the constitution and co-operative operation of regional and/or thematic sub networks of biosphere reserves, and promote development of information exchanges, including electronic information, within the framework of these sub networks.

## **Article 9 - Periodic review**

1. The status of each biosphere reserve should be subject to a periodic review every ten years, based on a report prepared by the concerned authority, on the basis of the criteria of Article 4, and forwarded to the secretariat by the State concerned.
2. The report will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC.
3. ICC will examine the periodic reports from States concerned.
4. If ICC considers that the status or management of the biosphere reserve is satisfactory, or has improved since designation or the last review, this will be formally recognized by ICC.
5. If ICC considers that the biosphere reserve no longer satisfies the criteria contained in Article 4, it may recommend that the State concerned take measures to ensure conformity with the provisions of Article 4, taking into account the cultural and socio-economic context of the State concerned. ICC indicates to the secretariat actions that it should take to assist the State concerned in the implementation of such measures.
6. Should ICC find that the biosphere reserve in question still does not satisfy the criteria contained in Article 4, within a reasonable period, the area will no longer be referred to as a biosphere reserve which is part of the Network.
7. The Director-General of UNESCO notifies the State concerned of the decision of ICC.
8. Should a State wish to remove a biosphere reserve under its jurisdiction from the Network, it notifies the secretariat. This notification shall be transmitted to ICC for information. The area will then no longer be referred to as a biosphere reserve which is part of the Network.

## **Article 10 - Secretariat**

1. UNESCO shall act as the secretariat of the Network and be responsible for its functioning and promotion. The secretariat shall facilitate communication and interaction among individual biosphere reserves and among experts. UNESCO shall also develop and maintain a worldwide accessible information system on biosphere reserves, to be linked to other relevant initiatives.
2. In order to reinforce individual biosphere reserves and the functioning of the Network and sub networks, UNESCO shall seek financial support from bilateral and multilateral sources.
3. The list of biosphere reserves forming part of the Network, their objectives and descriptive details, shall be updated, published and distributed by the secretariat periodically.