



Report for the Periodic Review of
Graciosa UNESCO Biosphere Reserve

2017



United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme



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PART I: SUMMARY

a) Name of the biosphere reserve:

Graciosa Island Biosphere Reserve

b) Country:

Portugal (PT).

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:

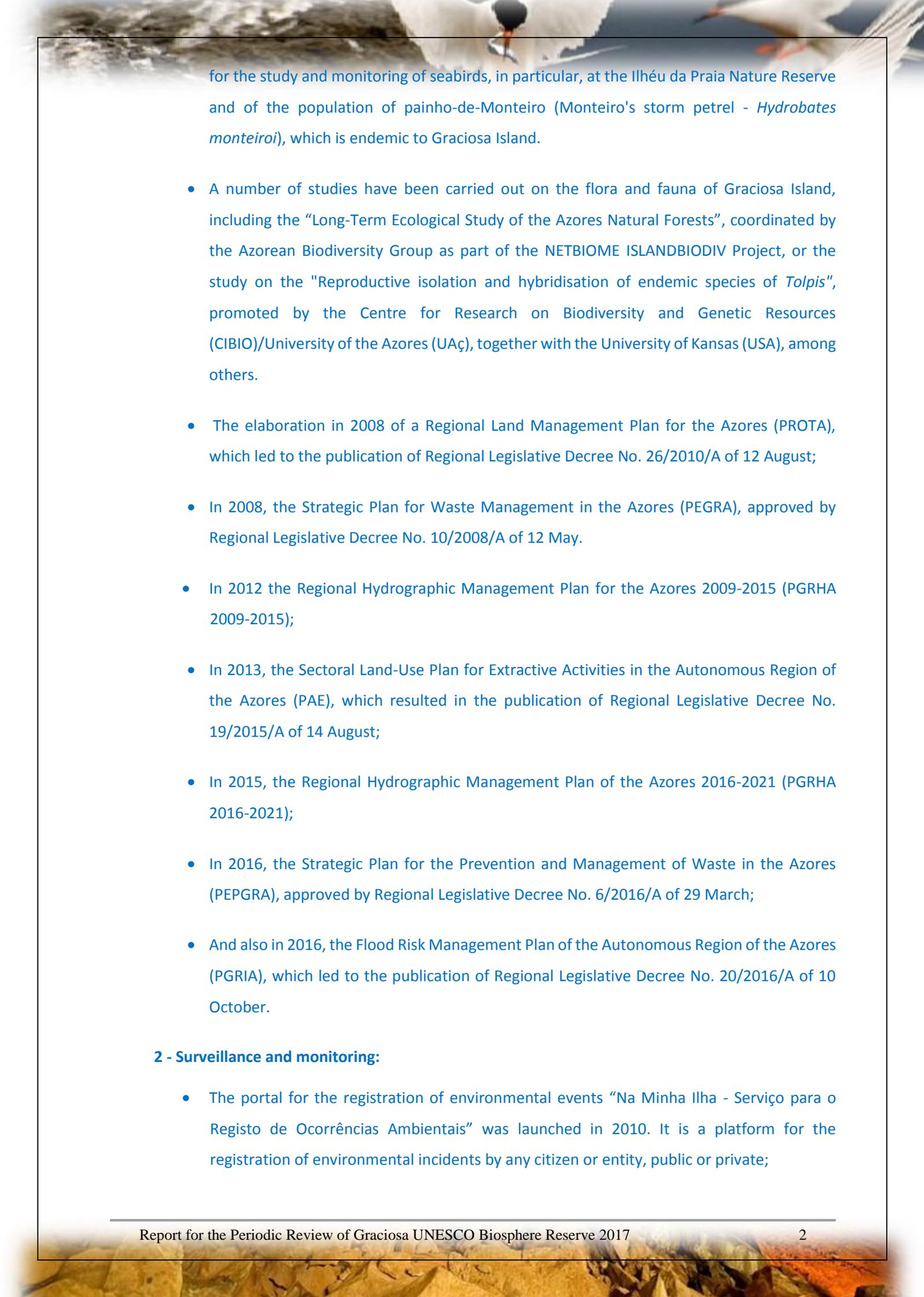
No recommendations were made, since its approval in 2007, by the International Co-ordinating Council (MAB-ICC).

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

In general, the intervention actions/proposals included in the original application dossier have been fully achieved, either through direct action by the Biosphere Reserve Management Unit (Regional Government of the Azores), the Management Board or by several local and regional agents, as listed 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);
- Continued support for the Department of Oceanography and Fisheries of the University of the Azores (DOP/UAç) and the Portuguese Society for the Study of Birds (SPEA), specifically



for the study and monitoring of seabirds, in particular, at the Ilhéu da Praia Nature Reserve and of the population of painho-de-Monteiro (Monteiro's storm petrel - *Hydrobates monteiroi*), which is endemic to Graciosa Island.

- A number of studies have been carried out on the flora and fauna of Graciosa Island, including the “Long-Term Ecological Study of the Azores Natural Forests”, coordinated by the Azorean Biodiversity Group as part of the NETBIOME ISLANDBIODIV Project, or the study on the "Reproductive isolation and hybridisation of endemic species of *Tolpis*", promoted by the Centre for Research on Biodiversity and Genetic Resources (CIBIO)/University of the Azores (UAç), together with the University of Kansas (USA), among others.
- 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 2008, the Strategic Plan for Waste Management in the Azores (PEGRA), approved by Regional Legislative Decree No. 10/2008/A of 12 May.
- In 2012 the Regional Hydrographic Management Plan for the Azores 2009-2015 (PGRHA 2009-2015);
- In 2013, the Sectoral Land-Use Plan for Extractive 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 2015, the Regional Hydrographic Management Plan of the Azores 2016-2021 (PGRHA 2016-2021);
- In 2016, the Strategic Plan for the Prevention and Management of Waste in the Azores (PEPGRA), approved by Regional Legislative Decree No. 6/2016/A of 29 March;
- And also in 2016, the Flood Risk Management Plan of the Autonomous Region of the Azores (PGRHA), which led to the publication of Regional Legislative Decree No. 20/2016/A of 10 October.

2 - Surveillance and monitoring:

- The portal for the registration of environmental events “Na Minha Ilha - Serviço para o Registo de Ocorrências Ambientais” was launched in 2010. It is a platform for the registration of environmental incidents by any citizen or entity, public or private;

- 
- Reinforcement of the surveillance and control of the classified areas of Graciosa Island with the hiring in 2010 of an additional Nature Inspector and reinforcement of infrastructure with two new dedicated vehicles for Graciosa Nature Park;

b) Management and conservation of nature and promotion of sustainable development

1 - Management of species and habitats:

- In 2012, the legal framework for access and use of natural resources in the Autonomous Region of the Azores for scientific purposes was published (Regional Legislative Decree no. 9/2012/ A of 20 March), together with the relevant regulation (Regional Regulatory Decree no. 20/2012/A of 5 November);
- In 2015, the legal framework for the conservation of nature and biodiversity in the Autonomous Region of the Azores was published (Regional Legislative Decree no. 15/2012/A, of 2 April);
- Worthy of note is the implementation of the PRECEFIAS, the Regional Plan for Eradication and Control of Invasive Plant Species in Sensitive Areas, promoted by the Regional Government of the Azores in protected areas or areas submitted for classification, including the core areas of the Graciosa Island Biosphere Reserve that form part of the Graciosa Nature Park;

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 of 28 April (Regulation of the “Biosfera Açores” brand);
- “System of Incentives for Traditional Landscapes of Viniculture in Plots and Terraces, and of Orchards of Traditional Varieties 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:

- 5 April 2010 was the inauguration date of the Furna do Enxofre Visitors Centre (CVFE), located in the Natural Monument of Caldeira da Graciosa (Core Area of the Graciosa Island Biosphere Reserve);

- 
- Recovery and equipping of the Ilhéu da Praia Support Station, located on the Ilhéu da Praia Nature Reserve (Core Area of the Graciosa Island Biosphere Reserve);
 - Classification/approval of 4 pedestrian routes on Graciosa Island, making up the Azores Regional Pedestrian Route Network;
 - Building of infrastructure in classified areas, such as the construction of lookouts, fences and parking areas.

2 - Information and environmental awareness

- Implementation on Graciosa Island of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA) by the Graciosa Eco-library, part of the Regional Network of eco-libraries of the Azores (RREA) and created by the Regional Directorate for the Environment;
- Publication of the “Graciosa Nature Park Guide”, 1st edition - June 2012, 500 copies, 156 pp. (Legal deposit 345519/12).
- Various regional, national and international meetings on tourism and underwater photography held in Graciosa, namely the First Azorean Underwater Tourism Biennale (2007), the 17th National Underwater Photography Championship (2008), the International Underwater Photography Open (2008), the 2nd Azorean Underwater Tourism Biennale (2009), the 3rd Azorean Underwater Tourism Biennale (2011), the 6th Azorean Underwater Tourism Biennale (2013), the 1st European Underwater Photography Championship (2014), and the 5th Azorean Underwater Tourism Biennale (2015);
- Various meetings/workshops have been held on the island in recent years, including the “Geoparks in volcanic regions: Strategies for Sustainable Development” workshop (2014), organised by Geoparque Açores; the Workshop “Painho-de-monteiro: Oportunidades e desafios” (Monteiro’s Petrel: Opportunities and Challenges, 2015), under the “Preventing Extinctions” (PEP) programme of Birdlife International; the Workshop “Painho-de-monteiro: O próximo passo para a definição do Plano de Ação” (Monteiro’s Petrel: The next step in defining an Action Plan”, 2016), under the project “Life EuroSAP painho-de-monteiro: próximo passo para a definição do Plano de Ação”; and the “3ª Reunião da Task-force Monteiroi: Elaboração do Plano de Ação Internacional para o painho-de-monteiro” (3rd Meeting of the Monteiroi Task Force: Elaboration of the International Action Plan for Monteiro’s Petrel, 2017), all organised by the Portuguese Society for the Study of Birds (SPEA).

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 Graciosa Island Biosphere Reserve is promoting the elaboration of the action plan with a participatory model that includes the main local stakeholders and a public discussion phase. In this way the action plan will incorporate the principles and proposals foreseen in the new MAB Strategy and the Lima Action Plan.

The nature and legal form of the Graciosa Island Biosphere Reserve Action Plan is defined in Article 52 of Regional Legislative Decree No. 15/2012/A, of 2 April, and its elaboration is currently underway by force of the publication of Regional Government Council Resolution no. 65/2017, of 22 June.

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 Graciosa 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 local entities and public discussions that resulted in relevant 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 Reserves Network.

| | Nomination Form (2007) | Proposed changes |
|--|------------------------|------------------|
| Area of terrestrial Core Area(s) | 343,32 ha | None |
| Area of terrestrial Buffer Zone(s) | 633,46 ha | None |
| Area of terrestrial Transition Area(s) | 5 098,75 ha | None |
| Area of marine Core Area(s) | 214,19 ha | None |
| Area of marine Buffer Zone(s) | 1 285 38 ha | None |
| Size of marine Transition Area(s) | 3 210,48 ha | None |

j) Human population of the biosphere reserve:

| | Nomination Form (2007) | At present |
|---|------------------------|---------------------|
| Core Area(s) (permanent and seasonally) | 100 | 10 (Census 2011) |
| Buffer Zone(s) (permanent and seasonally) | 300 | 100 (Census 2011) |
| Transition Area(s) (permanent and seasonally) | 4 450 | 4 281 (Census 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 Nomination Form (2008-2012) | Current budget ¹ (2017) |
|--|---|------------------------------------|
| a) Studies and monitoring | 108 250 € | 512 643 € |
| 1 - Studies | 8 250 € | 157 277 € |
| 2- Surveillance and monitoring | 100 000 € | 355 366 € |
| b) Management and conservation of nature and promotion of sustainable development | 897 500 € | 19 796 472 € |
| 1- Management of species and habitats | 34 500 € | 218 898 € |
| 2- Intervention on economic activities | 863,000 € | 19 577 574 € |
| c) Support for visitors and environmental information | 34 750 € | 54 463 € |
| 1- Infrastructure to support visitors | 22 500 € | 50 000 € |
| 2- Information and environmental awareness | 12 500 € | 4 463 € |
| Programme management | 104 050 € | 11 462 € |
| Promotion of economic and social development | - | 13 813 869 € |

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.

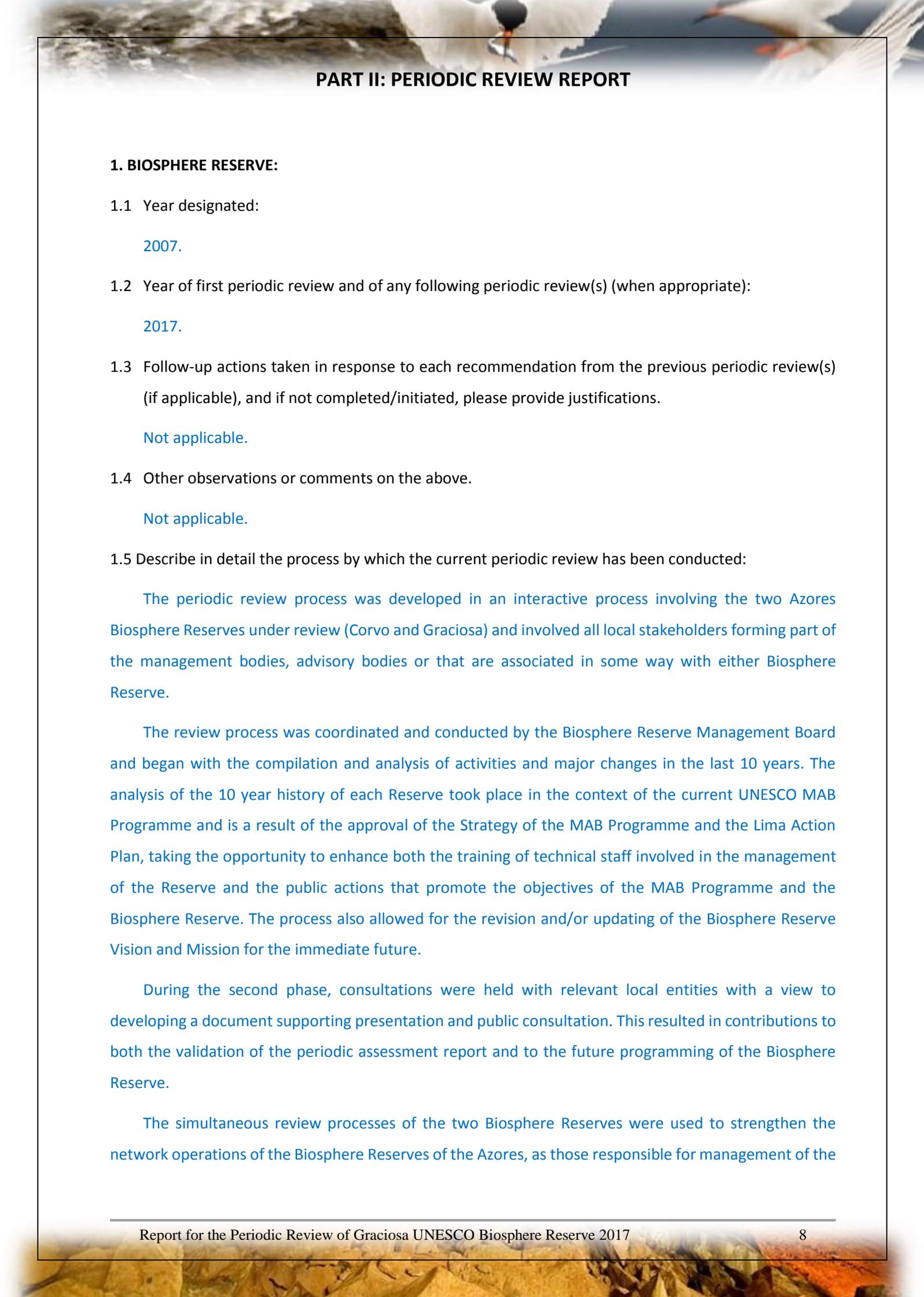
Through participation in different Thematic Networks and bilateral partnerships, the Graciosa Island Biosphere Reserve has promoted cooperation and knowledge transfer among Biosphere Reserves, with special emphasis on joint actions in the field of nature and landscape conservation. In addition to ongoing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

- National Committee of the *Man and the Biosphere* Programme (MaB National Committee);

¹ Regional Annual Plan for the Year 2017 (Decreto Legislativo Regional N.º 4/2017/a de 12 de maio).

- 
- 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.

Also the Biosphere Reserves contributes to the implementation and reports related with the international conventions and agreements and European Framework Directives such as the Ramsar Convention, CITES, Convention on Biological Diversity , Birds and Habitat Directives, and others.



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.

1.3 Follow-up actions taken in response to each recommendation from the previous periodic review(s) (if applicable), and if not completed/initiated, please provide justifications.

Not applicable.

1.4 Other observations or comments on the above.

Not applicable.

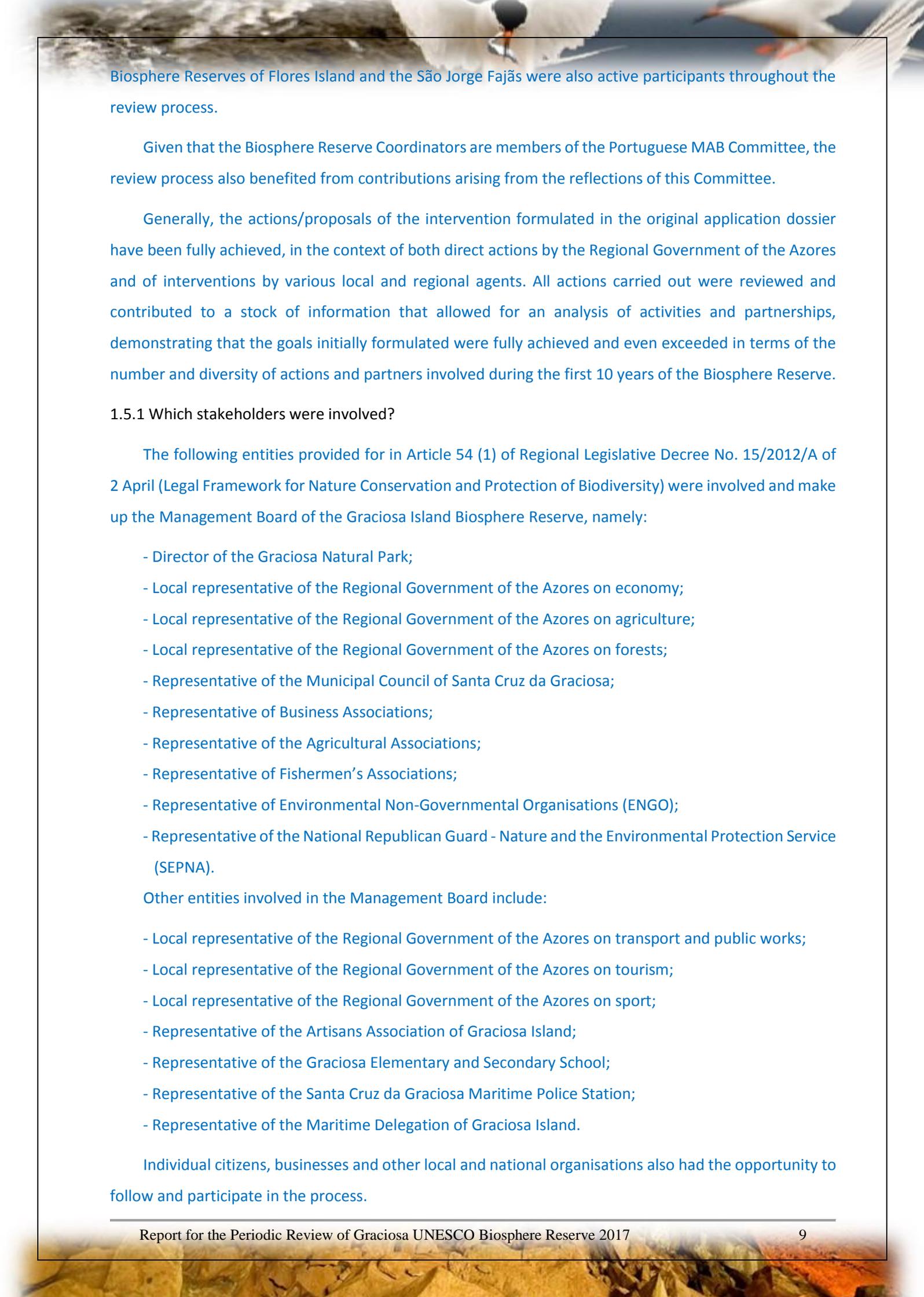
1.5 Describe in detail the process by which the current periodic review has been conducted:

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



Biosphere 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 entities provided for in Article 54 (1) of Regional Legislative Decree No. 15/2012/A of 2 April (Legal Framework for Nature Conservation and Protection of Biodiversity) were involved and make up the Management Board of the Graciosa Island Biosphere Reserve, namely:

- Director of the Graciosa Natural Park;
- Local representative of the Regional Government of the Azores on economy;
- Local representative of the Regional Government of the Azores on agriculture;
- Local representative of the Regional Government of the Azores on forests;
- Representative of the Municipal Council of Santa Cruz da Graciosa;
- Representative of Business Associations;
- Representative of the Agricultural Associations;
- Representative of Fishermen's Associations;
- Representative of Environmental Non-Governmental Organisations (ENGO);
- Representative of the National Republican Guard - Nature and the Environmental Protection Service (SEPNA).

Other entities involved in the Management Board include:

- Local representative of the Regional Government of the Azores on transport and public works;
- Local representative of the Regional Government of the Azores on tourism;
- Local representative of the Regional Government of the Azores on sport;
- Representative of the Artisans Association of Graciosa Island;
- Representative of the Graciosa Elementary and Secondary School;
- Representative of the Santa Cruz da Graciosa Maritime Police Station;
- Representative of the Maritime Delegation of Graciosa Island.

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



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 Graciosa Island Biosphere Reserve Management Board, where the main stakeholders/local entities were formally represented.

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

The Graciosa 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 within the framework of the ongoing periodic evaluation.

1.5.4 Were they well attended, with full and balanced representation?

(Describe participation and stakeholders).

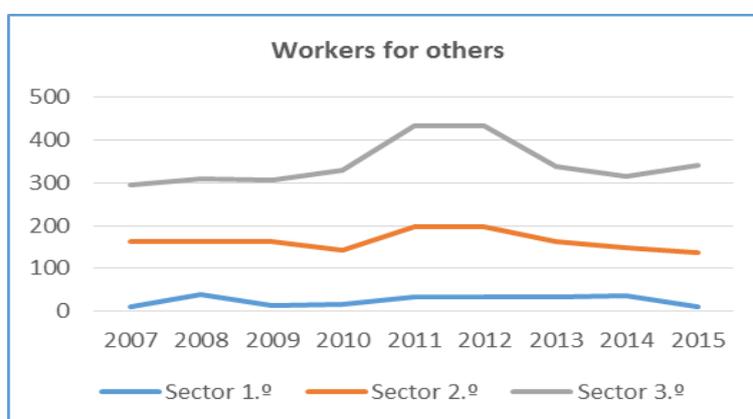
The participation of different stakeholders, essentially through the Management Board, is considered to be generally positive, however it can and should be more active and committed.

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 Graciosa Island. The inclusion of all relevant stakeholders within the Management Board ensures a broad participation and engagement covering the strategic sectors such as conservation, economic activities (fisheries and agriculture), research and education both from the public and the private sectors.

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

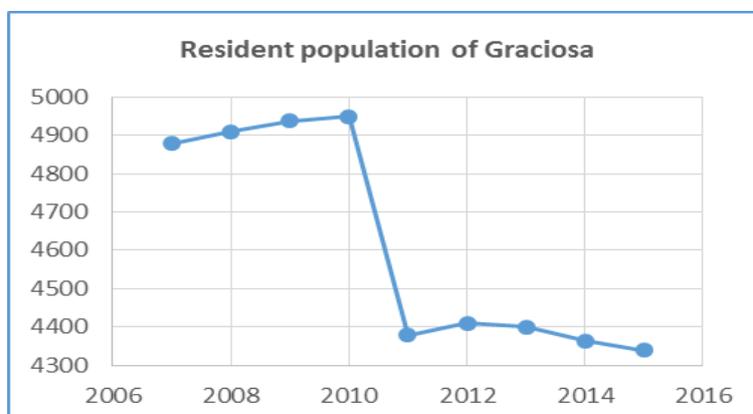
2.1 Brief summary overview: Narrative account of important changes in the local economy, landscapes or habitat use, and other related issues. Note important changes in the institutional arrangements for governance of the biosphere reserve area, and changes (if any) in the coordinating arrangements (including 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.

Economy: there have been no significant changes in the socio-economic development model of Graciosa Island Biosphere Reserve over the past decade, with agriculture based largely on dairy and meat production remaining prevalent. Like the agricultural sector, the fisheries industry is also an important part of the economy, particularly in terms of the jobs it generates, in an island where the tertiary sector, as is common, predominates.



Data: Os Açores em números (SREA - Azores Regional Statistics Service)

Demographics: the resident population on Graciosa Island has decreased by 11% in the past decade, with a particularly pronounced reduction between 2010 and 2011. This has been due to emigration by the active population as a result of Portugal's financial crisis from 2010 to 2013 in the wake of the 2007-2008 global financial crisis.



Data: Os Açores em números (SREA)

Landscape: the creation of the Biosphere Reserve facilitated the creation and promotion of various land management instruments that have strengthened the conservation of natural resources and values and the promotion of a sustainable land use management regime. These include the publication of the Land-Use Plan for the Coastal Area of Graciosa in 2008 and the creation of Graciosa Nature Park. Management of the Biosphere Reserve has been coordinated since then by the park's management team. Little has changed in terms of traditional land use, with pasture and extensive livestock production continuing to prevail.



Figure 1: Serra Dormida, Graciosa.

Biodiversity: in terms of the conservation of biodiversity, a number of activities have been developed by various local stakeholders that have resulted in important achievements. These include the environmental restoration of Ilhéu da Praia, which has led to a significant increase in the population of nesting seabirds, and the discovery of a new species in 2008 – *Hydrobates montei* (painho-de-monteiro, Monteiro's storm petrel) – which, until now, is known to nest solely on the Graciosa islets.



Figure 2: Ilhéu da Praia, Graciosa.

The sealing of two landfill sites in Graciosa has had an indirect positive effect on reducing the proliferation of the Azorean yellow-legged gull (*Larus michahellis atlantis*) population. Regular eradication

and control of invasive flora species, particularly in classified areas, has led to the resurgence and establishment of various species of native flora.

Implementation of PRECEFIAS (Regional Plan for the Eradication and Control of Invasive Flora Species in Sensitive Areas) in protected areas or areas submitted for classification within Graciosa Nature Park has been ongoing since 2009 and has become one of the most important nature conservation projects on Graciosa Island.

| Classified area | Invasive species | Photo |
|---|--|--|
| <p>Nature Reserve of Ilhéu da Praia</p> <p>IBA PT060 Ilhéu da Praia</p> <p>SPA PTZPE0030 Ilhéu da Praia (Graciosa Island Biosphere Reserve Core Area)</p> | <p>Willow trees (<i>Tamarix africana</i>)</p> |  |
| <p>Natural Monument Caldeira da Graciosa (Furna do Enxofre)</p> <p>RAMSAR site no. 1798 (Graciosa Island Biosphere Reserve Core Area)</p> | <p>Eagle fern (<i>Pteridium aquilinum</i>); sweet pittosporum (<i>Pittosporum undulatum</i>); ginger lily (<i>Hedychium gardnerianum</i>); wild blackberry (<i>Rubus ulmifolius</i>); hydrangea (<i>Hydrangea macrophylla</i>); pokeweed (<i>Phytolacca americana</i>)</p> |  |
| <p>Protected Area for the Management of Habitats and Species of Ponta da Restinga</p> <p>IBA PT059 Ilhéu de Baixo and adjacent coast</p> <p>SAC PTGRA0015 Ilhéu de Baixo-Restinga - Graciosa Island (Graciosa Island Biosphere Reserve Core Area)</p> | <p>Giant cane (<i>Arundo donax</i>), ginger lily (<i>Hedychium gardnerianum</i>) and ice plant (<i>Carpobrotus edulis</i>).</p> |  |
| <p>Protected Area for the Management of Habitats and Species of Ponta Branca</p> <p>IBA PT062 Serra Branca</p> <p>SAC PTGRA0016 Ponta Branca - Graciosa Island (Graciosa Island Biosphere Reserve Core Area)</p> | <p>sweet pittosporum (<i>Pittosporum undulatum</i>), ginger lily (<i>Hedychium gardnerianum</i>) and wild blackberry (<i>Rubus ulmifolius</i>).</p> |  |

| | | |
|---|---|--|
| <p>Protected Area for the Management of Habitats and Species of Ponta da Barca</p> <p>IBA PT061 Ilhéu da Baleia and Ponta da Barca</p> <p>(Graciosa Island Biosphere Reserve Core Area)</p> | <p>Ice plant (<i>Carpobrotus edulis</i>)</p> |  |
| <p>Natural monument of Caldeirinha de Pêro Botelho (proposed area)</p> | <p>Sweet pittosporum (<i>Pittosporum undulatum</i>), ginger lily (<i>Hedychium gardnerianum</i>) and wild blackberry (<i>Rubus ulmifolius</i>).</p> |  |

Governance and coordination: 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 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 Graciosa Island Biosphere Reserve Management Board in 2012, which performs its functions in accordance with regional legislation and its respective operating regulations.



Figure 3: Meeting of the Management Board of the Graciosa Island Biosphere Reserve.

2.2 Updated background information about the biosphere reserve.

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):

There have been no changes to the geography or zoning of the Biosphere Reserve.

| Cardinal points: | Latitude | Longitude |
|---------------------|-----------|------------|
| Most central point: | 39.053829 | -28.007673 |
| Northernmost point: | 39.106726 | -28.040726 |
| Southernmost point: | 38.99412 | -27.937886 |
| Westernmost point: | 39.066437 | -28.083963 |
| Easternmost point: | 39.007734 | -27.921521 |

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).

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

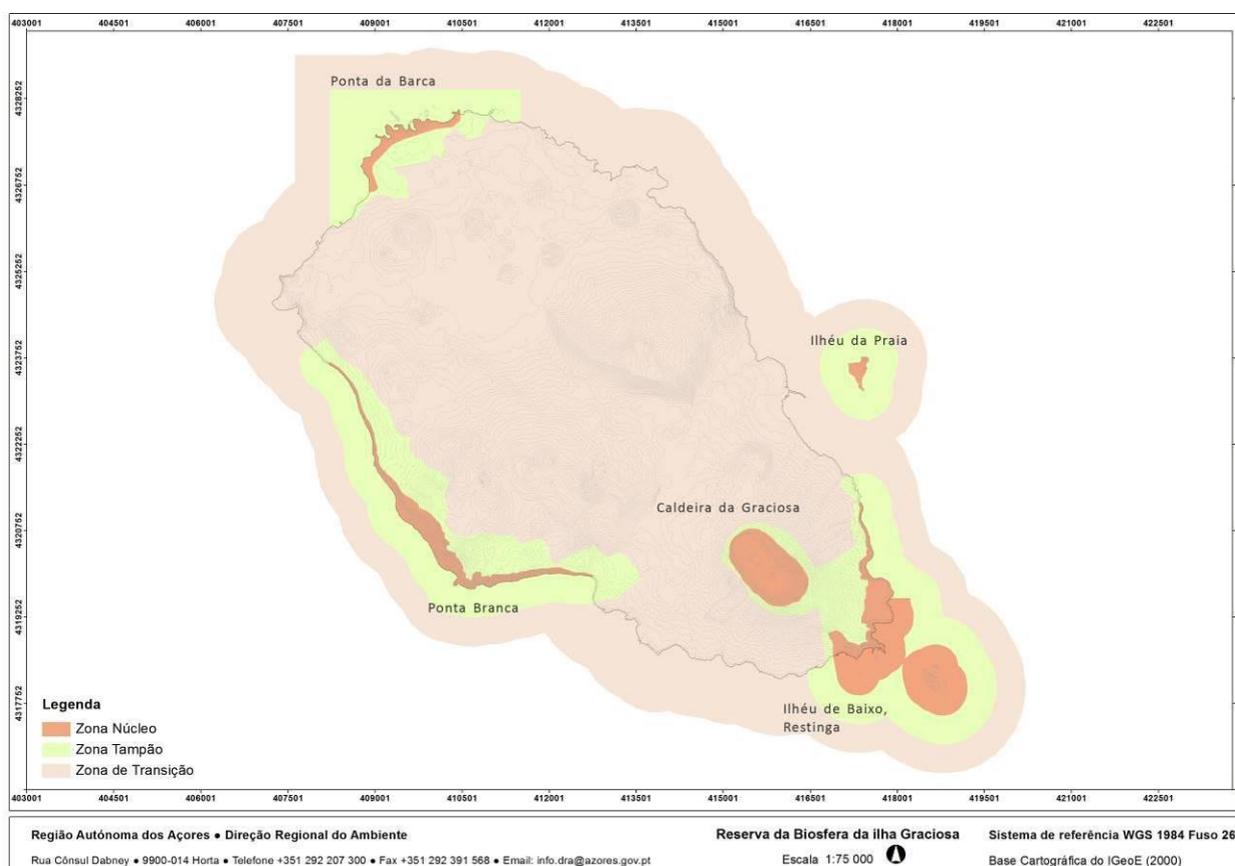


Figure 4: Map of the zoning of Graciosa Island Biosphere Reserve

2.2.3 Changes in the human population of the biosphere reserve.

Most recent census data:

The population of Graciosa Island has experienced a decline over the past century. From nearly 8,500 inhabitants at the beginning of the 20th century, it stood at 4,879 inhabitants in 2007.

According to the latest national census (2011) figures, Graciosa Island saw the largest decline among the islands of the central group, from 4,780 inhabitants in 2001 to 4,391 in 2011 (an 8.1% decline). In the same period, the municipality of Santa Cruz da Graciosa was the only one in the region that saw a decline (5.8%) in numbers of families.

This demographic trend remains prevalent today, with the resident population in 2015 estimated to be 4,339 inhabitants.

2.2.4 Update on conservation function, including main changes since last report.

(Note briefly here and refer to 4 below).

Graciosa Biosphere Reserve is playing growing role in conservation and sustainable use of natural resources and, in particular, biodiversity with several success stories combining conservation with tourism and research activities. Since its creation, the Graciosa Island Biosphere Reserve has maintained the same 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 Graciosa Nature Park in 2008 (Regional Legislative Decree No. 45/2008/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).

On 16 June 2008, Caldeira da Graciosa (Furna do Enxofre) was designated as a Ramsar Site (WI SITE No. / No. 1798) under the Ramsar Convention, while in 2009, Ilhéu de Baixo and Ponta da Restinga (PTGRA0015) and Ponta Branca (PTGRA0016) were reclassified as special areas of conservation (SAC) under the European Union's Natura 2000 network (Regional Regulatory Decree No. 5/2009/A of 3 June).

| Graciosa Island Biosphere Reserve Core Area | Graciosa Nature Park Protected Area |
|--|---|
| Ilhéu de Baixo-Restinga | - Nature Reserve of Ilhéu de Baixo - Protected Area for the Management of Habitats and Species of Ponta da Restinga - Protected Area for the Management of the Southeast Coast Resources; |
| Ilhéu da Praia | - Nature Reserve of Ilhéu da Praia |
| Caldeira da Ilha Graciosa | - Natural Monument Caldeira da Graciosa |
| Ponta Branca | - Protected Area for the Management of Habitats and Species of Ponta Branca |
| Ponta da Barca | - Protected Area for the Management of Habitats and Species of Ponta da Barca |

In 2015, a year in which UNESCO celebrated its 70th anniversary, the organisation's general assembly approved the new statutes of the International Geoscience and Geoparks Programme (IGGP).

With the creation of this new programme, the first in 40 years, the geoparks that had been part of the European and Global Geopark Networks, including the Azores Geopark, came under its purview.



2.2.5 Update on the development function, including main changes since last report.

(Note briefly here and refer to 5 below).

Graciosa 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.

With a view to maintaining a balance between development and preservation, Graciosa Island has sought out elements that distinguish it from the other islands to counteract the limitations arising from its smaller size and population. Of enormous relevance is the recognition of the environmental significance of Graciosa's islets as important nesting sites for a vast array of internationally protected seabirds, of which the local endemism of *Hydrobates monteiroi* (painho-de-monteiro or Monteiro's storm petrel) is of particular importance.



Figure 5: Painho-de-monteiro (*Hydrobates monteiroi*).

In recent years, Graciosa Island has seen a significant rise in the number of visiting researchers and ornithologists, as well as birdwatchers and twitchers, who come mainly to observe nesting birds on its islets via maritime safaris offered by local maritime tourism operators.

Meanwhile, thanks to the easy accessibility of its coastal areas via numerous traditional small ports and its particularly striking oceanic depths, Graciosa has become the "Diving Capital of the Azores", marked by an interesting local pursuit of environmentally sustainable economic activities.

Azores Geopark, covering the 9 islands and the oceanic depths of the Azores archipelago, has been under the purview of UNESCO since 2015, which has strengthened efforts to promote and appreciate the region through this important international organisation. By incorporating Azores Geopark into UNESCO's International Geoscience and Geoparks Programme, this is expected to help strengthen the visibility of the region around the world, bringing in more visitors to discover the superb geological heritage that exists on the Azores archipelago.



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 thus constitute a significant strengthening of the biosphere reserve's capacities and offers to public. These include the Furna do Enxofre Visitors Centre (CVFE), inaugurated in 2010, and the Ilhéu da Praia Support Station, which was refurbished and equipped in 2011.



Figure 6: CVFE and Ilhéu da Praia Support Station

These investments have served as an incentive for attracting local and foreign research teams in various areas of intervention promoting studies contributing to increase knowledge in several sectors.

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).

The most significant change in terms of strengthening the management of Biosphere Reserves in the Azores has been the creation in 2012 of an autonomous management structure, that is, a Management

Board led by the Director of the Nature Park, with the composition and competencies set out in article 54 of Regional Legislative Decree number 15/2012/A of 2 April.

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 the objectives of the reserve.

In the constant pursuit of synergies and with the aim of promoting active collaboration between local players and entities, both public and private, a growing number of institutions and individuals have joined the Graciosa Island Biosphere Reserve Management Board.

Composition of the biosphere reserve management board

- a) Director of the Island's Nature Park (the chair);
- b) One representative from each department of the regional administration dealing with the economy, agriculture, forests and fisheries, appointed by the respective members of the Regional Government.
- c) The mayors of each of the municipal councils located within the reserve, or their representatives;
- d) One representative from each of the business associations active on the island within the reserve;
- e) One representative from each of the agricultural and fishing associations active on the island within the reserve;
- f) One representative from each of the environmental non-governmental organisations based or active on the island within the reserve;
- g) One representative from the Nature and Environment Protection Service (SEPNA) of the National Republican Guard's Azores Territorial Command.



Figure 7: Organisational chart of the biosphere reserve management board

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 departments, municipalities, agricultural associations, fishing associations, police and military authorities and the business community of Graciosa Island.

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

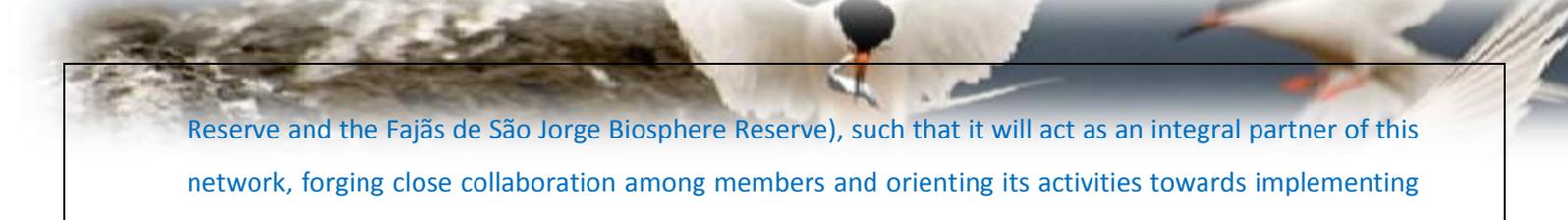
Graciosa Island Biosphere Reserve is now in an important phase, one in which this periodic evaluation is enabling us to reflect on the path that has been taken and to make equally important efforts to define a strategy for the coming decade.

The population of Graciosa 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 local actions aimed at the sustainable and responsible societal development within the Biosphere.

The main objectives of the Biosphere Reserve include the conservation and sustainable use of genetic biodiversity and of species, habitats, ecosystems and landscapes, making them a central component of Graciosa 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, Graciosa Island Biosphere Reserve has made regional cooperation with its counterparts a priority (Ilha do Corvo Biosphere Reserve, Ilha das Flores Biosphere



Reserve and the Fajãs de São Jorge Biosphere Reserve), 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 Graciosa Island Biosphere Reserve Management Board discussed and agreed on a new Vision and Mission for 2018-2024.

Vision of the Graciosa Island Biosphere Reserve

The vision of the Graciosa Island Biosphere Reserve revolves around this fragile island territory that strives to become a place of excellence, one that conserves its tangible and intangible resources and strengthens its identity and values. As a community open to the world, to people and to the times, it should ensure 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 the overall vision of Graciosa 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 its various sectors.

Mission of the Graciosa Island Biosphere Reserve

The mission of the Graciosa 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, as well as 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 Graciosa 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 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 establish tools for monitoring wild species' populations and implementing conservation plans, and for promoting research into natural resources.

- **Functionality of ecosystems:** to promote actions which impede the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of invasive and alien 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 (culturally, socially and ecologically sustainable economic and human development)

- **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. To promote the responsible use of local resources to generate economic activity and stable employment. To create synergies between tradition, local products, business and industrial activity, responsible processing, differentiated marketing, new technologies and territoriality as an inherent singularity of the product, good or service provided.
- **Responsible tourism:** deriving from an offer prioritising quality and respect for the environment, with agents responsible for the development of these resources catering for an audience requiring excellence as an added value of the destination, making tourism the catalyst for economic growth, the creation of employment and the wellbeing of the population on the island, while leading to more efficient use of resources and minimising environmental degradation.
- **Energy sustainability:** to change from the road mobility paradigm sustained by external dependence on fossil fuels to a new paradigm supported by clean energy with reduced carbon dioxide emissions, increasing and encouraging investment in infrastructure and technology supplied by clean energy.

Mission (3) – Logistical (providing support for research, monitoring and education)

- **Enhancement of knowledge:** the Graciosa Island Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, promoting the transmission and dissemination of knowledge to the community and supporting the execution of projects involving research, training, environmental education and the implementation of sustainable development models on the island.

- **Traditional knowledge:** to identify and validate cultural elements, customs, traditions and traditional knowledge as constituents of identity and distinctive elements of the Graciosa population to counter 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.

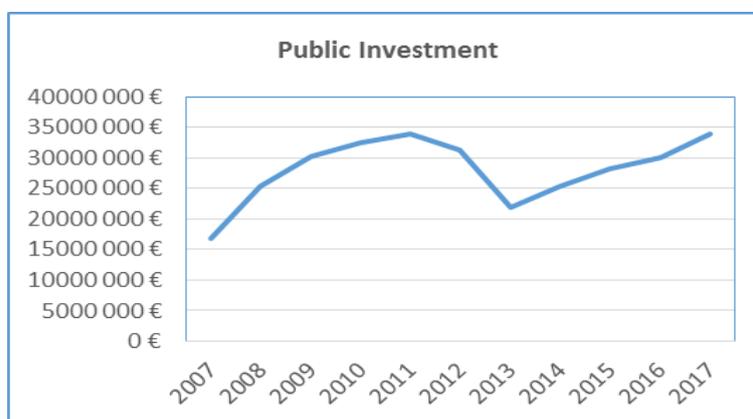
2.3.2 Budget and staff support, including approximate average annual amounts (or range from year-to-year); main sources of funds (including financial partnerships established (private/public), innovative financial schemes); special capital funds (if applicable); number of full and/or part-time staff;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

The primary sources of funding for the Graciosa Island Biosphere Reserve stem from the various departments of the Azores Government, the Municipality of Santa Cruz da Graciosa 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.

As outlined in the respective Regional Annual Plans that detail the annual cycle of public investment programmes in the Azores, between 2007 and 2017 there was an increase of 100% for Graciosa Island in the Azores Government's Investment Plan.



Data: Autonomous Region of the Azores Annual Plan (Official Gazette)

For 2016, the operating budget for Graciosa Island Biosphere Reserve was 125,255.01 Euros, which covered costs for staffing, installations and purchases of goods and services. Currently, the “*Central de Serviços Partilhados da Ilha Graciosa*” (Centre for Shared Services - Graciosa Island) is responsible for the centralised and integrated management of human resources on Graciosa Island within the Region, as well as the purchase and maintenance of goods and services for all administratively autonomous regional public services located on Graciosa Island.

Graciosa's Environmental Service has 7 technicians/staff who are associated with 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, with 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 its use 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 (MaB National Committee) and the National UNESCO Commission, the Graciosa 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 Graciosa 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, and was reviewed in an article published in the March supplement of the magazine “*I Like This*” (No. 16), under the theme “*Sustainable Development: 17 Territories - 17 Objectives*”, a small text alluding to the Graciosa 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 proposed Management Board meets ordinarily once every six months, as established in the same legal document.

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 Graciosa Island Biosphere Reserve, in addition to its conservation and development work, also seeks to contribute to the enhancement of the island’s identity, culture and heritage, through various initiatives.

The “arquitetura da água” (architecture of water) is a historical feature that resulted from the lack of water that the people of Graciosa Island always had to endure. There are many characteristic records of this architecture, which is why in 2015, the Municipality of Santa Cruz da Graciosa recovered and opened the Tanque do Atalho, a former water reservoir, to the public for visitation. This will be included together with other structures in a “Water Route” being envisaged by the municipality.



Figure 8: Tanque do Atalho, 1866 (Water-related architecture at Graciosa Island).

The “relheiras”,² furrows left by the wheels of animal-drawn vehicles in the volcanic rock are another testimony of the rural past of Graciosa, associated, according to some historical accounts, with the transport of firewood or agricultural products, from the bush or places of agricultural production, in ox carts, to the villages. A survey included in a regional project with the purpose of their inventory and protection was carried out on Graciosa Island in 2016.

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 add value and put local traditions and knowledge into practice as a way of promoting the cultural identity of Graciosa Island. The incorporation of educational activities based on traditional practices is one of the most characteristic interventions in the Biosphere Reserve.

In this regard, the work carried out by the local company “Queijadas da Graciosa”, which has already been certified by the Regional Centre of Support to the Crafts of the Azores as a “*Recognised Artisanal Productive Unit*” is of particular note, with its product, Graciosa sweet cheese tartlets, having been recognised as a “*Product of Origin with Certified Quality*”, the first to sign the authorisation agreement for the use of the “*Biosfera Açores*” brand and logo back in 2011 and, in 2015, the first in the Region to be awarded the “*AÇORES certificado pela natureza*” (*AZORES certified by nature*) brand seal.

The second company on the island authorised to use the “*Biosfera Açores*” brand and logo was the Graciosa Island Winery and Agricultural Cooperative which, with a well-designed promotion of distinctive products rooted in local traditions, has been investing in the production of wine spirit, angelica (liqueur wine) and the white wine “Pedras Brancas”, melon, garlic, grape and melon jam, much appreciated and recognised on Graciosa and other islands of the Archipelago.



Figure 9: “Pedras Brancas” products from the Graciosa Island Winery and Agricultural Cooperative.

² Furrows left in the stone, in the case of the Azores, caused by the passage of the wheels usually wrapped in iron hoops of the old carts pulled by oxen over many centuries,.

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.

2.3.7 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?

There are many activities on Graciosa Island that promote local traditions.

One of its important cultural traditions is music, concerts and dances, which were a form of interaction and a way to break the weight of isolation. Bearing witness to the musicality of the island is the fact that in the middle of the twentieth century, there was on average one piano per 50 inhabitants. It was the taste for music and fun that led to the creation of philharmonic bands, the first philharmonic that emerged on the island was in 1818, and folk groups, a method of maintaining and preserving the traditions of folk songs and dances.



Figure 10: Expression of musicality on Graciosa Island.

In the period between 2006 and 2016, two folk groups have been active, the Grupo de Folclore da Casa do Povo de Guadalupe and the Grupo Folclórico da Casa do Povo de Praia da Graciosa (active intermittently). These groups present a repertoire that includes several themes of the traditional music of Graciosa, called old styles and new styles and costumes that represent the old traditions of the people of the island.

Associated with the Graciosa Carnival, dances are held in the nine local associations scattered around the island featuring the traditional ways of dancing “*Modas de Viola da Graciosa*” (Graciosa Guitar Dancing Style), and a very genuine tradition that everyone knows as “*moda do chocolate*” (Chocolate Dancing).



Figure 11: Carnival Dance on Graciosa Island.

The Graciosa Artisans Association, which was established with the aim of dedicating itself solely and exclusively to Graciosa embroidery, is equally prominent on the island.

The “Ageing with Dignity” project, which has been active since September 2010, aims to promote leisure activities among the elderly, as well as activities in various other areas, from physical well-being, handicrafts, radio programmes, book publishing, plays and knowledge of environmental and cultural issues.

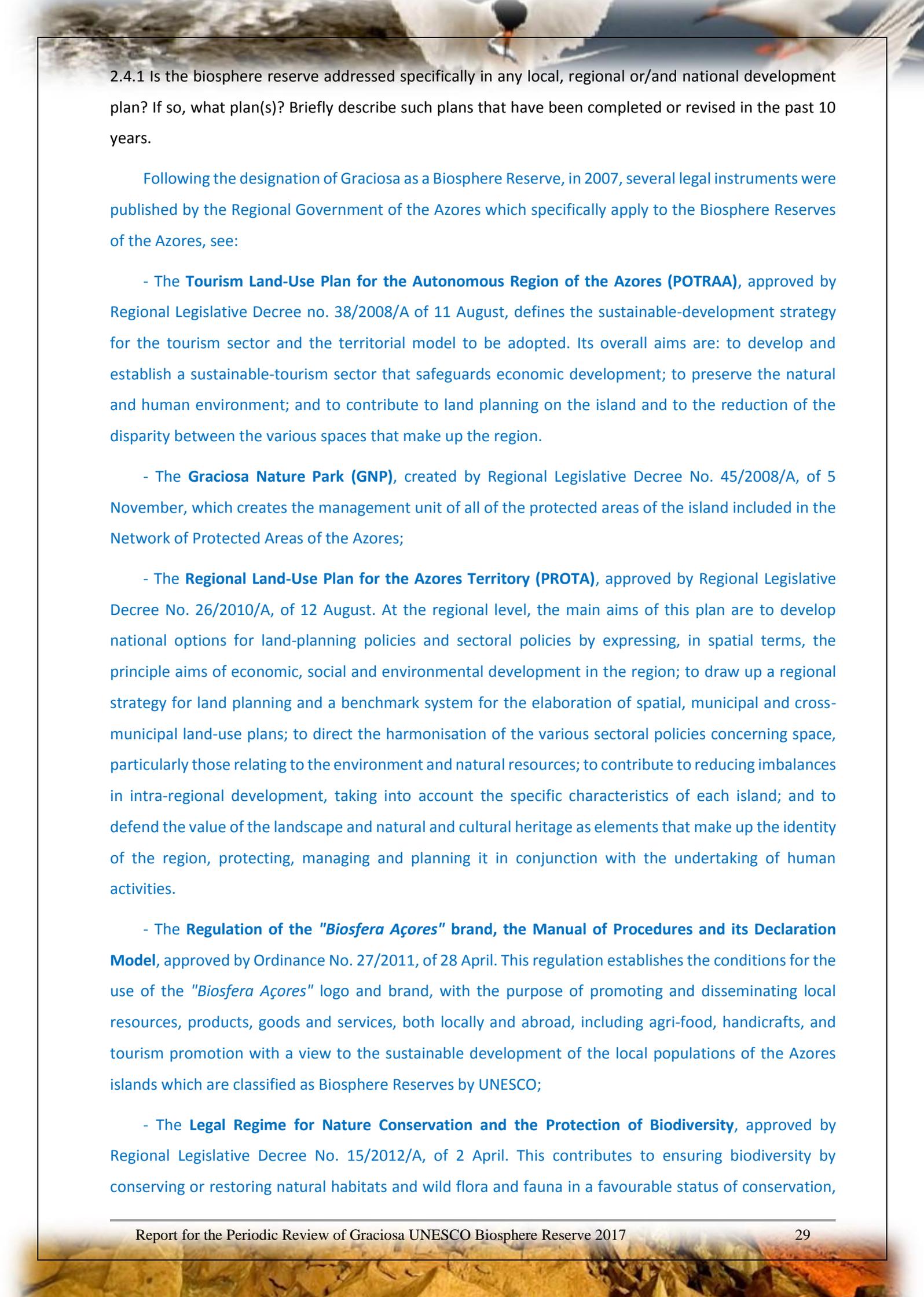
2.3.8 Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the biosphere reserve. Has there been a change in the number of spoken and written languages? Has there been a revitalization programme for endangered languages?

The official language of the Portuguese Republic is Portuguese, as determined by Paragraph 3 of Article 11 of the Constitution of the Portuguese Republic.

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 Graciosa Island Biosphere Reserve in terms of 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 Graciosa are not always eligible or accessible.

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.

Following the designation of Graciosa as a Biosphere Reserve, in 2007, several legal instruments were published by the Regional Government of the Azores which specifically apply to the Biosphere Reserves of the Azores, see:

- The **Tourism Land-Use Plan for the Autonomous Region of the Azores (POTRAA)**, approved by Regional Legislative Decree no. 38/2008/A of 11 August, defines the sustainable-development strategy for the tourism sector and the territorial model to be adopted. Its overall aims are: to develop and establish a sustainable-tourism sector that safeguards economic development; to preserve the natural and human environment; and to contribute to land planning on the island and to the reduction of the disparity between the various spaces that make up the region.

- The **Graciosa Nature Park (GNP)**, created by Regional Legislative Decree No. 45/2008/A, of 5 November, which creates the management unit of all of the protected areas of the island included in the Network of Protected Areas of the Azores;

- The **Regional Land-Use Plan for the Azores Territory (PROTA)**, approved by Regional Legislative Decree No. 26/2010/A, of 12 August. At the regional level, the main aims of this plan are to develop national options for land-planning policies and sectoral policies by expressing, in spatial terms, the principle aims of economic, social and environmental development in the region; to draw up a regional strategy for land planning and a benchmark system for the elaboration of spatial, municipal and cross-municipal land-use plans; to direct the harmonisation of the various sectoral policies concerning space, particularly those relating to the environment and natural resources; to contribute to reducing imbalances in intra-regional development, taking into account the specific characteristics of each island; and to defend the value of the landscape and natural and cultural heritage as elements that make up the identity of the region, protecting, managing and planning it in conjunction with the undertaking of human activities.

- The **Regulation of the "Biosfera Açores" brand, the Manual of Procedures and its 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 agri-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;

- The **Legal Regime for Nature Conservation and the Protection of Biodiversity**, approved by Regional Legislative Decree No. 15/2012/A, of 2 April. This contributes to ensuring biodiversity by conserving or restoring natural habitats and wild flora and fauna in a favourable status of conservation,

protection, management and control of wild species, and regulating 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.

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 sectoral 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?

Through various actions in various fields (conservation, culture, tourism, etc.), the local population participates actively and regularly. Examples of this participation include the multiple and diverse activities and actions that fall within the scope of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), which are organised by the different local agents, both public and private.

Succinctly, between 2014 and 2015 alone, about 260 activities were carried out on the island, which had about 6,292 participants in all: Parque Escola; Parque Aberto, Açores Entre-Mares, Campanha SOS Cagarro; Semana dos Resíduos dos Açores, Reserva da Biosfera, Geoparque Açores, Bandeira Azul, commemorative days, among others.





Figure 12: Environmental education and awareness actions and activities held on Graciosa.

At the initiative of fishermen’s associations, maritime-tourist companies and municipal bodies, as well as the Graciosa Island Naval Club, a working group was set up with the purpose of suggesting specific rules for access and the exercise of fishing activity in certain areas of the Island, which resulted, in 2016, in the publication of Ordinance No. 55/2016 of 21 June, which regulates and restricts the exercise of fishing activity in three marine areas around Graciosa Island, having as goal the conservation and sustainable exploitation of marine biological resources.

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.

As enshrined in Article 13 of the Constitution of the Portuguese Republic, in Portugal all citizens have the same social dignity and are equal before the law. 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.

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 these territories.

In this context, and soon afterwards, in 2008, the **Graciosa Coastal Area Land-Use Plan (POOC Graciosa)** was approved by Regional Regulatory Decree No. 13/2008/A, of 25 June, which establishes the rules to be followed for the occupation, use and transformation of the soils in 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 **Graciosa Nature Park (GNP)** was created, approved by Regional Legislative Decree No. 45/2018/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 2009, the Core Areas of the Graciosa Island Biosphere Reserve, namely, Ilhéu de Baixo and Ponta da Restinga (PTGRA0015) and Ponta Branca (PTGRA0016) were reclassified as Special Areas of Conservation (SAC) of the **Natura 2000 Network of the European Union** by the Regional Regulatory Decree No.5/2009/A, of 3 June.

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 Graciosa Island Biosphere Reserve area, with special attention being paid to nature conservation and the sustainable management of resources and land:

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 on the Environment and the Sea, aims to develop marine education and monitoring initiatives and stimulate future cooperation between education providers and society. This project aims to create the Marine Education Network of the Azores.

2012 – TRACE project - maps the movements and habitat use of baleen whales and sperm whales in the North Atlantic at varying time and space scales to identify biologically and ecologically important areas for the conservation of these species.

2012 – Programme consisting of the photo-identification and acoustic recording of cetaceans.

2012 – Assessment of the risk to terrestrial birds in the Azores from exposure to haemosporidian parasites, especially avian malaria.

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 terrestrial areas".

- 
- 2012** – Study promoting general knowledge of the biology and ecology of *Grampus griseus*, assessing its importance for (potentially) resident populations in the context of a doctoral project, a Risso Project research programme, which has been developed by the Nova Atlantis Foundation since 2000.
- 2012-2013** – Development of techniques for the passive detection and localisation of cetaceans through acoustic means.
- 2012-2014** – Research project on the effects of anthropogenic noise on the behaviour of cetaceans.
- 2012-2015** – MAPCET project - assessment of the conservation status of cetaceans, providing necessary information on the dynamics and ecology of cetacean communities and the effects of human activities on the integrity of these communities.
- 2012-2015** – AZORPI project - thus study to provided 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** – Capture and handling of wild animals for ringing, collection of biometric data and blood samples from avifauna specimens as a follow-up to a study initiated in the context of the doctoral project “Biogeography and Evolution of Azorean Passerines – An Integrative and Comparative Approach”.
- 2013-2015** – Collection of seeds for conservation at the Regional Germplasm Bank of Faial Botanical Gardens.
- 2014** – Study of the population dynamics of *Sterna hirundo* (Garajau-comum), *Sterna dougallii* (Garajau-rosado) and *Calonectris diomedea borealis* (Cagarro).
- 2014** – Study of the origin of plant biodiversity in the Azores and its colonisation by *Cardamine hirsuta*.
- 2014** – Study and promotion of bryophytes and ferns as bioindicators of climate change, in the context of the project “MOVECLIM: Montane vegetation as listening posts for climate change”.
- 2014** – Production of maps depicting cetacean distribution in the Azores and knowledge on the ecology of the species, in the context of a doctoral project financed by the Regional Fund for Science, a follow up to studies initiated by the MONICET research project.
- 2015** – Study of the distribution and phylogeny of the genus *Cladonia*, in the context of the “Coevolution of Cladoniaceae and associated fungi” project.



2015 – Capture and handling of wild birds for ringing and collection of blood and stool samples, in the context of the “Biogeography of coccidian, haemosporidian and avian pox in Macaronesian passerines” project.

2015 – Study of the diet, communication, population dynamics and productivity, and monitoring and counting of seabirds in colonies in the Azores.

2015 – Study of the evolutionary pattern of the species to understand the dispersal mechanisms and subsequent differentiation in the different islands, in the context of the "*Woodwardia radicans* phylogeography" project.

2015 – Study aimed at assessing the risk to terrestrial birds in the Azores from exposure to haemosporidian parasites, especially avian malaria.

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 Graciosa 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 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, Ramsar, 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?

Within the framework of the implementation of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), promoted by Graciosa Biosphere Reserve, several environmental education programmes and actions are implemented and developed in partnerships with local authorities, schools, associations, clubs and 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. 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 Escolas 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;

Açores Entre-Mares - a regional initiative that for 20 days, between European Maritime Day (20 May) and World Ocean Day (8 June), promotes various activities that are based on the promotion of knowledge and the sustainable use of the sea around the Azores.

| Environmental Education Activities held on Graciosa between 2012-2016 | | | | | | |
|---|-------|-------|-------|-------|-------|---------------|
| | 2012 | 2013 | 2014 | 2015 | 2016 | Total |
| No. of Activities | 42 | 30 | 61 | 79 | 120 | 332 |
| No. of Participants | 2,631 | 1,090 | 1,651 | 2,206 | 2,435 | 10,013 |

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 of the ecosystem services provided by the natural systems of Graciosa Island.

However, the following environmental services can be identified from the various ecosystems that make up the Graciosa 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 Graciosa, 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 common statistical indicators are therefore generally used for the most relevant sectors (farming, fisheries, 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 No. 1 - Species of flora involved in the provision of ecosystem services

| FLORA | | | ENVIRONMENT SERVICES |
|---------------|-----------|-----------------------------|----------------------|
| GROUP | ECOSYSTEM | SPECIES | |
| 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 No. 2 - Species of fauna involved in the provision of ecosystem services

| FAUNA | | | ENVIRONMENT SERVICES |
|-------------|-----------------|--------------------------------|--------------------------------|
| GROUP | ECOSYSTEM | SPECIES | |
| Molluscs | Marine | <i>Patella spp.</i> | Food |
| Cetaceans | Marine | <i>Tursiops truncatus</i> | Leisure and tourism |
| Cetaceans | Marine | <i>Delphinus delphis</i> | Leisure and tourism |
| Molluscs | Marine | <i>Octopus vulgaris</i> | Food |
| Crustaceans | Marine | <i>Megabalanus azoricus</i> | Food |
| Crustaceans | Marine | <i>Palinurus elephas</i> | Food |
| Crustaceans | Marine | <i>Maja capensis</i> | Food |
| Crustaceans | Marine | <i>Scyllarides latus</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 |
| Waders | Coastal aquatic | <i>Arenaria interpres</i> | Leisure and tourism |
| Waders | Coastal aquatic | <i>Calidris alba</i> | Leisure and tourism |
| Waders | Coastal aquatic | <i>Charadrius alexandrinus</i> | Leisure and tourism |
| Waders | Aquatic | <i>Numenius phaeopus</i> | Leisure and tourism |
| Egrets | Wetland | <i>Egretta garzetta</i> | Leisure and tourism |
| Egrets | Wetland | <i>Ardea cinerea</i> | Leisure and tourism |
| Ducks | Wetland | <i>Fulica atra</i> | Leisure and tourism |
| Ducks | Wetland | <i>Aythya fuligula</i> | Leisure and tourism |
| Shearwaters | Marine | <i>Calonectris borealis</i> | Leisure and tourism |
| Shearwaters | Marine | <i>Puffinus puffinus</i> | Research / Leisure and tourism |
| Shearwaters | Marine | <i>Puffinus baroli</i> | Research / Leisure and tourism |
| Shearwaters | Marine | <i>Bulweria bulwerii</i> | Research / Leisure and tourism |
| Petrels | Marine | <i>Hydrobates castro</i> | Research / Leisure and tourism |
| Petrels | Marine | <i>Hydrobates montei</i> | Research / Leisure and tourism |
| Petrels | Marine | <i>Hydrobates leucorhous</i> | Research / Leisure and tourism |
| Terns | Marine | <i>Sterna hirundo</i> | Research / Leisure and tourism |
| Terns | Marine | <i>Sterna dougallii</i> | Research / Leisure and tourism |
| Terns | Marine | <i>Onychoprion fuscatus</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 (Biosphere Reserves of Corvo Island, Graciosa Island, Flores Island and Fajãs de São Jorge) is planned for the development of a preliminary evaluation of the ecosystem services associated with these Reserves and territories.

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 have occurred in the existing habitats in the last decade.

The greatest changes noted are related to the protection of the various scenic, geological and environmental assets, with the creation of the Graciosa Nature Park on 5 November 2008 (Regional Legislative Decree No. 45/2008/A), as part of which 8 protected areas were classified in line with the categories established by the International Union for Conservation of Nature (IUCN), which are as follows: 2 Nature Reserves (II IUCN), 1 Natural Monument (III IUCN), 3 Protected Area for the Management of Habitats and Species (IV IUCN) and 2 Protected Areas with Sustainable Use of Natural Resources (VI IUCN).

As well as the framework established by the decree creating the Nature Park, the park also includes a RAMSAR site, two Special Areas of Conservation (SAC), two Special Protection Areas (SPA) and four IBAs (Important Bird and Biodiversity Areas), classified by Bird Life International.

However, notable developments include the sustained restoration of land habitats via the eradication and control of invasive plant species, the ongoing recovery of the Ilhéu da Praia by means of ecological restoration initiated in 1995 by the Department of Oceanography and Fisheries of the University of the Azores (DOP/UAç) and the description of a new species to science in 2008, the painho-de-monteiro (Monteiro's storm petrel, *Hydrobates monteiroi*)³, which until present has only been seen to nest on the Graciosa islets.

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 Graciosa Island was classified as a Biosphere Reserve, a number of projects and studies have been implemented aiming to safeguard protected species present on Graciosa, whose small populations place them at risk of extinction or on the threshold of survival. These management strategies include the

³ Bolton, M., Smith, A. L., Gómez-Díaz, E., Friesen, V. L., Medeiros, R., Bried, J., Roscales, J. L. & Furness, R. W. 2008. Monteiro's Storm Petrel *Oceanodroma monteiroi*: a new species from the Azores. *Ibis* 150(4): 717.-727.

development of measures and processes to secure their habitats, active conservation of these populations and sustainable management of resources and the land.

Due to the relevance of the site and the success of the project, the ecological restoration of the Ilhéu da Praia is particularly significant both for Graciosa and the archipelago as a whole. The restoration began in 1995, resulting in considerable recovery of the vegetation cover and a sharp increase in breeding populations of sea birds, confirmed in 2016 by the presence of the second largest colony of garajaus-rosados (roseate terns, *Sterna dougallii*) in Europe.



Figure 13: Garajaus-rosados (roseate terns, *Sterna dougallii*) on Ilhéu da Praia.

On the Ilhéu da Praia Nature Reserve, regular nesting of six sea bird species can currently be observed, among which four are classified as "Of Concern" at the European level and another is globally considered "Vulnerable". These are the garajau-comum (common tern, *Sterna hirundo*), the garajau-rosado (roseate tern, *Sterna dougallii*), the cagarro (Cory's shearwater, *Calonectris borealis*), the painho-de-monteiro (Monteiro's storm petrel, *Hydrobates montei* – endemic to the Azores), the painho-da-madeira (band-rumped storm petrel, *Hydrobates castro*) and the frulho (Audubon's shearwater, *Puffinus lherminieri baroli*). Recently, nesting of the garajau-de-dorso-preto (sooty tern, *Onychoprion fuscatus*) has also been observed on Ilhéu da Praia.



Figure 14: Garajau-de-dorso-preto (Sooty tern, *Onychoprion fuscatus*) on Ilhéu da Praia.

Nesting of the alma-negra (Bulwer's petrel, *Bulweria bulwerii*) has recently been confirmed on the Ilhéu de Baixo Nature Reserve, in that which is considered the northernmost colony of this species. The presence of the estapagado (Manx shearwater, *Puffinus puffinus*) and painho-de-cauda-bifurcada (Leach's storm petrel, *Hydrobates leucorhous*) also confirms the importance of the Graciosa islets in the conservation of "rare" species in Europe, protected by the Birds Directive and the Habitats Directive.



Figure 15: Alma-negra (Bulwer's petrel, *Bulweria bulwerii*) on Ilhéu de Baixo.

Meanwhile, the Furna do Enxofre is reaffirmed as the most visited site on Graciosa Island, and in 2010 was one of the three finalists in the national competition to choose the 7 Natural Wonders of Portugal, in the Grottos and Caves category.

With the 2008 reclassification of the Caldeira da Graciosa as a Natural Monument in the framework of the creation of Graciosa Nature Park, and the inauguration in 2010 of the Furna do Enxofre Visitors' Centre, a diverse range of projects implemented by the Regional Government has promoted the environmental and landscape restoration of the caldera and enhanced the security and visiting conditions at the Furna do Enxofre, an imposing lava cave which boasts the largest volcanic vault in Europe.

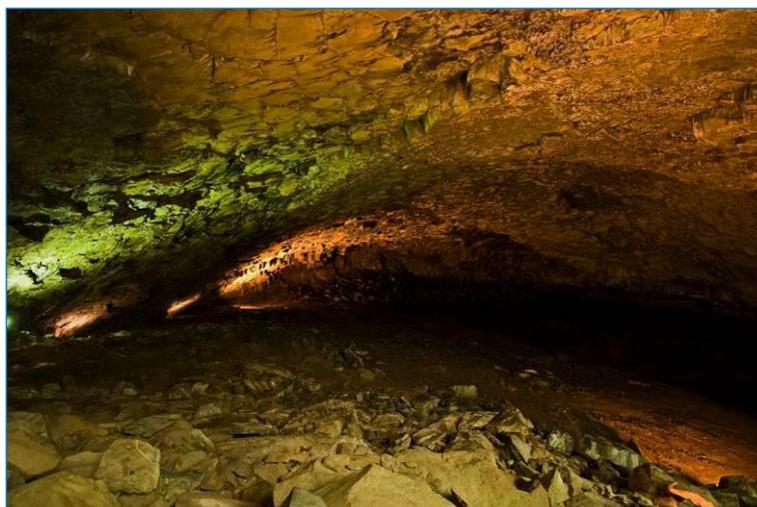
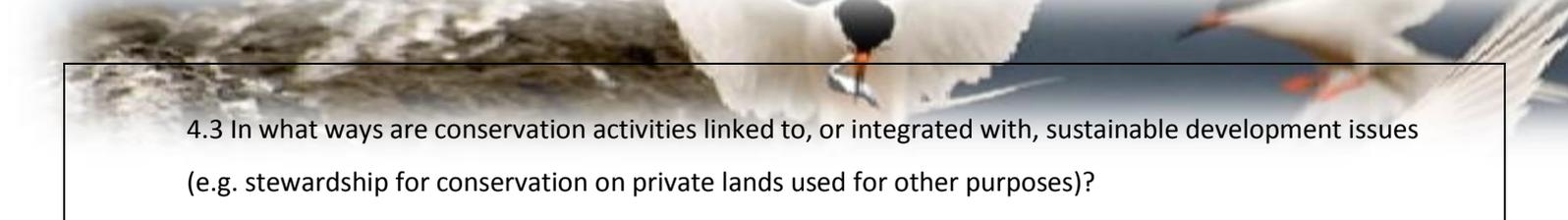


Figure 16: Furna do Enxofre, Graciosa.



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 the Sustainable Development Goals, particularly number 14 (Protect Life below Water) and 15 (Protect Life on Land).

An initial experimental project relating to the safeguarding of the land is underway, which aims to test actions to conserve and enhance the natural and humanised landscape as well as the cultural heritage, as part of the Cross-border Cooperation Programme – Macaronesia that promotes cooperation projects including all Macronesian Regions (Azores, Madeira and the Canary islands).

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 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.

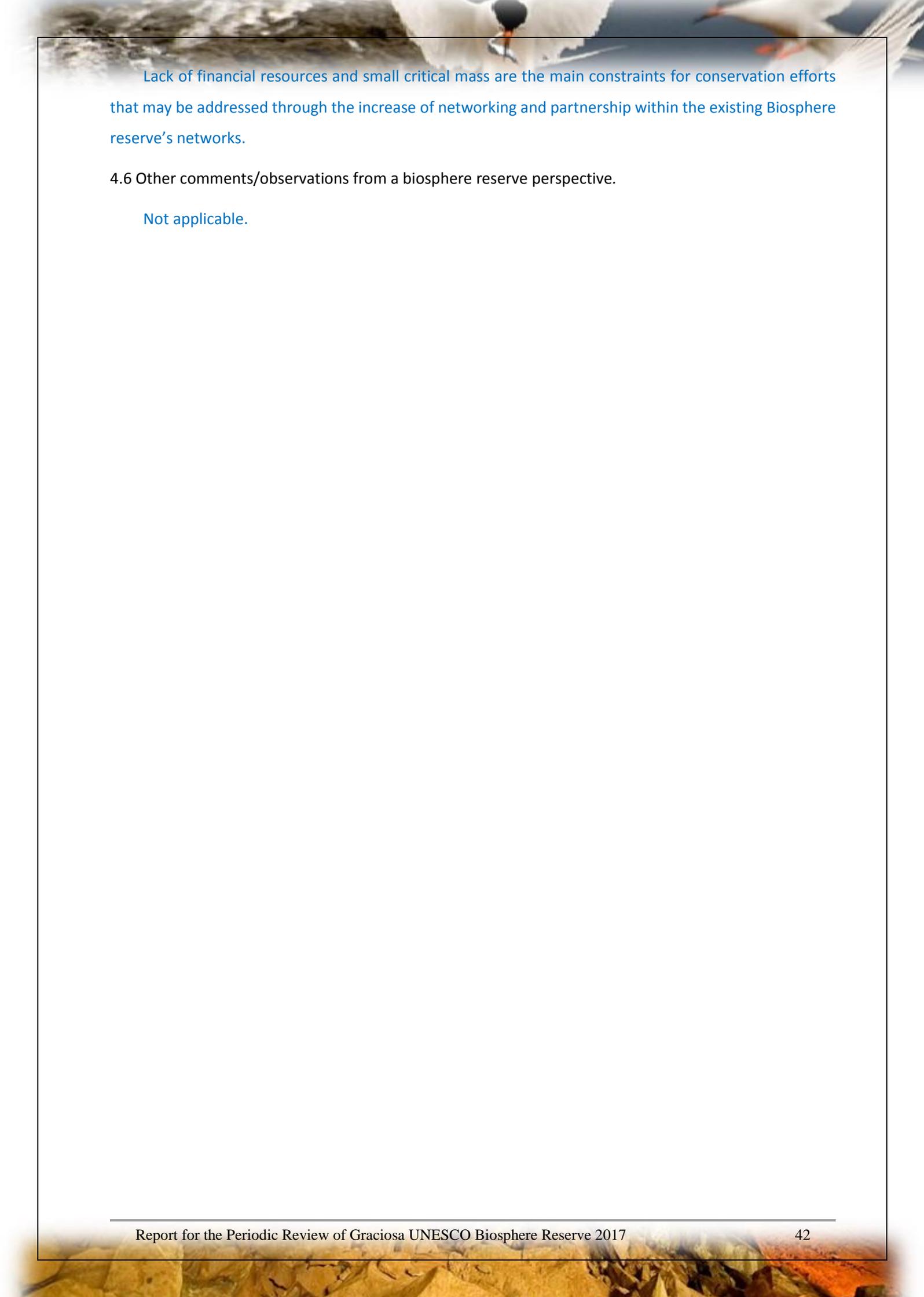
The management plans for protected areas and for priority species and habitats also offer elements for the evaluation of the implemented actions and strategies.

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

4.6 Other comments/observations from a biosphere reserve perspective.

Not applicable.

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 for developing environmentally sustainable economic activities remains. There continues to be an increase in demand for items produced in ecologically sustainable systems, creating the possibility of promoting certified products.

Agriculture and livestock production

The agricultural and livestock sectors remain dynamic and relevant, as is traditional on the island. The boost to agriculture arising from programmes such as Prorural (2007-2013) and Prorural+ (2014-2020), supported by the European Agricultural Fund for Rural Development (EAFRD) or POSEI Azores, co-funded by the European Agricultural Guarantee Fund (EAGF), has ensured the stability of the sector and the development of local agricultural products.



Figure 17: Traditional agricultural activity on Graciosa Island.

These sources of support have primarily boosted the production of tradable goods and the creation of added value (competitiveness goal), as well as the production of a set of public goods and other non-recoverable externalities, compensating for natural and structural handicaps and promoting the occupation, conservation and enhancement of the area and landscape (sustainability goal).

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 agents using pesticides undertake a compulsory training course on the application of plant protection products.

Recently, the Regional Government proposed the development of an action plan aiming to promote beef originating from sites classified as Biosphere Reserves, in conjunction with other brands, as meat with a Protected Geographical Indication (PGI) or the Azores Brand.

Fisheries

Fishing in the Graciosa Island Biosphere Reserve has always been part of the local tradition, albeit never as important as agriculture. Nonetheless, with the emergence of new modes of transport and access to different markets, fishing has grown in recent years, justifying the construction and inauguration of the Port of Praia da Graciosa in 2009, and of a new auction centre in 2011.



Figure 18: Auction centre and fishing port at Praia da Graciosa.



Figure 19: Inauguration of the new auction centre on Graciosa Island by the then President of the Azores Regional Government, Carlos César.



Fishing in the Azores is characterised by the use 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 Graciosa Island.

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. 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.

However, as part of a particularly relevant local dynamic, fishermen's associations, in conjunction with other local stakeholders, have established a set of restrictions on recreational and professional fishing for 3 marine areas of Graciosa Island on their own initiative, which aim to promote conservation and sustainable exploitation of marine biological resources. These are set out in a legal document published by the Azores Regional Government (Decree No. 55/2016 of 21 June).

Local products

In addition to traditional local products, already well established in the regional and national economies, such as Graciosa *covilhetes de leite* (sweet cheese tartlets commonly known as "Graciosa *queijadas*"), rice cakes, brandies, wines, the island's cheese, melons and garlic, it is also relevant to note the opening in 2015 of a new manufacturing facility on Graciosa - the "Queijaria Teimoso"- which has emerged due to the inherent potential for adding value to locally produced milk by diversifying dairy products, primarily for the production of gourmet cheeses and yoghurt, based on the quality of milk produced in the Azores, and in this particular case, the milk produced in the Graciosa Island Biosphere Reserve.



Figure 20: Visit by Portuguese President, Marcelo Rebelo de Sousa, to the "Queijadas da Graciosa" factory (2017).

Renewable Energies

The first stage of the Yunicos Project was implemented in 2014, and the project is now in its final stages. It includes implementation of a new 4.5 MW wind farm to replace the former farm, a 1 MW solar park and an energy storage plant comprising lithium-ion batteries, totalling 4 MW of power and 3.2 MWh of capacity.



Figure 21: Visit to the Yunicos Project by Prime Minister António Costa (2016).

This project is an international pioneer due to its approach to energy production, storage and distribution, using renewable energies as its main source, and it intends to make Graciosa Island almost 100% independent of fossil fuels in terms of electrical energy production. 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.

Throughout the last decade, there has been a significant change (increase and diversity) in supply and demand from travel agents and tourists in general.

Due to its natural and cultural heritage, Graciosa 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. This is supported by the presence of various aspects differentiating it from the other islands in the archipelago, such as the rural popular architecture, diving, the UNESCO Biosphere Reserve, the rural landscape - windmills, the Furna do Enxofre, the confectionery (*queijadas*, rice cakes) and the endemic sea bird (*painho-de-monteiro*), which have formed the basis of the communication/marketing messages promoting Graciosa as a tourist destination.

This is highlighted in the Strategic Marketing Plan for Tourism in the Azores (PEMTA) published in March 2016, which takes into consideration the diversity of resources, the specific features of each island and the strong potential for tourism and the territory to create complementarity between islands, concluding that Graciosa Island is particularly suited to Nature Tourism in the "Bird watching" and "Geo-tourism" sub-areas, to Nautical Tourism in the "Diving" sub-area, and to Health and Well-being Tourism, with a significant offer in the "Thermal springs" component.

Therefore, with regard to the main tourism products on Graciosa Island, the strategic plan identifies the primary, secondary and complementary attractions, based on their potential and the presence of relevant companies/infrastructure:

| TYPE OF TOURISM | PRIMARY ATTRACTION | SECONDARY ATTRACTION | COMPLEMENTARITY WITH OTHER ISLANDS |
|------------------------------|--|-------------------------------|--|
| Soft nature | Biosphere reserve | Walks/Hiking Rural tourism | Horseback riding |
| Specialist nature | <i>Bird watching</i> <i>Geo-tourism</i> | | |
| Active nature | | | Mountain biking <i>Trekking</i> |
| Soft nautical | | Boat trips | Cruises <i>Whale watching</i> |
| Active nautical | Diving | Yachting Sailing | Sport fishing Surfing and Body boarding <i>Windsurfing</i> |
| Cultural and landscape tours | | Culture Events/ | |

| | |
|-----------------------|--|
| | Entertainment Gastronomy and wine Built heritage Religion |
| Health and Well-being | Thermal springs (Termas do Carapacho) |
| Sun and sea | Sun and sea |

Source: PEMTA

It is relevant to note that the island is a Biosphere Reserve, is listed as a hotspot for the observation of sea birds in the Azores, primarily due to the diversity of sea birds nesting on its islets, has five priority geosites in the Azores Geopark (UNESCO), is known in the archipelago as the "diving capital of the Azores" and boasts the Termas do Carapacho, a thermal station renowned for its waters since the 17th century.

It is also important to highlight the Furna do Enxofre Visitors' Centre (CVFE), located near the cave after which it is named, as a must-see on the island, attracting a sustained increase in visitor numbers since its opening on 5 April 2010.



Data: Number of visitors CVFE (Azorina, S. A.)



Figure 22: Visit of the former Portuguese President, Aníbal Cavaco Silva, to the Furna do Enxofre Visitors' Centre (2011).

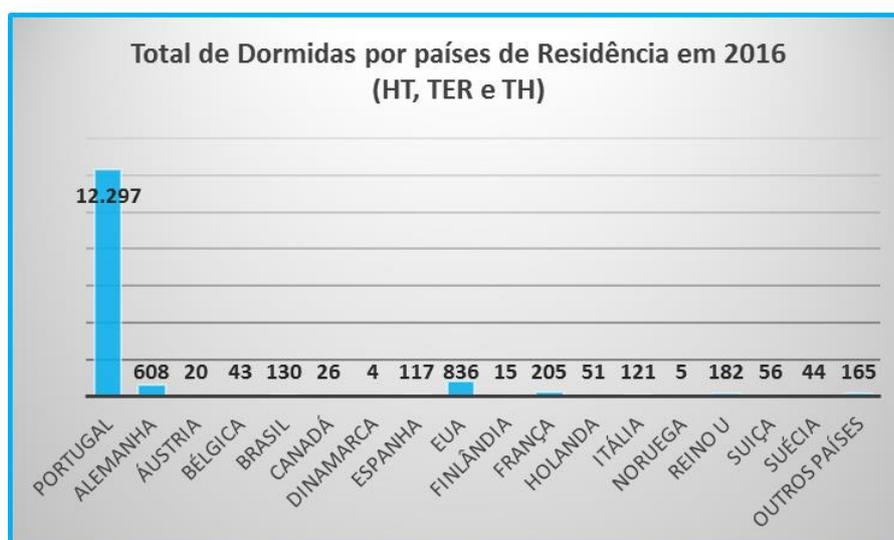
Therefore, considering the 10 years following the classification of the island as a Biosphere Reserve, and even in light of the national and international context of financial and economic crisis, tourism continued to grow as illustrated by the following graph which shows the evolution of the number of establishments and overnight stays from 2007 to 2016.

Three hotels are currently registered on the island, with a total capacity of 179 guests. There are also nine Rural Tourism establishments with 69 beds, and five Local Accommodation sites with 22 beds. The four existing Campsites/Leisure Areas complete the tourism offer on Graciosa in terms of accommodation.



Data: Number of establishments and accommodation capacity and number of overnight stays in tourist enterprises (HT, TH and TER) (SREA - Tourism Statistics)

In 2007, the average stay in hotel establishments was around three nights. However, as the majority of visitors to Graciosa Island are emigrants of Azorean origin visiting relatives, the average stay and number of visitors is actually far higher, as the latter do not use hotel establishments and stay instead with their relatives.



Data: Total overnight stays by country of residence in 2016 (SREA - Tourism Statistics)

We can observe a significant increase in accommodation capacity of around 162% and the emergence of two more camp sites. With regard to catering, there are 12 restaurants/snack bars, a slight increase in the offer. Menus mainly use local products deriving from fishing and farming due to the availability of

access to fresh products, and thus promote local production. Products from the island can be found in almost all of the establishments, such as cheese, sweet bread, *covilhetes de leite* and cantaloupe melons.

The revitalisation of the tourism sector on Graciosa 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, with daily flights provided throughout the year and sea links from May to September. Some existing infrastructure and facilities have been modernised to improve the support offered to visitors, such as a new, modern hotel which opened in 2009, various Rural Tourism initiatives, improvement of the camp sites and upgrading of bathing areas. In 2010, the Furna do Enxofre Visitors' Centre was opened, along with the new facilities at the Termas do Carapacho and the new Graciosa Museum.



Figure 23: "Graciosa Resort - Biosphere Island Hotel" and "Mó da Praia" (Rural Tourism).



Figure 24: Inauguration of the CVFE by the then President of the Azores Regional Government, Carlos César.



Figure 25: Graciosa Museum. Wine press room and pottery collection.

In the context of sustained activity in the Autonomous Region of the Azores linked to nature tourism, four walking trails on Graciosa Island have been classified in the last decade, forming part of the Regional Network of Walks.

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.

| Code | Name | Distance | Hiking time | Degree of difficulty | |
|------------|-------------------------------------|----------|-------------|----------------------|----------|
| PR 01 GRA | Serra Branca - Praia | 8.7 km | 02h30 | Easy | |
| PRC 02 GRA | Volta à Caldeira - Furna do Enxofre | 10.8 km | 03h00 | Easy | |
| PR 03 GRA | Baia da Folga | 2.1 km | 01h00 | Easy | |
| GR 01 GRA | Grande Rota da Graciosa | Part 1 | 17.7 km | 07h00 | Moderate |
| | | Part 2 | 22.3 km | 07h00 | |

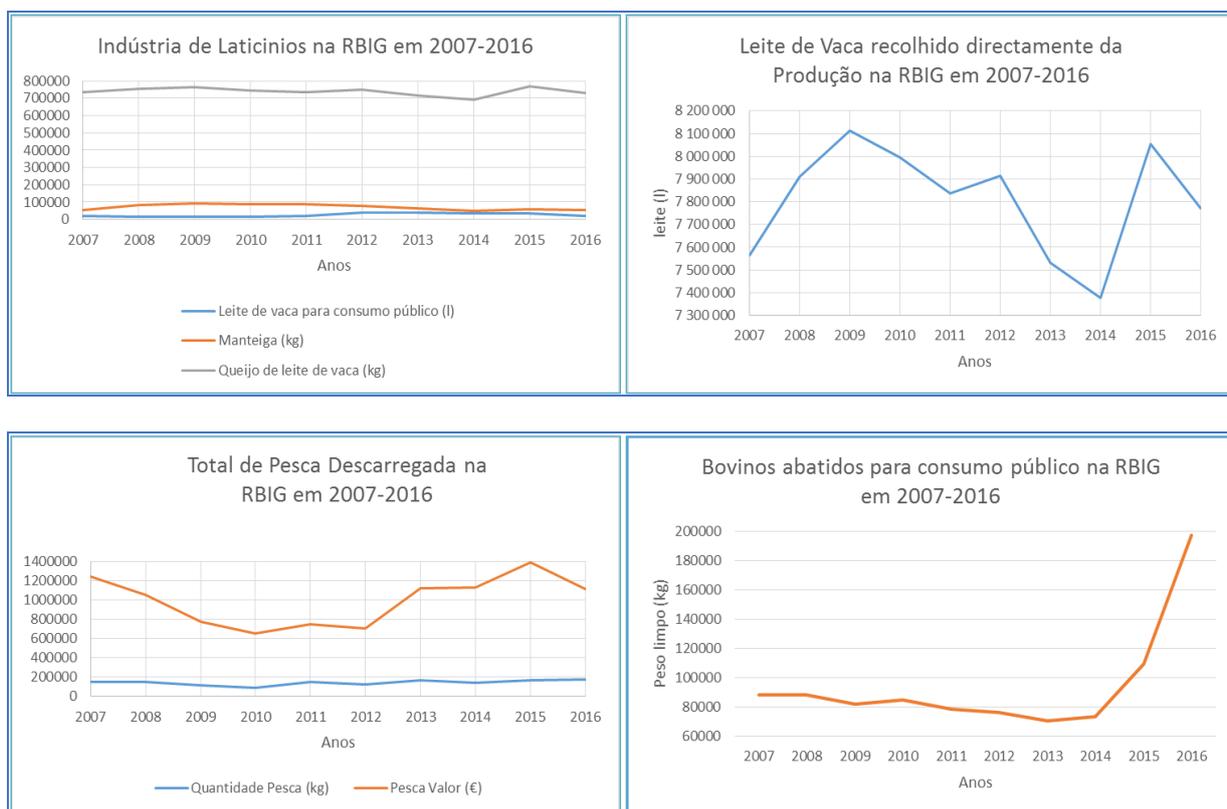




Figure 26: Leaflets for the four walking trails classified on Graciosa Island.

5.3 When applicable, describe other key sectors and uses such as agriculture, fishing, forestry, Grande Rota da Graciosa. 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.

Considering the years following the classification of the island as a Biosphere Reserve, as well as the national and international context of financial and economic crisis, there has been a trend towards stabilisation, albeit with some fluctuations in what concerns the dairy industry, milk production and fishing throughout the decade, with a substantial rise in the slaughter of cattle for public consumption. This can be seen in the following figures:





Data: Dairy industry at RBIG in 2007-2016 / Cow's milk collected directly from Production at RBIG in 2007-2016 / Total fishing discharged at RBIG in 2007-2016 / Cattle slaughtered for public consumption in the RBIG in 2007-2016 (SREA).

In 2010, Graciosa Island produced around 1.5% of the milk produced in the Region, with around 1.4 thousand dairy cows. With regard to the remaining livestock, the only relevant activity is the slaughter of pigs, constituting 2.3% of the total in the Region.

Besides producing its own cheese, corresponding to 2.6% of the total regional production, Graciosa has displayed potential for producing and trading garlic and cantaloupe melons.

Moreover, the Regional Government has recently proposed the development of an action plan aiming to promote beef originating from sites classified as Biosphere Reserves, in conjunction with other brands, as meat with a Protected Geographical Indication (PGI) or the Azores Brand.

With regard to the fishing sector, 4.3% of fishermen registered across the whole Region reside on the island, with the value of the fish landed constituting 1.6% of the value of all landed fish in the Azores, corresponding to a revenue of €652,000 for 91 tons of fish landed.

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

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

The traditional main 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 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 Graciosa Island and an adjacent 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 Santa Cruz da Graciosa 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?

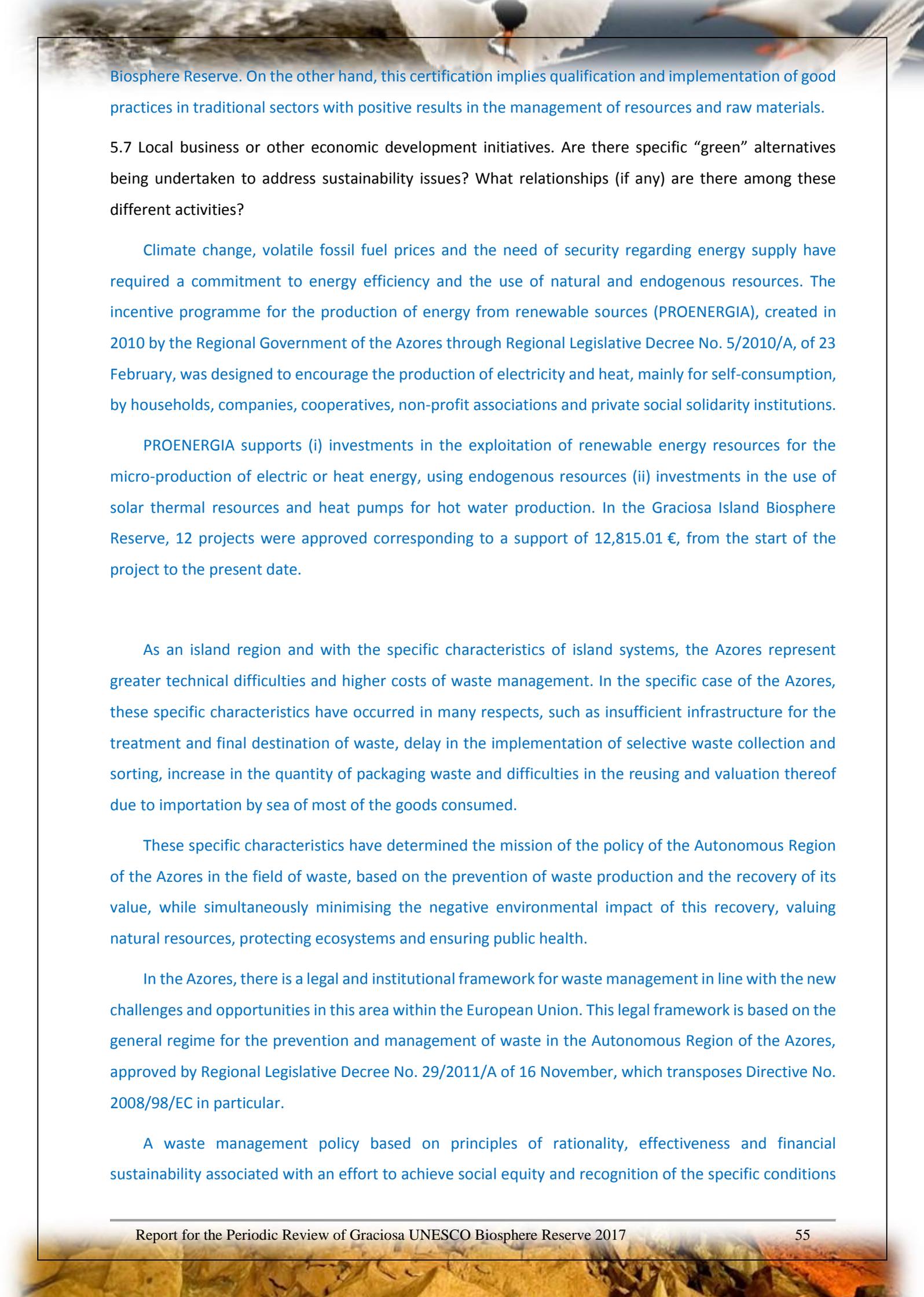
As early as 2008, in the programme of the 10th Regional Government of the Azores (2008-2012), *“the implementation of Biosphere Reserves of the Azores”* was established as an essential measure. Subsequently, in the programme of the 11th Regional Government of the Azores (2012-2016), the importance of *“consolidating the qualification of Biosphere Reserves”* was assumed.

Regarding the government programme of the 12th 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, plots and terraces, as well as orchards of traditional varieties, 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 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 Azores Biosphere brand, a system of certification of goods and services was created based on two fundamental criteria: authenticity and good practices. This initiative already has three certifications in the Graciosa Island Biosphere Reserve (a hotel, a *queijada*, and products from the Graciosa Winery), and the recognition of the added value of the nomination of Graciosa as a UNESCO



Biosphere Reserve. On the other hand, this certification implies qualification and implementation of good practices in traditional sectors with positive results in the management of resources and raw materials.

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, volatile fossil fuel prices and the need of security regarding energy supply have required a commitment to energy efficiency and the use of natural and endogenous resources. The incentive programme for the production of energy from renewable sources (PROENERGIA), created in 2010 by the Regional Government of the Azores through Regional Legislative Decree No. 5/2010/A, of 23 February, was designed to encourage the production of electricity and heat, mainly for self-consumption, by households, companies, cooperatives, non-profit associations and private social solidarity institutions.

PROENERGIA supports (i) investments in the exploitation of renewable energy resources for the micro-production of electric or heat energy, using endogenous resources (ii) investments in the use of solar thermal resources and heat pumps for hot water production. In the Graciosa Island Biosphere Reserve, 12 projects were approved corresponding to a support of 12,815.01 €, from the start of the project to the present date.

As an island region and with the specific characteristics of island systems, the Azores represent greater technical difficulties and higher costs of waste management. In the specific case of the Azores, these specific characteristics have occurred in many respects, such as insufficient infrastructure for the treatment and final destination of waste, delay in the implementation of selective waste collection and sorting, increase in the quantity of packaging waste and difficulties in the reusing and valuation thereof due to importation by sea of most of the goods consumed.

These specific characteristics have determined the mission of the policy of the Autonomous Region of the Azores in the field of waste, based on the prevention of waste production and the recovery of its value, while simultaneously minimising the negative environmental impact of this recovery, valuing natural resources, protecting ecosystems and ensuring public health.

In the Azores, there is a legal and institutional framework for waste management in line with the new challenges and opportunities in this area within the European Union. This legal framework is based on the general regime for the prevention and management of waste in the Autonomous Region of the Azores, approved by Regional Legislative Decree No. 29/2011/A of 16 November, which transposes Directive No. 2008/98/EC in particular.

A waste management policy based on principles of rationality, effectiveness and financial sustainability associated with an effort to achieve social equity and recognition of the specific conditions



presented by islands is an asset in areas which are essential for the quality of life of citizens and for the competitiveness of the economic activities of the Region. In this sense, waste management is one of the fundamental axes on which the sustainable development strategy for the Autonomous Region of the Azores must be based, which has led to the preparation of the Strategic Waste-Management Plan for the Azores (PEGRA), as an instrument for the territorial management of a sectoral environmental policy, with territorial impact, approved by Regional Legislative Decree No. 10/2008/A, of 12 May. PEGRA was valid for 7 years, for the period 2007-2013 and covered the following types of waste: municipal, industrial, forestry, agricultural and medical.

PEGRA aimed to contribute to the implementation of technological infrastructures that ensure quality of service and environmental protection, encouraging the eco-efficiency of the business sector and promoting the economic and financial sustainability of the waste management system. In another aspect, PEGRA sought to emphasise the guarantee of access to information and the streamlining of public participation, fostering knowledge, education, training and the qualification of human resources. PEGRA also substantiated the appropriate anchor for waste management in compliance with national and EU obligations in this respect, while respecting the socio-economic principles enshrined therein.

In the operation of PEGRA, the Regional Government of the Azores promoted the design of a project for a Waste Processing Centre and Graciosa Organic Composting Centre (Centro de Valorização Orgânica da Graciosa - CPRCVOG) in the Graciosa Island Biosphere Reserve. At the aforementioned centre, inaugurated in 2012, the fundamental structures for waste management implemented were:

- The Eco-Centre, where waste collected on the island is selectively deposited, such as bulky waste, electrical and electronic equipment waste, tyres and oils, among others;
- The Organic Composting Centre, for the transformation of organic and green waste produced locally through aerobic biodegradation, in order to reduce its respective mass and volume, producing, if possible, a soil corrector - compost - with sufficient quality for application in agriculture;
- The Transfer Station, which allows the packaging and compaction of municipal waste and non-hazardous industrial waste collected indiscriminately, in suitable watertight containers, for further forwarding to an appropriate destination.

Following the start of operation of the CPRCVOG, the Portela Dump and Graciosa Municipal Landfill were sealed in 2015. These projects allowed the confinement of waste and re-qualification of these spaces and consequently valorised the waste, reducing the production of and deposition in landfills, increasing selective collection and recycling.

The review of the PEGRA resulted in the current Strategic Plan for the Prevention and Management of Waste in the Azores (PEPGRA), approved by Regional Legislative Decree No. 6/2016/A, of March 29.



Figure 27: Inauguration of the CPRCVOG by the then President of the Regional Government of the Azores, Carlos César (2012).



Figure 28: Graciosa Centre for Waste Processing and Organic Composting Centre.

The contest “ECO Freguesia, freguesia limpa” (Eco Clean Parish) has been organised by 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 distinguish the cleanliness of our parishes and the good performance of citizens and various entities in preserving environmental quality, justifying its growing importance for the well-being of the population. Particularly noteworthy is the participation from the very first year of the contest of the four parishes located in the Graciosa Island Biosphere Reserve (Guadalupe, Luz, São Mateus and Santa Cruz da Graciosa).

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 And 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.

In the cultural heritage of Graciosa Island, the festivals and musical traditions play a prominent role. The religious festivities appeared on the island in the fifteenth century, with the arrival of the discoverers. Since those days, these have persisted, and have a relevant role, either as religious manifestations or as a tourist attraction, also as a result of their secular component.

During the summer, all the communities of the island honour their patron saint, and especially the Festa do Senhor Santo Cristo dos Milagres (Feast of the Lord Holy Christ of the Miracles), which takes place in the second week of August. Associated with various festivities are the *arraiais*, popular festivities associated to food and drinks, the sale of handicrafts, and music, and the traditional rope bullfights and in the bullring.



Figure 29: Festa do Senhor Santo Cristo dos Milagres.



Figure 30: Rope bullfight and in the bullring of Graciosa Island, built in the crater of an old volcano.

The main festival of the island takes place in the central part of the town of Santa Cruz da Graciosa, classified as of public interest by the legal regime of protection and enhancement of the movable and immovable cultural heritage⁴.

⁴ Regional Legislative Decree No 3/2015/A of 4 February.



Figure 31: Praça Fontes Pereira de Melo with the trees decorated for the county's largest festival.

As on all the islands of the Azores, the festivities in praise of the Divine Holy Spirit mark the religious expression of the people of Graciosa. From Easter Sunday, the traditional coronations begin to take place, the *bodos* are held especially on Pentecost Sunday in the various “*impérios*” of the island, the houses destined to receive the insignia of the Divine Holy Spirit .

As a way of asking for protection against earthquakes, the Procession of Our Lady of Guadalupe to the Monte de Nossa Senhora da Ajuda is a religious event that brings together many of the island's people. This manifestation of Faith has taken place without interruption since 1717.

The slaughter of the pig, although it is in decline on Graciosa Island, was also and still is a moment of conviviality between family and friends.

It should also be mentioned that Graciosa Island has been known for several decades for its Carnival, an extremely lively time with dances performed in the various recreational associations of the island, especially the parade of group costumes and traditional viola dances.



Figure 32: Exhibition of Memories of the Graciosa Island Carnival (Graciosa Museum, 2015).

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 Graciosa Island. In spite of the small size of the island and its resident population, there are numerous clubs that promote, in particular, sport, music and religion, among other pursuits.

As stipulated by the Regional Government, the main professional associations have a seat in the Graciosa Island Biosphere Reserve Management Board. They are formally authorised to give an opinion on the management plan of the biosphere reserve and about its implementation, to monitor the management of the biosphere reserve, to promote and authorise the use of the brand and logos associated with the biosphere reserve in products and services, and to suggest actions and projects to stimulate and promote the objectives of the reserve.

Since its inception on 10 July 2012, the aforementioned management board has already held its tenth ordinary meeting and second extraordinary meeting.

Main Associations/Collectivities/Institutions of Graciosa Island

| | |
|---|--|
| ACABAIG- Associação de Criadores e Amigos do Burro Anão da Ilha Graciosa (miniature donkey breeding and protection) | Associação Radioamadores da Graciosa (radio amateurs) |
| AGRAPROME – Associação Graciosense de Promoção de Eventos (event promotion) | Câmara do Comércio de Angra do Heroísmo - Núcleo Empresarial da Graciosa (chamber of commerce) |
| Agrupamento de Escuteiros 434 de Santa Cruz da Graciosa (scouts) | Casa do Povo da Luz (social solidarity and culture) |
| Agrupamento de Escuteiros 926 de Nossa Senhora da Luz (scouts) | Casa do Povo da Praia (social solidarity and culture) |
| Agrupamento de Escuteiros 944 de Guadalupe (scouts) | Casa do Povo de Guadalupe (social solidarity and culture) |
| Associação Cultural "A Semente" (culture) | Centro Social e Paroquial de Nossa Senhora da Luz (social solidarity - religion) |
| Associação Cultural Moinhos Selvagens (culture association) | Club Naval da Ilha Graciosa (boat club) |
| Associação Cultural, Desportiva e Recreativa da Graciosa (leisure, sports and culture) | Clube Central Recreativo - Sporting Clube de Guadalupe (sport) |
| Associação de Agricultores da Graciosa (farmers) | Clube de Veteranos da Ilha Graciosa (war veterans) |
| Associação de Artesãos da Ilha Graciosa (artisans) | Clube Desportivo Escolar Ilha Branca (sport) |
| Associação de Desportos da Ilha Graciosa (sport) | Coro da Matriz de Santa Cruz da Graciosa (choir) |
| Associação de Estudantes da Escola Básica e Integrada da Graciosa (student union) | Coro de Nossa Senhora de Guadalupe (choir) |
| Associação de Futebol de Angra do Heroísmo (football) | Coro de São Mateus (choir) |
| Associação de Jovens Agricultores Graciosenses (young farmers) | Filarmónica Recreio dos Artistas (music) |
| Associação de Jovens Artistas da Ilha Branca (young artists) | Filarmónica União Popular Luzense (music) |
| Associação de Pais e Encarregados de Educação dos Alunos da Escola Básica e Secundária da Graciosa (parents' association) | Filarmónica União Progresso de Guadalupe (music) |
| Associação de Pescadores Graciosenses (fishermen) | Graciosa Futebol Clube (football) |
| Associação de Táxis da Ilha Branca (taxis) | Grupo Coral de Nossa Senhora da Luz (choir) |
| Associação dos Amigos do Museu da Graciosa (culture) | Grupo Desportivo Luzense (sport) |
| | Grupo Desportivo Mocidade Praiense (sport) |
| | Irmandade da Capela do Espírito Santo de Nossa Senhora da Guia (religion) |
| | Irmandade do Divino Espírito Santo da Fonte do Mato (religion) |
| | Irmandade do Espírito Santo de Nossa Senhora da Esperança (religion) |
| | Junta de Núcleo da Graciosa – CNE (scouts) |
| | Liga dos Combatentes (war veterans) |
| | Moto Club da Ilha Graciosa (motor sports) |

| | |
|--|--|
| Associação dos Amigos dos Animais da Ilha Graciosa (animal protection) | Santa Casa da Misericórdia da Vila da Praia (social solidarity) |
| Associação dos Cinegeticófilos da Ilha Branca (hunting) | Santa Casa da Misericórdia de Santa Cruz da Graciosa (social solidarity) |
| Associação dos Músicos da Ilha Branca (music) | Santa Cruz Sport Club (sport) |
| Associação Equestre Graciosense (equestrian sport) | Sociedade Filarmónica União Praise (music) |
| Associação Graciosense de Solidariedade Social (social solidarity) | Sociedade Recreativa da Vitória (leisure, sports and culture) |
| Associação Humanitária dos Bombeiros Voluntários da Ilha Graciosa (fire-fighters) | Sport Clube Marítimo (sport) |
| Associação Intercultural Cross-Over (culture) | |
| Associação para a Promoção Sociocultural do Concelho de Santa Cruz da Graciosa (social solidarity and culture) | |

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

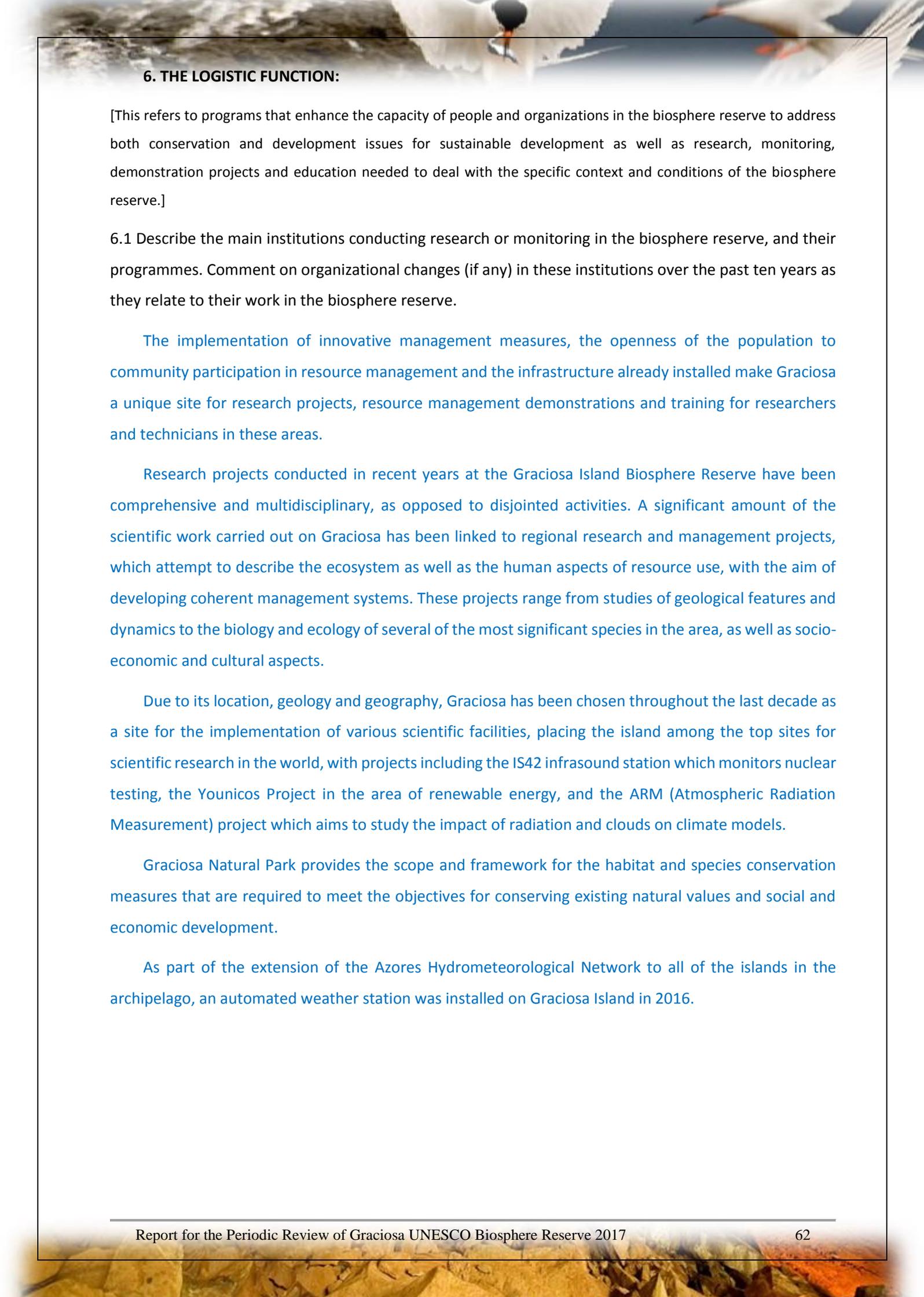
The monitoring of processes linked to the effectiveness of activities aimed at promoting sustainable development is carried out through censuses, project implementation reports and official programmes and statistics.

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 current 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. It is sought that the actions are objective, pro-active and strategic, in order to allow an effective reduction of negative impacts on the designated 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.

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

Research projects conducted in recent years at the Graciosa Island Biosphere Reserve have been comprehensive and multidisciplinary, as opposed to disjointed activities. A significant amount of the scientific work carried out on Graciosa 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.

Due to its location, geology and geography, Graciosa has been chosen throughout the last decade as a site for the implementation of various scientific facilities, placing the island among the top sites for scientific research in the world, with projects including the IS42 infrasound station which monitors nuclear testing, the Yunicos Project in the area of renewable energy, and the ARM (Atmospheric Radiation Measurement) project which aims to study the impact of radiation and clouds on climate models.

Graciosa 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.

As part of the extension of the Azores Hydrometeorological Network to all of the islands in the archipelago, an automated weather station was installed on Graciosa Island in 2016.



Figure 33: Serra das Fontes Weather Station, Graciosa.

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 Seismovolcanic 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 land slides. 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 of the sixth "Green Project Awards Portugal" prize for the "Information Technology" category to the Azores Hydrometeorological Network.



Figure 34: The "Green Project Awards Portugal" prize is awarded to Regional Director for the Environment, Hernâni H. Jorge.

For more than a decade, the CIVISA has maintained a system for monitoring environmental quality inside the Furna do Enxofre which includes, among other equipment, sensors which continually measure CO₂ concentration in the air.



Figure 35: Monitoring, Warning and Alarm System for the Safety of Visitors to the Furna do Enxofre.

In the area of climatology, installation of a chain of radars is planned for Graciosa, forming part of the SuperDARN network comprised within the MSI - SuperDARN Project (Mid-Sized Infrastructure - Super

Dual Auroral Radar Network), which includes 25 radars installed in the northern and southern hemispheres, involving 10 countries in an international scientific project which will offer the scientific community the opportunity to further their knowledge of plasma movements in the region above the North Atlantic. SuperDARN is a project developed by the US National Science Foundation in collaboration with the Regional Government of the Azores.

IS42 Infrasound Station

In November 2011, the IS42 infrasound station was built on Graciosa, a technological facility which forms part of the International Monitoring System intended to monitor compliance with the Treaty on the Prohibition of Nuclear Weapons under the auspices of the United Nations.

Certified by the International Monitoring System Division of the Provisional Technical Secretariat (PTS), based in Vienna, IS42 is one of 60 infrasound stations in this global monitoring network, and it allows better coverage of the North Atlantic, where stations are also in operation in French Guiana, Greenland, Bermuda and Cape Verde. These stations are able to detect various types of events at distances of up to several thousand kilometres, and are crucial in monitoring nuclear testing as well as in the study of seismic and volcanic activity and atmospheric phenomena.

The Centre of Volcanology and Geological Risk Assessment at the University of the Azores is the research centre responsible for operating the station in compliance with the terms defined by the National Authority for Coordinating the Treaty on the Prohibition of Nuclear Weapons, and the project is coordinated regionally by the Regional Directorate for Science, Technology and Communications.



Figure 36: Visit of the former Portuguese President, Aníbal Cavaco Silva, to the Nuclear Test Monitoring Station (2011).

Yunicos Project

The Graciosa project is both daring and innovative on a global scale, allowing large quantities of renewable energy to be injected into the island's electricity network without undermining the stability and quality of the service.

The project is underpinned by advanced software which regulates a strong capacity for renewable energy production and makes use of electricity storage to maximise the replacement of energy originating from diesel fuels with renewable energy.

It is therefore possible to inject all of the electricity produced in this way into the network without jeopardising its stability or the quality of the electricity on the island, as long as there is renewable energy and consumers are able to use it.

Diesel engines become a mere add-on, which will increasingly become unnecessary - a stop to diesel! In these circumstances, the market penetration for renewable energy sources will be 100%. The average annual market penetration for renewable energy anticipated with the project is 65%.

With an estimated investment of around 24 million Euros, the project is now fully constructed, and is at an advanced stage of commissioning. It comprises the following elements:

Yunicos SEM software: The software manages the island network, ensuring the energy supply and quality, matching renewable energy production to consumption on the island and the production of the necessary extra thermal energy;

Battery: Lithium-ion battery comprising eight banks of lithium-titanate batteries, totalling 4 MW of power and 3.2 MWh of capacity. Each bank of batteries is linked to an inverter and transformer which transform the set into an AC battery controlled by the SEM;

Wind farm: Five 900kW Enercon E44 turbines with the farm totalling 4.5 MW. The wind farm is located in Serra Branca, around 6 km from the battery station, and is linked to the station by a 15 kV overhead line.

Solar power station: 4,000 250 W silicon panels distributed in sets of 18 to 23 panels combined with 40 inverters, providing the power station with a total power of 1 MW. The power station is located next to the battery station and is linked to it by an underground cable.





Figure 37: Younicos facilities on Graciosa Island.

ARM Climate Research Facility

From 2013, Graciosa became the permanent site of an atmospheric radiation measurement station, as part of the international project led by the US Energy Department which aims to forecast weather and study the climate.

Built on Graciosa Island in 2009 in the framework of the ARM (Atmospheric Radiation Measurement) programme, the station operated on an experimental basis, but was made permanent in 2013. The decision involves an investment of 14 million dollars funded by the North American authorities, in partnership with the Regional Government of the Azores.

The ARM programme was launched in 1990 by the US Energy Department, and the Graciosa station was installed at the beginning of 2009 to take advantage of the strategic location of the Azores and their central role in the North Atlantic.

Graciosa is thus one of five sites in the world to be involved in the ARM programme to promote further research into the stratiform system of low altitude clouds over sub-tropical oceans. According to experts, their low level of representation in climate models causes significant uncertainty in predictions of climate change.

The importance of this Azorean station lies in the fact that 70% of the planet is covered in ocean and, as such, marine clouds are the most common type of cloud in the world. Graciosa, located in the middle of the Atlantic, offers an opportunity to conduct important observation of marine clouds over longer periods, and the measurements collected at this station are used by scientists to test and confirm computer simulations.



Figure 38: Visit to the Eastern North Atlantic Climate Research Observatory by Prime Minister António Costa (2016).



Figure 39: Weather station built on Graciosa as part of the ARM project.

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

BIODIVERSITY

- **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 exotic plant species in inventoried sensitive areas on all of the islands of the Azores



archipelago (*Pittosporum undulatum*, *Hedychium gardneriarum*, *Hydrangea macrophylla*, *Arundo donax*, *Gunnera tinctoria*, *Clethra arborea*, *Carpobrothus edulis*, *Lantana camara*, *Ailanthus altissima*, *Polygonum capitatum*, *Drosanthemum floribundum*, *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 University of the Azores (DOP). Counting will be supplemented by information gathering on the condition of nesting populations, seeking to assess variations in annual recruitment.

Objectives:

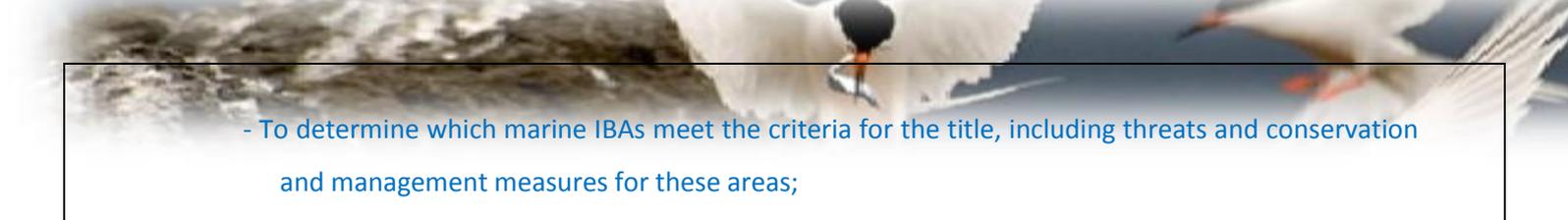
- 1 - To monitor populations of seabirds classed as nesting, via visual censuses and other emerging methodologies (e.g. Cory's shearwater, terns, Barolo shearwater, storm petrel, etc.).
 - 2 - To assess the impact of non-native terrestrial species on the reproductive capacity of seabirds (predators and 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, pollutants).
- **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.

Monteiro's Storm Petrel Project (Phase 1, 2014-2015)

The Monteiro's Storm Petrel Project (phase 1) was implemented by the SPEA with support from the Graciosa Island Nature Park, the Department of Oceanography and Fisheries at the University of the Azores and the Department of Life Sciences at the University of Coimbra. This project was financed under the "Preventing Extinctions Programme (PEP)" run by BirdLife International, which includes the Monteiro's storm petrel in the "Species Guardian Scheme". The main objective was to create a solid foundation for the implementation of a long-term conservation plan for this endemic species in the Azores archipelago.

LIFE EuroSAP (2015-2018) (<http://www.birdlife.org/europe-and-central-asia/project/life-eurosap>)

The LIFE EuroSAP brings together 10 European countries, including Portugal, and aims to create synergies to tackle the new challenges and threats facing some of our iconic birds. It features the involvement of 13 partners, with the SPEA representing the project in Portugal. Objective: To assess the current situation and establish an Action Plan for the Monteiro's storm petrel.

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), and the Regional Fund for Science and Technology (FRCT).

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 (Macaronesian 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 Macaronesian 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 subregional 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 methodologies/monitoring programmes established in MISTIC SEAS I in order to achieve GES (Good Environmental Status) in the waters of Macaronesia in the second cycle of the MSFD.

- **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.



The Protected Marine Areas research group at the University of the Azores has been conducting work as part of the BALA Programme since 21 June, including georeferencing of caves around the whole of Graciosa Island, dives to describe habitats/biotopes and inventorying of the aforementioned functional groups.

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)**

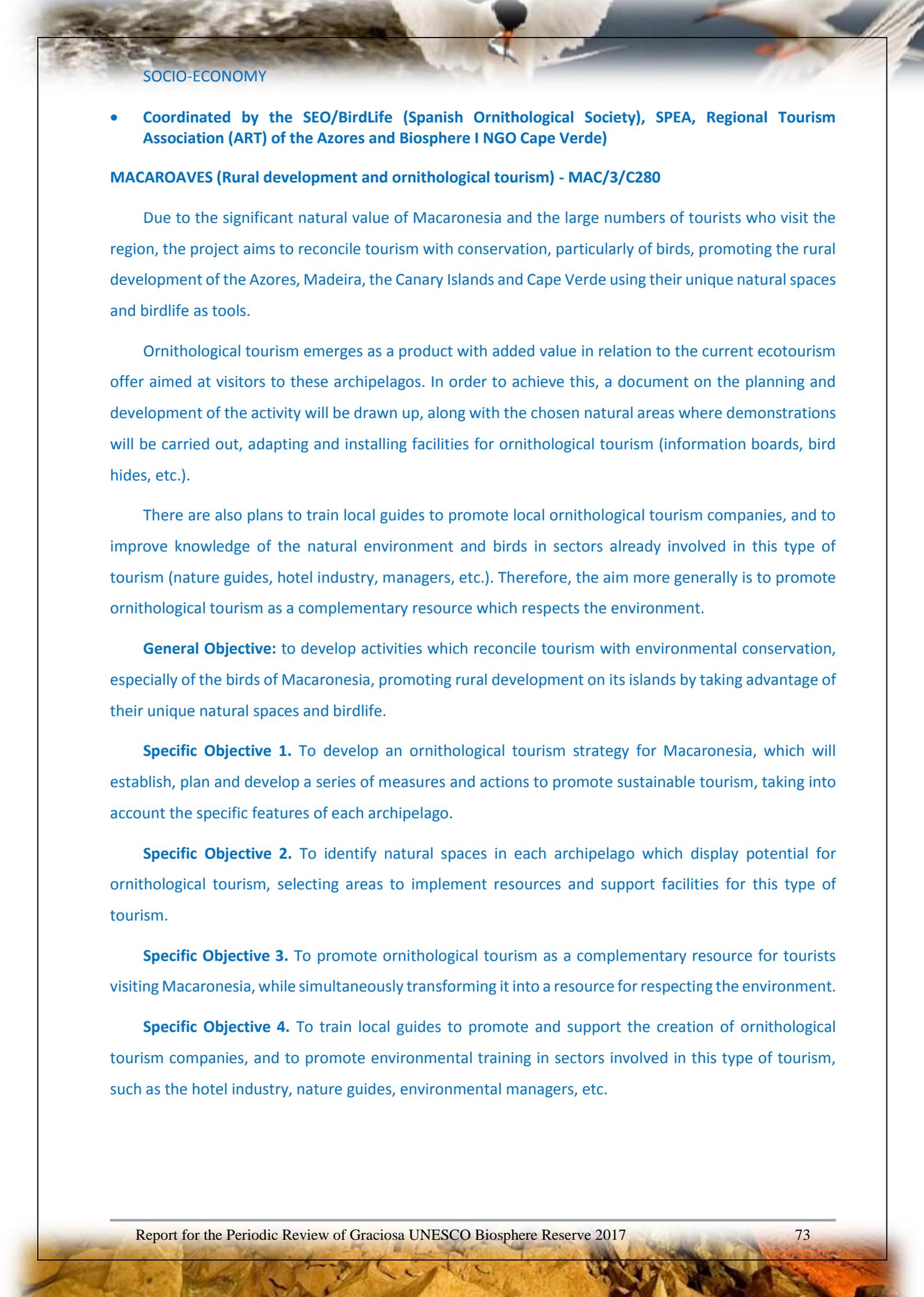
REMAx – Experimental Network for Marine Education in the Azores (2007-2009)

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. Targeting MoniZec – Monitoring marine SPAs in the Azores (DRCT 2012-2015)

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 Graciosa Nature Park and adjacent areas by means of scuba diving in July 2014. Creation of the Marine Education Network of the Azores.



SOCIO-ECONOMY

- **Coordinated by the SEO/BirdLife (Spanish Ornithological Society), SPEA, Regional Tourism Association (ART) of the Azores and Biosphere I NGO Cape Verde)**

MACAROAVES (Rural development and ornithological tourism) - MAC/3/C280

Due to the significant natural value of Macaronesia and the large numbers of tourists who visit the region, the project aims to reconcile tourism with conservation, particularly of birds, promoting the rural development of the Azores, Madeira, the Canary Islands and Cape Verde using their unique natural spaces and birdlife as tools.

Ornithological tourism emerges as a product with added value in relation to the current ecotourism offer aimed at visitors to these archipelagos. In order to achieve this, a document on the planning and development of the activity will be drawn up, along with the chosen natural areas where demonstrations will be carried out, adapting and installing facilities for ornithological tourism (information boards, bird hides, etc.).

There are also plans to train local guides to promote local ornithological tourism companies, and to improve knowledge of the natural environment and birds in sectors already involved in this type of tourism (nature guides, hotel industry, managers, etc.). Therefore, the aim more generally is to promote ornithological tourism as a complementary resource which respects the environment.

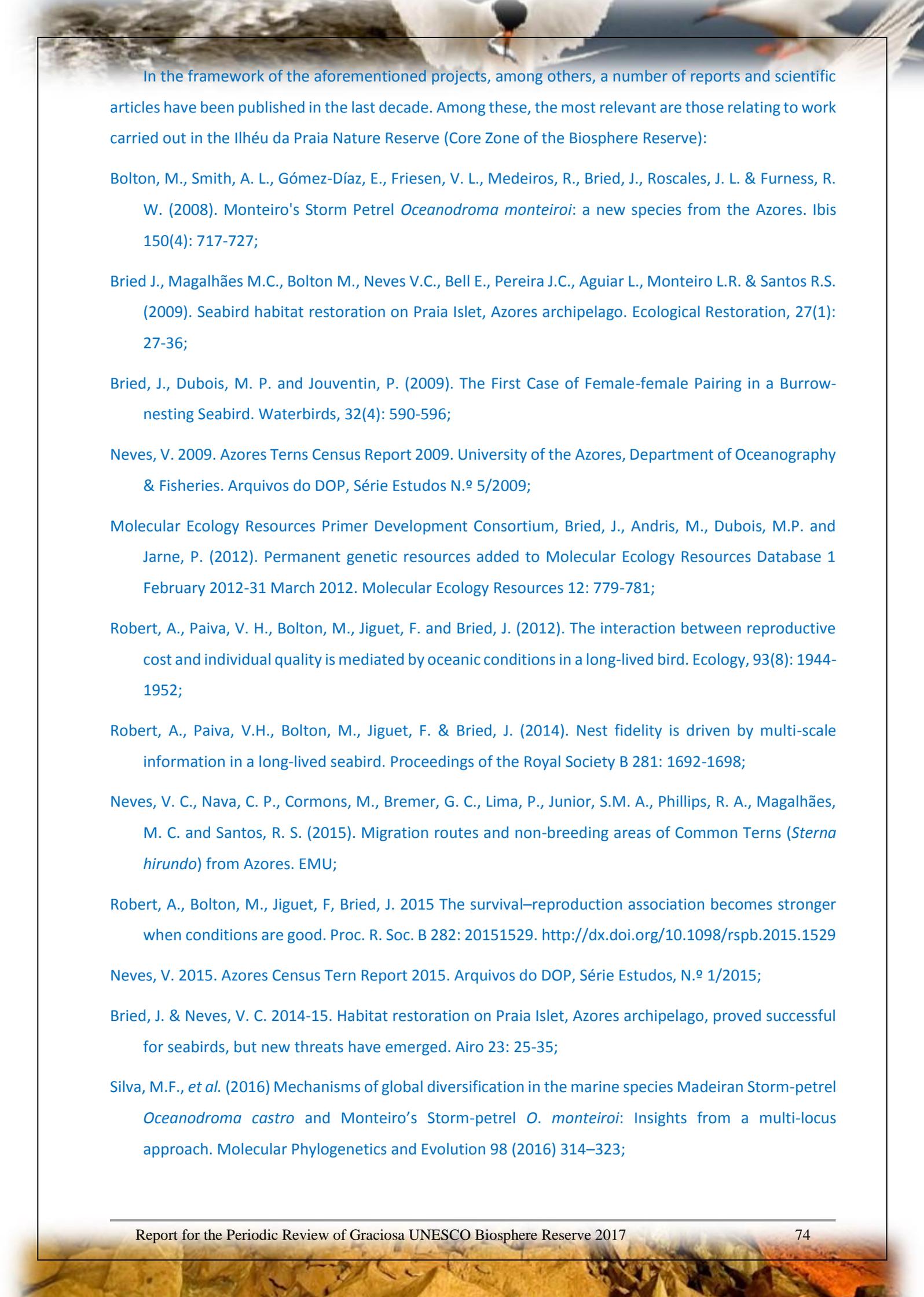
General Objective: to develop activities which reconcile tourism with environmental conservation, especially of the birds of Macaronesia, promoting rural development on its islands by taking advantage of their unique natural spaces and birdlife.

Specific Objective 1. To develop an ornithological tourism strategy for Macaronesia, which will establish, plan and develop a series of measures and actions to promote sustainable tourism, taking into account the specific features of each archipelago.

Specific Objective 2. To identify natural spaces in each archipelago which display potential for ornithological tourism, selecting areas to implement resources and support facilities for this type of tourism.

Specific Objective 3. To promote ornithological tourism as a complementary resource for tourists visiting Macaronesia, while simultaneously transforming it into a resource for respecting the environment.

Specific Objective 4. To train local guides to promote and support the creation of ornithological tourism companies, and to promote environmental training in sectors involved in this type of tourism, such as the hotel industry, nature guides, environmental managers, etc.



In the framework of the aforementioned projects, among others, a number of reports and scientific articles have been published in the last decade. Among these, the most relevant are those relating to work carried out in the Ilhéu da Praia Nature Reserve (Core Zone of the Biosphere Reserve):

Bolton, M., Smith, A. L., Gómez-Díaz, E., Friesen, V. L., Medeiros, R., Bried, J., Roscales, J. L. & Furness, R. W. (2008). Monteiro's Storm Petrel *Oceanodroma monteiroi*: a new species from the Azores. *Ibis* 150(4): 717-727;

Bried J., Magalhães M.C., Bolton M., Neves V.C., Bell E., Pereira J.C., Aguiar L., Monteiro L.R. & Santos R.S. (2009). Seabird habitat restoration on Praia Islet, Azores archipelago. *Ecological Restoration*, 27(1): 27-36;

Bried, J., Dubois, M. P. and Jouventin, P. (2009). The First Case of Female-female Pairing in a Burrow-nesting Seabird. *Waterbirds*, 32(4): 590-596;

Neves, V. 2009. Azores Terns Census Report 2009. University of the Azores, Department of Oceanography & Fisheries. Arquivos do DOP, Série Estudos N.º 5/2009;

Molecular Ecology Resources Primer Development Consortium, Bried, J., Andris, M., Dubois, M.P. and Jarne, P. (2012). Permanent genetic resources added to Molecular Ecology Resources Database 1 February 2012-31 March 2012. *Molecular Ecology Resources* 12: 779-781;

Robert, A., Paiva, V. H., Bolton, M., Jiguet, F. and Bried, J. (2012). The interaction between reproductive cost and individual quality is mediated by oceanic conditions in a long-lived bird. *Ecology*, 93(8): 1944-1952;

Robert, A., Paiva, V.H., Bolton, M., Jiguet, F. & Bried, J. (2014). Nest fidelity is driven by multi-scale information in a long-lived seabird. *Proceedings of the Royal Society B* 281: 1692-1698;

Neves, V. C., Nava, C. P., Cormons, M., Bremer, G. C., Lima, P., Junior, S.M. A., Phillips, R. A., Magalhães, M. C. and Santos, R. S. (2015). Migration routes and non-breeding areas of Common Terns (*Sterna hirundo*) from Azores. *EMU*;

Robert, A., Bolton, M., Jiguet, F, Bried, J. 2015 The survival–reproduction association becomes stronger when conditions are good. *Proc. R. Soc. B* 282: 20151529. <http://dx.doi.org/10.1098/rspb.2015.1529>

Neves, V. 2015. Azores Census Tern Report 2015. Arquivos do DOP, Série Estudos, N.º 1/2015;

Bried, J. & Neves, V. C. 2014-15. Habitat restoration on Praia Islet, Azores archipelago, proved successful for seabirds, but new threats have emerged. *Airo* 23: 25-35;

Silva, M.F., *et al.* (2016) Mechanisms of global diversification in the marine species Madeiran Storm-petrel *Oceanodroma castro* and Monteiro's Storm-petrel *O. monteiroi*: Insights from a multi-locus approach. *Molecular Phylogenetics and Evolution* 98 (2016) 314–323;

- BirdLife International. 2016. *Hydrobates monteiroi*. The IUCN Red List of Threatened Species 2016: e.T22735624A90349856. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22735624A90349856.en>
- Oliveira, N. (compiler). 2016. Status Report for Monteiro's Storm-petrel *Hydrobates monteiroi*. Report of the Action A10, Project LIFE EuroSAP. Sociedade Portuguesa para o Estudo das Aves, Lisbon (unpublished report);
- Rund, D. Feeding ecology and molecular survey of Hepatozoon infection of *Lacerta dugesii* in the Azores. (Master's Thesis / Justus-Liebig-University of Giessen);
- Neves, V. C., Nava, C., Monteiro, E. V., Monteiro, P. R., & Bried, J. Depredation of Monteiro's Storm-Petrel (*Hydrobates monteiroi*) Chicks by Madeiran Wall Lizards (*Lacerta dugesii*). *Waterbirds* 40(1): 82-86, 2017.
- Other scientific papers with reference to Graciosa Island.
- Gómez-Díaz, E., González-Solís, J. & Peinado, M.A. 2009. Population structure in a highly pelagic seabird, the Cory's Shearwater *Calonectris diomedea*: an examination of genetics, morphology and ecology. *Mar. Ecol. Progr. Ser.* 382: 197-209.
- Gómez-Díaz, E. & González-Solís, J. 2010. Trophic structure in a seabird host-parasite food web: insights from stable isotope analyses. *PLoS One* 5: e10454. doi:10.1371/journal.pone.0010454.
- Paiva, V.H., Geraldès, P., Ramírez, I., Meirinho, A., Garthe, S. & Ramos, J.A. 2010a. Foraging plasticity in a pelagic seabird species along a marine productivity gradient. *Mar. Ecol. Progr. Ser.* 398: 259-274.
- Paiva, V.H., Geraldès, P., Ramírez, I., Meirinho, A., Garthe, S. & Ramos, J.A. 2010c. Oceanographic characteristics of areas used by Cory's Shearwaters during short and long foraging trips in the North Atlantic. *Marine Biol.* 157: 1385-1399.
- Fontaine, R., Gimenez, O. and Bried, J. 2011. The impact of introduced predators, light-induced mortality of fledglings and poaching on the dynamics of the Cory's Shearwater (*Calonectris diomedea*) population from the Azores, northeastern subtropical Atlantic. *Biological Conservation* 144: 1998-2011.
- Neves, V.C., Nolf, D. & Clarke, M.R. 2012. Spatio-temporal variation in the diet of Cory's Shearwater *Calonectris diomedea* in the Azores archipelago, northeast Atlantic. *Deep-sea Res. I* 70: 1-13.
- Barcelos L, Rodrigues P, Bried J, Mendonça E, Gabriel R, Borges P (2015) Birds from the Azores: An updated list with some comments on species distribution. *Biodiversity Data Journal* 3: e6604.
- Nava, C.P. & Neves, V. (2016). Código de Boas Práticas para a Observação de Aves. Projeto ROA – Rede de Observação de Aves, Departamento de Oceanografia e Pescas, Universidade dos Açores.



Fraga, Ana (2017), A pesca profissional açoriana nas ilhas da Rede Mundial de Reservas da Biosfera: modus operandi e desafios às políticas públicas para gestão das áreas marinhas protegidas. Jornadas do Mar “Novos Rumos, Novos Desafios”, Livro de Atas, Escola Naval.

Rando et al (2017) A new extinct species of large bullfinch (Aves: Fringillidae: Pyrrhula) from Graciosa Island (Azores, North Atlantic Ocean). Zootaxa 4282 (3): 567–583.

Fraga, Ana (2017), A pesca profissional açoriana nas ilhas da Rede Mundial de Reservas da Biosfera: modus operandi e desafios às políticas públicas para gestão das áreas marinhas protegidas. Jornadas do Mar “Novos Rumos, Novos Desafios”, Escola Naval, Livro de Atas (in press).

Fraga, Ana (2017), Pesca Artesanal Açoriana: Esfera de investigação sociológica e contributos à gestão sustentada. Revista da Associação Portuguesa de Sociologia (in press).

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.

As part of the implementation of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), promoted by the Graciosa Biosphere reserve, a variety of environmental education activities and programmes have been and continue to be developed, implemented 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 – European initiative under the responsibility of the Foundation for Environmental Education, aiming to encourage action and recognise the work undertaken by the school to benefit the environment. It covers the whole student community on the island;

Parque Escola Programme – regional initiative which aims to provide resources and information to the school community through activities on various themes, involving all schools on the island;

Parque Aberto Programme – regional initiative which promotes actions and activities held in protected areas and/or environmental centres, encouraging the participation of the whole population. This programme also promotes activities relating to cultural and traditional aspects of the island;

SOS Cagarro Campaign – aims to involve people in saving young Cory’s shearwaters. These campaigns are preceded by formal information sessions and/or informal contact with potential partners. It involves the whole island and its population.



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.

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 "Regional Plan for Eradication and Control of Invasive Plant Species in Sensitive Areas", 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 23rd meeting of the Standing Committee of the Bern Convention, Strasbourg, from 1 to 5 December 2003.

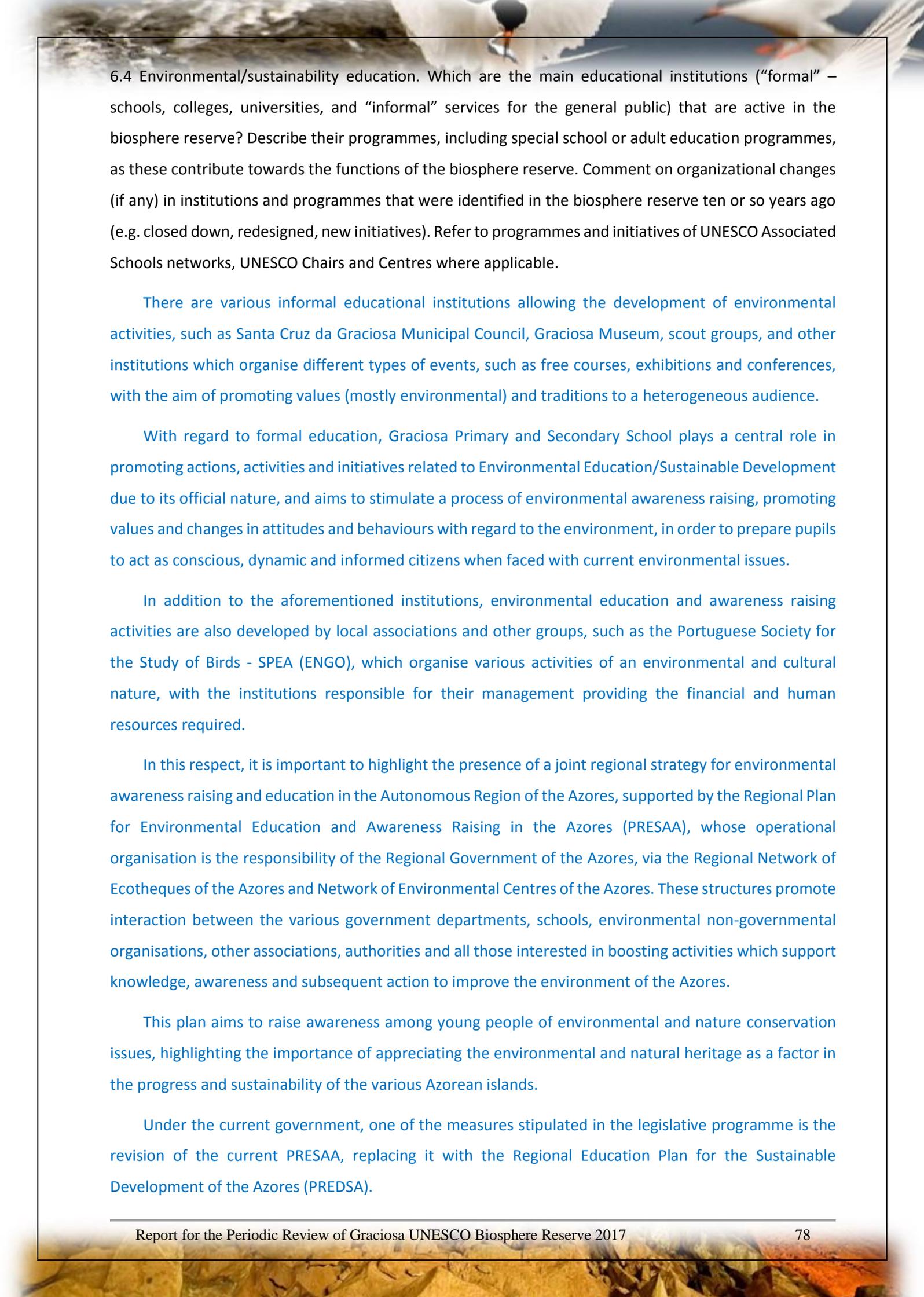
Invasive alien plants are recognised as one of the main threats to the natural environment, with huge economic costs and direct effects on ecosystems including:

- 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 Macaronesian seed banks.

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 CO₂ emissions, and saving on maintenance and fuelling costs.



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.

There are various informal educational institutions allowing the development of environmental activities, such as Santa Cruz da Graciosa Municipal Council, Graciosa Museum, scout groups, and other institutions which organise different types of events, such as free courses, exhibitions and conferences, with the aim of promoting values (mostly environmental) and traditions to a heterogeneous audience.

With regard to formal education, Graciosa Primary and Secondary School plays a central role in promoting actions, activities and initiatives related to Environmental Education/Sustainable Development due to its official nature, and aims to stimulate a process of environmental awareness raising, promoting values and changes in attitudes and behaviours with regard to the environment, in order to prepare pupils to act as conscious, dynamic and informed citizens when faced with current environmental issues.

In addition to the aforementioned institutions, environmental education and awareness raising activities are also developed by local associations and other groups, such as the Portuguese Society for the Study of Birds - SPEA (ENGO), which organise various activities of an environmental and cultural nature, with the institutions responsible for their management providing the financial and human resources required.

In this respect, it is important to highlight the presence of a joint regional strategy for environmental awareness raising and education in the Autonomous Region of the Azores, supported by the Regional Plan for Environmental Education and Awareness Raising in the Azores (PRESAA), whose operational organisation is the responsibility of the Regional Government of the Azores, via the Regional Network of Ecotheques of the Azores and Network of Environmental Centres of the Azores. These structures promote interaction between the various government departments, schools, environmental non-governmental organisations, other associations, authorities and all those interested in boosting activities which support knowledge, awareness and subsequent action to improve the environment of the Azores.

This plan aims to raise awareness among young people of environmental and nature conservation issues, highlighting the importance of appreciating the environmental and natural heritage as a factor in the progress and sustainability of the various Azorean islands.

Under the current government, one of the measures stipulated in the legislative programme is the revision of the current PRESAA, replacing it with the Regional Education Plan for the Sustainable Development of the Azores (PREDSA).

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/systems

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



Figure 40: Coasters, tablecloths and hangers for hotel room doors referring to the Graciosa Island Biosphere Reserve.



Figure 41: DVD with the documentary "Graciosa Island, Biosphere Reserve" and audio and multimedia CD "Graciosa Island, biosphere reserve - Ilhéu da Praia, the land of the Monteiro's storm petrel".

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

<http://www.azores.gov.pt/Reserva+da+Biosfera+da+Graciosa.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.

Throughout its development, the Graciosa Island Biosphere Reserve promotes the MAB programme and the World Network of Biosphere Reserves in all local and national activities. Graciosa BR has prioritised local, regional, national and international cooperation, and as a result has acted as a partner in different thematic and regional networks, participating in the 8th REDBIOS meeting held on Flores Island in 2009, and the 12th REDBIOS meeting held in the Azores Archipelago in 2014, on the islands of Faial, Pico and São Jorge.



Figure 42: 8th and 12th REDBIOS meetings.

In 2015, the Graciosa Island Biosphere Reserve participated in an international seminar (organised as part of 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 possibilities for future collaboration.



Figure 43: "Biosphere Reserves - Spaces for Cooperation and Development" Workshops (São Jorge 2015).

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

Appart of the specific activities above mentioned, Graciosa Island Biosphere Reserve has participated actively in the general activities of the MAB Programme. Since 2015, it has been a member of the National MAB Committee, and also forms part of the Portuguese National Biosphere Reserve Network.



Figure 44: First meeting of the National MAB Committee (Lisbon 03/12/2015).



Figure 45: Fourth meeting of the National MAB Committee (Biosphere Reserve of Flores Island 15/09/2017).

The current National Committee for the Man and the Biosphere Programme (National MAB Committee) was formally established in 2015 by joint decree from the Minister of State and Finance and the Ministers of State and Foreign Trade, Economy and the Environment, Land Planning and Energy (Decree No. 9051/2015 of 13 August).

The Portuguese National Biosphere Reserve Network was formalised on 2 September 2016 at Berlenga Lighthouse, in a ceremony led by Prime Minister, António Costa, as part of the commemorations of the 35th anniversary of the Berlengas Nature Reserve.



Figure 46: Prime Minister António Costa at the signing of the Cooperation Agreement of the UNESCO National Biosphere Reserve Network (2016).

The Graciosa Island Biosphere Reserve also forms part of the REDBIOS Network (the Macaronesia and West Atlantic Biosphere Reserves Network) and the World Network of Island and Coastal Biosphere Reserves, the EuroMAB and IberoMAB.

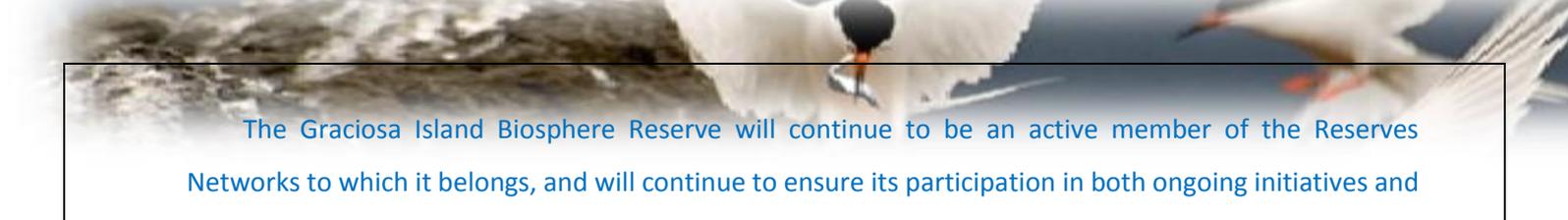
In the framework of these collaborations, the Graciosa Island Biosphere Reserve has developed a number of joint actions relating to nature and landscape conservation, primarily through the European Union PCT-MAC Transnational Cooperation Programme.

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 Graciosa 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 Graciosa 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 Graciosa 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. Again, the best strategy, to overcome distance, lack of critical mass and access to funds, is partnership and networking with other Biosphere Reserves

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 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:

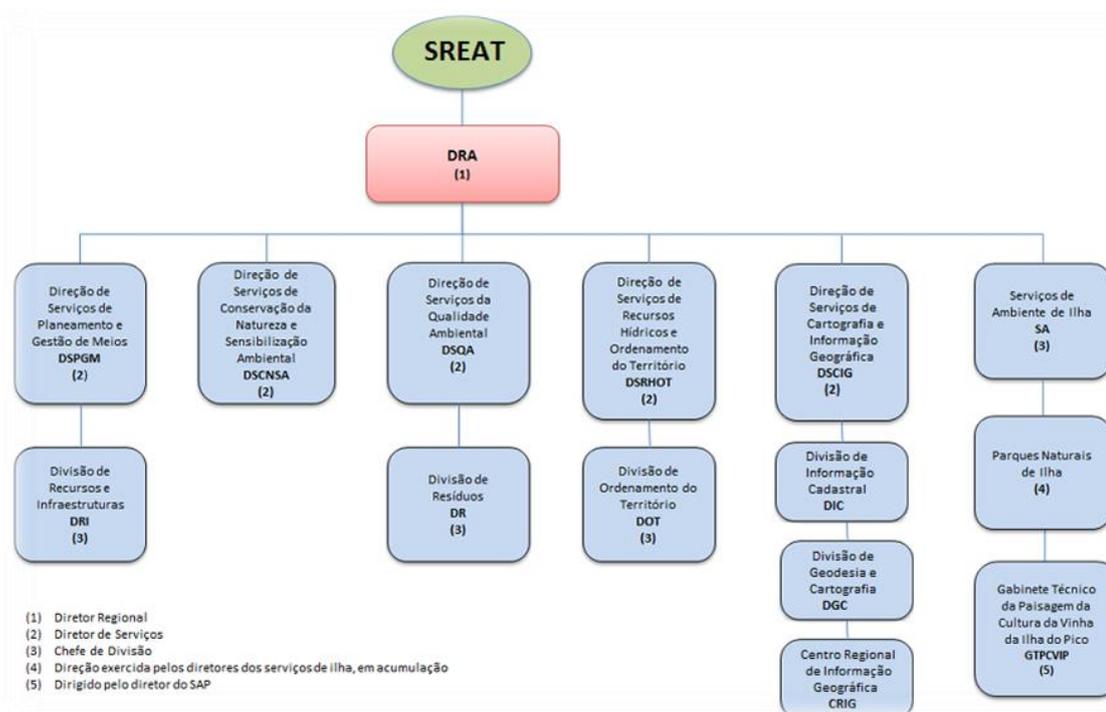


Figure 47: Organisational chart of the Regional Directorate for the Environment.

| | |
|---|--|
| SREAT - Secretaria Regional da Energia, Ambiente e Turismo | SREAT - Regional Secretariat for Energy, Environment and Tourism |
| DRA – Direção Regional do Ambiente (1) | DRA - Regional Directorate for the Environment (1) |
| Direção de Serviços de Planeamento e Gestão de Meios DSPGM (2) | Planning, contracts and general services Directorate DSPGM (2) |
| Direção de Serviços de Conservação da Natureza e Sensibilização Ambiental DSCNSA (2) | Nature Conservation and Environmental Awareness Directorate DSCNSA (2) |
| Direção de Serviços da Qualidade Ambiental DSQA (2) | Environmental Quality Services Directorate DSQA (2) |
| Direção de Serviços de Recursos Hídricos e Ordenamento do Território DSRHOT (2) | Water Resources and Land Use Planning Directorate DSRHOT (2) |
| Direção de Serviços de Cartografia e Informação Geográfica DSCIG (2) | Cartography and Geographic Information Directorate DSCIG (2) |
| Serviços de Ambiente de ilha SA (3) | Island Environmental Services SA (3) |
| Divisão de Recursos e Infraestruturas DRI (3) | Resources and Infrastructure Division DRI (3) |
| Divisão de Resíduos DR (3) | Waste Management Division DR (3) |
| Divisão de Ordenamento do Território DOT (3) | Land Management Division DOT (3) |
| Divisão de Informação Cadastral DIC | Land Register Division DIC |
| Parques Naturais de Ilha (4) | Island Nature Parks (4) |
| Divisão de Geodesia e Cartografia DGC | Geodesy and Cartography Division DGC |
| Centro Regional de Informação Geográfica CRIG | Regional Geographic Information Centre CRIG |
| Gabinete Técnico da Paisagem da Cultura da Vinha da ilha do Pico GTPCVIP (5) | Technical Office for the Viniculture Landscape of Pico Island GTPCVIP (5) |
| (1) Diretor Regional | (1) Regional Director |
| (2) Diretor de Serviços | (2) Director of the Service |
| (3) Chefe de Divisão | (3) Head of Division |
| (4) Direção exercida pelos diretores dos serviços de ilha, em acumulação | (4) Led by the Island Services Directors, in accumulation |
| (5) Dirigido pelo diretor do SAP | (5) Led by the SAP director |

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 Graciosa 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 Graciosa 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 Graciosa Island Biosphere Reserve.



Figure 48: Meeting of the Management Board of the Graciosa Island Biosphere Reserve.

With regard to the administrative authorities, the Management Board includes representatives from the Government of the Azores and the Santa Cruz da Graciosa Municipal Council.

Besides the responsibilities which they hold on the Management Board, the Government of the Azores and the Santa Cruz da Graciosa Municipal Council are charged with various administrative duties in the Graciosa 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 Graciosa Nature Park.

Apart from the Graciosa Island Nature Park, the Santa Cruz da Graciosa 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 Graciosa Island Biosphere Reserve.

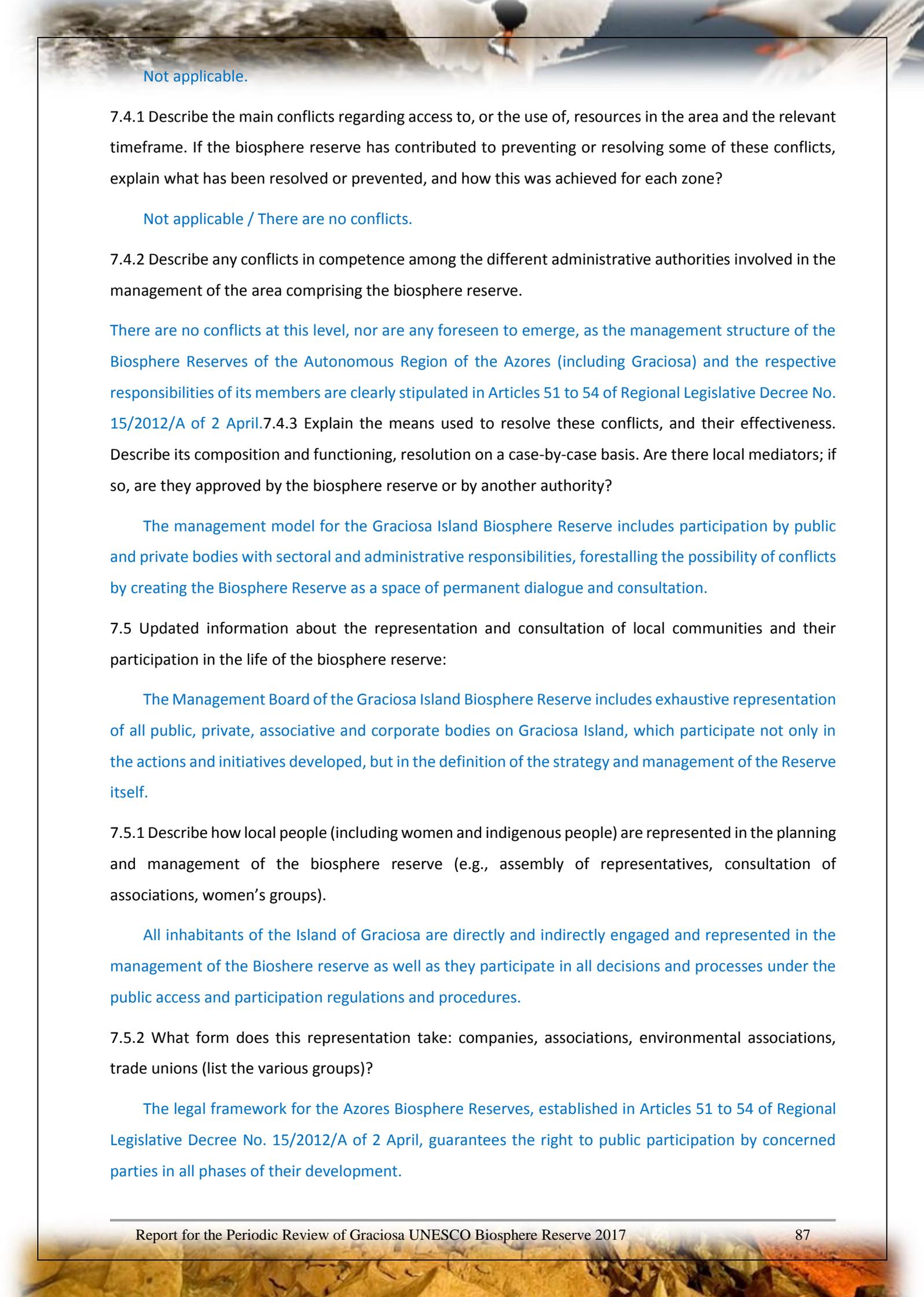
The Government of the Azores manages the Core Areas and Buffer Zones, through the department with responsibility for the environment and the Graciosa Nature Park.

Apart from the Graciosa Island National Park, the Municipal Council holds administrative and licensing responsibilities in the transition areas.

7.3 Describe social impact assessments or similar tools and guidelines used to support indigenous and local rights and cultural initiatives (e.g. CBD Akwé:Kon guidelines, Free, Prior, and Informed Consent Programme/policy, access and benefit sharing institutional arrangements, etc.).

Not applicable.

7.4 What (if any) are the main conflicts relating to the biosphere reserve and what solutions have been implemented?



Not applicable.

7.4.1 Describe the main conflicts regarding access to, or the use of, resources in the area and the relevant timeframe. If the biosphere reserve has contributed to preventing or resolving some of these conflicts, explain what has been resolved or prevented, and how this was achieved for each zone?

Not applicable / There are no conflicts.

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 (including Graciosa) 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.

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 Graciosa Island Biosphere Reserve includes participation by public and private bodies with sectoral 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:

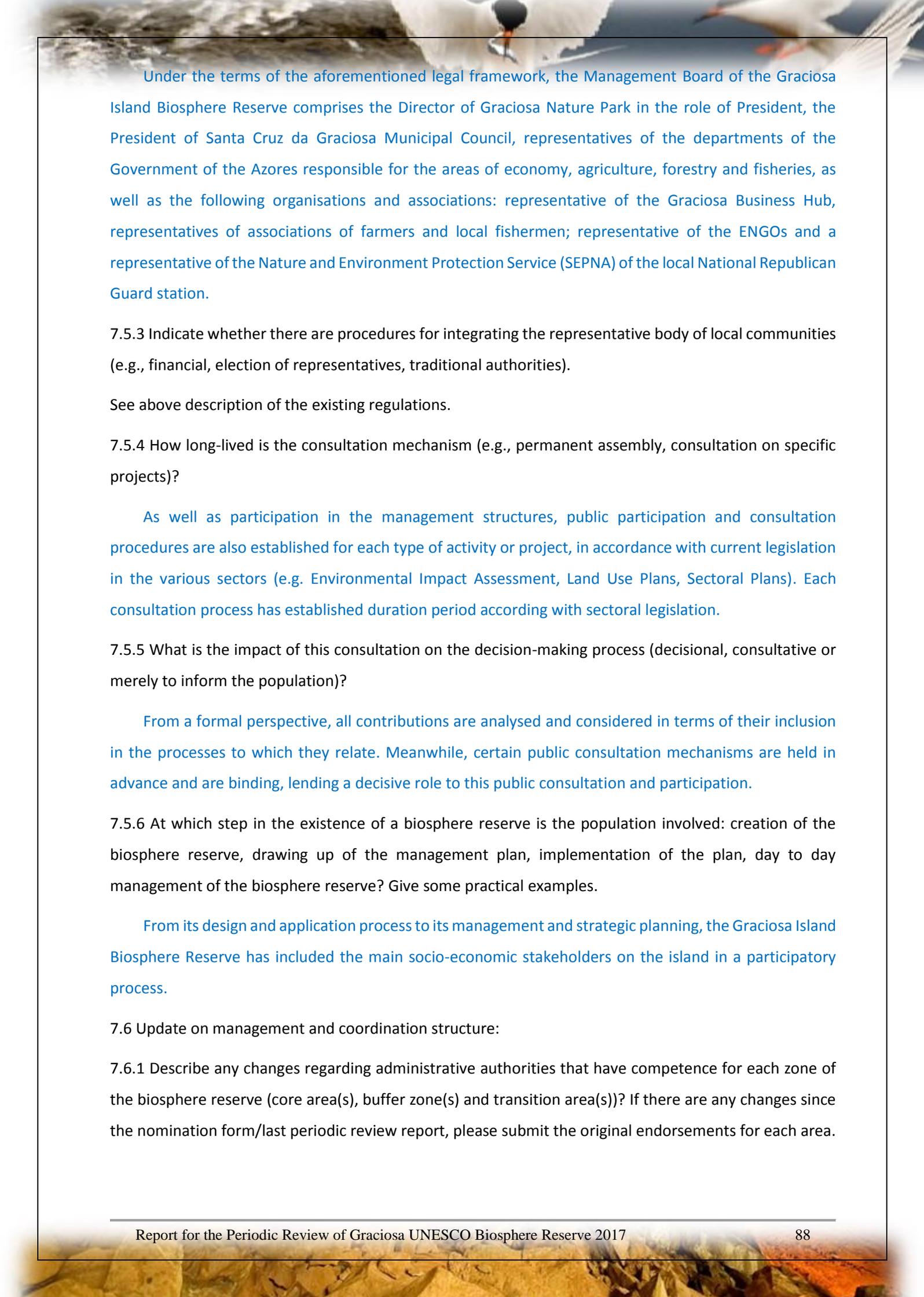
The Management Board of the Graciosa Island Biosphere Reserve includes exhaustive representation of all public, private, associative and corporate bodies on Graciosa Island, which participate not only in the actions and initiatives developed, but in the definition of the strategy and management of the 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 Graciosa 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 Graciosa Island Biosphere Reserve comprises the Director of Graciosa Nature Park in the role of President, the President of Santa Cruz da Graciosa 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 Graciosa Business Hub, representatives of associations of farmers and local fishermen; representative of the ENGOs and a representative of the Nature and Environment Protection Service (SEPNA) of the local National Republican Guard station.

7.5.3 Indicate whether there are procedures for integrating the representative body of local communities (e.g., financial, election of representatives, traditional authorities).

See above description of the existing regulations.

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, Sectoral Plans). Each consultation process has established duration period according with sectoral 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 Graciosa Island Biosphere Reserve has 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 Graciosa 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 Graciosa Nature Park, classified by Regional Legislative Decree No. 45/2008/A of 5 November, implementing the criteria adopted by the International Union for Conservation of Nature (IUCN).

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 Graciosa Island was named a Biosphere Reserve in 2017, 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 agents.

However, as part of the current periodic review process, an exercise was undertaken to establish the Vision and Mission of the Graciosa Island Biosphere Reserve for the 2018-2024 period.

On 13 June 2017, the Government Council met at the Graciosa Island Biosphere Reserve 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 of the Vision and Mission for the Graciosa Island Biosphere Reserve established, the environmental, economic, social, cultural and identity sustainability pursued will be achieved by promoting a diverse range of priority actions, including:

Mission (1) – Conservation Function (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 maintenance of biodiversity, including native wild and domestic species, preserving their populations and genetic diversity, and eradicating invasive and alien



species. To favour actions aimed at restoring and preserving spaces with geological and/or geomorphological features of particular interest. To establish tools for monitoring populations and implementing conservation plans, and for promoting research into natural resources.

- **Functionality of ecosystems:** to promote actions which impede the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of invasive and alien 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 Function (culturally, socially and ecologically sustainable economic and human development)

- **Quality of the 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. To promote the responsible use of local resources to generate economic activity and stable employment. To create synergies between tradition, local products, business and industrial activity, responsible processing, differentiated marketing, new technologies and territoriality as an inherent singularity of the product, good or service provided.

- **Responsible tourism:** deriving from an offer prioritising quality and respect for the environment, with agents responsible for the development of these resources catering for an audience requiring excellence as an added value of the destination, making tourism the catalyst for economic growth, the creation of employment and the wellbeing of the population on the island, while leading to more efficient use of resources and minimising environmental degradation.

- **Energy sustainability:** to change from the road mobility paradigm sustained by external dependence on fossil fuels to a new paradigm supported by clean energy with reduced carbon dioxide emissions, increasing and encouraging investment in infrastructure and technology supplied by clean energy.

Mission (3) – Logistical Function (providing support for research, monitoring and education)

- **Stimulating knowledge:** the Graciosa Island Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, promoting the transmission and dissemination of knowledge to the



community and supporting the execution of projects involving research, training, environmental education and the implementation of sustainable development models on the island.

- **Traditional knowledge:** to identify and validate cultural elements, customs, traditions and traditional knowledge as constituents of identity and distinctive elements of the Graciosa population to counter 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 Graciosa Nature Park, through Regional Legislative Decree No. 45/2008 / A, of 5 November, a decisive step was taken towards creating an authority responsible for the management of the Graciosa Island Biosphere Reserve.

The Action Plan for the Graciosa Island Biosphere Reserve will be promoted according to the normal parameters of a sectoral programme, based on the consensus and active participation of all parties.

In this sense, it is the responsibility of the management structure of the Graciosa 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 Graciosa 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 Graciosa Island Biosphere Reserve has enabled the identification of the broad 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 Graciosa Island Biosphere Reserve is part of the strategies for sustainable development and cohesion of the Autonomous Region of the Azores.

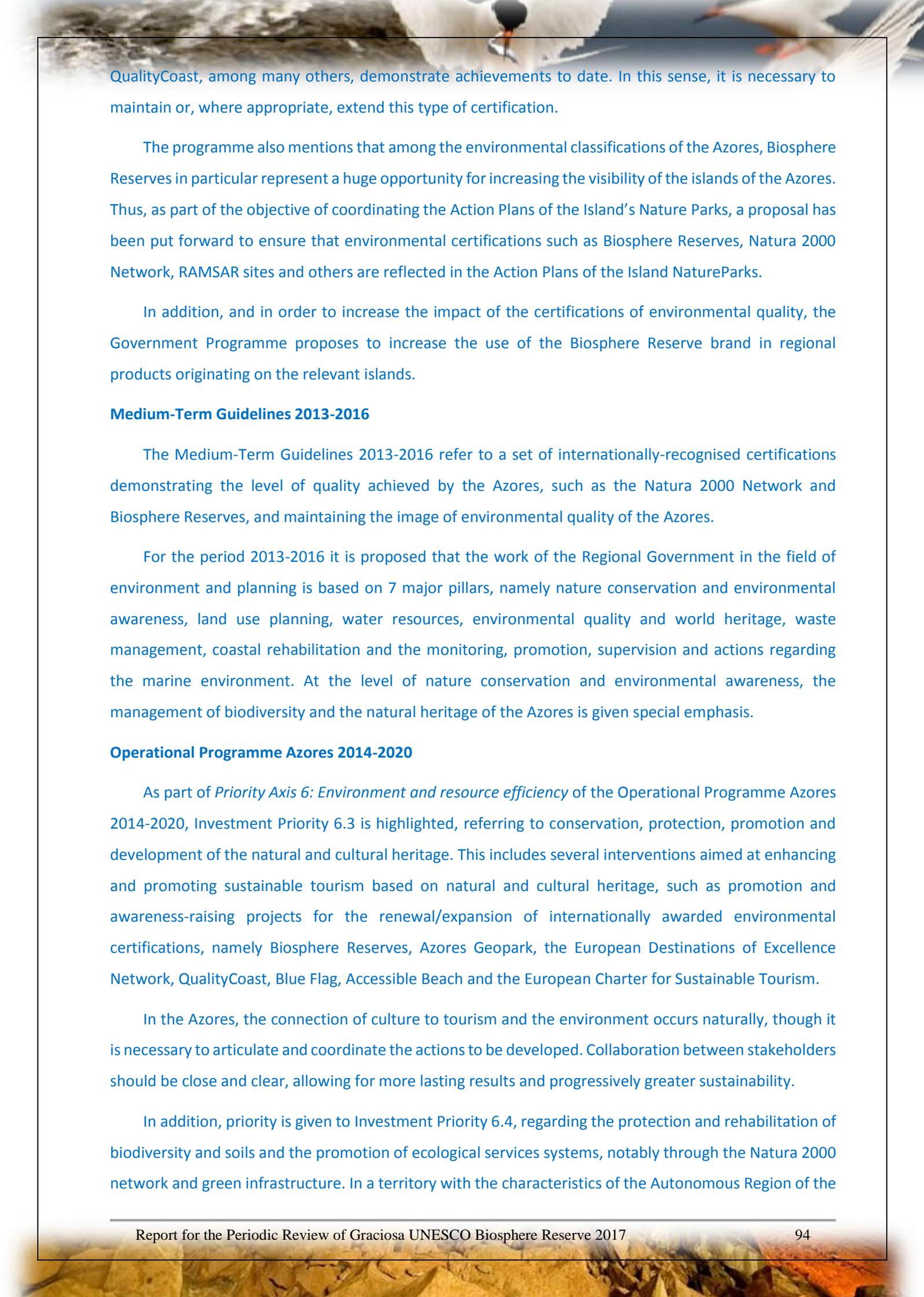
The Government of the Azores has developed a wide range of incentives, programmes, policies and strategic documents that aim to develop, support and stimulate the economic, social, cultural and environmental dimensions of the Region, including Graciosa Island and its specificities, not only in terms of their socio-economic reality, but also in terms of their typical products, such as *covilhetes de leite* (traditional tartlets), garlic, melons, handicrafts and the unique natural landscape.

Among numerous documents, the following stand out:

- 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);
- PROPESCAS (Operational Fisheries Programme for the Autonomous Region of the Azores);
- PRO-EMPREGO (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* of 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. This includes several interventions aimed at enhancing and promoting sustainable tourism based on natural and cultural heritage, such as 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 of animals, plants, processing 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 sector, strengthening productive activity, diversification and addition of capital gains and the 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.

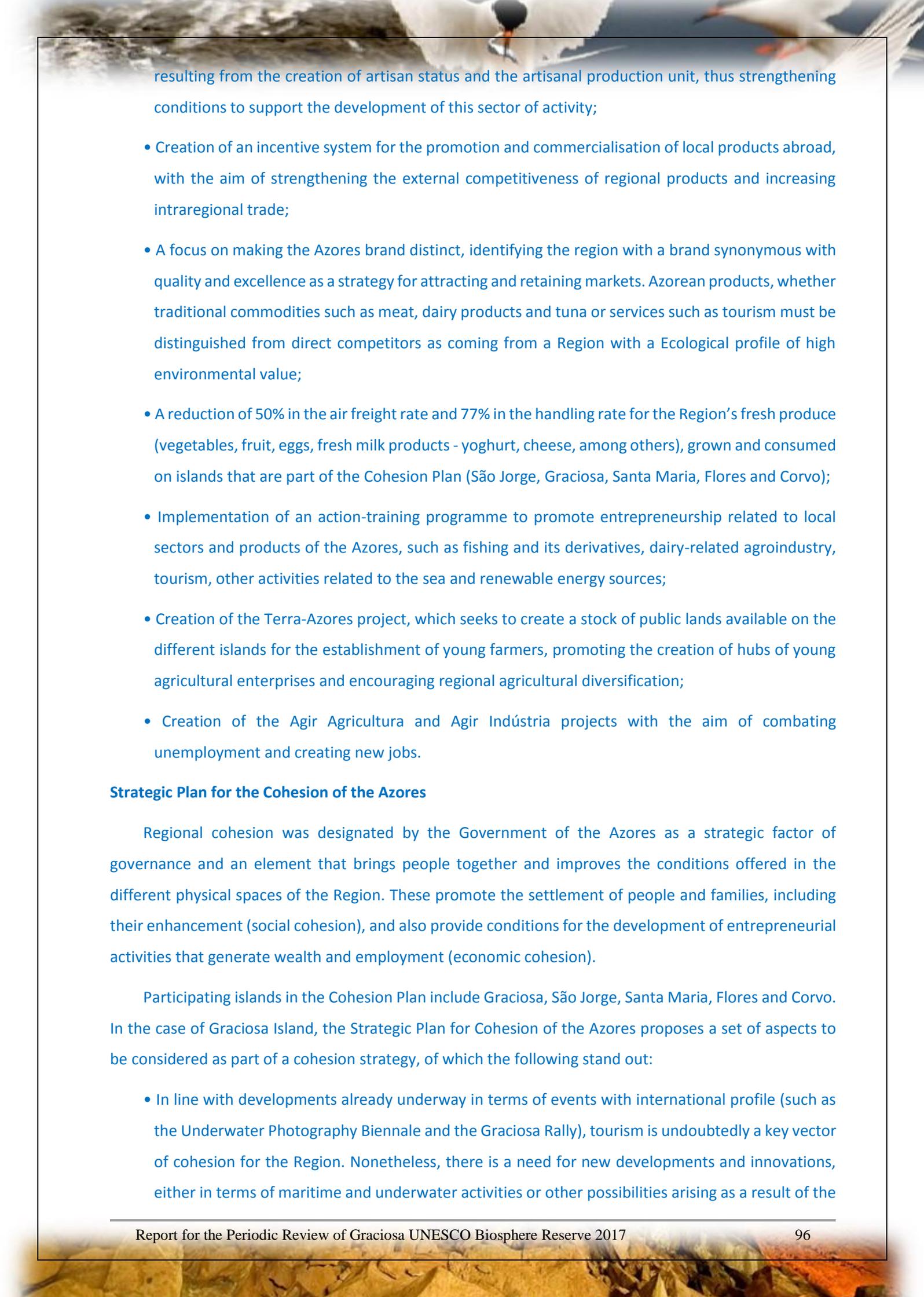
PRO-EMPREGO

PRO-EMPREGO 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;

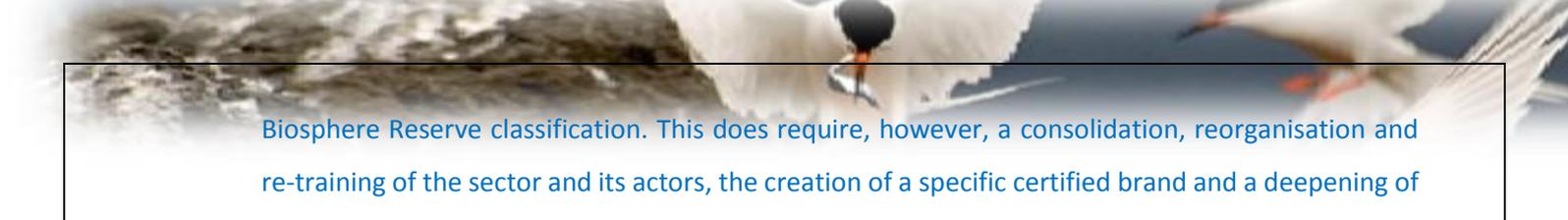
- Creation of an incentive system for the promotion and commercialisation of local products abroad, with the aim of strengthening the external competitiveness of regional products and increasing intraregional trade;
- A focus on making the Azores brand distinct, identifying the region with a brand synonymous with quality and excellence as a strategy for attracting and retaining markets. Azorean products, whether traditional commodities such as meat, dairy products and tuna or 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), grown 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 include Graciosa, São Jorge, Santa Maria, Flores and Corvo. In the case of Graciosa Island, the Strategic Plan for Cohesion of the Azores proposes a set of aspects to be considered as part of a cohesion strategy, of which the following stand out:

- In line with developments already underway in terms of events with international profile (such as the Underwater Photography Biennale and the Graciosa Rally), tourism is undoubtedly a key vector of cohesion for the Region. Nonetheless, there is a need for new developments and innovations, either in terms of maritime and underwater activities or other possibilities arising as a result of the



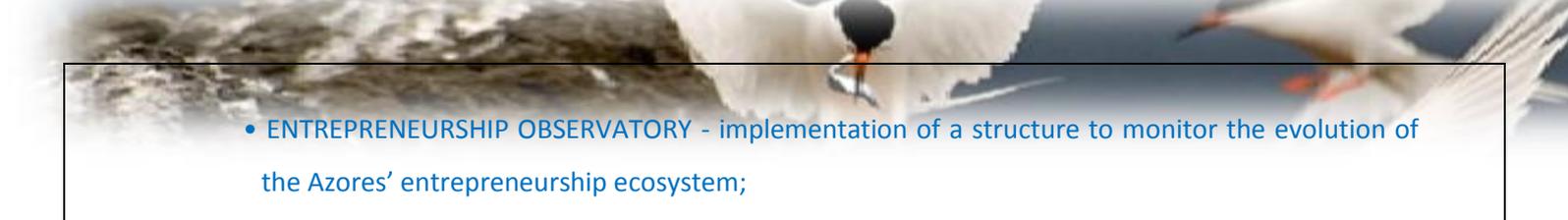
Biosphere Reserve classification. This does require, however, a consolidation, reorganisation and re-training of the sector and its actors, the creation of a specific certified brand and a deepening of the communication and marketing strategy, tasks that must be proactively carried out by the Region;

- A commitment to Thermal and Health Tourism will also be structurally significant, with the recovery and modernisation of the Carapacho Thermal Spa;
- Agriculture is a sector that offers significant potential for development and the exporting of certified quality products (such as garlic, melon and wine), but which must be explicitly supported in the qualification of its production, certification and marketing processes;
- Graciosa offers outstanding potential in terms of its creative audiovisual and multimedia industries;
- Likewise in the production of fish species in aquaculture in marine environments;
- Once again, we would like to highlight the importance for the cohesion of this island of taking a long-term view of supporting agricultural production for own-consumption and domestic supply (based on domestic production and small agricultural production) as well as local trade;
- Technical support of local projects and initiatives is another key requirement for enhancing cohesion, allowing for better use of existing incentives and measures of positive discrimination, often unknown to stakeholders and/or under-utilised actors;
- Reorganising accessibility to maritime freight transport can reduce the obstacles that this area presents to cohesion on the island;
- The role of the Social Economy, which is not insignificant on the Island, should be more highly valued in the areas of social responses, job creation and the fight against poverty.

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), including: 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)).

Graciosa Island is the second smallest island in the Azores, located in the Central Group of islands in the archipelago. The Island is formed of two massifs separated by a valley, with plains to the north and northwest. It is the lowest island of the Azores, with a large part of its surface lower than 150 m above sea level and rising to 405 m at its highest point. The island's area is about 62 km² and the population in 2011 was 4,391 inhabitants. The population density is low, at 77 inhabitants/km², settled in a linear fashion along the island's roadways. The largest urban concentrations correspond to the four parishes of the island: Santa Cruz da Graciosa, São Mateus, Guadalupe and Luz.

Graciosa Island has a diverse landscape, with a rich set of habitats and rare species that are characteristic of the bio-geographical region of Macaronesia, which includes the archipelagos of Cape Verde, the Canary Islands, Madeira, the Azores and the northwestern coastal area of Africa. The island features several areas of sparse human settlement and high ecological value, such as its islets, representing important nesting areas for seabirds. There are also sites with rare combinations of highly complex habitats. The slopes of the island and its islets feature natural habitats such as endemic coastal cliffs and coastal meadows that host several very rare species. Also noteworthy are the unusual species and unique habitats, such as those associated with thermal hot springs.

In general, the island's relief forms 4 distinct morphological areas:

- **North and Northwest agricultural plains:** significant human settlement in large regular plots organised linearly along the roadways, mainly used for agricultural cultivation, interspersed with pastures. With altitudes between 30 and 100 m, this area features occasional volcanic formations of small size and represents about 1/3 of the island's surface.



• **Central Massif:** marked by the Branca (360 m), Dormida (398 m) and Fontes mountains (375 m), this relatively mountainous area divides perpendicularly the island into a northeastern and a southwestern area. Its relief is either softer and rounder, with pasture, shrub and some agricultural land, or can be rugged, featuring particularly pastoral and shrub areas which is sparsely populated.

• **Valley between the Central Massif and the Caldera Massif:** running parallel to the Central Massif from the northeast to the southwest, the valley rises to almost 200 m, though it remains quite sheltered from the westerly and northwesterly winds. The area is heavily settled for diverse uses, including agriculture, fruit growing and pasture, as well as featuring tracts of shrubs and trees.

• **Caldera Massif:** located at the southeastern end of the island, the massif has a maximum altitude of 405 m and features a volcanic caldera. It is the coolest and wettest part of the island, exposed to the winds, and is dominated by pasture and some patches of trees and shrub. The interior of the Caldera is more sheltered and presents slopes covered with criptoméria (Japanese cedar - *Cryptomeria japonica*), as well as some native vegetation species. The bottom of the caldera features mainly permanent pasture land.

The percentage of agricultural area occupied by pasture is smaller on Graciosa Island in comparison with the rest of the archipelago. The Island's rural landscape is notable for its extensive vineyards cultivated with the "Verdelho" and "Isabella" varieties, especially to the northwest of Santa Cruz, where very small plots on volcanic soil delimited by small loose, black stone walls abound. The island's agricultural areas also present a diverse and tight-knit mosaic of cultures on elongated plots delimited by dry stone walls or hedges of cane and interspersed by pasture. Like agriculture, fishing is also mostly traditional and undertaken with small boats. Forestry is another primary industry on the island undertaken in a controlled manner.

2. "Be of Significance for biological diversity conservation".

The volcanic heritage of the Graciosa Island Biosphere Reserve is of significant interest and is associated with a rich biological variety. In the openings of the volcanic cavities on Graciosa Island, it is possible to observe rare species of flora of great ecological interest both for their variety and endemic status. There are 10 species classified on the European Red List of Bryophytes, due either to their rare status of their limited distribution (endemic species to Macaronesia or Europe). These cavities also constitute habitats of great interest for the arthropod fauna of the Azores. Of the list of 37 taxa of troglodyte arthropods known on Graciosa Island, four endemic species stand out.

There are 57 endemic flora species on Graciosa Island, 30 of which are endemic to the Azores, 14 to Macaronesia and 13 to Europe. There are 33 terrestrial arthropods that are endemic to the Azores and 13 endemic to Macaronesia. There are 10 terrestrial molluscs that are endemic to the Azores and 2 endemic to Macaronesia. The endemic richness of the island is broadened yet further with the case of vertebrates species, with 9 subspecies of birds endemic to the Azores, 1 subspecies of bird endemic to Macaronesia,



and two endemic bats. These are the morcego-dos-açores (Azores noctule - *Nyctalus azoreum*), considered an endangered species, and the morcego-da-madeira (Madeira Pipistrelle - *Pipistrellus maderensis*), a species endemic to Macaronesia with low abundance in the Azores archipelago. Both species are included in Appendix IV of the European Union Habitats Directive, having been given strict protection status. The marine area of the proposed Biosphere Reserve is home to several species of conservation value, particularly the lapas (limpets - *Patella aspera* and *P. candei*), which have both commercial and cultural interest, the mero (dusky grouper - *Epinephelus marginatus*) and the badejo (comb grouper - *Mycteroperca fusca*), among others. There are also several species of cetaceans, a group included in its entirety in Appendix IV of the Habitats Directive. Also noteworthy is the existence of an endemic seabird, the painho-de-monteiro (Monteiro's Petrel - *Hydrobates monteiroi*), whose only proven nesting sites are the islets located off Graciosa Island. This sea bird has a threatened conservation status worldwide and the role of Graciosa Island in its conservation is crucial.

Graciosa Island features coastal and marine environments that are still well preserved, although there is some pressure on specific areas of the coastline from urbanisation. Communities of coastal species are mainly determined by the morphology and type of substrate.

Local fishermen are the main users of the marine resources, though fishermen from nearby islands (mainly Terceira, but also São Jorge) also carry out their activity here with some frequency. Handline and pole-and-line are the most commonly employed fishing gear for catching demersal species and tuna. This type of fishing is considered to be artisanal and is efficiently managed and compatible with the preservation of the species exploited.

Farming is well developed and diversified, and still uses many traditional techniques such as small plot viticulture. 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. Silviculture is also practiced alongside farming, based mainly on the Japanese cedar (*Cryptomeria japonica*).

The classification of Graciosa Island as a Biosphere Reserve has helped to preserve traditional production techniques in the face 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 use of fertilisers. The local population of donkeys, known as Graciosa Donkeys, which were recognised in 2015 as a native breed, has also been promoted and given increased visibility.



Image 49: Donkeys in the Graciosa Island Biosphere Reserve (2015).

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 valuing the local natural and cultural heritage, the Graciosa Island Biosphere Reserve has contributed to the promotion of sustainable development measures in both the other islands of the Azores and in other regions of the world.

Several initiatives being pursued have already been referenced in the policy of the Regional Government of the Azores for the sustainable development of the Region, including the use of sustainable agriculture and artisanal fishing techniques, the valuing of natural and cultural heritage through tourism and of export products through quality certification, and the recovery of natural and cultural heritage.

Graciosa Island has undergone several integrated management experiences in terms of its protected areas, habitat recovery and eradication of invasive species, of which the ecological restoration of the Ilhéu da Praia Nature Reserve is a unique example. The innovations created there 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, as an example of good practices at both the national and international level.

The Graciosa Island Biosphere Reserve hosted the construction and operation of the first Centre for Waste Processing and Organic Composting (CPRVOG), as provided for in the Strategic Waste Management Plan of the Autonomous Region of the Azores - PEGRA.

It was on Graciosa Island that the German company Yunicos invested 25 million Euros in a project of renewable energy production and storage, which should provide 70% of the electricity consumption on Graciosa Island from 2017.

Project Graciosa: 70-80% renewables



Image 50: Younicos Project.

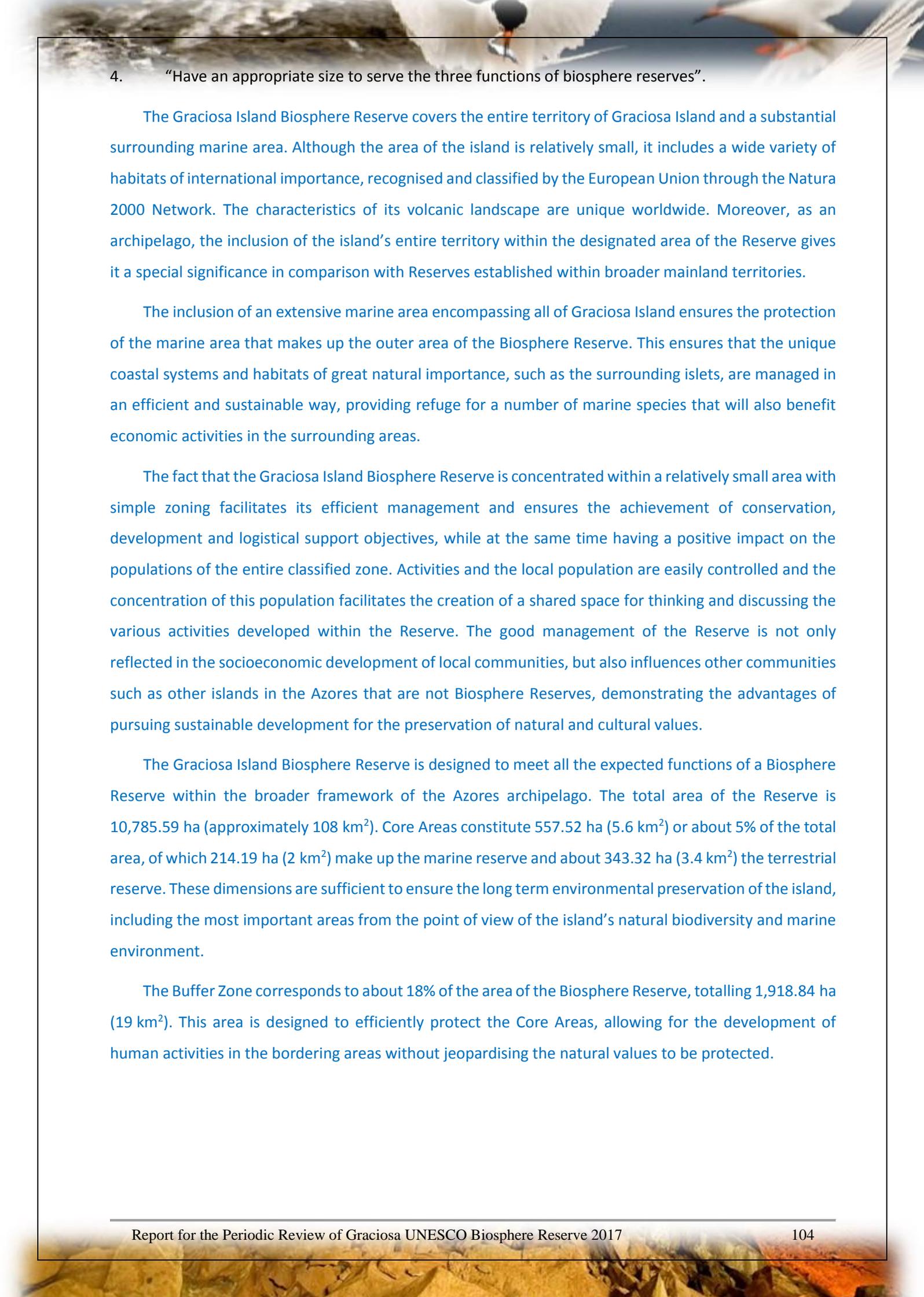
Recognition of the Graciosa Biosphere Reserve has created a common platform for discussion and guided efforts to achieving socio-economic development that is compatible with the preservation of natural and cultural values.

There are already several pieces of local infrastructure that offer information on the Biosphere Reserve and sustainable development measures implemented. These include eco-libraries and the walking trails marked with interpretive plaques and written information available at several locations. Graciosa Island is emblematic for its natural beauty, which helps spread successful examples of socio-economic development based on environmental and cultural sustainability to other islands.



Image 51: Panel stating "Welcome, Graciosa Biosphere Reserve."

In addition, strong collaboration on various international projects between Governments of the Region and several institutions from the Archipelagos of the Azores, Madeira and the Canary Islands has created excellent opportunities to spread information throughout the entire Macaronesian region. This capability has been bolstered by integrating the Graciosa Island Biosphere Reserve into several cooperation networks, both national (National MaB Committee, National UNESCO Biosphere Reserves Network) and international (REDBIOS, EuroMAB, IberoMAB, among others).



4. “Have an appropriate size to serve the three functions of biosphere reserves”.

The Graciosa Island Biosphere Reserve covers the entire territory of Graciosa Island and a substantial surrounding marine area. 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. The characteristics of its volcanic landscape are unique worldwide. Moreover, as an archipelago, the inclusion of the island’s entire territory within the designated area of the Reserve gives it a special significance in comparison with Reserves established within broader mainland territories.

The inclusion of an extensive marine area encompassing all of Graciosa Island ensures the protection of the marine area that makes up the outer area of the Biosphere Reserve. This ensures that the unique coastal systems and habitats of great natural importance, such as the surrounding islets, are managed in an efficient and sustainable way, providing refuge for a number of marine species that will also benefit economic activities in the surrounding areas.

The fact that the Graciosa Island Biosphere Reserve is concentrated within a relatively small area with simple zoning facilitates its efficient management and ensures the achievement of conservation, development and logistical support objectives, while at the same time having a positive impact on the populations of the entire classified zone. Activities and the local population are easily controlled and the concentration of this population facilitates the creation of a shared space for thinking and discussing the various activities developed within the Reserve. The good management of the Reserve is not only reflected in the socioeconomic development of local communities, but also influences other communities such as other islands in the Azores that are not Biosphere Reserves, demonstrating the advantages of pursuing sustainable development for the preservation of natural and cultural values.

The Graciosa Island Biosphere Reserve is designed to meet all the expected functions of a Biosphere Reserve within the broader framework of the Azores archipelago. The total area of the Reserve is 10,785.59 ha (approximately 108 km²). Core Areas constitute 557.52 ha (5.6 km²) or about 5% of the total area, of which 214.19 ha (2 km²) make up the marine reserve and about 343.32 ha (3.4 km²) the terrestrial reserve. These dimensions are sufficient to ensure the long term environmental preservation of the island, including the most important areas from the point of view of the island’s natural biodiversity and marine environment.

The Buffer Zone corresponds to about 18% of the area of the Biosphere Reserve, totalling 1,918.84 ha (19 km²). This area is designed to efficiently protect the Core Areas, allowing for the development of human activities in the bordering areas without jeopardising the natural values to be protected.

| | Area (ha) | Area (m ²) | % land use | Terrestrial area (ha) | Marine area (ha) |
|------------------------|------------------|------------------------|-------------|-----------------------|------------------|
| Core Area | 557,52 | 5 575 156,64 | 5% | 343,32 | 214,19 |
| Buffer Zone | 1 918,84 | 19 188 440,38 | 18% | 633,46 | 1 285,38 |
| Transition Area | 8 309,23 | 83 092 326,12 | 77% | 5 098,75 | 3 210,48 |
| Total: | 10 785,59 | 107 855 923,14 | 100% | 6 075,53 | 4 710,06 |

5. Appropriate zonation to serve the three functions

Covering a total of 557.52 ha, the five existing Core Areas correspond to the five protected areas of the Graciosa Nature Park, classified under the different categories of the International Union for Conservation of Nature (IUCN) in addition to an area designated as an 'Important Bird Area' under the BirdLife International IBA programme. These areas are discontinuous except in the case of the Core Area, which covers the coastal area of Restinga and Ilhéu de Baixo. Other areas are Caldeira da Graciosa (the Caldera), Ponta Branca, Ponta da Barca and Ilhéu da Praia.

These five Core Areas feature several species and habitats protected by international conventions and national and regional legislation. A large part of their area forms part of the European Union's Natura 2000 Network. In addition to the natural values promoted by the Natura 2000 Network, efforts are also aimed at preserving those geological values that are globally unique and which merited the inclusion of the Azores Geopark within the International Geoscience and Geoparks Programme of UNESCO (IGGP).

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. The main conservation objectives of these areas are to interrupt and reverse degradation factors, to control human activities in the surrounding areas and to regulate the surrounding settled areas and the activities carried out there. Another aim is to implement changes in the usage practices of the area, with the objective of guaranteeing the maintenance of natural habitats in the long term, restoring natural habitats in both the Core and Surrounding Areas, as well as promoting knowledge and awareness among the local population.

With the creation of the Graciosa Nature Park in 2008 (Regional Legislative Decree No. 45/2008/A of 5 November), a diverse set of acts and activities in the various core/protected areas of the nature park were formally prohibited or conditioned.

Ilhéu de Baixo Nature Reserve

The reserve is made up of Ilhéu da Praia, with an area of 9.92 ha and located about 1.1 km away from the coast. The coastline of the islet consists of steep volcanic rocks, areas of rolled pebble and cliffs. Easy to reach and very attractive for tourists. Important colonies of seabirds nest in this area, many of them given priority status in Appendix I of the Birds Directive. This islet is home to one of the most diverse and important multi-species seabird colonies in the Azores.



Ilhéu de Baixo Nature Reserve and the Protected Area for the Management of Habitats and Species of Ponta da Restinga

The 204 ha marine area of the Ilhéu de Baixo - Restinga Core Area is located at the southeastern tip of Graciosa Island. The result of marine erosion on a small volcanic outcrop, Ilhéu de Baixo is located about a kilometre from Ponta da Restinga. The entire coast of Restinga is rocky and steep, with areas covered with natural and semi-natural vegetation. The terrestrial part of the Core Area, of about 81 ha, comprises a coastal area that extends to the south, forming a peninsula that encompasses the two Ilhéus de Baixo islets. These are essentially lava flows and pyroclastic deposits preserved in a highly natural state. On the westernmost tip of the Core Area, the town of Carapacho extends parallel to the sea, with high tourist importance due to its thermal hot spring resort. The Core Area also includes some areas dedicated to agriculture and livestock production.

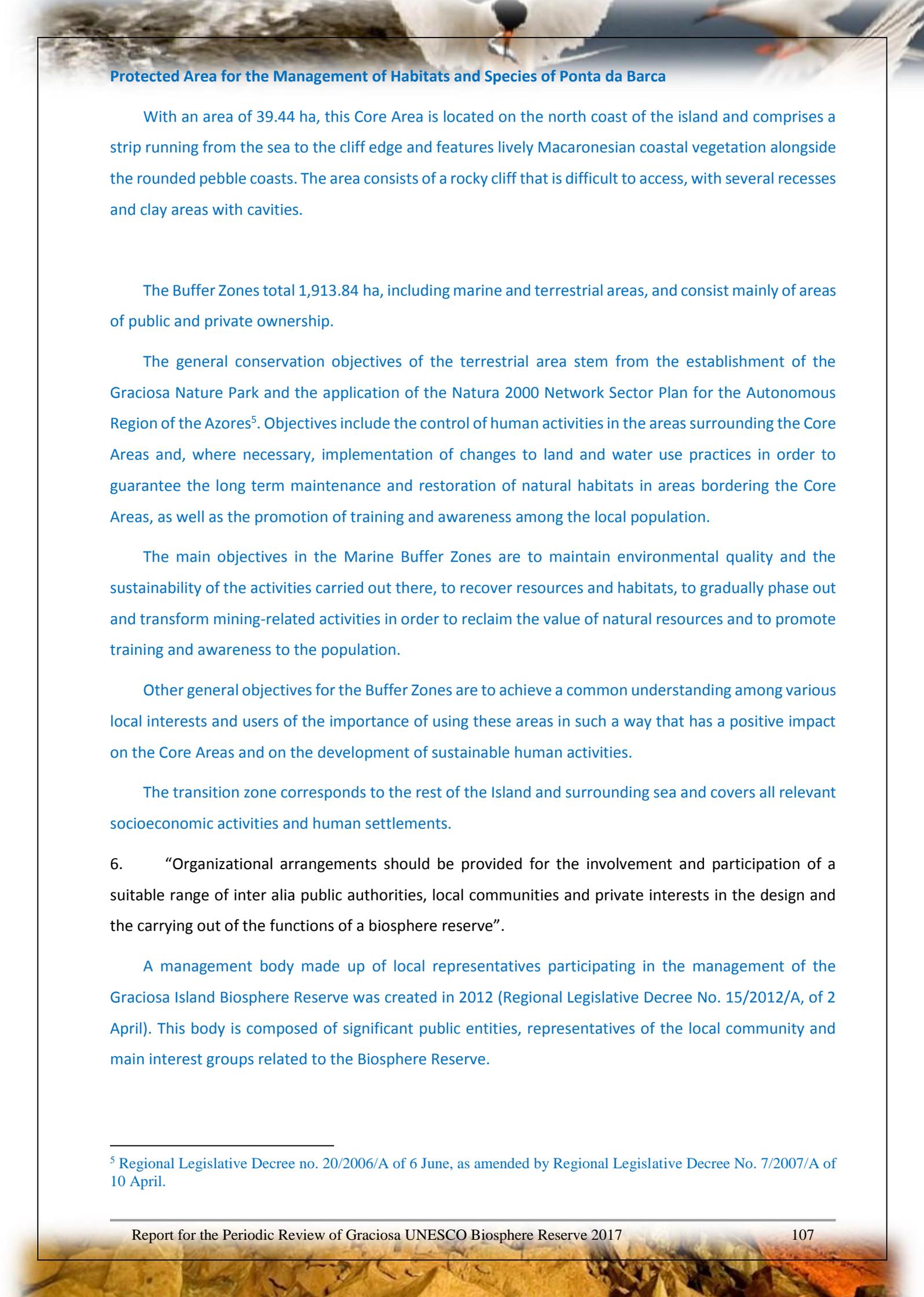
“Ilhéus de Baixo” are two islets of basaltic origin formed by volcanic activity and the adjacent coast, with coastal cliffs and a small agricultural area. The coastal area adjacent to Ilhéus de Baixo features a diverse natural heritage of caves formed by volcanic cavities (lava caves). The islets harbour important communities of coastal plants and one of the most important multi-species colonies of seabirds in the archipelago. Important seabird colonies nest in this area, many of which are listed in Appendix I of the Birds Directive. The islets are difficult to access, resulting in very limited human contact.

Natural Monument of Caldeira da Graciosa (Caldeira)

The Caldeira da Graciosa is the island’s largest area of forest, sheltering in its interior a dense settlement of Japanese cedar (*Cryptomeria japonica*) and other remnant vegetation on the island, both native and exotic. With a climate that is both cooler and wetter than most of the rest of the island and sheltered from the winds, its steep interior slopes are covered with forest and its lower central part occupied by pasture. The Caldeira consists of a geological structure of high interest, inside which the Furna do Enxofre is located, an imposing domed volcanic cavity considered unique in the international volcano-speleological panorama. In order to improve the conditions for visitors of the Furna do Enxofre, the Furna do Enxofre Visitors Centre (CVFE) was inaugurated in 2010.

Protected Area for the Management of Habitats and Species of Ponta Branca

With an area of 101 ha, the Ponta Branca Core Area is located in the southwestern part of Graciosa Island and is constituted mainly by coastal cliffs made up of geological materials, where the natural and semi-natural typical cover of these cliffs predominate. In an area dominated by slopes that are difficult to access, human activity is restricted to a small portion used for traditional agriculture and cattle raising. It features habitats and species listed in the Appendices to the European Union Habitats Directive. Notable species of flora include the *Corema album* subsp. *azoricum*, *Erica azorica*, *Spergularia azorica*, *Myrsine retusa*, *Hypericum foliosum* and *Ammi trifoliatum*.



Protected Area for the Management of Habitats and Species of Ponta da Barca

With an area of 39.44 ha, this Core Area is located on the north coast of the island and comprises a strip running from the sea to the cliff edge and features lively Macaronesian coastal vegetation alongside the rounded pebble coasts. The area consists of a rocky cliff that is difficult to access, with several recesses and clay areas with cavities.

The Buffer Zones total 1,913.84 ha, including marine and terrestrial areas, and consist mainly of areas of public and private ownership.

The general conservation objectives of the terrestrial area stem from the establishment of the Graciosa Nature Park and the application of the Natura 2000 Network Sector Plan for the Autonomous Region of the Azores⁵. Objectives include the control of human activities in the areas surrounding the Core Areas and, where necessary, implementation of changes to land and water use practices in order to guarantee the long term maintenance and restoration of natural habitats in areas bordering the Core Areas, as well as the promotion of training and awareness among the local population.

The main objectives in the Marine Buffer Zones are to maintain environmental quality and 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 natural resources and to promote training and awareness to the population.

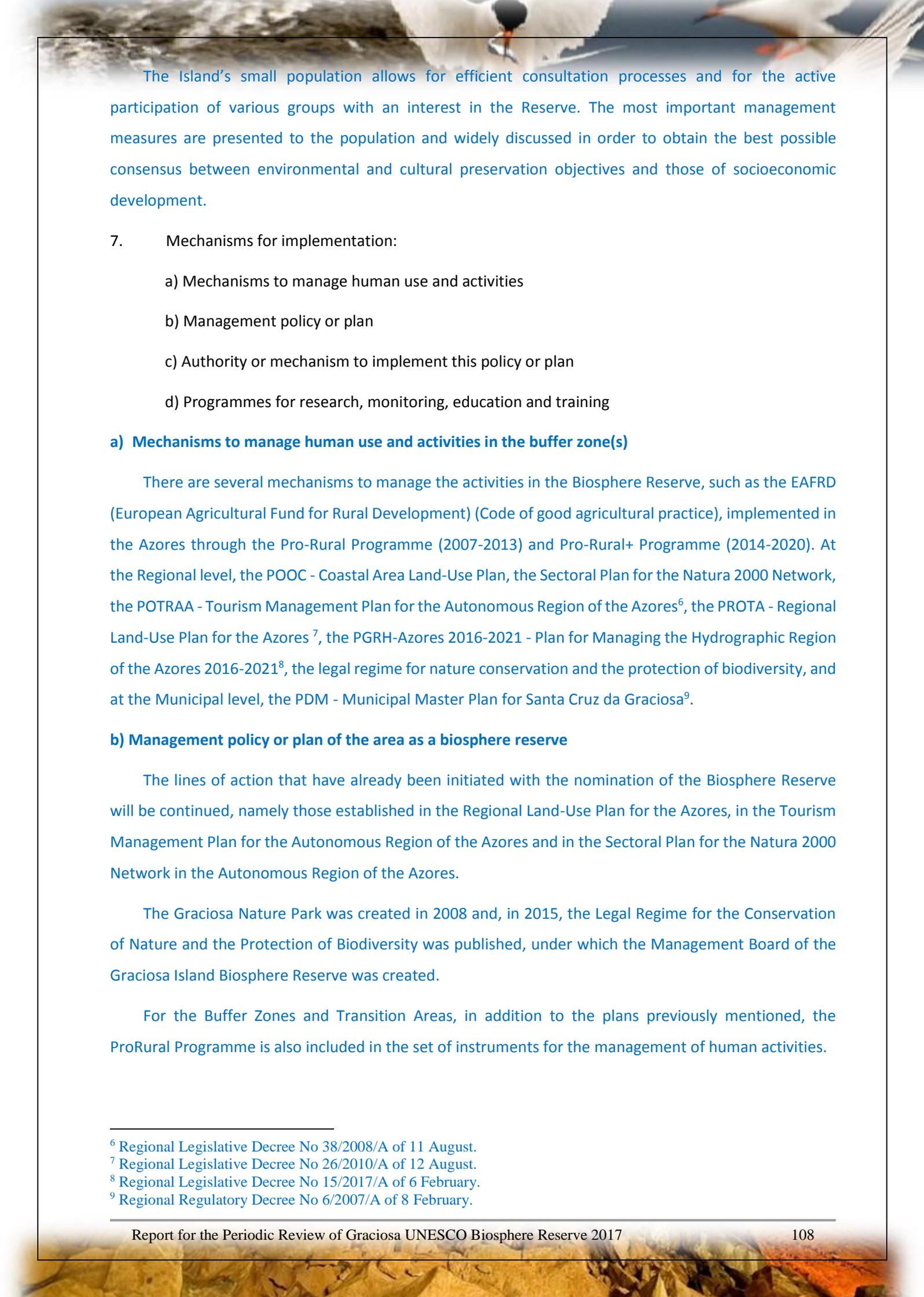
Other general objectives for the Buffer Zones are to achieve a common understanding among various local interests and users of the importance of using these areas in such a way that has a positive impact on the Core Areas and on the development of sustainable human activities.

The transition zone corresponds to the rest of the Island and surrounding sea and covers all relevant socioeconomic activities and human settlements.

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”.

A management body made up of local representatives participating in the management of the Graciosa Island 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.

⁵ Regional Legislative Decree no. 20/2006/A of 6 June, as amended by Regional Legislative Decree No. 7/2007/A of 10 April.



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 socioeconomic development.

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

a) Mechanisms to manage human use and activities in the buffer zone(s)

There are several mechanisms to manage the activities in the Biosphere Reserve, such as the EAFRD (European Agricultural Fund for Rural Development) (Code of good agricultural practice), implemented in the Azores through the Pro-Rural Programme (2007-2013) and Pro-Rural+ Programme (2014-2020). At the Regional level, the POOC - Coastal Area Land-Use Plan, the Sectoral Plan for the Natura 2000 Network, the POTRAA - Tourism Management Plan for the Autonomous Region of the Azores⁶, the PROTA - Regional Land-Use Plan for the Azores⁷, the PGRH-Azores 2016-2021 - Plan for Managing the Hydrographic Region of the Azores 2016-2021⁸, the legal regime for nature conservation and the protection of biodiversity, and at the Municipal level, the PDM - Municipal Master Plan for Santa Cruz da Graciosa⁹.

b) Management policy or plan of the area as a biosphere reserve

The lines of action that have already been initiated with the nomination of the Biosphere Reserve will be continued, namely those established in the Regional Land-Use Plan for the Azores, in the Tourism Management Plan for the Autonomous Region of the Azores and in the Sectoral Plan for the Natura 2000 Network in the Autonomous Region of the Azores.

The Graciosa Nature Park was created in 2008 and, in 2015, the Legal Regime for the Conservation of Nature and the Protection of Biodiversity was published, under which the Management Board of the Graciosa Island Biosphere Reserve was created.

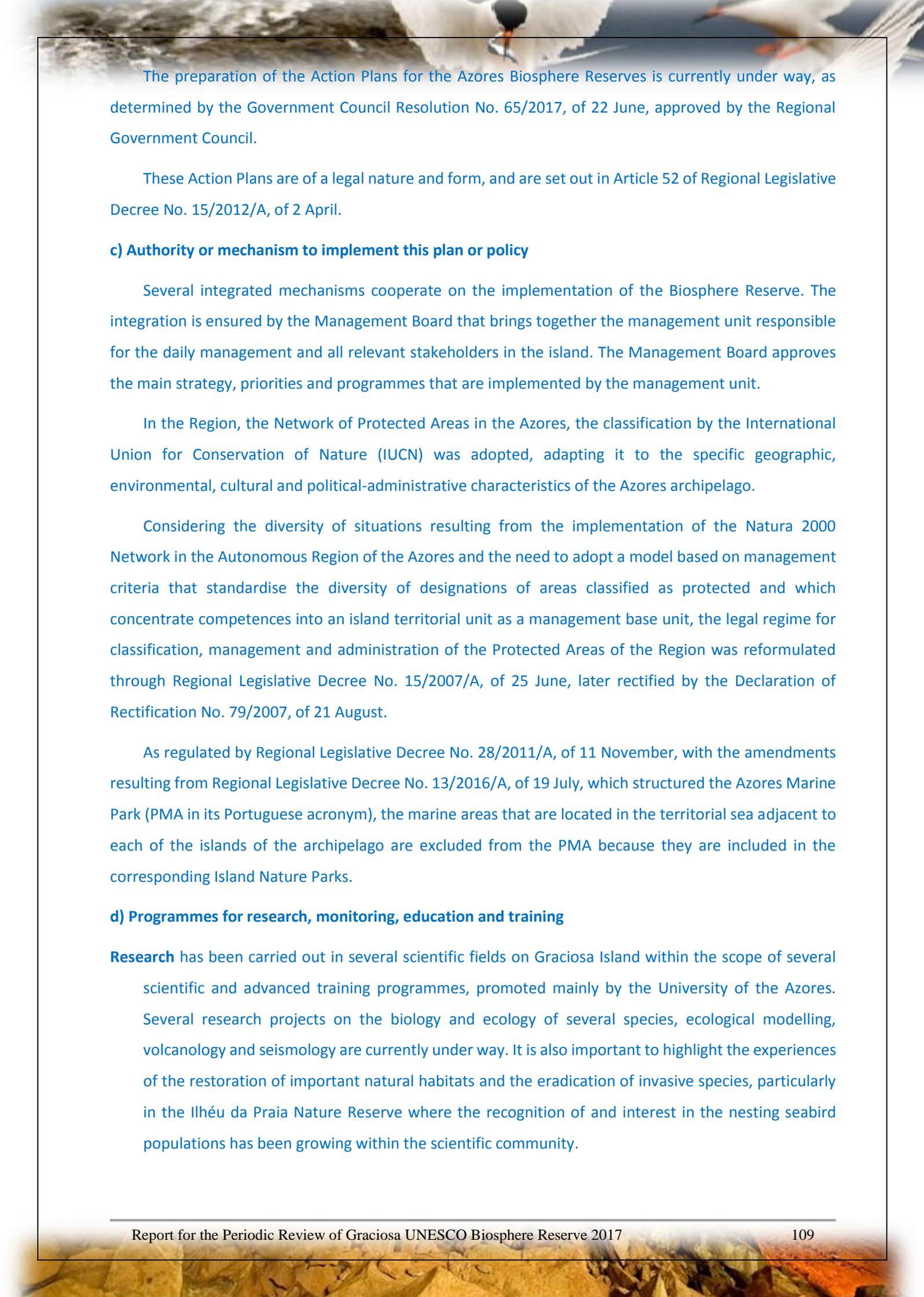
For the Buffer Zones and Transition Areas, in addition to the plans previously mentioned, the ProRural Programme is also included in the set of instruments for the management of human activities.

⁶ Regional Legislative Decree No 38/2008/A of 11 August.

⁷ Regional Legislative Decree No 26/2010/A of 12 August.

⁸ Regional Legislative Decree No 15/2017/A of 6 February.

⁹ Regional Regulatory Decree No 6/2007/A of 8 February.



The preparation of the Action Plans for the Azores Biosphere Reserves is currently under way, as determined by the Government Council Resolution No. 65/2017, of 22 June, approved by the Regional Government Council.

These Action Plans are of a legal nature and form, and are set out in Article 52 of Regional Legislative Decree No. 15/2012/A, of 2 April.

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.

As regulated by Regional Legislative Decree No. 28/2011/A, of 11 November, with the amendments resulting from Regional Legislative Decree No. 13/2016/A, of 19 July, which structured the Azores Marine Park (PMA in its Portuguese acronym), the marine areas that are located in the territorial sea adjacent to each of the islands of the archipelago are excluded from the PMA because they are included in the corresponding Island Nature Parks.

d) Programmes for research, monitoring, education and training

Research has been carried out in several scientific fields on Graciosa Island within the scope of several scientific and advanced training programmes, promoted mainly by the University of the Azores. Several research projects on the biology and ecology of several species, ecological modelling, volcanology and seismology are currently under way. It is also important to highlight the experiences of the restoration of important natural habitats and the eradication of invasive species, particularly in the Ilhéu da Praia Nature Reserve where the recognition of and interest in the nesting seabird populations has been growing within the scientific community.

Monitoring is one of the fundamental aspects of the operation of a Reserve, to evaluate the efficiency of the measures implemented. One of the main functions of the managing authority of the Biosphere Reserve is to ensure the means and the implementation of monitoring measures. On the other hand, constant monitoring is required within the scope of several research works undertaken in the area. The visibility achieved with the current status of Biosphere Reserve has made it possible strengthen monitoring by means of an increase in investors and research projects.



Figure 52: Monitoring of sea bird colonies in the Ilhéu da Praia Nature Reserve.

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). The second *Eco-library* to appear in the archipelago was on Graciosa, in 2000, in partnership with the Cultural, Sports and Associação Cultural, Desportiva e Recreativa da Graciosa, the responsibility for the operation and management of the eco-libraries having passed to the respective Island Environmental Services as of 2013. Since then, numerous training and environmental awareness actions have been promoted, foreseen in the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), but also in the areas of agriculture and fisheries, in order to improve and streamline these activities, which are of great social and economic interest for Graciosa 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 Graciosa Island Biosphere Reserve is part of the Azores Biosphere Reserves Network, the UNESCO National Biosphere Reserves Network and is represented in the National MaB Committee where cooperation and transfer knowledge is promoted between all Portuguese Biosphere Reserves.



Ate the regional level:

The Graciosa Island Biosphere Reserve is a member of REDBIOS, the Macaronesia and Western Atlantic Biosphere Reserves Network of the World Network of Biosphere Reserves on Islands and in Coastal Zones and it participates in the activities of the EuroMAB and IberoMAB Networks.

Through twinning and/or transboundary biosphere reserves:

The Graciosa 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)

Obstacles encountered, measures to be taken and, if appropriate, assistance expected from the Secretariat:

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 Graciosa 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 listed below:

Mission (1) - Conservation Function (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 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 establish tools for monitoring populations and implementing conservation plans, and for promoting research into natural resources.
- Functionality of ecosystems: to promote actions which impede the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of invasive and alien 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 Function (culturally, socially and ecologically sustainable economic and human development)

- 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. To promote the responsible use of local resources to generate economic activity and stable employment. To create synergies between tradition, local products, business and industrial activity, responsible processing, differentiated marketing, new technologies and territoriality as an inherent singularity of the product, good or service provided.

- Responsible tourism: deriving from an offer prioritising quality and respect for the environment, with agents responsible for the development of these resources catering for an audience requiring excellence as an added value of the destination, making tourism the catalyst for economic growth, the creation of employment and the wellbeing of the population on the island, while leading to more efficient use of resources and minimising environmental degradation.

- Energy sustainability: to change from the road mobility paradigm sustained by external dependence on fossil fuels to a new paradigm supported by clean energy with reduced carbon dioxide emissions, increasing and encouraging investment in infrastructure and technology supplied by clean energy.

Mission (3) – Logistical Function (providing support for research, monitoring and education)

- Enhancement of knowledge: the Graciosa Island Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, promoting the transmission and dissemination of knowledge to the community and supporting the execution of projects involving research, training, environmental education and the implementation of sustainable development models on the island.

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

The Regional Government of the Azores, in pursuance of the provisions of Article 52 of Regional Legislative Decree No. 15/2012/A, of 2 April, determined that the Action Plan of the Graciosa Island Biosphere Reserve be prepared by the end of 2018, as determined in the Government Council Resolution No. 65/2017, of 22 June.

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). Shapefiles (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 Graciosa Island Biosphere Reserve is attached to this form, as well as the shapefiles (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://servicos-sraa.azores.gov.pt/grastore/DRA/Graciosa_Biosphere_Reserve_Map.jpg

(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 Graciosa 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 Graciosa Island Biosphere Reserve are attached to this form.

(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 Graciosa Island Biosphere Reserve is attached to this form.

(5) Updated species list (to be annexed)



[Provide a list of important species occurring within the proposed biosphere reserve, including common names, wherever possible.]

The list of the main species that are found in the Graciosa 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 Graciosa 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, and the report / assent of the National Committee MaB to this report for the periodic review of Graciosa UNESCO Biosphere Reserve 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 _____

Web site: <http://www.azores.gov.pt/Portal/pt/entidades/sreat-dra/> _____

10.2. Administering entity of the core area(s):

10.3. Administering entity of the buffer zone(s):

10.4. Administering entity of the transition area(s):

Name: [PARQUE NATURAL DA GRACIOSA](#) _____

Street or P.O. Box: [Rua Victor Cordon, N.º 11](#) _____

City with postal code: [9880-390 Santa Cruz da Graciosa](#) _____

Country: [Portugal \(Autonomous Region of the Azores\)](#) _____

Telephone: [\(+351\) 295 403 870](#) _____

E-mail: parque.natural.graciosa@azores.gov.pt _____

Web site: <http://parquesnaturais.azores.gov.pt/pt/graciosa> _____

MABnet Directory of the Biosphere Reserves

Administrative details

| | |
|------------------------------------|---|
| Country: | Portugal (PT) |
| Name of BR: | Graciosa Island Biosphere Reserve |
| Year designated: | 2007 |
| Administrative authorities: | Direção Regional do Ambiente / Parque Natural da Graciosa |
| Name Contact: | Direção Regional do Ambiente (Secretaria Regional da Energia, Ambiente e Turismo da Região Autónoma dos Açores) |
| Contact address: | Rua Cônsul Dabney - Colónia Alemã Apartado 140 9900-014 HORTA PORTUGAL Telephone: (+351) 292 207 300 E-mail: info.dra@azores.gov.pt |
| Related links: | http://www.azores.gov.pt/Portal/pt/entidades/sreat-dra/; http://www.azores.gov.pt/Reserva+da+Biosfera+da+Graciosa.htm |
| Social networks: (6.5.4) | none |

Description

General description:

Graciosa Island is part of the Central Group of islands in the Azores Archipelago and, with an area of only 60.7 km² and 44 km of coastline, is the second smallest island of the archipelago. It is also the flattest of the archipelago's islands, its highest point reaching only 405 m. With a maximum length of 12.6 km and maximum width of 7.0 km, extending along a NW-SE orientation, Graciosa Island is 56.8 km from Ponta da Serreta, on the Island of Terceira and 36.5 km from Fajã do João Dias, on the Island of São Jorge.

Presently, Graciosa has approximately 4,339 inhabitants, distributed throughout the municipality of Santa Cruz da Graciosa's 4 parishes: Guadalupe, Luz, Praia and Santa Cruz. Graciosa's population continues to be strongly linked to the primary sector as a principal source of income and as a secondary activity.

The Graciosa Island Biosphere Reserve exhibits the following zoning:

Core Areas: Five non-contiguous Core Areas (Ilhéu de Baixo-Restinga, Ilhéu da Praia, Caldeira da Ilha Graciosa, Ponta Branca and Ponta da Barca) These are classified sites under Graciosa Nature Park, the European Union's Natura 2000 Network, the Ramsar Convention and Azores Geo-Park.

Buffer Zones: The Buffer Zones that surround the Core Areas "Ilhéu de Baixo-Restinga" and "Caldeira da Graciosa" unite along a NW-SE axis, at the exterior SE flank of the "Caldeira da Graciosa" cone. The

remaining three zones surround the Core Areas “Ilhéu da Praia”, “Ponta Branca” and “Ponta da Barca”. The Buffer Zones consist of public and private lands or marine areas, with rules of use provided through different means of territorial planning and activities, at national, regional and local level.

Transition Area: The Transition Area encompasses both terrestrial and marine zones which surround the entire Core and Buffer Zones. The Transition Area includes urban land and land with development potential, both public and privately owned, with rules of use provided through means of land-use planning and activities.

Major ecosystem type: Average altitude, coastal cliffs, volcanic caves and chasms, shallow coastal areas.

Major habitats & land cover types: Coastal islets (Ilhéu da Praia and Ilhéu de Baixo-Restinga); Coastal zones (regional); Marine zones (regional); Coastal cliffs (local); Graciosa Island volcanic caldera (local); Urban zone (local).

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.

Because it is the least mountainous of the Azorean islands, Graciosa has a temperate oceanic climate, characterised by the lowest rainfall in the archipelago.

Location (latitude & longitude):

| Cardinal points: | Latitude | Longitude |
|-------------------------|-----------------|------------------|
| Most central point: | 39.053829 | -28.007673 |
| Northernmost point: | 39.106726 | -28.040726 |
| Southernmost point: | 38.99412 | -27.937886 |
| Westernmost point: | 39.066437 | -28.083963 |
| Easternmost point: | 39.007734 | -27.921521 |

Total Area (ha): 10,785.59 ha

Core area(s): 557.52 ha

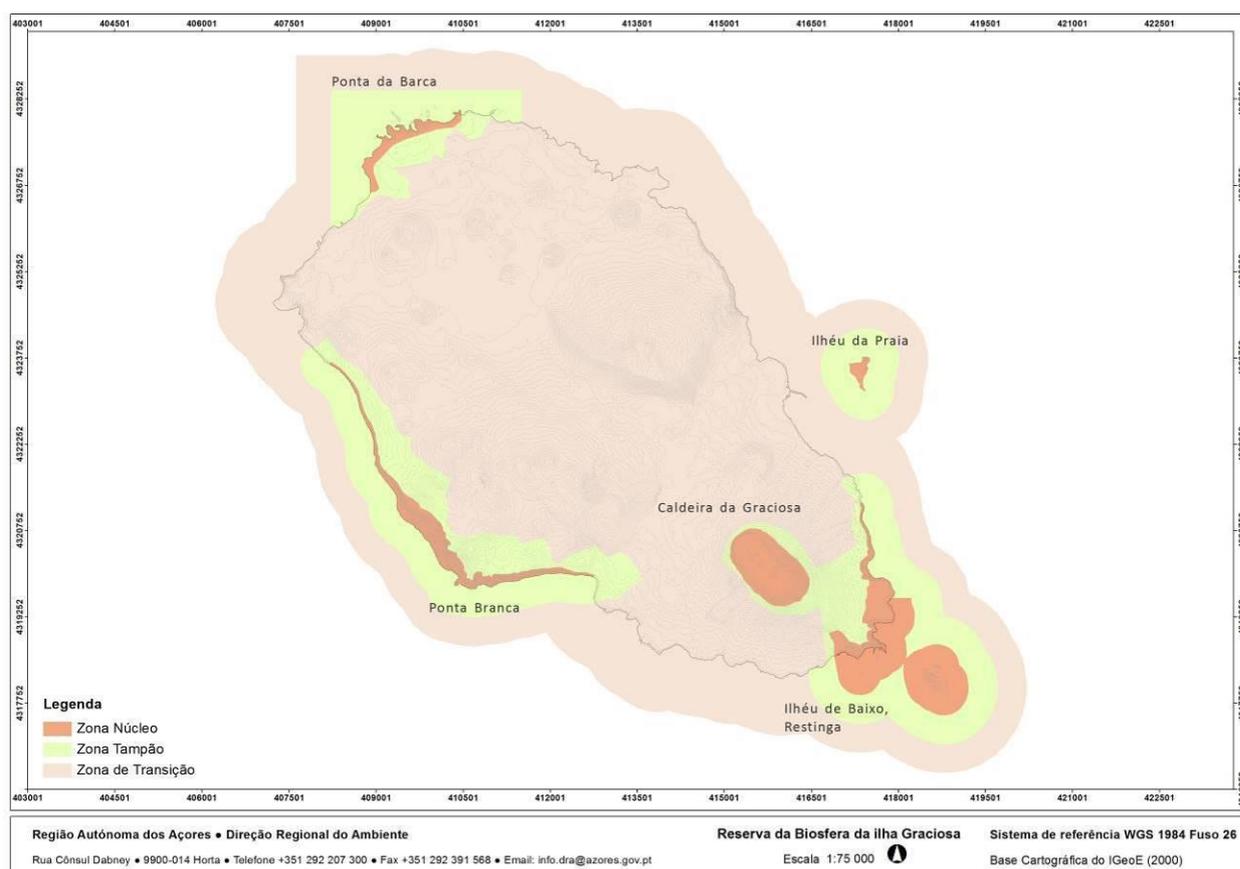
Buffer zone(s): 1,918.84 ha

Transition area(s): 8,309.23 ha

Different existing zonation: The zonation defined for the Graciosa Island Biosphere Reserve has taken into account the natural, social, economic and cultural characteristics of the Graciosa Island, 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): 405 metres

Zonation map(s) (refer to section 2.2.2):



Main objectives of the biosphere reserve

Brief description

The main objectives of the Graciosa Island Biosphere Reserve include the conservation and sustainable use of biodiversity at the genetic, species, habitat, ecosystem and landscape level, giving them a central position in the sustainable development model of Graciosa Island, assuming that they, together with the contribution to good environmental quality, are also instruments that generate opportunities for economic activities, creating fair and lasting jobs of relevance to the local economy. In this context, the activities related to livestock production, fisheries and nature tourism stand out.

Research

Brief description

The island of Graciosa has served, for over two decades now, as an experimental laboratory for biodiversity conservation and, due to the islands unique natural characteristics, 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 Graciosa Island Biosphere Reserve an ideal site for research projects, natural resource management actions and showcases, and for training researches and technicians in the field.

Monitoring

Brief description

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 Hydrometeorological Network of the Azores to all the islands of the archipelago, a meteorological station was installed.

Specific variables (fill in the table below and tick the relevant parameters)

| Abiotic | | Biodiversity | |
|---------------------------------------|---|------------------------------------|---|
| Abiotic factors | ✓ | Afforestation/Reforestation | ✓ |
| Acidic deposition/Atmospheric factors | | Algae | ✓ |
| Air quality | | Alien and/or invasive species | ✓ |
| Air temperature | ✓ | Amphibians | |
| Climate, climatology | ✓ | Arid and semi-arid systems | |
| Contaminants | | Autoecology | |
| Drought | ✓ | Beach/soft bottom systems | |
| Erosion | ✓ | Benthos | ✓ |
| Geology | ✓ | Biodiversity aspects | ✓ |
| Geomorphology | ✓ | Biogeography | ✓ |
| Geophysics | ✓ | Biology | ✓ |
| Glaciology | | Biotechnology | |
| Global change | ✓ | Birds | ✓ |
| Groundwater | | Boreal forest systems | |
| Habitat issues | ✓ | Breeding | ✓ |
| Heavy metals | | Coastal/marine systems | ✓ |
| Hydrology | ✓ | Community studies | ✓ |
| Indicators | ✓ | Conservation | ✓ |
| Meteorology | ✓ | Coral reefs | |
| Modeling | | Degraded areas | |
| Monitoring/methodologies | | Desertification | |
| Nutrients | | Dune systems | |
| Physical oceanography | ✓ | Ecology | ✓ |
| Pollution, pollutants | | Ecosystem assessment | ✓ |
| Siltation/sedimentation | | Ecosystem functioning/structure | ✓ |
| Soil | | Ecosystem services | |
| Speleology | ✓ | Ecotones | |
| Topography | ✓ | Endemic species | ✓ |
| Toxicology | | Ethology | ✓ |
| UV radiation | | Evapotranspiration | |
| | | Evolutionary studies/Palaeoecology | ✓ |
| | | Fauna | ✓ |
| | | Fires/fire ecology | |
| | | Fishes | ✓ |
| | | Flora | ✓ |
| | | Forest systems | |
| | | Freshwater systems | ✓ |
| | | Fungi | |
| | | Genetic resources | |
| | | Genetically modified organisms | |
| | | Home gardens | |
| | | Indicators | ✓ |
| | | Invertebrates | ✓ |
| | | Island systems/studies | ✓ |
| | | Lagoon systems | ✓ |
| | | Lichens | ✓ |
| | | Mammals | ✓ |
| | | Mangrove systems | |
| | | Mediterranean type systems | |

| | | |
|--|---|---|
| | Microorganisms | ✓ |
| | Migrating populations | ✓ |
| | Modeling | |
| | Monitoring/methodologies | ✓ |
| | Mountain and highland systems | |
| | Natural and other resources | |
| | Natural medicinal products | |
| | Perturbations and resilience | |
| | Pests/Diseases | |
| | Phenology | |
| | Phytosociology/Succession | |
| | Plankton | ✓ |
| | Plants | ✓ |
| | Polar systems | |
| | Pollination | |
| | Population genetics/dynamics | ✓ |
| | Productivity | ✓ |
| | Rare/Endangered species | ✓ |
| | Reptiles | ✓ |
| | Restoration/Rehabilitation | ✓ |
| | Species (re) introduction | ✓ |
| | Species inventorying | ✓ |
| | Sub-tropical and temperate rainforest systems | |
| | Taxonomy | ✓ |
| | Temperate forest systems | |
| | Temperate grassland systems | |
| | Tropical dry forest systems | |
| | Tropical grassland and savannah systems | |
| | Tropical humid forest systems | |
| | Tundra systems | |
| | Vegetation studies | ✓ |
| | Volcanic/Geothermal systems | ✓ |
| | Wetland systems | |
| | Wildlife | ✓ |

| Socio-economic | | Integrated monitoring | |
|---|---|-------------------------------------|---|
| Agriculture/Other production systems | ✓ | Biogeochemical studies | |
| Agroforestry | | Carrying capacity | ✓ |
| Anthropological studies | | Climate change | ✓ |
| Aquaculture | | Conflict analysis/resolution | ✓ |
| Archaeology | | Ecosystem approach | ✓ |
| Bioprospecting | | Education and public awareness | ✓ |
| Capacity building | | Environmental changes | ✓ |
| Cottage (home-based) industry | ✓ | Geographic Information System (GIS) | ✓ |
| Cultural aspects | ✓ | Impact and risk studies | ✓ |
| Demography | ✓ | Indicators | ✓ |
| Economic studies | ✓ | Indicators of environmental quality | ✓ |
| Economically important species | ✓ | Infrastructure development | ✓ |
| Energy production systems | ✓ | Institutional and legal aspects | ✓ |
| Ethnology/traditional practices/knowledge | ✓ | Integrated studies | ✓ |
| Firewood cutting | | Interdisciplinary studies | ✓ |
| Fishery | ✓ | Land tenure | ✓ |
| Forestry | ✓ | Land use/Land cover | ✓ |
| Human health | ✓ | Landscape inventorying/monitoring | ✓ |
| Human migration | ✓ | Management issues | ✓ |
| Hunting | ✓ | Mapping | ✓ |
| Indicators | ✓ | Modeling | |
| Indicators of sustainability | ✓ | Monitoring/methodologies | ✓ |
| Indigenous people's issues | | Planning and zoning measures | ✓ |
| Industry | | Policy issues | ✓ |
| Livelihood measures | | Remote sensing | ✓ |
| Livestock and related impacts | ✓ | Rural systems | ✓ |
| Local participation | ✓ | Sustainable development/use | ✓ |
| Micro-credits | | Transboundary issues/measures | |
| Mining | | Urban systems | |
| Modeling | | Watershed studies/monitoring | ✓ |
| Monitoring/methodologies | ✓ | | |
| Natural hazards | ✓ | | |
| Non-timber forest products | | | |
| Pastoralism | ✓ | | |
| People-Nature relations | ✓ | | |
| Poverty | | | |
| Quality economies/marketing | ✓ | | |
| Recreation | ✓ | | |
| Resource use | ✓ | | |
| Role of women | ✓ | | |
| Sacred sites | | | |
| Small business initiatives | ✓ | | |
| Social/Socio-economic aspects | ✓ | | |
| Stakeholders' interests | ✓ | | |
| Tourism | ✓ | | |
| Transports | ✓ | | |



Annex II to the Biosphere Reserve Periodic Review, January 2013

**Promotion and Communication Materials
for the biosphere reserve**

Provide some promotional material regarding the 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 Agreements on Non-Exclusive Rights for photo(s) and video(s).



UNESCO Photo Library

Bureau of Public Information

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 - Colónia Alemã \(Apartado 140\)](#)
[9900-014 HORTA - PORTUGAL](#)

Signature:

Date:

(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; m.ravassard@unesco.org

Bureau of Public Information

AGREEMENT GRANTING NON-EXCLUSIVE RIGHTS

Reference:

1. a) I the undersigned, copyright-holder of the above mentioned video(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 author/copyright holder 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 video(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 video(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.

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[Regional Director for the Environment](#)
[Rua Cônsul Dabney - Colônia Alemã \(Apartado 140\)](#)
[9900-014 HORTA - PORTUGAL](#)

Signature:

Date:

(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: photobank@unesco.org; m.ravassard@unesco.org

Annex III to the Biosphere Reserve Periodic Review, January 2013

The 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 Co-ordinating 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 are 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

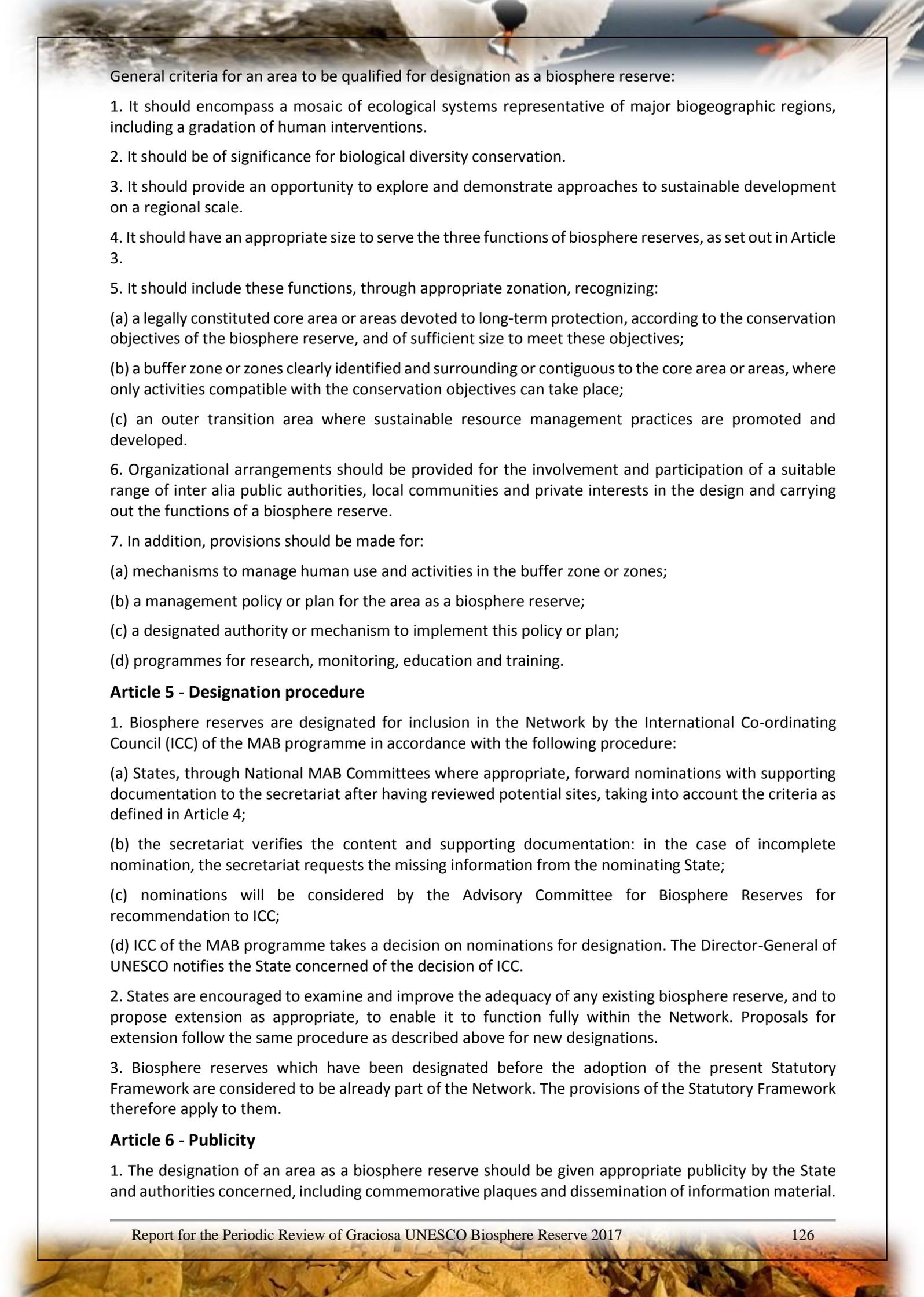
1. Biosphere reserves form a worldwide network, known as the World Network of Biosphere Reserves, hereafter called the Network.
2. The Network constitutes a tool for the conservation of biological diversity and the sustainable use of its components, thus contributing to the objectives of the Convention 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:

1. It should encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human interventions.
2. It should be of significance for biological diversity conservation.
3. It should provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale.
4. It should 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 Co-ordinating 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 subnetworks

States should encourage the constitution and co-operative operation of regional and/or thematic subnetworks of biosphere reserves, and promote development of information exchanges, including electronic information, within the framework of these subnetworks.

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.