

# CATALOGUE OF DEMONSTRATIVE EXPERIENCES IN SPANISH BIOSPHERE RESERVES





Red de  
Reservas  
de Biosfera  
Españolas

Spanish Biosphere Reserves Network

CATALOGUE OF DEMONSTRATIVE EXPERIENCES  
IN SPANISH BIOSPHERE RESERVES

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**Acknowledgements:** We would like to thank the managers of the Biosphere Reserves and other people inside the Reserves who have provided information on the different experiences and made it possible to collect them in this catalogue.

**Authors:** Autonomous Authority for National Parks (Spanish acronym OAPN) in collaboration with the Tragsa Group.

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## **PRESENTATION**

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The current Spanish Biosphere Reserves Network (RRBE) is the result of a long journey that began in 1992, the date of the creation of the network which at that time comprised some ten Reserves. Since then the various competent authorities, the representatives of the Biosphere Reserves and their managers have been working together, sharing experiences and work of common interest.

This work has had two important moments: the celebration on the Island of Lanzarote in October 2006 of the First Congress of Spanish Biosphere Reserves, where the first "Action Plan of the Spanish Biosphere Reserves Network 2006-2009" was drafted, a plan that has met all the objectives proposed; and the approval of the Royal Decree 342/2007, which restructured the Spanish Committee of the UNESCO MaB Programme and established the Council of Managers of Biosphere Reserves as an advisory body to the MaB Committee, defining their functions. The result of both actions has been the consolidation and strengthening of the RRBE.

The development in 2008 of the Madrid Action Plan 2008-2013 (MAP) of the World Network of Biosphere Reserves of the UNESCO MaB Programme has set a new horizon for Spanish Biosphere Reserves. The development of the MaB Programme in Spain and the activity of the Spanish Reserves provide numerous examples of actions that constitute a step in the implementation of this Action Plan. The Autonomous Authority for National Parks (OAPN), contributes to the development and coordination of the MaB Programme in Spain with the RRBE. The Directorate-General for Sustainable Development of the Rural Environment, through the funds established for the development of Law 45/2007 of 13 December for the Sustainable Development of Rural Areas, financed many of the actions presented in this book.

The publication that is presented here brings together a set of experiences that are an example of the work that is being developed in the Spanish Biosphere Reserves Network, comprising, from May of this year, forty areas committed to the principles of the MaB Programme of UNESCO.

This book gathers a sample of 69 representative current experiences. Their selection and collection was carried out in 2008 and is now presented in four main thematic sections related to the functions of the Biosphere Reserves: conservation of natural values and their compatibility with economic development and the quality of life of the citizens who live in and protect them; research, education and training as necessary tools for improvement and innovation in these model territories of equilibrium and sustainability; planning, participation and dissemination of the actions to be carried out in the coming years in a participatory manner to continue developing a model based on the difficult balance between economic and social development and the protection and conservation of sites and species.

This publication constitutes a catalogue of good practice developed in 30 Reserves that can serve as an example for other geographic contexts and that it is appropriate to disseminate in order to increase the capacity for innovation and replication in other territories.

A set of experiences put into practice both by the managers of the different Reserves and by the citizens themselves who, with their work and their participation, show a path to follow that must be reflected in the activities of the relevant Public Administrations and in the whole of society.

November 2009

JOSEP PUXEU ROCAMORA

Secretary of State for the Rural Environment and Water (MARM)

President of the Spanish Committee of the MaB Programme



## INTRODUCTION

Biosphere Reserves are areas designed to serve as places of learning for sustainable development; areas conceived in order to reconcile environmental conservation, economic and social development, and the maintenance of associated cultural values; areas in which, ultimately, a balance is sought between the often conflicting needs to preserve the natural values of the land and to ensure the development of the peoples who inhabit it.

But Biosphere Reserves should serve not only as places where this goal is tested and applied, but also as focal points from which to disseminate this philosophy and the experiences gained.

Today<sup>1</sup>, in Spain, there are 40 Biosphere Reserves grouped within the Spanish Biosphere Reserves Network. These are also part of the World Network of Biosphere Reserves which brings together more than 500 areas under the same philosophy: to test innovative approaches to development and turn the global principles of sustainable development into locally appropriate practices.



The group of Spanish Biosphere Reserves is thus a network of experimental examples of sustainable development. The tests carried out in these Reserves by their policy makers, the scientific and research communities, management professionals and other groups with an interest in the pursuit of sustainability are embodied in a set of experiences of exemplary value that open the way to the generalisation of more sustainable practices.

<sup>1</sup> 38 Reserves as of April 2009, when the experiences presented in this catalogue were collected. Two more Reserves were declared in May of the same year: Fuerteventura and the Gerês-Xurés Cross-border Biosphere Reserve. With these two Reserves, there are now a total of 40 which make up the Spanish network.

Many of the experiences that take place in Spanish Reserves provide very illuminating examples of the application of the principles of the MaB philosophy. Sharing these experiences among the various Reserves and with other areas and regions is of great value in disseminating the idea and practice of sustainable development.

It is with this intention that this catalogue – which brings together a significant sample of the experiences taking place in the Biosphere Reserves in our country – has been created. This document presents 69 experiences of demonstrative value and, although it does not include all relevant experiences taking place in the Reserves, it does serve to share information about some of the most relevant ones. It could be said that while these are only some of the examples, they are, nevertheless, the most notable.

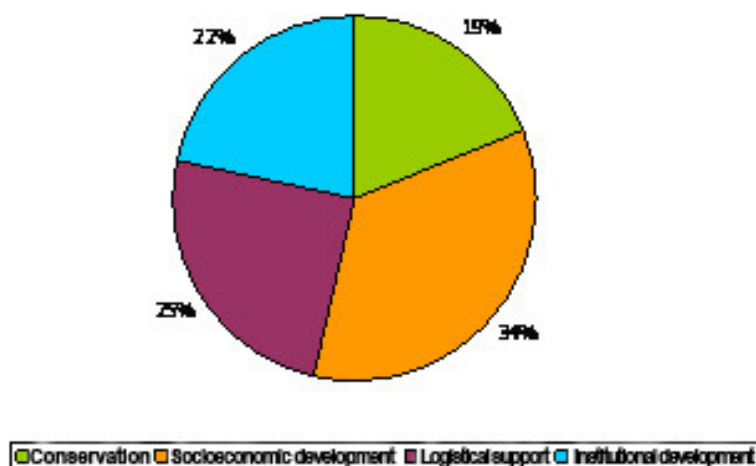
The experiences were collected by several work teams during visits to the Reserves in 2008. Both the managers responsible for these areas and representatives of interest groups in the region were interviewed during these visits. The identification of experiences that could be of interest emerged from these conversations and, although a need to enhance the development of the methodology and the tools for taking and processing information was identified, this catalogue may be considered a first attempt at bringing together in a single document some of the most interesting initiatives being developed in our country's network of Biosphere Reserves.

The experiences presented here are classified into four thematic sections related to the three basic functions that these spaces must fulfil (conservation, socioeconomic development and logistical support), and to the development and implementation of the Reserve itself (institutional development section).

While each of these sections is represented in the catalogue in a fairly balanced way, a slightly more important role has been given to the experiences related to socioeconomic issues. It is mainly this aspect of the Biosphere Reserves (together with, perhaps, the aspect related to logistical support) that sets them apart from other spaces or sites with protected legal status that are more linked to conservation issues.

Thus, of the 69 experiences contained in the catalogue, 13 are directly related to environmental conservation issues, 24 to the socioeconomic dimension of sustainable development, 17 to the logistical component of the Reserves (which includes, as stated in the statutory framework for the World Network of Biosphere Reserves, issues related to research, monitoring and environmental education), and 15 to the institutional development and implementation of the Reserves themselves. The distribution of experiences in the catalogue based on their subject would, therefore, be as follows:

**Classification of demonstrative experiences**



An additional block has been added to these four large blocks. This block contains what have been called "MaB experiences". These are initiatives that could be classified under the previous thematic blocks, but that are particularly noteworthy as they integrate an environmental, social, economic and logistical aspect into their concept and development and are – as a result of this and other aspects (such as their innovative or participative component) – especially revealing of the MaB Programme philosophy.

Each of these thematic sections is subdivided, in turn, into subtopics, as follows:

1. **Conservation:** one of the objectives of the Biosphere Reserves is to contribute to the conservation of biodiversity and natural resources. The following subtopics are included in this block:
  - a. **Restoration:** this includes experiences related to the restoration of degraded sites.
  - b. **Species recovery:** the experiences here are linked to the recovery of species of interest.
  - c. **Renewable energies:** this subtopic includes initiatives related to the promotion of renewable energies.
  - d. **Regulation of access:** the experiences included here are related to the restriction of access to protected or particularly sensitive areas in order to avoid degradation.
  - e. **Planning:** this includes initiatives concerning the development of strategic planning tools for guiding the Reserves' activities in the field of conservation.
2. **Socioeconomic development:** Biosphere Reserves should serve to promote sustainable development in their regions, exploring initiatives to address the social, economic and cultural needs of local communities. In this sense, the experiences in this block have been grouped into the following subtopics:
  - a. **Seals of quality and product assessment:** included under this subtopic are initiatives aimed at facilitating and enhancing mechanisms arising from the Reserves' existence that bring an added value to the products and services in their regions, and that promote the view of these spaces as places of excellence.
  - b. **Promotion of specific sectors: agriculture and livestock farming:** this includes experiences aimed at strengthening or diversifying the primary sector, guiding its evolution towards improving the quality of life of local people and its integration with the Reserve's conservation objectives and with the general principles of sustainability.
  - c. **Promotion of specific sectors: tourism:** in this case, as in the case mentioned above, the experiences included are related to the diversification and change in the development model of one economic sector, which in this case is tourism.
  - d. **Ethnographic/cultural heritage:** this includes the preservation of traditional practices and the cultural/historical heritage of the Reserves.
  - e. **Planning:** included here are initiatives concerning the development of strategic planning tools to guide the action of the Reserves in promoting the sustainable development of their populations.
  - f. **Socioeconomic information tools:** includes initiatives aimed at disseminating information - especially socioeconomic - designed to be useful for the development of populations in the Reserves.

3. **Logistical support:** The following subtopics have been taken into consideration:
  - a. **Research:** this includes basic or applied research projects, or initiatives to promote these activities in the Biosphere Reserves, related to both conservation and development issues, as well as to knowledge of the Reserve itself.  
  
Also included in this section are the experiments under way aimed at promoting the circulation and transfer of knowledge between interdisciplinary teams and between researchers and managers.
  - b. **Education and training:** the experiences included here are mainly related to environmental education, though other, more general, training activities or training programmes aimed at local communities or other agents of interest have not been excluded.
  - c. **Monitoring:** this subtopic includes initiatives related to the development of systems for monitoring indicators related to one or more of the functions of the Reserves and/or their administrative and management procedures, so that these areas can be periodically assessed.
4. **Institutional development:** in order for the Biosphere Reserves to be implemented and operate effectively, they must, among other aspects, have appropriate management instruments (planning tools and bodies), that also strengthen the identity and visibility of the Reserves and disseminate their knowledge. Thus, the initiatives have been classified into the following subtopics:
  - a. **Management bodies:** development and operation: this includes initiatives related to the establishment or operation of specific government or management bodies for Biosphere Reserves. These are responsible for putting into practice their projects' commitment to sustainable development.
  - b. **Planning:** included here are examples of a strategic plan developed specifically for setting objectives, action lines and action priorities for the Reserves. It also includes plans that, though not written expressly for the Reserves, have a scope (regional, sectoral, related to goals or objectives) that means that they fit with the philosophy of these areas and with what might constitute their basic planning tool.
  - c. **Participation:** this subtopic contains experiences aimed at coordinating the participation of local people in planning and actions related to the Reserves, stimulating and promoting inter-administrative cooperation and encouraging internal debate in the Reserves.
  - d. **Dissemination of information related to the Reserve:** this includes initiatives aimed at enhancing the identity, visibility and knowledge of the Reserves, their philosophy and values.

When choosing the experiences included in this collection, several criteria determining their demonstrative character were taken into consideration:

- Their agreement with the **MaB philosophy**; this philosophy must be adopted by the Biosphere Reserves. This implies that the experiences are necessarily related to one of the thematic blocks described earlier (conservation of the Reserve's natural resources, the socioeconomic development of the local population, or the promotion of research, monitoring or environmental education; experiences aimed at improving the implementation and operation of the Reserve itself are also taken into consideration). In the case of "MaB experiences" significant importance has been given to considering their **multidisciplinary** character, i.e., the integration of two or more of the aforementioned aspects in their design and development.
- Their potential to be **exported** to other Reserves or regional areas.

- Their **innovative** character; in many cases, these are innovative or experimental initiatives, as befits the experimental side of the Biosphere Reserves.
- Their **participatory** character, taking into consideration whether the experience involves various individuals and sectors of interest in the Reserve.
- The **coordination** between the various agents involved in the experience (especially in the case of the Public Administrations).

In a large number of cases, the Reserves' management bodies have initiated (or have had a very significant participation in) the experiences dealt with. In some cases, however, experiences which have been led by other bodies or agents, but which fit the MaB philosophy, have been taken into consideration.

The experiences presented as "good practice" in this catalogue have taken place in 30 of the 40 existing Biosphere Reserves in our country. Indeed, not all Reserves are carrying out experiences with demonstrative value at this time. Where this occurs, in most cases the situation is due to the Reserves having been recently declared as such and still having limited capacity for action (often due to a lack of means). In other cases, the regional overlap between the Reserve and some protected natural space causes the former's role to be relegated to the background.

In any case, it is difficult to find cases where some experience of interest, however modest, is not being carried out. As can be seen, not all of the initiatives contained in the catalogue have required a huge deployment of means and investment of resources.

The experiences selected for this catalogue are presented below, one by one, with each addressing the following questions:

- What do we hope to achieve? The objectives of the particular experience are described.
- What does the experience involve? The experience itself is briefly described.
- Why is it significant? Attention is drawn to those aspects of the initiative that are most significant.
- How has it been carried out? A brief review of some of the practical issues relating to the implementation of the experience: who is participating in it, what the origins of the experience are, what were the mechanisms established to coordinate the actions of the various parties involved in its development, how has the experience been disseminated, and if any mechanisms for monitoring it have been established.
- What has been achieved? Where possible, there has been an initial assessment of the results.

With this catalogue it is hoped, in short, to achieve an objective: to share some of the best examples of the experiences gained by Biosphere Reserves in our country since the MaB Programme began to be implemented in Spain over 30 years ago.

## COLLECTION OF THE INVASIVE PLANT AZOLLA FILICULOIDES USING TRADITIONAL WATERCRAFT

### Terras do Miño Biosphere Reserve (Galicia)

#### What do we hope to achieve?

The main objective of this initiative is to control the expansion of the species *Azolla filiculoides*, using low impact methods (traditional watercraft).

It also seeks to make local people aware of the environmental value of the area and to contribute to the conservation of, and knowledge about, the region.

#### What does the experience involve?

Since the 1980s, the EU has been supporting projects to conserve natural resources in its member states through the LIFE-Nature Fund.

One such project is being developed in the Parga-Ladra-Támoga SCI, one of the most unique water ecosystems in the Atlantic region of the Iberian Peninsula, which also is included in the core zone of the Terras do Miño Biosphere Reserve.

One of the environmental threats detected in the SCI and Biosphere Reserve was the existence and proliferation of masses of *Azolla filiculoides*, a fern native to the Americas. This species has invaded several stretches of the more stagnant waters of the Miño River, from about the town of Rábade to the beginning of the tail of the Portomarín reservoir (south-central area of the Reserve).

Controlling this fern is a problem because of its rapid growth (it can double its biomass in three days) and its fertility, as it can propagate itself vegetatively through fragmentation and also reproduce through spores at the same time.

The masses of this species form a continuous carpet on the water which causes changes in the dynamics of the ecosystem, generating a large amount of organic waste and preventing light from penetrating. Moreover, its ability to fix atmospheric nitrogen creates greater eutrophication of these waters. Competitive displacement by *Azolla filiculoides* also leads to significant loss of macrophyte communities, since it occupies the same ecological niche.

Activities to eradicate this species in the area by mechanical means are being carried out within the framework of the LIFE 2000 Project.



Image of the river covered by the invasive plant *Azolla filiculoides*

The first phase of the initiative, in 2003 and 2004, involved using small nets to eliminate the masses of the invasive species before they could form spores. A handcrafted "batuxo" –a traditional boat in the Miño area– made specifically for this task was used; this watercraft was also used for environmental education work.

Local people supported the recuperation of this traditional style of boat and its use to eradicate the invasive fern.

Currently, there are still masses of *Azolla* upstream in the Miño River. The relevant authorities (the Regional Government of Galicia and the Miño-Sil Hydrographic Confederation) have been notified of its reappearance, meaning new joint activities and monitoring are needed.

The INLUDES (Lucense Institute of Economic and Social Development), with the help of the University of Santiago de Compostela, is tracking the possible regrowth of this exotic species.

During its reproductive period, environmental monitoring activities include continuous surveys in the Parga and Ladra rivers, as well as from the confluence point of these two rivers down to the city of Lugo.

Annual monitoring of the species is planned in the upper basin of the Miño River in order to ensure the species is successfully eradicated because, although it has fallen by almost 95%, there are still some pockets in parts of the river downstream.

You can find more information on this experience on the Biosphere Reserve website: <http://life.terrasdomino.org>.

### Why is it significant?

The proven value of this experience is in the way it combines environmental goals (the elimination of an invasive species) with socially-related objectives (the recovery of traditional watercraft for the aforementioned task).

The recuperation of the "batuxo" for this initiative ensures, firstly, that river restoration work is done using low impact methods, and, (thanks to the cooperation of the local people) has also helped to recuperate a historical part of local river culture.

The experience is further enhanced through a strong educational component, as the "batuxos" are also used to conduct river trips for environmental education purposes.

### How has it been carried out?

This project has been mainly developed by INLUDES, which is run by the Lugo Provincial Government, with the cooperation of the University of Santiago de Compostela.

As the initiative is part of a LIFE Project, all the coordination mechanisms among all the entities involved in carrying out this activity are in line with those established within the Project (regular meetings, specific deadlines and inspections).

The experience was widely reported in all the local and national media, and served as the basis for a document produced for the Second National Congress on Invasive Alien Species called "Ecological Characterisation and Control of the Expansion of *Azolla filiculoides* in the Upper Basin of the Miño River (Galicia)". Ramil Rego P., Cillero Castro C., Rubinos Roman M., Romero Buján M.I. and Vázquez Janeiro L.

### What has been achieved?

In September 2003, technical experts from the provincial government began to remove this plant, selectively and by hand. The method avoided damaging other plant species, while enabling 30 tonnes of *Azolla* to be collected from a two-kilometre river stretch. The invasive species was completely eliminated from the stretch where this activity took place, resulting in the improvement of river habitat quality. From March 2004-2006, no further eradication activities were required. Nevertheless, the threat remains due to its great capacity for regrowth.

Natural watercourse conditions are expected to be restored over the medium and long term, while the competition and displacement problems caused by this invasive species will be eliminated.

In addition, the methodological process used was significant because of its focus on informing and raising awareness about environmental problems in the area.

Furthermore, the recuperation of the "batuxo" has allowed this very deep-rooted traditional feature of the water landscapes and culture of the upper basin of the Miño River to be recovered.

The main difficulty in collecting *Azolla* is due to the problems in being able to pick it out selectively, without damaging the surrounding vegetation. In addition, although this fern can be removed manually on foot or by boat, this is not a very effective long-term technique, as *Azolla filiculoides* is very fragile and breaks easily, leading to the formation of many fragments that are difficult to remove from the water.

There were also obstacles to carrying out the experience because of the administrative procedures required before the planned activities could be carried out (by the Hydrographic Confederation, Galicia Regional Government, etc.).

However, in general, the experience has been assessed as positive. This can be seen in the fact that the Regional Government has repeated the project in other sections of the river with its own funding.



*Collection of the plant Azolla filiculoides using "batuxo"*



## PAISAPAL: LANDSCAPE PLAN FOR THE ISLAND OF LA PALMA

### La Palma Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The Plan's main objective is to ensure the conservation, development and appreciation of the island's landscapes, and to become a basic tool for land and environmental management at the island level.

Another aim is to develop a guide and a management tool for any agent involved with the landscape, ranging from basic environmental protection to the promotion of tourism, integrating governmental organisms and key strategic sectors, with social groups of varying nature and the local population in general.

#### What does the experience involve?

The first phase of the Paisapal Project has focused on defining the boundaries of the region, as well as on describing the regional and evolutionary characteristics of the island's landscapes, including land, sea and sky. The publication of "Los Paisajes de La Palma" ("The Landscapes of La Palma") was the culmination of that initial phase. During this stage, the first activity was to develop a Landscape Plan for the island of La Palma as a key feature that connects with other sectors such as tourism, culture, heritage, etc.

Once the landscapes are differentiated and classified, the next step will be to arrive at a diagnosis for them, followed by the establishment of the strategic lines of activity to be carried out in these landscapes based on this analysis. These actions will be agreed on with all those involved in the dynamics of the landscapes (government, ONGs, people living in the areas where the activity will take place, etc.).

In order to create the Landscape Plan, a study to characterise and inventory the island landscape has been undertaken, using the Landscape Management Guidelines for the Canary Islands, in this particular case for La Palma, as a reference. The goal is to create maps, information and inventories in order to achieve a dynamic characterisation and an assessment of the landscape by detecting its strengths, weaknesses, opportunities and threats as a preliminary tool for obtaining a cartography of the landscape addressing its functional, morphological and perceptive development. During this phase of the initiative, a travelling exhibition of La Palma's landscape was organised for all of the towns on the island in order to provide information about the project and to gather the landscape wisdom of La Palma's inhabitants.

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**The aim of the Landscape Plan is for it to become a basic tool for managing the island's land and environmental resources.**

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At the same time, a specific study of existing legislation on land use and environment has been conducted.

The second phase of the project focuses on drafting the Special Landscape Management Plan for the Island of La Palma; its primary objective is the protection of the landscape as a natural and cultural resource. To do this, detailed information about the state of the different landscapes on the island and the possibilities for intervention in these landscapes will be obtained and the best way for them to evolve may be determined. This will be done with the participation of local people, scientific consensus and the

technical committee of the Biosphere Reserve Consortium.

### Why is it significant?

This experience stands out for its innovative character, as it is a pioneer in meeting the provisions established by the European Landscape Convention, which aims to adopt policies and measures at local, regional, national and international levels to protect, manage and plan the European landscape.

The experience considers landscapes to be the end result of the interweaving of natural and cultural elements, which is fully in line with the MaB philosophy.

It also stands out for being a project in which the participatory component has had a leading role, since there has been broad scientific and civic participation (from experts in various disciplines and highly knowledgeable with regard to the environment, to schools, associations, professional organisations and the population in general) in its development.

Also noteworthy is that, when analysing the landscape, the land as well as the sky and sea (something that is rather uncommon) have been taken into account.

All this makes the La Palma experience a world reference in terms of landscape.

### How has it been carried out?

The sponsor of the Paisapal Project is the La Palma Biosphere Reserve's own Consortium and it has provided financing – along with the Biodiversity Foundation – for the project.

In addition, the project also involves a Scientific Council, a Technical Committee and town councils.

There have been several mechanisms used for coordination and cooperation among the partners in order to launch the experience, with the town councils having supported the first phase in which the local people are consulted. Technicians and scientists frequently attended the meetings convened

by the Consortium. Coordination between the various participants in the project was channelled through sectoral landscape committees.

Regarding the dissemination of the project among the population, it is important to highlight the publicity and sharing of information done in libraries and specialised shops, along with the Biosphere Reserve's website: <http://www.lapalmabiosfera.es>.

Lastly, it should be remarked that it was felt that this project requires ongoing monitoring; impact and outcome indicators for regular assessment have been designed for this purpose.

### What has been achieved?

The outcome of the first stage has been considered to be successful and positive as a result of it having managed to carry out a pioneering study in the Canary Islands.

It is also believed that this plan can be used as a tool for management and working at the island level. This study has, in fact, served to improve La Palma's Island Management Plan.

Worthy of mention were the limited information and limited pre-existing working methods relating to the landscape, and the sometimes difficult mobilisation of citizen participation as obstacles that came up while the experience was being carried out.



*Landscape on the Island of La Palma, subject of PAISAPAL project*

## MERCAHIERRO SAU

### El Hierro Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The main objective of Mercahierro –a company marketing products from the island of El Hierro– is to become a cooperative for local products.

In this way, it can provide an outlet to foreign markets for products from El Hierro, in a way that promotes the creation of marks of quality and distinction for these products.

#### What does the experience involve?

Being a predominantly rural society, El Hierro has always suffered from a structural problem of marketing its products outside the island. To access the outside market, the El Hierro Town Council sponsored the creation of a company whose purpose was to market these products. The company –called Mercahierro– was created in 1991, although it began operating in 1996.

At the same time, the El Hierro Town Council has encouraged sectoral producers in different cooperatives to join together:

- The Farming Cooperative encompasses agricultural products for export.
- The Livestock Farmers' Cooperative is for farmers and cheese makers.
- The Maritime Cooperative encompasses fish products from the island.

Mercahierro works in a way that is similar to the cooperatives, but is different in that the producers do not have to pay any fees since it is funded by the island government (El Hierro Town Council). Mercahierro is a non profit organization and has no extra profit margin for producers, who benefit from greater efficiency in the exportation of their products.

In recent years, the declaration of the El Hierro Biosphere Reserve has led to stimulating the creation of new agricultural products that are certified as "organic" and

to the creation of a new quality seal for products from El Hierro through the "Products from the El Hierro Biosphere Reserve label".

These initiatives complement the initiative of creating and operating Mercahierro.

#### Why is it significant?

This is an innovative experience with a socioeconomic focus that offers a substantial improvement for the activity of the producers on El Hierro, improving the distribution and awareness of their products.

Initiatives of this kind are very useful for the promotion of local products that would otherwise be difficult to distribute, and are especially interesting in the case of the islands, where to the economic difficulties faced by the producers must be added the logistical difficulties that exist in terms of distributing their products outside the islands' territory.

#### How has it been carried out?

The Island Council was the main sponsor for the creation of the company; it had several banks as development partners.

The El Hierro Biosphere Reserve, meanwhile, has worked primarily on sharing information about the experience and also contributes its image through the "Products from El Hierro Biosphere Reserve" label.

To evaluate the success of Mercahierro's operation, market assessments are conducted of the annual profits produced by the company, as well as of the use of the business by producers.

The experience is shared by attending trade fairs in various locations, labelling of products with the quality mark and various advertising campaigns associated with the label.

### What has been achieved?

Today, of the more than 600 partners belonging to Mercahierro, about 150 use this structure actively. Moreover, the market acceptance of products distributed by the company is considered to be good.

Nevertheless, thought is also given to how its operation could be improved.

At this time, among the limitations of this model is the inefficiency in some aspects that result from the fact that staff working in the company belongs to the El Hierro Town Council and therefore it operates more like a governmental entity than an organisation based on business criteria.



*Warehouse for distributing Mercahierro S.A.U. products and administrative centre of the organisation*

## BIOSPHERE RESERVE AGRICULTURAL CONTRACT

### Menorca Biosphere Reserve (Islas Baleares)

#### What do we hope to achieve?

The main objective of this initiative is to compensate Menorcan farmers for having maintained their traditional landscape and farming and livestock activity, one of the distinguishing features and main tourist attractions on Menorca.



*Indigenous cattle ranching in Menorca*

#### What does the experience involve?

The Biosphere Reserve Farming Contract (Spanish acronym CARB) is a mutual agreement between the government and the farm or ranch. The government, in turn, provides aid and compensation, as well as services and specific training.

This agreement began in 2005, currently remains in effect, and has been firmly established.

The minimum requirements to take part in this contract are:

- Undergo a prior diagnosis of the ranch or farm and its production activity.

- Comply with the code of good farming practices and the legal requirements for management.
- Fulfil their commitment to not use GMOs.
- Support at least 1 AWU.
- Follow a plan for managing and using pesticides sensibly.
- Undertake training.
- Keep an operations notebook.

The CARB contract has two types of commitments or requirements to fulfil:

- Minimum requirements: these must be fulfilled prior to the contract being signed.
- Voluntary commitments: these are commitments that the recipient voluntarily accepts; these determine the amount of the aid to be received.

Initially, the farming agreement lasts for one year, and it can be extended to five.

The maximum amount of aid per year is 6,000 €, with a premium of 10% for the following cases:

1. Farms practising ecological livestock ranching and farming.
2. Farms belonging to young farmers.
3. Farms having a land stewardship agreement.
4. Farms that make a commitment to participating in more hours of training.
5. There is a 15% increase for farms having at least a female worker.

#### Why is it significant?

The experience is noteworthy because it reconciles fulfilling environmental objectives (the conservation of the island's traditional

landscapes and the support of more sustainable farming methods) with socioeconomic objectives (contributing to the income of farmers participating in the initiative and the additional award given to women and young farmers).

It also stands out due to the support received from the island's government so that it could be implemented and to ensure its continuity over time.

### How has it been carried out?

The Biosphere Reserve, through Menorca's Island Council, sponsors this initiative and funds the aid given to the island's professional farmers.

Technicians from the Agricultural Training School are in charge of consultancy for and communication with the farmers.

The initiative has been widely publicised through the mainstream media on the island. It is also registered as a Biosphere Reserve flagship project (official website of the Biosphere Reserve) and the coordinator for the experience has been invited to different meetings in the country to explain what it is and how it is has been carried out.

There is an Evaluation Board that assesses and monitors the experience, and a number of field inspectors who regularly check applications to participate in the experience and compliance with the commitments made in the records.

At the same time, a Monitoring Committee has been set up to monitor the progress of the CARB contract.

### What has been achieved?

Since 2005, the number of applications for the CARB contract has been progressively increasing. A total of 130 applications were received in 2008 (31 more than in 2007).

From the applications received, those not meeting the prerequisites were rejected, especially due to failure to have a professional farmer or failure to meet the required environmental conditions.

Altogether, 103 farms in the island have availed themselves of this aid, which amounts to approximately 700,000 €. These

farms account for 32.13% of agricultural land on the island.



*Menorcan farm*

The experience has been assessed as very positive because of the gradual increase in applications not only for the CARB contract, but also for training courses at the Agricultural Training School (mostly young farmers). There are other autonomous communities that have shown interest in the project and intend to import it into their territory (e.g., Cataluña).

## RESTORATION OF THE HULLERA VASCO-LEONESA COAL MINE SLAG HEAPS

### Alto Bernesga Biosphere Reserve (Castilla y León)

#### What do we hope to achieve?

The main objective of the experience is to involve local people - and, in particular, students at schools in the towns where the Reserve is located - in the care and improvement of their environment by directly participating in a restoration project. By doing this, the goal is to raise awareness among the students -who live in a predominantly coal-mining area- about the possibility of restoring a degraded space and the importance of work related to the recovery and restoration of severely affected areas.

An additional objective is to teach students to understand -from an ecological standpoint- the concept of "vegetation series", and how it develops in a natural setting.

#### What does the experience involve?

This project began in 2006, and is now fully completed.

The experience is framed in the context of a project for the restoration of slag heaps. In the project, species such as broom and heather have been chosen for reforestation, as these are species that appear in poor or poorly developed soils.

To carry out this experience, the schools in the towns inside the Reserve and these schools' Parents Associations were contacted in advance to ask them to collaborate on the project.

During the second stage, a number of informational talks were given about deteriorated areas (more focused on the issue of slag heaps), on the need to recover them and techniques that could be used to restore them (in this case by hydro-seeding indigenous species). During these talks, concepts such as "vegetation

series" and justifying the choice of this or that species of flora for the particular project that was to be carried out in the field were discussed in an enjoyable way.

In the last phase of the experience, there was a week of field trips with all the students to collect broom and heather seeds. Once the seeds were gathered and combined, they were given to the people in charge of the Hullera Vasco-Leonesa Mine slag heaps, and hydro-seeding was done using the indigenous seeds collected by the students.



*Field trip with students to collect broom and heather seeds*

Thus, an environmental and awareness building activity was carried out at the same time that there was collaboration on a project to improve the surrounding environment and restore a deteriorated area.

#### Why is it significant?

This is a participatory experience of a very significant participative-social nature, since its implementation involves a considerable number of groups (school, Parents Associations, town councils, the Neighbourhood Council of Santa Lucía de Gordón and the mining company Hullera Vasco-Leonesa S.A.).

This helps to promote dialogue and interaction among these different groups and the implementation of actions of common interest.

The educational component of the project is notable as well for the innovation it uses - in a way that was fun and active, not just as spectators – to work with those taking part in it. By doing it this way, the knowledge they are trying to convey will be more effectively assimilated.

It is also important to point out the practical component of the initiative, which truly does have a positive impact on the environment and is helping in the recovery of a deteriorated area.

### How has it been carried out?

As the Biosphere Reserve's managing bodies, the Town Councils of Villamanín and la Pola de Gordón were the main sponsors of the experience, which was aimed at local schools. These schools' Parents Associations and the Hullera Vasco-Leonesa S.A. company (which made the area to be recovered and the machinery needed to do so available to the experience) also contributed decisively to it being successfully implemented.

To ensure the participation of the local schools, their Head Teachers were spoken to directly, and they took charge of organising the school groups with the teachers concerned.

Publicity about the experience was achieved through provincial newspapers, as well as school magazines (the "La Fusca" magazine).

### What has been achieved?

All the schools in the towns inside the Reserve participated and an attempt was made to impress upon the students the idea that nature does not recover as easily as mankind damages it.

Students welcomed the initiative with enthusiasm, and seemed filled with hope after having done their bit to recover a deteriorated space.

It would be impossible to quantify the impact the experience had on the environment, since the slag areas are very large and the initiative took place in a small area.

Nevertheless, the following year shrub species and some trees were planted in a slag heap area in a more advanced stage of recovery in an attempt to further contribute to its restoration.

The experience was very positive as it achieved its initial goals: carry out activities with students in the natural environment and increase awareness of the environmental degradation problems that exist and how people can act to prevent and remedy them.



*Student participants from one of the local schools*



## MONTSENY AT SCHOOL

### Montseny Biosphere Reserve (Cataluña)

#### What do we hope to achieve?

Overall, the aim of the experience is to promote awareness among local residents about the fragility and complexity of the relationships between people and the protected natural area. The intention is to increase their knowledge about the complexity of managing the various uses that converge in the Biosphere Reserve.

From another, complementary, perspective, another of the initiative's objectives is to foster knowledge among primary schoolchildren living in the Montseny Biosphere Reserve and Nature Park of the natural and cultural heritage in which they live.

There is a desire to promote collaboration between schools and the Reserve's management team within the framework of environmental education. So, what is being sought is to strengthen a useful educational resource for supporting the school curriculum that establishes a comprehensive project that continues throughout primary school.

The goal is to get schoolchildren, their families and, indirectly, the population as a whole, to value the protection and management of Montseny as a positive resource, while promoting quality educational programs and the networking among Montseny's environmental education centres.

Ultimately, the aim is to include a far-reaching educational program as a part of the Montseny Biosphere Reserve and Nature Park's Environmental Education Strategy.

#### What does the experience involve?

There is a programme for each cycle of primary education:

- First cycle: Montseny and the farmers.

- Second cycle: Montseny and the water.

- Third cycle: Montseny and the forest.

Thus, throughout their schooling, primary school children will have a varied approach to Montseny in all its complexity and diversity.

Each cycle is divided into three phases spread throughout the school year: autumn, winter and spring.

The first two phases are common to all participating schools. However, it is the interplay between teachers, the reality of the school and the teacher in the environmental education centre that will eventually refine the content of the sessions based on what their particular reality is.

The third phase (spring) is presented as an individual project for each school. Based on everyone's' needs and interests and on the stated objectives and content, a project that involves direct participation in Montseny should be designed and carried out.

Specific and complementary educational support materials will be available.

A cultural and festive activity to present the programme and interchange experiences, work and projects carried out will take place once yearly in one of the towns within the biosphere. Planned as a travelling event, this activity has the participation of and will be hosted by the school, town council, town associations and families, and the programme's coordinating team.

#### Why is it significant?

This initiative is noteworthy for many different reasons. Among these reasons, worthy of mention is the integration into the towns' school curriculum of a programme specifically aimed at getting to know this space and its natural resources, as well

as the fact that this programme is customised for each situation as a result of the interaction among teachers, the reality of the school and its teachers.

The participatory component of the experience is indeed one of its strengths: it involves students and the teachers in schools but also the towns' councils, associations, and families (who take part in the festive activities for introducing the programme and sharing the work) is done to strengthen the link between population and Reserve.

### How has it been carried out?

The Montseny Biosphere Reserve/Nature Park, through the Provincial Governments in Girona and Barcelona as its managing bodies, is the main sponsor of this initiative. All of the early childhood education centres and primary schools, the Town Councils of the municipalities involved and the environmental education centres collaborate on this initiative.

Coordination between the experience's two sponsors is established within the framework of the Reserve's comprehensive management via an agreement that creates a committee for coordination between the two governments. This committee produces the annual activities programme and addresses topics of interest to the entire Biosphere Reserve. This experience, in fact, is a result of this programme of activities.

The experience will be shared with the networks of environmental education facilities and protected natural spaces, and the media.

### What has been achieved?

This experience began in 2007 and is still in the implementation phase, so it is somewhat premature at present to evaluate the results.

Still, the first ratings by participating schools have been very positive. The schools have evaluated the educational programme as exciting and completely necessary.



*The Montseny landscape*

The results anticipated in the short and medium term are:

- The involvement of all schools within Montseny in this programme, which will be included in curriculum of the different schools.
- The involvement in the project by the Parents Associations, the town councils and the region's environmental education centres.
- The promotion of awareness about belonging to a protected natural area, assessment of protection and land management as a positive.
- The establishment of a new framework for relations between the Biosphere Reserve and its inhabitants.

## SYNERGIES ON THE ISLAND OF LA GRACIOSA: PARTICIPATORY WORKSHOP ON "COLLECTIVE CONSTRUCTION OF IDEAS AND THE DEVELOPMENT OF SUSTAINABILITY"

### Lanzarote Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The main purpose of participatory workshop is to share the desire to and ways of understanding work in favour of sustainability, and the need for coordination between the different professionals and agencies involved.

The workshop's specific aim is to achieve the following objectives:

- Acquire knowledge about techniques and resources to improve collective intelligence.
- Communicate ideas and experiences about teamwork.
- Jointly develop the concept of sustainability.

#### What does the experience involve?

The initiative came from the island's Council workers. They saw the lack of coordination between the large number of professionals dedicated to environmental issues on the island and, as a result of this circumstance, they were able to appreciate how interesting it would be if all the efforts and resources aimed at these issues were coordinated.

So - with coordination from the Lanzarote Biosphere Reserve and funding from the the Canary Islands Institute of Public Administration, it was decided to organise a meeting that included collaboration from an expert in sociology and group dynamics.

There was a formal invitation made by the Reserve's office requesting attendance by the employees of the governments involved (the Teguiase Town Council, the

Lanzarote Council, INALSA (the local water company), Adena, the Government of the Canary Islands - Vice Ministry of Fisheries-, the Directorate General of Ports, the Ministry of Environment, Rural and Marine Affairs. At the workers' request, it was asked that the meeting be exclusively for them and without the involvement of politicians or the media.

The workshop was organized into seven thematic blocks (previously discussed and agreed upon with the Biosphere Reserve and the island's workers). These blocks are:

1. Introduction to unsustainability.
2. Introduction of the individuals and agencies present.
3. Principles of sustainability.
4. The future of La Graciosa and the Chinijo Archipelago.
5. The dynamics of "Earn as much as possible."
6. An analysis of the dynamics and theory "of the games".
7. Measures for improving the work in favour of sustainability.

Along with the workshop, other activities were designed and carried out on the island of La Graciosa with the collaboration of the government of the Canary Islands, the Island Council, the Ministry of Environment and Rural and Marine Affairs, the Teguiase and Haria Town Councils and WWF-Adena. All these activities make up an awareness campaign aimed at public employees and the general population that addresses aspects such as saving water and energy and managing and minimising wastes.

After the workshop, the technical assistants have carried on with the work and have continued to hold regular (informal) meetings as a Follow-up Committee. In addition, new workshops are planned aimed at continuing to improve coordination.

### Why is it significant?

The experience is noteworthy for its innovative character, because it aims to strengthen an essential aspect (whose importance, however, is not usually recognised) in order to ensure that projects can be managed and that resources are used and joint initiatives - such as improving coordination and teamwork - are carried out effectively.

### How has it been carried out?

This is an experience that began in 2008. It is sponsored by the office of the Biosphere Reserve, with collaboration of the Canary Islands Institute of Public Administration, the Canary Islands government, with the workers in environmental issues on the island as its main target, although it is considered that, ultimately, the whole population on the island of La Graciosa will benefit from its results.

The very nature of this experience meant that it was not widespread, because it was an instrument for improving the internal functioning of the government. However, once the workshop had been carried out, there was a press release issued about it. The initiative has also been shared among specialised thematic groups, such as the thematic networks of the Biosphere Reserves.

The mechanisms for coordination among all the entities collaborating on the workshop were based mainly on meetings between the technicians on the island who were involved in the effort. In the beginning, these meetings were spontaneous. They have become more formal over time, although they have not yet got a stable structure.

However, the formal consolidation of a platform or follow-up committee is not an issue of particular concern because communication between workers has improved and they are working smoothly and efficiently on an informal basis.



*Poster explaining the participatory workshop*

The meeting was assessed as very positive by those attending, and provides a good platform for fostering new synergies in the work in favour of sustainability on the island of La Graciosa and in the Chinijo Archipelago.

As a result of this first meeting, interpersonal and professional relationships between workers on La Graciosa have improved. In addition, they have continued maintaining regular, informal, contact with each other in order to coordinate activities on the island.

Moreover, new workshops are being organised at this time to help strengthen cooperation and collaboration between governments and professionals involved in environmental management.

## PROGRAMME FOR CONSOLIDATING THE NATURAL AREA AND BIOSPHERE RESERVE

### Sierra de las Nieves Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

With the so-called Consolidation Programme for the Sierra de las Nieves Natural Area and Biosphere Reserve, the aim is to increase awareness of these spaces and to share information about the natural, cultural, historical and ethnographic resources in this area, especially with the local population.

#### What does the experience involve?

This is a broad and ambitious programme which includes several actions:

- The organisation of conferences providing information on the area's natural resources.
- The Empinsápate Programme, aimed at children and young people in the Reserve.
- An exhibition.

The conferences take place annually, with three having been held so far: one on geology (in Tolox, in 2007), one on wildlife (in Istán, in 2008) and another on vegetation (in Yunquera in 2009).

The conferences are informative in nature and the venue where they are organised is rotated. The intention of the organisers is for all of the towns in the Reserve to take turns hosting them. In general, the conferences are planned to take place over two days. Talks are given on the first day and, on the second, there's a field trip, which is more fun.

By organising the conference over two days, the aim is to - in addition to reinforcing the knowledge acquired during the talks with a visit to the countryside - have participants get to know the towns where the conferences are held. Moreover, the

conferences last longer than one day, and this encourages attendees to stay overnight in the area, using its facilities and services. As a result, their attendance benefits the local people economically.



Poster publicising the conference held in 2008

For its part, the Empinsápate Programme (the activity with the broadest scope of all the activities in this experience) is a comprehensive environmental education programme aimed at increasing the level of environmental knowledge and awareness of the students in the Reserve.

This programme runs from visiting schools to deliver materials and carry out activities with the youngest students, to holding talks and exhibitions about the Reserve and organising field trips with older pupils. In addition, during field trips to the Reserve's main stands of Spanish fir, activities to reforest this species were carried out under

the guidance and supervision of workers from the Sierra de las Nieves Nature Park.

The programme even includes animated characters created expressly to convey information about the area's natural resources in a way that is simple, understandable and fun for children.



*Visit by Pinsapín to one of the schools in the Reserve and the delivery of materials*

The teaching materials developed as part of this programme (a file of activities for early childhood education, a reading workbook and activities for primary education, and a collection of short stories) have been adapted to the different educational levels. A team of writers that include education experts and teachers at area schools participated in its design.

### **Why is it significant?**

This is an ambitious experience that approaches the dissemination of information about the Reserve through various activities tailored to the recipients it is aimed at.

The exhibition and the conferences serve to disseminate knowledge about the Reserve, among both locals as well as visitors. Moreover, the approach to organising

the conferences harmoniously integrates the goal of sharing information about the Reserve with that of benefiting the surrounding towns.

The Empinsápate Programme, for its part, is notable for its broad scope (it has involved all the schools in the Sierra, and children of very different ages) and because it affects awareness about the Reserve among children and young people, working from the bottom up in order to strengthen the link between local people and their territory and to increase their awareness and involvement in the conservation of its natural resources.

It is also a good example of joint, coordinated activities among various entities.

### **How has it been carried out?**

This experiment began in 2007, originating with the Confederation of Municipalities of the Sierra de las Nieves (the body responsible for managing the Reserve). However, other entities have also participated in the different activities included the Nature Park and Biosphere Reserve Consolidation Programme.

The Nature Park and the town councils of the venues where the conferences were held have been involved in organising them. The Confederation of Municipalities of the Sierra de las Nieves, teachers in the schools in the Sierra, and the rural development group of the same name have all participated in the Empinsápate Programme.

The initiative has been publicised through the websites belonging to the Ministry of Environment of the Andalusian Regional Government and to the Biosphere Reserve, posters, brochures, distribution via traditional partners (the Spanish Ornithology Society, the university, etc.) the use of the volunteer network of the Sierra de las Nieves, and by word of mouth itself.

### **What has been achieved?**

This initiative has reached a considerable audience.

Approximately 200 people have participated in each of the yearly conferences, and work has been done with all of the early education and primary students in every one of the schools in the Sierra de las Nieves.

Both the conference and the Empinsápate Programme have received very positive assessments from participants.



*Student taking part in reforestation work as part of the Empinsápate Programme*

As a result, the conferences have enjoyed great acceptance by both local people and by those outside the Reserve's setting. The town councils in the Reserve have also shown significant interest in the conferences, and have offered their towns as venues for the event. A positive impact on the local economy of the towns where they are held has also been seen.

The Empinsápate Programme has made it possible to bring the area's environmental resources closer to the students and to increase their level of knowledge about the Reserve and some of its most emblematic species.

Additionally, the teachers have used the materials developed under the project throughout the school year.

As a result, it has been possible to involve the schools in the towns in the Reserve in spreading information about the environmental, historical and ethnological resources in the area.

The good results obtained by the various initiatives in the Nature Park and Biosphere Reserve of Sierra de las Nieves Consolidation Programme have led to the suggestion that it be repeated in coming years.

## COASTAL HABITATS RESTORATION PROJECT

## Cabo de Gata-Níjar Biosphere Reserve (Andalucía)

**What do we hope to achieve?**

The implementation of this project was intended - first and foremost - to control overcrowding on the most popular beaches, something that would cause a positive impact not only on coastal ecosystems, but also on the image of the Reserve and on the well-being of the visitor.

To do this, an attempt was made to limit foot and vehicular traffic access to sensitive areas, as well as to demarcate easy accesses to the part of the beach suitable for swimming and to clifftop lookout points.

These measures sought to encourage the gradual recovery of the structure, dynamics and protective function of sand-loving plant communities on vacant land along the coastal belt that are greatly deteriorated (roads, parking spaces, etc.).

The project was intended to help raise awareness of the visitors so they will adopt non-aggressive behaviour with regard to the coastal environment.

**What does the experience involve?**

The Cabo de Gata - Níjar Biosphere Reserve – which coincides with the Nature Park of the same name – has experienced a significant increase in its number of visitors in recent years, with its coastal systems bearing the greatest anthropic burden.

This increase in visitors has led to an increase in the negative effects of foot and vehicular traffic on the coastal strip, where there is a diverse representation of habitats of European interest.

Among these impacts, worthy of mention are the deterioration of the associated plant and animal communities and the modification of the geomorphological dynamics. These

effects are noticed by the visitor, especially where they are seen in the landscape.

To prevent the progressive deterioration of the environment, several courses of action aimed at regenerating coastal habitats and at improving the availability for public use in these areas were proposed.

Thus, the work done was related to the densification of destructured plant communities with a limited presence and diversity of characteristic species. Plants such as European beach grass (*Ammophila arenaria*), cotton weed (*Otanthusmaritimus*), sea daisy (*Asteriscus maritimus*) *Elymus farctus*, etc., whose seedlings came from the public nursery in Rodalquilar (Níjar) belonging to the Andalusian Nursery Network.

Work was also done on upgrading accesses by placing wooden fences around the most sensitive plant communities or over the formations subjected to the most deterioration by putting into place walkways that channel access to the beach.

Solid waste was collected by hand and inaccessible coves were cleaned with the support of watercraft. An environmental awareness campaign was carried out on the beaches during the summer to encourage the swimmers to help in the cleaning and maintenance of the beaches..

Lastly, free public transport system to access the beaches with limited vehicle capacity to minimize environmental impact was implemented.





*Bus line covering the free shuttle service*

### Why is it significant?

The experience stands out because objectives and action lines include both direct action for the restoration and improvement of affected coastal habitats, and the regulation of public use of these areas. Thus, not only is the action corrective, but also preventive, intervening in the origin of the damage and trying to act on its causes.

It also attempts to get swimmers involved in correcting the damage, which contributes to their awareness of the problem.

### How has it been carried out?

Different entities collaborated to carry out this project, mainly the Ministry of Environment of the Regional Government of Andalusia, the Níjar Town Council and the Torres y González Díaz S.L. company, in addition to the Reserve.

To foster coordination between collaborating partners, an agreement was signed between the Ministry of Environment, the Níjar Town Council and the Torres y González Díaz S.L., the company responsible for providing the free public transport service.

The activities were publicised through various local television channels, radio and newspapers. Information leaflets on "Sustainable Mobility" were also published; during the 2008 campaign, these were distributed to 30,000 people.

Also worthy of mention - since social awareness is one of the objectives to be achieved - is the fact that environmental information campaigns were carried out on the beaches during the summer to encourage swimmers to help in cleaning and maintaining the area's natural resources.

### What has been achieved?

The total number of people who have used the public transport services provided under this initiative between July and September 2008 was 28,240, which is a significant increase over the previous two years. This shows that the publicity about the initiative and its acceptance by the visitors is very positive.

The landscape of the beaches where traffic has been restricted has improved over the summer months, and roads that were filled by parked cars on both sides in past years are now clear. It has also reduced noise pollution and the air pollution resulting from the dust clouds raised from driving on dirt roads. A stabilisation of embryonic dunes has also been observed, as well as more plant cover and an increased deposition of sand.

According to surveys conducted in the media, the measures taken to restrict access by private cars to the most emblematic beaches and the launch of a public transport service are understood and accepted by most visitors.

Although there were occasional tensions with the local council due to increased use of the beaches and the lack of means to provide service at the required standard, a consensus was reached that has resulted in improved service, since both administrations share the common goal of working to improve the environment and also ensure the offer of quality tourism.



## REMOVAL OF EUCALYPTUS STANDS AND RECOVERY OF INDIGENOUS VEGETATION

### Monfragüe Biosphere Reserve (Extremadura)

#### What do we hope to achieve?

The main objective of this activity is the elimination of land area covered by reforested eucalyptus inside the Monfragüe Biosphere Reserve and National Park and the application of the silvicultural treatments required to restore the classic, indigenous Mediterranean mountain plant formations characteristic of this area.

#### What does the experience involve?

In general, the project involves the elimination of an area of non-indigenous vegetation dominated mainly by eucalyptus trees, specifically on the land of the "Lugar Nuevo", which is owned by the Autonomous Authority for National Parks, part of the Ministry of Environment and Rural and Marine Affairs.

The eucalyptus trees to be removed are the result of planting done for production purposes in the past century.

The total surface area where the activity is taking place is 1,255 hectares. The project is being carried out during three time periods. The last phase is currently being implemented on 240 hectares.

This experience began in 2000, when Monfragüe was a Nature Park and had not yet been declared a Biosphere Reserve or National Park. However, even at that time it was considered a priority action.

As a complement to the main activity of removing the eucalyptus trees, research studies on the evolution of the recovery of native species and the Mediterranean mountain landscape in this area are being conducted by various universities.



*Cutting down eucalyptus trees in October 2008*

#### Why is it significant?

This is an experience that has a beneficial impact on the environment, as its objective is the recovery of the landscape and indigenous plant cover in an area in which this had been lost.

This activity stands out further due to the good coordination among all the actors involved in carrying it out.

#### How has it been carried out?

The entities that have collaborated and supported the implementation of this activity have been the Regional Government of Extremadura and the Ministry of Environment and Rural and Marine Affairs, with the help of European funds. Additionally, both agencies have contributed staff to implement the project.

The coordination and cooperation among the different entities involved in carry out the experience -i.e., the national and regional governments- are considered to be very good.

The different phases of the project and the work carried out to implement them were publicised through the creation and publication of posters and leaflets and reports in the press, radio and television.

### What has been achieved?

The overall assessment of the results of the experience is very positive.

The main and most immediate result is the improvement of the habitat inside the Biosphere Reserve and National Park, as can be seen by the formations of Mediterranean woodlands and scrub.

To this must be added the positive assessment of the experience by visitors to Monfragüe.



*Activities to eliminate non-indigenous vegetation on a hillside on the land of the "Lugar Nuevo", October 2008*

## RECOVERY OF SUBALPINE HABITATS AROUND THE SALIENCIA LAKES

### Somiedo Biosphere Reserve (Principado de Asturias)

#### What do we hope to achieve?

The project's main objective is to restore the natural subalpine habitat surrounding the Saliencia lakes (Somiedo). This area was highly affected by the mining (iron) done in the decade of the sixties of the past century.

#### What does the experience involve?

This project has been designed for one of the most emblematic spaces in the Somiedo Reserve and Park: the area around Saliencia. For years, this area was subjected to intensive iron mining. The Minas de Somiedo company operated the Santa Rita Mine from 1956 to 1978. Some 70,000 tonnes of iron a year were extracted while the mine was active.

The project includes different types of activities - integrated with each other for optimum results - ranging from livestock improvements to the reconstruction of shepherds' huts as mountain refuges. In addition, improvements are being planned for public and social use and for specific habitat restoration work (removal of debris, laying of topsoil and hydro-seeding).

Specific activities are also being carried out in the amphibians' habitat to prevent the rise of predatory fish, and small artificial pools are being created on the shores of the lakes.

The first phase of work is to lay topsoil on the land that used to be occupied by Santa Rita mine facility. The regeneration of plant life will begin once this phase has been completed. Seeds of indigenous herbaceous and woody species have been collected for this purpose. The land that suffered the effects caused by mining will thus return to their original appearance, which had been modified since mining activity began as a result of the reddish hue from the oxidation of iron.

However, the goal of the restoration is not to hide the history of the mine. These mines were of vital importance to the development of the area, and so the Somiedo Town Council would like everyone who visits the lakes to become familiar with their history. This was the intention behind the installation of informative panels where the facilities used to be: the pitheads, slag heaps and buildings.

In addition to all of these actions, the project includes upgrading the access track to the Camayor pastures and building a lookout point facing the Saliencia prairie.

The project to regenerate the former mines is not the only activity to be implemented in the area surrounding the Saliencia lake complex. A new activity aimed at the reorganising traffic in this area is going to be launched. The project is sponsored by the Principality's Ministry of Environment, Planning and Infrastructure. This activity includes upgrading the road linking the centre of Saliencia with the Alto de la Farrapona; this road is currently in terrible condition.

#### Why is it significant?

The activity is noteworthy not only because it contributes to the environmental recovery of areas of great value, but also because this restoration is not done by forgetting and erasing the area's past.

Environmental and sociocultural aspects are thus integrated into the project, which seeks to maintain the memory of the uses the area has been put to and to recover its lost environmental resources.

### How has it been carried out?

This activity - sponsored by the Ministry of Environment and Rural Development of the Principality of Asturias - enjoys the collaboration of the University of Oviedo and the Tragsa company and is funded by the Obra Social de La Caixa. To foster coordination and cooperation among all the entities involved in carrying out this project, an agreement of cooperation was made between the Government of the Principality of Asturias and the financial institution La Caixa), in which La Caixa made a commitment to fund several environmental projects in protected areas of Asturias, including this project.

The activity began in 2006 and currently is in the process of being implemented. During its early stages, it was presented to the press and audiovisual media and publicised through videos and photos as well as in reports done by the Obra Social de La Caixa.

The monitoring and evaluation of the activity's results and the project management are the responsibility of the Director of the Somiedo Nature Park. The monitoring and evaluation of the activity is done through monthly worksite certifications.

### What has been achieved?

Although the activity is not completely finished, the initial results can be considered to be very positive.

The work - nearly completed - has managed to recover a large area with environmental and landscape resources that was highly deteriorated. The remains of the former mining activity are visible only in the extraction area, and the surroundings are already highly integrated.

There has also been an increase in visitors to the area around the Saliencia lakes, and they have expressed greater satisfaction with their visit and with the state of the area.

Experience shows that human activities in the environment - even the most aggressive - can be corrected and reversed using the same technological means that sometimes caused them.



*Lagoon landscape in the Somiedo Biosphere Reserve*

## RESTORATION OF A FIRE DAMAGED AREA

### Sierra Nevada Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

This experience has several objectives. The main objective is environmental and consists of restoring various ecosystems burned in September 2005 in an area of the Reserve and National Park, so that once the activity is finished, there will be an open habitat with discontinuities that is diverse, heterogeneous and resistant to erosion. The aim, ultimately, is to ensure that the land is better adapted to the environmental conditions specific to its location.

In addition, however, there is also a social purpose: to help homeowners affected by the fire, improving access roads and helping to plant trees that give fruit and that will also produce high quality wood and enrich the ecosystem and landscape (cherry, walnut and chestnut trees).

Along the same lines is the desire to promote the integration of pastoralism into Mediterranean forest management so that this traditional activity can be preserved.

#### What does the experience involve?

This is an experience that began in the same year that saw the fire - 2005 - and was sponsored by the Biosphere Reserve itself, through the Andalusian Ministry of Environment. It is still being implemented, as there are different phases planned.

A first phase - already completed - involved different activities: the removal of stands of burnt pine, the restoration and improvement of the canals most commonly used irrigation, carrying out work to protect against erosion, the repair of rural roads in the affected area and the establishment of plots for monitoring the regeneration of the original vegetation.

The next step will be a second phase in which public land will be restored, and a kind

of mountain - diverse and heterogeneous - with discontinuities will be created. A "careo" canal which has fallen into disuse - and which is more than six kilometres long - will also be recovered.

The third phase will involve working directly with the landowners affected by the fire who have so requested to restore their land, especially by removing burnt trees and planting new ones.

Immediately thereafter, a web page will be created in which information about the activities will be shared and which will encourage volunteer participation.

It is important to mention that while the experience was being carried out, an agreement to monitor the results obtained was signed with researchers from the University of Granada (CEAMA).



*Photo of the area affected by the fire of 2005*

Added to this should be the signing of another agreement with local farmers, in which an area is assigned for maintaining discontinuities on the mountain, preserving pastoralism there at the same time that this activity is integrated into the management of the ecosystem. This phase will be carried out in collaboration with researchers from the Spanish National Research Council.

### Why is it significant?

A number of agents are taking part in implementing this experience: the Andalusian Environmental Centre (University of Granada), the National Research Council, the Autonomous Authority for National Parks and Aguas de Lanjaron, S.A., as well as local farmers in the area and other key agents.,

Due to the large number of actors involved, coordinating the work takes on a special importance and the mechanisms put into place to manage this aspect worked well.

The experience is also innovative in its approach, as its focus unites a more environmental dimension (the recovery of burnt areas) with one that is more social (aid to those affected, support for traditional activities), and with another linked to research and thus to the logistics dimension, which should also be fostered by the Biosphere Reserves.



*Students participating in some of the restoration*

### How has it been carried out?

Funding for the project has come from the Regional Ministry of Environment, the Ministry of the Environment and Rural and Marine Affairs, and Aguas de Lanjarón.

For the good governance of the project, cooperation agreements were signed with the Andalusian Environmental Centre and the National Research Council for technical and scientific advice.

A cooperation agreement has also been signed with the Aguas de Lanjaron S.A. company, which will be responsible for publicising the activities.

The company has already created a website in which the entire restoration process may be followed. Along with the website, it also launched publicity campaign on national television in January 2009.

Furthermore, information about the activities is spread through the volunteers, who had already helped to carry out work to protect against erosion and to reforest the burnt area during the first phase.

The information shared through conferences, press the dissemination carried out through conferences, press visits, and spaces on TV shows such as "Espacio Protegido" or "Tierras Altas" are also worthy of mention.

It should be highlighted that the project also has its own system of monitoring and evaluation.

Among the obstacles encountered to carrying out the activities, those derived from administrative procedures bear mention. However, the people responsible for the Ministry were very responsive in terms of providing economic support for the activities. Moreover, not all the landowners affected by the fire have wanted the Ministry of Environment to assist in restoring their land.

### What has been achieved?

The developm

ent of the first two phases has been very successful because they have met the objectives set, both in terms of emergency actions to mitigate the effects of the fire, as well as in the design of the restoration project through close collaboration between researchers and the managers of the Biosphere Reserve and National Park.

The restoration project has already begun and will take place over the coming years with the participation of local people.



## PROGRAMME FOR RECOVERING RABBIT POPULATIONS

### Dehesas de Sierra Morena Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The objective is to recover populations of wild rabbits in the Sierra Norte de Sevilla Nature Park and SPA, territory that is part of Dehesas de Sierra Morena Biosphere Reserve.

This area's rabbit populations are currently very depleted due to myxomatosis, viral haemorrhagic pneumonia and over-hunting. Maintaining a stable population of rabbits promotes the conservation of predator species specialising in these prey, such as the imperial eagle and the Iberian lynx.

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**Recovering the rabbit populations affects the conservation of endangered species such as the Iberian lynx or the imperial eagle**

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#### What does the experience involve?

The European rabbit (*Oryctolagus cuniculus*) population has suffered a drastic decline in the past fifty years, primarily motivated by two diseases: myxomatosis and viral haemorrhagic disease (EHV).

This experience consists of implementing a set of activities aimed at recovering rabbit populations and improving their habitat in the Sierra Norte de Sevilla Nature Park, by reintroducing 400 specimens of this species into the space. This activity, which to date has involved the resettlement of hundreds of rabbits in the Los Galeotes Reserve, located in the municipality of El Real de la Jara, seeks to foster species of prey, thus involving the recovery of other endangered species such as the Iberian lynx or the imperial eagle, whose basic food is the rabbit.

It is planned to directly involve hunters and environmentalists throughout the recovery process. Actively involved in the project are the Hunters Societies of La Sierra Norte de Sevilla, the Hunting Resources Research Institute (IREC), and environmental groups involved in the Nature Park.

The rabbits introduced come from the Los Alcornocales Nature Park in Cadiz. Twenty have already been released in enclosures on land in Almadén de la Plata, El Real de la Jara and El Pedroso.

At the beginning, it was successful in getting the rabbit population introduced to double the number of specimens in the early autumn of that year and to colonise the areas around the initial introduction sites. Subsequently, estimates were made to determine the size of the population, and it was concluded that the initial population in some areas had been multiplied by eight, growing from a density of less than 0.5 rabbits per hectare to densities of 3-4 rabbits per hectare.

This scientific work has substantially improved rabbit repopulation techniques, as well as permitted progress in understanding the diseases affecting the species. A plan based on the conclusions from the research has been drawn up and implemented. This plan will create new high-density centres of rabbits in the Sierra Norte, on public land in Las Navas – El Berrocal and La Traviesa in Almadén de la Plata.

The different hunters' associations collaborating on the project - the La Traviesa Sports Club (Almadén), the Hungers' Association of El Real de la Jara and the La Jarosa Sports Association (El Pedroso) - have committed to maintaining these rabbit population nuclei.

### Why is it significant?

One of the most outstanding features of this experience is the involvement and participation of social agents that have, *a priori*, competing interests, such as hunters and environmentalists.

The Ministry of Environment of the Andalusian Regional Government - via the Nature Park and its Board of Directors - contacted the area's hunters' and environmentalists' societies through specific conferences so that participation would take place in a way that was beneficial to those involved. The project's objectives were presented during these conferences, and it was proposed that the agreements needed should be signed.

The experience is also very important because of its environmental implications, due to its impact on the conservation of severely endangered emblematic species.

### How has it been carried out?

Since a number of entities were involved in the experience, it was necessary to insist on developing mechanisms for effective coordination and cooperation. To this end, cooperation agreements were established between the government and the groups of hunters.

The Guadalquivir Water Basin Authority was in charge of creating high-density nuclei of rabbits. Once the work was completed, they were given to the aforementioned groups so that, after signing the relevant agreement with the Ministry of Environment, they could take charge of their conservation, maintenance and operation.

The experience has been publicised primarily through the website of the Ministry of Environment of the Andalusian Regional Government.

### What has been achieved?

Although experience is still being carried out, it appears that the changes in the rabbit nuclei have been positive. The individuals introduced in early 2008 have already produced several litters and it is expected that they will continue to do so.

Four cooperation agreements have also been signed, and three nuclei have been installed on each of the four plots of land participating in the agreement. The hunters' and environmentalists' societies are in charge of maintaining them (always under the supervision of technicians from the Ministry of Environment and with technical advice from IREC scientists).

Among the difficulties encountered in implementing the project, the most important are those related to locating the most suitable places for the location of the high-density nuclei of rabbits and those having to do with the various conflicts of interest.



*Scenery from the Dehesas de Sierra Morena Biosphere Reserve*

## RECOVERY PLAN FOR THE GIANT LIZARD OF EL HIERRO

### El Hierro Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The aim of this experience was to ensure the survival of natural populations of the giant lizard of El Hierro and to encourage its growth and expansion. Another goal was to quantitatively and qualitatively optimise the reserve of specimens included in the captive breeding program.

It sought to establish at least seven viable population cores of giant lizards of El Hierro in favourable habitats so that their viability could be ensured.

The plan also provided for the periodic assessment of the conservation status of natural, captive and reintroduced populations, and for increasing the positive attitude of the island's inhabitants towards the problems related to the conservation of the giant lizard and the measures taken for its protection.



*Captive breeding facilities for the giant lizard of El Hierro*

#### What does the experience involve?

Since the giant lizard of El Hierro was rediscovered during the mid 70s of the last century, there have been numerous conservation initiatives, beginning in 1985 with the building of the reproduction centre that still exists today. In 2004, the Giant Lizard Recovery Plan was adopted.

Its aim was to ensure the maintenance of viable populations of giant lizards in their natural environment. The programme had several complementary lines of activities: captive breeding, the study of the behaviour of the species, environmental education campaigns, the control of feral cat populations and, ultimately, their reintroduction into the wild.

Since it was launched in 1995, the captive breeding centre has obtained a number of offspring - always more than 30 specimens a year - and the first release of individuals into the wild took place in 1999. Since then, the number of specimens released is close to 400 individuals, with the animals being released at three different points on the island (Roque Chico de Salmor, La Dehesa and El Julán). The first of these sites is thought to be the most effective due the absence of feral cats. In recent years new lizards have been captured - the result of the reproduction of those previously released - which is an indicator of the project's feasibility and success.

With regard to environmental education campaigns associated with the initiative, the main activities aimed at raising awareness and publicising the plan consist of visits to the breeding centre and the land adapted for this purpose.

Talks to increase awareness were also held in the all schools on the island, and there has been participation in a school workshop on "Quality and Tourism", where students are being trained as future managers of the natural and urban environments and have cooperated in the research conducted on reintroduction sites. Finally, advocacy efforts have been directed to other groups related directly or indirectly to the development of the plan, such as the local police, civil guard, tourist information providers and hunters' associations.

### Why is it significant?

The experience is noteworthy due to the great efforts aimed at the carrying out recovery and conservation activities for a species that was thought to have disappeared and that is now starting to recover.

It also stands out because of the island's government's commitment to this task, and this has contributed greatly to its success.

### How has it been carried out?

This experience began in 2002, and now is completely implemented and consolidated.

The project is being developed by the El Hierro Council, with collaboration from Biosphere Reserve, which provides the necessary logistical support. The Government of the Canary Islands and the University of La Laguna are also collaborating on the project.

At the beginning of the project, aid from European Union and the government of the Canary Islands was provided to coordinate the work. However, the plan was finally approved in 2004 by the El Hierro Council.

Books, brochures, stickers and a video have been produced in order to publicise the experience, and talks have been held with the local people to prevent cats from being released and in order to raise awareness about the problems of conserving this species.

Daily visits are made to captive breeding centre are made daily visits and visitors are provided with information. This centre is one of the island's most important tourist attractions.

A report on how well the goals outlined in the plan are being achieved is drafted yearly.

The coordinator of the experience also has a personal website (<http://marodri.vanaga.com>) where different publications related to the experience can be found.

### What has been achieved?

The breeding program is considered to be a success because - thanks to the activities outlined in the plan - it has been possible to keep a stock of specimens in

captivity and reintroduce the lizards into the wild in three population nuclei. However, some of these nuclei are still having problems due to feral cats hunting some of the lizards.

The implementation of the plan has also contributed to the creation of jobs by stabilising the staff positions at the breeding centre and those of the environmental education instructors.

Among the obstacles to the development of the project, the lack of financial sustainability from the beginning of the conservation efforts should be mentioned.



*Inside the part of the El Hierro lizard breeding terrarium open to visitors*

## CONSERVATION OF CHIROPTERA IN LOS ARGÜELLOS

### Los Argüellos Biosphere Reserve (Castilla y León)

#### What do we hope to achieve?

In general, it aims to improve the management of bat habitats and refuges in the Reserve and find a formula for coexistence between bats and humans.

The first step is to establish a set of guidelines for improving bat conservation.

Based on these guidelines, the goal is to determine which areas in the Reserve are most important for conserving bat populations and to establish refuges for them.

Finally, it wants to raise awareness of the benefits that these species contribute to the environment and to prevent certain human activities that are harmful to them.

#### What does the experience involve?

This study, carried out in Los Argüellos, is being directly sponsored by the Biosphere Reserve. This is especially significant, because this space is home to 16 of the 27 bat species existing in the Iberian Peninsula.

Under this project, a list of bat species in the area has been drawn up; that list includes the different species' level of threat according to governmental legislation. The behaviour and habitat of each of these bats have been studied. The threats to their conservation in Los Argüellos area - such as being disturbed by humans, the destruction of their refuges, the chemical treatment of timber or the closure of caves - have also been identified.

The guidelines proposed as a result of this experience are basic and aim to moving slowly; they consist of projects to protect and create refuges for these animals.

To do this, sheds have been set up and their level of use is being monitored in order to improve the management of their habitats.

This initiative is still in the implementation process.

#### Why is it significant?

This initiative is notable because it is aimed specifically at the conservation of a group of wildlife that does not often enjoy priority attention.

Also worthy of note is the good coordination between the different entities involved in carrying out the project, including involvement by the Reserve, town halls and others.

#### How has it been carried out?

In addition to the Biosphere Reserve's managing body, the Environmental Institute and the University of León are actively collaborating, along with the town councils of Cármenes, Vegacervera and Valporquero and the Biodiversity Foundation, which has helped with funding.

To foster coordination between the collaborating institutions, meetings have been held in which the various agents offered their views and input on how to effectively carry out the initiative. Besides these meetings, there has been ongoing contact between them to see how the experience unfolds and to solve the problems that came up during the process.

Local people also got involved and showed interest in indicating the sites important to the bats living in the area.

The project has not yet been well publicised, but this will change, as the aim is to share the experience with as many people as possible. Among the mechanisms planned for publicising the experience are a DVD explaining the work, a report on the experience, specialised publications,

participation in radio programmes, the publication of a specific section on the Los Argüellos Biosphere Reserve's website and conferences aimed at different sectors.

When sharing information with the different agents involved (mayors, presidents of neighbourhood associations and people linked to rural tourism and education), it is clear that they have a very positive assessment of the activities carried out.

### What has been achieved?

It can be said that the initiative has been successful, as the results of the study have led to an initial series of proposals for the protection and conservation of the bats.

Thus, it is anticipated that the bats will adapt to the sheds which have been put into place for them to use them as shelter and that their activity will be observed via video cameras, which will not disturb or affect this species in any way.

The experience has been positive because it represents a basic step in conserving these species and in broadening knowledge about their situation and the conditions of their habitats, in addition to providing information about how valuable these mammals are and how important it is to conserve them. However, one of the objectives to be met from now on is to insist on this latter point, to show the multiple benefits that bats bring to the ecosystem and to dispel the false beliefs that are generally widespread about these species.



*Distribution map for a species of bat, created as part of the project*

## EL HIERRO: 100% RENEWABLE

### El Hierro Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The ultimate goal of the experience is to achieve energy self-sufficiency for the island and the El Hierro Biosphere Reserve using renewable energy sources by 2010.

This initiative is also linked to implementing the necessary outreach and awareness campaigns aimed at local people, as well as to identifying other islands to which this model can be exported.

#### What does the experience involve?

El Hierro's energy needs are currently being met with fossil fuels by burning diesel oil in a power plant, leading to a situation of dependence on outside energy. For this reason, the El Hierro Council - which fully supports sustainable development - has made a commitment to implementing this ambitious project, which would affect the entire island.

The project - which is in the process of implementation - aims to build and operate a system comprising two water tanks (one lower, with capacity for 225,000 m<sup>3</sup> and an upper tank, with capacity for 500,000 m<sup>3</sup>), a 10 MW wind farm, a 10 MW hydroelectric plant with an effective head of 682 meters, a pumping station and an already-existing diesel engine plant (for exceptional cases of system failure).

This system will enable an intermittent source of energy to be transformed into a controlled and constant supply of electricity. Most of the energy fed into the island's distribution network will come from the hydroelectric power station, with a large part of wind energy generated used to supply the pumping system and stored as potential energy, which will ensure the stability of the distribution grid. The excess wind power will be fed into the grid and used to desalinate the water in the two existing plants.

This project also includes carrying out specific campaigns about using renewable energies on the island. Overall, this is a solar thermal campaign; a campaign to take advantage of rooftops to generate photovoltaic energy, and another aimed at making use of biomass for generating energy.

Along with the projects aimed at generating energy, the programme will be accompanied by outreach and awareness activities aimed at both the local people as well as those outside the island, as it is designed to serve as an example and to promote the idea of exporting the programme to other islands and the mainland.

The campaign to publicise the results internationally will allow information about the project to be shared worldwide, especially on European islands. To do this, a number of publications, brochures and technical visits to the island are planned, in addition to the organisation of an international conference.

The awareness and training campaign aimed at local residents will serve to raise awareness about the island's project, the benefits of renewable energies and the ways they can be funded.

Currently, there are already published materials, informational leaflets and a guide to good energy practices in the island's schools.

#### Why is it significant?

This experience is important because of the island's strong commitment to renewable energy and its search for energy self-sufficiency.

It is an ambitious and innovative experience primarily because it involves setting up an offshore wind farm (the first of its kind in the world).

The wind farm is a clear example of an experimental scheme with demonstrable effects, and of the type of initiatives that should be encouraged for Biosphere Reserves.

#### How has it been carried out?

The project has been underway since 2007 and is expected to be completed in 2009. Over this time more than €54 million will have been invested in constructing this offshore wind farm, which will meet the island's total power requirements.

A company (Gorona del Viento, S.A.) was set up to carry out this initiative, with 60% of its shares held by the Island Council of El Hierro, 30% by UNELCO - ENDESA and 10% by the Canary Islands Institute of Technology (ITC). This company is responsible for promoting the experience, along with the Biosphere Reserve.



*Landscape of the Island of El Hierro*

Assistance from IDAE and grants from the General State Budget are expected to provide financing for the project. The Directorate General of Energy (EU), UNELCO - ENDESA and IDAE (mentioned above) are the financing bodies for the project.

The experience is being publicised through a specifically-created website, as well as press releases.

#### What has been achieved?

This experience is currently underway. Therefore the results cannot yet be confirmed. However, assessment of the milestones achieved so far has been good.

Once the project is completed, the expected results are for the island to be energy self-sufficient (by 2010) and for the population to have increased energy awareness. Ultimately, the Island of El Hierro is expected to become a world leader in renewable energy. An indirect side effect is expected to be seen in an increased influx of visitors to the island, both from scientists and those looking to study the model and transfer it elsewhere.



## IMPLEMENTATION OF A PUBLIC TRANSPORT SYSTEM IN ORDESA

### Ordesa-Viñamala Biosphere Reserve (Aragón)

#### What do we hope to achieve?

The main objective of this initiative is to plan and manage access to the Ordesa National Park (part of the Biosphere Reserve). An access system was proposed to help limit the impact caused by visitors and vehicles at the main entrance to the area.

The goal is to ensure better quality for visitors to the Park and to preserve the environmental value of the Valle de Ordesa by introducing a public transport system in the protected area, which permits access throughout the day within an authorised timetable.



*System signs*

#### What does the experience involve?

The Valle de Ordesa was the first part of the National Park. It is also part of the Ordesa-Viñamala Biosphere Reserve and receives more visitors than any other area in the Reserve. Organising and managing these visitors is one of the major management issues in this area. Vehicle access is via an asphalt road, managed by the Autonomous Community Road Service. The road leads five kilometres into the valley and ends in the La Pradera area. At La Pradera there is a parking area with space for 480 cars and 10 buses, which becomes overloaded on days with high visitor numbers. Access is then cut off at the Puente de los Navarros.

The 1995 National Park Use and Management Master Plan (PRUG) set the maximum number of visitors that can simultaneously remain in the Ordesa Sector at 1,500, so the PRUG established a public transport system to manage private vehicle access in order to limit the impact of traffic and parking on the Park. The system uses buses between the parking areas at Torla and La Pradera at maximum visitor influx times.

A large free parking area was constructed in Torla where buses (shuttles) transport visitors to the end of the road that leads into the National Park. The bus service operates during the busiest periods (summer, Easter week, etc.). Private vehicle access is limited while the bus service is operating.

This area service does not cover the entire Biosphere Reserve, only the Ordesa Sector (which contains a section of the Ordesa National Park and Monte Perdido).

#### Why is it significant?

The experience is special because of its strong environmental component and its innovativeness. To date, there are not many other examples offering an alternative to cars, especially in order to protect natural assets in accessing a protected area.

#### How has it been carried out?

This initiative, which was started by the National Park management body in 1998, has been fully implemented.

The experience has been and is widely publicised: the access system is advertised, and there are signs and information at the location, as well as brochures and the website of the National Park.

The experience is continuously tracked, with ongoing monitoring of vehicles entering the Park.

### What has been achieved?

The experience has been going on for long enough to be able to assess the results. Regulation of access has reduced impact at the main entrance to the Park, resulting in better quality of visits, and indirectly increasing the economic benefits for the town of Torla (where the public parking area is located).

The results of the first season were in general very good, with no major issues, although there were not enough buses at times, which caused longer waiting times than usual. This problem was overcome by bringing more units into service.

The initial scepticism among the tourism businessmen in Torla disappeared when they became aware of the direct benefits of the public transport system for the town. The system led to increased spending, as tourists had a reason to stay longer in the town centre, resulting in increased business for establishments there.



*View of the Bujaruelo Sector (specifically, the Ribereta de Ota) at the Biosphere Reserve*

## PREPARATION AND EXECUTION OF CLEARING OPERATIONS

### Muniellos Biosphere Reserve (Principado de Asturias)

#### What do we hope to achieve?

The goal of this initiative is to establish agreements with residents and/or land owners in areas of the Reserve with the highest environmental value (bear and capercaillie habitats and communal pasture areas) in order to decide upon certain sites and circumstances which woodland may be cleared to create pasture for livestock, leaving the remaining land uncleared.

This will help to reduce the fires that are frequently set to eliminate undergrowth and create pastures.

#### What does the experience involve?

In 2007, the Environment Ministry of the Principality of Asturias, which is in charge of the Biosphere Reserve and is the lead body promoting the activity, conducted a study of livestock density, pasture area, cleared area and clearing and fire requests over the last five years. The objective was to learn about the real requirements of livestock farmers in the Reserve, specifically in three municipalities (Ochadas, Llameras and Gullón), which are brown bear and capercaillie habitats.

The objective of this programme was to satisfying the pasture requirements of local livestock farmers while also conserving these two threatened species.

Therefore, agreements must be made with woodland owners in order to specify the locations and circumstances in which clearing may be carried out. This will limit the number of fires set in these areas to increase the size of pastures.

Meetings with residents will be held in the three municipalities (mentioned above) to reach this objective.

The agreements will focus on clearing in specific locations, and which will be carried out entirely by the local government.

If clearing applications are turned down because clearing is not permitted in this area, there is a plan to partially compensate livestock farmers for any potential impact on their business, with this compensation coming from European funds.

If positive results are seen in these municipalities, the pilot project will be applied to the entire Muniellos Biosphere Reserve.

The experience is still in its first year.

#### Why is it significant?

This initiative stands out because of its compromise and participation-based approach. The intention is not to impose any conservation measures on the affected population that will clearly clash with their interests. Rather it is an attempt to use dialogue to find a solution that will be compatible with their activity.

This will no doubt help ensure that any positive results of this action in terms of protecting symbolic species such as the capercaillie and brown bear will be much more stable and long lasting.

#### How has it been carried out?

The experience is currently at a relatively early stage. However, regular meetings are being held with the residents of the three participating towns to establish ongoing dialogue and to come to agreements that can be put into practice.

**What has been achieved?**

Since the project is at an early stage, its definitive results are still unclear.

However, it is important to note that agreement has been reached with the three towns to begin clearing work.

Ultimately, if the agreement is successful, the initiative can be extended to all the municipalities in the Reserve, ensuring that sites important for bear and capercaillie conservation will not be cleared (therefore reducing the number of fires in these areas).



*Landscape of the Muniellos Reserve*

## LANDSCAPE RESTORATION PLAN

### Valle de Laciana Biosphere Reserve (Castilla y León)

#### What do we hope to achieve?

The purpose of the landscape restoration plan is to provide an inventory, catalogue and classification of slag heaps of waste coal in the area of Laciana, as a preliminary step for restoring these to reintegrate them into the environment.

#### What does the experience involve?

The Laciana area has had a strong relationship with mining, with the mines in some places still in the same condition as when they were closed. This was the reason for the landscape restoration experience being started up in 2007. It has now been completely implemented.

The project includes various activities. One of the first of these involved testing to measure the levels of various chemicals in the soil, to help identify heavy metals and other special contaminants. This initial analysis established the guidelines for the most suitable methodology to be used for future restoration projects.

Existing information and documentation were first gathered to gain a broad understanding of the background.

The main information from the inventory and field work carried out at abandoned or unused mines was compiled into 77 files or inventoried areas. The majority of these areas are in public woodland, but there were also mines in more urban environments, where action was more urgently required.

Numerous and various kinds of infrastructure, waste, mine entrances, hoppers, vessels, branches and shafts were identified. These structures were in various states of repair, so demolition was suggested in some cases. Recuperation and reuse were proposed for others which had higher potential worth.

Sixteen effluent pools were inventoried. Some were still useful for water and leachate from mine entrances.

The information compiled was used to create a computer map to ensure each of these areas can be properly located, and which can be compared to files prepared during field work.

In regard to the condition of the water, a chemical analysis was performed on the ten areas of greatest interest based on the inventoried files (based on the proximity to springs and watercourses from which water is taken for human consumption, or on apparent contamination). The results showed there were only a few cases of chemical elements and heavy metals being at levels higher than those permitted for drinking water (none of which were in water for human use). However, a follow-up should be conducted on the analysis periodically performed by the Miño-Sil Hydrographic Confederation at different points in the Municipality of Villablino (the only municipality that is part of the Reserve) to ensure any potential water contamination problems can be monitored and controlled.

Lastly, restoration actions were proposed for each of the 77 inventoried files. These proposals ranged from profiling slag heaps, landscaping slopes, reforestation, hydroseeding and demolishing structures, fences and walls, to covering mine entrances, cleaning effluent pools, and renovating industrial architecture, etc.

#### Why is it significant?

This experience stands out because of its ambitious objectives and the need to restore the landscape of an area that was strongly affected by mining.

It involves working on one of the most important pillars (the environmental one) in areas declared as Biosphere Reserves, prioritising actions on the most relevant issues affecting the Reserve (the environmental impact from the by-products of mining activity).

#### How has it been carried out?

The Town Council of Villablino promoted this experience, which was financed by the Biodiversity Foundation.

The Ministry of the Environment and Mines of León, the Neighbourhood Association and the University of León also collaborated on this project.

The local population was also involved in carrying out the initiative, helping the technical experts in their work.

Talks were held at various venues throughout the area in order to spread the word about the activities. Press releases were also published in local newspapers.

#### What has been achieved?

The work conducted means there is now a detailed inventory and description of all the lands in the Reserve affected by mining activities. A specific project to restore one of the areas inventoried in the plan is currently underway.

The next challenge is to obtain the required funding to carry out the work needed to fulfil the objectives proposed by the study.



*Open-cast mining in the Valle de Laciana Reserve*

## PROMOTION OF ORGANIC FARMING PRODUCTS

### Valles del Jubera, Leza, Cidacos y Alhama Biosphere Reserve (La Rioja)

#### What do we hope to achieve?

The purpose of this experience is to convert the traditional agriculture practised in the area into organic farming (cultivating crops using more sustainable production methods).

This will help to preserve native crop species in the area covered by the Reserve.

It will also focus particularly on promoting economic activities linked to olive oil.



*Organic olive oil press*

#### What does the experience involve?

Organic farming is being promoted in the Valle del Alhama, creating the first organic valley along the banks of its tributary, the Río Añamaza.

A cooperation project has been started in this valley (with 250 hectares of olive and almond groves) to maintain the traditional landscape of the area, improve the income of farmers and have a positive impact on more than 150 farmers in the towns of Cabretón, Cervera del Río Alhama and Valverde.

In addition to being a project with social and economic benefits, the valley (which is a mosaic landscape) aims to become an example of how to balance traditional agricultural practices with respect for the

environment, enabling the local population to remain in the valley.

Among the specific activities carried out as part of this initiative, one of the most important is the introduction of seals to label olive oils and almonds produced in the valley according to organic farming criteria as "Food from the Biosphere Reserve", and with organic certification.

Two seals have been created specifically for olive oil: "Olive Oil of Cabretón", which is marketed and targeted at traditional consumers, and "Pagos de Añamaza", which is targeted at people outside the region.

The olive oil project involves 73 producers and covers an area of 250 hectares, with 65,957 kg of olives (Empeltre variety) and 15,500 kg of oil (all classified as Extra Virgin Olive Oil) having been produced in 2006. Of this 2006 production, 26% was sold as organic olives, 71% was bottled with the "Oil of Cabretón" seal and 3% was bottled with the "Pagos de Añamaza" seal, which gives the product highest added value.

#### Why is it significant?

This experience stands out because of how it combines a more environmental dimension (the preservation of traditional landscapes and the promotion of more environmentally friendly cultivation methods) and a more social one (boosting the value of local products and promoting agricultural activity) within its objectives.

#### How has it been carried out?

This experience was promoted by the Biosphere Reserve, specifically the Directorate General for Environmental Quality and Water of the Regional Government of La Rioja, which also provided the funds to finance it.

The development process for carrying out this initiative was long, since it involved traditional farms being converted into organic ones, meaning it was two years (from 2004 to 2006) before the organic agriculture seal could be marketed.

Additionally, training had to be provided on organic farming techniques.

To monitor the success of the experience, the various actions were tracked with an inventory carried out of the size of the area joining the initiative, the quantity of product harvested during the period and the volume of olive oil produced.

The experience was publicised in the press, brochures and talks with interested farmers.

### What has been achieved?

The direct results are as follows:

- 74 farmers participated.
- 250 hectares were converted from traditional to organic farming.
- An organic oil press was constructed.
- 4 temporary jobs were created for 5-6 months in the area.
- 2 commercial brands were created.
- The project has helped to maintain the local Empeltre olive.

Based on these results, the experience has been positive since it has directly helped to create jobs and to maintain agricultural methods that help to ensure environmental conservation.



*Example of an olive oil bottle with the "Pagos de Añamaza" seal, Empeltre variety*



## PROMOTING TRUFFLE AND MUSHROOM (MYCO) TOURISM

### Valles del Jubera, Leza, Cidacos y Alhama Biosphere Reserve (La Rioja)

#### What do we hope to achieve?

The objective of this experience is to establish a model for using and managing natural resources such as the truffle.



Example of mycorrhizal oak

An indirect objective of the experience is to contribute to the reforestation of municipal lands used for agriculture and for pastures in towns within the Valles del Leza, Jubera, Cidacos and Alhama Biosphere Reserve. This will create groups of forest areas that will be capable of regenerating and enduring over time, which will contribute to protection of the environment.

The reforestation effort will employ mycorrhizal forest plants with black truffle, summer truffle and other fungi of commercial interest. Due to the anticipated use of these fungi, the reforestation effort is both integral and multifunctional.

Additionally, the experience is expected to increase truffle related tourism in the Reserve.

#### What does the experience involve?

The truffle is a very sought-after fungus that grows underground and lives mainly with holm oak (*quercus ilex*) and other oaks

(*quercus* genus). Due to the value of this product, the fungi will be introduced in the sierras as an alternative crop to existing agriculture in the mountains.

Actions to promote the use and cultivation of truffles as part of a pilot plan in the Reserve include:

- Preparation of a study of the potential for cultivating this product: the planned cultivation area for the truffles is 4,000 hectares, which has the potential to reach an annual production value of 6 million Euros.
- Conducting pilot plantings to test the experience.
- Initiating steps to recover wild truffles.
- Advertising the experience and the products (visits to plantings and outings to harvest truffles, publication of a guide to truffles in the Reserve, organisation of special fairs, a publication on the cultivation and use of truffles in the Reserve,...).
- Consulting for those interested in truffle cultivation.

It is an ambitious experience that includes a wide spectrum of issues relating to management models for the truffle: studies, production, spreading awareness, and use (not only as an eatable resource, but also as a product around which regional tourism can be developed).

#### Why is it significant?

The experience aptly combines environmental and socioeconomic objectives.

From an environmental conservation point of view, it is important to note that truffles provide key environmental benefits to the soil: the contributions made by truffles to the fight against erosion, to soil conservation and

improvement and to the reduction of the risk of forest fires has been demonstrated.

The socioeconomic benefits of the experience include diversification and improvement of the economy of the area. These benefits were brought about by promoting tourism associated with truffles, diversifying agriculture and creating alternative and additional sources of income.

### How has it been carried out?

The La Rioja Directorate General of Environmental and Water Quality, as the managing entity of the Biosphere Reserve, serves as the primary promoter of the experience, and provides the funding for development.

Town councils in the Reserve have also collaborated by providing land and facilities for discussions and for the Fair.

The activity was developed through the work of government technicians, in addition to 3 field technicians who were responsible for selecting the areas and performing tests and studies in the field.

The experience was publicised in the press, in brochures and through discussions with those interested in the activities.

The experience is periodically monitored, according to the following activities:

- Experimental plantings: periodic visits to observe levels of maintenance. Until 2007, annual controls were in place, which lead to irrigation and replanting by the government. Town Councils have monitored the status since 2008.
- Truffle outings: periodic visits to tourism companies to obtain data regarding the popularity of the initiative with visitors.

### What has been achieved?

The following results were achieved as a result of all of the work performed:

- 14 experimental plantings, for a total of 15.5 hectares in 12 municipal districts in the Reserve.
- Efforts to recover 80 wild truffles.
- 8 guided pilot outings to harvest truffles and to visit plantings and planting areas

took place. Additionally, the Reserve has organised a truffle outing.

- 4 Truffle Fairs have been held, attracting 7,000 visitors. The fairs familiarised visitors with fresh truffles, truffle products and trees associated with producing truffles.
- Creation of a new venture has been proposed: a planting ground for mycorrhizal plants.
- Cultivation has been recommended for more than 300 owners based on soil suitability, better producing species, initial work and work to be performed after planting, etc.

The experience has been positive, as jobs and new tourist activities have been created. The Reserve has been able to use these successes to attract residents and visitors.



*Truffle Fair in Soto en Cameros, July 2008*

## LA PALMA WORLD BIOSPHERE RESERVE SEAL

### La Palma Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The Reserve has created, designed and registered the "La Palma World Biosphere Reserve" seal to promote and advertise (both on and off the island) products, goods and services, especially farm and home produced foods. The Reserve also uses the seal to promote cultural and recreational tourism, which stimulates the traditional and new social economy to maintain island sustainability.

Advertising and promoting the seal has brought about a circle of production. Promoting the sale of products with the seal has increased demand for the products and for raw materials. In turn this has incentivised cultivation and production on the island, and has stimulated local agriculture, livestock farming, as well as inland regions. This enables local products to be assessed as prepared and produced within a UNESCO declared Biosphere Reserve.

The final objective of creating the seal was to stimulate recovery of inland regions.

#### What does the experience involve?

The Island of La Palma has a varied, rich and well preserved tradition of agro-food products. These products have been prepared by traditional methods for centuries. The intra-island market is the primary consumer of these products. Over time, a great deal of effort and dedication has been centred on creating a path outside of the island for these small producers (mostly traditional factories). Despite these efforts, it is very difficult for traditionally prepared agro-food products to compete with industrial prepared products. Therefore, the traditional products have to stand out as quality products that use raw materials from inland island regions.

In developing the seal, the Biosphere Reserve took steps to regulate the use of the seal and the logo, subsequently creating an entity, the Sector Council, to manage the seal.

Next, locations were selected for marketing the products, and promotional lines were established and applied to products with the seal. Direct contact and active participation of the sectors in the effort involved is continuously maintained.

Afterwards, local companies were individually visited to inform them of the seal and of the potential for incorporating their products. They were also introduced to the benefits of having their products evaluated.

Work initially began with the local agro-food sector. Progressively, the seal was added to more products, goods and services. Those considered to be good candidates for the seal are considered by the Seal Sector Council for subsequent submission for a decision by the Consortium Administrative Council (the Reserve management entity).

In support of the development and funding of the seal, a Foundation was established (TABER) to certify products, goods and services proposed for the RMB La Palma seal.

Compliance with requirements stipulated by the General Rules and Specifications for the seal is mandatory.

This requires a prior agreement between the Foundation and the RMB La Palma Island Consortium, which involves modifying the procedure for granting authorisation for use of the seal.



*Tagoja Honey, with the quality seal*

### **Why is it significant?**

The experience is not only important due to the emphasis on marketing and promoting local products, and on improving local socioeconomic conditions, but it is also important since products and services promoted by this initiative are prepared with respect for the environment.

The experience stands out due to the strong support it has received from the Government and from the Reserve management entity. Without a doubt, this support has ensured the success of the initiative.

### **How has it been carried out?**

Currently, the experience is coordinated by the La Palma RMB Seal Sector Council (with informational authority that is not binding) through a joint effort with producers and with the Consortium Administrative Council.

Additionally, periodic joint meetings were held to debate issues, benefits and difficulties in using the seal.

### **What has been achieved?**

Use of the La Palma RMB seal and logo has been authorised for various local products such as sea salt, gofio, honey, almond pastries, etc.

Since the end of 2004, 20 companies have been certified, and more than 30 companies are associated with the project.

The experience has promoted the use of local raw materials and has stimulated the recovery of raw material production. The effort has directly involved local residents and businesses. Products are now offered in a variety of markets, which has resulted in new business opportunities that reward good environmental practices. Additionally, local jobs have been created.

Various obstacles were encountered during the process of implementing the experience, such as initial scepticism on the part of producers, and lack of awareness of the Biosphere Reserve concept, of the advantages and benefits available to the area, and of the strong competition from imported products (prepared and raw materials).

However, these obstacles were challenges that were overcome by the Consortium technical team. The team assessed the results of this experience as very positive over the four years it was underway.

## MANAGEMENT OF AGRICULTURAL- LIVESTOCK DISTRICTS IN THE BARDENAS REALES

### Bardenas Reales Biosphere Reserve (Navarra)

#### What do we hope to achieve?

The objective of this initiative is to reorganise resources in the Bardenas area by creating districts, in an effort to integrate and align agricultural and livestock use. This will strengthen and ensure the profitability of both types of use, their sustainability and the conservation of the environment.

Specific objectives of the initiative include:

- Defining crop rotations to sustain agriculture and to properly use pasture resources to make livestock farming feasible in sustainable units.
- Evaluate environmental repercussions and improvements from agricultural and livestock farming usage.

#### What does the experience involve?

The main objective of this experience is to organise crop rotation in districts that most fulfil the project objectives from an agricultural, livestock farming and environmental point of view. This phase was developed by the Livestock Management Technological Institute (ITGG).

The following work phases were developed to achieve the objectives:

- Compile initial information.
- Classify current agricultural pasture resources and study potential alternatives for future use.
- Study crop rotation as applicable to the districts. Perform comparison analysis on proposed rotations according to the objectives and to the most appropriate rotation from a social, environmental and economic point of view.

Most of the basic information for development of the project proposals stems from the results obtained at the El Serrón experimental farm in Valtierra (Navarra). The fundamental objective of the operation was to create a demonstration sheep farm in a semi-arid dry area that is compatible with agricultural and livestock activities (each complementing the income of the other).



*The Bardenas Countryside*

The experiences have provided information on the plant species and varieties that are most adaptable to the environmental conditions and that can thrive in these areas. It has also provided information regarding development, implementation and progression of crop rotation. This allows pasturing periods to be maximised to cover livestock requirements in a manner that is compatible with environmental conservation. Additionally, information was provided regarding adjustment of reproduction management systems, development of livestock health calendars, design of equipment and facilities, etc.

As a result of the analysis, it was found that the best rotation was "pasturing in half of the cultivated area in an eight year cycle" to fulfil social, environmental and economic project objectives.

### Why is it significant?

This initiative stands out due to the nature of the experience. These types of experiences greatly contribute to optimising the economies of Reserves and to realigning economic sectors on the path to sustainability.

In this case, reorganisation of usage resulted in the alignment of agricultural and livestock farming activities in a way that ensures the system is economically and environmentally viable.

### How has it been carried out?

This experience was promoted by the Biosphere Reserve in collaboration with the Livestock Management Technical Institute (ITTG) and the Pasture Studies and Project Consultancy (who performed the study). Financing was provided by the Community of Bardenas.

During the pilot farm experience, courses were given on the results of the experience (training courses, open door seminars, etc.). Additionally, many visits were given for technicians, livestock farmers, students, etc. with a variety of interests.

### What has been achieved?

The model, tested by the farm experience, resulted in a variety of benefits:

- The division of land into districts according to social requirements.
- Maintenance of interest and motivation for agriculture and livestock farming (uncommon in recent times).
- Increase of habitat diversity, allowing the vegetative cover to regenerate from hillsides showing clear signs of degradation.
- The physical-chemical properties of the soil gradually improved due to crop alternation and to the direct effect of livestock farming.
- Maintenance and development of edaphic fauna.
- Successively contributes to an increase in crop production.

- Sequential grazing of resources allows more homogenous usage of land, which results in more balanced animal fertility.
- Crop allowances eliminate the requirement to graze on hillsides in the spring. Additionally, it promotes biodiversity due to the creation of a mosaic of crops that alternate according to areas and times.
- The grid structure of the landscape favours fauna and increases habitat diversity.
- Since half of the cultivated land is not harvested, the risk of fauna deaths due to accidents with machinery decreases.
- Including certain crops in the rotation (including methods and dates), increases the quality of the habitat which provides food and refuge for fauna without having to stop for the summer season.
- The monthly distribution model of allowances is very homogeneous, which allows for continuous grazing for almost eight months.

The greatest obstacle in developing the initiative has been to convince agricultural and livestock farmers of the benefits of this method. Fortunately, the farmers have been convinced of the merits of the initiative, allowing it to begin soon.

## HARMONISATION BETWEEN EXTENSIVE LIVESTOCK FARMING AND THE PRESENCE OF WOLVES

### Picos de Europa Biosphere Reserve (Principado de Asturias and Castilla y León)

#### What do we hope to achieve?

The objective of this experience is to combine methods of harmonising extensive livestock production, which is desirable and necessary (for conservation of the landscape and traditional usage), and the presence of wolves (*Canis lupus signatus*), keeping a population level that will ensure their survival without threatening conservation. This basically applies to minor livestock and the seasonal movement during the summer to higher pastures in medium and high mountain areas of the Reserve. Permanent and portable infrastructure has been provided to protect the herd at night to reduce the risk of attack and to improve living conditions for livestock farmers.

#### What does the experience involve?

A programme has been developed in collaboration with Picos de Europa livestock farmers to protect animals from wolf attacks (specifically the "reciella" or minor livestock).

These actions have resulted in the installation of permanent electric fencing (for communal lands used by more than one livestock farmer at the same time), or the seasonal (during grazing season) relocation of portable electric fencing that is moved and used by livestock farmers that access more remote high pastures.

Night time herd protection is provided to reduce the time each day in which livestock is vulnerable to wolf attacks.

Basic training has been provided to livestock farmers on how to install and dismantle the systems to ensure effectiveness. Information is collected periodically on the use and effectiveness of both types of fencing, the presence of predators in the area, fence

malfunctioning issues, etc. by Picos de Europa National Park (land that coincides with the Reserve) as part of the Monitoring Programme.

The Programme began in 2006 and has been fully implemented. Currently, 8 permanent electric fences have been installed and 13 portable fences have been provided.

#### Why is it significant?

This initiative is both environmentally and socially significant, as the goal is to harmonise the conservation of a species (the wolf) with maintenance of livestock activities. This process differs from the more common method of financially compensating livestock farmers for the harm done to their livestock.

This approach reconciles seemingly opposing interests.

#### How has it been carried out?

The National Park (which coincides with the Biosphere Reserve) was the primary promoter of the experience with the collaboration of the towns in forests of public interest (Cangas de Onís, Onís, Cabrales and Camaleño).

Initially, monitoring of the activity was accomplished by having livestock farmers fill out a special monitoring form regarding operability of the fences, and use and effectiveness of the systems. This was done one month prior to the start of the season during which it was used by livestock, up until the end of the season.



*Fence*

Currently, this project is continuously monitored by the Picos de Europa National Park.

This experience has been advertised through livestock farmer associations in the area. Information campaigns are held in towns where there is a high risk of wolf attacks, according to the type of livestock. The National Park also assists in advertising the experience.

### What has been achieved?

Means of defence against wolf attacks are provided for livestock at night. No loss of livestock has been reported within the electric fences (both permanent and portable) since this initiative has been in operation.

Additionally, the initial scepticism of the livestock farmers was overcome, particularly regarding the portable fencing since it is less durable (but equally effective if used properly). Acceptance of the method has been proven by the fact that livestock farmers who were initially sceptical are now requesting the portable fences.

However as a counterargument to the positive results, many registered livestock farmers had abandoned this activity prior to the start of this experience (not only attributable to the harm caused by wolves, but to the current state of livestock farming in Northern Spain). Additionally, generational changeover is rare in this activity. This raises doubts as to the final results of this experience and other experiences to improve mountain pasture resource management.



## PROJECT PASTOR: MIGRATIONAL SYSTEMS ORGANISATION NETWORK ACTION PLAN

### Picos de Europa Biosphere Reserve (Principado de Asturias, Cantabria and Castilla y León)

#### What do we hope to achieve?

This experience has many objectives, including recovery of pastoral culture, promotion of the pastoral profession and facilitating generational turnover.

In general, the purpose of the experience is to improve production conditions and social perceptions of the pastoral profession.

#### What does the experience involve?

Project PASTOR is a cooperative initiative between five districts (belonging to the regions of Asturias, Navarra, Teruel and Madrid) with a pastoral tradition. The project analyses the current status of the activity, and tests and develops actions to address the difficulties involved in the pastoral industry and to create a future for the profession.



*Herding area where courses are under development at the Pastoral School*

The project began in 2004 and ran for four years. Activities that were common to all of the districts and that were specific to individual districts were developed.

Activities conducted by the Rural Development Consortium of Eastern Asturias in the Picos de Europa area since 2004 include:

1. Creation of the Picos de Europa Pastoral School: This initiative was built on a strategy of reassessing the role of herders to facilitate generational turnover. A feasibility study was performed beforehand to plan and design the training (during 2005 and 2006). During this time, other schools were visited such as the Artzain Eskola and the CFA Olorón in France.

Training at the Picos de Europa Pastoral School was developed in two stages: One stage consisted of compiling the requirements of the group of herders and livestock farmers in Picos de Europa, studying their training needs and organising short duration courses to fulfil these needs.

The next stage consisted of developing an introductory pastoral course targeted at those interested in learning and practising the pastoral profession. It was mostly geared toward young people from urban environments who received theoretical and practical training for four months.

The pastoral school offers a variety of courses, mainly the traditional preparation of food products.

2. Herding Rehabilitation Pilot Project in Picos de Europa: Project PASTOR and the Principality of Asturias both manage the Gumartini (Cangas de Onís) and Belbín (Onís) herding area (majadas). Both are located in the Reserve/National Park.

3. Publication of the book "Voces del Puerto".

4. Publication of a booklet on Gamoneu de Puerto cheese with the Jultayu Producers Association.

5. Publication of the book "Cheeses of Eastern Asturias".

6. Organisation and funding of educational trips and of the participation of local pastoral representatives in national and international forums.

7. Creation of a website for Project PASTOR (<http://www.proyectopastor.com>).

The scope of this action partially covers the Picos de Europa Biosphere Reserve. Only the Councils of Eastern Asturias participate in the initiative.

### Why is it significant?

The objectives and scope of this initiative are ambitious.

It offers the potential to recover a profession that has practically been lost and that is a major cultural tradition. The existence of this profession is essential to the maintenance of certain landscapes.

It also creates new jobs and offers a significant educational aspect. This aspect is not limited to those involved in the activity, but also applies to all those interested in learning about it.

### How has it been carried out?

Periodic meetings were held to coordinate Project PASTOR on a national level. Additionally, information was regularly relayed by email. Budget, content and advertising were coordinated by two people.

Regarding project coordination in Asturias, contacts at local and autonomous authorities were based on the specific activity. The coordinator arranged appointments and periodic meetings with herders and livestock farmers on the progress of the project.

Information about the experience was advertised on the website and by alternative means such as press releases, documents, expositions, publications, meetings, seminars and brochures.

### What has been achieved?

Over the long term, visibility by the local population will increase regarding the work and issues faced by herders. Each day, the project has increased the awareness of the Consortium and has provided a network for herders and agents that work in this field.

The experience has been positive as it has provided herders and livestock farmers with an increased role in the conservation of the environment. This was due to the involvement of authorities in the development of the experience, in rehabilitation of herding areas (majadas), in encouraging generational turnover and in providing herders with assistance in their tasks.

The initiative has been well received. More than 100 students have attended the school.



*A teacher and student evaluate cheeses during the 2008 course at the Picos de Europa Pastoral School*

Additionally since herders (mostly women and young people from the area) have shown an interest in remaining in the towns and starting cheese production projects, they have requested new courses and are inspired to move forward. Young people from other regions who have participated in the courses have also demonstrated satisfaction with the experience.

The initiative has also made an impression on the administration. This year the Principality Rural Affairs Council and the National Park are offering scholarships to students and direct support to herders who participate in the project.

## THE STRUGGLE FOR SUSTAINABLE ISLAND TOURISM PLANNING. THE PROCESS OF CONTAINING TOURISM CONSTRUCTION

### Lanzarote Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The objective of this experience is to redirect the course of the island with regard to urban planning and tourism, towards a philosophy that is more in harmony with the functions and features of World Biosphere Reserves to benefit all of society.



*Rural accommodations in Lanzarote*

#### What does the experience involve?

Lanzarote receives 2.5 million tourists per year. Therefore, the Council and the Biosphere Reserve are attempting to redirect island urban planning and tourism towards a philosophy (using tools such as land planning, technical studies, participation and dissemination of information) that is more in harmony with the MaB Programme.

The inter-island council has suggested a strategy for tourism and construction planning which includes combining a series of tools.

In 1991, the Island Land Planning Plan (PIOT) was approved. This reclassified many areas as rural lands due to their high environmental value. More than 250,000 sites included in previous plans were declassified. Subsequently, 20 Urban Planning Partial Plans were blocked and no

further Partial Plans allowing tourism development on the island were approved. The housing limit was then established as 110,000 sites.

Lanzarote became a Biosphere Reserve in 1993. In 1998 the Lanzarote Strategy for the Reserve was approved, which gave meaning to the declaration. This resulted in an intense social and political debate on the future of island risks and opportunities. The analysis and discussion process was based on an analysis of the current situation on the island, which has been marked by the rapid expansion of tourism. This includes both future risk scenarios (environmental degradation of the island) and more preferable alternative scenarios.

Project Life ("Life Lanzarote 2001-2004") was another tool for containing tourism. This was another important milestone in the island's development, as a continuation of the L+B'98 Strategy. One of the most significant results of this process was the initial approval of the declassification of 25,000 tourism and residential sites, subsequently deactivated.

The Lanzarote Sustainable Development Plan (PDS, 2007) keeps this focus multidimensional and makes basic environmental sectors (water, energy, waste, transportation... and food) and land planning a priority.

Despite the fact that since the 1970s Lanzarote has followed a very different growth path from Grand Canary, Tenerife and Fuerteventura, its growth has been spectacular in recent years. Costs have increased as income has increased (including environmental costs). Due to this fact and to the agreement as a result of being declared a UNESCO Biosphere Reserve, reconsideration of the fundamentals of economic growth has become necessary.

This environment opened the door for organisation of a seminar to reflect on economic incentives contained in the Canary Island economic and fiscal system. The incentive with the most impact has been the Investment Reserve (Reserva para Inversiones (RIC). This seminar is available on the Biosphere Reserve website [www.cabildodelanzarote.com/areas/biosfera/observatorio/ric/ric6.htm](http://www.cabildodelanzarote.com/areas/biosfera/observatorio/ric/ric6.htm), and in other local media outlets.

### Why is it significant?

The initiative stands out since it is a strong commitment to changing the prevailing model of tourism on the island into a more sustainable model. The Reserve has made a long term commitment to sustainable quality tourism that is less overcrowded and is compatible with the conservation of natural assets on the island.

It has been an ambitious experience due to both the scope (all of the island) and the objectives. The attempt to limit (and declassify) tourism sites on the island and to confront regulation of the sector from the point of view of urban and land planning was especially innovative.

### How has it been carried out?

The Council of Lanzarote, as the Biosphere Reserve management entity, is responsible for developing this initiative. Government entities and the Biosphere Reserve Council Scientific Cabinet also participated.

The experience began in 1998. It is still funded and ongoing today.

Participation in the project by the public is evident since new political parties and social forums have arisen since the experience began. These groups engage in political debate generated by urban containment on the Island of Lanzarote. Additionally, many local media outlets are also engaged in promoting and extending the debate. There are many contributions from various social organisations, especially the continued, steadfast and courageous role of the César Manrique Foundation.

The political debate has become even more tense since the battle over urban containment has entered the courts.

The Biosphere Reserve Council has played a very important role in expressing and generating public opinion.

The current group has created the Ministry of Citizen Participation and has increased the ways in which citizens can participate.



*Traditional landscape of vines*

### What has been achieved?

The approval of the "Lanzarote Biosphere" Strategy is of unprecedented importance. This prompted the Government of the Canary Islands to review the PIOT and to impose the tourism moratorium proposed by the Council. The moratorium went into effect in May 2000. This action was favourably received by the majority of the resident population. The Reserve Council is a decentralised entity of the Council. Management plans for the Reserve coincide with island planning.

An important aspect of both the Lanzarote Biosphere Strategy (1998) and the Life Lanzarote Strategy (2001-2004) is the compilation of studies that pinpoint the status and future scenarios on a range of issues. I.e. the combined focus is: the island as a system.

Throughout this process, the Council has brought 31 building permits to the courts, which entails a budget of approximately 300 million Euros. A judgement has been delivered on 25 of the appealed permits, affecting approximately 10,000 sites.

Despite the need to design a new development model, valuable and important points have been identified on the island, such as the position of the island government on multidisciplinary work.

The public is very sensitive to defending the land and to the honoured tradition of conserving resources such as potable water. Regarding land planning, growth containment strategies are very well-established. Useful technical knowledge now exists after a decade of study and debate surrounding the future of the island (Lanzarote Biosphere Strategy).

Non-compliance with planning and political instability have been the main obstacles.

Attendees at the Land and Environmental Legal Round Table (held in October 2006) recommended repeating the experience in 2008. They have also recommended holding a similar event in Lanzarote (due to the development) on a regular basis.



*The Lanzarote Landscape*



## USE OF AGRICULTURAL AND FOREST BIOMASS FOR HEAT AND WATER HEATING IN A HOTEL SPA

### Sierras de Cazorla, Segura y Las Villas Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The main objective of this initiative is to offer an innovative and quality service as part of the tourist industry in the Biosphere Reserve and Natural Park. Additionally, the objectives include reducing CO<sub>2</sub> emissions through the use of renewable and endogenous energy resources.

It also has the potential for making a tourism system profitable that would not be profitable using fossil fuels.

Lastly, it will serve as an example of good practices for other hotel services in the area around the hotel.

#### What does the experience involve?

The initiative combines diversification and development of tourism in the area using endogenous energy resources and by committing to activities with a low impact on the environment.

The hotel in which the experience was developed has installed an innovative centralised heat and water heating system for 40 rooms and the spa service. Olive pits, a resource with a high heating value and native to this olive-producing area, are used as fuel. Since fossil fuels are not used to obtain energy, an alternative use for this waste is provided which increases the profits of olive oil industrial processing and reduces CO<sub>2</sub> emissions. Another benefit includes the economic savings due to the change in fuels.

Other aspects of the Hotel Spa Sierra de Cazorla that stand out include: the use of extra virgin olive oil for massages and skin treatments (an endogenous product that is characteristic of an area that enjoys high prestige in the health and dietetics world), and their involvement in advertising the use of this renewable energy at events such as the Expobioenergía 2006 (Bioenergy Expo 2006).

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**The initiative is especially important due to the use of endogenous energy resources.**

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#### Why is it significant?

This project stands out due to the importance of themes such as energy efficiency and endogenous energy resource use, to the commitment to searching for new ways to promote sustainable development of rural resources and to starting new initiatives and activities in this area.

Generating economic activity does not have to be linked to a negative impact on the environment, as demonstrated by this initiative.

#### How has it been carried out?

The Association for Rural Development of the Sierra de Cazorla co-financed the initiative by providing a grant from PRODER-A funds (a grant requiring the activity to be maintained for a minimum of 5 years after awarding the aid).

Monitoring is performed through periodic visits to hotel facilities, telephone calls to management, and reviews of installations and of performance and consumption of equipment.

The experience has been advertised through participation in renewable energy fairs such as Bioptima and Expobioenergía, where HidroElectro and ADR Sierra de Cazorla showcased the equipment and technical resources implemented at the hotel.

The hotel group has also advertised itself as a tourist destination that is respectful of nature and the environment.

One difficulty encountered during development of the project was ensuring an adequate supply of olive pits to feed the boiler all year round. Another has been the bureaucratic formalities required for financing and obtaining aid.

### **What has been achieved?**

As a result of this initiative, the hotel has experienced a greater influx of quality tourism, which entails greater environmental awareness and the sustainable character of tourism in the area.

Additionally, the experience has placed a value on an energy resource that until recently was considered a waste product of the main agricultural activity of the area.

The experience has also demonstrated that these types of initiatives can be profitable and benefit the environment.



*Hotel Spa Sierra de Cazorla*



## LA PALMA: A SUSTAINABLE TOURIST DESTINATION

### La Palma Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The objectives of this initiative are as follows:

- Develop a global tourism strategy for the Island of La Palma to overcome the lack of a master plan for the island.
- Declare the Island of La Palma a Sustainable Tourist Destination.
- Promote the certification through the Responsible Tourism System, hotels, apartments, rural tourist cottages, restaurants, visitor centres, museums and active leisure companies.



*Hotel Las Olas, certified by the Responsible Tourism Institute and accredited as a Biosphere Hotel*

#### What does the experience involve?

The La Palma Biosphere Reserve, with the support of the Responsible Tourism Institute (ITR) is promoting the development of tourist activities that mitigate the negative affects this economic sector has had on the island.

This joint effort has resulted in the signing of a collaboration agreement which includes adapting the Sustainable Development Strategy to the tourism and vacation industry.

The initiative began in 2006. Although it has started, it is still under development.

Consulting is available to establishments regarding practical issues and sustainable tourism programmes through the ITR. The philosophy centres on environmental assessment and cultural heritage in tourism through promotion, advertising and the application of standards and a certification system. The tourism certification system has been endorsed by the UNESCO Man and the Biosphere Committee for incentivising responsible environmental management for establishments and services.

The La Palma Biosphere Reserve certifies tourist accommodations, restaurants, transportation companies, tourist services companies and visitor centres. In regard to the scope of application, the standards emphasise specific issues such as conservation of biodiversity, tourist behaviour in sensitive areas and criteria for conserving historical buildings and for assessing ethnographic resources. Each has an associated standard with requirements that specify procedures and objectives for compliance with responsible tourism policies.

#### Why is it significant?

The initiative stands out due to the commitment to promoting quality and environmentally responsible tourism.

Environmental and socioeconomic objectives are combined in line with the Biosphere Reserve philosophy.

#### How has it been carried out?

The La Palma Biosphere Reserve Island Consortium coordinates between certified companies and the Institute of Responsible Tourism.

The Consortium maintains close and direct contact with owners of the certified companies by providing telephone numbers and email addresses for any questions or issues encountered. They also make occasional visits as the Consortium tries to resolve questions first hand by relaying them to ITR.

The internet has been used as the primary tool to advertise the experience. The press, radio and television are also used.

Each certified establishment receives a plaque to identify that it is an establishment recognized by the *Biosphere* certification system.

Quantitative indicators of the results are periodically assessed to monitor the project.

- *Biosphere House*: rural cottages (21).
- *Biosphere Restaurant*: restaurants (6).
- *Biosphere Discover*: active leisure companies, visitor centres and museums (7).

It is anticipated that many more island establishments and services will be certified.

### What has been achieved?

The results of the initiative have not yet been assessed since it has only been underway for a short time.



Accreditation plaque

The following services have been certified:

- *Biosphere Destination*: sustainable tourist destination (La Palma Biosphere Reserve).
- *Biosphere Hotel*: hotels and apartments (3).

## IMPROVEMENT OF TOURISM AND IMPLEMENTATION OF THE CHARTER FOR SUSTAINABLE TOURISM

### Sierras de Cazorla, Segura y Las Villas Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The main objective is to improve the quality of tourism. Additionally, the objectives include controlling tourist visits, raising public awareness through training, and promoting protection and assessment of heritage assets.

This will improve the quality of life of the local population by strengthening economic and social development in the area.

#### What does the experience involve?

The European Charter for Sustainable Tourism (ECST) in Protected Natural Spaces is a EUROPAC Federation initiative. The global objective of the initiative is to promote tourism development in concert with the sustainability of natural protected spaces in Europe.

The process of obtaining the seal is structured in three phases:

- During the first phase, the protected area (in this case the Cazorla Natural Park and Reserve) presents a Plan of Action in collaboration with Rural Development Groups. This involves the private tourism sector and other institutions in the area.
- During the second phase, tourism companies prepare a Plan of Action and sign a support agreement with the protected area. This is renewed every three years with a new plan and a new agreement.
- During the third phase, travel agencies present their Plan of Action and support agreement for a term of one year (although the method of support is not specified).

The Sierras de Cazorla, Segura and Las Villas Natural Park, which coincides with the Biosphere Reserve and its area of socioeconomic influence, has been certified by the European Charter for Sustainable Tourism (ECST) since October 2004. It was one of the pilot protected areas between 1996 and 1998 during the development of the Charter.

The signatories of the Charter agree to encourage ways to develop tourism systems and activities that respect natural, cultural and social environmental resources, and that positively and fairly contribute to economic development and to the well-being of the population that lives and works in the area, as well as the many visitors to the protected area.

During the candidacy process for the Reserve and Natural Park to join the ECST, the documents were defined and prepared under the guidance of the "El Patrimonio de tu Territorio" ("The Heritage of Your Lands") Volunteer Group. The working group formed included representatives from the main entities that would be responsible for executing the strategy and the Plan of Action and from tourism companies in the three districts in the Park.

Periodic meetings were held during the process to assess certification of the area according to ECST objectives and requirements, organise seminars, define strategic lines to progress towards sustainable tourism and to agree on specific actions to fulfil the Plan of Action over the next five years.

Additionally to improve area tourism, development is underway to integrate a network of paths. GDR Sierra de Segura is preparing a map-guide for the network.

The Comarca (District) de Cazorla GDR is preparing a Tourist Services Guide to the Natural Park and has published a Guide to Birds in the Natural Park. This guide defines a series of ornithological routes. The Directorate General of Sustainability is preparing a Natural Park Resident Guide to inform local area citizens of administrative standards and procedures related to activities under development.

Additional examples: The Sierra de Segura Heritage Foundation manages the "Sierra de Segura, the 5th Element" Tourism Revitalisation Plan. This has opened up a series of themed areas, Interpretation Centres and "El Sequero" de Siles Visitor Gatherings. As part of a specific collaboration agreement between the Environmental Council and the University of Málaga, a study was performed titled, "Integration of Architecture into the Landscape of the Sierras de Cazorla Segura and Las Villas Natural Park and the Socioeconomic Area of Influence".

Additionally, Agenda 21 Local was implemented into all of the municipalities in the Park socioeconomic area of influence.

### **Why is it significant?**

The experience promoted a sector of tourism that is respectful of the environment, and stimulated a change in the socioeconomic development model of the Reserve.

The initiative involves various key entities in the sector, such as protected natural area managers, rural development groups, tourism companies and travel agencies. This has expanded the impact of both the experience and its positive results.

### **How has it been carried out?**

The initiative was promoted by the management entity of the Sierras de Cazorla, Segura and Las Villas Natural Park, which coincides with the Biosphere Reserve management entity.

The Association for Sustainable Tourism of the Sierras de Cazorla, Segura and Las Villas Natural Park was created specifically to implement the ECST. Additionally, the Association established a Board of Directors. The forum, consisting of 89 full members and 4 honorary members, monitors the ECST. This includes improving the quality of tourism and sharing data on the developing tourist turnout. It is a forum for creating compromise and for defining joint strategies.

Additionally, the ECST Monitoring Commission was established at the Forum for Sustainable Tourism to monitor compliance with the Plan of Action (if the Commission has not yet been implemented).

### **What has been achieved?**

Application of the ECST Plan of Action has resulted in notable advances in the implementation of sustainable criteria in many area companies. These companies adhere to quality seals such as the Andalusia Natural Park Seal or the Q of ICTE seal. The Park is also in the process of obtaining UNE-EN-ISO 14.001 certification, having already established an Environmental Management System to manage the forest and to manage public use, research and participation.

## SIERRA DEL RINCÓN BIOSPHERE RESERVE: A SUSTAINABLE TOURIST DESTINATION

### Sierra del Rincón Biosphere Reserve (Comunidad de Madrid)

#### What do we hope to achieve?

This initiative has many objectives. The first and most general objective is to make the Reserve an exceptional destination for sustainable tourism.

To accomplish this, a tourist package is being developed with businesses and with the Reserve management entity. Another objective is to unify the relationship between humans and landscapes of the Reserve through special tourism services (guided visits), which play a key role in this quality tourism product. The goal is to promote quality tourism that is respectful of the environment.

It is hoped that this experience will promote cultural-educational tourism in the Reserve. This will entail the support of local collaborators to contribute to the economic development of the area.

These objectives are dependent on promotion and advertising to increase awareness of the Reserve.

#### What does the experience involve?

The experience is a pilot project within the State Secretary of Tourism Programme to develop tourism packages for Spanish Biosphere Reserves. This programme includes other Reserves in addition to the Sierra del Rincón Reserve.

This Reserve was selected to test the pilot (called "Tourism Product of the Sierra del Rincón Biosphere Reserve") as it offers activities in areas linked to traditional land use and rural development.

The experience started in 2007 and is still in the design phase. However, the promotional tourism packages have already been prepared in conjunction with area tourism businesses.

The experience is based on the promotion of rural accommodations and themed trails in the Reserve. These trails include workshops<sup>2</sup>.

Both options are explained on the website [www.sierradelrincon.org](http://www.sierradelrincon.org). This allows people who are interested to organise and participate in a route or workshop and book accommodations in the area.

The idea is that when a tourist package is put together, workshops and accommodations can be reserved jointly in closed or semi-closed packages for marketing by travel operators or agencies.

#### Why is it significant?

This is an innovative initiative as it tests a programme that will be implemented in the future throughout the Biosphere Reserve Network in Spain.

The project stands out for promoting the economy of the Reserve in a way that is respectful and compatible with area conservation objectives.

It also stands out for its spirit of openness and partnership, which is evident in the wide range of sectors involved in the startup and development.

#### How has it been carried out?

The main sponsor of the project is the State Secretary of Tourism. Other collaborating entities include local public administrations, business associations, hotel and restaurants in the Reserve, the Reserve and the Ministry of Environment, Housing and Land Planning of the Community of Madrid.

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<sup>2</sup> More information on this particular initiative can be found in the section on demonstrative experiences related to publicising the Reserves, and in the section on the Sierra del Rincón initiative which explains promotion of the Reserve through guided trails.

"Local collaborators" (residents of the Reserve such as beekeepers, artisans, etc. who possess knowledge of practices they would like to display and who consist of one of the groups to be promoted in tourism packages) represent another key part of this initiative since they receive economic assistance from their participation.

All of the groups that collaborate in the initiative are kept informed through sector meetings where they are able to participate in the project.



*Promotion of the Sierra del Rincón as a tourism product*

### What has been achieved?

The pilot experience was conducted in the municipality of La Hiruela with a group of 14 people who participated in testing various tourism packets (which included accommodations, a beekeeping workshop and a bread making workshop). The success of the experience was evident by the high level of satisfaction on the part of the participants.

As a result of the experience, the Sierra del Rincón Biosphere Reserve was selected as the first Reserve to promote tourism packages for the Ministry of the Environment, Rural and Marine Affairs.

## CONSTRUCTION OF TOURIST ROUTES FOR DISABLED PERSONS

### Somiedo Biosphere Reserve (Principado de Asturias)

#### What do we hope to achieve?

The objective of constructing tourism routes that are specially adapted for physically disabled persons is to facilitate visits to the Reserve for this segment of the population.

This will allow enjoyment of the environment under the best possible conditions.

#### What does the experience involve?

The initiative is in response to a request for improved accessibility to natural areas for physically disabled persons.

A 2.5 km road was built to run along an area with beautiful and magnificent views of the Somiedo Biosphere Reserve and Natural Park. The road surface is finished and sloped to allow independent wheelchair travel for persons with reduced mobility.

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#### **An access road to an area of exceptional beauty and natural value will be constructed for disabled persons**

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#### Why is it significant?

This experience combines social (the challenge of increasing the accessibility of a protected area), economic (promoting tourism to a very specific sector of the public) and educational (bringing these areas closer to a sector of the population to increase awareness of the need to conserve) objectives.

This experience can easily be applied to other Biosphere Reserves and protected natural areas.

#### How has it been carried out?

The project is currently in the development phase. It is planned for completion in 2009.

The management entity of the Natural Park and Biosphere Reserve and the Environmental and Rural Development Council of the Principality of Asturias are the primary promoters of the experience.

Other collaborative entities were also involved in the development such as the ONCE organisation and TRAGSA.

Financing for the project was provided jointly by Ministry of the Environment and Rural Development of the Principality of Asturias and Obra Social La Caixa (La Caixa Social Work). A collaboration agreement was signed between the Government of the Principality of Asturias and Obra Social La Caixa to coordinate the development of activities.

The experience is currently in the design phase and has not been publicised very much.

In the future it will be advertised through normal channels (press, radio, television, by institutions, etc.).

Acceptance and evaluation of the path will be assessed according to frequency of use when it is operational.

#### What has been achieved?

The project is currently in the design phase. Therefore, results have not yet been obtained.

However, the results are expected to be positive for the specific group the experience is targeted towards (who will see their independence increased by enjoying an activity that was very limited until recently), and in the respect that it will add to the quality of the visit. This will result in the expansion of the scope of tourism in the Reserve and in the Park.



*Landscape of Somiedo*



## CREATION OF LONG DISTANCE PATH IN THE MUNIELLOS BIOSPHERE RESERVE

### Muniellos Biosphere Reserve (Principado de Asturias)

#### What do we hope to achieve?

This hiking trail was created to advertise the Biosphere Reserve.

The objective was to promote the construction of a path to increase awareness regarding the assets of the Reserve, and to make it the focal point for development of the district.

#### What does the experience involve?

The focus of the project was the Long Distance Path (GR 203), titled "Where the bear walks", which consists of 16 sections for a total distance of 300 km. The path crosses the Muniellos Reserve and Natural Park. It runs through high value landscapes and environments and three Council areas are included in the Reserve. The initial and final sections pass through towns where it is possible to spend the night and to eat. These towns directly benefit from the path.

The footpath is completely finished. Footpath markings were completed in 2007.

Additionally, a book was published with information on the path titled, "*Where the bear walks: Gran Recorrido through the Fuentes del Narcea, Degaña Natural Park*" ("*Por donde camina el oso: Gran Recorrido por el Parque Natural de las Fuentes del Narcea, Degaña*"). There is also a map of the footpath route.

#### Why is it significant?

The creation of this footpath has many objectives related to the promotion of active tourism and nature in the Reserve, such as stimulation of the local economy, and advertising the area and its assets.

This straightforward project with ambitious objectives especially stands out due to the cooperation involved. Various associations and entities collaborated to make it a success.



Signpost for the path running through the Reserve

#### How has it been carried out?

The project was financed by the PRODER II Alto Narcea Muniellos rural development plan in collaboration with the Principality of Asturias.

Additionally, the Ministry of the Environment of Asturias, the Town Council of Cangas del Narcea, Degaña and Ibias, and the Rural Tourism Association participated in the development of the experience.

The experience was advertised through publications, discussions, films and newspapers.

Evaluation and monitoring of the experience was provided by information from the Rural Tourism Association and from users of the path.

### **What has been achieved?**

Although the path was only recently created, people have started to use it and request information (regarding general and specific features), primarily tourism agencies and cyclists.

Due in part to the footpath, gradual but increasing development of tourism is expected that will contribute to the economic development of the District (Comarca).

Many important people were involved in the development of the project. Additionally, it was strongly supported by all of the associations and people associated with rural tourism in the area. However, there were slight difficulties due to opposition to the project from a few ecological and local groups.

## MANAGEMENT OF THE HISTORICAL AND CONTEMPORARY CULTURAL HERITAGE IN THE DOÑANA NATURAL AREA

### Doñana Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The main objective of this experience is to analyse and determine the status of historical and contemporary cultural heritage in the Doñana Natural Area (which includes the Reserve). The next objective was to propose conservation measures and actions to promote the cultural heritage and the landscape.

#### What does the experience involve?

It is widely accepted today that cultural heritage is an inherent and relevant part of protected natural areas. This is even more evident in the case of Biosphere Reserves. In the Reserves, the human dimension of these areas is a special consideration and nature conservation objectives go hand in hand with the socioeconomic development of the local population.

In Doñana, natural heritage and cultural heritage have come together paradigmatically since the beginning of its history, as an extraordinarily unique area.

Therefore, both forms of heritage were treated as one and with synergy. The Doñana Cultural Heritage Management Strategy Proposal makes use of all inventories and analyses conducted throughout the history of Doñana, in addition to initiatives currently under development. This will significantly expand knowledge of the subject.

Examples of measures and actions for development in the framework of this activity are listed below:

#### 1. Inventories:

- Bibliographic review of the cultural and landscape heritage of Doñana.

- Publication of the Research Study "Cultural Heritage Recovery. Doñana and the Surrounding Area" ("Recuperación del Patrimonio Cultural. Doñana y su Entorno") (1988-1992; Ministry of Culture).

#### 2. Analysis and Diagnostics:

- Reflection on the opportunity and feasibility of promoting and conserving ethnographic cultural activities in the National Park, such as coal mining and the Marismillas salt marshes.
- Reassessment of the cultural value of rural buildings (National Park) and forest towns (Natural Park) in regard to potential reuse.
- Reflection on the opportunity and feasibility of promoting and conserving traditional crafts and professions.
- Conducting technical and scientific events aimed at reflection and idea sharing sessions on conservation and promoting cultural heritage linked to protected natural landscapes (conferences, technical meetings, seminars, etc.).

#### 3. Action proposals:

- Restoration of deteriorated assets such as the San Jacinto watch tower.
- Rehabilitation of the traditional salt marshes at Marismillas.
- Promotion of the huts (chozas) in La Plancha.
- Promotional planning for the removal of the mares as a sociocultural spectacular.
- Conducting convocations, competitions and awards dedicated to promoting contemporary art and culture related to Doñana, including gatherings such as art-land and recycling art.

- Improvement of public use infrastructure and equipment for scenic areas at the Doñana Natural Area.
- Restoration of traditional farming landscapes and river banks. Creation of ecological corridors.
- Creation of a network of scenic overlooks to contemplate the varied landscapes of Doñana and the link between natural and cultural heritage.

### Why is it significant?

This is an innovative initiative due to the integrated and synergetic treatment of the cultural and historical heritage of the area, and due to the link between these heritages and the natural heritage of the protected area.

The initiative also stands out due to the wide range of proposals during the experience. The proposals ranged from research and expansion of knowledge of the cultural heritage of Doñana to the varied and differing promotional activities.

The local population is one of the main beneficiaries of the experience. The experience has contributed to the conservation of knowledge, practices, traditions and landscapes that were in a state of decline despite being part of the identity of the area.

### How has it been carried out?

The experience began in 2008 and is still in the design phase.

Both residents of the District of Doñana and visitors to the Natural Area (which includes the Reserve) are beneficiaries of this experience.

Since the experience is in the initial phases of development, the mechanisms to coordinate the various entities involved in the startup have not yet been determined. This also applies to the mechanisms for advertising the experience.

### What has been achieved?

Since the proposal is currently under development, the results cannot yet be evaluated.

The results will be a function of the resources provided for startup and development, in addition to other factors.



*Traditional activities in Doñana*

## THE STARLIGHT INITIATIVE: THE LIGHT OF THE STARS AS WORLD HERITAGE

### La Palma Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The main objective of this experience is to initiate international action to defend the quality of the skies and the right of use and enjoyment as a scientific, astronomical, cultural and environmental resource. This includes:

- Promoting and generalising a culture of valuing the light of the universe to ensure access for current and future generations.
- Creating an international calling for the need to limit the impact of abusive and improper use of artificial night time lighting.

Promoting new technologies and solutions to permanently ensure the quality of observation of the skies.

- Generating proposals to protect lighting in prime observation areas for astrophysical research.

Promoting regulatory action and international agreements to establish valid reserves and "windows to the universe".

- Promoting action and international, regional and local agreements to defend the quality of the skies at a government level and with the support of international entities.
- Identify national and local legislative initiatives, as well as viable international agreements that defend this heritage for science and culture.
- Promote an international declaration regarding the quality of the skies as a tangible and intangible world heritage

#### What does the experience involve?

The Starlight Initiative was developed as an international campaign in defence of the quality of the night time skies and of the general right to observe the stars. It is open to the participation of all scientific, cultural and citizen institutions and associations related to defending the skies.

This reinforces the importance of clear night time skies to humanity, and teaches and increases the awareness of the value of this threatened heritage for science, education, culture, the environment, tourism and quality of life.

This purpose of this initiative is to help advertise the direct and indirect technological, economic and cultural benefits of observing the stars.

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#### **This initiative reinforces the importance of clear night time skies to humanity**

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The first Scientific Committee meeting for the initiative was held on the Island of La Palma for the following reasons:

1) A proposal to declare the skies as a Biosphere Reserve was presented at the IX IberoMaB meeting in 2005 at the La Palma Biosphere Reserve.

2) The Roque de los Muchachos Astrophysical Observatory (one of the most complex of its type in the world) is located on the island.

3) La Palma is an ideal place for astronomical observation due to the clear skies. Observatories on the island are not affected by low altitude horizontal accumulations of stratocumulus clouds.

This phenomenon is characteristic of high elevation areas of the islands (at an elevation of 2400 metres). The atmosphere is very clear and there is little turbulence above the sea of clouds. These are excellent conditions for observation. Longer hours are possible for this work due to this climate.

4) The island has been a world pioneer in protecting the quality of the skies for astrophysical observations and for applying related legislation (Law to Protect the Astronomical Quality of Observatories).

The objective of the La Palma Biosphere Reserve in regard to this issue is to incorporate the skies into the UNESCO definition of Biosphere Reserves, and to subsequently include the island skies under this protection this provides.



*Presentation of the publication, "Starlight: everyone's heritage" ("La Luz de las estrellas: patrimonio de todos") at the Astrophysical Institute of the Canary Islands in La Laguna*

### Why is it significant?

The experience stands out due to its pioneering and innovative character. There are currently no other Biosphere Reserve initiatives that include the skies as a cultural, environmental and scientific resource to be protected.

It also stands out for its demonstrable effect on the international environment. It is an initiative "of reference" at a supranational level regarding protection of the quality of the skies.

### How has it been carried out?

The La Palma World Biosphere Reserve Island Consortium promotes this initiative. Other main collaborators include the Astrophysical Institute of the Canary Islands,

the Council of La Palma, the Government of the Canary Islands, the Autonomous Authority for National Parks (Spanish acronym OAPN) and UNESCO-MaB.

Impact and results indicators are periodically assessed to monitor the project.

### What has been achieved?

The experience has been very successful: The quality of the night time skies on the island is internationally recognised (the island has been chosen by scientists from all over the world as a location for the most advanced telescopes). The local population has become more aware of the need to protect the clear skies and is becoming more accustomed to night time lighting that respects the environment.

All that has been accomplished in this initiative has the support of the public and of the various local governments. These groups have recognised its international importance. The success and support for the initiative was evident at the International Starlight Conference which was held on the island in April 2006.

## REHABILITATION OF LA VEGARADA ROMAN ROAD

### Los Argüellos Biosphere Reserve (Castilla y León)

#### What do we hope to achieve?

The main objective of this experience is to create a footpath that will attract tourism and spread awareness about the municipality while recovering an example of the historical-cultural heritage of the Reserve (preventing the loss of marks of identity for the area).



*Detail of a Pyrenean Oak leaf*

#### What does the experience involve?

The ancient Calzada de la Vegarada (Vegarada Road) was a path for herders and pilgrims. It was a Roman road, a Royal Road and a trade route.

Currently, the roads and bridges are the backbone of the District of Los Argüellos.

The Town Council of Valdelugueros promoted the rehabilitation project of the road for leisure purposes as an active tourism path to conserve and enhance this cultural, historical and land asset. The route begins at the historic Puente del Ahorcado and reaches the Puerto de Vegarada where it turns. Multiple examples of the beauty of the area can be enjoyed along the path, which stretches for twenty kilometres: Roman and medieval bridges, hill forts, limestone areas, abundant fertile plains and towns with heraldic identity symbols, etc.

The active footpath will be available for enjoyment once rehabilitation and restoration of various sections of the Roman road have been completed. The path can be completed on foot, by horse or on wheels.

#### Why is it significant?

The activity stands out for its recovery of a historically important cultural asset. This asset is of great interest to understanding the evolution of the area where the Reserve is located.

The recovery and promotion of the road has strengthened active tourism based on enjoyment of nature. This will have a positive effect on the recovery of the local economy.

#### How has it been carried out?

This activity began in 2004 and it is still in the design phase.

Although the main promoter of the experience is the Town Council of Valdeluguero, the Los Argüellos Biosphere Reserve allows use of its logo (for the signing of the road) as a seal of quality and as a way of supporting the growth of tourism that is respectful of the environment.

Highly qualified architects and archaeologists participated in the work, as well as area construction workers. These workers contributed their knowledge of masonry that has been passed down through the generations.

### What has been achieved?

The experience cannot be assessed until the entire road has been reconditioned.

However, an increased influx of tourists to the area is anticipated as a direct result of these activities. The local population has also been able to enjoy the area. Indirectly, it has contributed to strengthening and diversifying employment in the district.

However, development of the project has suffered a common obstacle for small Town Councils, as there is a lack of budgets and financing to promote activities and initiatives.



*The Los Argüellos countryside*



## RESTORATION OF THE BACUTA SALT MARSHES

### Marismas del Odiel Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The main objective of the Bacuta salt marsh restoration is to increase interest in nature conservation among the general public through awareness of the Marismas de Odiel Biosphere Reserve, especially among the general public within municipalities in the area.

Additionally, the objectives include increasing environmental education by expanding the knowledge of students regarding traditional activities in the Reserve, such as salt mining activities.



*View of the Marismas del Odiel with abundant aquatic birds*

#### What does the experience involve?

The Bacuta salt marshes located in the Marismas del Odiel Natural Park and Biosphere Reserve cover 40 hectares. The marshes have been a key economic resource in the area for many years.

The marshes exist due to the Atlantic tides that flood these areas and that reach a height of four metres.

There is an approximately 500,000 Euro budget for planned project activities. This allows promotion of one of the most important salt marshes on the Huelva coast. The marsh is important due to its ethnographic value and to the flora and

fauna (cranes, spoonbills, flamingos, etc.) in the marsh.

It also has the potential to become one of the main areas available to the public.

Among the many improvements made during the restoration project, one highlight includes the repair of the retaining wall along the perimeter to prevent overflow from the Río Odiel caused by waves as ships pass. The land was also improved by adding eucalyptus to strengthen the base, removing debris, and constructing a salt marsh interpretation centre, a lookout to view the Huelva estuary and a bird observatory. Marked footpaths were also opened.

Many proposals were received for this project. However, public use of the salt marsh was especially relevant since this ecological and functional restoration provides a representative setting of the balance that can be achieved between maintaining traditional salt industry operations and preserving natural assets.

Over time the salt marshes have become a vitally important source of food for thousands of birds that permanently live in the area, come specifically to eat (which is the case of flamingos from Portugal) or that use it as a source of rest and supply during their migratory routes to other latitudes.

#### Why is it significant?

This action stands out due to the recovery of an area that exists as a result of a traditional activity, and that plays a part in the history of the Reserve; an activity that was developed in harmony with the conservation of natural assets in the area. It is an example of a way to harmonise conservation and development, and it can be revisited for its very significant educational value.

The maintenance of this area has the potential to become an economic benefit to the population. This is true not only due to the salt operations, but also due to the potential increase in ornithological tourism to the Reserve. Many will be attracted to the area due to the numerous aquatic birds that find refuge there.

#### **How has it been carried out?**

The Las Marismas del Odiel Biosphere Reserve is the main promoter of the experience. It is financed by the Autonomous Government of Andalusia. The experience has been fully funded since it began in 2002.

Usual methods of advertising the experience were employed: Advertising was mainly conducted through the Environmental Council of the Autonomous Government of Andalusia website and publication of information brochures on public use of the area.

These brochures were distributed throughout the District.

#### **What has been achieved?**

Restoration of the salt marshes has increased awareness of natural and cultural assets in the Reserve among the area population and visitors.

It has also involved the public in conservation and expansion of awareness about traditional activities in the Reserve.

Additionally, the restoration experience has made it possible to conserve salt marsh production activity.



*Image of the restored Bacuta salt marshes*

## RECOVERY OF PUBLIC USE OF THE CAMÍ DE CAVALLS

### Menorca Biosphere Reserve (Islas Baleares)

#### What do we hope to achieve?

The main objective of this project is to recover a cultural and environmental resource identified with the history and culture of the island, such as the Camí de Cavalls.



*Information sign about the route of a section of the Camí de Cavalls.*

#### What does the experience involve?

Recovery of this road has a practical purpose, as it affects use of the path by the public. The path is referred to as the Camí de Cavalls (Path of the Horses). The path is approximately 225 linear kilometres and generally follows the perimeter of the entire Island of Menorca.

The road was initially used for military and defence purposes, for communications between fortresses, watchtowers and coastal batteries. It was also used by the public. Military use declined over time, but the public continued to use it. Over decades, the tradition of marking and maintaining the road was lost.

In the 1980s, demands were made by the public to revitalise public use of the road and to recuperate it.

In 1989, the road was declared an Asset of Cultural Interest. This declaration expired in 1994. Since the road ran through farms, some farm owners began placing obstacles on the road to prevent free and public use.

In 1996 a coalition formed to defend the Camí de Cavalls. The coalition collected signatures and organised rallies. The local government responded to this social movement. Through the initiative of the Island Council of Menorca, the Balearic Parliament approved the Law of the Camí de Cavalls in 2000. This allowed the Council to expropriate, regulate and plan. In 2002 a route was delimited for the road. In 2003 a special plan was prepared for the road, and in 2006 expropriation proceedings began.

It is important to note that the law approved by the Balearic Parliament and proposed by the Island Council of Menorca did not propose expropriation of property, only public use. Therefore, agreements had to be made with all of the owners. In the majority of cases, agreements could not be reached.

#### Why is it significant?

The experience stands out due to the process, which was a result of the developments and of the course of events: social pressure was the determining factor in the development, as well as the involvement of the government in responding to the public petition.

It also stands out due to the strategy of working together that was adopted when confronting conflicts with owners of land through which the Camí travels.

The project encouraged a type of public use that was compatible with the objective to conserve natural assets on the island.

#### How has it been carried out?

The island government responded to the petition by the public for public use of the road. The central government was also involved in the experience since it owns part of the road (approximately 10% of the road passes through public domain). The Balearic Government and the owners of farms through which the road passes were also involved in the development of this initiative.

Ways to participate and coordinate to ensure leadership of the initiative were established by the Island Project Directorate (affiliated with the Presidency) and the Coalition for the Defence of the Camí de Cavalls.

Today, work continues on maintenance and upkeep of the road, as well as mediation of conflicts with owners through the platform.

The project received wide coverage from the media, which offered a lot of information. Additionally, information brochures and guides were published for anyone in the public interested in the issue.

#### What has been achieved?

Currently, the road is being repaired and marked to make it more passable.

Infrastructure is also planned to reduce the impact on owners as much as possible.



*Coastal landscape on the Camí de Cavalls path*

## CONSERVATION OF TRADITIONAL IRRIGATION CHANNELS (ACEQUIAS) IN THE SIERRA NEVADA NATURAL AREA

### Sierra Nevada Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The objective of this project is to conserve and maintain the traditional system of "careo" irrigation channels in the Sierra Nevada Natural Area (which includes the Biosphere Reserve). These channels are important to the cultural and ethnographic historical heritage.

#### What does the experience involve?

Recovery has focused on channels that merge important natural and landscape assets and that are mostly in their original condition. Only traditional methods and techniques are employed in the recovery effort.



*Restoration of the channels through traditional techniques*

Changes in land use, abandonment of traditional agriculture and increased water usage in the middle of the last century caused a loss of the traditional channel system. This also signified the disappearance of a highly valued ethnographic heritage, a decline in vegetation that depends on the system and a transformation of this exceptional Alpujarran landscape.

This last element is crucial to maintaining tourism, which is one of the foundations of the economy in the area.

This ingenious and effective irrigation system harmonises the use of water for agriculture and conservation of the vegetation linked to the channels. The Sierra Nevada has over 450 kilometres of irrigation channels (acequias) and 150 kilometres of "careo" channels, according to an inventory completed in 2000.

The experience includes various projects to repair the channels, in compliance with the way in which they were originally designed. Traditional techniques and materials from the surroundings were employed as much as possible for:

- Construction of water taps.
- Augmenting the channels with stones.
- Protecting slopes with revetment.
- Cleaning the channels to ensure proper operation, and removing invasive vegetation on the banks.
- Reconstructing sections of the channels.
- Removing concrete and plastic piping.

A Conservation Service was formed to maintain the "careo" channel water system. The service provides manual labour crews from nearby towns, and specific training on traditional "careo" systems. The crews manually clean the channels and perform minor maintenance to ensure proper operation.

#### Why is it significant?

Maintaining the "careo" channel networks conserves the cultural, ecological and landscape assets that define the Sierra Nevada.

The system of irrigation channels positively impacts the environment due to a variety of factors relating to land planning, slope stabilisation, growth of vegetation (oaks, chestnuts), presence of fauna, enrichment of the landscape, etc.

### How has it been carried out?

The experience was exhibited at the Sierra Nevada Natural Area Participation Council. It was also made possible by the close collaboration of the Town Councils and the surrounding towns.

During project and inventory preparation, all of the municipalities and social entities were contacted regarding their interest in the experience. Town council meetings were held to explain the startup of the activities.

In addition to maintenance, training and information on traditional use practices for the "careo" channels was provided in the projects.

Additionally, an "Irrigation Channel Manual" was published about traditional channels, construction techniques, system operation, etc. in honour of this profession on the verge of extinction.

Also notable were the two training courses on dry stone construction and management of traditional channels. A Sierra Nevada environmental volunteer camp was held to "Manage the condition of traditional channels in the Sierra Nevada, interpretation of the channels and recovery of associated vegetation".

Work and maintenance was monitored on a weekly basis.

Each year, the provisional results are assessed and the priorities are noted for continuation of these activities in upcoming years by preparing related projects.

### What has been achieved?

The experience is in its second year. All of the results have been positive.

The experience included key involvement of the local population in the design and execution of the actions.

It also included beneficial effects on ecosystems, maintenance of the traditional landscape, and on increasing the amount of water available as a resource for supplying fountains and springs and for traditional agricultural usage.



*Maintenance of traditional landscapes is one of the main objectives of this experience*

## THE PROCESS OF PREPARING A SECOND SUSTAINABLE DEVELOPMENT PLAN FOR DOÑANA

### Doñana Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The main objectives of preparing a Second Sustainable Development Plan for Doñana are as follows:

- Restructuring and balancing the natural water system and its uses.
- Planning the integration of agriculture with the natural environment and assessing the results.
- Reducing the vulnerability of the land to global changes and strengthening the adaptive capability of ecosystems, the production structure and the social structure.
- Attempting to balance costs with environmental, economic and social benefits of recreational use of beaches and pine groves.
- Promoting a development model based on differences and on the cultural values of the area.
- Encouraging social development based on the values of equality, quality of life and ownership.

#### What does the experience involve?

Formulation of the Doñana Sustainable Development Plan II began in 2005. The general objective of the plan is to encourage a social and productive culture of local development based on the values of sustainability, innovation and differentiation. This includes integration and the participation of local entities to serve as the backbone of the plan.

The methodology applied was developed along various phases. During the first phase (first quarter of 2006), social revitalisation,

the Plan was introduced and shared with the main institutions, businesses, associations, and local groups interested in the Plan.

Next, the content was determined. This required the integration of key programmes and actions from proposals and forums from the previous phase. Strategic directions were collected, presented and debated.

Finally, a methodology similar to that of Agenda 21 was proposed for Doñana. A Plan of Action and a Sustainability Observatory for Doñana was prepared during the forums.

83 actions were identified to comprise the plan from conclusions stemming from the participatory process, the strategic directions and from completed studies and monographs. These actions were structured into six programmes to comprise the proposal of integrated and cross actions for the Sustainable Development Plan for Doñana. These were grouped into a series of lines of action.

#### Why is it significant?

Having a specific planning tool relating to socioeconomic issues of an area is essential to directing action and to guiding the actions of entities in this field.

In this case, if the Sustainable Development Plan does not specifically refer to the scope of the Biosphere Reserve, but to a larger area, it is considered applicable. This is in consideration of the anticipated future expansion of the Reserve to include the fourteen municipalities in the current Doñana Natural Area (which includes the National park and the Natural Park with the same name).



*Parish of Ntra. Sra. de la Asunción (Almonte)*

### How has it been carried out?

The process of drafting the SDP began in 2005 and is currently ongoing.

The Ministry for the Environment (Junta de Andalucía), as the body responsible for Doñana, is acting as the promoter of this initiative, whose main beneficiaries are the local councils, administrations and bodies within the administrative division of Doñana, as well as its inhabitants in general.

The Doñana 21 Foundation, WWF and the Doñana Biological Station are also collaborating in the drafting of this Plan.

The drafting of the Plan has been funded by the Ministry for the Environment, whilst funding is expected to become available from the Regional Government of Andalucía for its execution, along with ERDF, EAGGF-O, EAGGF-G, ESF and Cohesion (European Union) Funds and funding from the Ministry of the Environment.

In order to facilitate coordination in the drafting of SDP II, the Regional Government of Andalucía introduced different mechanisms, such as the creation of a Coordination Commission for the Sustainable Development Plan of the National Park and Natural Park of Doñana.

The body known as the Participation Commission was also established, consisting of representatives from various relevant social bodies. Almost at the end of the process, a Mayors' Commission was formed, consisting of those representing the 14 municipalities involved in the Plan.

During the early stages of drafting the Plan, great efforts were made towards its public promotion in the municipalities involved, with meetings being held with each of the local councils in the Administrative Division of Doñana. Equally, meetings and interviews were held with all kinds of groups and people from each location; workshops were staged on social participation in SDP II, and news of the initiative was publicized through radio slots broadcast on local stations and through press announcements.

### What has been achieved?

During the participation process, the general public were placed on a par with the different levels of administration, which created a conflict in the process on the part of the mayors, who demanded a separate forum; consequently, whilst the experiment proved to be very positive due to the high level of participation recorded in the Participation Forums, the need to create a specific forum for the mayors was a lesson learned for future reviews of the Plan.

In conclusion, there is a need to highlight the complexity of such an innovative process as this, which has required a high level of planning and interaction with the region, as well as great flexibility in terms of the proposals and updating of the different phases. It can be said that the quantitative and qualitative level of participation of the public, and of the local administrations, was satisfactory.



*Doñana Coast*



## DEVELOPMENT AND IMPLEMENTATION OF A GEOGRAPHIC INFORMATION SYSTEM FOR THE DEVELOPMENT OF THE ADMINISTRATIVE DIVISION OF LEVANTE-ALMERIENSE

### Cabo de Gata - Níjar Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The aim is to create a Geographic Information System for Levante Almeriense as a technological tool for use in land-use planning, to provide socio-economic agents with an instrument to facilitate decision-making in response to problems in the administrative division (which includes the Cabo de Gata - Níjar Biosphere Reserve).

The aim, therefore, is to document the long-term land quality strategy and to monitor the development of this regional framework, making SIGLA (the GIS for the Andalusian Coast) the core element of the Development Strategy of the GDR (Rural Development Group) Levante Almeriense.

This will open up new channels of social participation, leading to the creation of a community of users of land information. The tool will also help to support an intersectoral deployment of measures.

#### What does the experience involve?

At the time, a set of circumstances were identified which led to the experiment being implemented.

Firstly, the information shortfalls existing in the socio-economic environment became evident, as well as the lack of knowledge of local resources (natural and cultural heritage). This combined with the difficulties existing in accessing new information and communication technologies. Furthermore, strong inland-coastal imbalances were detected, together with the failure to develop the regional identity and sense of belonging in the administrative division, embodied in a weak associative fabric. Generally speaking, a lack of land-use planning was identified.

For this reason, it was deemed necessary to develop a tool by means of which a substantial improvement in the level of land information could be achieved and which would be of help in defining and monitoring a long-term land quality strategy based on the principles of land sustainability.

The information included in the GIS aimed to illustrate the areas of information considered to be of greatest interest in order to address different queries and which would enable various projects based on specific information to be developed, mainly in response to the needs of a strategy for land sustainability and quality.

Thus, the information contained within the system essentially originated from three types of sources: own information generated exclusively for the project, information adapted from other studies and official information appropriate to the scale of the study.

The products obtained as a result of the project include the following: an official map of Levante Almeriense and thematic maps of those municipal districts included in the operational area of GDR Levante Almeriense; GIS content uploaded on to a website for consultation by various users; and the Land Quality project: a diagnosis of land illustrated with the GIS data and areas of information, to which specific work has been added to illustrate the changes in land use and to interpret the land resources.

### Why is it significant?

The experiment is significant because it brings together a large amount of land information in a single consultation and working tool. A tool of this kind can have many uses and the fact that it is being used within the framework of the subject group concerned does not mean that its use will be restricted exclusively to socio-economic matters. However, if this has been the case, the reason is that it was designed to provide the socio-economic agents with an instrument to facilitate decision-making in relation to problems in the administrative division. There is no doubt that its use for this purpose will prove to be very productive.



*Introduction to the information system*

### How has it been carried out?

The experiment began in 2001 and is being fully implemented today. This work was carried out by technical personnel from the Technical Office of the Rural Development Group of Levante Almeriense. Economic, social and institutional agents were also involved in the experiment.

All of the cartography and information generated within the framework of this project is available on a website (<http://www.levantealmeriense.org>), owned by the Rural Development Group which collaborates with the Ministry of Agriculture and Fisheries of the Regional Government of Andalucía in the management and execution of European Structural Funds, and which is the main promoter of this initiative. The Natural Park of Cabo de Gata (the management body of the Biosphere Reserve) was included within the SIGLA user community.

With the aim of transferring the knowledge generated in the project to the socio-economic agents in the administrative division, two activities were undertaken in order to help configure the user community: sectoral workgroups and a training and information activity in the Management of Data Programming in the Productive Investment Projects and their linkage to the GIS.

The information provided through this tool needs to be updated on a continual basis. Consequently, this project has been subjected to monitoring and a thorough financial and technical evaluation on the part of the Directorate General of Rural Development of the Ministry of Agriculture and Fisheries of the Regional Government of Andalucía, through its agents responsible for controlling and monitoring the projects receiving EU funds LEADER PLUS and/or PRODER - Andalucía, with very positive results.

### What has been achieved?

The aspect of the project which encountered most obstacles in its development was the creation of the SIGLA User Community. The aim of this initiative was to create, through new information and communication technologies and using an intranet, users at different levels of SIGLA, the local councils, associations, local governments, office of the Natural Park of Cabo de Gata Níjar, education centres, Regional Offices of Employment, Livestock Defence Associations and the general population (almost 100,000 inhabitants) of the 13 municipalities in the administrative division.

Nevertheless, the project was deemed to have achieved the objectives for which it was designed and approved, both in terms of its technical development and in economic and financial terms.

Thanks to the implementation of this project, the administrative division of Levante Almeriense is equipped with a tool with great potential for managing and developing projects relating to the land.

## MEETING OF EXPERTS IN MONTSENY

### Montseny Biosphere Reserve (Cataluña)

#### What do we hope to achieve?

The aim of the meeting of experts in Montseny was to achieve the following objectives:

- To promote applied research in relation to the natural and cultural heritage of the Natural Park and Biosphere Reserve of Montseny, and to encourage the dissemination of studies undertaken in this regard.
- To make the local inhabitants aware of the fragile and complex nature of the relationships between people and the protected natural area.
- To increase the knowledge of the managers of the Park and Reserve in relation to its natural and cultural heritage.

It is also deemed very important to promote collaboration between research centres and nature conservation teams, in order to improve the management of this area.

Generally speaking, the aim is to improve the quality of management of this area, on the basis that in order to manage the area you need to know it.

#### What does the experience involve?

The meetings of experts with open-door sessions have been taking place every four years in the Natural Park and Biosphere Reserve of Montseny since 1986.

The structure of the sessions is generally as follows:

- Session programming by the management team of the Park and the Reserve. Setting the dates and venue for the event.

- Technical visit to assess the venue in which the Sessions will be taking place; this has to be located in one of the municipalities of the Park.
- Call to interested groups and local councils, announcing the staging of the Sessions. Terms and conditions of communication and registration.
- Meeting of the coordinating team to draw up the timetable in accordance with the papers.
- Evaluation of the Sessions by the coordinating team.

On completion of the event, the speakers are asked for a written article, with which a monograph is produced and published, reflecting all the papers delivered. This ensures a greater knowledge on the part of managers and the general public of the research activities undertaken in the area.

#### Why is it significant?

This experiment is significant as it focuses on an aspect which is often overlooked as far as research initiatives are concerned: the dissemination of their results.

Arranging a meeting of the different researchers who have undertaken projects at the Reserve leads to the improvement of the knowledge of the area held by its managers, the local population and by the researchers themselves, also resulting in the creation of contact networks and working groups with common interests.

### How has it been carried out?

The Biosphere Reserve, through the Provincial Governments of Girona and Barcelona as its management bodies, is the promoting agent of this initiative, aimed at all scientific research bodies, particularly in Catalonia, as well as environmental specialists in the local area and inhabitants of the municipalities of the Reserve.

The councils of the municipalities belonging to the Reserve actively collaborate in the preparation of the event and show great interest in hosting this event.

In order to facilitate the coordination and cooperation among the different participating bodies, various experts are available from the managing administration itself (Barcelona and Girona Provincial Governments), who assume different responsibilities, performed and compared at regular coordinating meetings.

The human resources invested in developing the experiment vary over time. During its preparatory phase, two experts are involved from the teaching and information section of the Area of Natural Spaces of the Provincial Government of Barcelona. During this initial phase, an expert from the Park itself is also involved.

During a second phase, the experts are supported by administrators who centralize all the submissions and abstracts of proposed papers.

During the execution phase, half a dozen experts join the team, together with administrative personnel, staff who with the support of individuals from the council itself in which the Sessions are taking place, coordinate the papers, organize the catering and assist the participants and the general public.

The Sessions are publicized in the local media and in the municipality itself in which they are being held, with street advertising.

Local journalists are invited to the Sessions, with reports appearing in the local press.



*Meeting of Experts held in 2004 in the municipality of Breda*

### Wha has been achieved?

The experiment has been extremely positive to date.

The level of participation, both in terms of papers and the public, is increasing over the years, with the latest meetings reaching around one hundred communications.

The most positive aspects resulting from the Sessions have been the dissemination of the studies undertaken in the Reserve and the linkage among different working groups dedicated to similar aspects.

The obstacles encountered when developing the experiment have been of a logistical nature in particular, although there has been an increasing tendency towards holding the Sessions in large municipalities with better infrastructures (conference halls) and communications.

## CREATION OF THE "CANTABRIAN INSTITUTE OF BIODIVERSITY AND ECOLOGY"

### Somiedo Biosphere Reserve (Principado de Asturias)

#### What do we hope to achieve?

The main objective of creating the Cantabrian Institute of Biodiversity and Ecology (ICABE) is to provide an instrument for promoting research on the most pressing problems relating to Cantabrian ecosystems.

#### What does the experience involve?

ICABE is the response to a structural need in the geographical area of Atlantic Spain.

Thanks to this Institute, the Principality of Asturias is expected to become the leader in scientific research relating to the management of renewable natural resources in the north west of the Peninsula.

ICABE will address the main problems concerning Cantabrian ecosystems, from researching endangered species such as the capercaillie, the brown bear and salmonids, to the management of hunting and the overpopulation of species such as the wild boar or cervids, or the study of the genetics of populations, focusing on protecting biodiversity.

The roles of ICABE are completed with the creation of an Observatory of Global and Climate Change, forming part of the network of observatories created by the CSIC (Spanish National Research Council). Its role will be to study the effects of global change on the biodiversity of ecosystems in the Cantabrian Mountains, on human activity and quality of life. This research work is based upon the fact that the Asturian mountains are a key location for observing the effects of climate change on ecosystems, due to their sensitivity (for example, an increase in temperature generally forces species to climb to higher levels, where the temperature previously found in their habitats is maintained).

#### ICABE will have a base in Somiedo where it will receive national and international researchers

ICABE will have a special influence on the western part of Asturias, as in addition to its headquarters in Oviedo (already in existence), it will have another base in Somiedo once the field station has been renovated (currently in the preliminary phase). This will promote the area significantly, hosting national and international researchers. ICABE will be organised according to a structure based on two departments: Ecology and Biology of Populations; and Biodiversity and Evolution; different research groups will be assigned to each of these.

The work of ICABE will be carried out on the basis of two management tools: the Scientific Project and the Strategic Plan. The former sets out the scientific objectives and the expansion requirements for ICABE as the priority research subjects are established; the latter provides a schedule for the work and achievement of objectives.

#### Why is it significant?

This experiment is significant as it establishes the Reserve as a base and point of reference for an ambitious research project, which aims to become a reference point on a national and international level. This will not only encourage studies to be undertaken in and on the area, but will also increase the knowledge and awareness of the Reserve, with the benefits that this can bring to the local population.

### How has it been carried out?

The project is the result of an agreement signed on 19 November 2007 between the Government of the Principality of Asturias, the University of Oviedo and CSIC. The Government of the Principality will contribute to the funding of ICABE, whilst CSIC will build the headquarters in Oviedo and the University will provide land and researchers.

In order to coordinate the project, a collaboration agreement will be signed between the Ministry of Environment of the Principality of Asturias, the management bodies of the Natural Park and the Biosphere Reserve of Somiedo, the Park Management and representatives of the University of Oviedo and of CSIC.

The work of ICABE will be disseminated through the local media and the conventional means of institutional dissemination.

### What has been achieved?

This experiment is in its full phase of execution and development and it is therefore too early to evaluate its results.

Nevertheless, it can be said that it is expected to constitute a significant qualitative leap in terms of knowledge and awareness of Somiedo, as in addition to the tourism resources in the area, there will be a centre of attraction for researchers and scientists who will bring a different focus to the Reserve, enhancing aspects which until now have been somewhat overlooked, such as biological and environmental research into this area.



*Landscape of the Natural Park and Biosphere Reserve of Somiedo*

## ETHNOGRAPHIC STUDY OF TERRAS DO MIÑO

### Terras do Miño Biosphere Reserve (Galicia)

#### What do we hope to achieve?

The main objective to be achieved in the development of this experiment is to improve the knowledge of man's presence along the River Miño, or vice versa (the influence of the river on the land and its people), and to document the ethnographic heritage of the area.

#### What does the experience involve?

In this basin, the River Miño evokes times past, when man and river lived together, giving rise to a culture associated with water, present in legends, or in the traditional structures where the force of the river, by means of an ingenious architecture of channels, was and is used to drive mills and "mazos" (foundries).

In this area, where *caneiros*, *ínsuas* and *fragas* are brought together, the river banks are a place of transit and an example of ancient sustainability. This is demonstrated by the various kinds of bridge, "pontellas", passes and ports, and also by the existence of a traditional flat-bottomed boat, or "batuxo", constituting the ethnographic wealth of the whole of the SCI and Biosphere Reserve.

The study undertaken recorded the existence of numerous infrastructures associated with water, including, among others, the following:

- *Ínsuas*: these are islands which are submerged when the river is swollen. They provide shelter for a significant amount of aquatic flora and fauna: aquatic plants, leafy river-bank forests of alder, ash, oak and birch, molluscs such as the mussel or river pearl, and animal species such as the roe deer, the grey heron, etc., turn these islands into nature sanctuaries.

- Hydraulic architecture: certain structures can be seen beside the River Miño (walls, steps, huts, farm enclosures, *saltadoiros*...) which have emerged out of need but also as a result of architectural skill and the aesthetic of the surrounding peoples.
- *Muíños*: every river, stream or brook has its *muíño* or mill. The mills are located on one of the river banks, with their structure built directly on to it, enabling the flow of water to increase through *caneiros* (small dams) or a few metres apart, carrying the water that will make the waterwheel turn through artificial channels.
- *Pontes*: the bridges, solutions for the passage of the water currents requiring some kind of technical work, more or less complex in nature, and with different materials and forms depending on the location and the type of land.
- Passes: this is a system consisting of stones which are not normally of any particular shape, and which are placed in the stream or in the river in no particular order or number depending on the width, on the current...
- Ports: this is the name given to both the ports used for the passage of boats and those used for pedestrians, livestock or carts to pass.
- Boats: for many years, this was the only means of transport between the different parishes and the walled city. There were as many types of boat as there were needs.

But the study was not restricted to gathering information relating to the infrastructures connected to water; the music, oral and written tradition, poetry, literature, architecture and myths existing along the River Miño (centred around the core area of the Biosphere Reserve) are also the subject of this project.

### Why is it significant?

This experiment analyzes the knowledge more deeply and focuses on the ethnographic heritage of the area.

The participation of different specialist teams in undertaking the study is an aspect worth highlighting, as the good results obtained endorse the excellent coordination that existed between them and the benefit of implementing multidisciplinary working teams, something which is particularly in line with the MaB philosophy.

### How has it been carried out?

In order to carry out this study, a multidisciplinary team was formed, consisting of anthropologists, historians, teachers and draughtsmen. Each professional was responsible for looking into a part of the study in more detail. Over two years, the team met regularly to compare the information gathered and processed relating to the different subjects. 60 registered reporters worked alongside the multidisciplinary team.

The study began in 1999 and is now fully completed. The promoting body of the study was the Biosphere Reserve itself, through INLUDES (Lucense Institute of Economic and Social Development) and the María Castaña Association. The Project was funded through the PRODER-Miño funds.

The team from the María Castaña Association acted as the connecting link with the other bodies participating in the project, through its role as "coordinator". This Association has a high social profile in the Biosphere Reserve, and the response from the public was therefore very positive.

At the time there was a large amount of publicity for the initiative in the media, a guaranteed way of connecting with the local population. The study was mentioned on the radio, in the press, at seminars and sessions, through information materials associated with the Biosphere Reserve and at the Visitor Centre.

### What has been achieved?

An extensive report was drafted, providing information on the water culture associated with the River Miño and also constituting an essential study which endorsed the designation of Terras do Miño as a Biosphere Reserve. Around 100 people were involved in the study. The University of Santiago, as a collaborator in the study, produced a thematic map of it. The study has subsequently been used in other publications and has served to revive certain traditional arts such as pottery.

Furthermore, from the work undertaken, the idea arose of using the "*batuxo*" as a logo for the Reserve of Terras do Miño.



*Restoration of a flour mill in the ethnographic complex of Mazo de Santa Comba*



## LANZAROTE'S COMMITMENT TO ITS TERRACES FOR PRODUCING ENERGY

### Lanzarote Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The aim of this experience is to succeed in implementing a tool on the island for starting up a sector which, in addition to producing clean energy, can become a significant economic source, relying on the direct participation of the inhabitants.

#### What does the experience involve?

Since 2006, the Ministry of Industry of the Island Council of Lanzarote has been drafting, in collaboration with the Ministry of Industry of the Government of the Canary Islands, the Special Regional Plan for the Management of Energy Infrastructures on the Island of Lanzarote, a Plan which identifies what parts of the region can accommodate the different technologies for generating renewable and non-renewable energy which can be put into operation on the island.

The Reserve Observatory advised the Ministry of Industry in this regard in 2005 and cooperated in the staging of an information session in January 2006. At that session, the Observatory presented two technical documents which assessed the photovoltaic potential of the terraces on the island and the economic profitability for small installations. These technical proposals served, in part, as a precursor of the experiment.

Within this framework, the Council conducted a census in 2007 on the photovoltaic potential of roofs on the island, as a tool for promoting and disseminating renewable energy there. This census was made available to the public through the design of the website tool "*map of the island's terraces*" which enables each inhabitant to find out whether their terrace fulfils the conditions for installing solar panels.

This website tool enables both the roof owners and the installers, as well as the investors, the distributors and the banks to share information that can help to establish an economic sector associated with the promotion of renewable energy in the local environment. The computer tool is located on a web portal (<http://lanzarote.grafcam.com/>), which is easy to access and handle, identifying all of the homes on the island using satellite images and evaluating, on a total of 7 screens, details of the installable potential, the energy production generated, the economic income through the sale of energy, the investment costs, the maintenance costs and the CO<sub>2</sub> savings made as a consequence of installing photovoltaic solar panels.

In order to draft the plan, a group of experts from the Council travelled all over the island and recorded 30,000 buildings, in which 100,000 surfaces were identified as being suitable for a photovoltaic installation, relying on satellite images to identify the potential of each terrace according to its area, pitch and alignment.

#### Why is it significant?

This is a very innovative experiment, performing a comprehensive study of the potential of solar energy to supply power to the island, and committing to the development of an extremely original tool for its dissemination; a tool which, by using data rather than words, can be implemented to inform inhabitants of the advantages (financially as well as environmentally speaking) that a commitment to this kind of renewable energy can bring.

The initiative could have a very positive impact on a region which is currently dependent on external energy sources.

## What has been achieved?

### How has it been carried out?

In 2006, the Canary Island Ministry of Employment issued an announcement to recruit job seekers, as a result of which the Council of Lanzarote's Industry Ministry submitted the relevant request to recruit four individuals (two draughtsmen and two administrators). The request was denied in 2006 and approved in 2007.

Once the proposal had been approved, the Canary Island Ministry of Employment proceeded to recruit the required personnel to initiate the work under the coordination of the Ministry of Industry of the Council of Lanzarote, together with the support of the Data Centre of the Council itself.

In order to define the technical criteria for creating the inventory of usable areas, specialised technicians, installers and promoters were consulted.

The state-owned company Grafcan was involved in developing the cartographic services.

One of the most significant aspects of this work is the result obtained on the total installable power, a figure which, although calculated according to cautious and conservative criteria, amounts to 720 MW of power. This result is three times greater than the power of the energy park that currently supplies electricity to the island of Lanzarote. An energy which, as it can be accumulated, could meet the island's consumption of electricity or which could at least help to alleviate the precarious state of the current energy system.

Another result worth mentioning is that consultation via the Internet portal has been very successful. Dozens of people consult the electronic tool every day and many others contact the Council of Lanzarote to find out about the funding, installation and purchasing terms for a domestic solar power plant.

The digital tool, which makes the data on the photovoltaic potential of roofs on their properties available to the inhabitants, will be expanded with information on the steps to be followed in order to arrange for the solar energy equipment to be installed.

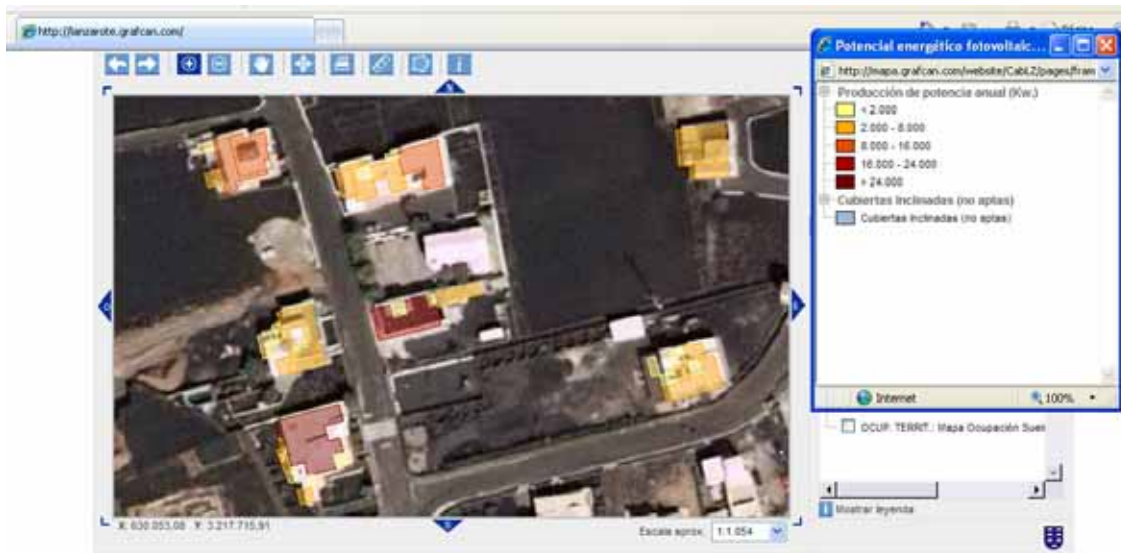


Image of the project's website application

## PERCEPTION STUDY OF THE BIOSPHERE RESERVE

### Valle de Laciana Biosphere Reserve (Castilla y León)

#### What do we hope to achieve?

The main objective of the study is to obtain a qualitative diagnosis of the social opinion existing in relation to the Biosphere Reserve among the local population and visitors.

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**Many visitors are still unaware that the Valle de Laciana is a Biosphere Reserve; greater promotion of the Reserve is needed**

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#### What does the experience involve?

The perception study is carried out by undertaking different surveys for tourists and inhabitants of the Reserve.

The goal is to ascertain the opinions of these two groups on the Biosphere Reserve and on the future guidelines to be followed in the daily management of this area.

The survey is carried out by means of a questionnaire, the essential aim of which is to ascertain whether the visitors know that they are in a Biosphere Reserve and whether this is one of the reasons why they have come to the Valle de Laciana. They are also asked about the activities they intend to perform in the Reserve and how they came to know about the valley.

#### Why is it significant?

This study is considered to be of great interest in order to evaluate the situation and the level of knowledge held on the Reserve, and of great use in identifying possible guidelines or priorities to be followed by its managers.

Repeated on a regular basis, an experiment of this kind would be a very useful initiative for monitoring the level of implementation of the Reserve in the local area and its dissemination externally.

It is thought that this experiment could be easily exported to all Biosphere Reserves.



*Information signs in the Valle de Laciana*

#### How has it been carried out?

The experiment was initiated in 2008 and is currently being fully implemented.

The Laciana Biosphere Reserve Foundation, the body responsible for its management, has been the promoter of this initiative, which has also been carried out in collaboration with the tourist office of Villablino Town Council, with direct contact being made with its assigned experts.

The visitor surveys are carried out by the Tourist Office.

### What has been achieved?

At the moment, as the initiative is still ongoing, there are no definitive results, and no overall evaluation of the activity can be made.

Nevertheless, as things currently stand, it can at least be said that there has been a good response in terms of participation in the surveys.

For the moment it can be seen that many visitors are still not aware that the Valle de Laciana is a Biosphere Reserve, which means that greater promotion of this status is needed.



*General view of the Valle de Laciana*

## "FRIENDS OF THE RESERVE" VOLUNTEER PROGRAMME

### Gran Canaria Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

There were various objectives to be achieved in launching this activity.

Firstly, to raise awareness of the environmental and cultural values of the Gran Canaria Biosphere Reserve, which would enable it to be appreciated more and encourage it to be respected.

At the same time, it was considered to be essential not only to inform, but also to make the greatest number of people possible aware of the conservation of the cultural and natural heritage and the restoration of degraded natural areas in the Reserve, and to encourage their participation in these tasks.

The aim was also to implement specific activities to conserve the natural and cultural heritage of the Reserve.

#### What does the experience involve?

The experiment consisted of undertaking various volunteer activities at weekends over a period of three years (2005-2007).

For each of the activities the Reserve provided the transport, food and materials required in order to undertake them, as well as informing and coordinating the participating volunteers throughout the week.

Of the various activities performed, the following are worth mentioning:

- Visits to and interpretation of archaeological sites.
- Selective collection of waste on beaches and in ravines.
- Interpretation of the geology, flora and fauna of trails, ravines and royal pathways.

- Visits to interpretation centres.
- Reforestation and forest maintenance.
- Restoration, improvement and cleaning of trails.
- Responsible trekking.

The groups of volunteers participating in the activities consisted of the local adult population. The participants were given various promotional materials on the Reserve, including T-shirts, caps and information leaflets.

Activities were also carried out with the inmates of Salto del Negro prison (trekking and waste collection) and with schools (mainly reforestation, birdwatching, informative talks and workshops).

Most of the activities were performed inside the Biosphere Reserve, but in certain cases they were also carried out in other places on Gran Canaria, as in the case of beach cleaning in Las Canteras or awareness activities on the dunes of Maspalomas.

#### Why is it significant?

The experiment is significant because it focuses on promoting the active participation of the island's inhabitants in carrying out work aimed at conserving the natural and cultural values of the Reserve. In this way, educating and raising the awareness of the participants in these activities has a greater effect.

Tackling environmental education activities from a perspective that is less passive than usual has produced more direct results and a greater potential for raising awareness.

### How has it been carried out?

The Gran Canaria Biosphere Reserve, through the Island Council of Las Palmas de Gran Canaria, was the promoting body of this activity, in collaboration with the local councils of the municipalities belonging to the local area of the Reserve.

The involvement of the local councils in the experiment was particularly positive, as ultimately these were the ones who requested the volunteer programmes and proposed activities to be undertaken in their municipalities.

In order to coordinate the action of all partners involved in implementing the experiment, a quarterly calendar of activities was produced in agreement with the different councils through regular meetings, ensuring that at least one activity was carried out every three months in each municipality of the Reserve.

The experiment was widely disseminated. All of the activities were well publicized through press releases beforehand and, once completed, by obtaining a very high level of media coverage.

The fact that a freephone information line was made available to the public was also significant.

In order to evaluate and monitor the experiment, an annual report was produced with the total number of activities completed, the total number of participants and the balance, which was distributed to the various administrations involved.

A final report of activities was also produced for the whole period (2005-2007).

### What has been achieved?

Approximately 300 volunteers participated in the experiment, many of whom performed more than one of the proposed activities.

The average number of participants depended on the type of activity, but ranged between 25 and 50 people. Activities such as cleaning the beach of Las Canteras in July 2007 attracted 140 volunteers.

As a consequence of the activities undertaken, furthermore, there would have been an increase in the level of knowledge of the Reserve and its values both on the part of the participating population and the rest of the population, due to the wide publicity of the initiative through the media.

All of this is complemented by the direct improvement resulting from the completion of some of the activities which involved the maintenance and improvement of certain areas in the Reserve through planting, cleaning and restoration.

For all these reasons, the experiment can be classed as successful.



*Volunteer activity consisting of cleaning a beach*

## DOÑANA ENVIRONMENT GROUP

### Doñana Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The Doñana Environment Group consists of an initiative which came about in the late 80s, involving the municipalities that form the immediate surroundings of the Doñana Natural Space (which includes the Reserve) in making decisions relating to the Environmental Education Programme. These decisions relate to the set of activities in which Doñana plays a major role and are to be implemented in these locations.

The main objective of developing this experiment is to encourage the relationships between Doñana and the inhabitants of its immediate surroundings, through the involvement of these inhabitants in decision-making in the area of education.

#### What does the experience involve?

The Doñana Environment Group (GDE) undertakes a set of programmes through which a large number of citizens, adults and schoolchildren become familiar with and aware of this protected area.

Initially, the Group included the municipalities in the closest surroundings of the National Park, but the administrative integration of the latter with the Natural Park into a single area, the Doñana Natural Space (END), and the scope of application of Sustainable Development Plan II for Doñana has resulted in new municipalities joining the Group, amounting to a total of 14.

The GDE is organised through a working group made up of experts from the END Environmental Education Programme and a representative from each local council.

The activities most recently undertaken by the GDE have been aimed both at groups of schoolchildren and at the adult population in the area.

The objective of the activities for schoolchildren, in primary and secondary education, is to ensure that all pupils within the area of implementation learn about the protected area and its administrative division. As one of the resources for these activities, the GDE produces environmental education materials, such as thematic field books, visual guides on flora, footprints and tracks of fauna, etc.

The activities aimed at the adult population are for raising awareness of the END, through the "Know Doñana" and "Doñana Space" Programmes. These activities include tours of different parts of the END, and the distribution of a DVD and a leaflet showing the area's heritage.

#### Why is it significant?

The experiment is significant both due to its extensive background (it has been in operation for 20 years) and because of its participatory element, through the involvement of the local population in making decisions relating to the environmental education activities in the END and in their development.

#### How has it been carried out?

This initiative boasts the active collaboration of the local councils and associations in the area of influence of the Doñana Natural Space, from where the initiative is promoted.

Most of the activities are directly funded through the END budgets, although the organisation of the "Aula Entorno" (Surroundings Classroom) Programme is funded by the Doñana 21 Foundation, and in the case of "Doñana Youth Guard", some councils fund the pupils' travel expenses; finally, in the case of the "Doñana Wetland" Programme. Project Doñana 2005", the

Ministry of the Environment has been responsible for funding its implementation.

In order to coordinate all of the agents involved in the development of this initiative, several meetings are held throughout the year to discuss the planning, monitoring and evaluation of the programme of activities.

In terms of disseminating the experiment, there are plans to produce a DVD and a leaflet on the administrative division to raise awareness of the heritage of the surroundings. In the programmes aimed at schoolchildren, there is twice the amount of communication with the centres, coming from the local councils themselves on the one hand, and on the other from the Doñana Natural Space.



It is also important to note that the Environmental Education Programme is continuously monitored by means of surveys carried out with the participants and teaching staff, both prior to the commencement of the activities and subsequently. The regular meetings are also evaluated on an annual basis.

### What has been achieved?

The results obtained after the 20 years over which this experiment has been operating are summarised below:

The work has been extended from 7 to 14 municipalities, and the activities extended from schoolchildren to adults over recent years.

The participation of the school-age population in 2008 was estimated at around 10,500 pupils, whilst around 6,800 adults participated, in a total of 11 different activities.

This has resulted in a greater appreciation on the part of the local population of the heritage values of the END, a greater sense of belonging to the administrative division and to Doñana and the active participation of the municipalities in making decisions in relation to environmental education activities.

The experiment has been very positive, due to the good response from all municipalities and to the substantial length of time over which it has been implemented, particularly in the case of the initial 7 municipalities, factors which have helped to establish the Programme.

Among the aspects which could be improved, it is worth mentioning the desire for greater involvement on the part of the local councils through their financial contributions, and improvement in the actual running of the GDE and the development of new activity proposals, in order to make the Programme more dynamic.



## ENVIRONMENTAL VOLUNTEER PROGRAMME

### Marismas del Odiel Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The aim of this initiative is to promote environmental education activities so that, through these, citizens can become familiar with the Reserve, more interest can be taken in nature conservation and knowledge increased in relation to the birds and migration routes passing through the Wetlands of Odiel.



*Ringing of wading birds with volunteers*

#### What does the experience involve?

In 1999, the "Coastal birds" programme was launched as part of the Environmental Volunteer Programme of Andalusia, promoted by the Ministry for the Environment of the Regional Government Andalucía, with the aim of promoting the protection of marine birds on the coast of Huelva.

This programme was mainly designed to check and monitor the colonies of little tern and plover found on the coast's beaches and it was implemented by setting up a group of volunteers aimed at reporting on these birds and protecting them.

In 2000, the programme was extended with the "Nocturnal ringing of wading birds in the Natural Area of Marismas del Odiel", a programme open to the participation of volunteers from all provinces in Andalusia and implemented between the months of July and October.

In 2001, the "Volunteer network of Marismas del Odiel and the west coast of Huelva" was established, with its activities including the campaigns for ringing waders during the post-breeding migration. During these ringing campaigns, some 23,000 specimens of wading birds have been captured, corresponding to over 40 different species. There were 461 captured checks (previously ringed birds), coming from 22 countries. These recaptures have enabled data corresponding to certain species to be discovered.

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**The ornithological station of Las Marismas del Odiel, the headquarters of the Volunteer Network, is one of the largest wading bird ringing stations in Spain and Europe**

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The objective of this programme is the scientific study of migrations made by waders on their routes from Northern Europe to Africa, after the breeding period (from July to October).

Due to the volume of captures and the importance of these, the Ornithological Station of Marismas del Odiel, the headquarters of the Volunteer Network, is the largest wading bird ringing station in Spain and one of the largest in Europe.

The aim of this programme is to raise awareness of the importance of the Natural Area of Marismas del Odiel as a feeding and resting area for birds along the West Atlantic migration route.



*Ringing of wading birds with volunteers*

### Why is it significant?

This experiment is significant because it has achieved the direct involvement and participation of volunteers in improving the knowledge of birds and the migration routes they follow through Marismas del Odiel.

In this way, various objectives are combined to which the Biosphere Reserves must contribute: to encourage the participation of the population in the activities of the Reserve, to improve the knowledge of its natural values, or to participate in environmental conservation activities, among others.

### How has it been carried out?

This is an experiment promoted by the management body of the Biosphere Reserve and Natural Area of Marismas del Odiel.

The experiment was publicized through the website of the Ministry for the Environment of the Regional Government of Andalusia, through *word-of-mouth* communication among the participating volunteers and through participation in various associated Internet forums.

### What has been achieved?

The results have been very positive as the experiment has succeeded in promoting knowledge of the Reserve and the involvement of the population in its conservation.

It has also contributed towards the increase in knowledge of the birds inhabiting the Reserve, as well as their migration routes and habits.



*Ringing of wading birds with volunteers*

## CENTRE FOR INTERPRETATION AND DOCUMENTATION OF THE WATER AND WETLANDS OF LA MANCHA (CIDAHM)

### La Mancha Húmeda Biosphere Reserve (Castilla La Mancha)

#### What do we hope to achieve?

The aim of this centre is to highlight the water resource and to raise awareness on the part of the region's inhabitants of the problems that this resource is facing and of the interaction and dependence of economic activity in relation to water.

Furthermore, it aims to encourage studies to be carried out, technical meetings to be held and research conducted on the conservation of resources, particularly those relating to water culture.

Finally, through the centre, the aim is to make available to users as much information as possible relating to water and the wetlands of La Mancha.

#### What does the experience involve?

This initiative was launched in 1996 and the centre is now set up and its activities established.

The centre performs various roles:

- Interpretation: different interpretation resources are provided as a permanent exhibition, a room on the interpretation of water and the wetlands of La Mancha and aquifer 23, an ethnography room, a temporary exhibition room and an audiovisual and conference room.
- Documentation: archives and documentary resources of various types are available at the centre. There is a library, video library, photo library and map library.
- Information and dissemination: through the information and customer service area, the offices of the personnel of the centre and of the National Park of Las Tablas de Daimiel, technical meetings, sessions, etc.

- Education: programmes and educational materials are prepared for visits to the Centre (adapted to different teaching levels), as well as summer courses and environmental workshop/classroom activities for different groups, in support of the interpretation activities.

The interpretation area is the most important element at the centre; it integrates and develops, from an informative point of view, the main natural, social, economic and historical aspects relating to the water in the region.

The permanent and temporary exhibition rooms, projection and conference rooms, environmental education workshop/classrooms and the small laboratory are some of the facilities made available to the public and groups interested in the subject.

All of this is significant due to the interpretation content of an enjoyable, participatory nature: models, panels, diorama, aquariums, games, complementary teaching publications, audiovisual equipment and other elements that combine to raise public awareness of the value of the water resource, informing the region's inhabitants of the problems relating to water and the interaction and economic dependence existing in relation to this asset, which is as limited as it is essential.

Furthermore, apart from having its own environmental education programme, CIDAHM welcomes the initiatives promoted both by other groups and organisations and by private individuals, who organize events with the logistical, technical and administrative support of the centre.

### Why is it significant?

The construction and functioning of a centre of this kind is of great interest: the centre will serve as a source of information and point of reference for the local population and visitors in order to perform awareness, dissemination and research activities focusing on one subject: water and its conservation.

The need to focus efforts on one very specific subject is essential in cases such as this, where there is a serious situation of deterioration of an environmental resource as a consequence of its overuse, and where education and awareness with respect to the subject is essential in order to reverse the situation.

### How has it been carried out?

The Town Council of Daimiel and the Ministry of Environment and Rural Development of the Regional Government of Castilla - La Mancha have signed a collaboration agreement for the development of the CIDAHM environmental education programme, on an annual basis, which covers the costs of the interpreter guides and the centre's administrative staff.

The dissemination of each activity, and thus of the centre itself, is carried out by means of press conferences, launches of the activities, openings, the Internet (through the municipal website), local radio and television stations and direct contact with those who may be interested in each activity (there is a directory of associations and users available).

In addition, the existence of CIDAHM as such is publicized by the Tourist Office and by the Visitor Centre in the National Park of Las Tablas de Daimiel.

With a view to monitoring the centre's activity, an annual report is produced, in which the activities undertaken are quantified according to type and the participants in these, as well as the level of dissemination in the media and the results of an evaluation questionnaire completed by the visitors.

### What has been achieved?

The number of visitors to the centre was 77,712 during the period 1996-2007. The number of activities undertaken to date is 70, including temporary exhibitions, courses, seminars, sessions, workshops, tours of the wetlands, etc.

On the basis of these results, the assessment of the level of activity at the centre is considered to be positive.

Certain difficulties have also been encountered in the running of the centre, particularly in relation to budgeting: the local administration is responsible for running the centre, which prevents its potential from being developed in areas such as research or the direct monitoring of the Biosphere Reserve.



*Image of the interpretation area of CIDAHM*

## EDUCATION UNIT ON THE RESERVE

### Sierras de Béjar y Francia Biosphere Reserve (Castilla y León)

#### What do we hope to achieve?

The main objective of this experiment is to design useful materials for school teachers in the Reserve, to offer teachers and pupils the appropriate working materials for a comprehensive and true conceptual, ethical and procedural understanding of the meaning and relevance of the Reserve.

The aim is to continuously convey the values of the Biosphere Reserve to schoolchildren and, thus, to establish permanent contact between schools and the Reserve's management body.

#### What does the experience involve?

The experiment consisted of creating a specific teaching unit on the Biosphere Reserve of Las Sierras de Béjar y Francia for children in the 5th and 6th years of Primary Education (and adapting it for primary 3rd and 4th and secondary 1st and 2nd years).

The content of this unit deals with various subjects, such as:

- What is a Biosphere Reserve?
- Area of the Reserve. Associated landscapes.
- History and inhabitants.
- Flora and fauna.
- Traditional crafts, traditional buildings.
- Folklore and oral tradition and games.

Prior to designing the Teaching Unit, a draft was produced with the main characteristics of its content. This draft was sent to all schools situated in the area occupied by the Reserve, to cultural, agricultural and youth associations, etc., for them to make any suggestions.

Once the final draft had been completed, it was resent to all the individuals, centres and associations who had collaborated for them to give their opinion on it, amending the final design of the teaching unit where it was deemed appropriate.



*Livestock grazing is a traditional activity in the Reserve*

The intention is for schools to use this publication to explain over the academic year the characteristics of the surroundings in which the children live and its designation as a Biosphere Reserve.

In this way, the teacher, in his/her important work, becomes involved in disseminating and teaching about the values of the area and, furthermore, a link is established between the schools and the management body of the Biosphere Reserve of Las Sierras de Béjar y Francia.

#### Why is it significant?

The introduction of an educational unit on the values of the Biosphere Reserve into the teaching content of schools in the municipalities within it is considered to be a very innovative initiative and of great benefit in terms of raising awareness and disseminating the values of this area.

The experiment is also of use in strengthening the links between the population and the Reserve.

### How has it been carried out?

The experiment began in 2008 and is now fully established.

The Biosphere Reserve, through the Salamanca Association of Mountain Agriculture, has been the promoter of the experiment, which has been funded by the Biodiversity Foundation and has received a contribution from the Leader+ Funds.

The implementation of this experiment has relied upon the Tormes Foundation as an expert on drafting teaching materials, and the company C&C Publicidad for the professional graphics used in their publication.

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**The aim is to establish with this experiment a permanent link between the schools and the management body of the Reserve**

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In order to disseminate the experiment among the schools, it was decided to send them the teaching unit directly. A press conference is also planned in order to explain the project, as well as a training course for the teachers.

The activity must be continuously monitored and this must begin as soon as the teachers start to implement the initiative in the schools.

To this end, there will be direct contact with them, in order to see the level of implementation and results throughout the first year of its development. Based on this monitoring process, the teaching unit will be adapted in order to achieve the final objectives of the project.

### What has been achieved?

Once the phase of designing, producing and disseminating the teaching unit among the schools has been completed, the latter will begin to implement it throughout the current year. A series of informative talks will therefore be given to the teachers on its development and they will use the proposed materials over the course of the academic year.

The experiment is considered to be positive in so far as it has a direct impact on the pupils and the schools are involved in disseminating information on the Biosphere Reserve.



*Views of the landscape of La Sierra de Béjar y Francia*

## TRAINING PROGRAMME OF THE ASSOCIATION OF MUNICIPALITIES OF SIERRA DE LAS NIEVES

### Sierra de las Nieves Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The objectives of developing this initiative are to offer unemployed people (and particularly those groups with special difficulties when it comes to integrating into the employment market) a specific professional qualification associated with the demands of the employment market, thus improving their opportunities of obtaining work.

Furthermore, the aim is to help, through training, to create employment in the administrative division and, consequently, to keep the local population in the area.



*Female students taking part in the gardening course at one of the workshop schools, working in the greenhouse of the Museum of cacti and succulent plants, in Casarabonela*

#### What does the experience involve?

This initiative was launched in 1994 and is now fully implemented and established in the municipalities of the Biosphere Reserve.

The Association of Municipalities of Sierra de las Nieves offers a wide range of training options every year to the population of the administrative division:

- Workshop schools: aimed at unemployed people aged under 25.
- Employment workshops: for unemployed people aged over 25.
- Professional Vocational Training Courses (FPO).

Participants of the first two training methods are given a training contract and are remunerated for their work.

The duration of each course varies and most commonly ranges between 2 and 8-9 months.

Equally, the subject matter of these training options varies according to the demand of the employment market and is reviewed when designing the training plan for each year.

Some of the fields in which training has been and/or is given, are those relating to gardening with indigenous plants, plumbing, electrics, website design, home care or ethnography. The subjects of the different courses are decided upon taking into account the needs of the population, the demands of the local councils (who are consulted) and the fact that they are within a Biosphere Reserve.

Consequently, special attention is paid to the proposal of subjects which are in line with the MaB philosophy, such as tourism based on the natural and cultural values of the area, the development of renewable energy or the revival of traditional crafts so that they can be appreciated.

In addition, all courses deal with certain cross-sectoral issues (gender, environment, health and safety in the workplace, etc). The most significant issue, due to its particular nature, is the knowledge of the Reserve. Specifically, this subject is always dealt with in a particular way, in the form of a talk given to the pupils, whatever course they are on, by experts from the Reserve. In this way, the aim is to make them familiar with the natural and cultural values of the area, to teach them to value it and convey this knowledge in their own activities.

Another particular characteristic of this training programme is its organisation on an administrative division, rather than municipal, level. This has two fundamental advantages: on the one hand, resources are optimised and the range of training available is widened, and on the other hand, the training becomes accessible to a greater number of people.

The organization on an administrative division level helps students from different municipalities to "mix" on the same course and this, in turn, means that the different municipalities can end up with professionals trained in the different subjects offered, rather than all the professionals of one kind being concentrated in the same population centre.

Lastly, it is worth mentioning that all of these training initiatives have a positive impact on the different local councils within the administrative division, as the practical sessions for the different courses tend to take place in accordance with these, for their benefit.

### Why is it significant?

This initiative is significant because it integrates the MaB status and philosophy into the design and implementation of a training programme in this area.

Training, socio-economic development and environmental conservation go hand in hand in this experiment, integrating perfectly.

### How has it been carried out?

The annual training programmes are created in consultation with representatives from the Reserve and from the councils of the municipalities of which it consists. The training programme is publicized on the Reserve's website and through the publication of leaflets and posters.

There is also an email distribution list. The work of the ALPES (Local Employment Promotion Agents) is also essential in raising awareness of the initiative.

In order to evaluate the experiment, evaluation forms are completed on the different courses by the students, as well as assessment and self-assessment surveys.

### What has been achieved?

Since the beginning of the experiment in 2004, it has been greatly welcomed by the local population and the councils. In 2008 alone, there were 251 participants in activities within the training programme (96 in employment workshops, 80 in workshop schools and 75 on FPO courses).



*Female students participating in the employment workshop dedicated to painting, working on the reception building for visitors at the Museum of cacti and succulent plants, in Casarabonela*



## BIOSPHERE RESERVE OBSERVATORY

### Lanzarote Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

There are various objectives to be achieved in the development of this activity.

Firstly, to ensure comprehensive management of the information in and about the Reserve, obtaining the necessary information that is not yet available, keeping the existing information in an organised fashion and disseminating the information as deemed appropriate.

Furthermore, on the basis of the results obtained as a result of the monitoring, the intention is to generate discussion and propose alternatives or suggestions for solving the problems identified, thus helping the Board of the Reserve to drive forward initiatives and innovative projects.

#### What does the experience involve?

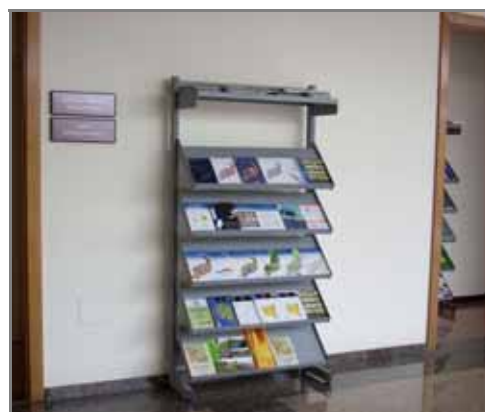
The "Lanzarote in the Biosphere" Strategy was devised in 1998 to give content to its designation as a Biosphere Reserve, and put forward 28 corrective proposals in response to the risk scenario analyzed. In its last programme, it proposed the creation of an Observatory with a view to helping to maintain the collective focus on island evolution.

By means of the agreement formed on 8 June 2000, the creation of the Observatory was approved with a view to bringing together and providing concise and regular information on social, economic and environmental aspects on an island level, to enable decisions to be made with regard to sustainability, in accordance with the designation of the island as a Biosphere Reserve.

The aim of the Biosphere Reserve Observatory is to record and assess the island's sustainability by means of a combined process of participation and

scientific methodology. In this way, the Observatory continues and completes the Lanzarote in the Reserve Strategy, by broadening and maintaining a debate which fuels itself. Within this context, the Observatory has been developing various areas of work:

- Gathering information on the island and helping to modernize administration.
- Producing cartography, data and reports.
- Facilitating their publication and dissemination.
- Generating discussion and reflection on the future of the island.
- Increasing public awareness and participation, and achieving better technical approaches.



*Material published by the Reserve Observatory, displayed in the main office of the Council of Lanzarote*

Consequently, the Observatory aims to be a body in line with the Biosphere Reserve, incorporating among its activities environmental monitoring, attracting the attention of researchers and focusing its work on practical aspects. Furthermore, the aim is to ensure that the users of the Observatory can be confident that it is actually operating properly, that it is

generating more and better information and that it is developing documentation techniques and electronic interconnection. Lastly, the Observatory is intended to act as a connecting link between the public and the entities that manage information, to generate debate and mutual learning and to serve as a teaching resource for this society.

The Observatory organizes events and produces publications, processes which are illustrated on its website, also with contributions in other sections of the Council's website. The products relating to its activity include seminars, A5 postcards, its range of publications, participation in events, etc. Specifically, the postcards printed in A5 format were distributed and continue to be offered to secondary and bachillerato schools, on request.

### **Why is it significant?**

One of the most significant features of this initiative is that it is an experiment of a particularly institutional nature, as it incorporates activities which have an impact on the development and functioning of the management bodies of the Biosphere Reserve.

Furthermore, it is an experiment of a strongly innovative nature and can be easily exported to Spain's other Reserves.

### **How has it been carried out?**

This experiment is fully established, as it began in 2000 and is aimed at society as a whole and at politicians in particular.

Whilst the Council of Lanzarote was the promoting body of the experiment, bodies such as the data centre, other technical sections of the Council and island expert groups alongside independent external experts collaborated in it.

Every two years, the Observatory submits a Work Plan (known as the Feasibility Plan) containing the results obtained over the previous two years and formulates a proposal of activities for the next two years, to be approved by the Board of the

Biosphere Reserve, with the objectives and methods to be undertaken. It also presents papers and communications which evaluate the actual progress of the Observatory and certain Sessions and Conferences.

### **What has been achieved?**

The Observatory boasts documentation, exhibition and publication resources, as well as an extensive range of publications (14). Through its work it has established some valuable contact networks with institutions and collaborators with extensive and renowned professional backgrounds. In fact, the best results achieved were as a consequence of exchanging views and cooperating, both with the Scientific Board and with other Council departments, and thanks to the generous efforts of the members of the Observatory's technical team, who collaborate on a voluntary basis.

Together with the Council's Scientific Board, statements have been drafted on major issues to be analyzed and which need to be considered on the island, such as the investment reserve for the Canary Islands, the Lanzarote Strategy and containing the growth in tourism.

The lack of resources limits the effectiveness of the work. However, the recruitment of personnel to the structure of the Council itself leads to its involvement in many other tasks relating specifically to the functioning of the Observatory or to the Office of the Biosphere Reserve.

Finally, it is worth mentioning that the pre-existence of Council Data has been advantageous to the development of the Observatory, although it has limited the Reserve Observatory's commitment to gathering or producing statistical data and indicators. Occasional collaboration has resulted in a major contribution from the Data Centre, which is developing a System of Sustainability Indicators which will be of great benefit in monitoring the Lanzarote Biosphere Reserve.

## PLAN FOR MONITORING ECOLOGICAL PARAMETERS IN MONTSENY

### Montseny Biosphere Reserve (Cataluña)

#### What do we hope to achieve?

The objectives of this experiment are:

- To continuously learn about the environmental and socio-cultural status of Montseny.
- To incorporate the results obtained into its management.
- To establish critical conservation areas in Montseny by 2010.
- To promote the initiative and encourage voluntary work.



*Cave inventory using a harp trap for monitoring Chiroptera in Montseny*

#### What does the experience involve?

The plan for monitoring and controlling the ecological and socio-cultural parameters of the Natural Park and Biosphere Reserve of Montseny is an essential mechanism capable of detecting changes in these, identifying trends and diagnosing effects, with a view to

planning the appropriate management activities.

During the initial phases of the plan's implementation, numerous studies and work of a predominantly descriptive nature were carried out (with limited means and resources), in order to gain a better knowledge of the natural systems and the elements that form them.

Once this initial objective had been achieved, the monitoring plan took a more ambitious direction, going from the global to the specific, providing vital information on the preparation of comprehensive management plans for the conservation of natural systems, the production of management manuals on the habitats of greatest interest and vulnerability, preparation of plans for the conservation of the most fragile and iconic species and their inclusion in the various areas of protection legislation.

The monitoring plan is currently structured into 6 programmes:

- Monitoring of physicochemical variables: includes the monitoring of meteorological and seismological parameters.
- Monitoring of biological-flora parameters: includes the monitoring of individual, isolated and protected species (location of habitats of European interest, rare and endangered plant associations and endemic or endangered flora). Monitoring is also carried out on leaf litter, the structure and growth of different forests in the Park and Reserve (beech forests, oak forests, holm-oak forests and cork-oak forests).
- Monitoring of biological-fauna parameters: there are many plans and studies being undertaken as part of monitoring these parameters, including the following: Chiroptera monitoring plan, study of the carnivore community using camera traps,

monitoring of edible dormouse populations in nesting boxes, monitoring of amphibian populations and an inventory of water sources of interest.

- Processes and interactions: monitoring of allochthonous species and pests, such as the pine processionary.
- Processing and transferring the information. A computer application for managing the data generated is currently being developed, for maintaining permanent information to be consulted by the personnel of the Park and the Reserve. Other activities focus on the dissemination of data (publication of a summary of the data in the annual report) and participation in monitoring networks (European networks, EuroMaB network, Network of Biosphere Reserves in Spain and Europarc Federation).
- Promotion of research and monitoring of studies: courses on research subjects are held in agreement with the Regional Council of Barcelona and a compilation of studies of interest is produced.

### Why is it significant?

The experiment is significant because it deals with monitoring ecological parameters in a very comprehensive and integrated way.

It is also significant due to its intention to combine monitoring, research and management, by turning monitoring into a useful tool not only to improve knowledge of the Reserve's environmental resources, but also to steer the activities of its management body.

### How has it been carried out?

This experiment began 18 years ago and is now fully implemented.

The Provincial Governments of Barcelona and Girona are the promoting bodies of the experiment, as they are ultimately responsible for the management of the Montseny Biosphere Reserve.

Numerous bodies, such as the Observatori Fabra, the Universities of Girona and

Barcelona, the Museum of Natural Sciences of Granollers, the Catalan Institute of Ornithology and the Autonomous University of Barcelona, have also collaborated in the development of this project.

All the information generated from the monitoring is published in an annual report.

### What has been achieved?

As a consequence of the results obtained from the monitoring, the necessary guidelines have been provided for drafting the new Special Plan (modification of the zonification of the Reserve in accordance with the monitoring) and for producing the Conservation Plan and the species management plans resulting from this. In addition, due to the now long history of the monitoring, it is improving and the number of programmes forming it is gradually increasing.

The obstacles encountered in the development of the experiment have been identified as the lack of planning, as action is taking in accordance with opportunities, rather than priorities, and the lack of resources, as well as political support for increasing funding.

Nevertheless, the experiment is generally considered to be and to have been positive.



*Regular checking of Chiroptera shelters, an activity included in the Plan for Monitoring Ecological*

## SYSTEM OF SUSTAINABILITY INDICATORS IN REDES BIOSPHERE RESERVE

### Redes Biosphere Reserve (Principado de Asturias)

#### What do we hope to achieve?

The main objective is to develop a system of sustainability indicators in order to objectively evaluate the development of Redes Biosphere Reserve.

The aim is to guide decision-making by applying 60 thematic indicators, relating to aspects associated with conservation, socio-economic and human development, environmental protection and institutional relations.

The specific objectives that we hope to achieve by applying the indicators are:

1. To improve the existing information.
2. To provide a continuous record of monitoring data in relation to natural and social systems.
3. To evaluate the achievement of the objectives in the area (in terms of the Natural Park, Biosphere Reserve, SCI, SPA, etc.).
4. To assess the pressure exerted and to guide decision-making.

#### What is involved?

The Ministry of the Environment of Asturias hoped to establish the means to evaluate the development of the region's four Biosphere Reserves (Somiedo, Muniellos, Redes and Picos de Europa). However, despite data being available that enabled an approximation of to what extent their objectives have been achieved, these were not detailed or systematized.

For that reason, in collaboration with the University of Oviedo, a system of sustainable development indicators was created, applicable to all the Reserves in the Principality.

In order to select the indicators, the characteristics and parameters of the Redes Reserve were analysed, along with the objectives collected in the PRUG (Use and Management Master Plan) and the Plan for Sustainable Development. They also studied the requirements of the European Directives, the objectives and strategies for the network of Spanish natural spaces, not forgetting the fundamental ideas, objectives and regulatory documents of the MaB Programme.

The criteria applied for the final selection of the indicators were: information, periodicity, accuracy, consistency, reliability, awareness, simplicity, efficiency, desirable trend or clearly identifiable thresholds, and relevance.

The indicators were put forward and guaranteed by a number of different authorities – international, European, regional, local – and were systematized in such a way that it was easy to obtain information collected by the resources and during the daily work.

All the data collected were recorded periodically, so that there are historical series available, facilitating the evaluation of objectives and marking the management line. There are four main groups of indicators:

- Human and economic development indicators; relating to themes such as demography, social cohesion, quality of life, etc.
- Indicators based on institutional and administrative aspects; linked to the management of the Reserve, associativism, citizen participation, etc.
- Logistical support indicators; concerning equipment, research, scientific production, training, etc.

- Conservation and biodiversity indicators; related to species present (for example, the census on bears with cubs), water quality, soils, etc.

Within these four groups 64 indicators have been generated and selected, through which they hope to achieve maximum representation. An example: the initial plan was to monitor all the bird and mammal species in the Reserve, but, as this was impossible, those species most representative of the different zones (alpine, rocky outcrops, rivers, etc.) were chosen.

The indicators are presented on cards. These cards include the indicator, the block it belongs to, theme, subtheme and code. They also include the place where it was measured, the type of monitoring involved, how often it should be calculated, the unit of measurement used and the desirable trend. Other indicators considered relevant are connected, and the origin of the information and its limitations are indicated, as well as which authority (global, international, national...) suggests the indicator.

### Why is it significant?

The creation of a system of indicators in the Biosphere Reserves, enabling determination of whether the spaces meet their objectives, and whether they adapt to that set forth in the statutory framework of the MaB Programme, is of great importance. In this sense, it is significant that in Redes, indicators related to themes such as environment and conservation, as well as socioeconomics and institutions, have been proposed. This ensures a very complete coverage of the different themes of interest for the Reserve and its managers.

On the other hand, the shift in these systems of indicators to proposals existing in other networks facilitates their unification, and the performance of comparative analyses within one referential framework.

### How has it been carried out?

This is an initiative which started in 2007 and is currently in the process of execution, albeit advanced.

It was promoted and funded by the Biosphere Reserve itself, through the Ministry of the Environment and Rural Development of Asturias, with the aim of extending the results to all the Biosphere Reserves in the Community.

In order to monitor and evaluate the indicators, surveys, administrative data, statistics, diverse studies, etc. will be carried out.

It is currently expected that the evaluation will be repeated every four years, before a new Use and Management General Plan for the Park/Reserve is approved.

### What has been achieved?

The system is groundbreaking in the region and will be extended to the Somiedo, Muniellos and Picos de Europa Reserves. Furthermore, the system will be an important tool as it will reveal aspects that should be improved when developing initiatives and will help to detect whether or not the management of policies is correct.

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## GLOBAL CHANGE MONITORING OBSERVATORY

### Sierra Nevada Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

Using this monitoring system it is hoped that global changes, which can be inferred from shifts detected locally, can be identified.

Furthermore, processes will hopefully be defined, quantified and characterised, so that the natural processes can be distinguished from those which are assignable to global change in any of its multiple factors.

#### What does the experience involve?

Different initiatives and tools are involved:

1. The development of a complex system of structured monitoring on different themes: climate, aquatic systems, snow science, atmosphere, flora, fauna, management, land use. For each block, a group of indicators has been designed (116 in total).
2. The development of a specific tool to manage the information entitled "Sierra Nevada subsystem".
3. Starting a management system adaptive to action projects promoted by the managing body.
4. The creation of a forum to spread and broadcast results.

#### Why is it significant?

It is very innovative to approach the monitoring from the point of view of global change and with management adaptive to transformations of the Reserve that can be derived from that.

It is an initiative that fits especially well with the principles of Madrid's Action Plan, which insists on the need to increase knowledge with regard to global change and how it affects the Reserves, in order to adapt to it.



*North face of the Veleta peak which forms part of the study area of the Global Change Project*

#### How has it been carried out?

The project was promoted and funded by the Ministry of the Environment of the Board of Andalusia.

It was developed with the collaboration of organisations such as CEAMA (Andalucian Centre for the Environment), part of the University of Granada, the GLOCHAMORE Project, the Office for Innovation and the Ministry of the Environment and Marine and Rural Affairs, through the Autonomous Authority for National Parks.

In order to ensure the coordination of all these bodies, collaboration agreements had to be signed.

The project is broadcast through the forum and publications, both those intended for the general public, on wide release, and those which are scientific and intended to be released on specialized forums.

It has its own monitoring and evaluation system. The specific tool created to manage the information detects deficiencies and faults that could occur during the collection of data and the interpretation thereof.

**What has been achieved?**

Up-to-date information has been obtained through this initiative that has served for its direct incorporation to management. Furthermore, the first anomalous and/or changing situation indicators or signs in the short and long term have been detected.

It is considered a positive experience that has enabled the inclusion of a different vision of management, directly influenced by changing situations, ensuring the information is constantly updated and reviewed.



*Rural landscape in the Sierra Nevada Biosphere Reserve*



## SOCIO-ENVIRONMENTAL OBSERVATORY OF MENORCA

### Menorca Biosphere Reserve (Islas Baleares)

#### What do we hope to achieve?

The main aim of this Observatory is the ongoing monitoring of environmental and social parameters on the island of Menorca and its Biosphere Reserve.

In general terms, the Observatory is considered a tool for the collection and analysis of information in the local area.

#### What does the experience involve?

The creation of the Socio-environmental Observatory in Menorca (OBSAM) began in 2000 and is currently fully established and implemented.

It is an autonomous organisation, independent from the government, formed by scientists, mostly members of the University community.

It works to support the logistical functions of the Reserve and provides society in general with a tool for knowledge and action.

The specific objectives and activities of the Observatory are:

- Constant monitoring of the sustainability of the island of Menorca in all its dimensions, through a system of sustainability indicators.
- Scientific assistance obtained for public institutions involved in the management of the Reserve.
- Compilation of all relevant information on the development of the Reserve and organization of a public database to facilitate the spread of information.
- Public communication of results, offering resources to the educational community and developing awareness activities within the local community on the value of Menorcan landscapes.

- Creation and continuous improvement of a geographical information system that enables a territorial analysis of the status of natural resources, the environment and historical heritage.
- High quality research for matters related to the Reserve.
- Establishing stable links between administrations and other organisations.

In general terms, the main role of OBSAM is to monitor the sustainability of the island and the Biosphere Reserve. Three large fields of work are established within this framework: calculation of indicators, creation of a geographical information system and promotion of spaces for research, environmental education and awareness.

OBSAM publishes annual reports on the monitoring of different subjects: the Island Territorial Plan, and a system of basic indicators.

Additionally, periodic monitoring is carried out on issues such as land cover, monitoring biological communities (*Posidonia*, diurnal butterfly as bioindicator), social monitoring (urban mobility, visitor profile) and of water resources (hydrological balance), among other things.

#### Why is it significant?

The creation of this Observatory is significant for the way it focuses the monitoring, dealing not only with themes related to conservation, but also socioeconomics and other aspects related to sustainable development.

In that way, it fits perfectly with the philosophy and principles of the Biosphere Reserves.

Add to this its outstanding aspects of promotion and circulation of the results, and the involvement of diverse organisations and administrations for it to work, it is easy to see why this project has been chosen.

### How has it been carried out?

It is a project promoted by the Menorcan Institute of Studies (IME) for the Menorca Biosphere Reserve.

The level of involvement and participation of members involved in the development of the experience, as well as by local and regional administrations, is excellent. There are, albeit non-formalised, mechanisms of cooperation with different administrations (regional, island and municipal) as well as with environmental administrations responsible for the protected natural areas.

Within the mechanisms developed for monitoring the experience, worthy of note are the so-called 'workshops of the future', surveys conducted on the population to garner their opinion and understanding regarding the indicators developed by OBSAM.

Generic communication media and travelling exhibitions are most widely used for circulation. OBSAM's web platform is also, in itself, an excellent platform for sharing knowledge.

### What has been achieved?

Of the results obtained from the project, the following should be noted:

1. OBSAM identified the need for an Island Territorial Plan in a period of maximum tourist influx.
2. It helped to advance agriculture committed to the environment (by establishing the Biosphere Reserve Agrarian Agreement, a project also included in this Catalogue for its illustrative features).
3. It is very relevant to the Biosphere Reserve. The IME led the MaB Programme and currently plays an important role in promoting scientific information, raising the scientific quality of information to the public debate.



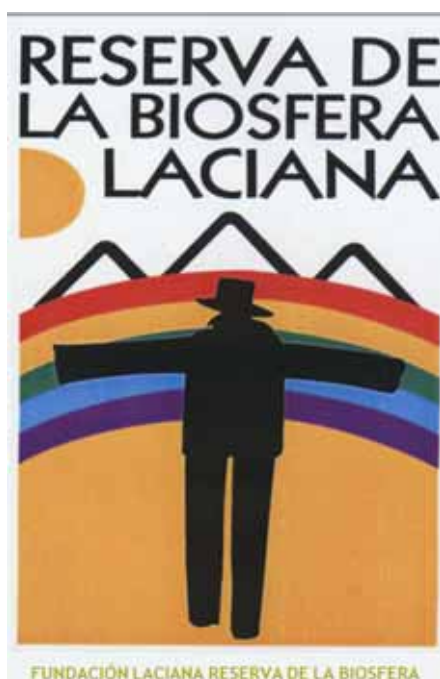
*OBSAM logo*

LACIANA BIOSPHERE RESERVE FOUNDATION BOARD

Valle de Laciana Biosphere Reserve (Castilla y León)

**What do we hope to achieve?**

The ultimate aim of the Laciana Biosphere Reserve Foundation Board is to conserve, improve, and make known the outstanding historical, cultural and natural heritage of the Reserve.



*Logo of BR (Laciana Biosphere Reserve Foundation)*

**What does the experience involve?**

To achieve the objectives described in the section above, the Laciana Biosphere Reserve Foundation has been established.

This non-profit foundation is permanent and indefinite in nature, and is recognized as having legal status as well as full capacity to act, for the acquisition, possession and provision of any type of goods, as well as to undertake obligations and exercise all manner of actions, limited solely by the provisions established by current legislation and the bylaws thereof, and the assets with which it is provided are for the fulfilment of

cultural, social, environmental and sustainable development purposes.

The Foundation encourages and advances the promotion and management of the Valle de Laciana Biosphere Reserve according to the principles derived from the UNESCO MaB Programme and, essentially, the conservation of its natural, historical and artistic heritage as well as the architecture, constructions, urban planning and traditions specific to its towns.

The entities that form the Foundation are:

- Villablino Town Council: 5 members, with the mayor as president of the Foundation
- Provincial Government of Leon
- Regional Government of Castilla y León
- Ministry of the Environment and Rural and Marine Affairs
- Sierra Pambley Foundation
- Oso Pardo Foundation
- University of León
- Carlos III de Madrid University
- Student Residence of Madrid
- Amigos del Coto de Doñana Foundation

The Board is the governmental body for the administration and representation of the Foundation, and is responsible for ensuring that the Foundation's purposes are met and that the property and rights which make up the Foundation's heritage are managed, fully maintaining its performance and use, extending its authority to the interpretation of bylaws and to the resolution of however many incidents might arise throughout the lifetime of the Foundation, all of which without prejudice to that set forth in the corresponding legal provisions. This Board comprises honorary and de jure members.

The Foundation is advised on the execution of its functions by the Leadership Advisory, which has the capacity to act as an advisory

body and intervene in any activities geared towards the effective fulfilment of Foundation purposes.

For the better performance of its function and in order to streamline the work, studies and research of the Foundation, the Board may establish or promote work groups or committees, within and through the Leadership Advisory or others, made up of individuals who, as a result of their work, background or specialised professional qualification in the field of nature and environmental conservation, cultural, natural, historical, sustainable development heritage and international cooperation towards development, may offer technical advice and the necessary institutional support for the better fulfilment of Foundation purposes.

In terms of its economic regime, the Foundation initially received a financial contribution from Villablino Town Council of 7,500 €. The City Council also undertook to contribute 22,500 € within a five-year period as of the granting of the Foundation's public deed of incorporation.

The Foundation's resources may comprise any kind of property and rights subject to economic valuation, such as contributions that may be obtained from Public Administrations, subsidies granted for specific activities, the product of economic- or trade-related activities that the Foundation may perform, donations, or subsidies, among others.

### Why is it significant?

The creation of a management body of this type is significant in this case due to its legal status and its full capacity to act in order to achieve its purposes, as well as a stable assignment of financial resources and a structure that favours the participation of agents of interest present in the region.

The design of the Reserve's management body has been derived so as to favour practical action and its role is more than just symbolic.

Given its legal capacity to act, and the means to do so, and benefiting from independence compared to other administrations, the management body's scope of action is realized to its fullest extent.

### How has it been carried out?

The Foundation was created in 2003 and is now fully established. Villablino Town Council played an essential role in the creation of this Foundation.

The Board was open to the public to promote participation during the creation of the Foundation. The presidency and secretary of the Foundation used their institutional relations to achieve broad participation on the Board, even though some institutions have still not appointed a representative to form part of it.

The municipal radio station of Laciana was in charge of broadcasting the experience. The Foundation also has a web page ([www.fundacionlaciana.com](http://www.fundacionlaciana.com)) where you can find information about the Reserve and the Foundation itself.

### What has been achieved?

The experience has been positive, in spite of the extreme complexity involved in bringing together such diverse entities in Villablino, and the difficulties that can be faced when holding a periodic Board meeting.

The fact that the Board comprises different agents of regional importance ensures that a wide variety of ideas and interests are represented.

## LANZAROTE RESERVE COUNCIL

### Lanzarote Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The creation of the Lanzarote Reserve Council is intended to advance and develop the declaration of the island as a Biosphere Reserve and to coordinate the actions of the different Public Administrations and those they initiate with private entities.

#### What does the experience involve?

The Reserve Council was created in 1996 as an advisory body to the Town Council, and is responsible for looking after the general interests of the island, in its commitment to the MaB Programme.

The knowledge and experience provided by the different European projects granted to the Biosphere Reserve place this body, without skills and with limited budget, at the centre of the island's political debate; its sessions provide an example of formal participation that extends democracy on the island with its implementation, ensuring that the island and its future are cared for.

Specifically, the powers of the Biosphere Reserve Council are:

- To oversee the conservation of the island's natural heritage and the recovery of environmental quality levels where they have been lost.
- To raise awareness of the natural and cultural heritage so that it is known and used without risk of degradation.
- To promote and implement sustainable development proposals.
- To contribute to the maintenance of traditional productive activities specific to the island's environment.
- To develop scientific foundations and research instruments aimed at conservation and development.
- To promote participation of the population in planning and resource management tasks.
- To develop the necessary training, information and communication instruments to cover the outlined objectives, as well as strategies for the island with regard to education, awareness and information to cover the objectives outlined in the Seville Strategy.

The governing bodies of the Biosphere Reserve Council are established through the Governing Board, the duties of which are as follows:

- To determine general courses of action for the Biosphere Reserve Council in accordance with the guidelines and agreements adopted internally.
- To approve the proposal from the section relating to its own budget, which forms part of the overall budget of the Island Council, and to send it to the Plenum for its final approval.
- To approve the Annual Report that has to be submitted to the Managing Director and to then send it to the Island Council Plenum.
- To propose any amendment to the present Bylaws.
- To approve the regulations for executing these Bylaws.
- To propose the appointment of the Managing Director and his/her retirement.
- To submit, where applicable, details of members of staff and the regime for their appointment and remuneration to the Island Council Plenum for its approval.

- To carry out all manner of actions, executions, resources and administrative claims in defence of the rights and interests of the Reserve Council.
- To adopt appropriate measures for the better organisation and operation of the Reserve Council.
- To give instructions to other bodies of the Reserve Council.

For the development of the Biosphere Reserve Council, a Regulation is created to govern its structure and operation and a series of standards for the development and execution of the Regulation itself, which determine the appointment of Governing Board members or the functions of Council government bodies.

### Why is it significant?

Although the Reserve Council has no skills in the region and lacks financial resources for its operation, it stands out for its participatory and open nature (the population does, in general, participate through their own associations and other public and private entities), because of its active communicative role and for having established one of the most pioneering management and participation bodies in the Biosphere Reserves of our country.

### How has it been carried out?

The Reserve Council has been fully established since its creation in 1996.

The Council's work is publicised on the Lanzarote Council webpage.

The Council, as a fully-functioning body, represents the mechanism to evaluate and monitor this experience, and results in the publication of the Declaration, the revision of agreements or the publishing of annual reports, among other things.



*Reserve Council Meeting*

### What has been achieved?

The results of the experience are successful, even though its assessment may vary on the island depending on the year and the people consulted.

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### **The Reserve Council is responsible for overseeing the general interests of the island, in its commitment to the MaB Programme**

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Since its creation in 1996 to the present day, around 300 representatives from public and private entities have gathered at Council and Work Commissions meetings, where more than 100 themes relevant to the management and planning of the island have been debated.

A Quality of Life and Sustainability Observatory (2000), which reports to the Biosphere Reserve Council, was also created, with support technicians from the island's administration and external technicians who are residents on the island; and a Scientific Board (2002) of experts external to the island.

Throughout its history, the Council has learned to improve transparency of information and democracy on the island.

## PREPARATION OF A STRATEGIC PLAN FOR THE RESERVE

### Valle de Laciana Biosphere Reserve (Castilla y León)

#### What do we hope to achieve?

The project aims to create a Strategic Plan for the Reserve, which can then be implemented, and therefore offer a technical structure to this space.

It is, therefore, the intention to consider thoroughly the resources upon which the Reserve relies, using an inventory and cartography system so that, once this phase is complete, and subject to the results obtained, the courses of action can be considered and drawn together in the plan itself, which will facilitate the participation of the local population in the process.

#### What does the experience involve?

The experience involves the preparation of a management plan for the Reserve which guides its activity.

Among the aspects and events to consider in the Plan are the following:

- Inventory and evaluation of resources and deterioration (damages).
- Cartography preparation.
- Basic and applied research support at the Reserve.
- Use of the Reserve to produce sustainability indicators.
- Establishment of planning guidelines and production of codes of good practice.
- Collaboration with other Reserves.
- Establishment of administration mechanisms.
- Establishment of local participative structure.
- Production of informative material.
- Encouragement of private initiatives.

- Drafting of a recovery plan for a degraded space.

The creation of a structure to facilitate the participation of the local population in the drafting of the plan is the most significant of all these events. An ongoing participation forum will be created for this purpose under the Local Agenda 21 philosophy.

Open public acts will be performed at this forum every two months. The Plan was submitted at the first forum, and at the second it is expected that the work carried out to date will be submitted, which includes industry-specific meetings (economic, social and environmental fields), which serve to further the development of the Strategic Plan.

#### Why is it significant?

The experience is significant not only because it attempts to provide the Reserve with its own planning instrument, but also, and very specifically, because it looks to involve the local population and promote their participation in the drafting process.

It is an experience entirely in tune with the MaB philosophy, within which the participatory component takes centre stage.

#### How has it been carried out?

The Laciana Biosphere Reserve Foundation is the promoter of this initiative, and relies upon the collaboration of Villablino Town Council in terms of its contribution towards installations, equipment and technical staff, and the Biodiversity Foundation, as the funding body.

A large number of associations from the Valley, all of the local councils and several companies have been involved during the process.

The industry-specific meetings will, therefore, be represented by social, economic and administrative agents of the Valley.



*Celebration of Día Vías Verdes in Laciana*

The experience is in the operational phase and began in 2008.

The distribution of the Strategic Plan is done via local means of communication (radio, press) and the Internet, and through the placement of explanatory signage.

On the other hand, different tools are employed for the dynamization and coordination of the local participation forum created by and for the Plan: industry-specific meetings, technical documentation, Internet or surveys.

### What has been achieved?

It is too early to talk about results, as the experience is still in the developmental stage. In any case, some interim results can be highlighted.

For example, it is worth mentioning the considerable participation at the first forum, generating great expectation in the Valley and debates in the street and over the radio about the Biosphere Reserve concept.

Collective awareness is expected to be created through the forum regarding the importance of the Biosphere Reserve, which may serve as a place to come together to tackle future initiatives.



## ISLAND TERRITORIAL PLAN OF MENORCA

### Menorca Biosphere Reserve (Islas Baleares)

#### What are the aims?

The development of the Island Territorial Plan (PTI) of Menorca consists of a political and citizen initiative that leads to the formulation of a sustainable land planning project for the conservation of island values.

The main objectives of the Plan are:

- To regulate the physical dimensions of settlements, including those linked to productive, secondary and tertiary sectors.
- To plan spatial distribution of productive installations specific to the primary and secondary sectors.
- To determine population centres that, due to their characteristics and possibilities, may boost socio-economic development of an area.
- To define areas which, either currently or potentially, are suitable for use for agriculture, forestry or cattle, or are entitled to special protection for their ecological assets or beauty.
- To organise infrastructures, installations, equipment and services and define their design criteria, functional characteristics and location, to achieve a rational configuration.
- To establish a coordination system between different policies from different sectors within the Government, in order to ensure their integration in a joint vision of territorial problems.
- To promote social participation in the process of land use planning and to formalise it, in order that the process meets the needs and aspirations of the population.



*Minorcan landscape*

#### What is involved?

The Island Territorial Plan of Menorca was approved in 2003 under the premise of designing a sustainable territorial project, capable of making the planning of the whole island a reality, tailored to the philosophy of sustainable development that prevails over the declaration of the Biosphere Reserve.

The Plan consists of the regulated instrument of territorial planning on the island established by the guidelines of the Balearic Islands on the same subject.

The starting point was the tourist moratorium impeding the growth of new tourist spaces on the island, if not changing obsolete spaces for new ones, and establishes some quotas of spaces, that the Council could use to regulate growth according to demand.

Added to this is the fact that there was a lot of urban and urbanisable land where all sorts of housing and apartments could have been built with no restrictions.

In that sense, the PTI acts on three main lines: it does not allow new urban growth, future urban growth is limited to predicted vegetation growth and always in the traditional centres, existing urbanisable land is declassified and the amount of protected rural land is considerably increased.

The basic zoning of the island comes from this driving principle, and identifies 4 categories of land: protected rural (high or normal level of protection), common rural (without special protection), urban and urbanisable, and lastly areas of territorial re-conversion.

### Why is it significant?

Although the PTI is not, strictly speaking, a management plan for the Biosphere Reserve, its objectives and the possibilities it creates once up and running mean it has a lot in common with what a plan of that type might put forward.

Thus, land use planning, as a basis for regulating land use and the economic activities that go with them, and as a means of finding a more sustainable development model, is relevant to areas such as Biosphere Reserves, where it is necessary to marry conservation and development. In fact, the Seville Strategy cited as one of its objectives to use the Biosphere Reserves as a land use planning model.

### How has it been carried out?

The Island Territorial Plan of Menorca was first drafted in 2000, and approved in 2003. Today the PTI is in force.

It took nearly four years to come up with the Plan, which was started as a consequence of the high level of social conscience in relation to the values and problems of the area. This explains the high level of collective commitment within the Plan; the planning instrument itself is just as important as the

process conducive to its formulation, when there is adequate public participation.

The Menorca Biosphere Reserve, through its managing body (the Menorcan Island Council), is promoting and carrying out this project.

The population was encouraged to participate in its development, and to that end surveys and specific commissions for multidisciplinary work were carried out.

### What has been achieved?

As a consequence of the development and application of the PTI, the following results have been achieved:

- Declassification of tourist-programmed land has been achieved.
- Detailed mapping has been carried out.
- General Plans for Urban Planning are being drawn up and approved, already adapted to the PTI.
- The Consortium of Urban Discipline on Rural Land was founded to monitor compliance with the directives of the Island Territorial Plan in the countryside.
- A number of different Management Plans have been drafted.
- Unique places have been identified on rural land and the PTI has been put in place to prohibit their use.

Lastly, it is worth mentioning that in the process of design and implementation of the Plan, some obstacles have also been detected, derived from the opposition of different financial expectations or lack of detailed studies on protection levels.

## MARCOPALMA PROGRAMME: PLANNING AND MANAGEMENT OF THE COASTAL ENVIRONMENT ON THE ISLAND OF LA PALMA

### La Palma Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

This Programme seeks to assess the current situation with regard to the coastal environment on the island of La Palma, determine which areas enjoy the most biodiversity and create a zoning model which enables economic growth to take place in harmony with the wonders of nature found in the region.

More specifically, it aims to plan and manage the island's coastal resources, by designing and creating a set of tools based on geographical information systems, which will enable users to interpret and value the environment.

#### What does the experience involve?

The coastline is home to an abundance of marine organisms, and is also where most human activity is centred. This does mean that marine ecosystems are losing their biodiversity at a much faster rate than terrestrial ecosystems. Moreover, in the case of La Palma, over-fishing, amongst other factors, has had a knock-on effect on the increase in populations of the sea urchin *Diadema aff. Antillarum*, a species with a high capacity to adapt in the depths.

In the La Palma Biosphere Reserve, it is thought that conserving and managing the island's marine environment has not received the attention it deserves, and hence it is facing new challenges by running projects orientated towards planning and managing the marine environment.

Key action to be taken within the programme includes:

- Characterizing and studying the marine environment.
- Determining the extent to which ecosystems have been conserved.
- Studies examining socioeconomic activity.
- Coastal zoning.
- Running a programme to publicise it.
- Creating Geographical Information Systems.
- Drawing up a standard on coastal protection.

The so-called "recreational divers' programme" stands out among the activities taking place because of its innovative, interactive nature. Within the programme, the technical team in the Biosphere Reserve finds divers interested in collaborating and provides them with specialist training on marine species (identification, protection level and threat), so that, in exploring the undersea world, they help collect information to classify the marine environment (species under threat and indicative species). In its second phase, the same will be done for fish.

#### Why is it significant?

Although this programme constitutes neither an actual plan for the Reserve, nor does it in any way affect any of the territorial environment, it has been considered within the themed block relating to planning the Biosphere Reserve as it unites (as per MaB philosophy) environmental objectives relating

to conservation of the Reserve's natural assets, as well as socioeconomic objectives, by predicting regulation of the economic impact of coastal activities.

In this way the project will broaden people's knowledge of the current situation with regard to the coastline of La Palma, will act as a diagnosis (zoning and regulation of use), and the results obtained will be distributed. This basic philosophy would be applicable when drawing up a strategic plan unique to the Reserve, applicable throughout its territory.

#### How has it been carried out?

This is a project which is currently under way and was devised by the Island Consortium of the La Palma World Biosphere Reserve in conjunction with the Biodiversity Foundation, the Canary Islands Government, the Council of La Palma, the University of La Laguna and some North American universities.

To publicise the project, island communications media have been used (press, radio, television, Internet portals), as well as open days and notice boards.

How much information will be available on the Reserve's website remains to be seen.

To monitor the project, indicators for monitoring the marine environment have been designed, and periodic series of data compiled.

In parallel, the local population and education centres have been consulted (surveys to assess how the progress of marine environment conservation is perceived).

#### What has been achieved?

Although the programme is still in its infancy, preliminary results are already being seen which illustrate the initiative's success: after only a few months' work, a large amount of relevant information has already been compiled and generated on marine species under threat and the state of conservation of the island's coast.

Obstacles encountered since it started mainly include finance (or lack of it) and technical problems (during the methodological design phase for monitoring).

However, the project is considered positive because of its innovative nature and because it is considered necessary to preserve the conservation of the whole island.



*The coastline of the island of LA Palma*

## DYNAMIZATION OF THE BIOSPHERE RESERVE

### Río Eo, Oscos, y Terras de Burón Biosphere Reserve (Principado de Asturias and Galicia)

#### What do we hope to achieve?

The overall purpose behind this project is to dynamize the way the Río Eo, Oscos and Terras de Burón Biosphere Reserve is run, by hosting interactive and entertaining events, to increase people's knowledge of the natural assets and the sustainability of the territory.

In turn, it has the following specific goals, needed to reach the real target:

- To inform the regional population about the values of the Reserve and seek their participation in its development. In so doing, the people of the region will realize the need to, and have the opportunity to, spread the word about the Reserve's features through their activities, encouraging sustainable development.
- Publicise the values of the Reserve outside the territory.
- Carry out activities which contribute towards distributing and conserving the Reserve's environmental and cultural values.
- Encourage co-operation between the entities and administrations in the Biosphere Reserve's territory to develop a common strategy, undertaking external cooperation activities and working with other Biosphere Reserves.

#### What does the experience involve?

For years, CEDER Oscos-Eo has been working towards sustainable economic development in the region and trying, through this project, to run informative events and entertainment and encourage the region's population to participate.

For management purposes, the Biosphere Reserve relies on the Governments of Asturias and Galicia, which are working towards designing a management body: a Consortium in which both Autonomous Communities and the fourteen towns within the territory will take part. The governments are also working on a Strategic Plan for the Biosphere Reserve.

In addition, through the Ministry of the Environment and Rural Development, Asturias, within the various councils in its territory, is hosting institutional presentations about the values of the territory and what being a Biosphere Reserve means.

Thus, the project is orientated towards hosting activities which complement those run by the government of Asturias, jointly co-ordinating them. Similarly, it is sponsoring activities in which multi-sector participation is essential, working with different communities and the population in general, running different types of activity, including presentations, publications, training schemes and fairs. Finally, it is also doing things to raise awareness and make the population proud of the region in which they live, spreading the word to the outside world.

All of this will take place with a view to achieving participation in, and co-ordination of, activities in the Galician part of the Reserve, proposing joint events and designing material and activities from which the whole of the territory can benefit (publication of maps, teaching resources, etc.).

### Why is it significant?

The project is significant both due to its interactive aspect, in that it works with the local population, so that people learn about and value the Biosphere Reserve, and because it encourages co-operation between the two autonomous governments involved in its development (Asturias and Galicia).

### How has it been carried out?

It is an initiative which began in 2008, and is now in full swing, as the project which the CEDER Oscos-Eo is proposing will run for two years (2008-2009).

In 2008, the project received a partial grant from the Biodiversity Foundation for its running, one which would cover almost 50% of the budget (€ 111,500).

Sufficiently raising people's awareness of the initiative is essential for its goals to be reached. With this in mind, holding forums, talks and open days is anticipated, as well as publishing leaflets, etc.

Furthermore, monitoring of the results obtained is anticipated, including the production of periodic detailed reports and monitoring indicators, as well as a final assessment (the grant from the Biodiversity Foundation requires this).

### What has been achieved?

By the end of the project, it is hoped that people will be more aware of how important the Reserve is, and the need to spread its philosophy through the various activities held in the towns.

It is also hoped that informative material on the Reserve will have been produced, and that specific training activities will have taken place in areas such as agriculture, tourism, trade, etc.



*Landscape of the Río Eo, Oscos, and Terras de Burón Biosphere Reserve*

## LOCAL AGENDA 21 TO ENCOURAGE PARTICIPATION IN THE RESERVE

### Menorca Biosphere Reserve (Islas Baleares)

#### What do we hope to achieve?

The main purpose of this project is to set up and carry out, in the eight towns on the island, the Local Agenda 21 projects in a co-ordinated manner. In other words, achieve the goal of working towards sustaining the island as a whole, with the assistance of each of the city councils.

#### What does the experience involve?

The fact that, in 1993, UNESCO declared Menorca a Biosphere Reserve has served to get the island's Local Agenda 21s (LA21s) off the ground.

Thus, the eight towns on the island agreed to launch the processes of setting up LA21 jointly. With this in mind, in 2001, all the towns of Menorca signed the Aalborg Charter. In the course of 2002 the groundwork was done to draw up environmental diagnoses, and from 2004 municipal environmental action plans were gradually approved.

From the outset there was clear institutional support for the initiative, through an LA21 Island Committee and the Balearic Sustainability Network. The purpose of this network, created within the Environmental Advisory Board on the initiative of the Balearic Environmental Committee, was to encourage the sharing of knowledge and expertise when carrying out, applying and monitoring Local Agenda 21s.

Each of the 8 towns included in the project has both its Local Agenda 21 and its Action Plan (PAAM) approved.

Moreover, each has a participation workshop, whose proposals and initiatives may be transferred to the Reserve's formal participation body, the Biosphere Reserve Technical Committee, through the technician responsible for co-ordinating the Local Agenda 21s (part of the Island Council of Menorca).

With the PAAMs in existence for 4 years, and having examined their progress, it was concluded that they were at a very advanced stage.

Two towns had already had the new Action Plans approved by September 2008, and the other six were being reviewed.

The key players in this PAAM review process were citizens/entities/organizations, since they were the ones putting forward the new proposals to be included and those which were no longer feasible.

#### Why is it significant?

The project is significant because of its participative nature, involving the island's citizens, entities and organizations, as well as its Government, both at a local and regional level.

Here, it is also worth mentioning the strong institutional support which the initiative has received from the Civil Service. This has undoubtedly made it easier to implement and consolidate.

### How has it been carried out?

This is a project which began in 2001, and is now fully consolidated.

As a mechanism for co-ordinating the initiative, the significant role played by the Island Council merits a special mention, as it has a Technical Office which gives support to all towns and organizes the activities which take place. Similarly, the Local Agenda 21 Island Committee is an organization which, in part, monitors the implementation of Local Agenda 21 in each town.

The Menorca Local Agenda 21 webpage ([www.cime.es/al21](http://www.cime.es/al21)) serves as a portal for learning more about the progress of the agendas and is a source of relevant documentation.

E-mail is another direct way of communicating and participating, as people can ask questions and make proposals directly to the Menorca Local Agenda 21 Technical Office.

The media is most commonly used to circulate information about the action being taken.

Finally, it is worth mentioning that the PAAM projects and workshop operating procedures must be monitored continuously, as Local Agenda 21 is a fast-moving system. For this, there are PAAM monitoring forms, constantly being updated by the council offices, to assess the progress of the Local Agenda 21 implementation and its projects.

In addition, surveys have been carried out on the citizens taking part in the workshops to determine their progress, as well as on the

population as a whole, seeking to assess the Menorca people's depth of knowledge regarding Local Agenda 21.

### What has been achieved?

From the moment the Local Agenda 21s in the island's eight towns began, over one hundred and twenty participation workshops and open days have been held. Those who have attended have been able to give their views and make proposals on how the action anticipated in the respective Action Plans should be carried out to drive the process forward. These workshops have been attended by representatives of entities, organizations, associations, groups and citizens representing the town.

Social participation in these processes is considered very positive, though admittedly the Minorcan people are already culturally accustomed to taking part in events. The very acceptance of the Reserve's appointment by UNESCO has helped raise the population's awareness, and social acceptance of restrictive measures has turned Menorca into a genuine Biosphere Reserve.



*School activities within the towns' Local Agency 21s*



## AWARD OF BIOSPHERE RESERVE DIPLOMAS AND PRESENTATION OF LOGOS

### Ancares Lucenses y Montes de Navia, Cervantes y Becerreá Biosphere Reserve and Terras do Miño Biosphere Reserve (Galicia)

#### What do we hope to achieve?

This initiative aims to promote a sense of belonging to the Biosphere Reserve within the population, as well as amongst associations, businessmen, teachers, local councils, etc. included in the area.

By disclosing the structure of the Reserve and promoting this feeling of belonging, the aim is to increase the participation of said agents in the various aspects of the Reserve's management and planning.

#### What does the experience involve?

Once the territories of Terras do Miño and Ancares Lucenses were declared Biosphere Reserves, the Council of Lugo, responsible for managing them, organized an event at the Lugo Provincial Government's auditorium, calling upon all towns from both Reserves and other public and private entities.



*Diploma and material handed out at the event, at which the logos of both Biosphere Reserves were also presented*

At the event, those attending were also given a framed copy of the supporting diploma from UNESCO granting Biosphere Reserve status, in a drive to spread the word of this

international recognition throughout the Biosphere Reserve, both to its local population and to the tourists.



*Original framed diploma declaring Ancares Lucenses and Montes de Navia, Cervantes and Becerreá Biosphere Reserves*

At this diploma award ceremony, they also presented a 5-minute DVD, which explains what a Biosphere Reserve is, its roles, and the value of being a Reserve. Moreover, everyone attending was given a book entitled "The Spanish Biosphere Reserve Network", written by the Ministry of the Environment (2007).

Also at the event, the logos of both the aforementioned Biosphere Reserves were presented.

#### Why is it significant?

Awarding diploma certificates declaring these areas Biosphere Reserves is a way of promoting their image within the territory, as

well as to further install the sense of belonging for the local population: being a Reserve is thus perceived as a prize, acknowledgement of how valuable the territory is.

Also significant is the fact that two Reserves are taking part in the project, each in turn playing its part in making best use of resources and creating mutual lines of communication.

#### How has it been carried out?

As the project, which took place in 2007, progressed, it played an essential role within the Lucense Institute of Economic and Social Development (INLUDES).

Word of the project was spread far and wide, with the publication of press releases in local media.

#### What has been achieved?

The most obvious result of the initiative was the attendance at the ceremony by a large number of organizations, institutions and the general public from the two Reserves.

Furthermore, since they were awarded, the diplomas have been displayed in several places within the territory, including council offices, interpretation centers and country houses, in areas visible both to the local population and tourists. This is contributing to raising awareness of the Reserves.

The project appears, therefore, to have been very positive.



*Biosphere Reserve diplomas award ceremony for Ancares Lucenses and Terras do Miño, with the contribution of majors and the local population*

## SPREADING THE WORD ABOUT THE BIOSPHERE RESERVE

### Terras do Miño Biosphere Reserve (Galicia)

#### What do we hope to achieve?

The main reason the project is being run is to determine, graphically, the current values of the area and the activities or action taking place within the Terras do Miño Biosphere Reserve, within the LIFE-Nature Project: LIC Parga-Ladra-Támoga "*Mellora do Bosque Inundable e Lago Distrófico*".



*Terras do Miño interpretation centre*

#### What does the experience involve?

To give the Reserve's publicity a global impact, a series of materials has been published in several different media, ready for users to view at <http://www.life.terradomino.org/>.

In addition to this material, a travelling exhibition has been put together to spread the word, visiting each of the towns in the Lugo province, but also other Reserves in Spain and abroad (IberoMaB), as well as other areas and regions (France).

In parallel with these publicising activities, a pilot environmental education project, "*Conciendo As Insuas do Miño*", was carried out, which was very positively received by the local population, holding workshops in schools and field trips to the natural

environment of "*Insuas do Miño*", the centre of the Biosphere Reserve, purchased by the Lugo Provincial Government with the help of funds from the LIFE programme, aimed at nature conservation.

These activities are complemented by visits and activities using the Terras do Miño interpretation centre as a base.

The events and materials prepared for the information programme primarily include the production of various materials specifically for distribution under the LIFE programme, within activities aimed at environmental education and increasing people's knowledge about and interpretation of the environment (calendar, leaflets, bookmarks, pins, T-shirts), and preparation of various tools for raising awareness and training (travelling exhibition, open-air exhibition and environmental education programme).

The travelling exhibition offers visitors a short nature trail, down a path along which they can appreciate the vegetation, learn about the batuxo (a traditional boat from Miño), etc. Along this path and using noticeboards, they will experience the natural wealth of the area for themselves, journeying through various habitats.

Similarly, it seeks to promote the publication of the book and DVD "*LIC Parga-Ladra-Támoga: Terras de Pedra e Auga*", which is aimed at anyone interested in learning about the natural and ethnographic wealth of the upper basin of the river Miño, included in the Natura 2000, within the Terras do Miño Biosphere Reserve.

This material is used to learn about the flora, fauna, countryside and watercourses found in this large wetland. In terms of scientific, technical and graphic content, this book and DVD are enjoyable and accessible to all. These materials were distributed free with the purchase of a copy of the Newspaper *El Progreso* (31 December 2005). This considerable financial gamble by INLUDES and the Lugo Provincial Government sought to ensure that the material was distributed at local, regional and national level.

### Why is it significant?

The project stands out because of the wide range of activities planned to promote the image of the Reserve and its values: from publication of materials, to organization of exhibitions, and trips along interpretative paths or running of a whole selection of environmental education activities.

The variety offered means that more people are reached and the area covered when promoting the initiative is increased.

### How has it been carried out?

This is a project which got off the ground in 2003 and is ongoing.

The Lucense Institute of Economic and Social Development (INLUDES), which depends on the Lugo Provincial Government, has sponsored and financed this initiative, to which the University of Santiago de Compostela and the Newspaper *El Progreso* also contributed.

Action is taking place as part of a LIFE project, so the mechanisms co-ordinating it are suited to said project (periodic meetings, set timeframes and inspections).

Word of the project was widely circulated in all media, both at local and institutional level.



Noticeboard

### What has been achieved?

A high degree of participation was achieved in the environmental education activities and, consequently, the population learnt a lot about the Biosphere Reserve and its environmental diversity.

As the initiative progressed, a number of complications were encountered related to discontinuity in the running of these activities caused by lack of funding and lack of co-ordination between the various organizations involved.

## PROMOTING THE BIOSPHERE RESERVE BY MEANS OF GUIDED TOURS

### Sierra del Rincón Biosphere Reserve (Comunidad de Madrid)

#### What do we hope to achieve?

The project's main aim is to raise awareness amongst the visiting public about natural resources and tourist infrastructures of the towns in the Sierra del Rincón Biosphere Reserve.

Providing guided tours makes the visit easier for tourists and allows them to see the area's features for themselves. Accordingly, it is believed that visitors to the area benefit more.

#### What does the experience involve?

There are two types of tour proposed for the visit: guided tours offering "general" routes and "themed" routes.

The first are tours lasting between one and a half and two hours, with a medium to low degree of difficulty, hoping to be made accessible for as many people as possible. These guided tours are offered every weekend and on all public holidays.

With regard to the "themed" guided tours, these are activities orientated towards groups visiting the Reserve. The service itself includes an environmental tour and a workshop, taking advantage of the interpretative resources offered in each town, using them to the full.

Said tours and workshops are guided and are currently aimed at Reserve staff, guides and technicians alike.

The technical team is also responsible for producing advertising material to promote the general and themed tours, as well as organizing this with exhibitors in each town

and distributing the promotional material at the Montejo information centre, at relevant events, to hotels and guest houses and to shops and companies in the Reserve's towns.

In addition, each town has its own local organizers. These organizers will be townsfolk, running workshop activities. Their work will entail using customs and traditional industries in the area to best effect (forging, bee-keeping, milking and cheese production, livestock feeding, breadmaking, etc.) The aim is to attract visitors and give them an insight into these bygone industries and traditions, ensuring that the popular culture is maintained.



*Signing in the Sierra del Rincón Biosphere Reserve*

#### Why is it significant?

The project stands out for its originality, playing its part in spreading the word about the Reserve and its values from a themed point of view, to deepen the knowledge of certain aspects of the area.

It is also significant for its portrayal of the image of the "local contributor" and their involvement in the initiative's progress.

It is the very inhabitants of the Reserve who hold knowledge about the traditional customs and industries and who put these across, meaning both that this knowledge will not be forgotten but also that it will strengthen these people's feeling of pride and belonging to the Reserve.

#### How has it been carried out?

The body managing the Reserve was the project's sponsor, a project to which also contributed (autumn 2008 campaign).

The tours and workshops were devised by the technical team within the Biosphere Reserve (whose managing body is Madrid's Environment, Housing and Land Use Planning Advisory Board), which was also in charge of devising and organizing the tours, scripts containing information on flora and fauna, and interpretative resources for each point covered in the workshops.

The tour itineraries were designed to have minimal impact on the area, be low cost (only personal), and with a broad environmental content.

In terms of publicising the project, the number one resource was the Reserve's webpage ([www.sierradelrincon.org](http://www.sierradelrincon.org)), which gives information on it and the tours.

The main complications encountered when developing the project were when it came to preparing itineraries, given that the organizers wanted to combine natural and interpretative resources which would be of particular interest in each town. Similarly, they wanted to make sure that the tours had as little impact as possible on the territory.

As far as "themed" tours are concerned, some complications were encountered when getting the workshops off the ground, searching for local contributors, venues, or the materials required.

#### What has been achieved?

This is a project which was begun in 2007, and which is currently fully consolidated and is still proving to be a great success.

In view of the results obtained, the aim is to continue to offer the service, promoting the winter and spring campaign by as many means as possible, to exceed the number of visitors seen in previous years.

Something else immediately apparent is that new local contributors are coming forward to run the workshops promoting traditional customs and industries.

As indirect results, it should be mentioned that visitors going on these tours, as reflected in their questionnaires, are recommending and promoting the Reserve to others. Something else which has been noted is the increase in revenue to the area: in restaurants, small shops, etc.

Furthermore, completed questionnaires reflect high visitor satisfaction after having returned from the tour.

New activities and role-plays are now being designed, with varying content (botanical, geographical, geological, zoological, cultural content etc.) all very much focusing on sustainability, to be incorporated in the general guided tours when explanatory stops are made.



*Information on tours in the Sierra del Rincón Biosphere Reserve*

## DISTRIBUTING THE IMAGE OF THE BIOSPHERE RESERVE THROUGH TOWNS

### Gran Canaria Biosphere Reserve (Islas Canarias)

#### What do we hope to achieve?

The project's main aims are:

- To distribute and promote the image of the Biosphere Reserve across the whole geographical area. Doing this entails giving special funding to towns, so that both the population and the local government can identify with the Reserve's image.
- To distribute said image to visitors, at information points around the town.

#### What does the experience involve?

The project was launched under an agreement signed by the Island Council of Las Palmas de Gran Canaria and all towns included within the Biosphere Reserve, whether fully or in part. A total of seven towns are included, three of which (Artenara, La Aldea de San Nicolás and Tejeda) are completely within the Reserve, and the other four of which (Agaete, Mogán, San Bartolomé de Tirajana and La Vega de San Mateo) are partially within it (elevations more than 300 metres above sea level and summit areas).

The co-operation agreement supposes an annual grant to each town over a three-year period (2006-2008), with each town promising to do little things to spread the image of the Biosphere Reserve as agreed with the Island Council. The annuities received under the agreement were € 6000 per year in the case of towns fully included, and € 3000 per year in the case of towns partially included.



*Biosphere Reserve notice board*

Every year, each town draws up a proposal on how to spend the budget and this proposal is approved by the Island Council, judging whether the spending is appropriate and how it acts as logistical support for the Reserve. In the first year of operation, the towns centred on a Biosphere Reserve information point, accessible to visitors and the local population in municipal dependencies selected by each local authority. From that point, information on the Reserve would be distributed, through a variety of materials published by the Island Council.

In the years following, using their annual budgets, the towns have produced informative material (leaflets, guides), T-shirts, key-rings and school sports equipment. Other funded activities included the creation of prizes and the setting up of

containers for selective separation of domestic waste.

### Why is it significant?

The project is significant for a number of reasons, including the fact that it directly involved the towns within the Reserve in distribution, the institutional support which was received from the Government, and the fact that it received stable and effective funding in the short to medium term.

It is also worth mentioning the participative element of the initiative, in that each town decided itself how best to use the funding it received.

### How has it been carried out?

The Biosphere Reserve (through the Island Council of Las Palmas de Gran Canaria, as the Reserve's managing body) promotes this project, which began in 2006 and is now fully consolidated.

The Island Council acts as the sponsor and promoter of the project, though all councils with territory included within the Biosphere Reserve are also involved.

To co-ordinate the actions of the various agents involved in developing the initiative, a meeting was held every other month between all the participating towns and the project technician and co-ordinator. The initiative was monitored at these meetings, progress was discussed and the proposals made by each town were assessed.

Word of the initiative is distributed through information points in each town, with excellent results, even if they varied between the different participating towns.

### What has been achieved?

The immediate outcome of the project's operation was the creation of information points in towns within the Reserve, providing information on it. Moreover, the material distributed from these information points has in many cases been created by the towns themselves.

The project has been positive, with a high degree of involvement by each town, and a variety of activities suited to the actual requirements proposed to the Reserve's managing body.

Obstacles encountered included a few teething problems when contacting some of the councils and actually getting the initiative off the ground.



*School sports equipment promoting the Biosphere Reserve*



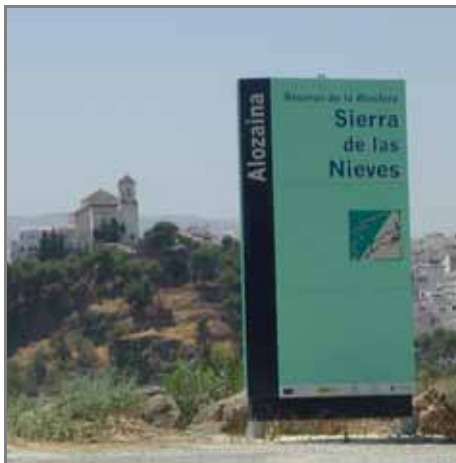
## RESERVE SIGNING PROGRAMME

### Sierra de las Nieves Biosphere Reserve (Andalucía)

#### What do we hope to achieve?

The aim of this programme is to enable the population to see for itself the territory declared a Biosphere Reserve, as well as any visitors to it.

A further aim is to consolidate a feeling of territorial identity towards Sierra de las Nieves amongst the local population, and to use the Reserve as a key element for promoting tourism.



*Reserve welcome signing*

#### What does the experience involve?

The Signing Programme is divided into four blocks, according to the type of signing used and its purpose.

1. Signing for the region as a whole: directional signposts were placed along all routes to the Biosphere Reserve, and welcome panels were put up at the entrance.

2. Handcrafted tourist maps: in each town, in a square or at the entrance to it, panels were erected on which there was a map of the Reserve on one side, the same in every town, and on the other side, a tourist map of the town in which it was placed.
3. Urban walks: the signing shows walks through the urban areas of the towns within Sierra de las Nieves and its vicinity.
4. Path and Route Plan: this is for tourists, and includes: 18 cycle paths, 13 public footpaths within the Nature Reserve, 20 paths approved by the Mountain Sports Federation (1 Big Tour covering all of the towns within the Reserve and 19 Small Tours).

The standard nature of the design and the image put across by all of the signing was an essential element, based on the colours on the Reserve's logo and appearing on all kinds of signs, panels, etc.

#### Why is it significant?

The project stands out for being so innovative, since it is centred on implementing and spreading the Reserve's image over the territory, as a means of publicising it.

It is also an initiative which stands out because of its interactive nature and the fact that all the people involved in its development have collaborated so well.

### How has it been carried out?

The initiative was launched in 1997, and is now fully set up and consolidated. It was carried out in several phases:

- In 1997 and 1998, work was undertaken to set up outdoor signing to welcome people and direct them towards the key illustrations of the area's cultural heritage.
- Between 2000 and 2008, signing was placed marking out footpaths and cycle paths.
- Between 2004 and 2006, all road signing was completed, as well as the signing for tourist maps and urban walks.



*Sign marking out an urban walk through the Biosphere Reserve*

The entire project was promoted and run by the Biosphere Reserve Office and the Sierra de las Nieves Towns Association.

It has also relied on the cooperation of the town councils within the Reserve and the management office of the Sierra de las Nieves Nature Reserve (included within the Reserve), which have contributed towards the design of the routes to be signed, as well as towards approving public right of way along the paths and on the tours along these routes.

The various agents coordinated through meetings and visits.

A guide will be published to spread the word about the project as a tourist package including pathways, routes and walks. Furthermore, information on many of these routes and pathways may be found on the Internet ([www.andarural.es](http://www.andarural.es)). This information is also available on the Biosphere Reserve's website ([www.sierradelasnieves.es](http://www.sierradelasnieves.es)).

Finally, it should be said that a periodic or ongoing review is planned to sort out any faults or replace any damaged signing.

### What has been achieved?

The project is considered positive, as the signing has contributed well to visualizing and identifying the Biosphere Reserve's image, both amongst the local population and visitors.



*Sign marking the Big Tour path around the Reserve*

## CREATING A GEOGRAPHICAL INFORMATION SYSTEM CONTAINING RELEVANT INFORMATION ON THE RESERVE

### Sierras de Béjar y Francia Biosphere Reserve (Castilla y León)

#### What do we hope to achieve?

The aim of this initiative is to provide a tool to associations, companies, councils and the Reserve itself, enabling them to obtain information which could be useful when it comes to embarking upon certain actions.

With this in mind, a geo-referenced database is being created including information on heritage, services, financial business, demography, nature and the way in which the land within the Reserve is being used.

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**This project has enabled the creation of a database of interest to the region and visitors to the Reserve**

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#### What does the experience involve?

The creation of a geographical information system which includes all significant data from all of the towns within the Biosphere Reserve will enable the collection, processing and drawing-up of information in map format.

The tasks which are being carried out as part of this project may be summarized in three different phases:

1. Firstly, the information is compiled. This process takes place through institutional websites (INE, EIEL, Ministries, etc.), or through the local action group ASAM, which compiles its own information including data recorded in the field.

2. Once information of interest has been collated, it is then processed and analyzed, using GIS Geomedia professional tools on the Intergraph platform.
3. Finally, themed maps are produced, created from the information collected.

#### Why is it significant?

The initiative is of great interest as it brings together a large amount of varied information on the Reserve in a single tool. This will prove very useful when it comes to raising awareness about the territory.

Also significant is the effort being made to obtain information on the area, not only through existing sources, but also first-hand, through fieldwork.

The organization and public availability of all of this information will be a great help when it comes to planning action to be taken with a view to the future, determining priority action to be taken and improving Reserve management.



*The database created includes demographic information*

### How has it been carried out?

This project, launched in 2008, was sponsored by the Salamanca Mountain Agriculture Association (ASAM); it is this entity, together with the Biodiversity Foundation, which is funding the project.

This initiative has relied on the work of two expert GIS technicians.

Word of this project is mainly being spread through the publication and presentation of a guide book containing maps of the routes in the region.

### What has been achieved?

To date, it has been possible to produce maps of the most important routes in the

region, and a guide book has been produced from these.

This book has been distributed around the region's tourist industry so that both associations and tour operators in the area may make use of it.

In the future, the scope of this project may be increased or it may be centred on different themes.

However, it should also be remembered that this type of project does pose one problem, which is that information does need to be updated constantly, so that, at any time, quality information, relevant at the time, is available. This requirement to keep information up-to-date satisfactorily brings with it the need for ongoing funding.



*The Reserve's information system also incorporates information of a territorial nature*





