

## 1 Editorial



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President of the Regional Council  
of Guadeloupe

### issue 2/Aug. 2010

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For more than a year now, the economic crisis, high unemployment and the closure of industries have dominated the headlines. This situation has coloured the Copenhagen climate change debate because domestic economic uncertainty has forced Governments to dwell on immediate financial and social problems rather than tackle the more diffuse, long term environmental issues that will ultimately determine economic stability.

Emerging from these troubles, however, has been a growing interest in “green” technologies. These seem to offer a way for business to conform to the litany of the new “green” mantra and turn a profit. In marketing terms, “green” is rapidly becoming the new gold: Silicon Valley, for example, is now called “Green Valley”.

Admittedly, these are early days for the “green” revolution, but it is becoming clear that some initiatives have been counterproductive. Meeting the demand for “green” products, using traditional business models, has replaced complex, locally adapted ecosystems and their human communities with monocultures of palm oil, soya and other products such as bio-fuel. Even the seemingly benign drive to harness nature to the service of healthcare has disadvantaged native people, who are increasingly losing their right to the full benefit of their traditional medicines. This is because biologically active molecules are being “mined” and patented by pharmaceutical companies.

In order to succeed in the quest for sustainability, there needs to be an approach to resource management that puts the value of ecosystems, and the services they provide, at the heart of economic development.

In this respect, humanity is at a key point in its global development: although it can see what needs to be done, it is not sure how to make the necessary changes. Unsurprisingly, nothing very ambitious came out of the Copenhagen discussions, probably because of the current economic difficulties. Fortunately, local authorities and cities around the world, impatient with the lack of government leadership, are beginning to encourage a form of sustainable economic development that takes into account local needs and climate change. This centres around building networks, sharing experiences and knowledge, and innovating on technical, social, and financial issues.

This bottom-up approach to resource management is showing promise. However, it becomes more difficult to implement as local administrations become smaller and more isolated, which is the case with many of Europe’s Outermost Regions and Overseas Territories (ORs and OCTs).

## Net-Biome Participants



**Regional Council  
of Reunion Island**

**Regional Council  
of Guadeloupe**



**Regional Council  
of Guiana**

**Regional Council  
of Martinique**



**Regional Government  
of the Canary Islands**

**Regional Government  
of Madeira**



**Regional Government  
of the Azores**

**UK Overseas Territories  
Conservation Forum**



**Government  
of New Caledonia**

**Government  
of French Polynesia**



**Netherlands Antilles  
Government**

In the case of Guadeloupe, the Regional Council is encouraging water conservation technologies and promoting the development of a smart grid that will integrate renewable energy from geothermal, solar, wind and hydro electrical systems. It is also striving to develop an effective system of hazard prediction in cooperation with other island territories that are vulnerable to the effects of natural disasters.

These hazards often disrupt ecological systems, including economically important populations of plants and animals that may already be suffering from over-exploitation. They can also compromise small populations of fragile endemics that may also be coping with invasive species. In addition to these pressures, the exquisite beauty and romantic appeal of these islands make them disproportionately attractive to tourism, which can be difficult to manage.

Regional council of Guadeloupe is well aware of these problems and of the close link between biodiversity and human wellbeing. For these reasons it supports the tropical biological resources center, hosts several terrestrial and marine protected areas, and will soon designate a cetacean marine park linking Guadeloupe and Martinique.

So, while Guadeloupe shares difficulties common to small islands throughout the world, its ability to promote the conservation and sustainable use of biodiversity on its island will be substantially reinforced through its involvement with Net-Biome.

The failure of the recent Copenhagen summit is regrettable. However, local networking initiatives are beginning to build support for a practical, robust approach to sustainable development and provide a testing ground for new ways of thinking. Ultimately, these initiatives may help to promote and enable the large-scale changes needed to secure an attractive, biologically diverse and sustainable future.

Considering these facts, Net-Biome sets a good example of how the sustainable management of biodiversity might be achieved, through networking, research, and the development of ambitious economic and environmental policies. Above all, Net-Biome provides island populations with an opportunity to identify, develop and coordinate these actions, regionally and thematically in order to protect and manage their natural heritage for future generations. The involvement of the regional council of Guadeloupe in Net-Biome confirms its commitment to sustainable development, as highlighted in its regional economic development plan.

Undoubtedly, biodiversity has become the new economic El Dorado. There is some encouragement in this situation; but we need to recognise that the economic potential of the “natural” environment will collapse if it is not exploited sustainably. This form of environmental stewardship needs the kind of regulatory support that integrates ecological concerns into the heart of economic processes.

Victorin Lurel  
President of the Regional Council of Guadeloupe

## Net-Biome 7<sup>th</sup> Executive Board Meeting in Madeira

The Executive Board meeting was held in the presence of representatives of the Advisory Board, whose contributions to the meeting were invaluable. The meeting was preceded by a 3-day workshop of Work Packages 4 and 5 leaders, which finalised the calendar for the Net-Biome joint call and elaborated the documents needed to secure its launch before the end of 2010.

The main topics on the Executive Board agenda were related to the preparation of the joint call in tropical and subtropical biodiversity in the European OR's and OCT's and its funding. Despite current financial constraints, the regional governments of most partners had committed funds to the joint call, along with two national science agencies (FCT – Portuguese Science and Technology Foundation and ANR – French Research Agency). Apart from attending a long series of intensive meetings, participants found time to visit local research institutes (Figure 1). They also managed to catch a glimpse of some of Madeira's biological treasures. During a boat trip (Figure 2), sightings ranged from the small Madeiran storm petrel *Oceanodroma castro* to the critically endangered monk seal *Monachus monachus*; a full-day field trip included several phyto-sociological belts of the Madeiran Laurissilva (Figures 4 to 6). Perhaps the most memorable conservation-affirming visit, however, was a ridge-line trek at dusk (Figures 7 and 8) to the nesting site of the critically endangered Zino's Petrel *Pterodroma madeira*. These experiences gave the participants a broad idea of Madeira's biodiversity and the existing challenges for research.

Net-Biome partners were impressed by the organization of the meeting and greatly encouraged by the results, which are major steps towards the launch of the Net-Biome joint call later in 2010.

Cláudia Delgado



Figure 3:  
Aspect of the south coast of Madeira

# Project News

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Figure 1:  
Visit to the Marine  
Biology Station of  
Funchal



Figure 2:  
Onboard an eco-  
tourism sailboat in  
search of wildlife



Figure 4:  
Photographing the  
endemic orchid  
*Dactylorhiza foliosa*

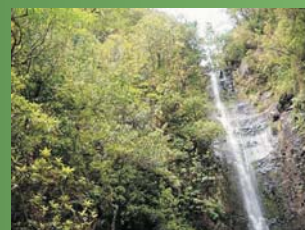


Figure 5:  
One of the  
waterfalls along  
Levada do Folhadal

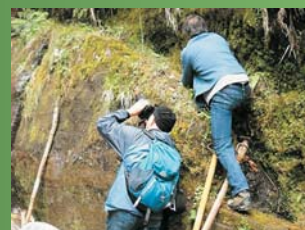


Figure 6:  
Photographing  
endemic plants



Figure 7:  
Trail between Pico  
do Areeiro and Pico  
Ruivo



Figure 8:  
Pico do Areeiro at  
sunset, prime  
habitat of the Zino's  
petrel.

All photos :  
Cláudia Delgado



## 4 Region Profiles Canary Islands

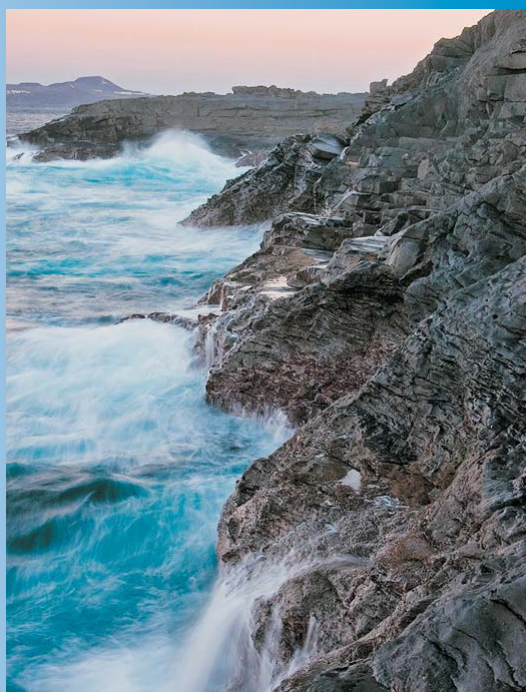


Photo: Daniel Montero

Figure 1: Coast of Arucas, located in Gran Canaria Island

The Canarian archipelago is a chain of islands located in the Central Eastern Atlantic Ocean, about 100 km to the west of Morocco and approximately 1000 km, from the coast of the Iberian Peninsula. The archipelago is composed of seven main islands and six small islets and extends over about 460km in longitude. It is a Spanish Autonomous Region and an Outermost region (OR) and with a total terrestrial area of 7.447 km<sup>2</sup> and a population of 1,995.833, it occupies 8th place in population among the 17 autonomous communities that compose Spain, whereas it is the 13th in geographical area (1.5% of the Spanish territory).

The Canary Islands are part of the Bio-climatic Dominion of Macaronesia, comprising the Azores Is., Madeira Is., Salvage Is., Cape Verde Is. and the Canaries. This Bio-climatic Dominion also comprises some stretches of the coastal territories of Morocco, Senegal and Mauritania. Altogether, this dominium includes 13 Biosphere Reserves, 5 of them in the Canary Islands (La Palma, El Hierro, Gran Canaria, Lanzarote and Fuerteventura), 3 in the Azores, 3 in Senegal and 2 in Morocco.

Despite sharing a common volcanic origin, the age of the islands is different ranging from 20 to 10 million years (Fuerteventura, Lanzarote, Gran Canaria and La Gomera), to between 10 and 0,5 millions years (Tenerife, La Palma and El Hierro). This produces distinct orography and biogeographic features among the islands, in land as well as in the marine and coastal areas.

The Canary Islands have an interesting cultural and ecological diversity of spectacular contrasts and an exceptional presence of endemic species, values that have been recognised internationally. Their geographic situation and rugged volcanic terrain have produced a profuse variety of landscapes, habitats and ecosystems; moreover, their insular condition has favoured evolutionary processes that have produced new species – both animal and vegetable- that are exclusive of these islands, while retaining relictic species.

A total of 17,293 species have been recorded in the last checklist published by the official Data Bank of Biodiversity developed by the Canary Government. Of these, 3,736 are endemic, giving one endemic species or subspecies for every 2 km<sup>2</sup>. Records show a great terrestrial biodiversity of 13,328 species and subspecies, though only 3,965 marine species are known; this is probably due to the lack of marine biodiversity research in both coastal and deeper waters, and to a higher environmental homogeneity in the marine than in the terrestrial areas. Of these, introduced -invasive and non-invasive- species account for 1,434, and of these 46% are vascular flora, 40% arthropods, 4% fungi, 3% vertebrates and 5% of other invertebrates. The inventory of the Canary Islands biodiversity is a very active task, and on average, every six days a new endemic species or subspecies is discovered.

Relictic laurel forests are still present in some of the islands (Tenerife, La Palma and La Gomera and El Hierro). In the Tertiary (20 million years ago), these forests extended throughout the Mediterranean Basin, South of Europe and North of Africa, but due to climate change they subsequently retreated to the Azores, Madeira and Canaries where they remain, protected by the thermostatic effect of the oceans.

Protected habitats comprise 348,038 hectares (ha) of terrestrial and 184,349 ha of marine reserves, amounting to 369 protected areas. Of these: 146 were declared directly by the Regional Government, and conform to the network of protected natural spaces; 177 belong to the Natura 2000 network as Special Areas of Conservation (SAC's) assigned under the Habitats Directive, along with 43 Special Protection Areas (SPA) for birds in agreement with the Birds Directive.

The group of endangered species in the Canary Islands comprises several hundreds of taxons, including plants, invertebrates, birds, mammals and reptiles, most of them endemisms of the archipelago. Currently there are 30 species critically endangered undergoing recovery plans.

In the Canary Islands, the regional financial support for research is regulated by the Government's strategic plan and is general for all subjects. The plan has 2 horizontal instruments: Information Technology and Communications, and Biotechnology. It also has 9 scientific-technological priorities sectors. One of these sectors is Natural Resources, which encompasses Energy, Water, Climate Change and Biodiversity.

The Agency for Research, Innovation and Society of Information (ACIISI) opens regional calls based on this plan and funds projects according to the strategic priorities (areas and sectors). It is a diverse set-up with Centres of Research and Technological Development such as the Canarian Institute of Marine Science (ICCM), the Technological Institute of the Canary Islands (ITC), Canary Islands Oceanic Platform (PLOCAN) or the Vulcanological Institute of the Canary Islands.

Some organizations of the Autonomous region also have close links with the ACIISI. These include the Canary Islands Institute of Agricultural Research (ICIA), which is assigned to the Council for Agriculture, Fisheries, Livestock and Food; the Canary Islands Foundation for Research and Health (FUNCIS), and; the Elder Museum of Science and Technology.

## Region Profiles Canary Islands

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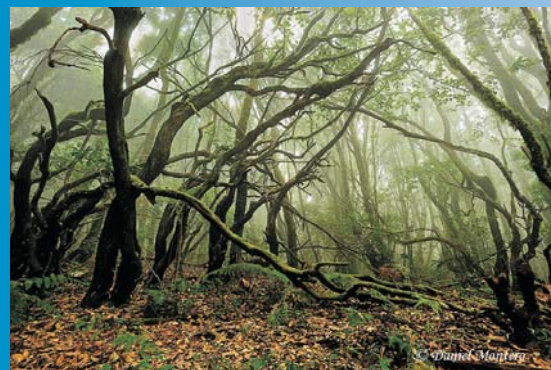


Photo: ©Daniel Montero

Figure 2:  
Laurisilva relictic forest of Garajonay in Gomera Island



Photo: ©Daniel Montero

Figure 3: Blue finch of the Teide (*Fringilla teydea teydea*),  
endemic bird (Tenerife Island)

Research and academic activities are developed in the Universidad de La Laguna (Tenerife Island) and the Universidad de Las Palmas de Gran Canaria (Gran Canaria Island), in close cooperation with other regional organizations. Finally, it is worth mentioning that research linked to climate change is carried out by the Izaña observatory of the National Agency of Meteorology (AEMET); and more recently, by the Sustainable Development Observatory of the Canary Islands Agency for Sustainable Development and Climate Change. These institutions focus their efforts on monitoring the consequences of climate change in the islands.

Among the actions of ACIISI is the development of structural projects. Currently there are 9 large R+D+I projects that integrate research groups and firms, which mobilise the economic knowledge-base that will promote the fundraising of external resources and their excellence. As an example of this work is the Marine Sciences



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## Region Profiles Canary Islands



Photo: ©Daniel Montero

Figure 4: Parrot fish (*Sparisoma cretense*)

project, which aims to promote excellence in research, technological transfer and innovation in order to create an Integral Space of Excellent Research in Marine Sciences.

The Autonomous Region of the Canary Islands has developed an environmental policy that seeks to answer the problems that emerge from the interaction between the main economic activity - tourism (the islands receive around 10 million tourists every year) – and the natural environment. This is mediated through a set of guidance, norms and action lines that originate from a number of different fronts. These include: the declaration, management and planning of protected areas (Canary Islands network of Protected Natural Areas, Natura 2000 Network, Biosphere Reserves); the development of different protection laws such as the Regional Catalogue of Endangered Species, and; the implementation of the respective recovery plans and other measures, such as those derived from the application of European Directives (INSPIRE, WATER FRAMEWORK, MARINE STRATEGY). The reinforcement of these conservation measures

is mainly carried out by the Council for the Environment and Territory Regulation (Consejería de Medio Ambiente y Ordenación del Territorio). It has different departments, including, i) Sustainable Development and Environment, which includes the study of the Environmental Quality and Evaluation, and, ii) Natural Environment, with a specific service on Biodiversity that deals with Ecosystems, Species, Conservation and Regulations.

Two Universities are located in the Canary Islands: the University of La Laguna (ULL, Tenerife Island) and the University of Las Palmas de Gran Canaria (ULPGC, Gran Canaria Island). At the ULL there are 149 research groups which include a total of 950 researchers; it has 12 associated research institutes, among them the University Institute of Bio-Organics Antonio González and the University Institute of Regional Development. The ULPGC counts with 150 research groups with 1000 researchers altogether, one Scientific-Technological Park and 9 University institutes and research centres. Among the latter are included the Centre of Biodiversity and Environmental Management (BIOGES) and the Centre of Marine Biotechnology (CBM).

The Autonomous Region of the Canary Islands benefits from some national organisations located in the islands, such as the Spanish Institute of Oceanography (IEO), the Institute of Natural Products and Agro-biology (IPNA) and the Big Telescope Canaries (GTC, La Palma Island); and at regional level, from the Viera and Clavijo Botanical Garden, the Institute of Research and Science of Puerto del Rosario and the Astrophysics Institute of the Canary Islands (IAC, La Palma Island).

The Canary Islands collaborate and cooperate with their neighbours, mainly the Macaronesian archipelagos, through diverse research projects within EU Transnational programmes (such as Interreg IIIB and other calls), but also more recently with African countries (mainly Morocco and Cape Verd Republic). In fact, Casa Africa (African House) is located in Las Palmas de Gran Canaria and is integrated by a Consortium of Spanish and Regional partners to encourage the relations and contribute to the mutual knowledge between Africa and Spain. This is fostered by programming and carrying out activities, channelling other actors' initiatives and promoting an awareness work of the diverse participants and entities.

Marimar G. Villagarcía

French Guiana is located on the north eastern coast of South America, between Suriname and Brazil. It is an overseas department of France (called in French, DOM or Département d’Outre-Mer). The climate is equatorial, with an average temperature of 27 °C.

There are 26 towns, and the administrative city is Cayenne. The other main towns are: Kourou, where the space center and Arianespace are located; Saint-Laurent, located on the Maroni River, which forms the natural border between Surinam and French Guiana, and; Saint-Georges, on the Oyapock River, which is the natural border between Brazil and French Guiana. Like the other DOMs, the currency is the Euro.

French Guiana has an ethnically diverse population of 221,500 (January 2008 estimation), most of whom live along the coast. Estimates of ethnic composition vary because of the large numbers of immigrants (about 20,000). The majority of the population speaks French, which is the official language. Although Creole is spoken widely, few understand English.

Biodiversity is very important In French Guiana. There is a wide variety of flora and fauna and its humid forest is rich in vegetation. Botanists have identified more than 1,200 different tree species, with a lot of different palm trees, as the “pinot or wassaye” (*Euterpe oleracea*), the “comou” (*Oenocarpus bacaba*), the “patawa” (*Oenocarpus bataua*), the “awara” (*Astrocaryum vulgare*), the “maripa” (*Attalea maripa*) and the “Moucaya” (*Acrocomia aculeata*). Guiana’s fauna is also highly diverse, with different sorts of insects, birds, mammals, reptiles and fish (due to the sea, which is enriched by sediments of the Amazon River waters). In fact, the marine biodiversity in French Guiana is strongly influenced by the Amazon River waters, which constitute a major structuring factor for the estuary, coastal, and shelf marine ecosystems.

## Region Profiles

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### French Guiana



Photo: Murielle Chen-Kuo-Chang

Figure 1: Palm trees Place (Cayenne, French Guiana)



Photo: Murielle Chen-Kuo-Chang

Figure 2: Botanical Garden (Cayenne, French Guiana)



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## Region Profiles French Guiana



Photo: Murielle Chen-Kuo-Chang

Figure 3: Place almond trees (Cayenne, French Guiana)

### RESEARCH ACTIVITIES ON BIODIVERSITY

French Guiana, has numerous research teams and associations investigating forest biodiversity and ways of managing this resource sustainably. There is a particular need to document this biodiversity in order to understand its nature and protect it from the threats posed by forestry, urban development and road construction, hunting, gold panning and mass tourism.

Research is also being undertaken to examine such things as: the behaviour of the main species of fish, the potential of renewable energy, and the pathology of diseases, especially HIV, dengue virus, yellow fever and tuberculosis, cutaneous Leishmaniasis, Chagas disease and malaria. There is also a specialist team monitoring real-time epidemics.

Importantly, the Research and Innovation department of the Regional Council of French Guiana supports the research teams and innovative companies by encouraging research that has economic benefits and a favorable impact on the economic recovery and sustainable development of French Guiana.

Murielle Chen-kuo-chang  
with the collaboration of Mrs. Laurence Lemki

AGR	(trial of crops in sustainable development), <b>CETIOM</b>
ANIBIOR	(alternative a cambior), <b>GUYANE TECNOPOLE</b>
CAPVIH	(study on the virus HIV), <b>CHC</b>
DEGA	(diversity entomology of the French Guiana and applications), <b>CNRS</b>
DEGRAD	(degradation of materials in tropical humid environment), <b>UAG</b>
DEPECHE	(development of coastal fisheries in French Guiana - potential economic and bioecology), <b>IFREMER</b>
DICACAO	(diversity of French Guiana wild cocoa trees and related endophytes), <b>CIRAD</b>
DYGEPOP	(population dynamics and management of trees in French Guiana), <b>ONF</b>
ENERGI-RAVI	(estimate of the genetic wealth of resources amazonian life), <b>INRA</b>
GUYAFLUX	(flow and balance sheet and other gas CO <sub>2</sub> greenhouse in humid tropical forest Guianese), <b>INRA</b>
GUYAFOR	(array of devices for permanent long term monitoring of forest ecosystems French Guiana), <b>CIRAD</b>
PAMAL	(applied mathematics project), <b>CNRS</b>
PRODIGE	(valuation of biodiversity), <b>GUYANE TECHNOPOLE</b>
QUALI-SOL	(study on the quality of soils), <b>CNRS</b>
QUALITROP	(equipment for the recovery of tropical products), <b>UAG</b>
RDST	(network for dissemination of scientific knowledge), <b>PNRG</b>
SPECIES	(famous animal species of French Guiana), <b>WWF</b>
SRI	(regional innovation strategy), <b>DRRT</b>
TIMEG UAG	(prevention and treatment of Chagas disease), <b>UAG</b>
VANILLE	(upgrading of vanilla of French Guiana), <b>QUALITROP</b>
VIRUSES	(studies on some virus), <b>INSTITUT PASTEUR</b>

**BIODIVERSITY PROJECTS  
FUNDED BY THE REGIONAL  
COUNCIL OF FRENCH GUIANA**



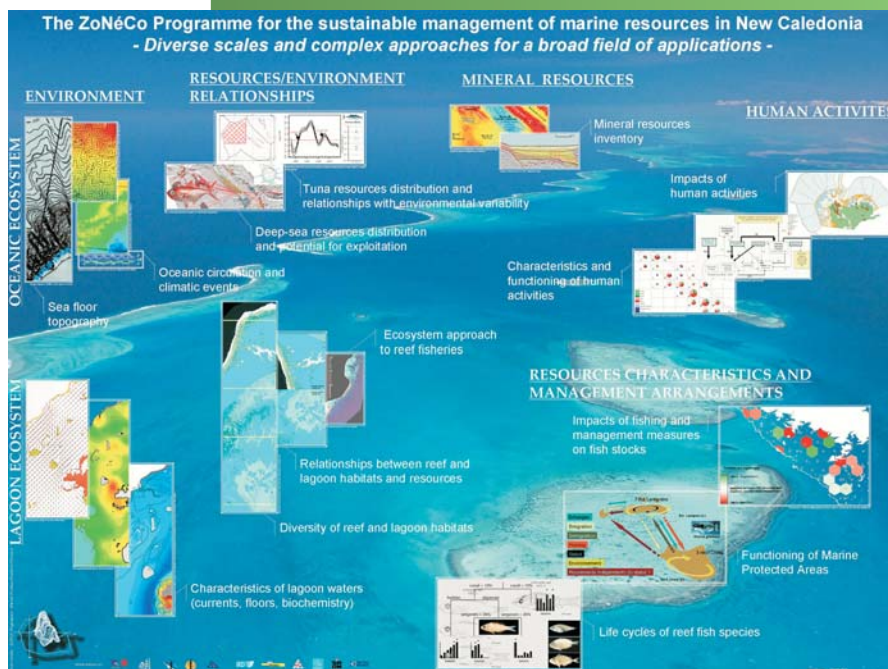
## Linking Science and Policy in the European tropical Territories: a good practice case study with the ZoNeCo programme for the sustainable management of marine resources of New Caledonia's Exclusive Economic Zone (EEZ) and lagoons

There is a lack of knowledge on the EEZ's living and non-living resources in New Caledonia. To correct this, the Governments of France and New Caledonia and its three Provinces, together with locally based research institutions, developed and launched a multi-disciplinary programme called ZoNeCo in 1991. It is hoped that this will open up new avenues for both EEZ governance and economic development.

Extending ZoNeCo's activities to the lagoons began in 1999 and became a priority in 2000. Since then, its objectives have moved on from one preoccupied with prospecting and resource-evaluation to one that attempts to optimise economic development based on the sustainable use of New Caledonia's living marine resources. This has involved producing, collecting and disseminating the information needed to manage and develop the resources of the EEZ and the lagoons of New Caledonia. As such, the ZoNeCo programme, now sits firmly at the interface between science and policy. This gives it the joint role of developing and transferring the results of research conducted on the marine resources and their environment to the management processes needed to sustain their vital functions in perpetuity.

The New Caledonia Economic Development Agency (ADECAL) has coordinated the ZoNeCo programme since 2002 and its early work established a number of specific objectives for the later phases (2006-2010) that have attracted 3 million €'3f from financial backers. The key objectives of the 2006-2010 programme include:

1. Developing a knowledge base and development procedures guided by the principles of sustainable development
2. Characterizing the resources, their biodiversity and their ability to adapt to development pressures
3. Integrating the structural and functional requirements of a sustainable environment into resources management plans and policies
4. Optimizing the management of resources with due



regard to sustainable management and the enforcement of planning conditions.

Besides these objectives, a fifth cross-cutting objective was included that aims to disseminate and popularize the results of the programme.

The ZoNeCo programme is managed by:

- A *Governing Board*, which defines strategy and adopts operation plans. This board is made up of the expanded Annual General Meeting (AGM) of ADECAL. It gathers representatives of the public institutions and the private sector, and is open to the scientific partners of the programme when ZoNeCo is on the agenda, and;
- A *ZoNeCo Project Group*, which is co-chaired by Adecap and the Programme's Scientific Coordinator. The Project Group formulates operational plans, manages the programme, and ensures compliance with sustainable development objectives. This group, which is equivalent to the Executive board of Net-Biome, is made up of representatives of the various public departments involved in the development and management of the marine resources, as well as representatives of the scientific partners.

Since 2006, The ZoNeCo *Project Group* has also been equipped with two consultative committees in order to help with internal governance. These are a *Policy Technical Committee*, which gathers representatives of the local governmental departments (Fisheries, Environment,

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Economic Development), and; a *Scientific Committee*, which gathers representatives of partnering research institutions. These committees help to integrate the needs of local policy makers into the decision-making process and distinguish the roles of project leaders and project evaluators in the eyes of the local research community.

In order to formulate the annual operational plans, the Project Group launches a yearly call for proposals. This is based on the 2006-2010 priorities and on a list of annual objectives that emerge through, a rigorous system of consultation that are meant to represent the priority needs of local governments. The call for proposals is published in local newspapers and can be consulted by every interested party (the call being opened to public or private organisations).

Submitted proposals are first examined by the Scientific Committee, which assesses the adequacy of the proposed methodology and expected results, and then by the Policy Technical Committee, which evaluates to what extent the expected results will meet policy needs. Based on these evaluations, a proposed annual operational plan is then elaborated by the project group and submitted to the vote of the governing board.

This internal mode of operation has been in place since mid 2006 and was used to formulate the operational plans that were voted by the ADECAL AGM in December 2006, May 2008, and October 2009. It is recognised locally as a model of transparency and good governance and is now adopted by most of the R&D programmes initiated in New Caledonia.

The ZoNeCo programme is characterised by a wide diversity of studies in terms of the scale and complexity of their scientific disciplines and methods. This includes, swath-mapping and seabed imaging; gravity, magnetism, seismic, physical

oceanography; satellite remote sensing; phytoplankton biology; fisheries science, habitat, field surveys and the development of data collection networks; as well as socio-economic and marketing studies.

For the 2006-2010 period, 39 scientific projects have been gathered in 5 broad categories ranging from:

- Environment
- Resources and Environment relationships
- Human activities
- Resources characteristics and management tools assessment, and
- Petroleum assessment with a distinction between the oceanic and lagoon ecosystems.

In terms of mineral resources, the results of the ZoNeCo 12 deep sea drilling campaign have lead to a better assessment of the petroleum potential of the EEZ.

In terms of natural resources and environment, the 38 selected projects fall into the following categories:

- The Environment (five overall), including: seabed mapping (1), characteristics of lagoon waters (2), characteristics of emblematic habitats (2);
- The Resources / Environment relationships (eight overall), including: tuna resources distribution (2), deep sea resources potential for exploitation (1), reef and lagoon zones monitoring methods (3), lagoon resources potential for exploitation (1), emblematic species distribution (1);
- The Resources characteristics and management arrangements (twelve overall), including: life cycle of reef fish species (6), Management units (5), Indicators (1));
- The Management of Human activities (thirteen overall), including: development of new fishing techniques (2), sustainable development of costal and lagoon resources (7), monitoring of fishing and aquaculture activities, and seafood markets surveys (4);

Although many of the ZoNeCo projects will only end in 2011, and only around 10 of them will be launched in 2010, the implementation of the 2006-2010 operational plans has already produced impressive results. These include more than 40 scientific reports, the launching of around 10 PhDs, and the publication of numerous scientific papers. This and other information produced by ZoNeCo can be accessed through the programme's website

Since its creation, ZoNeCo has not only contributed to a considerable improvement in the knowledge of the marine environment that surrounds New Caledonia, it has also played the role of catalyst in the marine research and development sector. By bringing together policy makers and scientists within the same decision-making structure, the ZoNeCo programme has delivered results that greatly exceed those that might have been produced individually. The future of the ZoNeCo programme for the period 2011-2015 will be decided by its financial partners in 2010.

Adrien Rivaton (ADECAL, New Caledonia Economic Development Agency) and Richard Farman (Aquarium des Lagons de Nouvelle-Calédonie)



## The National Natural Reserve of the Swamps of Kaw-Roura: When Man and Nature live in harmony

The natural reserve of the Swamps of Kaw-Roura was created by ministerial decree of March 13<sup>th</sup>, 1998. It lies to the Northeast of French Guiana, 80 kilometers from Cayenne and is bounded to the North by the Atlantic Ocean, to the West by the river Mahury, and to the East by the river Approuague (See map on next page). The 94 700 ha reserve is the third largest in France. It straddles the municipalities of Régina-Kaw and Roura and is managed by the Association of Management of Protected Areas (AGEP), which is made up of politicians, scientists, actors of economic development, and people who live in the village of Kaw. The reserve team includes a manager, a secretary and seven 'guard' technicians.

Kaw-Roura was designated a natural reserve because of its size, geographical range and biological richness. The rich assemblage of plains and mountains support a remarkable mosaic of primary rain forest, tidal estuaries, flooded savannas, swampy forests and mangrove swamps. These interconnecting systems provide habitats for numerous species that have an Amazonian affinity and are at the limit of their northern distribution. Significantly, this swampy complex is sanctuary for one of the last viable populations of the biggest species of caiman of South America, the black caiman, *Melanosuchus niger*. It is also home to the tapir, jaguar, puma, sea-cow, giant river otter, capybara, and deer of Virginia.

The natural reserve of Kaw-Roura protects the largest wet zone in French Guiana. It is an important stopover for migrating and wintering birds and a breeding ground for the biggest South American colony of heron (agami) *Agamia agami* (with more than 1000 listed couples). It also has important populations of red ibis, heron cocoï, egret, as well as a unique ruminating bird, the hoazin (Figure 3). Importantly, the exceptional avifauna of Kaw-Roura, which includes more than 500 species, secured Kaw-Roura's designation as a RAMSAR site (wetlands of international importance for the preservation of the birds of water) in 1993.

The unique landscapes of the swamps of Kaw are the fruit of a human inheritance which reflects the Guianese history. This embraces polderization of land for farming and forestry in the colonial period, the pressure from gold washing, and the ongoing struggle to find a 'place to live' for the Amerindian populations. These are the circumstances that continue to shape the landscapes of Kaw-Roura.



Photo: Stéphanie

Figure 1: River and flooded savannah of Kaw



Photo: Michel Clément

Figure 2: Black caiman (*Melanosuchus niger*)



Photo: Michel Clément

Figure 3: The hoazin, a unique ruminating bird  
(*Opisthocomus hoazin*)

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## Regional News French Guiana



Réserve Naturelle  
**MARAIS DE KAW-ROURA**

Today, the human population is located in the village of Kaw. This rests on an ancient sandy cordon within the natural reserve and is only accessible by river. The way of life includes fishing, subsistence hunting and the cultivation of food crop. The natural reserve is one of the most visited sites in French Guiana and because tourism is steadily increasing, the interaction between the Amerindian and tourists is permanent and daily. The Swamps of Kaw are thus a focus for a whole range of useful economic activities.

It is in this spirit that the management plan for the Kaw-Roura reserve tries to reconcile human activities with the preservation of an exceptional natural heritage. A heritage we need to protect if we want to secure its future.

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### The NET-BIOME trip to the Kaw marshes

During their stay in French Guiana in October 2009 for the project's Executive Board and Governing Board meetings, NET BIOME partners enjoyed a day boating on the Kaw marshes (Figure 1). They listened to birds and enjoyed the rich landscape of the reserve, which was particularly relaxing and pleasant. Some stayed behind to sleep in hammocks in the open air and watched caimans at night, when the water was calm and the air fresh (Figure 2). Others explored French Guiana up to its border with Surinam and then inland to the primary jungle.

Murielle Chen-kuo-chang



Localization of the National Natural Reserve  
of the swamps of Kaw-Roura



Source: DIREN French Guiana  
2002, september



## First Meeting of the Bern Convention Group of Experts on European Island Biological Diversity

The meeting was held in Tenerife Island (Canary Islands, Spain), between 1 and 3 October 2009. It was organised by Eladio Fernández- Galiano from the Council of Europe, and hosted by the Government of the Canary Islands (Figure 1, courtesy of the meeting organiser).

The Bern Convention (Council of Europe) is a European Biodiversity treaty with 50 parties that aim to network European biodiversity. The Group of Experts was created in 2009 and quickly identified that several countries in Europe have carried out studies on island biodiversity and had expertise in that area. This suggested that it might be important to network this expertise in order to find common interests and build a Biodiversity Island programme. To further this aim, the group intends to meet once a year for three years; the 2nd meeting is already planned in Svalbard (Norway), 26-29 July 2010.

The meeting brought together about 35 experts and some policy makers in order to:

1. identify common approaches to the conservation of island biodiversity;
2. create a network of experts on island biodiversity, and;
3. draft provisional recommendations on priorities and actions for the Standing Committee of the Bern Convention.

The meeting began by setting European Islands Biodiversity in a world context. Reports were then presented on a variety of topics ranging from ecological and political connections through leadership for natural resources to an overview of the work of Net-Biome ([www.netbiome.org](http://www.netbiome.org)).

### International effort to conserve biological diversity in islands (Jorge Fernández Orueta)

This presentation considered some of the international efforts to conserve biological diversity



Photo: Eladio Fernández-Galiano

Figure 1: Participants of the GLISPA meeting in the excursion to Teide National Park (Tenerife Island, Canary Islands)

in islands, highlighting key environmental issues. It concluded that human mediated over-exploitation and destruction is more pronounced in islands than continents because of limited carrying capacity. Water and other resources are also relatively scarce on islands and they are more severely affected by the global environmental than continental areas. For example, global change has resulted in the loss of islands and the disappearance of habitats because of rising sea levels, pollution and habitat destruction caused by human activities (tourism, waste management, saline intrusion, oil spills etc). Invasive Alien Species (IAS) also have a stronger impact on islands because native ecosystems are often small and fragile.

The presentation concluded with a recommendation to the Group of Experts on the Bern Convention to promote work on some of these problems in order to improve the state of European Island Biodiversity.

### Biodiversity richness of the Canary Islands (Jose Luis Esquivel).

The former Head of Biodiversity Science in the Government of the Canary Islands provided an exhaustive view of the subject. This emphasised the number of endemic species and the need for a system of permanent monitoring, because new species are found each year. He also presented the ATLANTIS database. This shows the small scale spatial distribution of Macaronesia's island species, confirming that the Regional Government has protected over 40% of the territory as NATURA 2000 areas, despite the region being heavily populated.

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## Regional News Canary Islands

### **Activities of the CBD (Convention on Biological Diversity) and GLISPA (Global Island Partnership) (Kate Brown).**

In order to develop the CBD Island Biodiversity Programme of Work, GLISPA mobilises leadership for natural resource conservation and sustainable use. Increasing resources and sharing solutions in islands is important because they account for less than 2% of the Earth's land area but are home to 10% of the population. The fact that island populations rely on biodiversity which is more vulnerable and different from the continents (see Orueta, above) makes cooperation essential. GLISPA is globally significant in this respect because it deals with island biodiversity in an integrated way: it embraces all islands and is able to create new ecological connections and political partnerships. Since GLISPA has mainly focused in territories outside Europe, they were keen to work together with the Bern Convention Group. The Group welcomed this suggestion and offered to develop it as a firm commitment.

### **An IUCN perspective on islands. (Margarita Astralaga (Director of the IUCN Centre for Mediterranean Cooperation) and Olivier Tyack (Island Officer in Gland))**

The speakers provided an overview of IUCN's activities in islands and offered the expertise within their extensive network to help address the issues concerning island biodiversity. IUCN's willingness to work with the Bern Group of Experts recognised the unique value of island biodiversity and the global need to value their resources and share in their conservation. They concluded by confirming that their strategy is to increase IUCN's ability to generate and share knowledge on the subject of islands.

### **The role of NET-BIOME in securing island biodiversity through sustainable resource management and planning. (Marimar Villagarcía, Canary Islands representative of the Net-Biome Executive Board).**

The presentation outlined how this initiative was one of the potential lines of work identified as necessary for the conservation of island biodiversity. A description of the program emphasised the availability of a database on tropical and subtropical biodiversity for its partners. It also described how the project partners were developing joint strategies, finding common priorities, increasing mobility

of researchers, securing access to infrastructure in partnering regions and building links with neighbouring countries outside the consortium.

The presentation was concluded with an announcement that NET-BIOME was preparing to launch a joint call on tropical and subtropical biodiversity in 2010.

During the discussion following the presentation it was clear that the Group of Experts of the Convention recognised the benefits of working with NET-BIOME. This was particularly the case in relation to gaining a better understanding of the regions and territories through the results of NET-BIOME and developing effective policy instruments. The GLISPA representative also expressed an interest in closer ties with NET-BIOME in the near future, since the worldwide coverage of both initiatives is almost complementary.

In addition to contributions from the main speakers there were also many expressions of interest and concern from the audience.

Diverse countries like Croatia, France, Iceland, Ireland, Italy, Portugal (Azores), Spain (Balearic and Canary Islands) and Sweden informed the meeting participants about the biodiversity in and around their islands. Others made presentations about the United Kingdom, Macaronesia, Iceland and Arctic.

Several experts from different islands addressed the main problems affecting island biodiversity. Antonio Machado, independent expert on island conservation, gave an overview on problems and possible solutions. He viewed it as a three-fold challenge in:

1. Knowledge (vulnerability of island biotopes that have ended in island extinctions as high as 95% for reptiles, 81% of birds and 61% of mammals; IAS, climate change,...)
2. Technical aspects (existing conservation tools do not apply well to islands and need to be adapted), and
3. Policy, i.e. lack of political commitment, European legal tools in trade and biodiversity do not fit islands' problems.

His final opinion was that islands needed to "fill the gaps" in all these challenges, producing special island biodiversity guidelines to be used by Governments.

Paulo Borges (Azores University) defended the establishment of Long-Term Ecological Studies (20 years) involving students (as part of their education) carrying out studies on islands, in order to develop a standardized approach and monitor island ecosystems.



Frederico Cardigos (Azores Government and also on behalf of Madeira Government) suggested that a major investment in education and science communication would be an effective way to raise public awareness. Hence, a change in the general public attitude would have a positive impact in the politicians' perception of biodiversity.

The Secretariat then briefly described the work of the Council of Europe in the area of climate change and its effects on island biodiversity, referring to several reports on how it may affect particular groups or issues.

Before the meeting ended, Eladio Fernández-Galiano coordinated a discussion to establish the Priorities for Action and Proposals to the Standing Committee of the Bern Convention. Some precise measures suggested for the future included the need to:

- 1.elaborate a "Charter for European Islands";
- 2.prepare guidance notes for Government on island policies with specific recommendations,
- 3.support an EU legislation related to IAS on Islands,
- 4.incorporate experts on risks, social sciences and communications, and;
- 5.prepare recommendations on gathering biodiversity information on islands.

The involvement of the national and island-level politicians will obviously be a key factor in bringing together this International Expertise Network Panel on Island Studies and making it work for the good of island biota. It is hoped that with the help of policy makers, the general public, and the expertise represented by those attending the meeting, it will be possible to meet these important challenges with success.

Marimar Villagarcia



## Announcement

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### NET- BIOME TO LAUNCH CALL IN 2010

**Joint Call for trans-regional and trans-national research entitles "Towards Biodiversity Management in Support of Sustainable Management in Tropical and Subtropical EU".**

The precarious state of Europe's ORs and OCTs' biodiversity has raised them into prominence as sentinels of global change. It has put them at the forefront of attempts to integrate sustainable resource management at the heart of environmental governance and policy development through research excellence.

Even so, cooperation and coordination between the ORs, OCTs and continental EU on research issues remains inadequate, which limits progress.

Responding to this difficulty, authorities from European ORs and OCTs prepared a regional ERA-NET (NET-BIOME, EU's 6<sup>th</sup> Framework Programme). The aim of NET-BIOME is to initiate and stimulate co-operation and co-ordination of research programmes for the sustainable and integrated management of biodiversity, and in a way that would address the needs of the threatened ecosystems of the ORs and OCTs.

Ten funding organisations have together decided to open the first joint call for trans-regional/national projects in tropical and sub-tropical biodiversity in Europe's ORs and OCTs before the end of 2010.

Expected time for the Call Launch:  
September / October 2010

All information will be available on the NET-BIOME website for the call launching: [www.netbiome.org](http://www.netbiome.org)

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## Regional News Azores

### LULA 1000

The Rebikoff-Niggeler Foundation has been carrying out surveys and research work in the sea area of the Azores with the manned submersible LULA500 since 2001. In order to extend its research into deeper zones, the Foundation recently began the construction of a new submersible, the LULA1000, capable of diving 1000 metres with a crew of 3.

Its front acrylic viewport has a diameter of 1,40m and provide an excellent view of the sea floor.

LULA 1000 is being built by German Lloyd (GL) in Hamburg/Germany. The pressure hull was recently finished, marking the first and most important step of the project, and it is expected that sea trials will begin at the end of 2010.

As with its predecessor, the LULA 500, it will be used in different scientific projects in the sea area of the Azores, namely: studying deep water coral habitats; documenting habitats and benthic communities up to 1000 metres of depth; acoustic mapping;



research on hydrothermal vents; photo mosaicking and video documentation on sea mounts and; for studying the hunting grounds of sperm whales and large squid.

Kirsten and Joachim Jakobsen  
Rebikoff-Niggeler Foundation - [www.rebikoff.org](http://www.rebikoff.org)

Photos: LULA1000 and her recently finished pressure hull

