

Environmental planning and education program in Cerro Verde, the first Coastal-Marine Protected Area in Uruguay



Final report

March 2009

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This Final Report should be cited as follows:

López-Mendilaharsu M., M. Ríos, L. Alonso & A. Fallabrino. 2009. Environmental planning and education program in Cerro Verde, the first Coastal-Marine Protected Area in Uruguay. Final Report for BP Conservation Programme. 30 pp.

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INTRODUCTION

In February 2000, the Law 17.234 was approved, declaring of general interest the creation of a *Protected Areas National System* (PANS) as an essential tool for the conservation of Biodiversity in Uruguay. This law is regulated by the Decree N°52/2005, approved in February 2005, with the demand of implementing gradually the *National System of Protected Areas* by the National Environmental Agency (DINAMA) supported by PANS Project, DINAMA/UNDP/GEF URU/05/001 - www.snap.gub.uy. Until the date, Uruguay was the only Latin-American country lacking a *National System of Protected Areas*.

The PANS includes experimental experiences which will allow the government to test and adjust politics and management plans for all the Protected Areas (PAs) defined generally in the Strategic Plan, which includes different management models, diverse financial mechanisms, communication and educational strategies.

The experimental experiences are key elements because they contribute at different levels: a) strengthening institutions and capacitating individuals through its own action; b) contributing to the effective implementation of PAs, which are included in the PANS during the period of execution of the Project, or in certain cases, in later periods; c) generating knowledge that will feedback the PANS 's Strategic Plan, as well as replicating successful solutions in other PAs of the country or other parts of the world. In this way, these strategies end up to be highly cost-effective.



Since 1999 many research and conservation groups have been working in Cerro Verde to strengthen the information about the ecological, social and economical relevance of this area. From the studies developed by Karumbé between 2001-2005 (Lopez-Mendilaharsu et al., 2003, 2006) the importance of Cerro Verde as a critical developmental and foraging ground for juvenile green turtles has been clearly established at a national and international level. In 2004, all the information generated, was unified in two theses for the Science College (Universidad de la República, Uruguay), in order to characterize and set the most outstanding facts about the area following the IUCN statements. The results of these studies strengthened and demonstrated the need of protection of this marine ecosystem that comprises a great diversity of fauna and flora in Uruguay. It is worth to note that since the beginning, all the information collected was possible through key local people from nearby towns that have been supporting all the research and conservation activities performed to the date (fishermen, local authorities, artisans, teachers, local military groups, local traders, tourist guides and farmers).

This integrated information enabled the NGO CID/Karumbé to submit a report (www.freplata.org/biodiversidad/documentos/Prop_incorp_CoVerde.pdf) to the DINAMA, according to the Decree N°52/2005 (Law 17.234), asserting the priority of the inclusion of the Cerro Verde area within the *National System of Protected Areas*. The inclusion of Cerro Verde was finally approved, becoming the first Coastal-Marine Protected Area (CMPA) of Uruguay. This zone was indicated due to its biogeographical, ecological, scientific, economical and social relevance, unique landscapes and also because its importance at a national and international level. All these features justified that the area must be included within the PANS.

The Environmental Project for the River Plate and its Maritime Front: Prevention and Control of Pollutants and Restoration of Habitats – FREPLATA (UNDP/GEF RLA/99/G31) through its Biodiversity National Strategy, also has selected Cerro Verde as an experimental experience of their project to be one of the new Marine Protected Areas in Uruguay.

The Uruguayan government, through the Project entitled “Strengthen Capacities for the Implementation of the *National System of Protected Areas (PANS)*”, chose 5 areas as experimental experiences. The 18th of November 2005, Karumbé was invited to be the representative organization to introduce Cerro Verde to the Protected Areas Advisory National Commission.

The PANS Project has proposed the management of the Cerro Verde area, as a co-management between Karumbé and the government, so this will contribute to the sustainability of the PANS as well as to increase links between the conservation of biodiversity and local development.

The most adequate management category approved for Cerro Verde CMPA was “Habitat and/ or species management area”, that establish: 1º. Maintain the habitat in the necessary conditions to protect important species, group of species, biotic communities or physical characteristics of the environment, when certain type of human concrete manipulation is required for an optimum management; 2º. Facilitate scientific research and environmental monitoring as principal activities associated to the sustainable management of resources; 3º. Establish limited areas for educational purposes and for the appreciation of the characteristics of these habitats and the management activities of the wildlife, by the general public; 4º. Exclude and prevent the overexploitation or hostile occupation to the designation purposes; and 5º. Contribute to the local populations that live inside the designated area, with the benefits derived from the different activities that are compatibles with the other management objectives. At the beginning of 2006, the Regulation was effectively approved thus the Cerro Verde has become the first Coastal-Marine Protected Area of Uruguay (CMPA). To implement and develop effectively this CMPA, as mentioned in the Decree N°52/2005, it is necessary to develop a “Management Plan” to guide the conservation actions and sustainable development of the area, promoting the coordination and active participation of all sectors.



On the 22nd of August, 2006, a Public Audience was carried out by the government with the objective of open participative opportunity so that all key actors related to the protected area could give their opinions regarding the creation of CMPA and its implementation. Participants such as locals NGO, governmental institutions, general public from La Coronilla and fishermen from La Coronilla and Punta del Diablo discussed about the implementation of the CMPA. It was noticed that a group of participants from La Coronilla town disagree with the idea of Cerro Verde becoming a protected area. This seems to be natural in this type of process as not everyone’s interests are represented in PA initiatives.

Karumbé participated in a meeting convoked for the 1st of february 2007 by the people from the opposition sector. Fishermen from Punta del Diablo, locals NGO, teachers from La Coronilla School, and local people in general were present. The aim of this meeting was to discuss and analyse the points of the law in which this sector is based to be in desagree, being the most important that the law provides legal instruments to the PANS-DINAMA to decide if they are going or not to ask the visitors of the area to pay an entry fee. Although this is a very important iniciative where people with different perspectives can discuss their ideas, we could observe ineffective communication between the different sectors that were present. Among this meeting anyone highlighted the benefits for the development of tourism derived from the implementation of a protected area such as the value added from transport, hotels, catering services, local crafts, and activities induced by eco-tourism activities. With the aim of attaining a critical consciousness of the benefits, costs and key obstacles in the participatory process Karumbé keeps on working on further activities among the educational strategy.

URUGUAY SE ENCUENTRA TRANSITANDO EL PROCESO DE CREACIÓN DE SU SISTEMA NACIONAL DE ÁREAS PROTEGIDAS (SNAP)

Las áreas protegidas son un pilar fundamental para la conservación y el uso sostenible de la diversidad biológica. Por ello el Gobierno Uruguayo le ha asignado una alta prioridad al proceso de implementación del que, de acuerdo a la Ley 17.234, se propone definir un conjunto de áreas continentales, insulares y marinas, especialmente dedicadas a la protección y el mantenimiento de nuestra biodiversidad y los valores culturales asociados.

Un SNAP es un instrumento que permite conciliar la protección del ambiente con el desarrollo económico y social. Por ello se promoverá, además del cuidado y revalorización del patrimonio natural y cultural del país, su disfrute y aprovechamiento a través de la generación de actividades productivas y de servicios compatibles con la conservación, contribuyendo así a mejorar la calidad de vida de los uruguayos.

El sistema, que se está implementando, promueve la participación de distintos actores sociales a través de ámbitos institucionales creados a tal fin, como la Comisión Nacional Asesora de Áreas Protegidas y las comisiones asesoras específicas con que contará cada área, así como en la gestión de las marinas, promoviendo una distribución justa y equitativa de los beneficios derivados.

Crear un Sistema Nacional de Áreas Protegidas es responsabilidad de todos; para ello necesitamos tu compromiso.

CÓMO LLEGAR

LOCALIZACIÓN

DEPARTAMENTO: Rocha
 LUGAR: Cerro Verde
 RUTA: Nº 9 / Km 314.

ACCESO

Si bien el área Cerro Verde e Islas de la Coronilla no tiene como principal objetivo el uso público se pueden conocer los valores del lugar a través del Proyecto Karumbé que todos los años, en verano, abre el Centro de Tortugas Marinas del Uruguay, en el Barriario La Coronilla, en el km 314 de la Ruta 9. El visitante podrá disfrutar y familiarizarse con el hábitat de las tortugas marinas que habitan esta área, la región y el mundo.

MAPA DEL ÁREA



Sistema Nacional de Áreas Protegidas de Uruguay



CERRO VERDE [ROCHA]

- Cuidados especiales y protección del área
- Características que la hacen disfrutable
- Elementos destacados de la biodiversidad





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Considering the forthcoming creation of the first Coastal-Marine Protected Area (CMPA) we recommended to increase the research, surveys, and monitoring projects -as conservation actions are generally initiated based on research findings- in order to succeed in preserving the biodiversity of the area. These measures would allow developing a management plan according to the reality and needs of the region. The participation of the community at each one of these steps is essential for the implementation and effective development of the CMPA. The management plan will provide a useful tool to outline the conservation and sustainable development actions, promoting the coordination and participation of all the sectors that have interest in the area (GOs, NGOs, community organizations, tourist sector, among others).

This project proposes to elaborate a document based on the technical information as well as in the knowledge of the community; and a technical proposal of zoning and management measures, under a scheme of participation and opinion of all the actors involved to reinforce the management plan.

The conservation of the coast will be only assured when a significant portion of the population acquires an ecological knowledge about the different environments in the area. Regarding to this, an Environmental Education program constitutes an important tool to arise awareness, as it contributes to get a better perception of the environment, leading to a sustainable interrelation among ecosystems and local communities. We consider essential to focus our environmental education activities on the teachers from coastal communities, since their commitment with education and social community reality make them essential agents for the continuous and systematic spreading of knowledge. Children, who are active participants of the educational activities and potential communicators, are main protagonists, generating a collective awareness about environmental issues, their causes and consequences.

Local young and craftsmen in the area proposed to continue the training in environmental issues and in crafts making (Lopez-Mendilaharsu et al., 2006), in order to improve their preparation to manage the ecotourism development that will arise together with the protected area. We consider that train and provide technical assistance to the local community results a priority to involve future conservationists and natural resources administrators with the protected areas.

Uruguay was the last country in Latin America to implement a PANS. Considering the lack of knowledge of Uruguayans on this subject, we consider as a priority to inform and divulge the importance of marine protected areas to preserve, enjoy and maintain the biodiversity and its cultural values. Furthermore, this will contribute to improve the life quality of Uruguayans.

Project Area

Cerro Verde is part of the *Easter Wetlands and Coastal Fringe Biosphere Reserve* established in 1976 and is a RAMSAR site since 1982. This region is located in the Northeastern Atlantic coast of Uruguay, and contains great biodiversity, including many migratory and/or endangered species: sea turtles (*Chelonia mydas*, *Caretta caretta* and *Dermochelys coriacea*), dolphins (*Pontoporia blainvillei* and *Tursiops truncatus*), right whale (*Eubalaena australis*), seals (*Otaria flavescens*, *Arctocephalus australis* and *Mirounga leonina*), migratory sea birds (*Thalasseus maximus*, *T. sandvicensis eurygnatha*, *Sterna hirundo*, *Calidris canutus rufa*, *C. alba*, *Macronectes giganteus* and *M. halli*), sharks (*Sphyrna zygaena* and *S. bigelowi*).

The project was conducted within this Coastal Fringe at the Cerro Verde Islands (33°56' S - 53° 29' W; Figure 1) and adjacent costal waters between the localities of La Coronilla and Punta del Diablo. A great diversity of ecosystems are present in this area, like sandy dunes, hills and sandy beaches interrupted by rocky shore areas. Abundant algae beds occur along rocky bottoms with depths less than 4 m.



Figure 1: Map of the Cerro Verde area, including the limits of the Marine Protected Area.

OBJECTIVE 1.

Elaborate a document about the current situation of conservation and management of natural resources in Cerro Verde and its influence areas, based on the data gathered from technical information and from the community knowledge of the SSIC. Provide management recommendations, reinforcing the collaboration process and generating benefits to the area by establishing the basis to build up the decision of how the resources will be designated and by the consolidation and implementation of the management plan.

Species of special interest in conservation (SSIC)

Management plans are a necessary component for the conservation of protected areas (PAs). In general, a management plan includes the production of technical papers as well as policy guidelines which contribute for the general maintenance, management and development of the area.

Due to the lack of existing knowledge on certain taxa and/or SSIC (CR, EN, VU, DD; IUCN and National Red List) this document will produce the necessary information in order to assess and quantify these species.

In order to strengthen future management plans, brief ecological studies were carried out during 2007 and 2008 in order to develop a report concerning the most sensible areas for the SSIC. We compiled and generated technical information from local knowledge (social, biological information and the use of natural resources).

In June 2007 a technical meeting was held at the the Faculty of Science (Universidad de la Republica Oriental del Uruguay), involving those working in previous studies within the area, mainly concerning biodiversity conservation and research, tourism and fishing. During this meeting the future monitoring activities were coordinated.

Researchers that worked with other species (mammals, amphibians, terrestrial birds, terrestrial reptiles and terrestrial vegetation) as well as the archeologists involved strengthened the value and broadness of information accumulated by the study.

Workshop PANS

At the begining of the study PANS elaborated a preliminar list of vertebrate and vascular plant species of special interest in conservation, including the potential distribution maps for these species in the country. On May 28, 2008 PANS hosted a workshop for the Identification of Species of Special Interest on Conservation in Uruguay, in order to create a definitive list of special interest species. Participants included national specialists on native species as well as organizations and researchers working in Cerro Verde. All species previously elected by this project to be considered for conservation were included on the final list in 2009.

In January 2009 the Biodiversity Director of PANS, Phd Alvaro Soutullo, visited Cerro Verde to attend a meeting with the objective of deciding the most efficient way to proceed with the SSIC reports in order to utilize support and facilitate the elaboration process of the management plan by PANS and as well as by the Specific Advisor Commission of the area.

Reports for PANS

Below are the reports that were prepared by researchers for PANS and its authors:

OnLine in: <http://www.scribd.com/karumbe>

Southern Right Whale. *Eubalaena australis*. Paula Costa; Federico Riet-Sapriza & Jorge G.T.



Fransiscana Dolphin. *Pontoporia blainvillei*.: Carolina Abud, Costa Paula, Dimitriadis Caterina, Franco-Trecu Valentina, Laporta Paula, Passadore Cecilia & Szephegyi María



Bottlenose Dolphin. *Tursiops truncatus*. Paula Laporta



Terns. *Thalasseus Maximus*, *T. sandvicensis eurygnatha*), *Sterna hirundinacea*, *S. Hirundo*. Matilde Alfaro, Javier Lenzi & Sebastian Jiménez



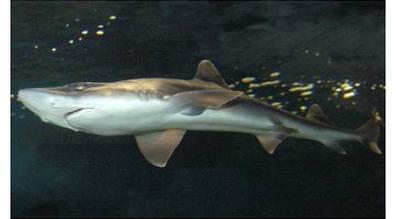
Green turtle. *Chelonia mydas*. Luciana Alonso & Milagros Lopez-Mendilaharsu.



Marine invertebrates. Fabrizio Scarabino & Alvar Carranza.



Sharks. Sphyrna zygaena and S. Bigelowi. Andres Domingo.



Southamerican sea lion. Otaria flavescens. Cecilia Lezama & Diana Szteren.



Amphibians. Cecilia Bardier.



Terrestrial Mammals. Daniel Hernández, Hugo Coitiño, Carla Rivera, María Noel Merentiel, Pablo Manduca, Ana Laura Rodales, José María Bessonart & Silvana González.



Freshwater turtles. Sabrina Clavijo & Andres Estrades.



[Others Birds. Adrian Azpiroz, Natalia Martinez & Alejandro Fallabrino.](#)



[Vegetation. Lucía Bartesaghi, Silvana Masciadri & Mariana Rios.](#)



[Archeology. Camila Gianotti, J.Martín Dabezies & María Cacheda.](#)



Discussion

As aforementioned above (page 5.) the first information highlighting the profound importance for the conservation of the Cerro Verde area was stated in a thesis by Jessica Castro and Maria Jose Andrade (2004), as well as in a report by Mendilaharsu-Lopez (2006) electing to integrate this area into PANS. While these projects have stirred government as well as general interest, there still remained a large information gap concerning the ecological and archaeological values of the area.

These brief ecological studies achieved significant strides in furthering the information of species of special conservation interest as well as on the archaeological values of the area. Each study demonstrated the importance of the area for the different groups of flora and fauna; invertebrates, fish, birds, reptiles, amphibians and mammals both nationally and globally. This was ratified at the Workshop on Identification of Priority Species for Conservation in Uruguay by PANS and integrated into the list of priority species for conservation identified in Cerro Verde and the surrounding area.

At the end of 2008 PANS hired a facilitator to coordinate meetings with local stakeholders, to commence the implementation of the protected area and to instigate the formation of an advisory committee.

The guidelines of the planning process is sustainability in all dimensions of the project: environmental, social, economic, political, administrative and technical.

OBJECTIVE 2.

Provide training to school teachers on the main characteristics of the Uruguayan coastal-marine ecosystem, including its living and non living components, as well as its conservation and the sustainable use of its natural resources. It is also intended to provide information about environmental education techniques and practical activities, as useful tools to stimulate children involvement.

Authors: E. Castiñeira, C. Fagúndez, F. García, P. Laporta, M. Nin, C. Passadore, M. Ríos, M. Szephegyi y M. Trimble.

In 2006, members of two NGO's (Averaves and Karumbé) and the research and conservation group, Cetáceos Uruguay, created the ARENAS Project: "Environmental Education on Coastal Ecosystems". From this framework a proposal was created: "Uruguayan Coastal Ecosystems: a proposal for school teachers", which was supported by the Faculty of Sciences Council (Resolution Nº 74 from /03/07: "Exp. Nº 240300-002006-06 Att. 240300-000130-07) and sponsored by four international organizations: Yaqu-pacha, SeaWorld & Busch Gardens Conservation Fund, Columbus ZOO and BP Conservation Leadership Programme.



The main purpose of this project was to contribute to the construction of responsible citizens, to immerse itself in the community, promote an identity and sense of belonging regarding the coastal environment which the citizens inhabit, and stimulate a positive attitude in relation to conservation. In order to reach this objective the first necessity is knowledge, and for this reason ARENAS specifically focused its work on school teachers, who have the capacity to spread this knowledge among their students.



The work topics selected were: general features of Uruguayan coastal ecosystems, biotic and abiotic components, biodiversity, interaction between the different components and the interaction between the coastal ecosystems and human beings. The mode of work for these topics were divided basically in to two parts: workshops with school teachers and a book containing interesting information concerning the above mentioned topics as well as field activities to develop with the students. The book aimed to help teachers to work on environmental education activities in class, giving practical examples of different possibilities, but mainly encouraging them to develop their own activities, supported by the actualized information provided.

During 2007 the Project began working with school teachers from the whole Uruguayan coast, including Colonia, San Jose, Montevideo, Canelones, Maldonado and Rocha. The first step was a workshop (repeated four times in different locations) where ideas of the Project were introduced, followed by several field activities carried out jointly with the workshop participants. Ultimately, all

the activities were presented in a final workshop where all participants shared a weekend of trials, experiences, results and perspectives.

Presented below is a detailed description of the activities carried out until December, 2007.

April 2006 –2007: Elaboration of the Draft Version of the educational manual. This draft is divided into four thematic modules:

- 1- Physical features of the Uruguayan coastal ecosystems
- 2- Biodiversity of the Uruguayan coastal ecosystems
- 3- Ecological interactions
- 4- Interactions between society and coast

Each of these modules contained practical activities related to the topic as well as some inclusion in the school programs.



May –July 2007: Organization and Development of the four workshops, which were carried out at:

- Faculty of Sciences (Montevideo), attended by school teachers from Montevideo and Canelones departments.
- Casa de la Cultura de Colonia attended by school teachers from Colonia and San Jose departments.
- Yacht Club Punta del Este, attended by school teachers from Maldonado department, and
- Centro Cultural de La Paloma, attended by school teachers from Rocha department.

In these workshops the ARENAS Project was introduced and several activities were proposed and carried out, following the main concepts of Schoolyard Ecology for Elementary School Children (Arango et al. 2002¹). This line of ecological education was developed by Peter Feinsinger and his work team, and focuses on the development of ecological research by using a hands-on approach to problem solving and data analysis by school students. It also stresses the importance of translating knowledge in ways that can be appreciated and understood by young children and the general public alike.



During this first meeting, teachers were encouraged to develop an activity (Follow up activities) regarding the local coast. The process involved the creation of a research question (social, natural or cultural) by the teacher and the students. The solution to the question was discovered by working in the field without expensive equipment. Staff from the Project were available for support and guidance during this time.

Finally, the draft version of the educational manual was distributed to the students for analysis and criticism, to stimulate new ideas, to test activities and to propose new ones.

In total, 63 school teachers attended to these four primary workshops.

August – November 2007: This intermediate stage was occupied by the Follow up activities. Each teacher proposed (jointly with the students) an activity regarding their local environment.

In this framework, we visited rural, urban, full-time, vacation and special schools, working with children from 4 to 16 years old. Interestingly, we also worked with teachers who did not participate in the preliminary workshops but who had heard about the Project and activities through teachers who had attended the workshop.



In total, ARENAS visited 33 schools along the coast and shared this experience with 65 teachers and more than 1300 children.

November 2007: This third and last stage involved a final workshop where teachers, from the six departments involved presented the developed activities regarding the coast. These activities were analysed and constructively criticized by all present. Opinions regarding the Draft manual were also shared in an agreeable manner. This

final workshop was carried out in Piriápolis during the weekend of the 24th and 25th of November) where apart from the aforementioned activities lectures were given by Carlos Surroca about the current role of environmental education.

During this last meeting we disseminated whether or not the proposed activities were successful. Fortunately all of the teachers involved gave positive feedback and agreed that the Project was an effective and important educational tool.

In total, 50 people were present, 39 being teachers and the rest ARENAS members and many others from Averaves, Karumbé, Cetáceos Uruguay and Caubá. Attached are some pictures which illustrated the positive experience of last meeting.

During 2008 the educational manual was enriched by the addition of the proposals and suggestions made by teachers and researchers involved in the Project. The final version is currently being drafted and is expected to be finish by April 2009.



Nuestro país, junto con Brasil, Argentina, Paraguay y Bolivia, forma parte de la Cuenca del Plata. Con una superficie de 3.200.000 km², la cuenca del Río de la Plata es la segunda más grande de

Antes de comenzar, es importante situarnos espacialmente. La República Oriental del Uruguay está ubicada al SE de América del Sur, limitando con Argentina al Oeste y Suroriente y con Brasil al Norte y Noroeste (Figura 1). Si bien nuestra superficie terrestre es de tan sólo 175.045 km², contamos con una gran superficie marítima: 398.707 km². Hacia el Suroriente se encuentran las aguas del Río de la Plata y hacia el Suroriente del Océano Atlántico. Además, tierra adentro, Uruguay posee una compleja e intrincada red fluvial (con más de 1.000 km de vías acuáticas navegables), por lo que cuenta con importantes recursos hídricos. La pluviosidad media anual es de unos 1.300 mm/año, y parte de esta se infiltra y pasa a formar parte de una enorme reserva de agua dulce subterránea. Esta abundancia hídrica es una gran fuente de vida.

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Cuenca: unidades espaciales naturales

Una cuenca hidrográfica es una superficie de territorio con un sistema de drenaje natural. Se encuentra limitada por las zonas más altas, denominadas divisorias de aguas, desde donde el agua de lluvia escurre hacia zonas bajas, alimentando cursos de agua como cañadas, arroyos, ríos, lagunas y océanos (Figura 4).

Por las características que la definen geográficamente, y por la cantidad del ciclo hidrológico que ocurre dentro de ella, cada cuenca hidrográfica constituye una unidad espacial definida en la naturaleza. Además, la unidad de la cuenca puede manifestarse en los fenómenos, que todos los componentes de una cuenca interactúan conformando un gran sistema, de modo que cualquier efecto en un punto de la cuenca podrá afectar a los componentes del sistema que se encuentre "aguas abajo".

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Diffusion activities

- We elaborated on a thematic box for the Uruguayan GEO Report adding information about coastal environmental education. GEO is developed by CLAES and coordinated by PNUMA and the National Directorate of Environment (DINAMA).
- We presented our activities on the local Rocha Channel (Nº2), while we were working with the schools of Santa Teresa and Aguas Dulces at the beach.
- Preliminary results of ARENAS during 2007 were presented to the Faculty of Sciences in December 2007.
- ARENAS took part in the National Symposium of Environmental Education and the XIII Latin-American working group for Marine Mammals (RT-SOLAMAC)

Perspectives

Even though it was not part of this CLP project, we are preparing to hand out the education manual to all of the coastal schools in the country as well as undertake further workshops. The basis of these workshops would be to relay the experiences of teachers who used the education manual or performed field trip activities, with those that did not have the chance. Furthermore, we plan to work on more techniques to “connect people with the environment”.



OBJECTIVE 3.

Involve, train and provide technical assistance to local community about the use, protection and value of ecological tourism of the CMPA "Cerro Verde". Reinforce the work of the future guides and craftsmen by developing new designs and products to sell in the national market but as well as being sensitive to maintain the traditional background.

Authors: Luciana Alonso and Cecilia Fabbiani

Participants: Antonia Bauza, Fabrizio Scarabino, Mariana Nin, Rodrigo Forselledo, Martin Abreu, Cecilia Lezama, Cecilia Bardier, Jose Bentancourt, Sandro Rodriguez, Orlando Olivera, Roberto Rodriguez, Eduardo Vignola, Daniel San,

Since 2001, Karumbé, has been actively working on its Environmental Education Program in the localities of La Coronilla and Punta del Diablo (López-Mendilaharsu et al., 2003 & 2006). The long-term duration of the program, made it possible to comense work with the local youth and craftsmen, during 2004 and 2005. They suggested the continuation of training in environmental issues and craft production, in order to improve their skills for the growing ecotourism generated by the establishment of the protected area (Lopez-Mendilaharsu et al., 2006).

Nowadays, few environmental activities are carried out in the area, thus it is important to generate new experiences and direct benefits for the local people. Training local guides and craftsmen represents an alternative to involve future conservationists and natural resources administrators with the protected areas.

It is hoped to highlight the biodiversity and cultural value of the coastal towns next to the CMPA "Cerro Verde" by the incorporation of visual and didactic elements.

During the activities performed in Punta del Diablo, the craftsmen who participated in the training courses solicited Karumbé for the construction of a public mural map.

Training courses for future local guides

Interactive courses for future local guides were held at the facilities of the Secondary School of La Coronilla between March and October, 2008. Researchers from different organizations and institutions, currently working in the area, were in charge of running the courses. Modules included information on the local biodiversity, flora and fauna, history, geography and inherent value of natural resources for ecotourism development. A total of 50 students, between 15 and 18 years old, participated in the courses.



The courses consisted of 6 thematic modules:

1. Marine invertebrates

In this module, topics such as marine invertebrate biodiversity, their function in healthy marine ecosystems as well as information about the fossil outcrops in the area and their relevance for ecotourism development were presented.

2. Sharks and rays

In the second module of the course, the species that inhabit the area were introduced as well as their critical conservation status. Also, the important historical relationship of the former artisanal fishermen community that lived in Pesquero near La Coronilla as well as the fishing resource was discussed.

3. Amphibians

The aim of this module was to outline the high biodiversity of frog and toad species which occur in the area. Touching on the conservation status of this group and the relevance of Cerro Verde landscapes as critical ecosystems for the conservation of diverse species.

4. Sea turtles

During this module, the ecology, behavior patterns, origin and conservation status of the green turtle was explained. The relevance of the Cerro Verde area, which is considered the most important foraging and developmental ground in the country for juvenile green turtles was discussed. Finally, we highlighted the important habitat characteristics of Cerro Verde which make it one of the best sites in Uruguay for turtles sighting.

5. Birds

The association of bird species and the different habitats of Cerro Verde were presented. The best locations for bird watching were described, and the relevance of La Coronilla Island as a unique site along the Uruguayan coast for Tern nesting was introduced.

6. Sea lions and elephant seals

The historical exploitation of the sea lion breeding colonies of La Coronilla Islands, as well as its impact in the actual conservation status of this species was explained. Also, the recent findings concerning the presence of elephant seals in the island complex was introduced.

7. Coastal-Marine Ecosystem

The different landscapes of "Cerro Verde" CMPA were presented. Furthermore, this course integrated the main concepts presented above with the abiotic characteristics of the Cerro Verde habitat. The relevance of the flora and fauna species as unique components of healthy ecosystems was discussed with the participants.

Audio-visual materials, videos and slides, were presented. Digital copies and folders containing the printed presentations and other instructive materials were distributed among the participants and authorities of the Secondary School of La Coronilla. Copies of the following material were donated to the Library of the educational institution:

- "National Action Plan for the Conservation of chondriacts in Uruguayan Fisheries" (National Agency of Aquatic Resources – DINARA)
- National Action Plan for the Reduction of Birds Incidental Capture in Uruguayan Fisheries (DINARA)
- "Atlántico Sur" Bolletin (Numbers 1, 2, 3 and 4) – Albatross and Petreles Project

- Boschi, E. E. & Cousseau, M. B. (Eds.). 2004. Life between tides. Special publications INIDEP, Mar del Plata, 383 pp.

At the end of the course the students were invited to participate in the guided tours to the Cerro Verde area scheduled for the 2009's summer season with the tourists visiting localities of La Coronilla and Punta del Diablo.

The students that participated in the courses showed a high interest and curiosity in the different topics proposed. Through the audio-visuals and information imparted they realized the high biodiversity of the area and the relevance of this critical landscape for the reproduction and development of several endangered species. Furthermore, conservation of Cerro Verde's biodiversity and the ecotourism development was highlighted as a potential source of sustainable economic resources.

Craftsmen training courses

In May 2007, all the local craftsmen from the locality of Punta del Diablo interested in taking courses on the creation of crafts allusive to the area were brought together. The course started in July and finished in November 2007; and were focused on the design of handcrafts representing the biodiversity of the CMPA "Cerro Verde".

Informative talks focused on the flagship species of the area were given to the craftsmen by Karumbé technicians. These talks increased their knowledge about the biodiversity of the area and enabled them to have an informative background for their crafts. Yanina Borloz, a teacher from the Industrial Design School of Montevideo and craftswoman specialized in silverwork, instructed the participants on different craft techniques utilizing traditional materials of the area.

During the craftsmen training course, the participants showed great enthusiasm for the new techniques learned and were more than willing to start using them in their crafts. Furthermore, they realized that the acquired skills and the novel biodiversity designs improved and added value to their handcrafts and at the same time supported conservation efforts.

Mural Map Construction

The Mural Map was constructed near the stream that flows into the sea next to the touristic beach of La Viuda, in Punta del Diablo. A group of eight locals participated in the construction of the mural. The team was composed by two craftsmen, five workmen and one local artist, all of them, lived in close proximity to the area. During June 2008 we had a meeting in order to decide the design, the contents, and the materials that were going to be used in the work. Each month we convened to work in the afternoon for one week after the local team members had finished their daily personal duties.



The mural was divided in 5 panels representing the most important points of the coast adjacent to the CMPA "Cerro Verde". The sites were chosen considering their cultural and/or ecological value. A drawing of the coastal line and the names of the highlighted places were included below each panel.

The construction process started in July comensing with a clean-up of the area where the mural was going to be located. The materials used in the production of the panels included some of the trash collected (e.g. broken bottles and glass, corroded iron, rubble, etc.) as well as wood, paintings, rocks, carved woods, concrete, marine snail shells, etc. The mural was finished in October 2008, when the panels were installed with the help of local people.

The Mural Map included:

1. The locality of Barra del Chuy, represented by the image of its famous lighthouse.
2. One of the most representative symbols of the locality of La Coronilla was included in the second panel "the hanging bridge", together with the "Butiá" Palm trees (native to the area), sea turtles, whales and birds as symbols of the biodiversity of the area.
3. The CMPA "Cerro Verde" was characterized in the third panel, including a sea turtle, one of the areas most representative flagship species.
4. The Santa Teresa Fortress, a historical monument, was used to represent the Santa Teresa Tourist Park.
5. The locality of Punta del Diablo, well known as an artisanal fishermen town, was represented in the last panel with two symbols of the local culture: an image of its typical fishing vessel and a fish.



The construction of the Mural Map was an interesting and enriching process, where all of the team members, as well as Karumbé technicians, learned new techniques and exchanged their experiences. The mural received wide acceptance between the local craftsmen commission, the N.G.O. "Todos por Punta del Diablo" and locals of the area.

Museums

Secondary School of La Coronilla

During the training courses held at the Secondary School of La Coronilla the headmaster and the two Biology teachers informed Karumbé of their concern about the absence of a zoological collection in their laboratory. In reply to their request, Karumbé donated material of marine invertebrates, and set up a mini-museum of sea turtles. The material included carapaces, skulls, ribs, diet items, plastics found in the stomach contents of stranded animals and posters with information about the ecology of sea turtles.



Museum of Punta del Diablo "Casa del Mar"

During the activities developed in Punta del Diablo, Karumbé visited the little Museum "Casa del Mar". We noticed that their collection had several bones, carapaces and skulls of sea turtles, but they were not identified and no information about sea turtles was available. During October 2008, in

collaboration with the women in charge of the collection, Karumbé installed posters containing information about exhibited material along with instructions on how to proceed when finding a stranded turtle.

Conclusions

The involvement of young local people and craftsmen with ecological and conservation issues provided an opportunity to further their own socio-economic benefit as well as contributing to conservation efforts. We believe that the results were very positive, improving their preparation for the development of ecotourism that will arise with the protected area.

- ✓ 50 qualified young local guides
- ✓ 8 students interested in participating in Karumbé's research and conservation activities during the 2009 summer season
- ✓ Interest from the Secondary School of La Coronilla to develop long-term activities with Karumbé
- ✓ Quality improvement of the craftsmen's products

OBJECTIVE 4.

Develop a visitor's center to divulge information about the CMPA "Cerro Verde" and its importance for the country and the region. This will be implemented by local guides and will create an educational and popularization program for the people by relaying information pertaining to conservation, respect and responsible use of the protected areas in Uruguay.

Summer Exposition: Flagship Species for Conservation Cerro verde

These activities were held in the coastal villages surrounding the protected area.

January 2008 - Punta del Diablo and La Coronilla
February 2008 - Santa Teresa and Punta del Diablo

Activities: Songs and games on the beach with children; Release of a green turtle with over 500 tourists and local residents



Easter turtles

March 2008 -La Coronilla

Activities: Songs and games involving humans, turtles and the marine-coastal environment, closing the season for both the commercial and social activities of the area; 35 children from La Coronilla participated; Delivery of Easter eggs donated by a local beach restaurant .

Carnival

In La Coronilla, from February 2008 to 2009, Karumbé worked on the "Sounds of the Sea" proposal that intergrated more than 50 children from La Coronilla community. The activity consisted of creating animal costumes for the participation in the 2006 Carnival in La Coronilla. The activity was divided into three stages; first, we generated the interest and motivation of the children for their subsequent participation, secondly, with the help of the volunteers the costumes were designed and produced, thirdly the participation of the volunteers and children in the carnival.



Fieldwork

On April 4, 2008 we began fieldwork with the local students. This project was undertaken with the objective of having the students come into direct contact with the Cerro Verde coastal ecosystem; familiarizing them with local biodiversity as well as teaching observational skills and discussing the main physical and biological processes of the coastal dune-beach system



The work was directed by a Karumbe technician and volunteer. Eight students participated in the field studies, accompanied by a 5th Year biology teacher. The fieldwork began at the Center for Marine Turtles (Karumbe) with the introduction of a juvenile green turtle in rehabilitation, accompanied by the data collection process and an explanation of the life history of the green turtle. The group moved on foot to Cerro Verde, stopping at La Coronilla point where the coastal ecosystem was observed and discussed. The fieldwork lasted a total of three hours.

Activities:

Observation of the coastal ecosystem "coastal beach-dune"

Biodiversity of invertebrates on sandy beaches

Biodiversity-invertebrates in rocky beaches

Biodiversity-shorebirds

Training in techniques of handling juvenile green turtles

Turtle capture techniques, how to take biometric data, and properly tag a turtle.

Training in abiotic data collection

Geographic positioning (using GPS)

Determination of salinity (using a salinometer)

5th "Saving the Sea Turtle" Festival: The Turtle's Race for Survival

Cerro Verde and La Coronilla Islands have been identified as one of the most important foraging and developmental grounds for the juvenile green turtle, *Chelonia mydas*, in the Atlantic coast of Uruguay (López-Mendilaharsu *et al.* 2006). As a result of continuous research and conservation efforts on the part of Karumbé, these areas have recently been declared the first Coastal Marine Protected Area, or CMPA, in Uruguay (Laporta *et al.* 2006). Since 2001, Karumbé has been developing an Environmental Education Program in the region which includes the "Save the Sea Turtle" festival (Bauzá *et al.* 2004). This event takes place annually at La Coronilla (Rocha, Uruguay) near the CMPA Cerro Verde.



The 5th year of the "Save the Sea Turtle" festival was held from 11-16 March 2008, with the theme of "*Turtle's Race for Survival*". The festival activities introduced the children of the community to the life cycle of sea turtles and the biggest threats they face at a global scale.

A primary goal of the festival was to show children how important Uruguay is as a juvenile foraging and developmental ground and how negative impacts occurring at this stage may affect the populations worldwide. During the school week, activities with more than 500 children were carried at the primary and secondary schools in town. At the secondary schools, workshops were held for all the classes concerning sea turtle biology, coastal-marine ecology, natural and manmade threats to the sea turtles, and research activities undertaken by Karumbé. At the primary school, these workshops took the form of interactive theater. Karumbé volunteers disguised themselves as the 5 different species of sea turtles reported in Uruguayan waters and acted out the main threats to the sea turtles in Uruguay, including incidental capture and ingestion of plastic. We also played the "Great Turtles Race" game, which focuses on the sea turtle life cycle and is a way to focus attention on sea turtles and their conservation.



A unique activity in the 2008 Festival was the "1st Sea Turtle Olympic Games". For this event, children were divided into four teams and competed in different events. Events varied from collecting recyclables to track and field sporting events with an ocean and turtle theme. During the recyclable collection event, participants (with the help of friends and family) rounded up more than 1650 plastic bottles from all over town. Following the week of activities, the Karumbé team showed the children and the community how these bottles could be recycled in a meaningful way by incorporating them into the construction of a green house at the primary school.

On the last day of the festival, our volunteers dressed themselves as sea turtles and engaged in the "Treasure Hunt." This activity involved pairing children with the turtle actors as they moved through different locations in the village and encountered threats to survival, which the children were encouraged to identify and manage successfully. The different solutions included cleaning the beach of trash, saving the turtles' eggs, teaching the turtle to find Uruguay and other important areas on a world map and helping a fisherman to resuscitate and release a sea turtle accidentally captured in his net. At the end the day-long string of clues, the children finally found the treasure: a live sea turtle that had been rehabilitated by Karumbé and was ready to be released to the sea by the children. On the last night of the festival week, Karumbé staff and volunteers organized a party for the participating children. Gifts and prizes donated from local shops were awarded for participation.



Exhibition "Cerro Verde in Movement - CMV"

An exhibition titled "Cerro Verde in Movement - CMV" was created in order to inform the general public about protected areas and the importance of PANS in Uruguay. It includes 14 panels designed to exhibit information on the biodiversity, ecosystem, paleontology, archeology, history and culture of Cerro Verde. Also an original exhibition, alluding to the charimastic species of the area, will be displayed using natural and synthetic materials. Finally, a documentary film of the area will be shown using an audio-visual system.

In response to the request of the local governments for schools and school students to be exposed to these concepts, the exhibition will be undertaken from summer to autumn, 2009. The CVMP exhibition will be assembled during various local events at different locations throughout the country (Artigas, Montevideo, Rivera, Rocha, Treinta y Tres and Paysandu).

The fact of generating a moving visitor`s center that will travel around the country, exhibiting information on the CMPA "Cerro Verde", will promote the local potential development based on the ecotourism and the conservation of nature. Moreover, this center will sensitize the Uruguayan population about the value of protected areas and marine-coastal natural resources, which nowadays is much unknown for populations far from the sea.



Conclusions

Each year we successfully increase awareness among young people in Uruguay about the problems facing sea turtles and the coastal-marine ecosystems they inhabit, thereby transforming today's youth into tomorrow's citizen guardians of their own natural resources. Each time we hold this festival, we hope that we have increased the level of amusement and entertainment of the participants, while maintaining its educational components.

NATIONAL AND INTERNATIONAL PRESENTATIONS

Mass media

One of the objectives of this project, proposed as one of our principal goal was to implement a massive information campaign, with emphasis on local communities and tourist that make use of the area.

Radio - FM Coronilla 102.3, AM Chuy 1440, AM El Espectador 810, Radio Carve 850am.

Television – Channel 4, 5, 10, 12 and VTV.

Newspaper and Magazine – Diario El Este, Diario El Pais, Busqueda, El Observador, Pinar Press.

Meetings & Symposiums + Publicactions

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- C. Bardier, A. Fallabrino y R. Maneyro.2008. Diversidad de anfibios anuros (Amphibia: anura) de la localidad de Cerro Verde (Rocha, Uruguay) (póster);; IX Jornadas de Zoología del Uruguay.

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- VI Taller Para la Coordinación de la Investigación y Conservación de la Franciscana, (*Pontoporia blainvillei*), en el Atlántico Sudoccidental", realizado el 17 de octubre 2008 en el marco XIII South American Meeting of Specialist in Aquatic Mammals – 7th SOLAMAC Conference: Status Of Aquatic Mammals In LatinoAmerica, Montevideo, Uruguay.

Capacitation

Mariana Rios and Alejandro Fallabrino took part of TNC´s "Conservation Action Plan (CAP) " training course, organized by PANS project and Spanish cooperation: Spanish Agency of international cooperation (AECID), from the 17th to the 21st of November 2008.



CONCLUSIONS

In 2001 Karumbe began working on the Uruguayan coast with the support of the BP Conservation Program. By identifying areas of importance for marine turtles in 2004 we were able to follow up in 2007 with the support of BP. This research strengthen the protection and consolidation of the Cerro Verde area.

This work was undertaken to conserve natural resources not only in Uruguay but in the world. The implementation of the MPA it is not an end in itself, but is the beginning of many responsibilities of all of the involved key actors on its management and conservation. Despite the fact that the hole process has been succesful, its continuation depends on the continuous monitoring of the area as well as the strengthening of our work. The way ahead will be hard, but the learned experience of Cerro Verde, is an important background and reference for the creation of new MPAs in Uruguay enabling them to be more efficient.

Another important point to highlight is the good teamwork developed in this project, where many researchers, conservasionits and NGOs were involved with the aim of protecting this critical area with its ecological, cultural and biodiversity values.

ACKNOWLEDGMENTS



We are grateful to Marianne Dunn and Robyn Dalzen for their friendship and invaluable help in all this years. Thanks for taking their time to visits Cerro Verde area and for always appreciate our work.

This work would not have been possible without the collaboration of many Karumbé members, Carlos Romero (Fisherman), Paula Laporta (Dolphin Project), NGO Averaves, NGO Cetaceos Uruguay, Project Albatros y Petreles, Sr. Tinaglinni (Intendencia Municipal de Rocha), La Coronilla's Secondary School and its headmasters Dorley Nicobdella, the local community of Punta del Diablo all the school teacher that took part in the objective 2 and all the volunteers.

Álvaro Soutullo, Guillermo Scarlato, Laura Garcia, Soledad Avila, Laura Modernell, Erika Hoffman, members of the PANS.

We also would like to thank the PANS, DINARA, Dirección de Fauna (RENARE), SEPAE, Sra. Paola Ferrari and Comision de Turismo de La Coronilla, local "Junta" of La Coronilla and Local Comunitie Punta del Diablo for their invaluable support.

FINACIAL REPORT

Items	BP Conservation funds 2007-2009	Others Sources 2007-2009	Total
Equipments	6000	10000	16000
Education materials	900	2500	3400
Travel Expenses	6000	3000	9000
Accommodation and subsistence	18760	8000	26760
Workshops and Manual	15100	7000	22100
Salaries	0	9000	9000
Administration and communication	2900	2000	4900
Total	49660	41500	91160

Others sources: NGO Karumbe, NGO Averaves, NGO, Cetaceos Uruguay, Pedeciba, Rufford, Yaqu-pacha, SeaWorld & Busch Gardens Conservation Fund and Columbus ZOO .

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