

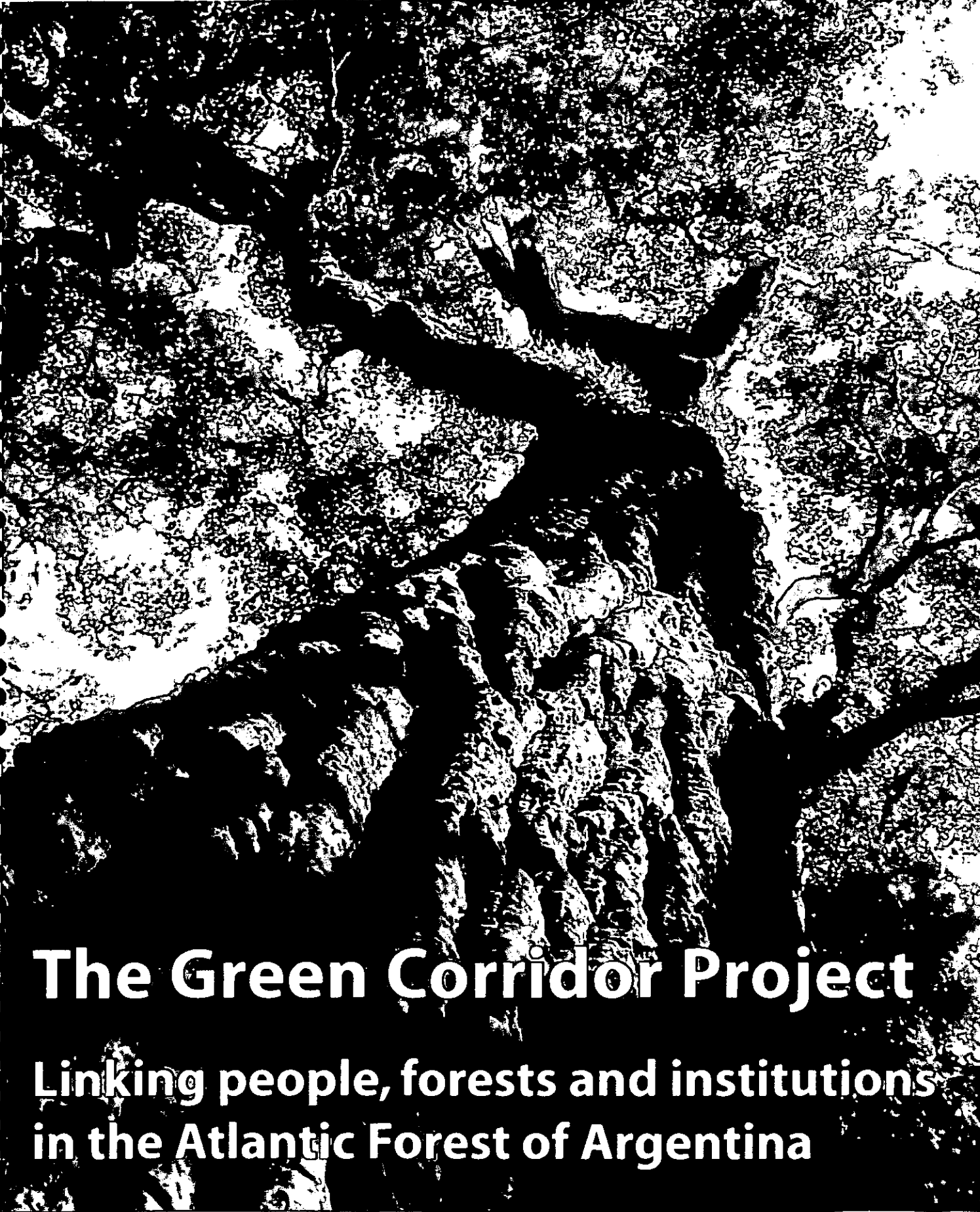


CONSERVACION  
ARGENTINA

the bp conservation programme



**Final Report 2005**  
follow up award



# The Green Corridor Project

Linking people, forests and institutions  
in the Atlantic Forest of Argentina

**This project is supported by:**



bp conservation programme  
gold award 2002 & follow up award 2004



Ministerio de Ecología  
Recursos Naturales  
Renovables y Turismo  
de la Provincia de Misiones



CONSERVACION  
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San Sebastián de la **Selva**  
ECOTURISMO ANDRESITO



*Conservación Argentina is a non-governmental organization.*

*Our mission is to develop integrated conservation programmes, seeking solutions that are simple and sustainable, based on sound science, education and participation; taking into account the social needs and cultural diversity of the local communities.*

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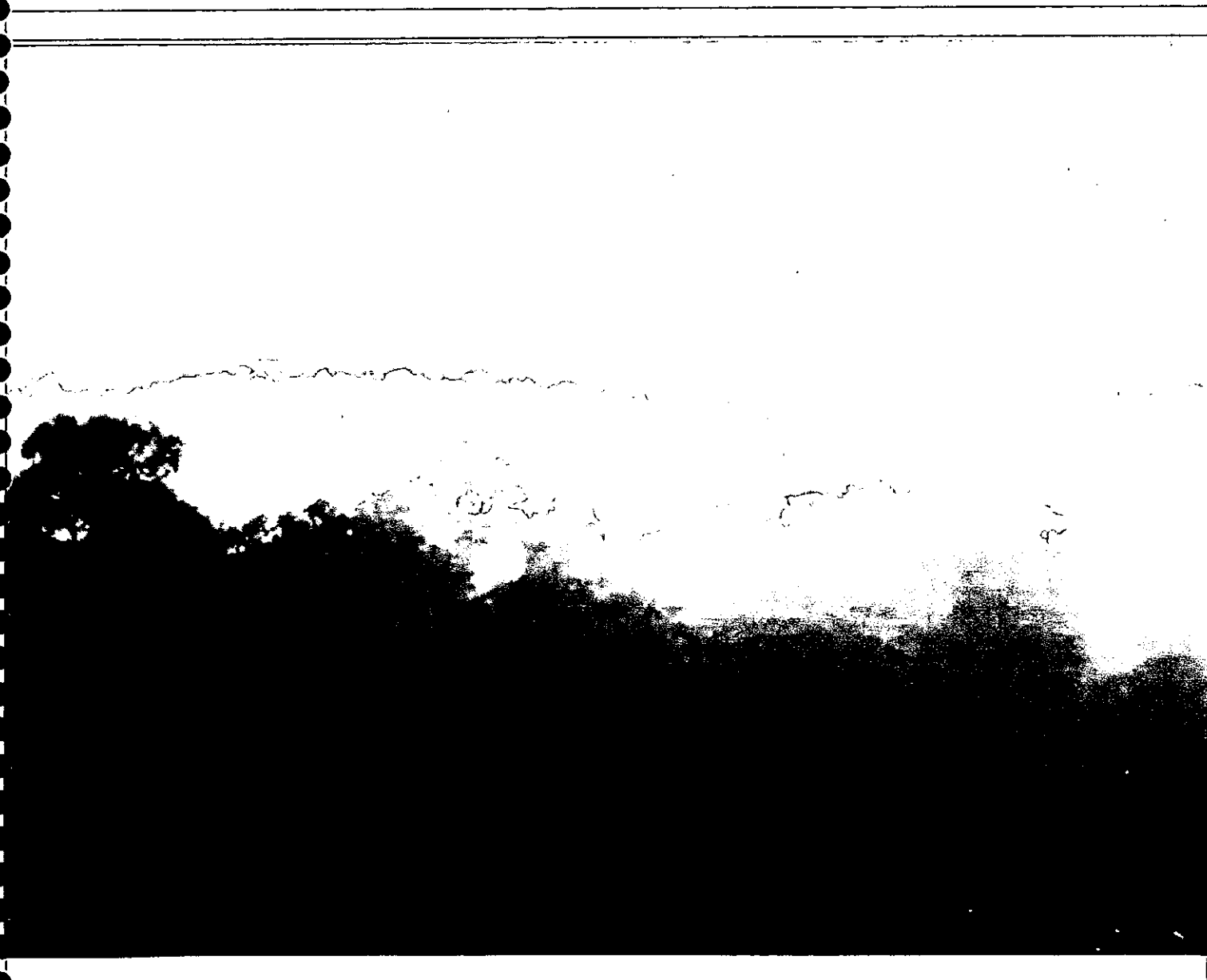
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about  
our forest



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# about our forest

## **ATLANTIC FOREST CONSERVATION**

The Atlantic Forest eco-region extends through Brazil, Paraguay and Argentina. Historically, it occupied 1 million square kilometres, but today it remains only as isolated patches totalling less than five per cent of its original size. Forest depletion and degradation has caused the loss of 93% of the Atlantic Forest in Brazil, 88% in Paraguay and 56% in Argentina; and it occurs mostly as isolated remnants scattered throughout a landscape dominated by agricultural uses (Galindo-Leal and Camara 2003).





The Atlantic Forest eco-region ranks among the top five of the «hottest» hotspots (Mittermeier *et al.* 1998, Myers *et al.* 2000); it is also one of the most threatened tropical ecosystems in South America. The levels of taxa diversity found in this eco-region are comparable to other tropical forests, and it counts with several important centres of endemism (Statterfield *et al.* 1998, Long 1996). Given its outstanding biological value and critical state of conservation, the Atlantic Forest is considered of high conservation priority at a regional and global scale (ICBP 1992, BSP *et al.* 1995, Dinerstein *et al.* 1995, Olson and Dinerstein 1997).

## MISIONES FOREST

The main part of inland southern Brazil, north-eastern Argentina and eastern Paraguay was once covered by Upper Parana Atlantic Forest. Nowadays, the major and best-preserved tracts are located in Misiones (Galindo-Leal and Camara 2003), Argentina, which is home to threatened species such as the rosewood tree, red howler monkey, dwarf brocket deer, tapir, bush dog, and the Brazilian merganser. The so called «Misiones or Paraná Forest» is composed by semi-deciduous forests located in these three countries. Misiones province alone currently contains more than 1 million hectares of continuous forest, contrasting with neighbouring deforested areas in Brazil and Paraguay. Given its high biological diversity and the large forest remnants inside and outside protected areas, this region appears as one of the greatest opportunities for the long term conservation of the Atlantic Forest. The Misiones Forest contains the greatest biodiversity in Argentina (Bertonatti and Corcuera 2000). Up to date, 420 birds (Chebez 1996, Saibene *et al.* 1996, Chebez *et al.* 1998) and 70 mammals (Chebez 1996, Heinonen Fortabat and Chebez 1997) have been registered, mostly within Iguazú National Park and Urugua-í Provincial Park.

## THE CORRIDOR APPROACH TO CONSERVATION

The corridor approach to biodiversity conservation seeks to provide a practical and effective solution to the difficulty of maintaining biodiversity and large-scale ecological processes. Existing protected areas are often too small and isolated to maintain viable ecosystems and processes. In such circumstances, conservation efforts must focus on linking major sites across wide geographic areas. Such networks of protected areas and landscape management systems are called biodiversity corridors (Bennett 1999). The main function of these corridors is to connect biodiversity areas through a mosaic of sustainable land uses, increasing mobility and genetic exchange among individuals, even in the absence of large extensions of continuous natural habitat (Forman 1995). In this context, small habitat fragments within corridors perform several related functions, connecting or reconnecting larger areas, maintaining heterogeneity in the habitat matrix, and providing refuge for species that require the unique environments present in these fragments.

Large-scale intervention through biodiversity corridors, eco-regional planning, and landscape conservation is one of the highest conservation priorities at the regional level in many of the world's hotspots and wilderness areas. Local community involvement is necessary for the consolidation and protection of an ecological corridor, and its participation would improve new ways in ecological management.

## BACKGROUND

During the last 10 years, IPÊ (Instituto de Pesquisas Ecologicas, Brazil) has been implementing a conservation project and sustainable use of non-timber products of forest remnant in the Pontal do Paranapanema in Sao Paulo State. IPÊ project works with local communities surrounding Morro Diabo State Park in restoring a wildlife corridor in the Interior Atlantic Forest of Brazil (Cullen *et al.* 2001, Padua *et al.* 2002). The lessons learned of this programme are incorporated in our project.



## IDENTIFIED PROBLEMS

Changes towards agricultural development, exotic forestry monocultures, hydroelectric projects, and extensive livestock are putting pressure on the long term viability of forest remnants in this eco-region. Ecosystem integrity is currently threatened by this problem in Urugua-í watershed, involving several key protected areas of the tri-national ecological corridor. Forecasts arising from population genetics, metapopulation dynamics and Island Biogeography theory (Meffe and Carroll 1997) suggest that in the long term, small and isolated populations will have low survival probability; under this scenario, it is of main importance to implement a conservation policy based on a sustainable and regional approach.

Research and monitoring of Atlantic Forest's endangered or endemic species is crucial to determine the current status of many of these species and for the design of proper conservation programs. However, after our experience in the Urugua-í Green Corridor Project, we believe that long term conservation of the Atlantic Forest strongly depends on local communities actively participating in conservation.

## PROJECT GEOGRAPHICAL LOCATION

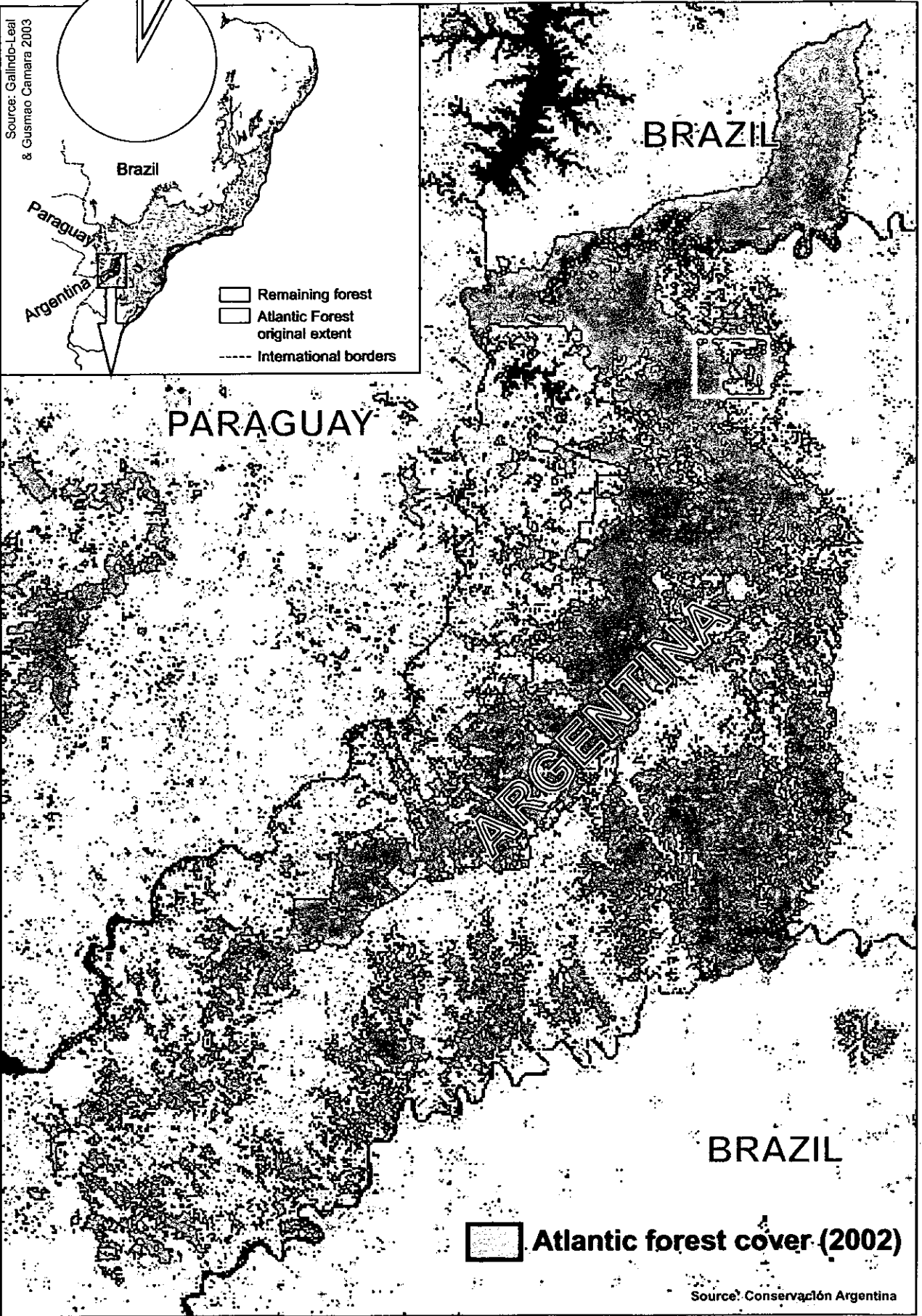
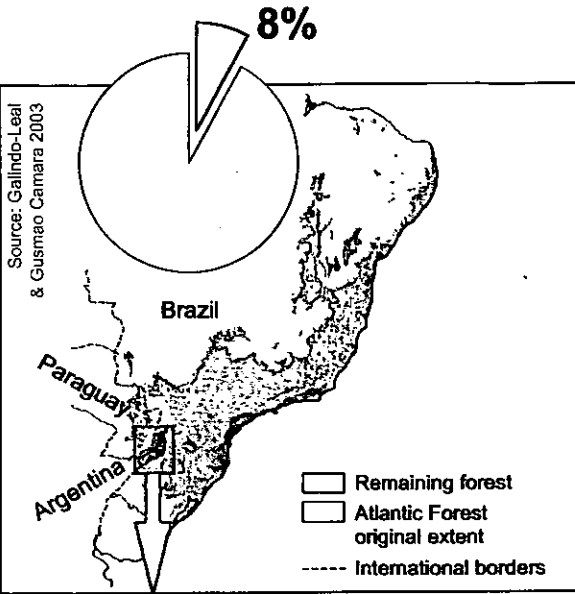
### *Misiones Green Corridor (regional approach)*

During the last 10 years, Misiones established a system of natural protected areas, totalizing more than 400.000 ha (48 parks and reserves) and covering 15% of the province (Chebez and Rolón 1998; Girauda *et al.* 2003). In 1999, the government of Misiones sanctioned the Green Corridor law, which declared 11,000 km<sup>2</sup> of provincial territory as conservation and multiple use zone, in order to maintain the connectivity between protected areas and encourage sustainable development practices. Additionally, WWF is working on a tri-national conservation initiative for the Upper Parana Atlantic Forest with the aim to integrate protected areas in Argentina, Brazil and Paraguay.

Most of the protected areas in Misiones are threatened because of their isolation and absence of buffer zones. One of the main aggravating factors is the lack of involvement in conservation issues by the neighbouring communities. This situation threatens the long-term conservation of the forest, especially outside the reserves.



Source: Galindo-Leal & Gusmano Camara 2003

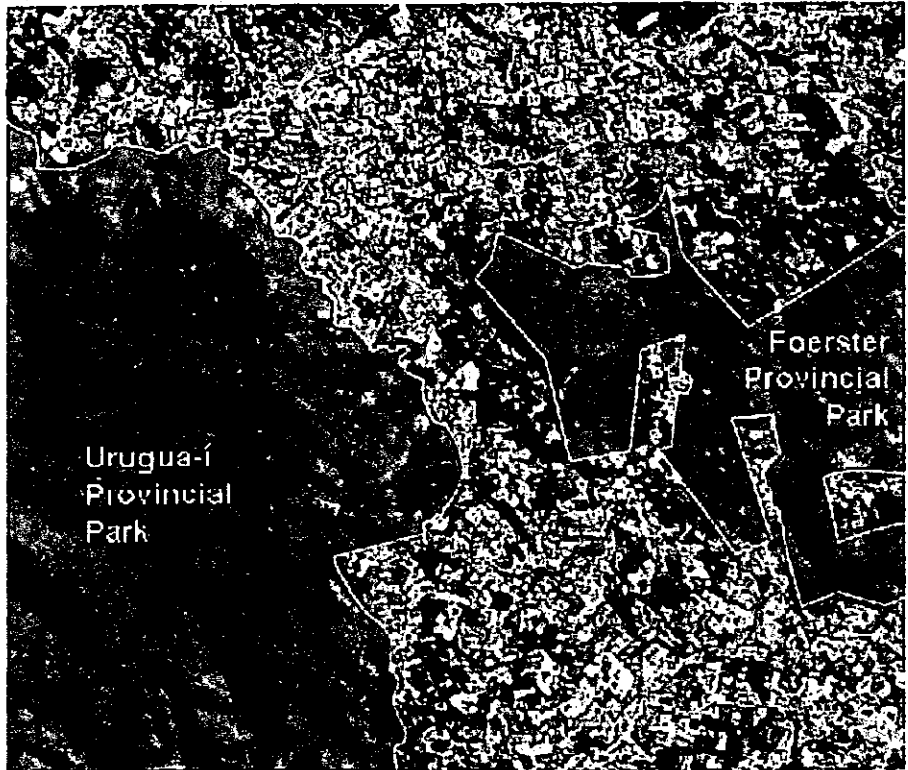


Source: Conservación Argentina

**Urugua-i - Foerster  
Biodiversity Corridor  
(local approach)**

The Urugua-i Provincial Park (UPP) and Foerster Provincial Park (FPP) protect important extensions of nearly untouched forest, including important areas for the conservation of endemic regional birds (EBA's) (Stattersfield *et al.* 1998). Moreover, it is considered as a key area for conservation of Neotropical birds as well (Wege and Long 1995).

Within these parks, a gradient of natural habitats can be found, ranging from lowland forest with abundance of canes -Uruzú stream region- up to palmetto palms (*Euterpe edulis*) and rosewood (*Aspidosperma polyneuron*) associations at Sierra de la Victoria hills, with some remaining stands of Parana pine (*Araucaria angustifolia*) in the southeast region (Bertolini and Gil 1999). This landscape diversity explains the high vertebrate richness in the area, including several Atlantic



Forest endemisms. Nine birds and eight mammals species present in the area are considered globally threatened (Collar *et al.* 1992, IUCN 2004, Birdlife, 2004), while 15 species are considered threatened at the national level (SAREM 2000).

Urugua-i Provincial Park (84,000 ha) is one of the most important contiguous forest fragment in the region. A few kilometres to the east of UPP there is another fragment of protected forest, FPP (5,000 ha). Between these two protected areas lays a mosaic of forest fragments, crops, cattle pastures and Maria Soledad settlement.

**PROJECT PURPOSE**

Local communities and institutions unite and participate in the conservation of the ecological corridor at two scales (local and regional).



**PROJECT OBJECTIVES**

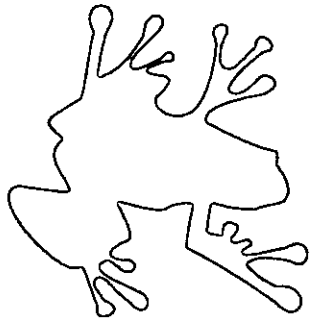
**Local scale (Urugua-i Foerster Corridor)**

- a) Teachers and park rangers develop conservation and education programs
- b) Local farmers and other institutions participate in the implementation of agro-forestry practices and restoration activities.
- c) Park rangers and other institutions participate in biodiversity surveys and monitoring studies that the project team carry out in the area

**Regional scale (Misiones Green Corridor)**

- d) Park rangers and other institutions participate in the «Biodiversity Sentry Sites» programme in at least 8 provincial parks along the Green Corridor of Misiones.

2



capacity  
building



# capacity building



*Our mission is to develop integrated conservation programmes, seeking solutions that are simple and sustainable, based on sound science, education and participation; taking into account the social needs and cultural diversity of the local communities.*



In 2002, when we received the first financial support from BPCP's, we created an NGO called Conservación Argentina. We organized ourselves into an NGO in order to be able to sign cooperation agreements with other institutions such as the provincial government, local universities and other NGOs.

Today we are in the process of consolidating as a small non-profit organization with a long-term vision focused on the conservation of the Atlantic Forest and we are recognized by the major Argentinean NGOs and GOs. The BP Conservation Programme Gold and Follow-up Awards played a key role in the formation of our organization.

WWF identified and recognized two members of our team as conservation leaders in the Upper Parana Atlantic Forest ecoregion. In 2002 and 2005, Gustavo Zurita and Diego Varela received the Russell E. Train fellowship from the WWF Education for Nature Programme (<http://www.wwf-efn.org/grantees.cfm>). Today, four project members are developing their PhDs in the Atlantic Forest with additional financial support from National Sciences Agencies.

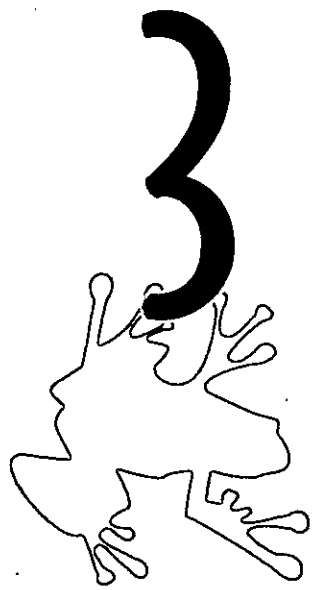
Two young people from Maria Soledad community (18 and 22 years old) are currently involved with the project and the NGO. They are working in several activities such as agroforestry experiments, tree nursery maintenance, forest restoration, conservation education and ecotourism projects.

With the support of the BPCP, Conservación Argentina purchased a field vehicle, which constitutes an essential tool for our work in Misiones' dirty roads. In addition, we constructed a field station in the Uruguai - Foerster biodiversity corridor, which will sustain our long term work in the area (see Chapter 6 of this report).

Beside the ongoing PhD studies, CA is encouraging the training in biological conservation of the team members, particularly of local community members. Fernando Foletto (22 years old) participated in a course on agroforestry systems in the Instituto de Pesquisas Ecológicas (IPÉ), Brasil, and Mauricio González (18 years old) participated in a nature interpretation planning course delivered by Fundación Vida Silvestre Argentina. In addition, Mariana Villagra and Diego Varela attended a course on biostatistics applied to conservation projects organized by the IPÉ. Finally, Sergio Casertano attended a biodiversity survey methods course during November; this course focused on terrestrial arthropods and was useful for planning the biodiversity inventories to be carried out within the protected areas and the ecological corridor.

### Green Corridor Project Team





# conservation education



# conservation education

## INTRODUCTION AND METHODOLOGICAL APPROACH

In order to ensure connectivity between Urugua-i and Foerster, the implementation of a conservation educative programme is crucial. We believe that it is necessary to promote a change in the attitude and behaviour towards the environment of local people. Three key groups of stakeholders were identified:

- Teachers, park rangers and local leaders
- Children from local schools and satellite classrooms
- Local farmers.







We believe that to accomplish these long-term changes, it is necessary to work in conjunction with local stakeholders that could transmit conservation values and ideas to other members of the community. Within the Urugua-i - Foerster corridor, this role is played by teachers, park rangers and local leaders. So we focused our efforts on this target audience. We consider that the long term multiplying effects of their work in the area are quantitatively and qualitatively wider than the punctual effects that would derive from working with other local agents. We consider them to be the ones that develop the work along with



the remaining local stakeholders (children and farmers) and our accompaniment.

Our methodology includes planning, implementation, monitoring and evaluation as necessary elements for a successful education programme (Jacobson 1995, Hurst 1998, Elcome and Baines 1999). We use nature interpretation (Tilden 1957, Ham 1992, Fernández Balboa and Bertonatti 1998, Gatto et al. 2005) as the main educational tool for our work.



For this stage of the project, we proposed a series of activities under the conservation education programme. These were:

- To monitor and evaluate our educational programme (adaptive management).
- To organize workshops to train teachers and park rangers of the Urugua-i - Foerster corridor in conservation education and nature interpretation.
- To encourage conservation education and nature interpretation activities with children from local schools and satellite classrooms inside the corridor.
- To generate general public material about education for conservation, to be use in the schools within the corridor.



## RESULTS

### *Monitoring and evaluation of our conservation education programme*

The main objectives of this activity were:

- To evaluate the results of the Environmental Education and Interpretation Workshop performed during the first stage of the project ( Rey et al. 2003).

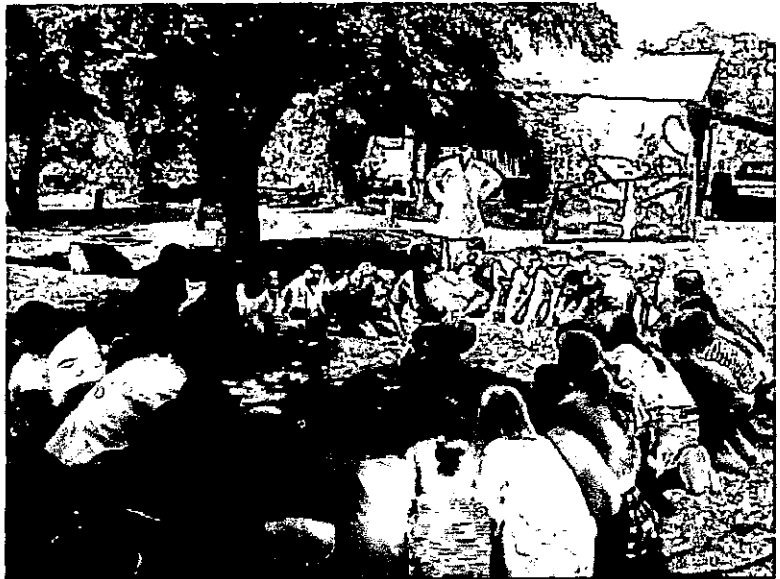
□ To assess the extent to which new educational tools had been incorporated into the work of teachers, park rangers and local leaders.

□ To assess whether an initial inclusion of interpretive activities and natural environment work as an educational resource was achieved.

□ To modify objectives, methods and activities from the present proposal according to the results obtained from this evaluation.

□ To formulate an educational plan for a second stage in our work with educational and park agents and local stakeholders, using as a starting point the implementation of small environmental education projects.

In order to achieve these objectives, we organized open and semi structured interviews with the participants of the first workshop, focussing on the benefits and constraints of the methods and techniques applied.



The participants of the first workshop were very interested in nature interpretation. Results from the evaluation suggested that we made effective demonstrations of nature interpretation activities, but we were not able to efficiently transmit how to put this into practice. The participants seemed to be insecure of applying this methodology in the classroom.

During the first workshop (see *Urugua-í Green Corridor Project Report 2003, Conservation Education Chapter*) we supplied an *Environmental Education and Interpretation Handbook* to teachers and park rangers. According to the current evaluation, they mainly applied locally adapted activities and games.

Given this results, we considered to carry out an activity with a group of students in order to make a diagnosis. Itati's rural school students, aging from 8 to 10, participated in this diagnosis. The conducted activity was highly positive: the children understood what we were proposing to do, they were clearly interested to participate in the chat and in the game, and they felt encouraged to make conclusions with us. Additionally, we observed that they usually had a distant attitude towards each other and towards us and that they tended to use more silent signals than other Argentinean students use to do. These activities were useful for teachers because they could observe in practice what we had previously proposed them to do and they could also see the response coming from their own students. We found the first stage evaluation and monitoring and the student diagnosis extremely helpful for planning the second workshop held during 2005.

### ***Second Education and Nature Interpretation Training Workshop***

We carried out the second workshop on April 27<sup>th</sup> in the School N° 846 at Deseado, Municipality of Andresito. Teachers, park rangers and other public and private institutions staff participated. We began the workshop with an interpretative activity with a group of students of this school, which worked as a trigger for the following activities.



It was an integral and participative short course, focussed on local and regional environmental subjects. It allowed the participants to generate educational activities during the allotted time. We wanted the participants to develop the ability of structuring activities within a process that contributes to reach deeper levels of reflection, critical thought and setting in practice. Also, we wanted them to develop skills in planning coordinated actions and micro-projects that enhance their resources and capacities.

In order to carry out this workshop, we established the following aims, which will be used later as evaluation and monitoring parameters:

- To offer teachers with methods and opportunities in environmental education project planning.
- To bring environmental education planning tools to park rangers in order to perform non-formal education strategies to improve their activities involving local people in the conservation of natural protected areas.
- To discuss environmental problems from a critical vision of the regional social situation.



- To link teachers and park rangers to our research project, keeping in mind the value of their knowledge in conservation actions.

During July, we visited the different schools and institutions that had participated in the workshop in order to assess the advance and constraints of the micro-projects. Some participants had begun to plan their work and asked about difficulties in order to continue. They shared with us the difficulty they faced in getting consultation material, as well as the complexity of working within the curricular constraints in areas where the children don't assist regularly to class due to their work in the farms.



### **Workshop framework**

*Module 1:*  
Interpretation at the school.

*Module 2:*  
Environmental interpretation planning.  
I. Methodological and technical approach.

*Module 3:*  
Environmental interpretation planning.  
II. Environmental interpretation micro-projects.

Some of the topics and activities on which we are already working are:

- Andresito first residents' stories (Paraiso Rural School)
- Misiones protected areas (Park rangers Mónica Schroder and Carlos Araujo)
- The school reserve (School N°707, Itati place)
- Nature in the Municipality of Andresito (Park ranger. Laura Aréjola, Esteban Carabelli, FLR Programme Coordinator, FVSA)
- Tree cutting (School N° 707, Itati place)
- Garbage classification (School N° 707, Itati place)
- The toucan (School N° 710, María Soledad place)
- Forestation and deforestation (School N° 486, Yacutinga place)



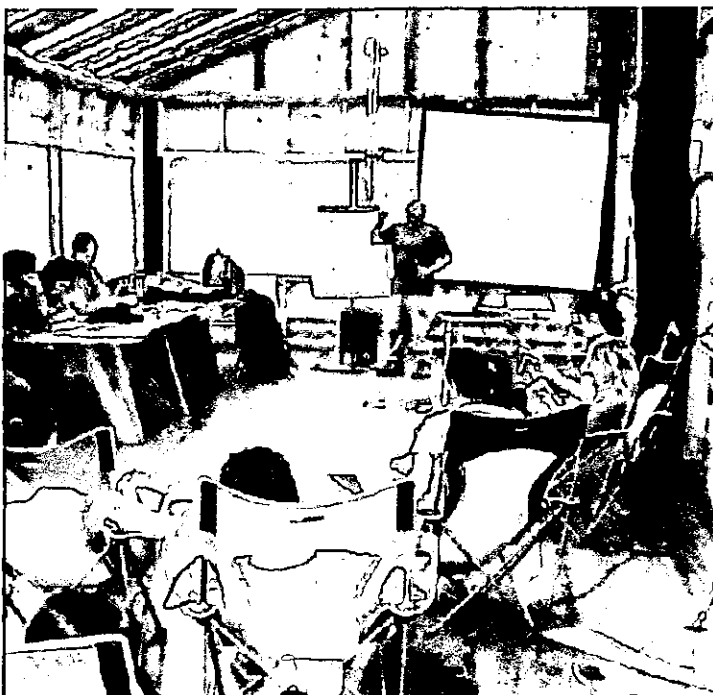
### ***Meeting with young people***

On August 14<sup>th</sup> 2005, we delivered a seminar on Atlantic Forest conservation and our work within the Urugua-í - Foerster Corridor during the Annual Adventist Church «Conquerors» meeting held at Andresito's Centro Polideportivo (Sport Center). Nine hundred and fifty young boys and girls aging from 10 to 18 years and coming from all over the province participated. After the meeting, park rangers, the young «Conquerors» and us, cleaned up the city's parks and squares, where we planted native trees from our own tree nursery.



### ***Biodiversity Field Courses for park rangers, gendarmes and local teachers***

During November 2005, we organized three intensive field courses for agents from local institutions involved in education activities (provincial park rangers, teachers from elementary and high schools, environmental police, etc.). These were carried out in collaboration with the Cabure-í Project, which is an initiative led by several public institutions: the JICA -Japan International Cooperation Agency-, the Municipality of Andresito, the Ecology Ministry of Misiones and the National Parks Administration.



### ***Introduction to Entomology***

On November 5<sup>th</sup>, we conducted the intensive course «Introduction to Entomology» Cabure-í Project Ecotourism Base. The purpose of this course was to train people on identification of the main groups of arthropods, insect orders and their biology. The main capture, mounting,



preserving and harvest methods applied in insects inventories and systematic studies were also demonstrated. We showed how to apply these methods in the classroom and also delivered basic information about local arthropods of medical importance.

#### ***Birds***

On November 13<sup>th</sup>, we performed a full day training course at the Urúgua-í Provincial Park. The objective of this course was to introduce participants on theoretical and practical aspects of bird diversity and ecology. The course included a presentation with pictures and sounds of birds from Misiones and a field class showing the use of mist nets and bird observation techniques.

#### ***Mammals***

On November 26<sup>th</sup>, we gave a full day training course at San Sebastian de la Selva ecotourism farm. The course had the purpose of introduce participants on the Atlantic Forest mammal diversity, its conservation problems and the methods most used for study and monitoring this species. Also include practice with camera traps, radiotelemetry, live traps and footprint identification.

#### ***Training Course for Biology Professorship Students from the University of Misiones***

We are working with the University of Misiones in the formation of biology teachers. The objective is to include conservation contents based on local and real data as study subjects. During November 2005, we conducted a full day work in the corridor area with students from the biology professorship during which we showed them our work and performed small research projects in the area.

As part of the above mentioned strategy, we developed practical biostatistics guides for students. These guides include real scientific bird data collected from the project.

#### ***Learning with Forest Handbook***

The main goal is to publish the «Learning with Forest Handbook», which will be done in a participative manner by discussing the main topics to be included with teachers, park rangers, NGOs, GOs and other residents of the Municipality of Andresito and focussing on regional aspects: the Atlantic Forest and the farms. These participants will provide input about contents and educational



activities for the book. As co-authors, they will feel pride when using it in the classroom or in protected areas.

Therefore we want to:

- Develop a consultation material for educators from this region with local contents and didactic proposals.
- Increase the positive perception of biodiversity, the history and the culture of the region.
- Disclose scientific knowledge about nature of the Atlantic Forest.
- Value local knowledge.
- Encourage links between different local actors in an interdisciplinary work.

The Learning with Forest Handbook will be published with the support of the Ministry of Ecology from Misiones province.

## LESSON LEARNED

- Better results were observed in people that were involved in this educational experience since the beginning.
- When we work with the same group of participants, time lags between training workshops should be shorter in order to reduce the probability that basic concepts learned will be forgotten.
- To avoid associating environmental education mostly with natural sciences, we propose to include this issue in examples dealing with areas like mathematics, social sciences or language.
- It will be useful to include more practice in natural environments (e.g., protected areas, forests nearby schools) in order to encourage teachers to use this methodology.

# 4 our partnership with the EFA



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# our partnership with the EFA

## INTRODUCTION AND METHODOLOGICAL APPROACH

The School of the Agrarian Family (Escuela de la Familia Agrícola, EFA) from Andresito is a boarding high school that trains students on Agronomical Goods and Services Production. It is part of a network of agronomical education schools working in other rural regions of Misiones province and other countries.





The school has two main levels: «EGB3» (3<sup>rd</sup> General Basic Education level, ages 12 to 14) and «Polimodal» (last three years, 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> grades, aged 15 to 17). Most of the students live in their family's farm in the Andresito area, including the sons of farmers from the Uruguá - Foerster Corridor. This is why the technical and scientific support between CA and EFA's students and teachers concerning natural areas and sustainable production will be a multiple and transversal contribution in achieving the corridor's consolidation as a good connector between the provincial parks.

During 2005, we introduced the Uruguá - Foerster Corridor Project objectives and results to EFA teachers and students. After discussing our mutual interests, Together with the teachers, we established the main cooperation and supporting lines to deal with from that moment on.

## RESULTS

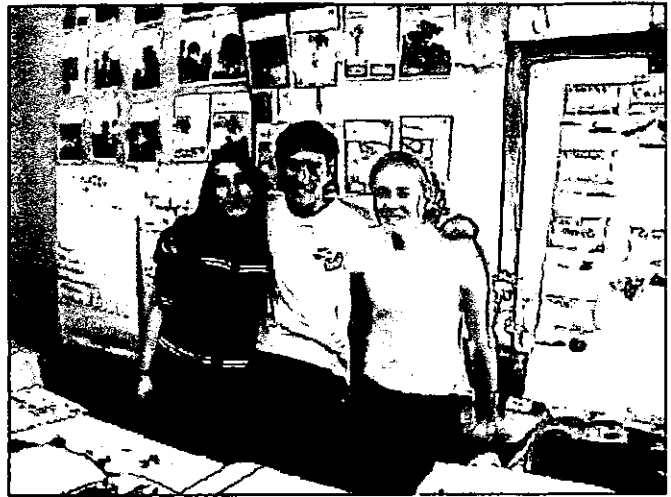
Technical and economical support for last year students research projects

This support is aimed at building planning and implementation skills in research and productive projects. We have supported 3 of these projects:

□ Palmetto seeds germination under different humidity and light intensity conditions. Student: Nohelia Barella. Palmetto, *Euterpe edulis* (L.), is a palm species whose natural populations are threatened by illegal harvest in protected and private areas. This work attempts to record basic information needed in order to start sustainable production of this palm.

□ Knowing our native trees form the Green Corridor Protected Areas. Student: K. Tatiana Probst. This work compiled and organized information on native timber trees. This student has created a herbarium and informative cards to facilitate tree identification.

□ Restoration of the Guavirá-mí brook riverbed. Student. Mauricio González. In this work, Mauricio designed and implemented the restoration of the riparian native rainforest along the Guavirá-mí brook basin. Mauricio is part of the family owning the ecotourism establishment «San Sebastián de la Selva», were the restoration took place. (see Agroforestry systems and forest restoration chapter in this report).



Besides our support to each one of these projects, we introduced the students to Argentinean researchers working in this region, who helped them to design their projects: Genoveva Gatti, biologist working on palmetto eco-physiology, assisted Ms. Barella; and Paula Campanello, biologist studying native rainforest dynamics, assisted Mr. González. Both of these biologists are part of the Functional Ecology Laboratory from the Universidad de Buenos Aires, which is carrying on several scientific research projects in northern Misiones.

We supported the presentation of EFA projects in school, local and regional fairs. The Guavirá-mí brook restoration and the Native Trees projects were chosen by the school to represent it in local fairs. Both students presented their projects jointly during the 2005 Farmer's Festival of Andresito, where they won the First Prize in Sciences category. They used our stand to show the local farmer community some basic concepts on restoration, biology of native trees, sustainable production and rainforest environmental services.

We collaborated with students in the conceptual unification of both winning projects, in order to bring it to the Mercosur Educational-Cultural Meeting, «1<sup>st</sup> Scientific, Cultural and Innovative Technology Marketplace». EFA students were especially invited to this meeting, first of its kind, held in Posadas, the province capital city, where they successfully exposed their project and enjoyed a unique personal experience.

***Bibliography and technical support to EFA students and teachers.***

We researched which type of information was lacking in EFA's library, according to teachers and students needs, and we donated books, booklets and all kind of material dealing with conservation, natural environment restoration, projects design, integrated pest management, culture and breeding techniques applied in farms near rainforest.



Mauricio introduces the restoration work to the governor of Misiones, Carlos Rovira, during a technological marketplace in the provincial capital.



During an act in Andresito, the governor of Misiones distinguished Sergio Casertano for his education work with the EFA. In this occasion there were present authorities of the EFA, the Minister of Ecology Luis Jacobo, and the intendant of Andresito.

## LESSONS LEARNED

In our relationship with Andresito's EFA School, we established a fluent and successful communication with both teachers and students by adapting our work schedule to their especial system of boarding school and by carefully choosing the areas in which we have collaborated.

Most of the students come from farms several kilometres away from the school, which obliges the school to have a special regime of assistance comprising two weeks of boarding and two weeks living in their homes. Teachers usually interact with students at school when they attend classes almost all day long, they also carry with them a lot of homework to their farms. We arranged our work timing following to these schedules, and we will do so in our future tasks as well.

We helped teachers by offering the students a field and a theoretical framework in which to work. Conservation and regional ecosystem information are not easily accessible for them, as we thought it could be. So supporting them with appropriate and updated bibliography and technical advice had and will have an important impact on their work and in the achievement of our goals.

During this last year we interacted with EFA community and we realized that last year students usually chose their final project subject in the previous years. So, we decided to start the promotion on conservation and agroforestry areas in those grades, especially in relation encouraging works within the corridor using our facilities.

## FUTURE ACTIONS

We will continue supporting and assessing last year EFA projects during 2006 and 2007. We have already introduced EFA students to Green Corridor conservation subjects from which they can chose for the coming year.

We will organize an educational camp, in cooperation with EFA teachers and local researchers, in order to encourage younger students to choose conservation issues for the projects they will eventually develop. This camp will take place at San Sebastián de la Selva and will include practical tasks (native species plantation, sampling and measuring techniques) and short theoretical classes. We will encourage them to continue their elder classmates work by performing new experiments and assessing riparian rainforest growth.

We will perform two Experimental Design Strategies courses, one intended for EFA students and another for all Andresito's high school teachers. The aim of these courses is to apply scientific methodology on different tasks at different levels: students will use it for designing their projects, and teachers will apply it for developing their study programs and activities and for analyzing their work success.



# agroforestry systems and forest restoration



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# agroforestry systems and forest restoration

## INTRODUCTION AND METHODOLOGICAL APPROACH

Our project's approach for conservation is based on the premise that promoting planting and utilization of multiple-use trees within the ecological corridor will put an economic value to the resources and help with the conservation of the forest and its wildlife. Agroforestry practices are important tools to maintain local biodiversity and to improve agricultural productivity in the tropics (Anderson 1990, Lambeck 1997, Cullen et al. 2001, Burkart et al. 2002, Götz Schroth et al 2004). Other indirect benefits of agroforestry techniques include: wind control, shelterbelt, protection of soils from rainfall impact and erosion and barrier against diseases and pests. Our desire is to implement this type of techniques in some key farms, helping to develop an agroecology orientated mentality among local farmers of the Urugua-í – Foerster corridor. An agroforestry vision will help to harmonize social and environmental needs of the region.





Based on our previous experience, we selected a reduced number of farms for which the landowner's approval, interest and compromise have already been consistently proved. We worked with these farmers to establish a number of agroecological experiences which could be used as an example to be followed by other farmers. Restoration and agroforestry experiments in identified key areas were conducted inside these farms.



The activities of our project are focused on increasing landscape connectivity through reforestation with native trees species and on implementing agro-forestry practices in key areas of the corridor. The native tree nursery, constructed previously by the project, provided the necessary seedlings for these activities.



To better implement agroforestry and restoration practices, a workshop have been carried out for farmers, local technicians and institutions. For this workshop, we have invited as special guest, people that are actually working in this kind of activities in other areas of the Atlantic Forest. Also, proper printed material with practical advices and current existing agroforestry techniques is being prepared and will be delivered to the farmers.

We implemented restoration experiments in areas converted to pastures. Cattle were selectively excluded from certain small areas in order to allow natural regeneration (control); in other areas, we implemented planting techniques to attract seed dispersing animals in order to stimulate regeneration. Pioneer trees, producers of fleshy fruits, have been planted in exclusion areas as «trigger species»

of the regeneration process. We expect that these restoring plots will work as «islands of biodiversity», which will fulfil the function of wildlife stepping-stones, providing shelter and facilitating species movement (birds, trees, insect pollinators and even mammals) through open fields (Bennet 1999, Forman 1995). The aim of these studies is to promote functional connectivity between key forest remnants in a landscape dominated by pastures.



Identification of key areas inside the corridor was one of the main objectives for the first steps of this project (2002-2003). Restoration of one deforested riverside, identified as the main stream in the corridor area, was one of the principal goals. Reforestation of this area involved the exclusion of cattle from its margins and planting activities with local schools and visitors.

The agroforestry and restoration practices require several activities to be carried out. In resume, these activities are:

- Tree nursery maintenance
- Implementation of agroforestry experiences
- Implementation of restoration experiences
- Field support for local farmers
- Agroforestry and Agroecology workshops
- Production of agro-forestry and restoration printed material

## RESULTS

### *Maintenance of a tree nursery*

Since 2002, Conservación Argentina maintains a native tree nursery, located in one of the corridor's farms (see Rey et al. 2003). This nursery is maintained thanks to the logistical support of the park ranger Aloicio Foletto (who works for the Ministry of Ecology of Misiones) and his son Fernando, who is also a member of the project. During this stage of the project, the nursery was constantly producing seedlings, which were used for the restoration and agroforestry experiences implement within the corridor Urugua-í Foerster.

The nursery has the capacity of producing 50,000 seedlings a year and so far it contains more than 50 different native species.

In order to self-support the tree nursery management costs, we have sold thousands of plants to other institutions that have used them for research and restoration projects. This facilitates the long-term maintenance of the tree nursery and allows us to offer free seedlings to farmers and schools from the corridor. As a consequence of all these activities, our tree nursery has become a reference nursery in the region.

Our plants are used for environmental education campaigns and activities in schools, municipalities and protected areas, mostly during ecological and conservation awareness full day activities.

Finally, trough an agreement with the government of Misiones, more than 25,000 seedlings of native species were donated to be used in new neighbourhood projects by the provincial programme on housing.



### **Implementation of agroforestry experimental plots**

In one of the corridor's farms, we have established an agroforestry experimental plot. The plot consists of a quarter hectare and is located in a pasture that has been grassed for more than 15 years. The area was closed to livestock by wire fencing and the soil was prepared using a tractor. The objective was to experiment with a successional agroforestry system (Götsch 1995, Peneireiro 1999, Vaz 2001). During the experiment, neither agrochemical nor farming labours conflicting with agroecology principles were used.

We established a highly diverse system, with numerous native and cultivated species, including multipurpose ones (wood, food, medicinal, green manure uses). We planted 2200 seedlings of more than 60 native tree species. The whole plot was covered with corn and bean crops to keep the soil covered. As the trees grew, new crops and trees were added into the system, including other forest species, watermelon, pumpkin, banana, mango, avocado, mandarin, different bean varieties and green manure.

During the Agroforestry Workshop (see in this Chapter), this experimental plot was visited by technicians and other participants who gave us useful advices and suggestions. These were incorporated to the management of the experiment.

The year 2004 was one of the drier in the last few decades, which highly increased seedling mortality. However, in alley cropping, cultures like corn offered enough shadow to minimize the damage caused by the drought. Towards





the end of 2005, even though the trees are still growing, we are already observing an increase in plant and animal diversity. This plot also seems to be working as a stepping stone to enhance corridor connectivity.

### **Implementation of restoration experiences**

On a pasture belonging to San Sebastián de la Selva rural establishment, we performed the first native riparian forest restoration experience in the Urugua-í - Foerster Corridor, which is the first of its kind in northeastern Misiones. This was developed as the final research project of an EFA student (see Chapter 4), which we assisted technically and economically.

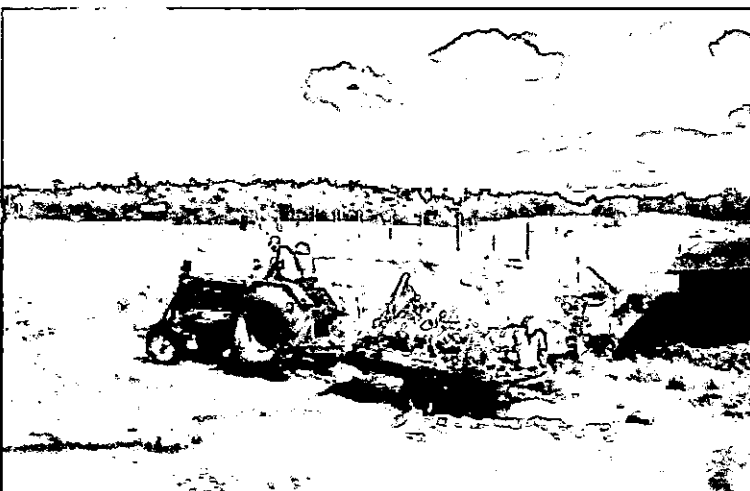
The restored area belongs to the Guavirá-mí brook basin. This brook flows from a secondary forest located within the same property, and continues eastwards into the Foerster Provincial Park and up to the Guavirá stream. Guavirá brook crosses the corridor from south to north and Guavirá-mí is

one of its local eastern basin tributaries. In this side of the basin, native rainforest along the ravines was cut off about 15 years ago and used to cattle breeding. Thus, even though the western basin still remains forested, local connectivity was interrupted.

Cattle-raising affected the flood plain structure and the water-course dynamics: in its way down the stream, cattle carried sediments that filled part of the riverbed and broke the valley walls the water-course disappears when other similar but covered stream remains and landslides occur in the valley walls because of the lack of tree roots.

In order to re-establish environmental services provided by the riparian forest and the connectivity between the nearby protected areas, we proposed to restore the riparian rainforest.

We fenced 2.5 hectares of the basin, locating the fence 10 meters from the water-course and entering 30 meters into the rainforest. We planted 750 seedlings from 15 different native species





obtained from our tree nursery. We used 120 individuals of three plant species to study their growth rate and survival in the flood plain and in the valley slope, where we measured their height and base diameter in order to monitor this attributes in the following years. This restored area will be used by the new projects generated in the EFA. We have already planned to monitor this experience and natural regeneration in the plots (see Chapter 4).

### ***Supporting and monitoring local farmers experiences***

Since early 2004, we are supporting the development of a new agroforestry experience in the corridor, encouraged by another local NGO called «Selvas para Siempre2 (Forests for ever). This initiative aims to demonstrate that diversified production alternatives without using agrochemicals are possible and also it seeks to recover native forest within the corridor. At the moment, the farm used in this experience already has its own small tree nursery.

CA supported this initiative by advising and delivering more than 15,000 native trees seedlings that have been used for restoration and agroforestry practices. We have also been delivering seedlings to more than a dozen farms in the corridor in order to reforest with native species. Some farmers have started to make mixed plantations with native species on their properties.

### ***Agro-ecology and Agro-forestry Training Workshop***

Starting on November 7th 2005, we organized the 3-day workshop «Introduction to the Agroforestry Systems: Analysis of experiences in the Pontal of Paranapanema, Brazil and Andresito, Argentina».



This workshop was organized in partnership with Fundación Vida Silvestre Argentina and was intended for technicians of different institutions that work in the region and for some local producers.

The main lecturer was the Brazilian agroecologist Jefferson Ferreira Lima, who coordinates several agroforestry projects (Coffee with Forest, Agroforestry Nurseries, Ecological Corridors) at the Institute for Ecological Research (IPÉ, Instituto de Pesquisas Ecológicas) in cooperation with small

producers from the Landless People Movement (MST, Movimento dos Sem Terra) of Pontal do Paranapanema, Brazil (see [http://www.ipe.org.br/html/programas\\_pontal.htm](http://www.ipe.org.br/html/programas_pontal.htm)). Jefferson was invited to visit different agroforestry experiences in the region and to share his experiences with technicians and local producers.

The workshop was carried out in the ecotourism establishment San Sebastián de la Selva, María Soledad. Thirty people from

13 institutions from the 3 countries that form the Upper Parana Atlantic Forest ecoregion (Argentina, Paraguay and Brazil) attended the workshop.

Besides Jefferson's dissertation, technicians from Fundación Moisés Bertoni (Paraguay), the Forest Sciences College of the National University of Misiones (Argentina), Fundación Vida Silvestre Argentina and Conservación Argentina exposed their own agroforestry experiences.

During the two-day field trip, all participants visited the restoration experiences, agroforestry plots and farms maintained or supported by us.

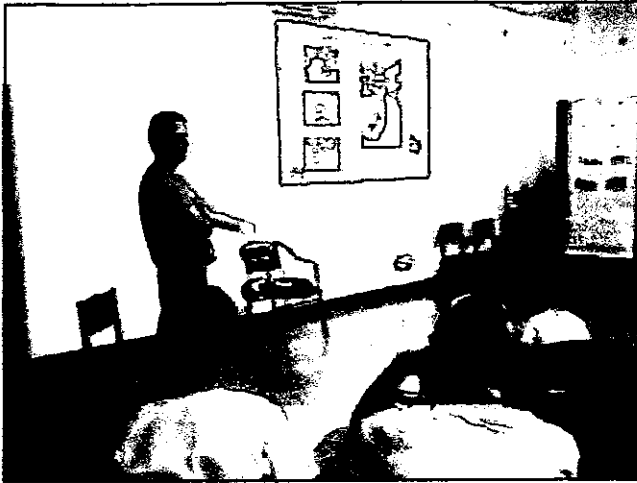
At the end of his visit, Jefferson Lima offered a lecture for researchers, students, tourism guides and the national park staff at the Visitor Centre of Iguazú National Park.

### AGROFORESTRY WORKSHOP PARTICIPANTS



Name	Institution
Araujo, Carlos	MERNRT - Park ranger, Foerster PP
Camilo, Andres	Farmer, Paraje María Soledad
Camilo, Antonio	Farmer, Paraje María Soledad
Carabelli, Esteban	Fundación Vida Silvestre Argentina
Dos Santos, Victor R.	Selvas para Siempre
Edgar, Garcia Duarte	Fundacion Moises Bertoni - Paraguay
Eibl, Beatriz	Facultad Ciencias Forestales-UNAM
Ferreira Lima, Jefferson	IPÉ (Instituto de Pesquisas Ecologicas)
Foletto, Aloicio	MERNRT - Park ranger, Foerster PP
Foletto, Luis Fernando	Conservación Argentina
Gil, Guillermo	APN Delegación Técnica NEA
González Soria, Lourdes	CIF-UNA, Paraguay
Izquierdo, Andrea	LIEY - CeIBA
Jaramillo, Manuel Marcelo	Fundación Vida Silvestre Argentina
Larraburu, Diego	LEF - CeIBA
Medina, Fernando Ariel	Fundación Vida Silvestre Argentina
Montti, Lia.	LEF - CeIBA
Olivera, Norberto	MERNRT - Park ranger, Uruguay PP
Otto, Ariel	Coop. Tabacalera Misiones
Pizzio, Esteban	MERNRT - Park ranger, Uruguay PP
Probst, Arcildo Eloy	EFA, Andresito
Rodríguez, Diego	Conservación Argentina
Serofini, Ricardo	Fundación Moises Bertoni - Paraguay
Urbieta, Rene	Coop. Tabacalera Misiones
Varela, Diego	Conservación Argentina
Villagra, Mariana	Conservación Argentina - LEF
Welcz, Segismundo	MERNRT - Provincial Parks Director
Werle, Alfonso	Farmer, Península Andresito
Werle, Gladis	Farmer, Península Andresito
Zurita, Gustavo A.	Conservación Argentina - LECOMA





### ***Production of restoration and agroforestry printed popular material***

We are currently editing an Agroforestry Technical Booklet intended for local farmers, for which we count with the support and partnership of Fundación Vida Silvestre Argentina. This booklet will include concepts about agroecology, and agroforestry systems benefits along with local examples. The booklet will come out of press by the end of 2005.

### **LESSONS LEARNED**

To reduce the initial soil preparation work before beginning of tree planting, it is better to plant covering and nitrogen-fixing species (green manure) as *Cajanus cajan*, *Canavalia ensiformis*, and *Mucuna* sp. Using these species eliminates grasses and it maintains the soil's covering.

By keeping soil covered with vegetation and organic matter, overgrowth is controlled, soil humidity is maintained and labour needs per agroforestry plot decrease.

Besides providing plants for agroforestry experiences, our native trees nursery can be economically self-sufficient by selling trees to other institutions.

### **FUTURE ACTIONS**

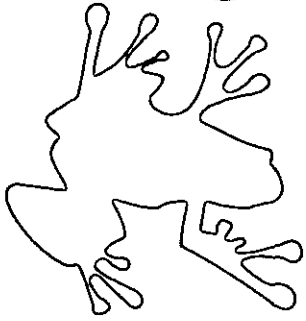
To incorporate a field capacitor into our team in order to link a small group of corridor's farmers with who expand agroecology and agroforestry systems principles in the community.

To create an agroecological extension centre in the corridor that will used as meeting, training and experimentation place for small rural producers of the region.

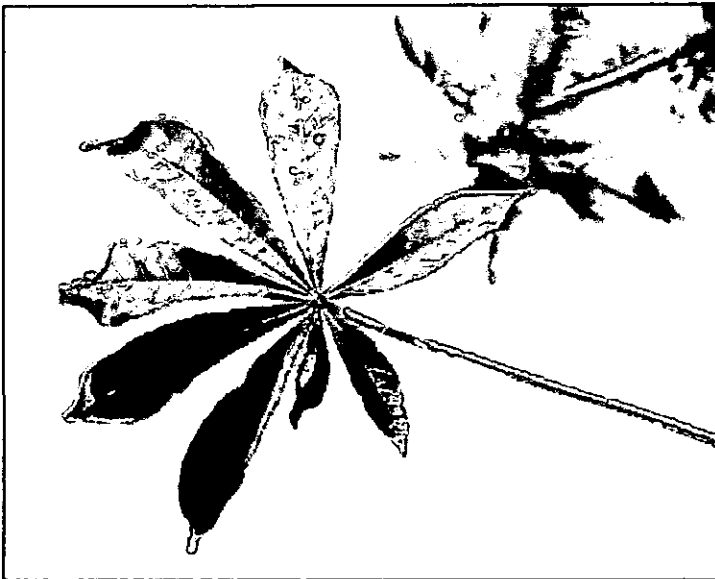
To publish a technical handbook about agroecology and agroforestry systems.

6

biodiversity  
studies



# biodiversity studies



## INTRODUCTION AND METHODOLOGICAL APPROACH

Biodiversity information collected for this area is out of date, since it was mainly collected 20 years ago to evaluate the impacts of constructing a dam in the Urugua-í lower basin (EMSA, Ministry of Ecology, MACN 1987). Some areas have had little to no surveys, particularly the southern and interior areas. Interior areas have a high potential because of its low level of human intervention in the past. The southern area is also interesting because it has other forest formations with small native stands of endangered *Araucaria angustifolia*.



The implementation of biological corridors is generally not based on scientific knowledge. As a result, the usefulness of this corridor for species movements is unclear. During 2002, we implemented a bird ringing programme within the corridor between Urugua-í and H. Foerster provincial parks. The objective of this programme were 1) to identify key areas along the corridor for bird movements between protected areas, 2) to involve local people on scientific research and 3) to bring up to date the bird lists for Urugua-í and H. Foerster Provincial Parks.

## RESULTS

### **Bird monitoring in the corridor area**

To continue the bird ringing programme within the corridor between UPP and FPP we performed a field survey during August 2004. The sampling design was the same used for the last three years. A total of 264 individuals of 49 species were captured with a total of 55 recaptures. This banding programme provide important information about bird movement patterns between protected areas and the key areas to be protected and/or restored (see bird movements map). Also, the data collected provide solid scientific information about the importance of this area with regards to the creation of a new protected reserve within the corridor.

Since 2002 we established 10 permanent sampling sites inside the corridor with 10 mist nets on each one. At the moment we captured more of 2,500 birds of 79 species (sampling effort: 4500 hours/net). The 76% of the captured species presents in protected areas use the corridor whereas *Campyloramphus falcularius*, *Dendrocolaptes fuliginosa*, *Haploziza unicolor* and two *Phylidor* were restricted to protected areas. Richness and diversity decreased from protected areas to the center of the corridor. Banded individuals of *Trichotraupis melanops*, *Habia rubica*, *Leptopogon amaurocephalus* and *Lepidocolaptes fuscus* move more than 1 km through the corridor. This monitoring program provide the information to identify important routes to birds movements between protected areas and to select key areas for forest restoration and protection inside the corridor. The connectivity between protected areas is not fully efficient because at least 25% of the species don't use the corridor.

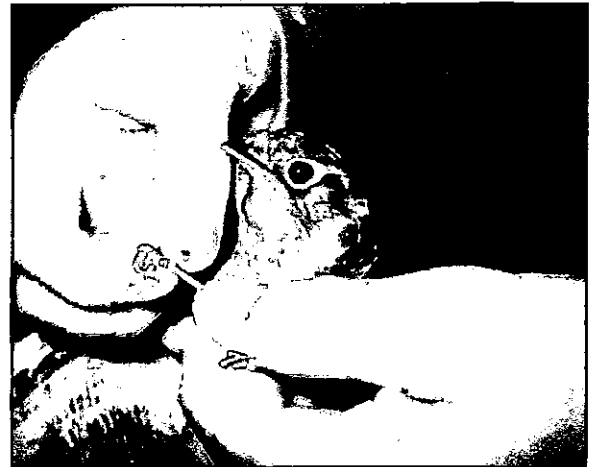
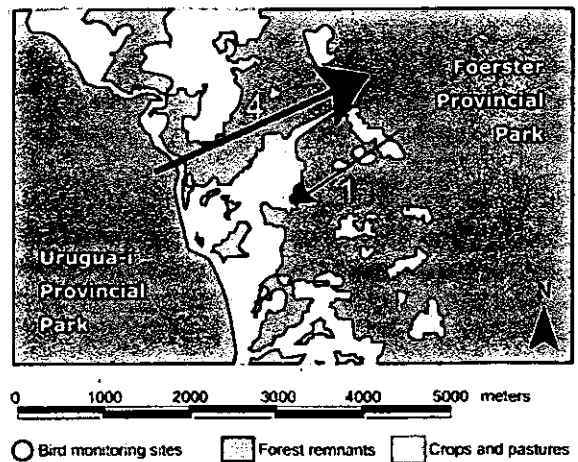
### **Creation of three new IBAs (Important Bird Areas) in the corridor**

During the last three years, Aves Argentinas (an important Argentinean NGO and Birdlife's local partner) has delimited 273 IBAs (Important Bird Areas) all over the country (Di Giacomo 2005). Nicolas Rey (one of the members of the team) participated in the elaboration of Misiones' IBAs. Based on the information collected from our project, UPP, FPP and the corridor between both protected areas were declared as IBAs in Misiones. This designation emphasizes the conservation importance of both protected areas and the connection between them.

### **Biodiversity Sentry Sites**

The creation of a network of bird monitoring points along Misiones' green corridor is an important component of this project. This network will provide

### **Bird movements**



significant information on bird population trends at a regional scale and will also be used as an educational tool for park ranger students and other local people. We had planned to start the first experimental sites during 2005. However, when we presented this idea to the Ministry of Ecology of Misiones and other institutions from Argentina and Paraguay involved in Interior Atlantic Forest conservation, they were hugely enthusiastic about the idea and wanted to participate.

The Ministry of Ecology offered financial resources for the publication of a photographic bird guide to be used to train park rangers. Moises Bertoni Foundation from Paraguay, who administrates the most important private protected areas of Interior Atlantic forest in Paraguay as well as the Itaipú bi-national hydroelectric also wanted to participate.

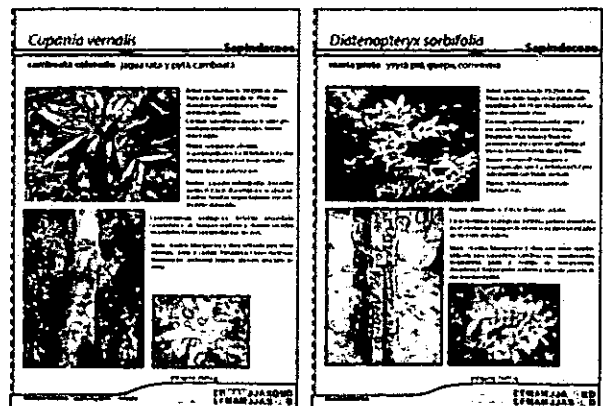
Due to the success of the program, we decided to create a network of institutions from Argentina and Paraguay who are interested in the programme and to create a photographic bird guide before the start of the program. During January and March 2006, we expect to start the programme simultaneously in Argentina and Paraguay. As of yet, Conservación Argentina has 100 mist nets and 100.000 numbered rings, which were donated for the program.

**Arthropods Inventory**

During October 2005, we started an inventory of the arthropods (mostly insects and some arachnids) present in two farms within the corridor using light traps, pitfall traps and hand collecting. This sampling will continue in rainforest and agricultural landscapes during December 2005 and during the first semester of 2006. In this region, researchers have recently shown that some insect communities (carabid beetles) presented a different structure in rainforest when compared to agricultural fields, having almost no species in common (Casertano and Cicchino, 2005)

**Publishing a native trees field guide**

Conservación Argentina and the Functional Ecology Laboratory (LEF) from the University of Buenos Aires are developing a field guide on Upper Parana Atlantic Forest trees. This guide will become a reference material for many studies conducted in the area and a tool for biodiversity surveys carried out by park rangers and parataxonomists. We are currently negotiating its edition and publication by the National Parks Administration.







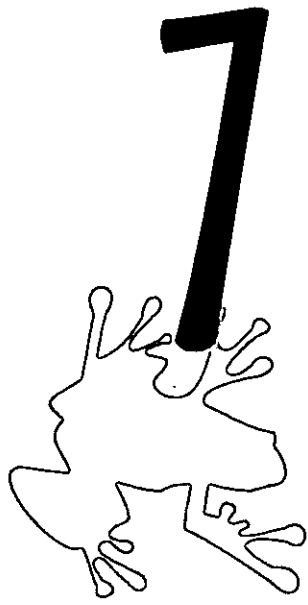
## LESSONS LEARNED

After three years of monitoring birds, we have accumulated a large amount of high quality scientific information about bird movement patterns and some basic species information. It has also proven to be a useful tool to involve local young people in conservation activities.

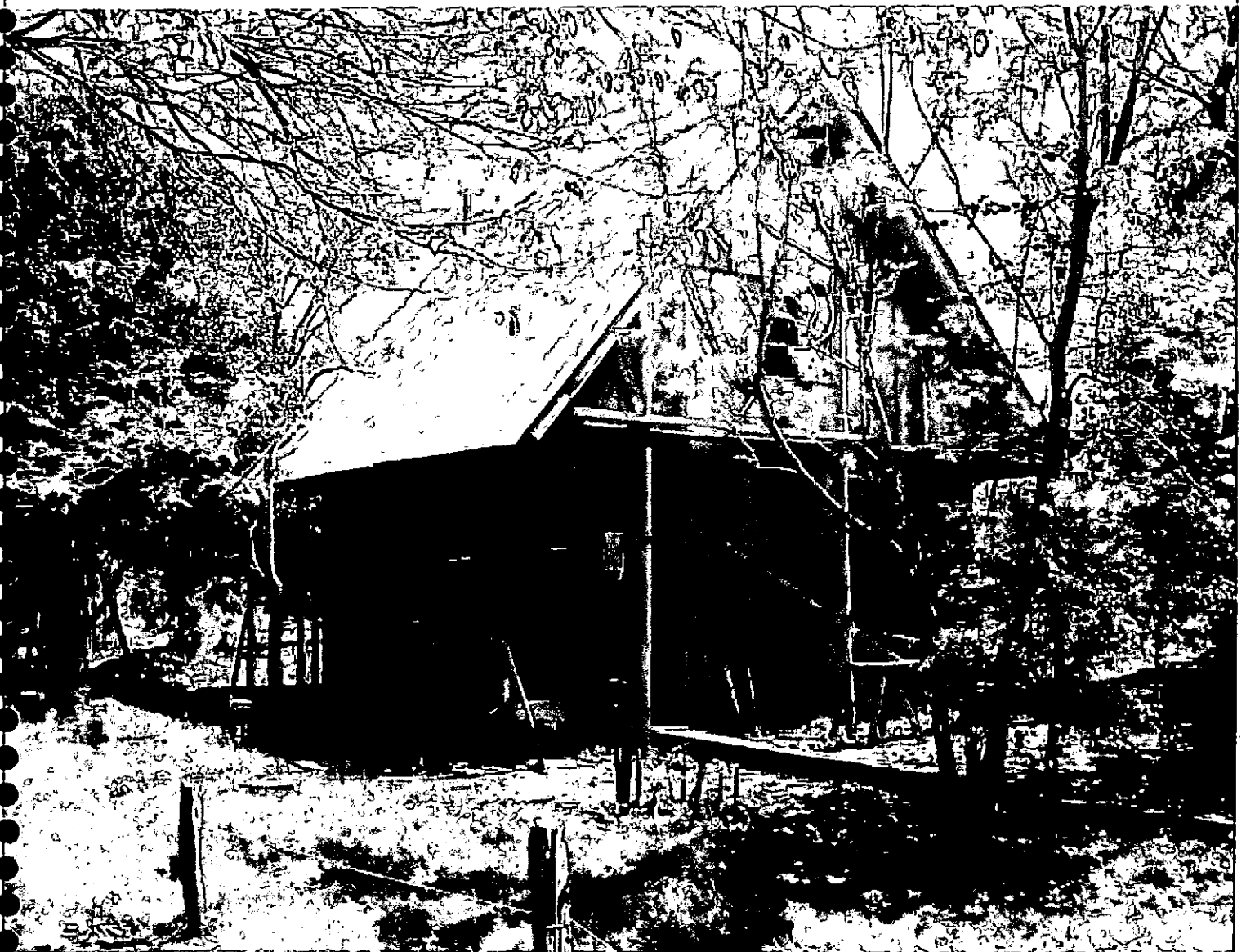
## FUTURE ACTIONS

Expeditions conducted to these little known areas during the breeding season. We will carry out rapid biodiversity assessments in collaboration with invited Argentinean researchers (specialists in the different groups) and park rangers. Birds, mammals, herpetological fauna, plants (focusing mainly on globally threatened trees), and some group of insects will be studied. Techniques used during these surveys will include mist netting, Mackinnon lists, plant collecting for herbarium, insect trapping, tape recording of frogs and birds and recording of mammal tracks.

Additionally, camera traps will be set on trails and natural clay licks to complete the survey of large mammals. We will put particularly emphasis on the identification of endemic and threatened species, and on assessing the current status of some recently detected rare species such as Harpy Eagle (*Harpia harpyja*), Bush Dog (*Speothos venaticus*) and the critical endangered Brazilian Merganser (*Mergus octosetaceus*).



# corridor's biological field station



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# corridor's biological field station

Our Biological Field Station will fulfil multiple functions:

- It will be the base for our work in the region, where we will centralize the information, the materials and the necessary infrastructure to carry out the different parts of our project.
- It will be the meeting place to carry out courses, workshops and conferences.
- It will be a reference point for the corridor's community and the place of our effective and continuous presence, and therefore of our

commitment with the conservation of the Upper Parana Atlantic Forest.

- It will host researchers that need a base site to develop surveys in the area of the corridor and in the neighbouring parks.

Flora and fauna surveys from the area are scarce, and the few that have been done were limited to the banks of the main roads. In this context, having a comfortable place with appropriate infrastructure where researchers can stay for several days will hopefully stimulate them to carry out these activities in little studied remote areas, improving ultimately the knowledge of the biodiversity of the region.

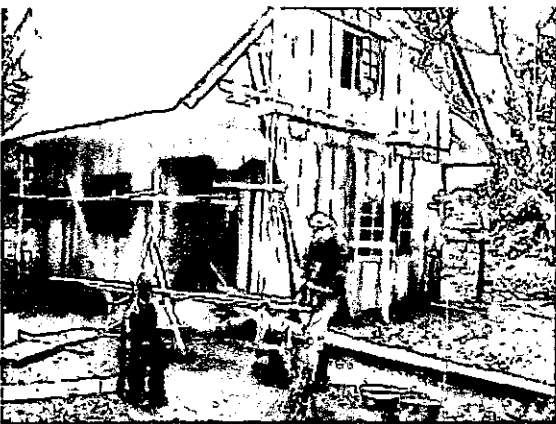
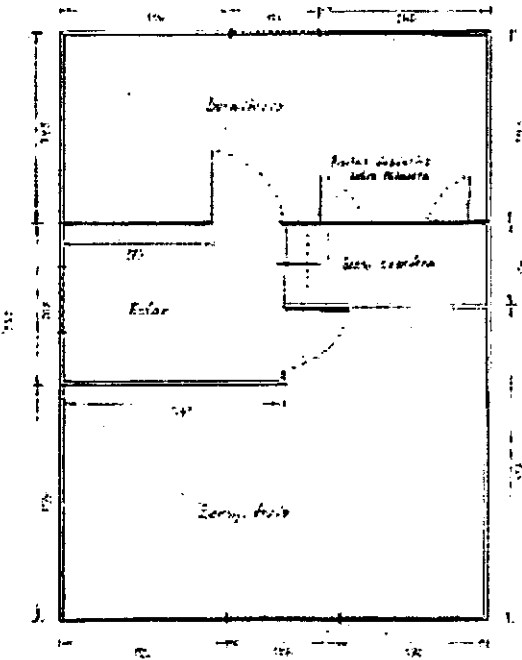
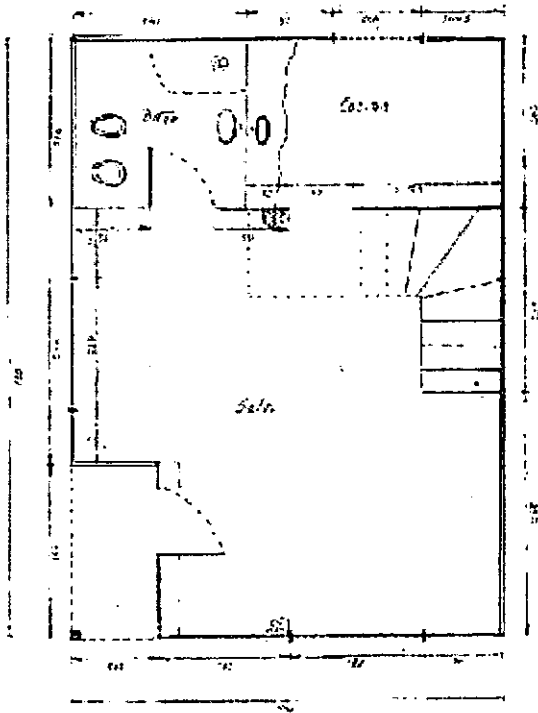


## IMPLEMENTATION

During 2005, we built our Field Station within the property of the ecotourism establishment San Sebastián de la Selva, María Soledad. This establishment is located within the Urugua-í - Foerster corridor.

The field station has 70 m<sup>2</sup> distributed in two stories, with an office-laboratory, a bathroom, a kitchen and two bedrooms. It has the capacity of housing 8 people. It is located in the middle of the corridor, less than 2 km from the limits of both provincial parks.

The amenities already present in San Sebastián de la Selva, provide us with infrastructural support (internal roads, fresh water, electric light), in return to which we offer them advice regarding the development of ecotourism activities in the forests within the property, we provide basic information about the regional ecosystem and its flora and fauna, and we generate a demand of goods and services



when we are carrying out courses and field work with technician and student groups that use part of its facilities.

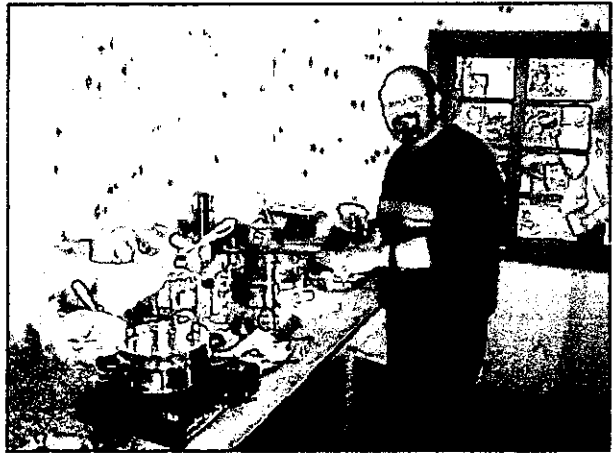
## FUTURE ACTIONS

In order to encourage researchers to use our Field Station, we will communicate its facilities on our web page and send this information to main Argentinean Scientific Research Centres.

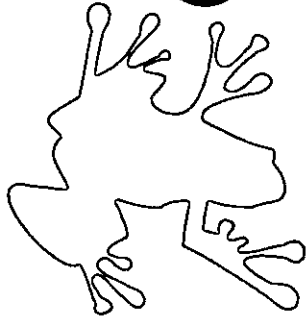
We will develop a database containing information about our field station and Misiones protected areas aimed to facilitate the campaign logistic of research teams interested in working into the corridor and in other protected areas in the province.

This database will include the access roads, infrastructure facilities, internal work rules in provincial and national parks and in private reserves, necessary permits, collecting, transporting and destination of type specimens national laws.

Several researchers have personally communicated us their interest in developing their projects samplings in the area of the Urugua-í Foerster corridor during 2006, staying at our field station. One of those studies is about Opiliona (Daddy longlegs) biodiversity (University of Córdoba) and other one treats on the biology of Weevils and their guest plants (University of La Plata).



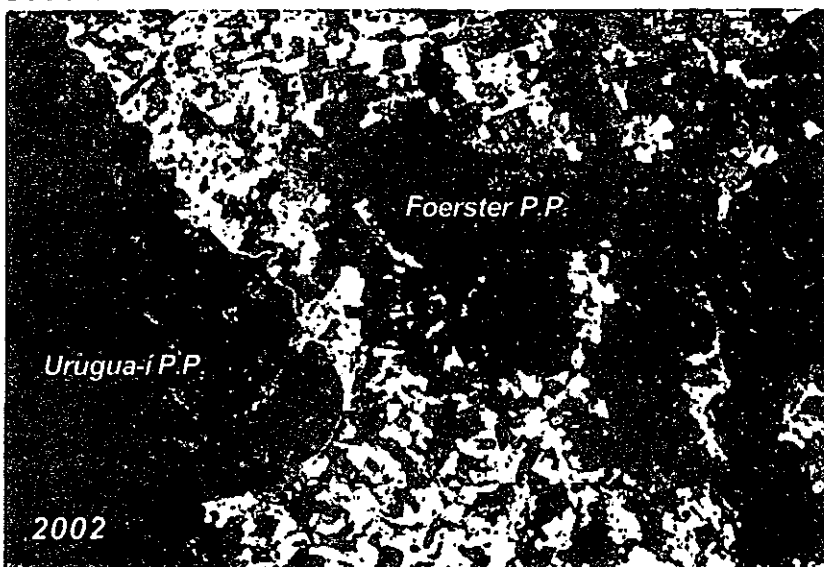
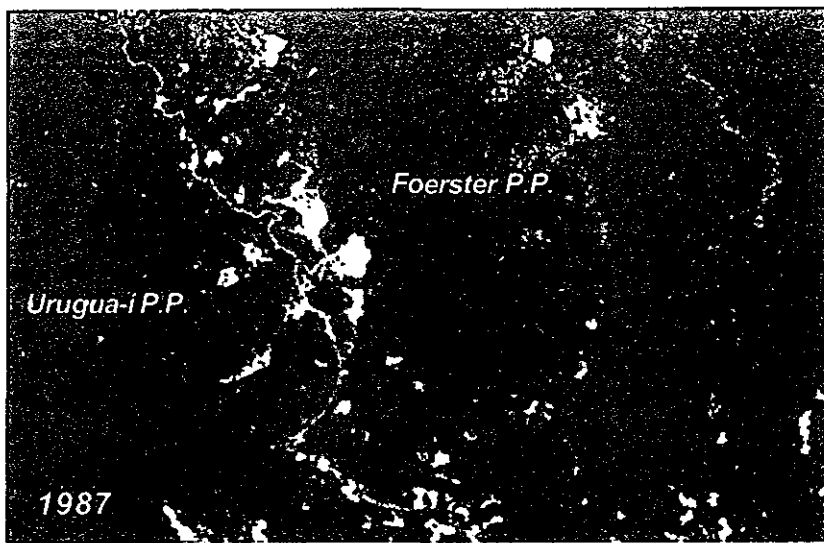
8



a new reserve  
for the corridor



# a new reserve for the corridor



## BACKGROUND

The consolidation of the connection between Urugua-i and H. Foerster parks was the initial and principal objective of our project. Maintaining a forest connection between both protected areas is essential for the long term conservation of species and the genetic diversity of populations.

In 2002 we detected the existence of this unique forest corridor by satellite image analysis threatened by the processes of deforestation and fragmentation during the last fifteen years (see maps of this page). The importance of this key area was later confirmed through our bird banding program. We classified this area as of high priority and our recommendation was to purchase it and declare it as a conservation area (Rey et al. 2003).

With this concern in mind, we meet with other important NGOs working in the area (Fundación Vida Silvestre Argentina) and the provincial government with the clear objective of the long term conservation of this area.

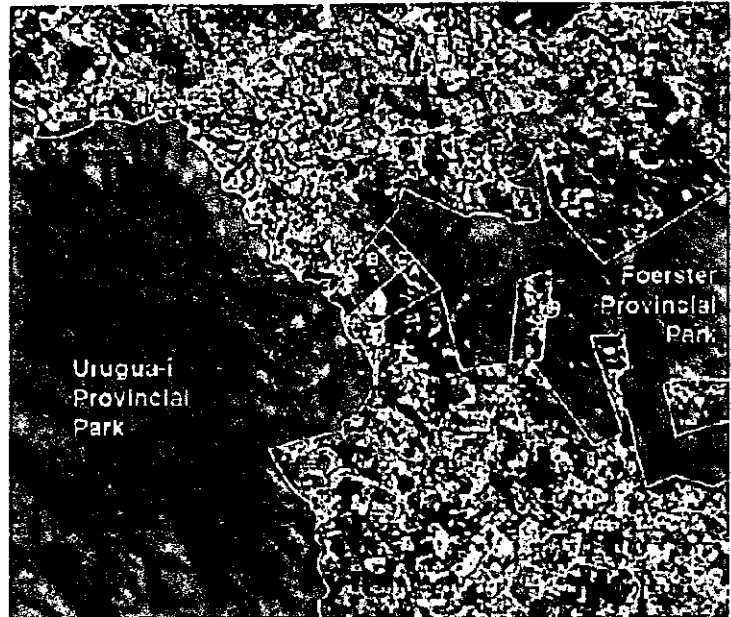
## RECOMMENDATIONS OF THE PROJECT

The work carried out during the first stage of the project (2002-2003) generated high quality information which was used for designing important conservation recommendations for the provincial government and local NGOs.

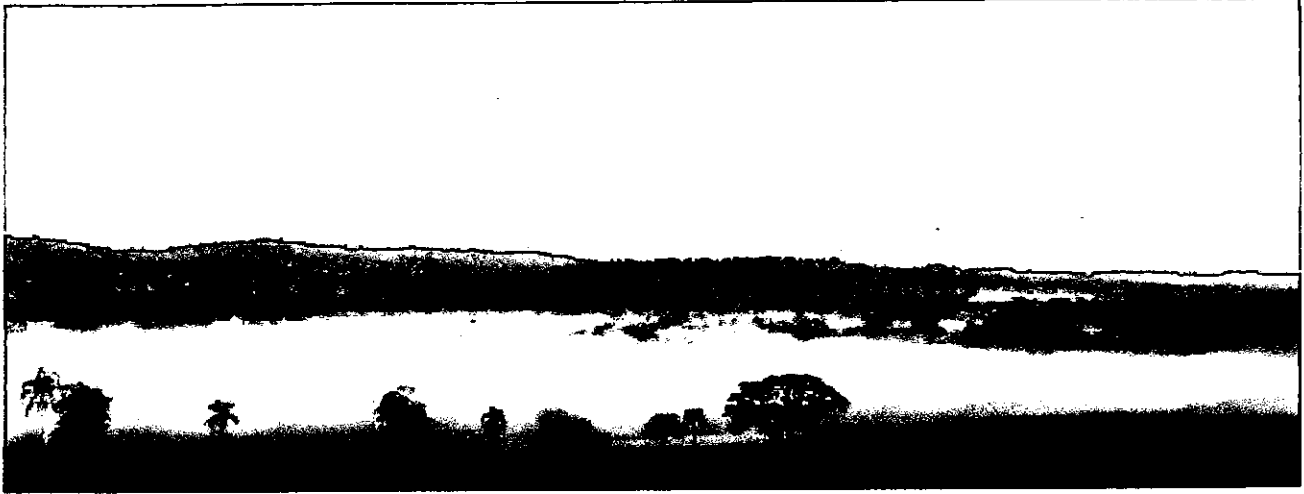
The main recommendation was to protect the major forest remnant that still connects both protected areas in the corridor area. This area covers a 207 ha farm (B property in map) and 2 to 4 small lots (15-30 ha each). Our advice was to raise funds from IUCN-Netherland or FFI-Arcadia Fund for the purchase of these strategic lands to maintain connectivity. These recommendations were mostly intended to the government, through the Ministry of Ecology, RNR and Tourism of Misiones province, and to Fundación Vida Silvestre Argentina, WWF partner and one of the main conservationist NGOs in Argentina.

## RESULTS

In August 2004, we were called by the regional office of FVSA to present a joint project for the purchase of these lands to IUCN-Netherland. FVSA and CA wrote the proposal together, which was finally presented in October. In December, the project was selected by IUCN (see [http://www.nciucn.nl/english/funds/purchase/engels/projecten\\_eng.htm](http://www.nciucn.nl/english/funds/purchase/engels/projecten_eng.htm)) to be awarded the requested funds, which were to be administered by FVSA. The proposal consists of purchasing 3 strategic farms to assure the connectivity of the Uruguáí-Foerster corridor by creating a private protected area managed by our NGO (CA), creating a management plan and constructing the necessary infrastructure for the reserve (visitor's centre, park ranger housing, roads, signs). These lands are next to San Sebastián de la Selva ecotourist lodge (property A in the map), where we established our biological station.







## **INTER - INSTITUTIONAL COOPERATION**

With the objective of purchasing the land and creating the above mentioned protected area, CA and FVSA met with the Ministry of Ecology of Misiones. A partnership between the three institutions was created in order to carry out this proposal, avoid social conflicts and to guarantee the long term sustainability of the area. As a result we agreed on a co-management of the area (provincial government-NGOs).

## **GOVERNOR'S DECREE**

In 2005, the governor of Misiones signed a decree for the creation of a new conservation area: the biological corridor between Urugua-í and Foerster provincial parks, which includes the above mentioned lands (see the appendix).

## **LESSONS LEARNED**

Through our experience, we believe that conservation projects should be based on a multi-criteria approach to achieve success. The combination of sustainable production, education, scientific research and the creation of new protected areas should be implemented at the same time in order to consolidate the long term conservation of an area.

We believe that the acquisition of small, but critical areas must be considered in conservation projects. The long term conservation of new protected areas should be based on a commitment from the government as well as the local community. In our case, we believe that a strong work with the local

community will be necessary to create this commitment with the preservation of the protected area.

Cooperation with other institutions (Fundación Vida Silvestre and the provincial government) was critical for fund raising and reserve implementation. In the years to come, we have to strengthen and increase the degree of cooperation in order to consolidate the reserve.

The purchase of private land should be managed with extreme caution with regards to the local community. The feeling of been «expulsed from their land» by foreign people or the government should be avoided by conducting a strong educational programme and delivering the correct information. If the local community is not incorporated in the management of the protected area from the beginning, its long term conservation might be threatened.

## **FUTURE ACTIONS**

- To develop the conservation area management plan as a participative effort between the provincial government, Conservación Argentina, FVSA and local inhabitants that live in the reserve surroundings.
- To create an agroecology, conservation, and education community centre open to local people.
- To use restoration and agro-forestry techniques to recover deforested lands in the reserve.
- To implement a «school tree nursery» inside the conservation area.
- To construct the necessary infrastructure and signs.

9

conservation  
alliances



# conservation alliances



## **Ministry of Ecology of Misiones Province**

Since 2002, our NGO, Conservation Argentina, has an agreement with the Ministry of Ecology, RNR and Tourism of Misiones for the implementation of the Urugua-í Green Corridor project. The friendly relationship maintained so far with the provincial government assured the effective application of most of our recommendations.

The ministry played a key role in the maintenance of our native tree nursery, allowing the active participation of the park ranger Aloicio Foletto in its management. At the moment, we are working close to the government on the implementation of the corridor reserve and on the publication of local biodiversity field guides.



During 2005, the minister of Ecology, Luis Jacobo, visited the project field area, our biological station and our native tree nursery. During this event, we agreed on several future common works in the corridor.

## **Fundación Vida Silvestre Argentina**

Fundación Vida Silvestre Argentina (FVSA) is one of the most important conservationists NGO in our country and is the local partner of WWF. During the last few years, our relationship with the FVSA's local office in Iguazú has grown.

In cooperation with FVSA ecoregional coordinator, Manuel Jaramillo, and the local staff, we have begun to collaborate on several common goals. The most important was the land acquisition project in which aimed to enhance the connectivity between the parks. We have also performed together several other activities (see Chapters 5 and 8).

In addition, both NGOs organized a field workshop on agroforestry systems and we are currently working on the publication of an agroforestry booklet intended for technicians and local producers. This active interaction between both NGOs has led us to agree on signing a cooperation agreement.

**Working together.** Above (from top): Minister of Ecology visits our field station; promenade in the corridor with FVSA staff.



**Working together.** Above (from top): J.F. Lima from IPÉ sharing a break with CA and FVSA members during the Agroforestry Workshop; Japanese students visiting the project tree nursery.

### **IPÉ**

The IPÉ (Institute of Ecological Investigations) is a worldwide recognized NGO because of their achievements in the conservation of endangered species and landscape restoration working with small peasants from the Landless People Movement (MST, Movimento dos Sem Terra) in Brazil. Several members of the project have attended different courses organized by this institution and some members of the IPÉ have visited our project, which has allowed an exchange of experiences among both NGOs. The work developed by the IPÉ in Brazil has been used from the beginning of our project as a model to follow for the consolidation of our new ONG.

### **JICA**

Agents from the JICA –Japan International Cooperation Agency-, the Municipality of Andresito, the province of Misiones (through the Ministry of Ecology) and the National Parks Administration are developing the Caburé-í project in northeast Andresito, a region bordering Iguazú National Park. This project includes environmental education activities and the development of a pilot eco-tourism enterprise.

Conservación Argentina collaborated with the Caburé-í project partner institutions by organizing three full day training courses intended for education agents, national gendarmes and park rangers from Andresito and the Urugua-í - Foerster Corridor. The courses included theoretical-practical classes on topics related to local insects, birds and mammals, their study, their relationship with the local community and their conservation.

### **AECI**

The Spanish Agency of International Cooperation (Agencia Española de Cooperación Internacional, AECI), has begun to work in the north of Misiones (in cooperation with the National Parks Administration and the provincial Ministry of Ecology) on the conservation and sustainable development of the Araucaria («Araucaria» program). At the moment, they have not formally begun their project, but our NGO has already started to interact with the AECI technicians in order to cooperate in future activities to be held in the area.

### ***Maimonides University***

Conservación Argentina signed a cooperation agreement with Maimónides University, an academic institution based in Buenos Aires, which offers support to the project and the NGO. This support entails office space with internet service, fax and telephone for the NGO in Buenos Aires.

### ***University of Buenos Aires***

The project is working in cooperation with the University of Buenos Aires, particularly in with regards to the generation of scientific research. Diego Varela, Gustavo Zurita and Mariana Villagra, three of the members of the project, are conducting their PhD studies within the University of Buenos Aires.

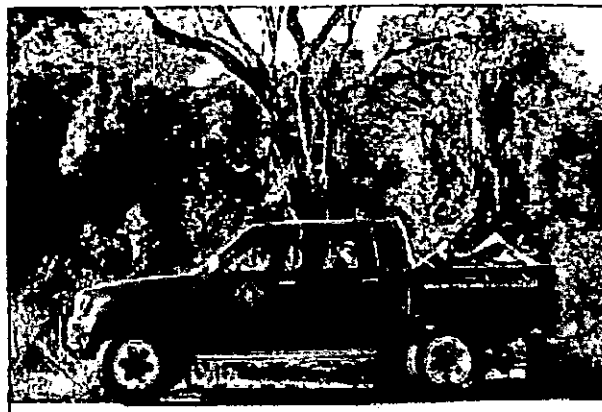
The Functional Ecology Laboratory (LEF) of this university is carrying on several scientific research projects in northern Misiones. The biologists of that laboratory were shown delighted in participating of our project and during the implementation of the education activities with the EFA (see Chapter 4) they consolidated their participation like assistants of the students projects.

### ***National University of Misiones***

We are currently working with the most important academic institution of the region, the University of Misiones. The areas of cooperation between Conservación Argentina and this university are rapidly increasing and include the participation of university members in workshops (see Chapter 5), field training of biology professorship students and the participation of project members in theoretical classes at the university.

### ***National Gendarmerie***

We are training national gendarmerie on bird diversity and regional mammal species identification. The main objective is to increase the effectiveness of the control of illegal hunters within the provincial parks and the corridor. We also aim to implement a monitoring programme of endangered species inside protected areas by training park rangers and gendarmerie in the recognition of these species.



***Working together.*** Maimonides University vehicle assisting our field work.

### ***Moises Bertoni Foundation***

Moises Bertoni Foundation is one of the biggest NGOs working on the Conservation of the Interior Atlantic forest in Paraguay. Our work with the Moisés Bertoni foundation includes sampling their reserves and their willingness to participate in the regional Biodiversity Sentry Sites Program.

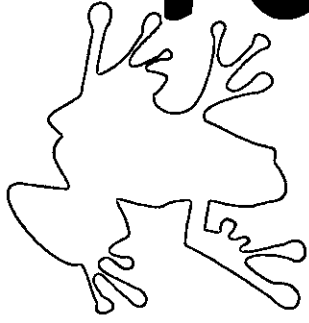
### ***Itaipú Binational Hydroelectric***

The Itaipú Binational hydroelectric is located in the Interior Atlantic forest located in the border between Paraguay and Brazil and constitutes the largest dam in the world. Itaipú created 5 natural reserves near the artificial lake. Itaipú is now interested on the implementation of the Biodiversity Sentry Sites Programme within their reserves.

### ***Centro de Investigaciones del Bosque Atlántico - CeIBA***

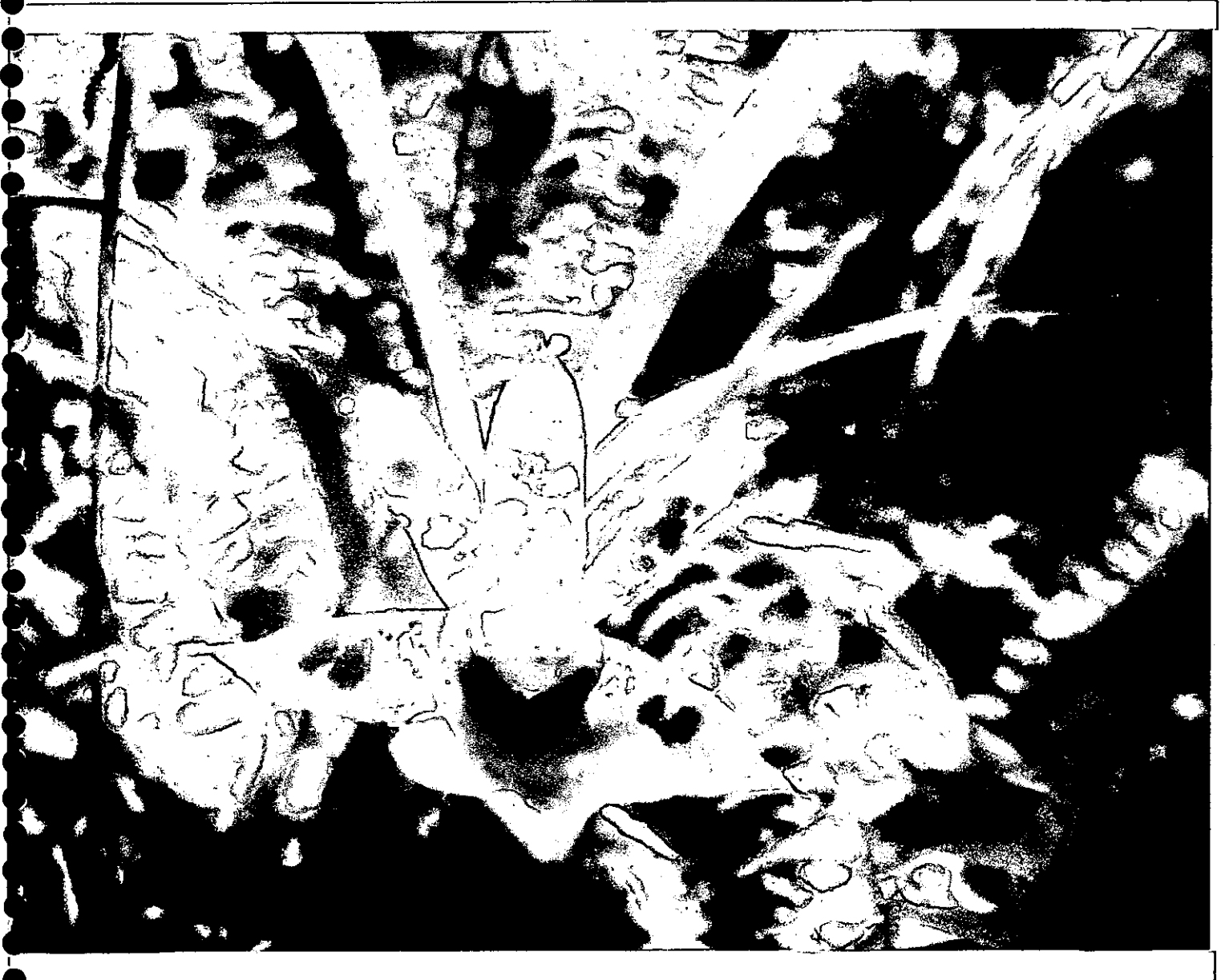
We are participating in the creation of the Centro de Investigaciones del Bosque Atlántico (CEIBA). This centre will allow consolidating a group of researchers in thematic related to ecology, conservation and forest management and to generate scientific knowledge and technology that help to the regional development.

10



project

communication



# project communications

Since our beginnings, the activities of the project were communicated through different media: press, newsletters, radio and television interviews, local festivals, talks, leaflets, posters and scientific meetings.

## NEWSLETTERS

**CONSERVACION ARGENTINA**

### Corredor Verde Uruguay-1

El primer número de la revista fue publicado en julio de 1994.



#### Reforestación

El primer número de la revista fue publicado en julio de 1994. Este número se centra en la reforestación, un tema clave del proyecto. Se describen las actividades realizadas en el campo, los tipos de plantas utilizadas y el compromiso de la comunidad local. Se menciona la participación de estudiantes y voluntarios en las jornadas de siembra.




## ¿Qué es el proyecto?

El proyecto de conservación ambiental y reforestación se centra en la creación de un corredor verde que conecte los espacios urbanos con las áreas naturales protegidas. Este proyecto busca mejorar la calidad del ambiente, promover la educación ambiental y generar oportunidades de empleo para la población local.

El proyecto es financiado por el gobierno argentino y la cooperación internacional. Se cuenta con el apoyo de diversas organizaciones y empresas privadas.

**Proyecto Corredor Verde**

El proyecto es coordinado por el **Departamento de Conservación Ambiental** de la **Universidad Nacional de Córdoba**.

Se invita a todos los interesados a participar en las actividades del proyecto. Para más información, contactarnos en:

**CONSERVACION ARGENTINA**

Av. Vélez Sarsfield 1177 - Córdoba, Argentina  
Tel: (0351) 422-2122

LA ONG DESARROLLA PROGRAMAS DE CONSERVACIÓN MEDIOAMBIENTAL

# En Andresito se edifica una estación biológica

La construye Conservación Argentina en el establecimiento San Sebastián de la Selva y permitirá anjar a investigadores

**CONSERVACIÓN ARGENTINA**, Conservación Argentina, una ONG dedicada al estudio y conservación de la biodiversidad, está construyendo una estación biológica en el establecimiento San Sebastián de la Selva para el alojamiento de investigadores en el área del corredor Uruguá-i-Foerster.

La ONG, creada en el 2001, desarrolla programas y proyectos de conservación de la naturaleza, incluyendo el monitoreo ambiental, el estudio y la aplicación local basada en la investigación, la educación y la participación.

Diego Martín y sus colaboradores de la ONG, se encuentran en el paraje San Sebastián con Luis Lucio, ministro de Ecología, Recursos Naturales, Renovables y Pesca, para detallar las tareas que debe cumplir la estación biológica en el corredor Uruguá-i-Foerster, el cual es un área de alta biodiversidad y riqueza local. Entre las tareas que se realizarán se encuentran: el monitoreo ambiental, el estudio y la aplicación local basada en la investigación, la educación y la participación.



Visitan los terrenos donde se construirá la estación biológica en el establecimiento San Sebastián de la Selva.

En las parqueras se expande a docenas y guardaparques locales

En el establecimiento San Sebastián de la Selva, se encuentran los terrenos donde se construirá la estación biológica.

Entre las principales tareas que se realizarán en la estación biológica se encuentran: el monitoreo ambiental, el estudio y la aplicación local basada en la investigación, la educación y la participación.

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El proyecto es de la organización no gubernamental Conservación Argentina

# Crearán islas de biodiversidad para conservar flora y fauna

Las parqueras con matorral de altura en el área de los parques provinciales Uruguá-i y Foerster, en Andresito. Buscan lograr la conectividad entre ambos corredores biológicos

**CONSERVACIÓN ARGENTINA**, una ONG dedicada al estudio y conservación de la biodiversidad, está desarrollando un proyecto de creación de islas de biodiversidad en el área de los parques provinciales Uruguá-i y Foerster, en Andresito. El proyecto busca lograr la conectividad entre ambos corredores biológicos.

## Resultados

El proyecto de creación de islas de biodiversidad en el área de los parques provinciales Uruguá-i y Foerster, en Andresito, ha logrado resultados significativos. Se han identificado y protegido varias especies de flora y fauna, y se ha logrado mejorar la conectividad entre los corredores biológicos.

El proyecto de creación de islas de biodiversidad en el área de los parques provinciales Uruguá-i y Foerster, en Andresito, ha logrado resultados significativos. Se han identificado y protegido varias especies de flora y fauna, y se ha logrado mejorar la conectividad entre los corredores biológicos.



Las parqueras con matorral de altura en el área de los parques provinciales Uruguá-i y Foerster, en Andresito.

**Muchos lo presuman**  
**¡Somos los que damos**  
**todos los lunes**

**la suerte**

Los lunes junto a tu diario

## LEAFLET

**CONSERVACION ARGENTINA**

CA - Programa Selva Misionera  
Centro de Investigaciones del Bosque Atlántico (CeIBA)  
Puerto Iguazú (3370), Provincia de Misiones  
Tel: (03757) 42-2964  
E-mail: conservac@arnet.com.ar  
WebSite: www.conservac.org.ar

Conservación Argentina (CA) es una organización no gubernamental (ONG) sin fines de lucro fundada en 2001, dedicada al estudio y conservación de la biodiversidad y la promoción del desarrollo sustentable a escala humana, con una fuerte unión entre los aspectos sociales y ecológicos. Entendemos que la conservación efectiva de especies y ecosistemas es un objetivo que deberá ser alcanzado a través de la generación y el uso del conocimiento científico y tradicional, así como también creemos en la importancia de involucrar a las comunidades locales y sumistrarles herramientas que les permitan alcanzar un equilibrio entre el uso que ellas hacen del ecosistema y su preservación.

**Misión de CA**  
Desarrollar programas y proyectos de conservación de la biodiversidad, buscando e implementando soluciones simples, sustentables y de aplicación local, basadas en la investigación, la educación y la participación; teniendo en cuenta las necesidades sociales y la diversidad cultural de las comunidades donde trabajamos.

**El desafío de descubrir la selva**  
Para llegar al área del proyecto usted puede viajar por la ruta Nacional 101 (ripio) desde Puerto Iguazú, cruzando el Parque Nacional. Otra opción es a través de la ruta 12 (asfalto) atravesando el Parque Provincial Uruguá-i, aunque los caminos 23 son los de ripio sobre la ruta 12. Misiones y su selva tienen muchas cosas por mostrar además de las Cataratas. El municipio de Andresito, por su proximidad a Iguazú es considerado el portal de entrada a la selva y el ecoturismo. Génesis del desafío, creemos sus áreas protegidas, fauna y flora silvestre y su gente. ¡Visite Andresito!

Esta iniciativa cuenta con el apoyo de:

Ministerio de Ecología, R.M.A. y Turismo de Misiones | Universidad Misionera | **San Sebastián de la Selva** ECOTURISMO ANDRESITO | Programa Educación para la Naturaleza

Proyecto financiado por:

BirdLife Internacional | **WORLD WILDLIFE FUND** | **CONSERVATION INTERNATIONAL** | **SELVA MISIONERA**

programa de conservación de bp

**Corredor de Biodiversidad**  
**Uruguá-i • Foerster**

Proyecto de conservación y uso sustentable de los recursos naturales en el corredor biológico entre los parques provinciales Uruguá-i y Foerster

Acciones locales pensadas sobre una estrategia eco-regional de conservación del Bosque Atlántico en el Corredor Verde de Misiones

Andresito • Misiones • Argentina



# Corredor de Biodiversidad Urugua-í • Foerster



Conservación Argentina  
Buenos Aires, Argentina  
Avenida Corrientes 11000-87  
Tel. 011 4382-1100  
www.conservacionargentina.org.ar

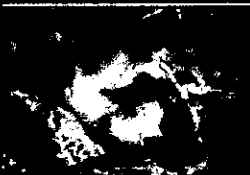


Conservación Argentina con el apoyo del Ministerio de Ecología de Misiones, mandó un equipo de técnicos locales con el objetivo de proveer plantines para la reforestación en las chacras del comercio.



La educación ambiental es clave para la conservación a largo plazo de la selva misionera, por ello es fundamental un trabajo coordinado de docentes, guardaparques y ONGs.

Los sistemas agroforestales (SAF) son una forma sustentable de compatibilizar cultivos y reforestación para diversificar la chacra. Los SAF brindan alimentos, madera y forrajes medicinales conservando el suelo, el agua, el micro-clima y la biodiversidad.



Las áreas de selva continua que conectan los dos parques constituyen corredores clave para la preservación de grandes mamíferos como el taca, los osos y el jaguar.



Muchas especies de aves tienen un importante rol como dispersoras de semillas al facilitar la recuperación de la selva. CA tiene un programa de monitoreo de aves anilladas que permite conocer cómo estos animales utilizan el corredor. Unas 250 especies de aves han sido registradas en el área.

■ Selva  
■ Cultivos  
● Puntos



0 1 km

Parque Provincial Urugua-í

Parque Provincial Foerster



Estación Biológica de la Sociedad Argentina de Conservación

La estación biológica funciona como base para las actividades de CA en el corredor y apoya investigaciones científicas e inventarios de biodiversidad en el área.



San Sebastián de la Selva es un ejemplo de cómo una chacra trabaja para que el ecoturismo y el turismo rural sean una alternativa para la economía local y para contribuir a la conservación de la selva misionera al funcionar como una reserva ecológica privada.



Las frutas de más de 10 especies diferentes de árboles del monte son utilizadas para la fabricación artesanal de mermeladas, dulces, jellies en alcohol y licores.



Los guardaparques de Urugua-í y Foerster además de tener la difícil tarea de cuidar estas fragiles áreas protegidas, son el canal entre las chacras y la gente.



CA impulsa la creación de "Redes de Biodiversidad" a través de la implementación de la selva en zonas rurales, buscando con el objetivo de promover la "conectividad" del corredor, fortaleciendo el movimiento de fauna y semillas entre los parques.



CONSERVACION ARGENTINA



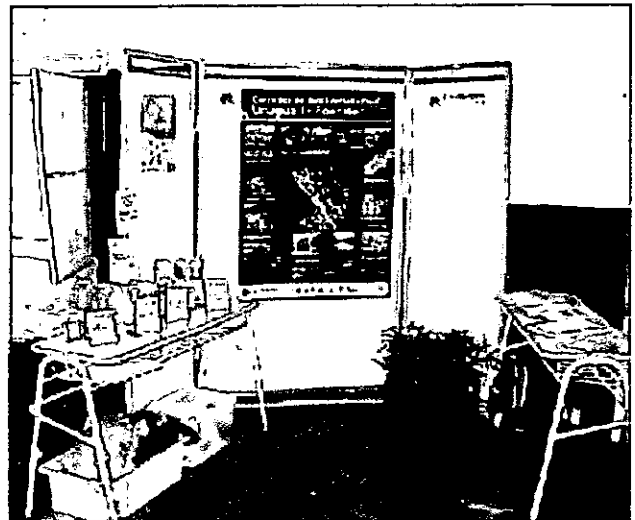
San Sebastián • Selva RESTAURADO SUPLECIATO

## STANDS IN POPULAR FESTIVALS

During the 2nd Festival of the «Araucaria and the environment», held September 4<sup>th</sup> 2005 in San Pedro city, Misiones, we had a stand in which we presented the main activities of our project and we promoted products prepared by farmers from native forest fruits from the corridor. Together with the CeIBA (Centro de Investigaciones del Bosque Atlántico, Atlantic Forest Research Center), we showed the main biological, ecological and conservation research projects carried out in the centre and north of Misiones province.



Also, during the «Farmer's Festival» in Andresito, we held a stand with other people and institutions working within the Urugua-í-Foerster Corridor: NGO Selvas para Siempre (Forests for Ever), Fundación Vida Silvestre Argentina (Argentina Wildlife Foundation) and native wood furniture and native fruit jam producers. In this opportunity, «Science Olympiades» was carried out and the students of EFA (see Chapter 4) exposed the projects «Restoration of the Guavirá-mí brook at María Soledad place» and «Native Arboreal Species in our protected Areas». They obtained the competition first prize.



## PARTICIPATION IN CONGRESSES AND SCIENTIFIC MEETINGS

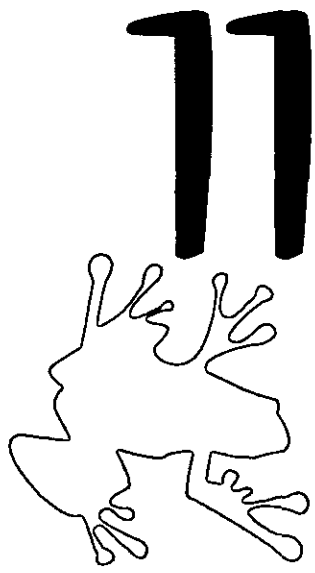
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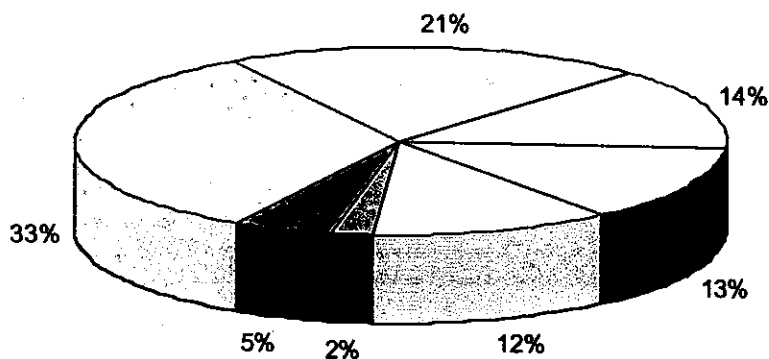


financial  
report



# financial report

## ANALYSIS OF EXPENDITURE FOLLOW UP AWARD US\$ 40,000



- Vehicle and travel expenses
- Field station construction
- Restoration & agroforestry activities
- Living expenses
- Conservation education
- Equipment
- Administration

## OTHER FUNDS

### **Russel E. Train Fellows – World Wildlife Found**

WWF is one of the most important NGOs working towards the long term conservation of the Upper Paraná Atlantic forest in Misiones. Between their priorities, WWF seeks to identify and support conservation leaders in this ecoregion through the Education for Nature Program. In 2002 and 2004, WWF awarded two members of the project (G. Zurita and D. Varela) with two scholarships for their trajectory and projects in Misiones.

### **Argentinean Governmental funds**

The Argentinean government provide economical support to students and researchers that demonstrate a high performance in different scientific fields. Two of the members of the team (G. Zurita and M. Villagra) received four years grants to develop their PhD research based on the scientific and conservation relevance of their projects.

12

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# appendix

## **CORRIDOR PROTECTED AREA DECREE**

Provincial decree signed by Misiones's governor Carlos Rovira and ministries declaring as protected area the key 200 hectares of forest that connect Urugua-í and Foerter provincial parks. The document justifies the conservation importance of the area and declares it as biological corridor.

"2005 Año del Cincuentenario de la Cámara de Representantes de la Provincia de Misiones"



POSADAS, 21 AGO. 2005

DECRETO N°: 1504

VISTO el Expediente N° 7220-1924/04 - Registro de la Dirección General de Tierras y Colonización; y

CONSIDERANDO:

QUE, el Señor Ministro Secretario de Ecología, Recursos Naturales Renovables y Turismo de la Provincia de Misiones, solicita en fecha 09 de Junio de 2005 se reserve a favor de ese Ministerio los inmuebles denominados como: Lotes 148, 149 y 150, Sección IX, Sector C, Colonia Manuel Belgrano, con una superficie total de 209 has 73as 65cas (Plano de Mensura Registrado N° 31: 100), los cuales se encuentran estratégicamente ubicados entre los parques provinciales Uruguai y Foerster;

QUE, los inmuebles en cuestión constituyen un corredor biológico entre los parques provinciales mencionados;

QUE, el corredor en cuestión es de suma importancia para la protección de la fauna silvestre, así como también para la asegurar la continuidad de la cobertura forestal, favoreciendo a la prosecución del objetivo a largo plazo de mantener la integridad ecológica del Parque Provincial Horacio Foerster y Uruguai;

QUE, en el año 2003 por la Fundación Vida Silvestre Argentina (FVSA) y el Fondo Mundial para la conservación de la Naturaleza (WWF), se realizó un informe técnico de la Visión de Biodiversidad de la Ecoregión del Bosque Atlántico del Alto Paraná, el cual tuvo como objetivo diseñar un Paisaje de Conservación de la Biodiversidad tendiente a detener la extinción de especies y mantener servicios ambientales que aseguren la viabilidad a largo plazo de la biodiversidad representada por el Bosque Atlántico;

QUE, dentro de ese paisaje de conservación la Provincia de Misiones se presenta como una de las áreas de mayor interés para la conservación, representando los Parques Provinciales Uruguai y Foerster una cabal demostración del compromiso del Gobierno Provincial con la conservación de esta Ecoregión;

QUE, el Artículo 5° de la Ley Provincial N° 480 faculta al Poder Ejecutivo a establecer reservas de tierras como medida de prevención para futuras necesidades o en defensa de condiciones naturales especiales.

NOMBRE: CARLOS EDUARDO ROVIRA  
TIERRA Y COLONIZACION  
PROVINCIA DE MISIONES



PROVINCIA DE MISIONES  
GOBERNACION

29 AGO 2005

11-2

QUE, el Artículo 66° de la Ley N° 2932 declare Área Natural Protegida sujeta al régimen establecido por la misma al Parque Provincial "Urugua-í" creado por Ley N° 2794 y al Parque Provincial "Guardaparque Horacio Foerster" creado por Ley N° 3359;

QUE, la propia Ley de Áreas Protegidas, N° 2932, en su Artículo 37° ha contemplado la necesidad de que los inmuebles fiscales que coincidieran dentro de los límites de las áreas naturales protegidas, sean mantenidos dentro del patrimonio del Estado Provincial;

QUE, asimismo la creación de la reserva lindante a dos Áreas Protegidas coadyuvan al cumplimiento de los objetivos perseguidos por los incisos a), c), e), i) y j) del Artículo 4° de la Ley Provincial N° 2932;

QUE, atento a lo dictaminado por la Asesoría Jurídica de la Dirección General de Tierras y Colonización a fs. 90/91 y por la Dirección General de Asuntos Jurídicos del Ministerio del Agro y la Producción a fs.100, no existen objeciones para el dictado del dispositivo legal pertinente;

POR ELLO:

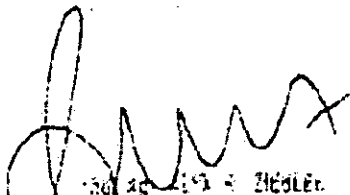
EL GOBERNADOR DE LA PROVINCIA DE MISIONES  
DECRETA:

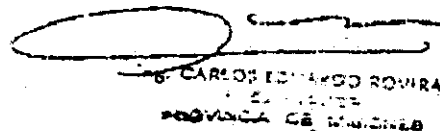
**ARTICULO 1°:** RESERVASE a favor del Ministerio de Ecología, Recursos Naturales Renovables y Turismo los inmuebles denominados como: Lotes 148, 149 y 150- Sección IX- Sector "C"- Colonia Manuel Belgrano, Departamento General Manuel Belgrano, con una superficie total de 200 has. 73as. 65cas. (Plano de Mensura Registrado N° 31.100), con destino a *Corredor Biológico para la Vinculación de los Parques Provinciales Urugua-í y Foerster.*

**ARTICULO 2°:** El DESTINO de los inmuebles no podrá ser modificado sin la expresa autorización del Poder Ejecutivo Provincial.

**ARTICULO 3°:** REFRENDARAN el presente Decreto, los Señores Ministros Secretarios de Gobierno, del Agro y la Producción y de Ecología, Recursos Naturales Renovables y Turismo y el Señor Ministro Secretario de Estado de Hacienda, Finanzas, Obras y Servicios Públicos.

**ARTICULO 4°:** REGISTRESE, comuníquese, dese a publicidad. Tomen conocimiento Ministerio de Gobierno, Ministerio del Agro y la Producción, Dirección General de Tierras y Colonización, Ministerio de Ecología, Recursos Renovables y Turismo, Secretana de Hacienda, Finanzas, Obras y Servicios Públicos, Dirección General de Catastro. Cumplido ARCHIVASE.

  
29 de Agosto de 2005

  
CARLOS EDUARDO ROVIRA  
SECRETARIO  
PROVINCIA DE MISIONES



**Conservación Argentina**

Province of Misiones

Argentina

December 2005