



## **Building Nicaraguan and Costa Rican capacity in biodiversity conservation**



**Darwin Initiative Annual Report 2004/2005**

**Project number: 162/12/020**



**Instituto Nacional  
de Biodiversidad**

**CATIE**

# ***Darwin Initiative for the Survival of Species***

## ***Annual Report***

### **1. Darwin Project Information**

Project Ref. Number	<i>162/12/020</i>
Project Title	<i>Building Nicaraguan and Costa Rican capacity in biodiversity conservation</i>
Country(ies)	<i>Nicaragua and Costa Rica, Central America</i>
UK Contractor	<i>School of Agricultural and Forest Sciences, University of Wales, Bangor</i>
Partner Organisation(s)	<i>INBio and CATIE, Costa Rica</i>
Darwin Grant Value	<i>£173,661</i>
Start/End dates	<i>April 2003 to March 2006</i>
Reporting period (1 Apr 200x to 31 Mar 200y) and report number (1,2,3..)	<i>1 April 2004 to 31 March 2005 Annual Report No. 2</i>
Project website	<i><a href="http://darwin.bangor.ac.uk">http://darwin.bangor.ac.uk</a></i>
Author(s), date	<i>Lorraine Gormley and Nelson Zamora</i>

### **2. Project Background**

- Briefly describe the location and circumstances of the project and the problem that the project aims to address.

The project is located in the Rio San Juan border region of Costa Rica and Nicaragua, Central America. Central America is renowned as a biodiversity hotspot and harbours high species richness. In recognition of this, regional governments have designated the “Mesoamerican biological corridor”, considered to be the world’s most ambitious conservation initiative, as the major focus in their implementation of the Convention on Biological Diversity. The Rio San Juan border region between Costa Rica and Nicaragua is a key section of this corridor (comprising the largest rain forest area in the Americas north of the Amazon) but has received little conservation attention. Thus the project’s focus on this critical “frontier forest” section of the corridor, addresses a major international conservation priority.

Although Costa Rica has a well-developed system of biodiversity inventory and conservation (e.g. through INBio), there has been little coverage of the remoter northern region of San Carlos, which lies within the Rio San Juan basin and where the forest is unprotected and subject to rapid conversion and fragmentation. Similarly, although a large area of intact neighbouring forest in Nicaragua has been given protected status in a new biosphere reserve it has received very little formal biodiversity assessment, or conservation management. There is an urgent need to strengthen the capacity of Nicaraguan and Costa Rican NGOs who have a major responsibility for conservation planning and management in the area.

This project is therefore focusing on building regional conservation capacity through training and staff exchange in biodiversity assessment in fragmented forest

landscapes (an increasingly common component of the Mesoamerican biological corridor). It is formally documenting the distribution and associations of plant and insect biodiversity within the landscape of the Maquenque area (Costa Rica) using expertise in species identification (INBio), habitat characterisation and rapid biodiversity assessment (UWB, CATIE). The information collected through the project activities will contribute to the planning of the proposed new national park (Parque Nacional Maquenque) by the Costa Rican government's Department of the Environment (MINAE).

### **3. Project Purpose and Outputs**

- State the purpose and outputs of the project. Please include your project logical framework as an appendix and report achievements and progress against it (or, if applicable, against the latest version of the logframe).

#### *Purpose:*

To build capacity in biodiversity conservation and management in Nicaragua and Costa Rica, through the facilitation of regional and international exchange of knowledge and skills.

#### *Outputs:*

1. Enhanced expertise of Nicaraguan/Costa Rican NGO staff in biodiversity assessment and protected area management.
2. Biodiversity of the La Cureña area formally described.
3. Priority habitat management plans and local tree and insect species identification guides.
4. Guidelines for national park biodiversity management plan.
5. La Cureña area given protected status by designation of a new national park.

### **4. Progress**

An identified need to evaluate the biodiversity of the San Carlos area of Costa Rica and Nicaragua led to the development of a proposal for this Darwin project. The project was planned to bring together research institutes with local NGOs and government bodies in order to work together to improve capacity in biodiversity conservation in Nicaragua and Costa Rica and to contribute to the formation of a new National Park in Costa Rica by providing information on plant and insect diversity and distribution.

In the first year of the project collection of biodiversity information began and the first biodiversity course was held. In the second year of the project the collection of information has continued, 2 training courses have been carried out and 12 permanent sample plots established. As a result of the plant inventory carried out within the project two new plant species have been discovered and 12 new records of plants made for Nicaragua.

**Year 2 project implementation timetable. Progress is shown in italics.**

<i>Project implementation timetable</i>	
<b>Date</b>	<b>Key milestones</b>
April 2004	<p>Integration of information into a geographical information system (CATIE) Develop a full classification of forest types in the area of the proposed Maquenque National Park (MSc student thesis, CATIE)</p> <p><i>GIS information for the Maquenque area has been incorporated into a GIS as part of an ongoing study by Steven Sesnie (CATIE). Zayra Ramos, a CATIE MSc student, has carried out a classification of forest types in Maquenque.</i></p>
May 2004	<p>First phase of rapid biodiversity assessment (RBA) completed. Carry out assessment of forest condition in study area. Identify conservation priority habitats.</p> <p><i>The RBA was completed as planned. The assessment of forest condition and the identification of priority habitats in Maquenque is ongoing as the data for these is being collected from the PSPs.</i></p>
June-July 2004	<p>Establishment of 12 permanent sample plots.</p> <p><i>8 permanent sample plots have been established and measured during this reporting period. This activity was slightly delayed due to the lengthy process of securing permission from land owners in the Maquenque area to carry out this work. The final 4 plots will be established in Year 3.</i></p>
June-Dec 2004	<p>Identification of trees in permanent sample plots. Ongoing sampling of plants and insects in project area according to defined methodology.</p> <p><i>Identification of trees in permanent sample plots is ongoing, so far all plants in three plots have been identified (a total of approximately 1500 individuals). The rapid sampling of plants and insects in the project area has been completed. Further insect data will be collected within the 12 PSPs; this will be completed in Year 3.</i></p>
July 2004	<p>Analysis of RBA data completed: phase 1.</p> <p><i>The analysis of the data was completed as planned. This is stored in the project database. When the collection of data from the permanent sample plots is finished, the RBA dataset (collected in the area of the proposed Maquenque National Park) plus the PSP data will be presented to the Lapa Verde project who are compiling the management plan for the proposed park.</i></p>
Aug.-Dec. 2004	<p>Ongoing planning of second training course in methods, techniques and theory of taxonomy and biodiversity studies, species identification and rapid biodiversity assessment (Teaching input from INBio, UWB and CATIE).</p> <p><i>Course organisation was completed as planned.</i></p> <p>Scoping visit to field sites in Nicaragua for field based training component of second course.</p>
November 2004	<p><i>This visit was carried out in January 2005.</i></p>

Feb-March 2005	<p>Two week workshop-based training in INBio followed by 2 weeks hands-on field training in Nicaragua, followed by one month of practical experience carried out by participants independently (report by participants to be submitted). Second phase of rapid biodiversity assessment (RBA) completed.</p> <p><i>The second 'Identification, evaluation and monitoring of biodiversity' course was held in February 2005, a year after the first course. The course was held in the Refugio Bartola, Nicaragua, a private reserve on the edge of the Indio Maiz Biosphere Reserve, both of which form part of the Mesoamerican Biological corridor. The course covered both the theory and practise of biodiversity assessment.</i></p> <p><i>As part of the second biodiversity course students received 2 weeks of hands-on field training in Feb. 2005. The trainees are currently carrying out fieldwork to gain practical experience, this will carry on into Year 3. The second phase of biodiversity assessment was completed in Feb. 2005. In addition the analysis of the second phase data has also been completed (this was scheduled to be finished in year 3 of the project).</i></p> <p><i>In addition an extra course, 'Utilisation of Permanent Sample Plots in Natural Forest for Studies of Plant Biodiversity', was held in November 2004.</i></p>
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## Year 2 project achievements

Year 2 of the project has been very successful, we have completed plant and insect inventories in the Maquenque area, the focus of the project, and also in Refugio Bartola, a private reserve which adjoins the Reserva Indio Maiz, the largest forest area in the Americas outwith the Amazon basin. Both are a part of the Mesoamerican Biological Corridor. We have also established and measured 8 permanent sample plots. Identification of the species within the plots will be completed in Year 3 of the project. We have held two capacity building courses, the first focusing on the utilisation of permanent sample plots in studies of plant diversity and the second focusing on the identification, evaluation and monitoring of biodiversity. Further details of the activities carried out in Year 2 are given below:

### 'Utilisation of Permanent Sample Plots in Natural Forest for Studies of Plant Biodiversity' Course, December 2004

The general objective of this course was: to strengthen the knowledge of conservation professionals in the monitoring of plant biodiversity using permanent sample plots (PSPs).

The specific objectives were:

1. To emphasise the importance of information generated by PSP studies in strengthening conservation efforts,
2. To strengthen criteria for decision making in the design of plant biodiversity studies using PSPs,
3. To build capacity in techniques for the establishment and maintenance of PSPs in the field,
4. To build capacity in information collection and analysis from PSPs,
5. To emphasis the importance of reliable taxonomic information in biodiversity monitoring using PSPs.

The course was held in December 2004, with a theoretical section carried out in INBio and a practical section carried out in the Maquenque area. The course covered the theory and practice of setting up a system of permanent sample plots in order to measure plant diversity and to monitor forest dynamics over the longer term. Course

participants were also taught how to analyse the data generated from PSPs. Other related subjects were covered including forest dynamics, the impact of humans on tropical forest, plant identification and biodiversity database management. Course participants were also given a tour of the Herbarium in INBio. A total of ten trainees attended the course, some from our partner institutes of INBio and CATIE and others from the Nicaraguan NGOS of FUNDAR and VIDA. Appendix 1 details the course programme and the participants.

### 'Identification, evaluation and monitoring of biodiversity' course, February 2005

The second 'Identification, evaluation and monitoring of biodiversity' course was held in February 2005. The course was held in the Refugio Bartola, Nicaragua, a private reserve on the edge of the Reserva Indio Maiz, both of which form part of the Mesoamerican Biological corridor. The course covered both the theory and practise of biodiversity assessment. Appendix 2 details the course programme, methodologies, biodiversity data collected and the reports from the course participants.

The general objective of this course was to strengthen knowledge and capacity of personnel from NGOs, GOs and academic institutes in Nicaragua and Costa Rica in the evaluation, conservation and management of natural forest biodiversity. Fifteen trainees attended the course from a variety of Nicaraguan and Costa Rican NGOs, academic institutions and government organisations (see Appendix 2).

The specific objectives were:

1. To generate information about insect and plant communities in the forests of the Rio San Juan basin, part of the Mesoamerican Biological Corridor, Nicaragua,
2. To build the capacity of conservation staff in collecting, analysing and interpreting this information,
3. To build the capacity of conservation staff in biodiversity evaluation methodologies.

### Plant diversity

We utilised the Alwyn H. Gentry Forest Transect methodology to collect data on plant diversity in the Refugio Bartola. The course participants and instructors carried out a field assessment of the area before selecting two distinct forest areas (based on botanical and topographical criteria). We then laid three principal transects of 100 m, in each of the two areas, and then 10 sub-transects of 50 m separated by 10 m were laid perpendicularly to the principal transects. In each of these sub-transects all individuals with a diameter at breast height (DBH) greater than 2.5 cm found within 1 m either side of the transect were measured. For each new morphospecies a sample was collected and labelled numerically.

In total we measured and identified 1549 plants of 278 species. Within this inventory we found 12 species of plants which were new records for Nicaragua and had not been included in the recently published Flora of Nicaragua (Stevens et al. 2001). These findings are very important within the context of the Mesoamerican Biological Corridor and the Rio San Juan Basin. Our plant inventory has produced some of the first data on plant diversity within the buffer zone of the Reserva Indio Maiz.

Students were given lectures and practical sessions on plant identification and in the analysis of biodiversity data (see Appendix 2: Plant Diversity section).

## Insect diversity

The dung beetles (Subfamily Scarabaeinae) are diverse, vary from generalists to specialists and are known to be sensitive to environmental variation. These attributes make them useful as indicators of forest condition (Klein, 1989, Weaver 1995). In addition, dung beetles are relatively easy to collect, and are taxonomically well known. Many of the dung beetle species found in the broad area of the project also have existing ecological information (Solis, unpublished). Within the context of the project we sampled dung beetles in the Refugio Bartola in order to assess the insect diversity of the area and also to teach the course participants the methodologies for doing this.

In order to sample the dung beetles, we utilised the transects laid for the botanical assessment. In each of the two forest areas sampled we utilised the three principal transects as guides and laid 20 sample points separated by at least 40 m. At each point we set four pitfall traps in a 2 m x 2 m square and baited with pig excrement. The traps were left for 48 hours. The beetles collected were identified to species.

In total we collected 1666 individuals of 26 species. The course participants were instructed in standard methods of biodiversity analyses and using these statistics produced a final report (Appendix 2: Insect diversity section).

## 'Exchange of research experiences in the Huetar Norte Conservation Area (including Maquenque)' Workshop, December 2004

This workshop was organised in order to share experiences in the ongoing research that is occurring in the Maquenque area. INBio, our project partner, has a joint program with the Costa Rican National System of Conservation Areas (SINAC), which is part of the Ministry of the Environment (MINAE), to assist in the monitoring of biodiversity in Maquenque. The Darwin project is an integral part of this and the current work of the Darwin project was presented at this workshop by Nelson Zamora. Bryan Finegan, CATIE, another project partner, also presented the results of ongoing research into the use of geospatial data in mapping and monitoring floristic diversity in the San Juan-La Selva Biological Corridor (of which Maquenque is a part). The report of the workshop is in Appendix 3.

## Establishment of a system of permanent sample plots

In order to carry out long term monitoring of plant diversity in Maquenque, the area of the proposed new national park, we will establish a total of 12 permanent sample plots (PSPs). In order to select the location of these sites the area has been divided into two, a northern and a southern area. This reflects the gradient of precipitation and the results of ongoing research (Sesnie, in prep.), which indicate a change in plant communities over the area. Within each of these two areas, six PSPs will be established, three in primary forest and three in logged forest. These plots will enable us to assess biodiversity and also the impact that logging has had on plant diversity. Each plot is of 1 ha and is divided into sub-plots of 20 m x 20 m. Every individual with a diameter at breast height (DBH) greater than 10 cm is measured, this includes trees, palms and lianas. During this reporting period we have established seven permanent sample plots and obtained data from the National University of Costa Rica from one PSP that they have measured in the area. A further four PSPs will be established in Year 3 of the project.

## Plant and insect inventory in Maquenque

During Year 2 of the project, project staff have carried out 12 field trips to Maquenque in order to undertake inventories of plant and insects. A total of 3769 dung beetles (Subfamily Scarabaeinae) have been collected and most identified to species level. These data have been added to the INBio database. In addition we are carrying out dung beetle sampling within each of the permanent sample plots. This will enable an analysis of dung beetle communities over the Maquenque area and also provide an indication of the effects of logging on beetle communities. The beetle inventory within the 12 PSPs will be completed in Year 3 of the project.

The plant inventory has resulted in a plant species list for the area of 704 species, a voucher specimen has been collected for each species and stored in the INBio Herbarium. Within the reporting period 78 species were added to the species list for the area and seven rare species have been collected that were previously unknown in the area. In addition two species new to science have been discovered in the area. The first has been described and named *Symplocos striata* (Kriebel and Zamora, 2004). The second is a new species within the genus *Lonchocarpus* and is currently being described.

## CATIE MSc student

Dalia Sanchez, a member of staff with Cocibolca, a Nicaragua conservation NGO, started her MSc programme in CATIE in January 2005.

- Discuss any significant difficulties encountered during the year and steps taken to overcome them.

The project has made excellent progress throughout Year 2. In Year 1 of the project it became evident that the original number of weeks of training stated in the proposal would be difficult to achieve due to the difficulty that NGO staff had in securing this much time away from their everyday duties. This does not reflect reduced commitment to the project by trainees and their organisations but simply the workload that course participants have to carry out within their everyday jobs. As a result of these lessons learned we revised the programme of capacity building courses in Year 2. Instead of one capacity building course, we held two courses which focussed on different aspects of biodiversity conservation. The first addressed the setting up of a system of permanent sample plots and the collecting and analyses of the data from these, while the second was a continuation of last year's biodiversity evaluation, monitoring and identification course.

Included within these two courses was a field-training component. Originally we had hoped to carry out two months of field training additional to these two aforementioned courses. This has not been possible for two reasons: firstly the difficulty that course participants have in securing time away from their everyday duties, and secondly the budgetary constraints that we have had. Our original budget did not allow sufficient funding for the full field-training component as field accommodation and subsistence has proved to be significantly more expensive than originally calculated.

- Has the design of the project been enhanced over the last year, e.g. refining methods, indicators for measuring achievements, exit strategy?

Project partners have met on a number of occasions to discuss the collecting methodologies and the course content of the capacity building courses. The methodology for setting up the system of permanent sample plots and measuring and identification of the individuals in the plots was decided during this reporting period. In addition, the methodology for collecting insect data within the permanent sample plots has been developed.

The project is increasingly collaborating with Nicaraguan academic institutes and NGOs working in biodiversity conservation on the Nicaraguan side of the Rio San Juan basin. It has become evident that there is a real shortage of biodiversity information for this area and as a result of this the project decided to hold the second 'Identification, evaluation and monitoring of biodiversity' course in the buffer zone of the Indio Maiz Biosphere, Nicaragua. This refinement to the original project plan has enabled us, through the Darwin project, to both document the biodiversity of the Maquenque area in Costa Rica and provide some of the first biodiversity data for the buffer zone of the Indio Maiz Biosphere Reserve.

- Present a timetable (workplan) for the next reporting period.

<i>Project implementation timetable</i>	
<b>Date</b>	<b>Key milestones</b>
April-May 2005	One month of practical experience (report by participants to be submitted). Progress in priority habitat management plans.
July 2005	Technical report of RBA information. Priority habitats assessed by trainees, UWB and INBio. Local priority species (by conservation, ecological, utility/cultural values) selected.
Aug. 2005	Collation of data/values from field assessment, collaborators and wider stakeholder participation.
Oct. 2005	Draft species identification guides for tree species and insect indicator groups produced by INBio and UWB.
Nov. 2005	Draft species identification guides field tested by project participants and CATIE MSc students.
Nov. 2005	Species reference collections of insect indicator groups and tree species established for La Cureña region, held in INBio.
Dec. 2005	Database completed and tested. Draft guidelines for Maquenque National Park written.
Dec. 2005	Feedback obtained from stakeholders and Mesoamerica Biological Corridor project regarding guidelines.
Nov. 2005	Priority habitat management plans and Maquenque National Park Management Plan guidelines written.
Jan. 2006	Final revised versions of species identification guides; published by INBio. 2 manuscripts submitted for international publication.
Jan. 2006	Final revised versions of National Park Biodiversity Management Guidelines produced and disseminated to MINAE, Mesoamerica Biological Corridor project and local NGOs including CODEFORSA.
Feb. 2006	Training/guided experience in stakeholder participation and workshop facilitation for the project trainees.
Feb. 2006	Two day workshop to disseminate plans and guides to NGOs, government officers, trainers/researchers.
Feb. 2006	Dissemination/feedback by regular liaison with MINAE/MARENA (including annual report); final key meeting.

## **5. Actions taken in response to previous reviews (if applicable)**

We responded to the review of our last year's annual report in Oct. 2004 after discussion with project collaborators. The principal action that we took as a result of the review, coupled with the lessons learned in the first year of the project, were to hold two capacity building courses instead of one. We focused on different aspects of biodiversity monitoring in each course, thus attracting different course participants for each course and reducing the issue of course participants' difficulty in securing time away from their everyday posts.

## **6. Partnerships**

Collaboration between UK and host country partners has continued very successfully throughout the second year of the project. Regular contact is made by email and Dr Lorraine Gormley has made two visits to Costa Rica and Nicaragua.

Existing links between the project partners and local NGOs and GOs have been further strengthened throughout the year. The project has facilitated new links with additional Nicaraguan NGOs and academic institutions, specifically Asociacion GAIA, the Universidad Nacional Autonoma de Nicaragua, Universidad de Leon and the Universidad de las Regiones Autónomas de la Costa Caribe Nicaragüense (URACCAN). Representatives from both the Nicaraguan and Costa Rican Ministries of the Environment (MARENA and MINAE) also attended the training courses.

In addition, it is important to highlight that the workshop described in the 'Progress' section above entitled 'Exchange of research experiences in the Huetar Norte Conservation Area' was the first time that organisations working in the Maquenque area had formally met to share experiences and information regarding their work. This is an important development in the progress of the proposal for the new national park.

We have been in contact with The Society for Environmental Exploration / Frontier who have just been awarded a new Darwin project in northern Nicaragua. We hope to continue dialogue with them and plan to meet to discuss our projects this month. We also hope to be able to exchange experiences once the project is up and running in Nicaragua.

## **7. Impact and Sustainability**

The profile of the project in both Costa Rica and Nicaragua has been raised by project activities particularly the carrying out of training courses. In order to select participants for the courses we advertised widely and this has facilitated greater recognition of the project in biodiversity and conservation circles in both countries. Various meetings have been held with project stakeholders throughout the year and the project website has been developed.

During the training courses the enthusiasm of the course participants to learn and to contribute to conserving biodiversity has been very evident. We are working with six NGOs, two GOs, and four academic institutes which have a focus on biodiversity conservation and are very keen to build capacity in this area.

As a result of the project training courses, capacity in biodiversity conservation in both Nicaragua and Costa Rica has been strengthened and personnel trained by the course are already using the skills they have learned in their organisations. The project has also strengthened institutional links between UWB and the organisations in Costa Rica and Nicaragua, and also the links between Costa Rican and Nicaraguan organisations have been strengthened. These institutional relationships facilitated by the Darwin project will remain after the project has finished and ensure that valuable work in biodiversity conservation continues in the area.

#### **8. Post-Project Follow up Activities (max 300 words)**

Not applicable as yet.

#### **9. Outputs, Outcomes and Dissemination**

The project implementation timetable presented in Section 4 of this report details progress in Year 2 of the project. We have completed the majority of the milestones listed in the Year 2 timetable. Completion of the measuring and identification of species in permanent sample plots is slightly delayed and will be completed in Year 3.

We held two training courses in Year 2 of the project; one of these was additional to the original plan for the reasons described in Section 4. During these courses we incorporated a classroom-based and a field-based component. As a result of the difficulty that course participants had in securing extra time away from work, coupled with the budget limitations we encountered, it was not possible to carry out the additional practical experience in the field that we had planned. We have minimised the effect of this by ensuring that all course participants had time in the field carrying out plant and insect inventory during the courses and by planning individual projects with the trainees which they are currently undertaking. This involves independent fieldwork coupled with a follow up period in INBio to analyse and consolidate their work and produce a final report. This follow up period will be undertaken in Year 3.

**Table 1. Project Outputs (According to Standard Output Measures)**

Code No.	Quantity	Description
6A/6B	15	Costa Rican and Nicaraguan NGO and government staff receive 2-week course in species identification and biodiversity assessment.
6A/6B	15	Costa Rican and Nicaraguan NGO and government staff receive 2 weeks of hands-on field training in biodiversity inventory, identification and assessment.
6A/6B	10	Costa Rican and Nicaraguan NGO and government staff receive 2 weeks of classroom based and field training in biodiversity inventory, identification and assessment using permanent sample plots.
2	1	1 Nicaraguan NGO staff member studies for an MSc in CATIE.
8	5	UWB staff time in Costa Rica and Nicaragua.
11B	1	Paper submitted (and published) to peer reviewed journal.
12A, 12B	2	Plant and insect databases developed and project data stored.
13A, 13B	2	Species reference collections of insects and plants established for Maquenque. INBio's existing collection enhanced.
15A, 15B	1	Press release in Costa Rican press.
17A	1	Project website: <a href="http://darwin.bangor.ac.uk">http://darwin.bangor.ac.uk</a>

**Table 2: Publications**

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Journal	<i>Symplocos striata</i> (Symplocaceae), una especie nueva de la vertiente Caribe de Costa Rica, Ricardo Kriebel and Nelson Zamora, 2004	Lankesteriana 4(3): 171-174	Nelson Zamora, INBio	



In this section you have the chance to let us know about outstanding achievements of your project over the year that you consider worth highlighting to ECTF and the Darwin Secretariat. This could relate to achievements already mentioned in this report, on which you would like to expand further, or achievements that were in addition to the ones planned and deserve particular attention e.g. in terms of best practice. The idea is to use this section for various promotion and dissemination purposes, including e.g. publication in the Defra Annual Report, Darwin promotion material, or on the Darwin website. As we will not be able to ask projects on an individual basis for their consent to publish the content of this section, please note the above agreement clause.

Central America is renowned as a biodiversity hotspot with high species richness and endemism. In recognition of this regional governments have designated the "Mesoamerican biological corridor", considered to be the world's most ambitious conservation initiative, as the major focus in their implementation of the Convention on Biological Diversity. The Rio San Juan border region between Costa Rica and Nicaragua is a key section of this corridor (comprising the largest rain forest area in the Americas north of the Amazon) but has received little conservation attention. The Darwin project "Building Nicaraguan and Costa Rican capacity in biodiversity conservation' is focusing on this critical "frontier forest" section of the corridor, and is therefore addressing a major international conservation priority. In an innovative bi-national programme, the project has trained Nicaraguan and Costa Rican NGO and government staff, who currently work in the conservation of biodiversity in the Rio San Juan area, in plant and insect identification, and the evaluation and monitoring of biodiversity.

The project has had a very successful second year, carrying out two training courses to build capacity in biodiversity conservation in the trans-boundary area of the Rio San Juan, a critical section of the Mesoamerican biological corridor. We have also completed a rapid biodiversity assessment of plants and insects, and established eight permanent sample plots for long term monitoring of biodiversity and forest dynamics in the San Carlos area of Costa Rica, the area proposed for the new Maquenque National Park. During project fieldwork we have discovered two new plant species (*Symplocos striata* and *Lonchocarpus* sp.) and also during the training course held in the Refugio Bartola, Rio San Juan, Nicaragua we found 12 species of plants which were new records for Nicaragua.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2003/2004

Project summary	Measurable Indicators	Progress and Achievements April 2004-Mar 2005	Actions required/planned for next period
<p><b>Goal:</b> To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> <li>• The conservation of biological diversity,</li> <li>• The sustainable use of its components, and</li> <li>• The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</li> </ul>			
<p><b>Purpose</b> <i>(insert original project purpose statement)</i></p> <p>Capacity built in biodiversity conservation and management in Nicaragua and Costa Rica, through the facilitation of regional and international exchange of knowledge and skills.</p>	<p><i>(insert original purpose level indicators)</i></p> <ul style="list-style-type: none"> <li>• Increased NGO capacity in biodiversity conservation and management.</li> <li>• Improved biodiversity assessment and monitoring in both Nicaragua and Costa Rica (Rio San Juan basin).</li> <li>• Documentation and learning materials available to Central American NGOs/institutions</li> </ul>	<p><i>(report impacts and achievements resulting from the project against purpose indicators – if any)</i></p> <ul style="list-style-type: none"> <li>• NGO capacity increased as a result of biodiversity inventory, monitoring and evaluation course and permanent sample plot course.</li> <li>• The increased capacity provided by project training is contributing to improved biodiversity assessment in both Nicaragua and Costa Rica.</li> <li>• Course documentation and learning materials have been produced and distributed as part of the capacity building courses. Formal species id guides will be produced in the final year of the project.</li> </ul>	<p><i>(report any lessons learned resulting from the project &amp; highlight key actions planning for next period)</i></p> <ul style="list-style-type: none"> <li>• Students who attended the Year 2 biodiversity course will be carrying out their own field work and analysis which will be followed up by a week in INBio identifying species, carrying out analysis and writing reports.</li> <li>• Production of species i.d. guides and priority species management plans.</li> </ul>

<b>Outputs</b>			
<i>(insert original outputs – one per line)</i>	<i>(insert original output level indicators)</i>	<i>(report completed activities and outcomes that contribute toward outputs and indicators)</i>	<i>(report any lessons learned resulting from the project &amp; highlight key actions planning for next period)</i>
1. Enhanced expertise of Nicaraguan/Costa Rican NGO staff in biodiversity assessment & protected area management.	1. Increased quality and quantity of NGO biodiversity assessment and conservation work.	Nicaraguan and Costa Rican NGO and government staff have increased expertise in biodiversity conservation as a result of project training in inventory, biodiversity evaluation and monitoring.	Further training will be held in Year 3 as the students carry out their own biodiversity assessment project and visit INBio to produce their final reports.
2. Biodiversity of the La Cureña area formally described	2. Report (identifying priority habitats/species) and species database produced and in use; two international peer-reviewed papers.	Inventory of plants and insects in the La Cureña/Maquenque area complete. Permanent sample plots (PSPs) established and measured, identification of species within plots to be completed in early Year 3. Species database produced and continually updated. One international peer reviewed paper published, with at least three more planned for Year 3.	Complete species identification in PSPs. Produce species i.d. guides and priority habitat management plans.

3. Priority habitat management plans and local tree and insect species identification guides.	3. Management plans and identification guides produced and in use by local NGOs and institutions.	Plant and insect inventories for Maquenque area completed. This data will be used to produce habitat management plans and i.d. guides in Year 3 of the project.	Produce species i.d. guides and priority habitat management plans.
4. Guidelines for national park biodiversity management plan.	4. Guidelines produced and in use by MINAE and CODEFORSA.	Biodiversity inventories carried out in Years 1 and 2 will contribute to guidelines to be produced in Year 3.	Production of guidelines.
5. La Cureña area given protected status by designation of a new national park.	5. National park created	Collaboration with key stakeholders in the formation of the park (Lapa Verde project; MINAE).	Ongoing collaboration and provision of biodiversity data to support park designation.

*Note: Please do NOT expand rows to include activities since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.*

