

Darwin Initiative Annual Report

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders – it is expected that this report will be about 10 pages in length – Submission deadline 30 April 2008

Darwin Project Information

Project Ref Number	15/027
Project Title	Baseline tools for management in PN La Amistad (Costa Rica/Panama)
Country(ies)	Costa Rica/Panama
UK Contract Holder Institution	The Natural History Museum, London
UK Partner Institution(s)	
Host country Partner Institution(s)	Instituto Nacional de Biodiversidad (INBio)
Darwin Grant Value	£225,993
Start/End dates of Project	June 30, 2009
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	April 1 2007 to March 31 2008 Annual report 2
Project Leader Name	Alex Monro
Project website	na
Author(s), date	Alex Monro, Frank Gonzalez, Oscar Chacon, Eduardo Boza, Angel Solis, Alexander Rodríguez, Nelson Zamora.

1. Project Background

Both Costa Rica and Panama's BAPs place strong emphasis on networks of protected areas and this is also reflected at regional level by the Mesoamerican Biological Corridor and the establishment of PILA as a bi-national park in 1988.

PILA covers 401,000 ha of tropical forest and is the largest nature reserve in Central America and together with a 15 km buffer zone it represents a major biodiversity resource at a regional (ca 20% of the regions species diversity) and global level. This is recognized in its strategic position in the Mesoamerican Biological Corridor and its designation as a UNESCO World Heritage Site. Its cross-frontier position gives it unique potential to improve bioregional planning. The park's buffer zone includes coffee and beef producers and indigenous subsistence farmers. A consequence of the difficulty of the terrain, the park is relatively unexplored and the only substantial scientific explorations deep into the park have been lead by the NHM in the last 5 years (2003, 2004, 2005 and 2006 planned). In November 2004 a binational workshop of the Autoridad Nacional del Ambiente, Panama (ANAM) and SINAC in association with local experts identified a strategy that would result in unified management of the park and this project builds on this strategy.

2. Project Partnerships

INBio Botanica: Three field trips for ground-truthing and biodiversity data collection undertaken in association with INBio Entomología, Escuela de Biología, Universidad de Costa Rica, Autoridad Nacional del Ambiente, Panama and the Escuela de Biología, Universidad de Panamá. Curator, D. Santamaria identified collections at the Natural History Museum herbarium in London.

Autoridad Nacional del Ambiente, Panama (ANAM). Responsible for the management of PILA in Panama. ANAM appointed Dario Luque and Israel Tejada to coordinate the 2008 field programme in Panama. A meeting was held in Panama City in November 2007 with representatives of the University of Panama and ANAM. A follow-up meeting was held in March 2008 in San Jose, Costa Rica. This will be the first time that a joint Panama-Costa Rica fieldtrip, involving centres of taxonomic capacity from both countries has been undertaken and it is very rewarding that ANAM have agreed to organise and coordinate the trip. It will hopefully result in closer collaboration between taxonomists in both countries but as importantly between taxonomists in both countries and ANAM in the future.

Sistema Nacional de Areas de Conservacion, Costa Rica (SINAC). Responsible for the management of PILA in Costa Rica. SINAC have provided collecting permits and provided this project as evidence of ongoing research in PILA to the UNESCO visit to Costa Rica in February 2008 (see below). Although their involvement in the project has been notably less active than that of ANAM it is expected they will become more fully involved when collaborators meet to discuss the lifezone classes in July 2008.

Binational Commission for the management of PILA: The project presented its findings to the La Amistad Binational Commission meeting in June 2007.

UNESCO: PILA is a UNESCO designated World Heritage Site and UNESCO held a meeting in San Jose on the 18th of February to discuss a proposal that PILA be designated as threatened under ‘Parks in Peril’ initiative. Nelson Zamora presented the project activities and outputs as well as some of the preliminary results to the UNESCO participants and we are awaiting their report on the meeting and PILA’s designation.

University of Panama, National Herbarium: We will be collaborating extensively with the National Herbarium and have been given permission to use the Herbarium’s drying facilities’ and downloads from their database. In addition Professor Correa has agreed to include final year students to participate on the ground-truthing trips. The National Herbarium will also be repository for the first set of duplicate plant specimens.

University of Panama, Entomology Department: Following a meeting with Professor Hector Barrios, the Department of Entomology have agreed to send one or two students to partner the entomologists from INBio in the ground-truthing transects as well as in the identification of the collections.

Robin Moran (New York Botanical Garden): Robbin is a world leader in Neotropical fern identifications.

Mike Grayum (Missouri Botanical Garden): (Araceae, Arecaceae)

Barry Hammel (Missouri Botanical Garden): (Clusiaceae, Convolvulaceae, Cyclanthaceae, Dioscoreaceae, Malvaceae)

Frank Almeda (California Academy of Sciences): plant identifications (flowering-plant family Melastomataceae)

Ricardo Kriebel (California Academy of Sciences): plant identifications (flowering-plant family Gesneriaceae)

Angel Solis (INBio Entomología): identification of coprofaunous scarab beetles, appraisal of beetle diversity

Federico Bolanos & Eduardo Boza Oviedo (University of Costa Rica): identification of amphibian and reptile collections.

3. Project progress

3.1 Progress in carrying out project activities

Activities	Activity Milestones	Assumptions
Production and ground-truthing of life-zone map.	Yr 2: Life zone network workshop (3 days, Aug. 2007), production of a baseline map.	Zonation of the park remains a prerequisite for an effective management plan. NHM and INBio specialist GIS / vegetation mapping staff agree on data transformation methodologies.
Develop a network of ANAM/ SINAC staff to maintain and update life-zone map as part of the PILA management plan	Yr 2: field course in ground-truthing and life-zone verification (Dec. 2007), field course in ground-truthing and life-zone verification (Apr. 2008).	ANAM and SINAC release staff for training.

Identification of regionally important and threatened life-zones.	Yr 2-3: Assess conservation status of life-zones at global, regional and national level. Prioritise life-zones according to these criteria, submit this to SINAC and ANAM.	Regionally agreed life-zones for Central America (based on the Holdridge system) remain current.
Identification of keystone species.	Yr 1-3: Identification of collections with partner institutions and <i>Flora Mesoamericana</i> network of specialists (Apr. 2008- Dec 2008)	INBio/ University of Panama and NHM remain taxonomic centres of excellence.
Assess conservation status of key stone species.	Yr 2-3: Assess according to revised IUCN Red Data list guidelines and local knowledge of local specialists at INBio, PMA and NHM.	Revised IUCN guidelines remain current.
Pursue project exit strategy	Yr 1-3: Develop a consortium of partners and local community representatives capable of updating life-zone map on ground. Confirm a commitment to periodic updating from SINAC and ANAM. Agree a timetable and strategy for the development of the binational management plan.	

Activity: Production and ground-truthing of life-zone map

Production of draft life-zone map. Oscar Chacon and Heiner Acevedo produced a draft map based on a single image that was used to underpin the first fieldtrip in February 2007. Following input from Malcolm Penn in May 2007 we agreed a revised protocol for the production of the life-zone map. This is as follows:

equalise satellite images → correct for abrupt relief changes → use a normal distributed vegetation index and band combinations 2/3 to determine the number of classes that might be present in the images → use a non-supervised classification as a first attempt to classify the image into the number of classes determined previously → use the detailed field data to perform a supervised classification based on the training areas and other layers of information collected → further refine these classes by overlaying krieged distributions for key-stone species and by the application of a cluster analysis to the plot or transect-based biodiversity data to test existing vegetation classes and generate the life zone classes.

This is a novel approach to mapping as it seeks to integrate biodiversity data into the generation of the classes. To date, 230 GPS positions and 86 ground-truthing transects have been undertaken. We are therefore on course to have completed over 100 transects by the last ground-truthing fieldtrip in October 2008. We currently have 20 vegetation classes identified, covering an elevation of 800 to 3300 m and ca 200,000 ha. It is expected that this number will reduce as a consequence of the clustering and krieging phase.

A first attempt at applying a cluster analysis will be undertaken in June, ready for the map network meeting later in 2008. This approach requires the identification (to species) of the biodiversity data collected as part of the ground-truthing method. For this reason the identification of biodiversity data is listed as a project activity below, even though this is not explicitly listed in the log frame document.

Processing of satellite data complete, preliminary draft of life zone map produced

A revised GIS input into the production of the vegetation map, from front-loaded to ongoing was agreed with DI in the first project year. The modified approach comprises continual GIS input and re-evaluation of the satellite data following each ground-truthing field trip and therefore a revised completion data for the processing of the satellite data of December 2008 / January 2009 (dependant on the field schedule). To date, three complete drafts for the Costa Rican part of PILA have already been produced and a fourth will be completed once the ground-truthing data from the latest fieldtrip has been incorporated. The third draft is appended in Annex 3.

Ground-truthing and field data collection trip 2 (July 2007)

The second ground-truthing trip was undertaken to the Laguna Dagabri area in July-August 2007. This is an area of small lakes at the edge of an indigenous territory within the NE sector of PILA. The project received support from the Ministerio de Seguridad de Costa Rica in the form of a paramedic and security personnel (the area is known to be used in cannabis production). 17 points were ground-truthed across an

altitudinal range of 1100 to 2000 m. Dung beetle and amphibian transects were established at 2 and 5 of these respectively. A total of 737 plant, 65 herpetology and 1999 scarab collections were made

Ground-truthing and field data collection trip 3 (October, 2007)

The third ground-truthing trip was undertaken to the Fila Matama area in October 2007. This is a ridge that runs from the Morrain of Chirripo to the Caribbean within the northern sector of PILA. The project received support from the Ministerio de Seguridad de Costa Rica in the form of a paramedic. 20 points were ground-truthed across an altitudinal range of 1000 to 1600 m. Dung beetle and amphibian transects were established at 3 and 6 of these respectively. A total of 937 plant, 96 herpetology and 2516 scarab collections were made.

Ground-truthing and field data collection trip 4 (February 2008)

The fourth ground-truthing trip was undertaken to Cerro Kuakua, an area that includes part of the buffer zone for the park within the southern sector of the PILA. The project received support from the Ministerio de Seguridad de Costa Rica in the form of a paramedic. 18 points were ground-truthed across an altitudinal range of 1700 to 2200 m. Dung beetle and amphibian transects were established at 3 and 6 of these respectively. A total of 1134 plant, 135 herpetology and 2876 scarab collections were made.

*Following activities **not** listed in log-frame:*

Database and species list for keystone species produced (specific activities not listed in log-frame)

Project staff have compiled a database of 2,982 species records based on 16,464 collection records at INBio, the University of Panama, the Natural History Museum, Missouri Botanical Garden and the University of Costa Rica. Of these species records (2,982), ca 60% have been checked and 'cleaned'. Those species considered keystone will be identified during the course of the field work and discussions with our partners. This relational database is currently in File Maker format prior to being migrated to INBio ATTA database that will allow the data to be accessed over the web once the project web-pages are produced in 2008/ 2009 (see project schedule).

Biological collections of keystone plant species produced

Following discussion at the September 2006 life-zone map workshop and subsequent to this the following groups of organisms were selected:

- | | |
|----------------------|---|
| Insects: | Sphingidae, Saturnidae, Scarabidae, Tacanidae (Manuel Zumbado & Angel Solis, INBio Entomologia) |
| Amphibia & reptiles: | all families (Eduardo Boza & Federico Bolanos, Universidad de Costa Rica)) |
| Vascular plants: | all families of flowering plants and ferns (Alexander Rodriguez, Nelson Zamora, Daniel Santamaria, Daniel Solano, Alex Monro and Flora Mesoamericana specialist group). |

A meeting was held in November 2007 to prioritise these groups according to the effectiveness of the sampling technique and the preliminary results. It was agreed that the above groups of organisms will be divided into 1) those whose distribution will be analysed as part of the ground-truthing process (coprofagous scarab beetles, amphibian, flowering plants and ferns) and those that will contribute baseline biodiversity data for the Park alone (Sphingidae, Saturnidae, Tacanidae, reptiles).

Summary of results to date

The results of biodiversity data collected as part of ground-truthing are summarised below:

Amphibia: 337 amphibian collections representing 51 species, 11 of which are new to science. In addition some species (such as *Pristimantis caryophyllaceus*, *Duellmanohyla uranochroa*) that have become very rare elsewhere in the region were found in 'healthy' numbers. One species was found at a new elevation record (*Smilisca phaeota*, 1600 m, compared to 1100 m). This data is evidence of PILA's importance to amphibian diversity. It is also providing data that is valuable in monitoring amphibian response to climate change (altitude changes) and monitoring the spread of the chytrid fungus, samples of which are collected from all collections. The species distributions indicate that for some of the amphibian genera there is sufficient overlap in diversity between transects that either a cluster or parsimony based analysis will be able to function.

Coprophagous scarab beetles: 8,326 collections representing 58 species, two of which are new records for Costa Rica (*Onthophagus dorsipilulus* & *Cryptocanthon denticulum*) and two species new to science (*Ateuchus sp. nov.* & *Canthidium sp. nov.*) have been identified. Coprophagous beetles have been the focus of quantitative study throughout much of Costa Rica and some parts of Panama, providing valuable baseline information for this project. The data collected as part of this project represents the first data for PILA and for much of Atlantic Costa Rica and Panama at elevations above 500m. Preliminary analysis of this data show species diversity in line with expectation for five of the transects sampled. For three of the sites, however, exceptional levels of diversity were recorded, higher than any other sites sampled in Central America. This provides evidence that parts of PILA represent an exceptional biodiversity resource and the spatial distribution of this high diversity will contribute greatly to the prioritisation of life-zones. The species distributions indicate that there is sufficient overlap in diversity between transects that either a cluster or parsimony based analysis will be able to function.

Flowering plants and ferns: 2,661 plant collections representing 1200 species from PILA have been sampled in the 86 ground-truthing transects. These have resulted in one new record for Costa Rica: *Topobea arboricol*, and five new species for science: *Begonia* (1), *Ternstroemia* (1), *Pilea* (2), *Stenospermatum* (1). In addition, the identification of previous collections from PILA has resulted in ten new records for Panama: *Centropogon talamancensis*, *Chamaedorea undulatifolia*, *Chionolaena costaricensis*, *Clethra gelida*, *Koanophyllon hylonoma*, *Malvaviscus achaniodes*, *Senecio phanerandrus*, *Senecio heterogamus*, *Topobea gerardoana*, *Westoniella kohkempferi*. The species distributions indicate that there is sufficient overlap in diversity between transects that either a cluster or parsimony based analysis will be able to function.

Activity: Develop a network of ANAM/ SINAC staff to maintain and update life-zone map as part of the PILA management plan

Ground-truthing training course 1 undertaken

The course was lead by Oscar Chacón and Heiner Acevedo and was held the week of November 12. Eight participants from ANAM, SINAC, the University of Chiriquí (Panama), the University Of Costa Rica, the University of Panama and the Ministry for Public Security attended, these include the two park managers for the Costa Rican sectors of the park (Pacífico and Caribé), the manager for the Panamanian sector of the park (Pacífico and Caribé) and the SINAC coordinator for the park. The course outlined the project objectives, how the map is being generated, from satellite to ground-truthing data and how it can be used for planning purposes. The course was delayed because of the difficulty in obtaining dates suitable for the key participants and project staff.

Newsletter distributed every 6mths, August 2007

The first two project newsletter was delivered in September 2007 and March 2008. This represents a considerable delay but was for reasons of editorial consistency within INBio and the prioritization of other outputs (identifications and processing of specimens). We have decided to focus on one aspect of the diversity of the park in each issue, in this case species endemic to the park. The second newsletter was distributed in March 2008 and a third is in preparation.

Second life zone map network workshop

Due to the revised schedule of GIS input into the map outlined above we have decided to postpone the mapping network meeting until July/ August 2008.

Activity: Identification of regionally important and threatened life-zones

This will be a focus for the Mapping network meeting to be held in July 2008. Currently both National Park Authorities have identified the high-altitude sub-paramo vegetation represents a high regional and global priority, in particular in relation to climate change. PILA will be highly impacted by any climate change because of its location as a high-point between the Atlantic and Pacific Oceans (any corresponding surface temperature changes will impact on rainfall, storm frequency and average wind-speeds), its limited altitude (the sub-paramo vegetation is at the lower altitude limit of its distribution and some evidence for reforestation has already been observed) and its very steep slopes that are prone to storm damage and can limit propagule distribution. Within PILA itself the satellite data and ground-truthing indicates significant increases in cattle and slash-and-burn indigenous agriculture at specific localities within the Panamanian sector. It is likely that we will need to schedule a separate workshop to report and discuss these with the project partners later in the project when we have finished ground-

truthing. Some of these factors have been identified by some of the partners as a possible focus for post-project funding.

Identification of keystone species

Keystone species status will be assigned once we have completed ground-truthing and defined the life-zone classes. At this time we will have data from over 100 transects as well as from previous collections. By waiting until we have this data we will ensure that we have identified keystone species for all lifezones. Keystone species will be identified on the basis of their structural contribution to a life-zone, e.g. Oak trees in montane forest or the *Chusquea* bamboo in sub-paramo vegetation, combined with any knowledge of specific ecosystem services or interactions. For example a number of *Ocotea* tree species represent a major food plant for the Resplendant Quetzal. Much of the data on such interactions is present within ANAM and SINAC together with local amateur and professional specialists.

Activity: Assess conservation status of key stone species

Begin assigning conservation status to species in database

A two-tiered approach has been adopted. Global distribution data is being added to the database of vascular plant species that will enable the separation of a target group of species whose status will be assessed in greater detail. Alexander Rodriguez has produced a methodology for the incorporation of IUCN criteria into the collection and distribution data available in Costa Rica and Panama. We need to discuss this with IUCN to ensure that this meets with their approval but as a test we have successfully applied this to 15 species from PILA. Some of the data for this method are products of the species database and checklist and we will wait until this has been completed before applying the methodology to the target species. This should be a semi-automated process.

Activity: Pursue project exit strategy

The critical issue for project legacy will be the uptake of the lifezone maps and associated data by the two national parks authorities: ANAM in Panama and SINAC in Costa Rica. To this end we have tried to ensure representation from both agencies in the mapping network, training course and ground-truthing trips. One positive outcome of this is that both agencies referred to this project in their discussions and presentation to UNESCO's assessment of the Park under the 'Park in Peril' initiative. In addition we have ensured that the project is represented by the project team at all of the Binational Commission meetings and we will continue to do so.

Two findings that are emerging during the course of this project is the degree of threat the park is under from incursion by cattle and indigenous farmers, and from Climate Change. The outputs from this project should help the management of both of these threats.

Additional

Television and press coverage

In January 2008 we received extensive press coverage in the UK, Costa Rica, Spain, Germany and the US in relation to the discovery of several new amphibian species in PILA. This included 38 news items in a wide variety of publications from The Times, Nature to the National Geographic website. In addition I gave three interviews to the BBC Radio 5 Live Drive time programme and BBC Radio Scotland. ITN News also did a piece for television but this was not broadcast. Details of this coverage was sent to the Darwin Initiative in January.

3.2 Progress towards Project Outputs

Overall progress towards project outputs has been good. We have rescheduled some outputs for logical and logistic reasons but this should not impact on the projects impact. One very gratifying and rewarding aspect of the project has been the involvement of the University of Panama and the University of Costa Rica, along with entomologists from INBio Entomologia. All of these institutions have given significant staff-time (several months) to participate and strengthen the project: in particular the entomologist Angel Solis and the herpetologist Eduardo Boza who have generated two datasets that will be of importance to this project. One weakness in the original proposal, that we have been able to overcome (thanks to global economic conditions) has been the budget for ground-truthing.

How likely the project is to achieve them by its close.

Very likely.

Measuring output indicators: do output level assumptions still hold true?

Yes. As in any many countries, senior civil service appointments are political (i.e. party political). This creates an element of uncertainty regarding Institutional commitments. We do not however anticipate any changes during the course of this project.

3.3 Standard Output Measures

Table 1 Project Standard Output Measures

PROJECT OUTPUTS		
Year/Month	Standard output number (see standard output list)	Description (include numbers of people involved, publications produced, days/weeks etc.)
Nov 2007	6A = 7, 6B = 1	Ground-truthing training course, participants from Costa Rica and Panama. Course duration was reduced to one week.
Sep 2007 - Apr 2009	7 = 1	Field course exercise/ methodology list (see Annex 4)
Jun 2007	8 = 3	Alex Monro was unable to attend the fieldtrip due to ill health, Sandra Knapp had other commitments. Sam Bridgewater replaced Alex
<i>Sep 2007 changed to July 2008</i>	8 = 2	This has been postponed, with agreement from the DI initiative to July 2008
Dec 2007	8 = 0	Neither of the UK collaborators were able to participate on this fieldtrip as the date was changed to February 2008. Only six weeks prior to the first Panama trip. Since the Costa Rican fieldtrip is now experienced in the methodology it was felt that priority should be given to the future Panamanian trips.
Sep 2007	10 = 1	Ground truthing manual produced. This is included in Annex 4. A more detailed manual will be produced once the life-zone classes have been generated and typified.
<i>Aug 2007 changed to July 2008</i>	14 A = 1	Life zone map network workshop to review preliminary draft of life zone map, 12 people, 2 days, 1 report
Jul 2006- Jun 2009	16A = 2, 16B = 30, 16C = 12	Project newsletter produced twice a year and circulated to all participants and interested parties. Two issues have been produced this year.
Additional output 1	19B = 3	Number of national radio interviews/features in UK
Additional output 2	15A = 1 15B = 1 15C = 1	Number of national press releases in host country(ies) Number of local press releases in host country(ies) Number of national press releases in UK
Additional output 3	= 38	Articles in UK daily national newspapers (The Time, The Guardian, Daily Mail, Metro, The Independant), online science websites (Nature Online, National Geographic, Discovery), BBC News online, Nature journal. Articles in Costa Rican, German and Spanish Daily newspapers.
Additional output 4	11B = 1	Journal of the Botanical Research Institute of Texas

Additional output 5	2B = 2	INBio's ATTA database; National Herbarium of Panama's database.
Additional output 6	3B = 5	National Herbarium of Costa Rica, INBio Herbarium, National Herbarium of Panama, Missouri Botanical Garden Herbarium (USA), Natural History Museum herbarium (UK)
Additional output 7	23 = £4,800	INBio Entomologia: field technicians and equipment for 18 staff weeks to support project fieldwork (Value ca £) ANAM: staff time and vehicle hire: two staff full-time for 3 weeks, four vehicles and drivers for 4 days (value ca £) President's Office (Panama): a helicopter trip for three project staff (value ca) Universidad de Costa Rica: researcher time for 7.5 staff weeks (Value ca £)

Table 2 Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £ (if applicable)
Journal of the Botanical Research Institute of Texas	A new species of Cuatresia from La Amistad National Park. submitted and accepted		Science library	na

3.4 Progress towards the project purpose and outcomes

This has been good although communication between PIs could be improved. We have selected groups of key-organisms for which there is good taxonomic capacity and comparative data. See logframe (Annex 1)

3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

Over 10,000 new biodiversity data records generated. Project biodiversity data will be freely accessible over the web and duplicates distributed to appropriate institutions. We have purchased and distributed satellite data, much of which is the first useable (largely cloud free) for PILA. This data has been used to generate a map that will underpin the binational and sustainable management of PILA.

4. Monitoring, evaluation and lessons

Communication between INBio and the Natural History Museum could be improved. Both PIs travel widely and email communication has not reached its potential in this respect. Management of the project staff at INBio has been an issue but hopefully this has been resolved.

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

The previous review referred to the delay in publishing the project newsletters. This has been addressed and we have since published two newsletters.

6. Other comments on progress not covered elsewhere

7. Sustainability

We are exploring additional and other funding opportunities as they arise. Two potential areas of future work are coalescing as the project has progressed: the first is the establishment of a monitoring programme for PILA with relation to the two main current threats: agricultural incursion, and climate change. The second concerns the testing of the hypothesis that PILA is a hotspot within the biodiversity hotspot of Central America and testing the hypothesis that this is related to PILA being the location of the Talamanca island 12 MYA.

8. Dissemination

Project biodiversity data will be freely accessible over the web and duplicates distributed to appropriate institutions. UK PI has submitted a press release that was widely taken up by the UK and Costa Rican media.

9. Project Expenditure

Table 3 Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Item	Budget (please indicate which document you refer to if other than your project schedule)	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others			
Salaries (specify) 3 curators, 2 GIS part-time			
TOTAL			

It has been agreed with DI Secretariat that the under spend will be transferred to the financial year 2008/2009. We under-budgeted field costs in our original proposal. This has been compensated by the change in the £:\$ exchange rate and as long as the Darwin Secretariat are happy for us to move funds from the salaries to the travel budget then this should not cause a problem.

OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

I agree for ECTF and the Darwin Secretariat to publish the content of this section

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2007/08

NB. Activities in *italics* not listed as 'Activities' in original logframe (Annex 2)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal:</p> <p>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"> <input type="checkbox"/>1 the conservation of biological diversity, <input type="checkbox"/> the sustainable use of its components, and <input type="checkbox"/> the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 	<p>Life-zone map of the Costa Rican component of PILA will form the basis of conservation plan.</p> <p>Costa Rican PILA management plan includes a prioritised strategy for life-zones.</p> <p>New knowledge on life-zone and species diversity for PILA.</p> <p>New knowledge on conservation status of key stone species.</p>	<p>Life-zone map produced and forms the basis for the Park's management plan.</p> <p>PILA life-zones prioritised and characterized in PILA management plan.</p> <p>Species and life-zone list for trees of PILA deposited with SINAC and ANAM, published locally.</p> <p>Conservation status of keystone species evaluated, assessment used in characterisation of life-zones.</p> <p>Map published and cited in conservation plan; project reports</p>	<p>Sustainable management of PILA will require the prioritisation of activities.</p> <p>Prioritisation will be based on sound scientific data.</p> <p>Monitoring and assessment of La Amistad life-zones requires a base line map.</p> <p>Monitoring and assessment of biodiversity will remain a key component of Costa Rica's BAP.</p> <p>INBio and NHM continue to maintain GIS/ remote sensing facilities.</p>
<p>Outputs</p> <p>Life-zone map of Costa Rican component of PILA, produced.</p>	<p>Map in use by park authorities; compatible with that for Panama side, all life-zones ground-truthed</p>		
<p>Life-zones prioritised.</p>	<p>Priorities inform park</p>	<p>Included in SINAC</p>	<p>Baseline life-zone map needs</p>

	conservation strategy Deposited with INBio, SINAC and ANAM.	and project reports. Cited in SINAC, INBio, project reports.	to be ground truthed.
Database and species list for keystone species produced.	Deposited with INBio, SINAC, ANAM and the University of Panama.	Cited in SINAC, INBio and ANAM project reports.	Local taxonomic capacity continues to support identification of keystone and indicator species.
List of indicator species produced. Keystone species conservation status assessed.	Included in database.	Deposited with INBio, SINAC and ANAM.	SINAC and ANAM remain responsible for management of PILA.
Staff at SINAC trained in use and updating of life-zone map.	12 staff trained in the delimitation, use and updating/ modification of life zones.	Staff listed in project reports.	SINAC and ANAM remain responsible for management of PILA. Staff gain appropriate knowledge from the training.
Park guards, local community representatives, staff at ANAM and SINAC trained in use of life-zone map.	16 staff trained in the ground-truthing of life-zones.	Staff listed in project reports.	Staff gain appropriate knowledge from the training.
Mechanism for updating and maintaining life-zone map developed.	A binational network in place undertaking coordinated and joint monitoring activities	PILA management plan, SINAC, ANAM, project reports	Mechanism is used and maintained by project partners.
Biological collections of keystone plant species produced.	Collections deposited at INBio, University of Panama, and NHM.	Acknowledged by partner institutions.	Project partners maintain collections.
Local perception of life-zones and their importance	Perceptions incorporated into life-zone priorities.	Acknowledged in reports and map.	Local communities have good knowledge of the buffer zone.
Activities	Activity Milestones		Assumptions

Production and ground-truthing of life-zone map.	Yr 2: Life zone network workshop (3 days, Aug. 2007), production of a baseline map.	Zonation of the park remains a prerequisite for an effective management plan. NHM and INBio specialist GIS / vegetation mapping staff agree on data transformation methodologies.
Develop a network of ANAM/ SINAC staff to maintain and update life-zone map as part of the PILA management plan	Yr 2: field course in ground-truthing and life-zone verification (Dec. 2007), field course in ground-truthing and life-zone verification (Apr. 2008).	ANAM and SINAC release staff for training.
Identification of regionally important and threatened life-zones.	Yr 2-3: Assess conservation status of life-zones at global, regional and national level. Prioritise life-zones according to these criteria, submit this to SINAC and ANAM.	Regionally agreed life-zones for Central America (based on the Holdridge system) remain current.
Identification of keystone species.	Yr 1-3: Identification of collections with partner institutions and <i>Flora Mesoamericana</i> network of specialists (Apr. 2008- Dec 2008)	INBio/ University of Panama and NHM remain taxonomic centres of excellence.
Assess conservation status of key stone species.	Yr 2-3: Assess according to revised IUCN Red Data list guidelines and local knowledge of local specialists at INBio, PMA and NHM.	Revised IUCN guidelines remain current.
Pursue project exit strategy	Yr 1-3: Develop a consortium of partners and local community representatives capable of updating life-zone map on ground. Confirm a commitment to periodic updating from SINAC and ANAM. Agree a timetable and strategy for the development of the binational management plan.	

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal:</p> <p>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"> <input type="checkbox"/> 1 the conservation of biological diversity, <input type="checkbox"/> the sustainable use of its components, and <input type="checkbox"/> the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
	Life-zone map of the Costa Rican component of PILA will form the basis of conservation plan.	Life-zone map produced and forms the basis for the Park's management plan.	Sustainable management of PILA will require the prioritisation of activities.
	Costa Rican PILA management plan includes a prioritised strategy for life-zones.	PILA life-zones prioritised and characterized in PILA management plan.	Prioritisation will be based on sound scientific data.
	New knowledge on life-zone and species diversity for PILA.	Species and life-zone list for trees of PILA deposited with SINAC and ANAM, published locally.	Monitoring and assessment of La Amistad life-zones requires a base line map.
	New knowledge on conservation status of key stone species.	Conservation status of keystone species evaluated, assessment used in characterisation of life-zones.	Monitoring and assessment of biodiversity will remain a key component of Costa Rica's BAP.
Outputs	Map in use by park authorities; compatible with that for Panama side, all life-zones ground-truthed	Map published and cited in conservation plan; project reports	INBio and NHM continue to maintain GIS/ remote sensing facilities.
Life-zones prioritised.	Priorities inform park conservation strategy Deposited with INBio, SINAC and ANAM.	Included in SINAC and project reports. Cited in SINAC, INBio, project reports.	Baseline life-zone map needs to be ground truthed.
Database and species list for keystone species produced.	Deposited with INBio, SINAC, ANAM and the University of Panama.	Cited in SINAC, INBio and ANAM project reports.	Local taxonomic capacity continues to support identification of keystone and indicator species.
List of indicator species produced. Keystone species conservation status assessed.	Included in database.	Deposited with INBio, SINAC and ANAM.	SINAC and ANAM remain responsible for management of PILA.
Staff at SINAC trained in use and updating of life-zone map.	12 staff trained in the delimitation, use and updating/ modification of life zones.	Staff listed in project reports.	SINAC and ANAM remain responsible for management of PILA. Staff gain appropriate knowledge from the training.

Park guards, local community representatives, staff at ANAM and SINAC trained in use of life-zone map.	16 staff trained in the ground-truthing of life-zones.	Staff listed in project reports.	Staff gain appropriate knowledge from the training.
Mechanism for updating and maintaining life-zone map developed.	A binational network in place undertaking coordinated and joint monitoring activities	PILA management plan, SINAC, ANAM, project reports	Mechanism is used and maintained by project partners.
Biological collections of keystone plant species produced.	Collections deposited at INBio, University of Panama, and NHM.	Acknowledged by partner institutions.	Project partners maintain collections.
Local perception of life-zones and their importance	Perceptions incorporated into life-zone priorities.	Acknowledged in reports and map.	Local communities have good knowledge of the buffer zone.
Activities Workshops/ training	Activity Milestones Yr 1: Project planning workshop, sign project MOUs (1 wk, July.06).		Assumptions Project partners continue to agree on role and function of life-zone map.
Production and ground-truthing of life-zone map.	Yr 1: planning workshop to agree methodologies for the transformation and mapping of remote censused data and protocol for ground-truthing (verifying) life-zone classes identified. (July 2006). Yr 2: Life zone network workshop (3 days, Aug. 2007), production of a baseline map. Yr 3: Life zone network workshop (3 days, Mar. 2009), training course for ANAM and SINAC staff in the use and updating of the life-zone map (Apr. 2009)		Zonation of the park remains a prerequisite for an effective management plan. NHM and INBio specialist GIS / vegetation mapping staff agree on data transformation methodologies.
Develop a network of ANAM/ SINAC staff to maintain and update life-zone map as part of the PILA management plan	Yr 2: field course in ground-truthing and life-zone verification (Dec. 2007), field course in ground-truthing and life-zone verification (Apr. 2008). Yr 3: life zone map use and interpretation training course (Apr. 2009).		ANAM and SINAC release staff for training.
Identification of regionally important and threatened life-zones.	Yr 2-3: Assess conservation status of life-zones at global, regional and national level. Prioritise life-zones according to these criteria, submit this to SINAC and ANAM.		Regionally agreed life-zones for Central America (based on the Holdridge system) remain current.
Identification of keystone species.	Yr 1-3: Identification of collections with partner institutions and <i>Flora Mesoamericana</i> network of specialists (Apr. 2008- Dec 2008)		INBio/ University of Panama and NHM remain taxonomic centres of excellence.
Assess conservation status of key stone species.	Yr 2-3: Assess according to revised IUCN Red Data list guidelines and local knowledge of local specialists at INBio, PMA and NHM.		Revised IUCN guidelines remain current.
Pursue project exit strategy	Yr 1-3: Develop a consortium of partners and local community representatives capable of updating life-zone map on ground. Confirm a commitment to periodic updating from SINAC		

	and ANAM. Agree a timetable and strategy for the development of the binational management plan.	
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Checklist for submission

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