

A biodiversity conservation training programme for the Yabotí Biosphere Reserve

Darwin Initiative Annual Report No. 2, April 2007

'A biodiversity conservation training programme for the Yabotí Biosphere Reserve'

162/14-034



Darwin Initiative Annual Report

Project Ref Number	162/14-034
Project Title	A Biodiversity Conservation Training Programme For the Yabotí Biosphere Reserve
Country(ies)	Argentina
UK Contract Holder Institution	Eden Project
UK Partner Institution(s)	N/A
Host country Partner Institution(s)	Misiones Ministry of Ecology, Instituto de Botanica Darwinion, Faculty of Forest Sciences (University of Misiones), Ecological Laboratory Las Yungas, National University of Tucuman, Centro de Investigaciones del Bosque Atlántico (CeIBA)
Darwin Grant Value	£138,435
Start/End dates of Project	1st April 2005 – 31st March 2008
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1st April 2006 – 31st March 2007 Annual report no. 2
Project Leader Name	Professor Sir Ghillean Prance
Project website	http://www.edenproject.com/foundation/darwin-initiative.html
Author(s), date	Ghillean Prance, Mario Malajovich & Daniel Ryan

1. Project Background

Fulfilling an agreement between the British Embassy in Buenos Aires and the Misiones Government, the FCO in 2000 asked the late Dr Marcio Ayres to investigate a cooperation programme. He proposed building a field station and appointed an International Advisory Committee to support the endeavour. This project, based in the Yabotí Biosphere Reserve, is an important follow up to that work.

Misiones remains largely forested, but has suffered from huge levels of fragmentation over the past one hundred years or so because of deforestation and the plantations of pine, tobacco

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and agriculture that follow in its wake. These beautiful forests are a significant remnant of the Atlantic Forest, which once flourished over SE Brazil, Paraguay and Misiones and it is estimated only 5% now remains of this global biodiversity hotspot. This region is ranked among the top five of the 25 global hotspots, a measure determined by factors including species density, diversity and levels of endemism. The survival of the Misiones forest, which is the greatest unfragmented sector, is critical in a very global sense.

Yabotí Biosphere Reserve was established in 1995 and is a UNESCO Man and Biosphere (MAB) reserve. Yabotí is approximately 250,000 hectares and has a 30,000 hectare Provincial Park, Esmeralda, at its core. Esmeralda is the focus of project activity. Yabotí is not presently fragmented, but is threatened by illegal logging and poaching. These threats have major biodiversity implications, and, perhaps more importantly, significant social implications. The Guaraní people who have lived in these forests for thousands of years are being forced into smaller, less productive home areas and their livelihoods have been, and will continue to be, diminished by ongoing forest destruction. Other biodiversity threats are caused by the encroachment of invasive weeds, such as bamboo. Bamboo control is another significant activity of the project.

However, there is hope on a number of counts. Consensus exists between the Government and Misiones population about the importance of its preservation and legislation that gives some protection to 40% of their remains. There is also a growing and formal recognition of the rights of the indigenous people and there are experienced scientists working in the region.

In spite of these favourable conditions there is no articulation between the principal players to foster the implementation of policies to preserve the forest. This programme aims to articulate these favourable but disparate elements through training local scientists in biodiversity conservation (including restoration, botanical and ethnobotanical inventories and zoological studies) and improving the capacity for further research - ultimately producing a sustainable management plan for the reserve and encouraging an institution sheltering these activities.

2. Project Partnerships

The partnerships established for the project have functioned well and continued momentum. Instituto de Botanica Darwinion have continued their excellent work in collecting and cataloguing the flora of Misiones, which is all being added to the online database, while Mario Malajovich has been actively coordinating the involvement of the local Misiones Government teams of the Ministry of Ecology and the Biosphere Reserve staff, out of which has formed a new 14 strong biodiversity unit. These activities contribute greatly to the fulfilment of the CBD within Argentina.

The project has continued to work with RBG Kew who receive herbarium specimens and an Argentinean project member (Fernando Niella from the University of Misiones) will compete Kew's course in plant conservation strategies during the third year of the project. This translocation of skill-sets learnt in the UK and taken back to Argentina is of great importance to CBD contribution.

The partnerships are mainly strong, although there are still issues relating to the recompense of funds spent in the host country. These occasionally cause problems for all concerned. Work is continually being done to address this issue.

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The project has established links with project members from a forest restoration project in Thailand which has previously received Darwin funding). This has occurred through Eden's existing links. It is hoped that this relationship can be formalised in a collaborative workshop in the final year of the project. Many new host country links have been established and in the UK work is being carried out with the World Land Trust to purchase a critical area of project site. This site is a severe 'conflict' zone – between indigenous people and logging companies – and at the moment has a one year logging moratorium in place. This land purchase will safeguard this vital tract of forest home to three Guaraní communities.

The partnership with CeIBA in Iguazu enabled the continuing monitoring of large mammals in the reserve and collaboration with the ethnobotany course.

3. Project progress

3.1 Progress in carrying out project activities

The field research programme is continuing very solidly. Teams from the Instituto de Botanica Darwinion have conducted three field collection trips to Yabotí. All specimens were identified and the information uploaded into the IRIS database. Zoological studies using techniques such as the camera trapping method have continued to yield very exciting, and somewhat saddening results. All teams are making good use of the newly completed field station in Yabotí. One FacFor staff member has attended the plant conservation strategy course at RBG Kew and another is enrolled on the July 2007 course.

Project sites for restoration have been identified. However, new and arguably more critical sites have been discovered and so these will take priority – including a 5 hectare area destroyed by fire that likely spread from a nearby smallholding. There has been some discourse relating to the issue of bamboo invasion. Some project members see it as a significant threat whereas others do not see it in such light. Therefore, trial sites have been selected and will be worked on by project team members over the coming year. A workshop uniting players in forest restoration has been devised and will be delivered in the coming year. The recent formation of a sustainable use sub-group of the core Yabotí team will be central to delivering these activities.

Ethnobotanical studies are continuous and the relationship with the Guaraní people is still strong. Research work has continued along a similar vein, primarily through the work of Hector Keller and his Ph. D. thesis. The first draft is now complete. It is also this ethnobotanical work that has shaped much of the reasoning behind the land purchase in the area of Yabotí connecting Esmeralda and Mocona Provincial Parks. The research indicated the importance of this landscape to the communities and the threat posed by the imminent relaxation of the logging moratorium.

In October 2006 a very successful ethnobotanical course was led by Prof Prance. 17 students were selected from various Latin American countries and importantly 3 local park rangers also completed the course. A copy of the certificate gained by the students will be sent with the hard copy attachments to supplement this report. Eden's senior scientist Dr Peter Whitbread-Aburutat spent time with the staff at FacFor mentoring them in forest restoration techniques and will work closely with them in the future, which is very relevant for their course improvements.

Many scientific papers have been published directly relating to the project work over the past year. These can be found in the Annex. The Darwinion database using the IRIS system is

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consistently being updated and proving to be a very valuable tool for all those working in the forests of Misiones - in all fields.

Dissemination of project work has continued to be very strong both in the UK and Argentina. A combination of newspaper exposure, published articles and TV broadcasts has assured this. There is already a lot of signage and some exhibit presence relating to the project on display at Eden and this will continue to grow in the coming year.

3.2 Progress towards Project Outputs

Output: Institutional framework agreement between staff members and MINEC (Ministry of Ecology)

Continued progress has been made towards an institutional framework agreement between staff members and the Ministry of Ecology. The Ministry have supported the development of an institution dedicated to forest research in Misiones. The core activities of this institution will be biodiversity based with a strong leaning towards social issues relating to the sustainable use of forest resources. This is under the assumption that it is social issues that lead to forest destruction and the inequitable sharing of those forest resources.

Output: Funding arrangements agreed

The Darwin Initiative continues to provide the external funding for this project work. However, major progress has been with the World Land Trust to purchase a 10,000 hectare fragment of conflict forest that is under a logging moratorium at the present. This land is of major significance for the Guaraní people as it is home to a number of communities. It is also of major strategic significance for biodiversity conservation as it connects the two provincial parks (the highest level of local protection in Argentina) of Esmeralda and Mocona. Hopefully, we can see these negotiations through to conclusion.

Output: Equipping of field station

The Marcio Ayres field station is now fully equipped, and now has a satellite internet connection. The field station housed the large group of ethnobotanical students and is being used consistently by researchers allied to both this and other projects, including occasional school groups.

Output: Inventory of plant species and FacFor herbarium improvement

Teams from Darwinion have continued the plant collection in Misiones and are adding the information to the IRIS online database. Collected plant specimens from these trips are then sent to the herbariums of the University of Corrientes, FacFor and RBG Kew. This is also true of the collecting trips conducted by Hector Keller and Ghilleen Prance.

Output: Accumulated data made available on internet through IRIS database

IRIS has been continually updated and can be accessed at:
<http://www.darwin.edu.ar/Proyectos/FloraMisiones/MIS.asp>

There is no reason to suggest this work will not be completed come the end of the project.

Output: Ethnobotanical studies with Guaraní people, integrated to qualified roles, livelihood improvement

Through Hector Keller's PhD thesis ethnobotanical studies are ongoing and vigorous. Further Guaraní involvement initiated involves using active and keen members of the communities to

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act as 'informants' for the project. This involves the chosen community members bringing information back from the villages about medicinal plant needs (and similar matters) and also logging and poaching activity. The project is providing bursaries for a small number of Guaraní to complete high school so they can become park guards.

Output: Techniques of restoration and bamboo control produced. Biodiversity assessment and monitoring programme in place

Techniques for bamboo control are being thought of, but in light of the recent flowering event (as discussed in the first annual report) this matter is somewhat confused still. Eden's Senior Scientist (and restoration specialist) Dr Peter Whitbread-Abrutat conducted a visit to Misiones in October. Dr Abrutat has produced a paper (will be sent as hard copy) making recommendations about the restoration needs of Yabotí. As well as practical measures to implement, this document suggests a workshop joining restoration projects from the Atlantic Forest and elsewhere around the world.

Biodiversity assessment is ongoing through the work of Dr Mario Di Bitetti and his colleagues and students who are performing fauna and flora studies and the work of Instituto de Botanica Darwinion under the guidance of Dr Fernando Zuloaga who are carrying out the botanical surveying.

Output: Education, training and wide-reaching dissemination of information. Including four courses taught in Argentina and four FacFor staff travel to Kew and Eden Project

Professor Prance led and taught an ethnobotanical course for 17 Latin American students and four forest guards in October 2006. Much of the coordination of the course was done by Dr. Norma Hilgert from CelBA in Iguazu. The course was a great success. Meanwhile Yamil di Blanco who is part of the team studying the fauna of Yabotí had a scholarship funded by this project to attend the world renowned Organization of Tropical Studies course in Costa Rica.

Professor Prance continued his guidance of Hector Keller in his ethnobotanical studies. The first draft of his Ph. D. thesis is now written and is being evaluated by Prof. Prance and others.

Further formal and informal educational activities are planned for the final year of the project.

Output: Management plan for Yabotí Biosphere Reserve produced

This activity is destined for the third year of the project but will draw heavily upon prior work. However, the provincial Ministry of Ecology has now done a lot to develop its integral sustainable management plan for the reserve. The project has facilitated heavily the joining of disparate local forces working in this field and this mobilisation of local intellect will massively contribute to this output. The Ministry of Misiones has established a 12 strong sustainable management unit within the Biosphere Reserve staff and this is also a major step in producing this plan.

Output: Exhibit produced at the Eden Project

At completion of the project it is likely there will be four exhibit presences at Eden (all completed as match funding by Eden). The current situation shows one exhibit in the Core Building relating to the Guaraní shaman. An order has been placed for some *Auracaria angustifolia* plants and these will be planted outside with some messaging relating to this iconic plant of the Atlantic Forest. Still to come in the final year will be an exhibit about forest restoration in the tropics, using the work in Misiones as a case study, and a further ethnobotanical exhibit.

3.3 Standard Output Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	TOTAL
1A	One Argentine student has submitted first draft of PH. D thesis	0	1			
3	Number of people to attain other qualifications	0	0			
4A	6 undergraduate students (4 working under Zuloaga at Darwinion and 2 under DiBitetti) fieldwork and ongoing training is being enabled by the project	6	6			
4B	Training weeks provided	2	2			
4C	4 graduate students work is being enabled by the project grant (working with Zuloaga on vascular Misiones flora) Postgraduate students (17 plus 4 rangers) from all over Latin America attend ethnobotanical training course	4	21			
6A	1 Argentine postgraduate student attends world renowned biodiversity course in Costa Rica	1	1			
8	Weeks in field by UK staff	7	7			
9	Sustainable management plan for Esmeralda Park completed	0	0			
11	Paper published in peer review journals	1	14			

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11B	Papers submitted to peer reviewed journals	7	30
12B	IRIS database enhanced and available for widespread use in host country	1	1
13B	Triplicate herbarium collections (180 species) of Yabotí flora made by GT Prance, H Keller and R Duarte for the Universities of Corrientes, Misiones and RBG, Kew	3	3
14A	High profile meetings of International Advisory Committee, co-sponsored by Misiones Government	2	1
14B	Papers presented at scientific and public meetings	7	20
15A & 15B	Project results presented to a minimum of 3 conferences in UK and Argentina	11	8
15C & 15D	Regular national press releases expected	4	0
16A & 16B	Regular local press releases	0	0
18A	National TV programmes (1) in host country (plus 2 international)	0	3
18B	Number of national TV programmes/features in UK	0	0
18C	Number of local TV programmes/features in host country	0	2
18D	Number of local TV programmes/features in UK	0	0

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19A	Number of national radio interviews in host country	0	0
19B	Number of local radio interviews in UK	0	0
19D	Number of national radio interviews in UK (Radio 4)	0	1
22	Field plots established for purposes of field research. Sites identified	0	0
23	£149,000 in kind contribution raised for project and significant progress towards large land purchase through World Land Trust	1	1

Table 2 Publications

Please see Annex 3 for full list of published (and submitted) scientific articles relating to project work.

Type *	Detail	Publishers	Available from	Cost £
(eg journals, manual, CDs)	(title, author, year)	(name, city)	(e.g. contact address, website)	(if applicable)
Magazine	'Argentina's forgotten fraction' Dan Ryan, 2006	Plant Talk	c/o Eden Project, Bodelva, Cornwall PL24 2SG	£5
Magazine	'If you go down to the woods today' Dan Ryan, 2007	Eden Project	Eden Project, Bodelva, Cornwall PL24 2SG	Free

3.4 Progress towards the project purpose and outcomes

Major progress has been made towards fulfilling the project purpose. However, there are areas that need attention in order to achieve it in its entirety. The underspend in the budget reflects this. All purpose level assumptions still hold true.

Novel research carried out in the project area has increased by several orders of magnitude since the project inception. This is reflected in the published scientific material found in Annex 2. This additional knowledge is providing a sound scientific base from which to deliver the rest of the project outcomes. With the completion and increasing use of the field station there is no reason to suggest, at this stage, that this will diminish.

There has not been as much in situ training as envisaged although what there has been has been of very high quality, including all of Prof. Prance's time spent with his Ph. D. student

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Hector Keller in conjunction with the highly successful ethnobotanical course. Other students have been supervised by the expertise of Dr. Mario DiBitetti and Dr. Fernando Zuloaga. Local political changes have meant that there is no increased opportunity for local people to be trained - for instance the project now supports 4 Guaraní people to work on project activities.

The Guaraní have been, to some extent, empowered. But the situation still remains where the overall fight for forest survival is a complicated political game. Where possible the local communities are involved and certainly input heavily into the decision making processes of the project team. And it is these decisions that shape responses to Government and logging companies. The project continues to involve and support a small team of willing and able Guaraní and this is essential to the long term empowerment of the wider community.

The completion of the management plan will build on the work to date and from the forthcoming work of the sustainable management unit within the Biosphere Reserve. With these developments and the new strengths discovered within the local scientific community it is envisaged this will be completed to a high quality and be very valuable to the forest's future.

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

The long term agreements to study the forest through the biodiversity institute in alignment with the political will being demonstrated the future for the forest looks more assured than a year ago. However, this does not disguise the fact the forest is extremely vulnerable and long term biodiversity assessment will, in the majority, take place after the life of this project. This is envisaged to be delivered by the new institute. Despite ongoing biodiversity research much is still not known. However, a recent jaguar survey of Misiones showed some bad news. It appears the jaguar population numbers approximately 50 animals, whereas the previous survey, approximately 10 years ago, found around 500 animals. This shows the level of the threat, particularly for the forest megafauna, and indicated how rapidly protection needs to be implemented.

4. Monitoring, evaluation and lessons

The annual meeting of the International Advisory Committee provide a means to evaluate project progress. This occurred over two days in October 2006 in Iguazu. The Advisory Committee comprises a team of very experienced scientists - ranging from conservationists to anthropologists – all of whom are pleased with project successes. They are especially happy with the political links made and strengthened, the progress towards the land purchase and the ongoing ethnobotanical, taxonomical and zoological studies. They expressed concern about a lack of on the ground forest restoration work and this is being remedied in the plan for a restoration workshop and immediate plan of action. In quantitative terms the number of park rangers in the area has nearly doubled in the last year, to 100, and the positive impacts of this in delivering the outputs should be evident in the forms of greater forest protection from illegal logging and poaching, greater community outreach and enhanced knowledge relating to the forest ecology.

The training opportunities that have been undertaken clearly lead to fulfilling outputs and outcomes of the project. And the ongoing scientific research is hopefully leading to further research opportunities and collaborations in striving for a permanent programme of research. This ongoing research and training will be able to be fostered and evaluated under the biodiversity institute.

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Lessons learned in the last year are many. It is still clear the project is not aware of all relevant players in local forest restoration. But during field visits and through the work of the local project team this situation improved. However, it is clear there are still more links to be made.

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

6. Other comments on progress not covered elsewhere

The major pieces of refinement that will affect the exit strategy and legacy are the agreement to create a biodiversity institute, the closing in on the land purchase through the World Land Trust and the formulation of a forest restoration workshop.

The project still encounters difficulties in the transference of funds to local partners that is rapid enough to cover the work taking place. In some instances this threatens the viability of the partner involvement. The project continues to try and rectify these issues as the current situation is not good enough.

There are no major risks to the project beyond those already known. In October 2006 a large area of forest was destroyed in a forest fire and it is unknowable occurrences like this that threaten the work on the ground. The political situation is fairly stable at the moment and as such poses no great threat in the short term.

7. Sustainability

Efforts have been made to promote the work using a variety of means. The local media have been used to expose the work to a wide audience and the project team are in regular contact with the Government in order to increase knowledge and garner further support for the project.

The exit strategy is well-defined. However, gaining support (particularly Government and in the scientific community) for the development of a new institute of biodiversity research is likely to provide an additional major plus for the project. It is envisaged key players within the project will take up positions in the new institute and therefore continue the philosophies relating to forest conservation of the project. This agreement has been laid down in decree (please see outstanding achievements for details) and is thus secure.

A workshop on forest rehabilitation is planned for the coming year and this will further unite groups working towards the same goals and improve the sustainability of the project.

8. Dissemination

Target audiences for the project in the host country are mainly the local people who rely on the forest resources, directly or indirectly, and the decision makers who ultimately shape the future of the forest. As such, dissemination activities have included regular media appearances and public meetings. Project activity will continue to be disseminated when the project finishes as the local project team has very good connections with the local media. Funding for dissemination activities such as public meetings is unclear, although it is likely to become a necessity for the new biodiversity institute and thus a core budgetary element of this next step. As this Darwin Initiative project is one of the major activities locally relating to Misiones forest conservation it seems reasonable to assume much mention will be made of prior and continuing work. Press coverage has always been freely available for the project and so

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funding for this is not an issue. Implementation of this will continue as it is vital to keep exposing the work and progress to a wide audience. The project team feel very strongly about these principles.

Television

Local level in Eldorado

Programa Informativo: Tele Noticias Cuatro, Canal 4, Circuito Cerrado de Televisión (Eldorado, Misiones, Argentina) Seis repeticiones: de Lunes 7 a Sábado 12 de Noviembre de 2006 (12:30 hs). Nota periodística sobre “Curso Internacional de Etnobotánica Sudamericana”, y referencias sobre la disciplina Etnobotánica

Provincial level in Misiones

Programa Cultural: Nuestra Identidad, Canal 12 de Televisión (Posadas, Misiones, Argentina) Sábado 12 de Noviembre de 2006 (21 hs). Nota periodística sobre “Curso Internacional de Etnobotánica Sudamericana”, y referencias sobre la disciplina Etnobotánica

National level in Argentina

Programa Científicos Industria Argentina. Canal Telefó (Buenos Aires, Argentina) Informe documental y periodístico sobre Etnobotánica. Certificado el 2 de Junio de 2006. Entrevista junto a informante Guaraní (Nelson Benítez)

International

XII Bienal Internacional de Cine y Video Científico en español. Zaragoza (España) Diciembre de 2005. Presentación de 6 minutos de Video científico Técnico: Etnobotánica: Un encuentro entre dos culturas, Producciones El Oso: (Buenos Aires, Argentina) Entrevista junto a informante Guaraní (Nelson Benítez)

IV Muestra Documental Etnográfico de Sobrarbe, Piello, Boltaña. 31 de Marzo a 9 de Abril de 2006. Jueves 6 de Abril, 23 hs. Etnobotánica, entrevista a Héctor Keller y a informante Guaraní Nelson Benítez. Dirección Claudio Martínez.

Lectures by Hector Keller relating to project:

“Comunidades Guaraníes y Conservación de especies vegetales”. 2º Taller Argentino de Conservación en Jardines Botánicos. Organizado por BGCI y Jardín Botánico Selva Misionera. Eldorado. June 2006

La diversidad de recursos de la vegetación: Un enfoque etnobotánico. Ciclo de charlas y muestras de Publicaciones científicas. Museo de Ciencias Naturales “Augusto G. Schulz”, Asociación de Biólogos del Chaco, Resistencia. 4 September 2006.

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“Plant resource diversity in a Mbya Guaraní community in Misiones, Argentina. An Ethnobotanical analysis”. Yale Forest Forum: Participatory approaches to Ecological Restoration Projects in Rural Communities. New Haven, CT, USA. 28 September 2006.

“Etnobotánica de Comunidades Guaraníes de Misiones, Valoración de la vegetación como fuente de recursos. Seminario Doctorado en Recuraoa Naturales. Facultad de Ciencias Agrarias, Universidad Nacional del Nordeste. Corrientes, Argentina. 8 May 2007.

In addition to the dissemination activities of Hector Keller, Prof. Ghillean Prance presented lectures on conservation of biodiversity using data from the project in Brazil, Malaysia, the UK and USA. There has also been significant exposure in the Argentinean press and newspapers over the reporting period.

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

1. The course in ethnobotany at the Marcio Ayres Field Station. It was advertised through the Red Latinoamericana de Botanica and received over 300 enquiries and 98 applications for the 20 places. This included students from 7 Latin American Countries.
2. The obtaining of some funding (£200,000) through the World Land Trust towards the purchase of land to increase the core part of the RBY.
3. The considerable improvement of relationships between the Provincial Government and the Guaraní people. There is now a sub-secretary of the environment devoted to indigenous affairs.
4. The issuing of a formal Provincial Decree on 27 October 2006 Creating a Provincial Institute of Biodiversity. (Decreto 1908): Instituto Misionero de Biodiversidad (IMdeBio).

[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: 2006/07

Summary	Measurable indicators	Progress and achievements April 2006 – March 2007	Actions required/planned for next period
<p>Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</p> <p>The conservation of biological diversity,</p> <p>The sustainable use of its components, and</p> <p>The fair and equitable sharing of the benefits arising out of the utilization of genetic resources</p>		<p>There has been significant progress towards more secure biodiversity in the project area as well s significant improvements in the local communities. There is further hope for more secure Guarani communities in the form of a land purchase.</p>	
<p>Purpose</p> <p>A strategic sector of the threatened Atlantic Forest protected through a permanent programme of research, training, fieldwork, management plan and Guaraní empowerment in the Yabotí Biosphere Reserve (YBR)</p>	<p>Improvement in habitat and species composition knowledge. Forest restoration and bamboo control procedures</p> <p>A stable scientific staff stewarding a well equipped and funded field station assisting MINEC in biodiversity conservation</p> <p>Proposed changes adopted in FacFor graduate and rangers school curricula</p> <p>At least 2 Guaraní villages empowered through the partnership, and its income level raised by at least 20%</p>	<p>Species composition knowledge improved and taxonomic samples collected and collated. No significant habitat improvement but unexpected bamboo flowering episode in late 2005 means differing measures have to be taken</p> <p>Field station fully equipped and being used increasingly by local scientists and educational groups. Full time park guard employed to staff field station</p> <p>Guaraní villages and key persons identified</p>	<p>Forest restoration workshop planned for the coming year and experimental plots established. New sustainable management team is taking this work forward on the ground</p> <p>Increase use of field station by international scientists and tourists. Agree institutional arrangement</p> <p>Necessary to identify suitable changes in curricula to best train local professionals</p> <p>Establish best means to empower local Guaraní using trained Guaraní informants and new livelihood means</p>

	<p>Public awareness campaigns about Misiones forests in Argentina and UK</p> <p>One person obtains PhD as direct result of project work</p>	<p>Significant media attention in Argentina generated as a result of the project</p> <p>PhD first draft has been submitted</p>	<p>Aim to maximise the projects public awareness by means of a layered, diverse approach</p> <p>Further integrate PhD work into project legacy and ongoing research</p>
<p>Institutional framework agreement between staff members and MINEC</p> <p>Activities</p> <p>This output is realised in the political realm, using data and partnerships acquired in the:</p> <p>1. Field research inventory programme</p>	<p>Agreements reached</p>	<p>Institutional framework formalized in a cooperation agreement signed by Eden, MINEC and University of Misiones to generate an academic and research institute dedicated to biodiversity research and sustainable use of the Atlantic Forest. This was ratified in a recent decree (please see annex 3 for details). Location of a site and staff complement will be the next steps.</p> <p>The indicator is entirely appropriate although this could be supplemented by the ultimate creation of the physical and intellectual entity.</p>	
<p>Funding arrangements agreed</p> <p>Activities</p> <p>This output was realised with the receipt of this grant. And heavily bolstered by:</p> <p>2. Ethnobotanical studies</p>	<p>Funding obtained</p>	<p>Beyond this grant, match funding and the receipt of funds from UNDP and Misiones Government it is the ethnobotanical studies and field research programme that are driving the acquisition of further funds from the World Land Trust with the aim of purchasing land in a critical area for the Guarani and Atlantic Forest biodiversity. The next steps are to try and secure this purchase and protect this vital corridor of land.</p> <p>The indicator is entirely appropriate.</p>	
<p>Equipping of the field station</p> <p>Activities (1)</p>	<p>Equipment incorporated</p>	<p>Equipment to the value of US\$ 35,000 bought with UNDP funding and Darwin Initiative capital grant used to complete the purchases. The field station is now fully equipped.</p> <p>The indicator is appropriate and could be supplemented by ‘and the use of’.</p> <p>Happily the equipment and facilities are being used regularly by local scientists.</p>	

		The next steps are to ensure this continues.
<p>Inventory of plant species and FacFor herbarium improvement. Accumulated data made available on internet based IRIS database</p> <p>Activities</p> <p>3. Research data and publications and (1,2)</p>	<p>Herbarium collections deposited at FacFor, Darwinion and RBG, Kew. Database increased</p>	<p>180 samples (in triplicate) collected and classified for herbarium. Three field trips carried out in 2006 and three in 2007 by Darwinion and samples added to the Darwinion IRIS database, accessible through the internet. Total Misiones species on database increasing constantly. Next steps will include more collection trips by Darwinion and improvement and increased use of the database.</p> <p>The indicators are entirely appropriate.</p>
<p>Ethnobotanical studies with Guaraní people, integrated to qualified roles, livelihood improvement</p> <p>Activities (2)</p>	<p>Ethnobotanical knowledge of region and sustainable livelihood plan produced</p>	<p>Guaraní people incorporated in the field work. Small number of scholarships for high school education granted. Ongoing ethnobotanical work is increasing the knowledge immensely. Local populations still aligned with project, although it is important we build on these relationships further. The existing work is leading to the creation of a sustainable management plan and this will be written in association with the partners over the coming year.</p> <p>The indicators are appropriate.</p>
<p>Techniques of restoration and bamboo control produced</p> <p>Activities</p> <p>4. Restoration and bamboo control pilot programmes and (1)</p>	<p>Experimental plots installed in infested areas</p>	<p>These techniques and plots have not been initiated yet. Although much discussion about locations and partner building surrounding the issues has taken place. It is imperative to initiate this soon. This activity will be complemented by the planned forest restoration workshop.</p> <p>The indicators are reasonable although more real landscape gains would be a more worthy indicator.</p>
<p>Biodiversity assessment and monitoring programme in place</p> <p>Activities (1 & 3)</p>	<p>Protocols established and tested</p>	<p>Fauna studies are ongoing and vegetation surveys are very well advanced. It is assumed the ongoing monitoring and assessment will be taken over by the new biodiversity institute. Thus ensuring biodiversity science is continued in Yaboti, making good use of the local contacts and facilities. Ensuring the continuation of this work is the next priority.</p>

		The indicators are appropriate although the level and quality of scientific material relating to this output can also testify to this outputs success.
<p>Education, training and wide reaching dissemination of information. Including four taught courses in Argentina and four FacFor staff travel to Kew and Eden Project</p> <p>Activities</p> <p>5. Dissemination and public awareness</p> <p>and</p> <p>6. Curricula modification, teaching improvement and training</p>	<p>Articles in partner publications, TV broadcasts and local media. Papers for scientific and conservation communities published</p>	<p>The project has achieved wide-reaching dissemination including TV, radio, newspapers and magazines. There have also been public meeting in Argentina relating to the project. It is important to engage with more UK media, especially TV and the broadsheet newspapers. The scientific publication list is extensive already and should continue in this vein. The press coverage should be more regular however.</p> <p>A successful ethnobotanical course was delivered and, in the field, training to students of the project partners is ongoing.</p> <p>The indicator is sufficient however would be improved by introducing elements of the formal training programme.</p>
<p>Management plan for YBR produced</p> <p>Activities 1,2,3 & 4</p>	<p>Management plan produced</p>	<p>All work to date and all relationships made are shaping the production of the plan. A sustainable management team has been created within the biosphere reserve core team and they will work closely with the rest of the project team to produce this plan. It is likely there will be significant consultation in the production of the report and this needs to be scheduled effectively.</p> <p>The indicator is appropriate to the needs.</p>
<p>Exhibit produced at the Eden Project</p> <p>Activities 5</p>	<p>Exhibit produced</p>	<p>Interpretation relating to the project has been on display at Eden (exhibit about Guaraní lifestyle in the Core building and posters) and will grow over the coming year. Araucaria plants in order to create an outdoor display. A display relating to forest regeneration is in design at the moment. So public presence of the project at Eden will be large.</p> <p>The indicator is appropriate.</p>

Annex 2 Project's full current logframe

Project Summary	Measurable Indicators	Means of verification	Important assumptions
<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"> • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
<p>Purpose To establish a permanent programme of research and fieldwork for biodiversity conservation and livelihood of Guarani population in the RBY. Established with participation of Guarani communities and involved staff stewardship, who cooperate in the design and support of policies and activities for these objectives and to education, training and public awareness</p>	<p>Improvement in habitat and species composition knowledge. Forest restoration and bamboo control procedures</p> <p>A stable scientific staff stewards a well-equipped and funded field station assisting MINEC in biodiversity conservation</p> <p>Proposed changed adopted in FacFor graduate and rangers school curricula</p> <p>At least 2 Guarani villages empowered through the partnership, and its income raised by at least 30%</p> <p>Public awareness campaigns about Misiones forests in Argentina and UK</p>	<p>Peer reviewed articles by key staff, field survey reports and inventories</p> <p>Field survey reports by key staff and publications by partner organisations</p> <p>Integration, functions and reports of the committee</p> <p>FacFor and ranger school curricula</p> <p>Reports of incomes and activities</p> <p>Reports by partner organisations</p> <p>Copies and transcripts of publicity sent to Darwin</p>	<p>Appropriate skills in the staff team</p> <p>Continued commitment of partner organisations and regional government</p> <p>Availability of four Eden Project staff members to deliver courses in Argentina</p>
<p>Outputs Institutional framework agreement between staff members and with MINEC</p> <p>Funding arrangements agreed</p>	<p>Agreements reached</p> <p>Funding obtained</p>	<p>Text of the agreement, balances and reports from the field station</p>	<p>Continued commitment of partner organisations and regional government</p>

Equipment of the field station	Equipment incorporated		
Inventory of plant species and FacFor herbarium improvement	Herbarium collections and database	Database and published articles sent to Darwin Initiative	
Ethnobotanic studies with Guarani people leading to livelihood improvement	Increased ethnobotanical knowledge of region and sustainable livelihood plan produced	Published articles and plan document sent to Darwin Initiative	Continued assistance from Guarani population
Techniques of restoration and bamboo control produced	Experimental plots installed in infested areas	Results from experimental plots evaluated	
Biodiversity assessment and monitoring programme	Protocols established and tested	Field reports	
Education, training and wide reaching dissemination of information	Articles in partner publications, TV broadcasts and local media. Papers for scientific and conservation communities published	Copies of all publications and recordings sent to Darwin Initiative	Appropriate production skills in staff team

Annex 3 onwards – supplementary material (optional)

List of published scientific articles – see note in publications section

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Calviño, C. I., and Downie, S. R. 2006. Circumscription and phylogeny of Apiaceae subfamily Saniculoideae based on chloroplast DNA sequences. In press in *Molecular Phylogenetics and Evolution*.

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