Darwin Initiative

Annual Report

1. Darwin Project Information

Project Ref. Number	EIDP09/10-030
Project Title	Consolidating local capacity for biodiversity surveys in Papua New Guinea
Country(ies)	Papua New Guinea (PNG)
UK Contractor	University of Sussex
Partner Organisation(s)	Binatang Research Centre, Papua New Guinea
Darwin Grant Value	£70,687
Start/End dates	1.7.05 to 30.6.07
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 Jul 2005 to 31 Mar 2006 Annual Report No. 1
Project website	www.entu.cas.cz/png/
Author(s), date	Dr A J A Stewart, 28 April 2006

2. Project Background

The project is based at the New Guinea Binatang* Research Centre (BRC) in Madang, Papua New Guinea (PNG) (* Binatang means 'insect' in the most widely-spoken local language, Tok Pisin). It is a 'post-project' that follows on from our previous project *Developing local capacity for biodiversity surveys in Papua New Guinea* (162/10/030) that finished in August 2004.

The overall aim of the project has been to create and develop a locally recruited and locally based team of experts - parataxonomists - who are able to conduct surveys of insect and plant biodiversity in PNG, generating high quality research data and material and, in collaboration with researchers, exploring protocols for insect diversity surveys in rain forests. The long-term goal has been that, once trained and equipped, this team would become financially independent, attracting contracts to provide assistance to local landowners, environmental and government organisations and research teams.

3. Project Purpose and Outputs

The original Darwin Initiative project successfully established the team of parataxonomists who could carry out biodiversity surveys for local landowners, environmental and government organisations and researchers, and that was also active in environmental education of grassroots villagers. The Post-project is consolidating these achievements by strengthening the team's capacity for biodiversity data analysis, report writing, fundraising, and financial management, as well as expanding its expertise in new directions, such as forest canopy access and marine surveys. The broader objective of the project is to demonstrate the conservation and research value of parataxonomist teams in general and to promote their wider use in tropical countries.

The principal output will be the completion of a wide range of training courses by the 12 parataxonomists and the office supervisor, chosen to develop a set of advanced skills that are required to establish the team as a fully independent unit. Other outputs will include enhancement of databases and insect collections, scientific papers and training texts, participation in conferences and the dissemination of information to the media via press releases, popular articles and radio broadcasts. A lasting legacy will be the provision of a fully-equipped dormitory building to allow BRC to accommodate residential and visiting students and scientists.

The projected outputs and proposed operational plan remain unchanged.

4. Progress

The original project, prior to the commencement of this Post-project, equipped and trained the team of 12 parataxonomists in various aspects of biodiversity survey, from field sampling techniques to laboratory identification, preparation and macrophotography of specimens, databasing of results and webpage construction. The group now represents the most productive insect biodiversity survey team in PNG, and is also recognised as one of the top parataxonomist teams world-wide (see recent review by Sheil & Lawrence, 2004, *Trends in Ecology & Evolution*, volume 19, page 634). The team now concentrates on studying insect biodiversity in PNG rainforests, generating research data of scientific and conservation importance and specimens for national collections. It is also pursuing an active environmental education programme for school children and grassroots villagers as well as training PNG postgraduate students.

Progress over the last year:

This report covers the first nine months of the project (1 July 2005 to 31 March 2006).

Other than the re-scheduling of certain activities as a consequence of the need to build up the parataxonomist team (see updated Project Implementation Timetable, Section 8 below), no significant difficulties have been encountered, nor have there been any major changes in the proposed outputs.

Team- and facility-building activities:

- The Darwin-sponsored staff dormitory was completed in November 2005.
- After loss of some staff members, BRC initiated a search for five new parataxonomists. This exercise was designed also as a training/learning experience for the senior parataxonomist staff who fully participated in the process. Advertisements were placed in both major national newspapers, and these advertisements (promising hard work in remote field sites and in the laboratory, up to 70 hours a week) generated an extraordinary response with 368 applications. 50 short-listed candidates were invited for interviews and five appointments were made. The new parataxonomists were enrolled in September 2005 followed by introductory training.
- BRC hired a partly Darwin-sponsored Training & Research Supervisor, Joe Egenoe.
- BRC created and filled a new post of 'Office Accountant', to relieve the current Office Manager of accountancy duties.

Training of parataxonomists:

The need to recruit five new parataxonomists to the team early on in the post-project took some time and the decision was taken not to initiate the intensive training programme until the team was up to full strength again. Consequently, some of the training activities were delayed by a few months.

- Darren Bito (BRC Research Supervisor) conducted in-house training of parataxonomists on computer data management (2 days, August 2005).
- Vojtech Novotny (BRC Director and Darwin project partner) conducted in-house training of parataxonomists in basic mathematics applied to biodiversity survey analysis (1 day, September 2005).
- Parataxonomist Martin Mogia attended the *Basic Canopy Access Proficiency* course organised at the Danum Valley Research Station in Malaysia (2 weeks, November). This was an international training programme organised by Canopy Access Ltd, Global Canopy Programme UK, and the University of Malaysia Sabah. Other course participants were from Malaysia, Singapore, Indonesia and UK.
- Three parataxonomists (Brus Isua, Markus Manumbor and Kenneth Molem) received field training by Kipiro Damas, a senior botanist at the PNG Forestry Research Institute, in plant identification (2 weeks, November 2005).
- Jan Hrcek, a visiting MSc student from the University of South Bohemia (Czech Republic) conducted a training course on mounting and family identification of insect parasitoids (3 days, January 2006).
- Three parataxonomists (Martin Mogia, Gibson Sosanika, and Kua Nimai) attended a training course on botanical and entomological techniques at the PNG Forestry Research Institute in Lae (1 week, February 2006).

- Jiri Hulcr, a visiting doctorate student from Texas A&M university, conducted the following one-day training courses for all staff parataxonomists (February-March 2006):
    - Digital photography
    - Image processing using Adobe Photoshop
    - MS Excel
    - Introduction to insect orders
- Jiri Hulcr provided detailed training in the ecology and taxonomy of bark beetles to parataxonomists Martin Mogia, Aloysius Posman and Gibson Sosanika (1 week, March 2006)
- Vojtech Novotny conducted in-house training of parataxonomists in quantitative plant surveys and forest structure studies (4 weeks, February – March, 2006).
- Dorothy Wal, the BRC accountant, continued in her training in Human Resource Management at the Divine Word University in Madang, February – March 2006
- Parataxonomists Steven Sau and Roll Lilip trained for driving license
- BRC staff started swimming (6 persons) and PADI scuba diving (2 persons) training.

Training of new parataxonomist staff by senior parataxonomists

- Senior staff parataxonomists conducted day to day training of the 5 new parataxonomist staff in insect collecting techniques, mounting of specimens and databasing. These activities took place in the BRC laboratory in January - February 2006 and during 6 weeks of field work in lowland rainforest near Wannang village in February – March 2006.

Environmental awareness and training activities performed by parataxonomists

- The parataxonomists prepared an exhibit on environmental conservation in PNG and on the Center's activities which was installed at the Goroka Cultural Show (16-18 September 2005), the nation's largest cultural event of the year. Eight parataxonomists guided several hundred visitors through the exhibit during the three days of the Show and answered many questions. They also assisted the Jealmanu Waterfall Ecotourism Project (one of the results of our previous Darwin project) in creating and displaying their own exhibit at the Show.
- Parataxonomists Brus Isua and Kenneth Molem, and the Darwin Project Partner Vojtech Novotny attended a large meeting (200 participants) of seven clans from the Wannang village (Sogeram – Ramu rivers) that set-up a joint rainforest conservation area and provided guidance and support for their conservation project.
- BRC assisted in finalizing the Wiad Conservation Area proposal in Ohu Village (the site of our Darwin training and research activities). This proposal was then submitted to the PNG Minister for Environment, the Hon William Duma, together with 11 other similar proposals from across PNG.
- BRC was visited by J. Holland and T. Laman, a writer and a photographer respectively from the National Geographic Society, to gather information for a

story on their activities that will appear in the National Geographic Magazine. This will be primarily about NGS-sponsored research, but the opportunity was taken also to include activities related to the Darwin project in the story.

- BRC was contacted by villagers from Wasab village for advice on their ecotourism project. A set of DI-generated leaflets relevant to the project was provided and two parataxonomists were promised to train the villagers as field guides for eco-tourists.
- The parataxonomists conducted a one-day training course on insect identification and ecology for 30 final-year students of the St. Benedict's Agriculture and Technical School in Danip (Madang Province), a specialized secondary school.

Timetable (workplan) for the next reporting period.

The work planned remains substantially unchanged in terms of its overall outputs, although some adjustments have been made (and may still need to be made) to the detailed timing of particular training events. The project has been particularly successful in taking advantage of opportunities presented by research personnel visiting BRC who combine their visit with giving short training sessions in their particular field of expertise. Such opportunities are somewhat serendipitous and therefore not easy to plan substantially in advance.

5. Actions taken in response to previous reviews: not applicable.

6. Partnerships

Collaboration between UK and host country partner

The collaboration between the UK-based Project Leader and BRC (the partners in PNG) continues to work well. No substantive problems have arisen, nor are any envisaged for the rest of the life of the project.

Synergy with other Darwin projects

- Parataxonomists assisted Kanawi Chamillou and Leontine Baje in their Honours research. These are students sponsored by Darwin Initiative Project *Training the next generation of Papua New Guinean conservation biologists* (14-054). The students helped to educate the parataxonomists in the more theoretical aspects of biological sciences.
- BRC staff have been visited by Dr. Tim Bayliss-Smith (Cambridge University), the Project Leader of a Darwin-funded project on butterfly farming, and continue to be in regular contact and discussions with Mr. Rob Small, a doctoral researcher on this project, based in Madang.

7. Impact and Sustainability

BRC is one of only two institutions in PNG conducting conservation biology work (the other is the Wildlife Conservation Society, based in Goroka, Eastern Highlands Province, with whom we are involved in another Darwin project: 14-054). As such, it has a very high profile in conservation and biodiversity issues, both locally and nationally. Environmental education and awareness work by the parataxonomists in local grassroots village communities (see above) has done much to raise the profile of the work that BRC does, its support by the Darwin Initiative, and the value and sensitivity of rainforest biodiversity. More than 95% of rainforest in PNG is owned by local grassroots village communities. The educational activities of the parataxonomists are designed to provide these landowners with information about the natural resources that their forests hold and their value, to counterbalance the increasing pressure from logging and mining extraction companies.

The project's exit strategy is to leave behind a fully trained and equipped parataxonomist team that can compete effectively for contracts in biodiversity survey. Such work may come from government departments, NGOs, commercial interests and research organisations (museums, institutes and universities, both within PNG and overseas). Considerable opportunities lie in a locally-based team carrying out routine collection and monitoring activities, following prescribed protocols, to service overseas-driven research. BRC has already attracted a number of contracts for this type of work, and we envisage this expanding considerably in future.

Media exposure

- Darwin activities by BRC featured in a half-page article by Jim Robbins (Natural Resources Institute, PNG) and George Weiblen (University of Minnesota) in the Post-Courier (19 October 2005, p. 12), one of the two major daily newspapers in Papua New Guinea: *Cultural uniqueness. Scientific research benefits for rural communities: economic and educational impacts*.
- Parataxonomists Martin Mogia and Steven Sau were interviewed by local Nokondi FM Radio (Simbu Province) during the Goroka Cultural Show (17 October 2005), describing their environmental activities at BRC.

8. Outputs, Outcomes and Dissemination

The project was planned to include a large number of training courses across two years. Inevitably, the exact timing of some of these could only be estimated at the planning stage, so the schedule has had to remain flexible with some activities taking place earlier or later than originally planned. Also, the Project Leader has been unable to visit BRC within the last 9 months due to work commitments in the UK; a visit is scheduled for later in 2006 to deliver a course in *Proposal writing and fund raising*.

The table overleaf outlines progress against the original training schedule.

Project Implementation Timetable		
Date	**Key milestones / activities**	**Progress**
July 2005	Recruit *Training and Research Co-ordinator*	Recruited and initiated
July 2005	*Graduate Certificate in Communication of Science and Technology* course	Delayed until July 2006 (course runs only once each year)
July 2005	*Proposal Writing and Fund Raising* course	Delayed due to parataxonomist team not complete; re-scheduled for late 2006
August 2005	*Open Water PADI Basic* and *Advanced Scuba Diving* course	Training started and ongoing
August 2005	Presentations at the New Guinea Biological Conference	Not attended
August 2005	Build staff dormitory	Completed, November 2005
September 2005	*Advanced First Aid* course	Delayed due to staff recruitment activities
November 2005	*Field Techniques, Experimental Design, Data Analysis and Scientific Communication* field course	Completed as separate short courses on individual topics
January 2006	*Forest Canopy Access Course for Researchers and Research Assistants*	Attended by 2 parataxonomists, November 2005
February 2006	*Coral-reef and Marine Biology Monitoring* course	Training started and ongoing
Weekly	*Introduction to Biology*	Ongoing

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

Code No.	Description	Year 1 Total	Year 2 Total	TOTAL
3	*Basic Canopy Access Proficiency* course	1		
3	*Human Resource Management* (ongoing)	1		
3	*PADI scuba diving* (ongoing)	2		
5	Ongoing training of personnel (PNG parataxonomists & office supervisor) in various topics over 2 yr	13		
12B	Insect database enhanced	1		
13B	Insect collections enhanced	2		
15A	Press releases / articles in PNG press	1		
19C	Local radio broadcasts	1		
20	Dormitory built	£13,800		

Table 2: Publications

Type *	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Leaflet	Ecotourism project, Waseb village	N/A	BRC	Free

9. Project Expenditure

Table 3: Project expenditure <u>during the reporting period</u> (Defra Financial Year 01 April to 31 March)

Item	Budget (As agreed with Alan Stewart in Oct05))	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (e.g. telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars			
Capital items/equipment			
Others (Training Courses)			
Others:(O/hds on Sussex Staff)			
Others:(Audit)			
Salaries (specify)-As detailed on claim forms			
TOTAL			

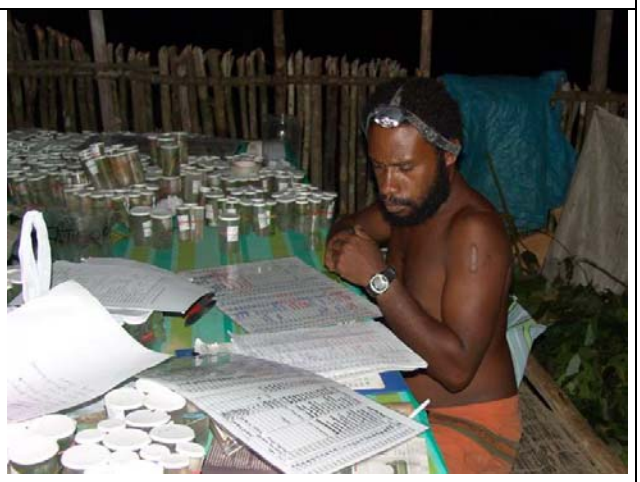
10. Monitoring, Evaluation and Lessons

As a large part of the project is based around either formal courses or very carefully focused training sessions, our evaluation centres around performance of the trainees in these exercises. Some of the courses provide formal certification that records performance to a certain standard. Thus, parataxonomist Martin Mogia received certification of his attendance and performance on the *Basic Canopy Access Proficiency* course organised at the Danum Valley Research Station in Malaysia by Canopy Access Ltd, Global Canopy Programme UK, and the University of Malaysia Sabah (see picture on following page). With regard to the in-house training at BRC, we have established a format (developed in the original Darwin project) for periodic assessment of progress of parataxonomist staff against personalised training and career development programmes. These assessments are used to inform our planning of further training exercises, both at an individual level and for the parataxonomist team as a coherent unit.

Participants on the Canopy Access Course at Danum Valley station, Sabah, including the DI-sponsored parataxonomist Martin Mogia (3rd from left, back row) and student Darren Bito (3rd from left, front row).

BRC parataxonomist Martin Mogia receiving the Canopy Access Course certificate from Dr Andrew Mitchel, Director of Global Canopy Programme, UK.

BRC parataxonomist Kenneth Molem measuring a buttressed tree during the plant survey and forest structure field training



BRC parataxonomist Markus Manumbor reviewing plant data during the plant survey and forest structure field training

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2005/2006

Project summary	Measurable Indicators	Progress and Achievements April 2005-Mar 2006	Actions required/planned for next period
Goal*:* 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 • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources			
Purpose To consolidate the parataxonomist biodiversity survey team by developing its personnel structure, improving its research infrastructure and broadening its range of skills, thus increasing the team's ability to conduct locally-driven biodiversity surveys in PNG on a financially sustainable basis.	By year 2 of the project, the parataxonomist team independently: - conducting biodiversity surveys in the field - analysing data and producing survey reports - fundraising and obtaining new customers - managing financial and other aspects of its operation	*(report impacts and achievements resulting from the project against purpose indicators – if any)* - new biodiversity surveys conducted - data being analysed and reported on as appropriate - new funds sought - Office Accountant (new post) appointed to assist existing Office Manager	*(report any lessons learned resulting from the project & highlight key actions planning for next period)* Parataxonomist team benefits from input of an Office Manager and Office Accountant.
Outputs			
A fully equipped and trained team of parataxonomists, conducting biodiversity surveys including field work, building of biological	The biodiversity team is enhanced by a newly recruited training and research co-ordinator	Training & research co-ordinator appointed	Parataxonomist team benefits from input of a project co-ordinator who takes responsibility for co-ordinating training and research programme

collections, data analysis and report writing, which can collaborate with researchers, conservationists and grassroots villagers, thus being capable of providing biodiversity information to both the scientific community and resource owners.	The accommodation facility is completed	Dormitory completed	
	The 14 training programmes in PNG and 3 in UK are completed by the parataxonomists and the office supervisor	Various training programmes completed by parataxonomists in PNG	Training programme needs to stay flexible in timing and responsive to emergent needs of trainees. UK training programme will take place in July-August 2006.
	The entire biodiversity team is a well-functioning unit capable of conducting surveys	Biodiversity team already functioning as coherent and highly qualified unit regularly carrying out surveys	Plans for continued development of individual and collective skills of team
	The survey results presented at research conferences	Survey results not yet presented formally	Presentations planned for New Guinea Biological Conference, August 2006

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.