

Darwin Initiative

Annual Report

1. Darwin Project Information

Project Ref. Number	162/14/054
Project Title	Training the next generation of Papua New Guinean conservation biologists
Country(ies)	Papua New Guinea (PNG)
UK Contractor	University of Sussex
Partner Organisation(s)	Binatang Research Center, Papua New Guinea Wildlife Conservation Society, Papua New Guinea Natural History Museum, UK
Darwin Grant Value	£197,555
Start/End dates	1 September 2005 – 30 August 2008
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 September 2005 to 31 March 2006 Annual Report No. 1
Project website	
Author(s), date	Dr A J A Stewart, 28 April 2006

2. Project Background

The project is a collaboration between the University of Sussex (US), the Natural History Museum (NHM) in London, the Binatang* Research Center (BRC) in Madang, Papua New Guinea and the Wildlife Conservation Society (WCS) in Goroka, Eastern Highlands Province, Papua New Guinea.

The project stems from the recognition that one of the major obstacles to successful conservation planning in Papua New Guinea is the extremely deficient state of knowledge of the country's flora and fauna and how existing knowledge can be applied to biodiversity conservation. Part of the problem is that the country lacks adequately trained conservation biologists who can obtain the requisite data, interpret them and make decisions or give advice based on the findings. The project tackles this problem through training in conservation biology and research methods.

The project is divided between the above two centres in PNG, following a period of intensive training in the UK of two local PNG project coordinators.

* Binatang means 'insect' in the most widely spoken local language in PNG, Tok Pisin).

3. Project Purpose and Outputs

The purpose of the project is twofold: (1) to train eight new conservation biologists to become the potential conservation leaders of tomorrow, and (2) in the process of that training, gather highly relevant data that can be used to guide conservation planning and policy. This is achieved by bringing two early-career PNG biologists to the UK for a two-month period of

intensive training in advanced entomological techniques, who will then return to PNG to become local training and research coordinators at each of the two partner institutions. These individuals will be responsible for training eight PNG honours students (in two cohorts) in a variety of fieldwork and laboratory techniques and for coordination of these students' research projects. The plan was to employ a UK Project Coordinator to host and train the PNG trainees during their stay in the UK and then to coordinate establishment of the project in PNG during its first year.

The principal output of the project will be eight highly trained conservation biologists, who will be equipped with the necessary skills and experience to conduct biodiversity surveys, conduct field investigations and make sound conservation decisions and recommendations based upon robust scientific principles and data.

Whilst the projected outputs remain the same, the operational plan has had to be modified to take account of the fact that there will not be a UK Project Coordinator resident in PNG in the first year of the project as originally planned (see detailed explanation below). Discussions will shortly take place between all four partner organisations as to how best to accommodate this change in plan. The Darwin Initiative Secretariat has been kept informed of this situation, but at the time of writing no definite contingency plan has been formulated and agreed between the partners (see discussion below).

4. Progress over the last financial year

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

Team- and facility-building activities:

The Honours student positions were advertised nation-wide and, after interviewing more than 30 applicants, four were accepted, all from the University of Papua New Guinea (UPNG).

Computers and printers have been purchased to assist the students in their work.

Training of Honours students:

Kore Tau

Ms. Tau is undertaking research for her Honour's Degree at the University of Papua New Guinea. She is based at WCS and is supervised by Drs Andy Mack and Deb Wright. Her thesis is entitled: *Flying fox abundance, reproduction and roost selection in caves and stone holes in the Crater Mountain Wildlife Management Area, Papua New Guinea*. These large bats are heavily hunted for meat by people in PNG and because they roost in caves are particularly vulnerable to over-exploitation.



In the period of this report, Ms. Tau completed her fieldwork. She made three field trips to the Crater Mountain area for a total of approximately three months of fieldwork, during which time she made visits to seven different caves. The rest of the period she was engaged in researching and writing the essays that are part of the requirements for an Honours Degree at UPNG.

Her completed field data are extremely useful, providing the first information on the timing of reproduction of flying foxes in montane PNG. She has also collected valuable information on the physical parameters of caves that will help conservationists identify which caves are most suitable for roosting bats of several species. She has also positively confirmed the

occupancy of an extremely rare species of flying fox, until recently considered extinct, in two caves in the Crater Mountain area.

Kore has applied for two scholarships to continue her training as a Masters degree student in 2007.

Enock Kaledimimo

Mr. Kaledimimo is undertaking research for his Honour's Degree at the University of Papua New Guinea. He is based at WCS and is supervised by Drs Andy Mack and Deb Wright. His thesis is entitled: *Density, diversity and reproductive status of small mammals in the Crater Mountain Wildlife Management Area, Papua New Guinea*. Small mammals are not only critical in the rainforest ecosystems of PNG, they are also vulnerable to habitat modifications from logging and many are hunted and consumed by indigenous people. Yet there has never been a study of population demography of any small mammal in PNG. This is the first such study and it is destined to become a standard for future research and management.



In the period covered by this report he completed his field sampling with two final six-week field sessions. He has entered all the data in spreadsheets and is busy researching and writing his essays that are part of the requirements for an Honours Degree at UPNG.

Enock has applied for three different scholarship programs to attend Masters degree programs overseas in 2007.

Kanawi Chamilou

Mr. Chamilou is undertaking research for his Honour's Degree at the University of Papua New Guinea. His thesis is entitled: *Successional trends in the structure and composition of a lowland tropical forest in Papua New Guinea*. It is being supervised by Professor Vojtech Novotny (BRC). Kanawi's project will be focusing on plant communities in 1 ha plots of primary and secondary lowland forest that have been established by BRC in Wannang. A knowledge of patterns and processes of succession in rainforest is vital for understanding how forests recover from logging operations and how quickly and to what extent they come to resemble pristine rainforest in species composition and structure.



Kanawi has started his fieldwork having been given an introduction to the research field by Vojtech Novotny. He is also researching material for his assigned essays on the

following topics: (i) successional dynamics of tropical forests, (ii) the origin and maintenance of plant diversity in tropical forests, (iii) methods of plant community surveys, and (iv) methods of plant community analysis.



Leontine Baje

Ms. Baje is undertaking research for her Honour's Degree at the University of Papua New Guinea. Her thesis is entitled: *Host*

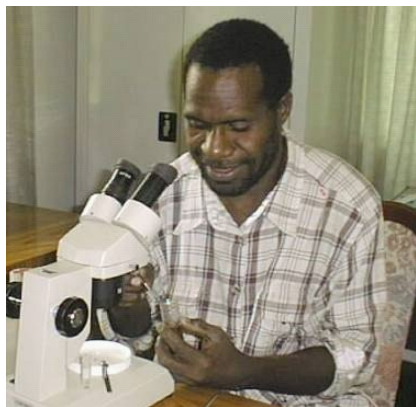
specificity and species richness of sap-sucking insects (Auchenorrhyncha, Hemiptera) in a lowland rainforest in Papua New Guinea. It is being supervised jointly by Professor Vojtech Novotny (BRC) and Dr Alan Stewart (US) and will be based at BRC, working at the well-studied Ohu preservation area. The Auchenorrhyncha (cicadas, leafhoppers, planthoppers, treehoppers etc) are an under-worked but important group of herbivorous insects in rainforest. Leontine will be concentrating on the Typhlocybae, a group that feeds on the mesophyll sap of their hosts, which are simple to rear from nymphal stages to establish accurate host-plant associations. This information will be essential for assessing the extent of recovery of insect faunas after major disturbance events such as rainforest clearance.

Leontine has started her fieldwork having been given an introduction to the research field by Vojtech Novotny. She is also researching material for assigned essays on the following topics: (i) the ecology of interactions between plants and insect herbivores, (ii) the ecology of sap-sucking insects in forest ecosystems, (iii) the origin and maintenance of insect diversity in tropical ecosystems, and (iv) methods of host specificity measurement and analysis.

Training of the research supervisors

Katayo Sagata

Mr. Sagata is the PNG Project Coordinator based with WCS. From September to November 2005 he travelled to the UK where he received extensive training at the Natural History



Museum (with Darren Bito, below). He learned about modern molecular and other systematics techniques that are unavailable and poorly understood in PNG. He worked extensively in the collections of the Natural History Museum, gaining experience that cannot be had in the relatively modest collections in PNG.

After returning to PNG, Mr. Sagata undertook fieldwork at several locations in PNG as part of Darwin sponsored entomological research. He visited several sites in Morobe, Madang, Eastern Highlands and East Sepik Provinces.

Katayo also undertook special training in digital macro photography techniques with Darwin collaborators at the Binatang Research Centre in Madang. He worked on securing proper visas and permits for Darwin project collaborator Dr. Michael Balke, including a trip to Port Moresby to meet with government authorities.

In this period, Mr. Sagata has also worked on several publications (see publications list).



Darren Bito

Mr Bito is the PNG Project Co-ordinator and research supervisor based at BRC. He accompanied Katayo Sagata (above) on the training visit to the UK, based at the NHM.

En route from the training in the UK, Darren visited the Institute of Entomology in the Czech Republic for two weeks

and gave a seminar there on his research on insect herbivores colonising an alien tree species in Papua New Guinea (November). This visit also enabled him to explore Central European ecosystems and meet biologists working in his field of interest. This visit was sponsored from Czech sources but was made possible by Darren's travel to the UK and was thus an additional no-cost benefit to the DI project.

Darren also attended the *Basic Canopy Access Proficiency* course (2 weeks, November) organised at the Danum Valley Research Station in Malaysia. This was an international training programme organised by Canopy Access Limited, the Global Canopy Programme UK, and the University of Malaysia Sabah. Other course participants were from Malaysia, Singapore, Indonesia and UK.

Vojtech Novotny, one of the PNG project partners, assisted Darren on a regular basis with his research; this resulted in a manuscript being submitted to the *Journal of Biogeography* in March (still in review).

Training of PNG local project coordinators in UK

PNG local project coordinators Darren Bito (from BRC) and Katayo Sagata (from WCS) visited the UK for intensive training for eight weeks from 22 September to 15 November 2005. For most of their visit, they were based at the NHM in London where they received focused training from Dr Neil Springate (UK Project Coordinator) as well as staff at NHM and Imperial College who are world-renowned experts in their field.

In their training schedule, they were introduced to a broad spectrum of methods in taxonomy and systematics relevant to biodiversity conservation. These consisted of:

- bespoke lectures and demonstration-practicals on insect taxonomy and systematics
- practical courses in molecular biology, demonstrating a range of techniques, including specimen preparation and DNA extraction
- lectures selected by the visitors from the NHM/Imperial College M.Sc. in *Advanced Methods in Taxonomy and Biodiversity*
- group discussions (at least once weekly) and laboratory meetings (within Dr Vogler's molecular biology group)
- discussions of scientific methodology and project design
- demonstrations of literature searches and information gathering
- guided scientific reading
- one-to-one tutorials
- attendance at an international symposium on speciation at NHM.
- introduction to the basics of writing proposals for funding using the British Ecological Society's 'Small Ecological Project Grants' form as a template.

Running in parallel with these activities, regular practical sessions were used to demonstrate the diversity of specific taxa (principally Hymenoptera, aquatic Coleoptera, Ephemeroptera and Hemiptera), the methods of their collection, preservation and preliminary sorting, all within the broad remit of how taxonomy and systematics are essential in Rapid Biodiversity Assessments (RBAs) for conservation purposes. Presentations on mass sampling strategies, the selection of appropriate target taxa and the importance of understanding seasonality within RBA were allied to fieldwork in stream systems in the west London area and southern English beech/oak woodland to demonstrate simple and replicable sampling techniques. Malaise-trapped material was employed to demonstrate a method of surveying for RBA. Identification, including dissection, of aquatic Coleoptera and Ephemeroptera, were used to present some of the taxa intended for use in molecular studies and project work for the PNG students.

Specific skills related to the handling, preparation, curation and examination of insect specimens were demonstrated *via*:

- use of camera lucida for drawing
- an introduction to digital imaging, including linking digital images with the construction of dichotomous keys via the computer program ‘Lucid’.
- the use of HMDS drying techniques and their modification for specimen preparation
- curatorial techniques in RBA, emphasising taxon-appropriate methods, in particular storage and labelling.

In addition, Darren Bito was invited to give a research seminar in the Zoology Department at the University of Oxford on his Masters work on caterpillars colonising *Spathodea campanulata*, an alien invasive tree species that is rapidly colonising lowland PNG rainforests.

Both Darren Bito and Katayo Sagata also briefly visited Sussex University to receive training in the identification of the Hemiptera from Alan Stewart and to visit some examples of temperate climax deciduous forest for comparison with PNG rainforests.

PNG honours student training programme (at WCS and BRC)

The PNG-based part of the training program has completed a number of activities:

- All four Honours students attended a 5-week field course “*Design and analysis of ecological experiments*” in Herowana village, organised by WCS (run by Dr Andy Mack; Prof Vojtech Novotny also taught on this course).



Students attending training courses organised by WCS.

- Completion of an Endnote library linked to an electronic library of c. 2500 documents on biodiversity, systematics, conservation and ecology. This resource is available to trainees in the program for use in their research. It is particularly valuable to anyone without high-speed Internet connection to modern library resources as is the case in PNG.
- Half-day short course on Phylogenetics and Taxonomy by Dr. Andrew Mack (WCS).
- Half-day short course on Molecular Phylogenetics by Dr. Jack Dumbacher (California Academy of Sciences).
- Weekly paper discussions with a different peer-reviewed paper each week relevant to conservation in Papua New Guinea.
- Weekly skills testing using sample tests of the Graduate Record Exam. This exam is the standard used by United States universities for admission to postgraduate degree programs.
- Preparation of teaching materials and logistics for a four-day short course on systematics, collections and conservation that will be conducted in April 2006. This included

advertising the course and screening applicants, booking and pre-paying travel and accommodation, booking a classroom, preparing materials, etc.

UK Project Co-ordinator

Dr Neil Springate (NHM Scientific Associate) was appointed on a 12-month contract as UK Project Coordinator, commencing duties on 1st September 2005. His duties for the first four months of the contract were (i) to arrange and coordinate the UK visit by the two PNG coordinators (Bito and Sagata), (ii) train the coordinators in specialist aspects of insect taxonomy and systematics, (iii) coordinate other aspects of the project (such as visa applications for UK personnel), and (iv) prepare teaching materials for training the honours students in PNG. Thereafter, the original plan was for him to move out to PNG to (i) continue the training of the PNG coordinators, (ii) contribute to the training of the honours students, (iii) supervise and provide logistical support for the student projects, and (iv) coordinate the other PNG-based activities of the project.

Unfortunately, although the PNG coordinators were very appreciative of many aspects of their training in the UK, they both concluded that Dr Springate's style and approach was highly inflexible and inappropriate for their needs. Dr Springate displayed considerable hostility to one of them and to one of the senior PNG partners. Both visitors felt that various aspects of his performance and his insensitive attitude would alienate the honours students in PNG. Based upon the accounts received from Messrs Bito and Sagata, both Professor Novotny and Dr Mack as the PNG project partners felt that they could not support Dr Springate's visit to PNG to train their students. Considerable subsequent discussion took place between the project partners to try to find a way through this impasse. However, both PNG partners took the strong view that Dr Springate's evident teaching approach and his attitude to other project partners would greatly antagonise staff and students in PNG and could undermine the success of the entire project. After considerable discussion, all the project partners, including myself, are entirely agreed on this position.

In employment terms, the partners' refusal to host him meant that Dr Springate's contract was frustrated by the fact that he could not perform the duties in PNG for which he was contracted. Accordingly, US took the decision to terminate Dr Springate's contract from 28th February 2006. Dr Springate made a formal appeal against this decision and, at the time of writing, a US appeal panel is considering its verdict having called relevant witnesses to an appeal hearing on 27 April 2006.

This set of circumstances has meant that the planned 8-month visit to PNG by the UK coordinator has not taken place. This has placed considerable extra burdens on the PNG coordinators (Bito & Sagata), the local partners (Novotny & Mack) and their staff in supporting and training the honours students and getting their individual research projects started. Fortunately, the hard work and dedication of the local coordinators, project partners and their teams has ensured that neither the students nor the project in general have suffered unduly from the absence of a UK coordinator.

It has been impossible to recruit a replacement UK project coordinator whilst awaiting the outcome of the appeal and any subsequent actions that might ensue. In any case, the process of recruitment and induction of a replacement and the obtaining of a visa could take several months, by which time the current student projects will already be well advanced. Given these circumstances, it may be more advantageous to recruit a replacement UK project coordinator to start in January 2007, to coincide with the arrival of the second cohort of honours students and the initiation of their projects. This solution has yet to be discussed with the project partners, but such a discussion will take place once the position with regard to the previous UK project coordinator is finally settled. The Darwin Secretariat has been kept fully informed of these developments throughout.

This episode has taken up an inordinate amount of my time as Project Leader. The circumstances that produced this outcome were extremely regrettable and there can be little doubt that the PNG coordinators' visit to the UK was rather less enjoyable for them than it

was intended to be. However, it is a measure of their resilience and character that they both remain very positive towards the project and the various partners. Unfortunate though it was, I am satisfied that this episode has not done any lasting damage to the project and that the project will still achieve all its planned outputs and objectives.

5. Actions taken in response to previous reviews

Not applicable

6. Partnerships

Collaboration between UK and host country partners.

After some initial tensions brought about by the difficulties experienced with the UK Project Coordinator (see above), collaboration between all four partners (Stewart, Vogler, Mack, Novotny) is now very cordial and positive. The partners have worked well together to establish the first cohort of research projects, which are now well under way. Dr Michael Balke (NHM team) has recently visited both WCS and BRC to assist in the training of the students, discuss progress on the project with the partners, and to set up research and teaching materials and sampling sites. Visits by Dr Monaghan (NHM) and Dr Stewart are planned in the coming year.

Synergy with other Darwin projects

Kanawi Chamillou and Leontine Baje were assisted in the more practical aspects of their Honours research by BRC Parataxonomists employed on Darwin post-project EIDP09/10-030 (*Consolidating local capacity for biodiversity surveys in Papua New Guinea*; Project Leader: Alan Stewart). Similarly, the students have been able to educate the parataxonomists in the more theoretical aspects of biology.

BRC staff have been visited by Dr. Tim Bayliss-Smith (Cambridge University), the Project Leader of a Darwin project on butterfly farming (*Sustainable insect collecting and farming in Papua New Guinea*; Ref: 14-003), and continue in regular contact and discussions with Mr. Rob Small, a doctoral researcher on this project, based in Madang.

Collaboration with other projects

Darwin-funded research and training based at BRC will benefit considerably from synergy with the concurrent NSF-funded project on *Plant-insect food webs and tropical rain forest succession* (NSF-00515678). This project is studying the differences in host specificity and species richness of insects feeding on young and mature trees (as models of the effects of rainforest disturbance) in four 1ha plots (two each in pristine and cleared forest) in which all mature trees will be inventoried and all insects on the vegetation will be reared for species-level identification. This is a very substantial logistic undertaking that is providing ideal training opportunities for the Darwin-funded students. It also fits in well with the objective of the Darwin project to build student projects around the comparison of pristine and disturbed rainforest habitats.

7. Impact and Sustainability

It is probably too early to evaluate the profile of the project within the country. However, advertisements for the student projects will have been seen by the majority of people and institutions in PNG that are involved in biodiversity and conservation work. The level of response to these opportunities has been gratifying because it indicates that both WCS and BRC are held in high regard. Equally importantly however, it is also a demonstration that a

sufficiently large pool of talented and highly motivated students exists in the country that wishes to be trained in conservation biology.

The exit strategy is that, by the end of the project, we will have trained eight skilled PNG scientists, who will be equipped to drive the future national conservation agenda. They will be able to identify conservation priorities and culturally appropriate solutions to PNG's considerable environmental challenges, ultimately enabling the country to meet its commitments to the CBD. We envisage these trainees providing critical future links between indigenous village communities, government officials, NGOs and overseas scientists.

The project's legacy will be the knowledge, skills and experience obtained by the trainees, who we hope will eventually go on to contribute to training their successors in this field. The project will also make a substantial contribution to the knowledge of hitherto understudied groups of organisms in PNG through the collection of data and specimens.

8. Outputs, Outcomes and Dissemination

With the exception of the UK Project Coordinator not moving out to PNG to contribute to the student training, the project is on schedule. The first cohort of students has been recruited, they have attended the short course in conservation biology and have started their research projects. Thus all the key milestones in the project implementation timetable so far have been met. The only measurable outputs of the project (see table below) that have not yet been achieved are the press releases and the announcements through the media; this will be rectified in the very near future. The shortfall in UK personnel weeks in PNG for student training is explained by the fact that the UK Project Coordinator has not been able to move to PNG (see above).

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

Code No.	Description	Year 1 Total
6A, 6B	3-week Conservation Biology course	10 participants
7	Conservation Biology course materials	2
15A	National project press releases (with UK High Commission)	2 planned
19A, 19C	National, local project announcements (radio)	2 planned
20	4 computers, 2 printers, 1 digital camera and insect storage facility	£
13A	Insect reference collection established at WCS	1
22	Permanent plots established (Crater Mt. and Ohu Wildlife Area)	2
8	UK personnel weeks in PNG for student training	4

Table 2: Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Journal	Balke, M. J. Pons, I. Ribera, K. Sagata, and A. P. Vogler. Infrequent and unidirectional colonization of megadiverse <i>Papuadytes</i> diving beetles in New Caledonia and New Guinea.	Submitted to: <i>Molecular Phylogenetics and Evolution</i>		N/A

Journal	Shaverdo, H. V., K. Sagata, M. Balke 2005. Five new species of the genus <i>Papuadytes</i> Balke, 1998 from New Guinea (Coleoptera: Dytiscidae).	<i>Aquatic Insects</i> 27(4): 269 – 280	N/A
Journal	M. Balke, L. Hendrich, K. Sagata & G. Wewalka 2005. <i>Hydaticus dintelmanni</i> sp. N. from Papua New Guinea highlands (Coleoptera: Dytiscidae).	<i>Linzer. Beitr.</i> 37(2): 1251-1255.	N/A
In-flight magazine for Air Nuigini	Sagata, K. My experience at the British Natural History Museum.	Submitted to: <i>Paradise Magazine</i>	N/A

9. Project Expenditure

Table 3: Project expenditure during the reporting period (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. postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others : (Honours students)			
Others :(Trainers)			
Salaries (Neil Springate)			
Salaries(Katayo Sagata)			
TOTAL			

A carryover of £into the next financial year (2006/07) was agreed by the Darwin Secretariat on 13 April 2006. This under-spend for 2005/06 is explained by the termination of the UK Project Coordinator's salary at the end of February 2006. The carryover will allow the recruitment of a new coordinator and the resumption of that role at an appropriate time in the future.

10. Monitoring, Evaluation and Lessons

The PNG Project Coordinators were closely supervised during their visit to the UK, with regular monitoring and evaluation of their progress both informally in group discussions and more formally with set assignments. For example, they were set the task of writing a mock proposal for funding using the application form for the British Ecological Society's Small Ecological Project Grants scheme.

The Honours students were all evaluated during their attendance at the conservation biology course, and indeed this evaluation informed the decision on which individual students were selected for the Honours projects. The students are given weekly skills testing using sample tests from the Graduate Record Exam (used by universities in the United States for admission to postgraduate degree programs). During their research projects, they will be supervised closely and their progress evaluated regularly, their training programmes being adjusted accordingly when necessary. They are also required to write essays on topics of direct relevance to their projects (see above), to encourage them to read widely around their subject areas and also to practice their writing skills.

Summary

Significant progress has been made in the first seven months of this project and it is now well on-track for the future. It would be easy to allow the problems encountered regarding the UK Project Coordinator (see above) to overshadow this success, mainly because resolution of the problem has taken up very considerable amounts of the partners' time (especially mine as Project Leader). However, all partners are agreed that the right course of action has been taken and the project should and will now move on. With the benefit of hindsight, it is clear that insufficient enquiries were made before appointing the UK Project Coordinator (formal references from previous employers, informal recommendations etc.), and this is an important lesson for when a replacement is appointed.



Katayo Sagata visiting climax temperate deciduous forest in Sussex, UK



Katayo Sagata (left) and Darren Bito (right) receiving training from Mr David Lees (centre) at NHM.



Canopy Access Course, Danum Valley, Sabah, including Darwin-sponsored parataxonomist Martin Mogia (3rd from left, back row) and PNG project co-ordinator Darren Bito (3rd from left, front row)



Darren Bito learning single rope canopy climbing



Darwin student Kanawi Chamillou measuring leaf area and herbivore damage as part of his Honours project



Darwin student Kanawi Chamillou mapping secondary rainforest vegetation as a part of his Honours project

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
<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 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 the benefits arising out of the utilisation of genetic resources 			
<p>Purpose</p> <p>To enhance the in-country capacity of PNG to implement the CBD by postgraduate training of outstanding PNG students to become local leaders in biodiversity conservation and research.</p>	<p>a) PNG students better trained in conducting biodiversity research & monitoring</p> <p>b) Enhanced capacity to conduct and communicate biodiversity research & implement conservation policy by PNG nationals.</p> <p>c) Better characterisation of aquatic and terrestrial biodiversity associated with different land use patterns in PNG forests.</p>	<p>a) 4 Honours students enrolled, receiving training, & started on research projects</p> <p>b) Favourable course reports for students attending conservation biology course and ongoing monitoring of student learning progress.</p> <p>c) Research projects initiated</p>	<p>As predicted, PNG has sufficient supply of talented, highly-motivated students interested in biodiversity work.</p>
<p>Outputs</p>			
<p>a) 2 training courses for PNG students</p>	<p>a) 30 participants trained in biology and biodiversity sciences</p>	<p>a) 15 students attended conservation biology course</p>	<p>Training course in conservation biology planned for 2nd cohort of students, November 2006.</p>
<p>b) 8 BSc. Honours students trained (18 months each)</p>	<p>b) 8 students trained</p>	<p>b) 4 honours students enrolled</p>	<p>Completion of training of 1st student cohort; recruitment of 2nd cohort to start in Jan 2007</p>

c) 2 PNG local coordinators trained, including in UK	c) 2 PNG local coordinators receive UK-based training in taxonomic & DNA methods to implement future training courses in PNG	c) 2 coordinators spent 8 weeks in UK, receiving training in taxonomy, molecular techniques & scientific method; seminars delivered at Univ. Oxford and NHM.	Output achieved.
d) Insect reference collection enhanced with specimens and databases	d) Collections enhanced at WCS, BRC, UPNG, NARI, databases online.	d) Specimen collection established at WCS, & specimens deposited at BRC	Ongoing enhancement of specimen collections and databases
e) Baseline biodiversity surveys in lowland and montane disturbed and undisturbed forests conducted	e) Samples collected, sorted and analysed, museum specimens prepared, data analysed	e) Ongoing sampling, sorting etc.	Ongoing sampling, sorting etc.

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.