Darwin Initiative for the Survival of Species

Annual Report

1. Darwin Project Information

Project Ref. Number	*162/13/009*
Project Title	*Ethnobiology of proposed use zones of the Crocker Range Park*
Country(ies)	*Malaysia*
UK Contractor	*The Global Diversity Foundation*
Partner Organisation(s)	*Sabah Parks, Institute for Tropical Biology and Conservation (ITBC) Universiti Malaysia Sabah*
Darwin Grant Value	*£129 280*
Start/End dates	*1 August 2004 to 31 July 2007*
Reporting period	*1 April 2005 to 31 March 2006 (Annual Report 2)*
Project website	*www.globaldiversity.org.uk (see Darwin Project news on hompepage and updates, and description under Field Research)*
Author(s), date	*Agnes Lee Agama, Gary Martin, James TH Wong, Yassin Miki, Rachel Chua, Adam Murphy* *15 May 2006*

2. Project Background

The Global Diversity Foundation (GDF), in collaboration with local partners in Sabah, Malaysia, is assessing the use of landscapes and key biological resources by indigenous Dusun communities

living in the proposed Community Use Zones[1] (CUZs) of the Crocker Range Park. The project is situated in the area of Buayan-Kionop (comprising the settlements of Buayan, Kionop, Tampiyasa and Tiku), which is proposed as a CUZ under the Crocker Range Park Management Plan.

In close collaboration with Sabah Parks, a partner in this project, we are conducting assessments of key plant and animal resources used by the local communities, as well as investigating patterns of community resource management, agricultural practices, subsistence hunting and freshwater fishing. Using ethnobiological methods, we are working intensively with a team of eight community field assistants, community leaders, key informants and local researchers to obtain baseline data and develop methodologies for the future monitoring of natural resource use in and around the CUZ. Our results will guide the formulation of rules, regulations and stewardship agreements that govern the collaborative management of the CUZ by local communities and Sabah Parks, the state agency responsible for park management.

We also work closely with PACOS (a local indigenous NGO) in an innovative approach to community resource mapping with the participation of the local communities. Additionally, we are conducting a training course in Ethnobiology and Conservation held in collaboration with the Universiti Malaysia Sabah and lecturers from the University of Kent. Comprising five modules of lectures and field methods workshops, we aim to build the capacity of local community members, government personnel, researchers and students to conduct projects that synergise indigenous peoples' dynamic and composite interests in collaborative management agendas in Sabah.

3. Project Purpose and Outputs

In **general**, the project aims to build the capacity of local institutions and Dusun communities to improve an adaptive management plan for the Crocker Range Park (CRP) by studying the local appropriation and management of biological resources and landscapes in proposed CUZs, enhancing a policy shift in favour of community-based conservation in Sabah.

The **specific** objectives are to:

1. Identify the key ethnobiological resources used by a local community, Buayan, and its hamlets Kionop (inside the park), Tampiyasa and Tiku (outside the park)
2. Assess the cultural importance and ecological impact of gathering, hunting and swidden agriculture within the proposed CUZs,
3. Contribute to the design and implementation of the CUZs proposed in the Crocker Range Park Management Plan, as a model of sustainable biodiversity use by local people that can be applied in other protected areas of Sabah,
4. Build the capacity of local professionals, researchers, students and local community members to assess the role of local people in protected areas of Sabah, using ethnobiological methods, and
5. Stimulate discussion and raise awareness among local agencies and individuals about the importance of integrating local community interests in biodiversity conservation and resource management.

In a letter to the Darwin Secretariat sent at the same time as this report, we have suggested minor modifications in the original outputs and operational plan. These are further discussed in section 8 of this report.

In our midterm report submitted on 31 October 2005, we noted a modification in the awarding of MSc grants to Kent students that we do not reiterate here. Another change noted in the midterm report was the departure of Ms. Rachel Chua (Assistant Project Coordinator) on 1 January 2006. Rachel, a gender specialist, has taken up an offer to work on Gender and Development issues in Kuala Lumpur, her hometown. Her project portfolio and responsibilities have been distributed within the existing project team, with the prospect of hiring consultants to take on further field research.

[1] Originally referred to as Traditional Use Zones, they have now been renamed Community Use Zones in the recently completed Crocker Range Park Management Plan 2006

4. Progress

Overview

Substantial progress was made over this second year of the project. At the project coordination level, Dr. Gary Martin (Project Leader) made two trips to Sabah coinciding with Ethnobiology and Conservation training modules and the Annual (April 2005) and Interim (September 2005) Partners' Meetings. Institutional partnerships between GDF, Sabah Parks and the Institute for Tropical Biology and Conservation (ITBC) at the Universiti Malaysia Sabah (UMS) continue to strengthen with a great deal of close collaboration and mutual support (see Section 6). Collaboration with Partners for Community Organisations (PACOS) led to the launching of the Ulu Papar Community Mapping Project (July 2005; see Appendix 4), a two-year initiative carried out under a project grant to PACOS that operates in tandem with the project's development of a Buayan-Kionop Resource Catchment Area GIS (see optional section on significant achievements below; Appendix 1). Dr. Agnes Lee Agama and Ms. Rachel Chua (GDF Project Coordinators) have been working closely with Sabah Parks and the Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme to finalise the Crocker Range Park Management Plan (completed in February 2006). Sabah Parks is now proceeding with the implementation of CUZs and the negotiation of a CUZ Collaborative Management Agreement with local communities, of which a first draft should be completed by January 2007.

In the field, the project has focussed intensively on gathering data about the key plants, animals and landscapes used in Buayan-Kionop. A selection of ethnobiological techniques has been designed for the fieldwork, with particular emphasis on participatory community research approaches (see Table A below). Mr. James Wong and Mr. Yassin Miki (GDF Field Coordinators) have conducted monthly field trips, community workshops, gatherings and meetings to collect data, return and discuss results, and consult with the community about further research. The team of eight community field assistants (see Appendix 3) is pivotal to the success of our field research, as they have made impressive progress in learning various ethnobiological techniques and carrying out interviews and community discussions to gather data. They received intensive training in biological research techniques given by Sabah Parks, participated in the project's Field Methods Workshops (April and September 2005), and continue to benefit from hands-on training while in the field. Three MSc Field Research Grant recipients conducted their fieldwork in this period: Ms. Perpetua George on local landscape classification and valuation (May to July 2005; Appendix 8), Mr. Adam Murphy on hunting (May 2005 to February 2006; Appendix 9) and Ms. Zuraida Zainudin on freshwater fish (September 2005 to current; Appendix 10).

The training component has made equally substantial achievements with the successful completion of the Ethnobiology and Conservation training course Modules One (April 2005; Appendix 5) and Two (September 2005; Appendix 6) held in collaboration with ITBC. The modules comprise a one-week Lecture Series and three-day Field Methods Workshop delivered by lecturers from the University of Kent and UMS. GDF Project Coordinators pursued discussions with UMS to absorb the curricula in these modules and develop an MSc Ethnobiology and Conservation degree programme to ensure the continued legacy of the project's training initiatives While this endeavour did not lead to immediate results due to institutional constraints within UMS at the time, recent institutional reorganisation within UMS has brought this prospect to the forefront again. MSc Field Research Grants were awarded to two Kent students and one UMS postgraduate student to conduct fieldwork in Buayan-Kionop.

Alongside the energetic pace of field research and training activities, the project has produced the first training manual in the form of process sheets that guide fieldwork. They are being transformed into draft chapters of the training manual (Appendix 11). The project has been successful in disseminating information about our work within a localised network in Sabah, as further discussed in section 7. We have produced a large format poster on the project which was presented at the Darwin Workshop on 22 February 2006 and was later displayed at the University of Kent Anthropology Department and ITBC at UMS.

Field research

The field techniques implemented thus far (see Table A) began by systematically building an inventory of the key plant and animals resources used, as well as the important landscapes accessed, in Buayan-Kionop. Subsequently, the project has focussed on eliciting the local classificatory and valuation systems for these key resources. Finally, the project initiated techniques that investigate the livelihood strategies employed by community members to obtain

these resources, by looking at patterns of agriculture, gathering of forest products, hunting and freshwater fishing.

While it is not possible to report on the entirety of our field research results, we have prepared Appendix 2 as a specific example of the field techniques we have been implementing.

Table A. Summary of field techniques to date

Technique	Purpose	Status	Summary results
Demographic survey	Gather baseline information about the community	Completed; 40 households interviewed	Population of 231 people; mainly poor farmers with high dependence on forest resources for subsistence
Timelines	Elicit rough historical outline of the community in the area and their seasonal activities	Completed through workshop series	Strong collective memory of events and livelihoods from before1940; awareness of increasing modernisation but still reliant on forest resources.
Kinship diagrams	Understand relationships between families	Completed through family interviews	Being compiled; preliminary indications show close clan-based kinship ties throughout the community
Oral histories	Detailed understanding of community history, culture and customs	Completed; 6 respondents	Being transcribed; vast amount of cultural knowledge linking people with the surrounding landscapes, settlement history and events over years
Community resource mapping	Gather baseline information about distributions of key resources and locations of different landscapes in the area	Completed through workshop series	Preliminary map reflects substantial range of community accessed areas inside the park; currently being updated through the RCA GIS approach (see RCA section)
Freelisting	Define the domains of plant and animal knowledge (see Appendix 2)	Completed; 71 respondents (animals), 91 respondents (plants)	Vast knowledge of names (>460 animal names, >690 plant names); Consensus modelling shows high consensus, low variability
Pile sorting	Elucidate Dusun categories for groups of plants and animals; explore perceived values of these resources (see Appendix 2)	Completed; 33 respondents (on 55 animals), 21 respondents (on 75 plants)	Plant results being analysed; animal results show strong consensus, based broadly on use values, indigenous ecological and taxonomic knowledge of animals
Specimen identification	Provide scientific identifications of Dusun animal and plant categories; analyse correspondence between ethnobiological and scientific classifications	Ongoing for both plants and animals known by Buayan community members	Fish specimens lodged at UMS and Kinabalu Park identified; visual identification of key animals; Plant specimens lodged at Kinabalu Park Herbarium pending identification; species lists under preparation.
Forest and land classification	Determine the Dusun classification of forest and land types; explore how people value these different areas (see Appendices 8 and 11)	Initiated by Pep George; verified and expanded by GDF Field Team; Completed.	Pep identified 36 land types recognised; 6 most important encompass agricultural lands, young secondary, old secondary and primary forests; secondary and primary forests vital source for key resources (e.g. rattans and hunted meat)
Livelihood analysis	Gather information about livelihood strategies and important areas people depend on for daily activities (see Appendix 11)	Completed; 42 households interviewed	Still being analysed; preliminary indications suggest strong reliance on a diversity of resources in various land types, mainly for subsistence
Farm and fallow surveys	Gather baseline information about the sizes, locations, land tenure status and forest type (prior to clearing) of	Ongoing with 32 households	2-3 acre hill rice plots opened on either young or old secondary forest; mainly located about 1 km walking distance from home

	family farms and fallows		
Hunting registers	Gather baseline information about hunting methods, areas, off-take and hunter knowledge of different landscapes (see Appendices 2 and 9)	Initiated with Adam Murphy; ongoing with four hunters	41 hunting trips recorded over four months; off take of 77 individual animals recorded, representing 15 species; 96% mammals and 4% non-mammals.
Freshwater fish survey	Gather baseline information about the kinds of fish commonly caught and locations	Initiated with Zuraida Zainudin; ongoing	Inventory of commonly caught and preferred fishes under compilation; fish specimens lodged at ITBC (Zuraida collections) and Kinabalu Park (project collections)
Resource Catchment Area (RCA)	Develop a GIS for the Buayan-Kionop Resource Catchment Area that systematically integrates ecological, biological and ethnobiological data collected through this project, and provide a means for long-term joint monitoring of the area (see Appendix 1)	Ongoing	RCA GIS basemap completed; Canopy Density Mapping (CDM) analysis completed; georeferencing data sheet and guidelines completed; approximately 200 GPS fixes uploaded; initial layer showing forest types and additional layers being developed

As noted in the timetable included as Annex 2, we plan to continue with field research throughout the 2006 – 2007 project year, with an emphasis on the approaches summarised in Table B, as well as continuation of the techniques in Table A that are noted as ongoing.

Table B. Summary of field techniques proposed in 2006 – 2007

Technique	**Purpose**	**Status**	**Summary results**
Comparative ethnoecology of permanent plots	Obtain Dusun names and uses for 300+ plants species; document ecological parameters that differentiate Dusun-defined land types	Proposed as a collaboration with JICA programme to establish six 0.25 ha plots in CRP	Pending
Ethno-ornithological survey	Document Dusun names and uses for bird species sighted in Buayan-Kionop; record habitat preference of the birds	Proposed as a UMS MSc project or consultancy for Sabah Parks naturalist Alim Biun	Pending
Ethno-pedology survey	Verify the Dusun soil classification system and conduct tests of soil composition and fertility under various successional stages of swidden cultivation.	Proposed as a UMS MSc project conducted by GDF Field Research Coordinator James Wong	Pending
Historical ecological analysis of Dusun landtypes	Compare floristic composition, canopy height and other ecological parameters of selected Dusun landtypes: *puru* (primary forest), *kapanggor* (old secondary forest) and *tomulok* (younger secondary forest) in abandoned homesites (*pogun*) and uninhabited sites	Proposed as a UMS MSc project conducted by GDF Field Research Coordinator Yassin Miki in collaboration with JICA permanent plots	Pending
Comparative home garden analysis	Analyse the floristic composition and diversity of gardens near households, including study of adoptive transplantation of wild plants	Proposed as a UMS MSc project or consultancy for UMS lecturer Paul Porodong	Pending
Biological resource valuation	Enhance current understanding of resource and landscape valuation by conducting further matrix ranking and semi-	Proposed as an ongoing activity of the GDF field research team and	Pending

	structured interviews on the cultural importance of specific types of resources (e.g. rattans, fish, etc.)	community RAs	

Training

The first two Modules of the Ethnobiology and Conservation training course were successfully completed in this reporting period (Module Three was recently conducted from 24-28 April and 2-5 May 2006; preparations for Modules Four (November 2006) and Five (April 2007) are underway). Each Module is delivered by Kent and UMS lecturers and selected guest speakers. Module One (11-20 April 2005; see Appendix 5) covered Biodiversity Law, Environmental Anthropology and Ecological Methods, and was attended by 21 participants (8 postgraduate, 3 undergraduate, 10 staff from 9 agencies). Module Two (5-14 September; see Appendix 6) covered Contemporary Issues in Ethnobiology, Ethnobiological Methods and Soil Sampling techniques, and was attended by 18 participants (11 postgraduate, 2 undergraduate, 5 staff from 4 agencies). Out of the 21 participants who attended Module One, only 14 participants managed to return for Module Two. This trend is expected to continue as there is difficulty in ensuring that the same participants continue to attend all modules mainly because of a clash in time commitments for many participants, especially those engaged in full-time work. The project community field assistants from Buayan-Kionop attended the Field Methods Workshops for both Modules as these were sessions conducted bilingually in Bahasa Malaysia and English. Formal evaluations were carried out for both Modules resulting in positive and encouraging feedback from participants (see Project management, monitoring and evaluation section below; Appendix 15).

The third Field Research Grant was awarded to Ms. Zuraida Zainudin, a postgraduate student at UMS, to investigate the feeding ecology of the sucker-fish in Buayan-Kionop and to conduct a general survey of Dusun knowledge of freshwater fish (see Appendix 10). The two previous grantees from Kent Ms. Perpetua George (MSc Ethnobotany) and Mr. Adam Murphy, (an incoming PhD student in Biodiversity Management) conducted their fieldwork in Buayan-Kionop. Perpetua investigated cultural perceptions of forest value among the people of Buayan and completed her MSc in October 2005 (see Appendix 8). Adam is conducting an ongoing investigation of subsistence hunting patterns (see Appendix 9).

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

The generally favourable first annual review of our project raised two questions to which we responded in our 2005 – 2006 midterm report. Here we provide an update:

“Are scientific identifications of the biodiversity being made as part of the inventory work?”

Good progress has been made in the scientific identification of Dusun plant and animal categories: (1) Of 31 Dusun fish categories, corresponding species have been collected and identified for 26; (2) the corresponding species for an additional 46 Dusun animal names have been identified through picture and hunted animal recognition, and corroborative interviews; and (3) over 120 plant specimens have been collected and are awaiting identification at the Sabah Parks herbarium, and plans are being made for visual recognition by Buayan community field assistants and community plant resource experts of over 300 woody plants tagged (and identified by botanists of Sabah’s Forest Research Centre) in permanent ecological plots in CRP. A special collection of rattans, other palms, bananas and gingers is being planned in collaboration with naturalist Jusimin Duaneh, who will be seconded to the project from Sabah Parks.

“What processes are being put in place to allow staff from Institutes in Sabah (mainly UMS) to ultimately run this (MSC Ethnobiology and Conservation) course without UK expertise?”

Although not a promised output of this Darwin project, there is a renewed initiative to formalise an Ethnobotany and Conservation MSc degree that would be offered through the UMS Postgraduate Studies Centre. UMS interest in this academic programme has been encouraged by several developments: (1) the imminent return of Paul Porodong, who is finishing his PhD in environmental anthropology at the University of Kent and is being proposed as the convenor of the MSc course; (2) a decision by the UMS administration to allow centres (such as the Postgraduate Studies Centre, headed by Prof. Maryati) to offer MSc degrees; (3) a UMS institutional reorganisation that will combine various units to strengthen their capabilities (e.g. Unit for Ethnography and Unit for

Psychology) and, incidentally, ability to host the Ethnobiology and Conservation programme, and (4) a perceived demand and popularity for ethnobotany and conservation, in part stimulated by the Darwin modules offered jointly by Kent and UMS lecturers. Future collaboration between University of Kent and UMS has been discussed at a high level during cross-visits by the Vice Chancellor of UMS, the pro Vice Chancellor of University of Kent, as well as the ITBC Director, Kent Anthropology Department Head and various professors and lecturers of both institutions.

6. Partnerships

GDF is the main implementing agency. Sabah Parks and ITBC are main host country and executive partners. BBEC and PACOS are the other host country partners, and the University of Kent is a supporting institution from the UK. Collaboration with a variety of *ad hoc* partners described below is enhancing the projects.

Sabah Parks

The project continues to receive excellent input from Sabah Parks (SP) in the form of support for field research and the continued contractual employment of Mr. Yassin Miki, the GDF Assistant Field Coordinator. SP gave crucial technical input from the directorate and senior personnel, and collaborated closely with GDF Project Coordinators in the finalisation of the Crocker Range Park Management Plan. SP provided generous logistical support through their Park Rangers and other staff, as well as use of vehicles and the facilities at the Inobong Station. In July 2005, Sabah Parks staff at Kinabalu Park provided a one-week intensive training session to GDF Field Coordinators and GDF Community Field Assistants on biological specimen collection techniques, followed by a briefing and discussion about the proposed Community Use Zones with Mr. Maipol Spait, the Crocker Range Park Manager, at the Crocker Range Park Headquarters in Keningau. In May 2006, Mr. Maipol Spait joined the Module Three Field Methods Workshop held in Buayan where he conducted a dialogue session with community members on the proposed Community Use Zones. Additionally, two Sabah Parks' staff members attended both Modules Two and Three of the training course. In the near future, Sabah Parks will second two naturalists (Jusimin Duaneh and Alim Biun) for short periods of time to assist with field research. The close rapport between GDF and Sabah Parks personnel at all levels continues to be crucial in consolidating the efficacy of field research, and the overall ownership of techniques and processes set into motion to implement the Community Use Zones.

The Institute for Tropical Biology and Conservation (ITBC)

The project continues to receive excellent support from ITBC at UMS, which hosts the project office and the Ethnobiology and Conservation training course modules. Modules One (11-20 April), Two (5-14 Sept 2005) and Three (24-28 April, 2-5 May 2006) were successfully completed, with participation from both Kent and UMS lecturers. Discussions to explore longer-term collaboration between Kent and UMS have been continuing with a visit by Datuk Prof. Dr. Mohd Noh Dalimin, UMS Vice Chancellor, and Datin Prof. Dr. Maryati Mohamed, Director, Institute of Tropical Biology and Conservation Research to the University of Kent on 27 September 2005. They met with Robin Baker, University of Kent Pro Vice-Chancellor for international programmes, and with Prof. Bill Watson, head of the Anthropology Department, as well as with numerous faculty members of the Anthropology Department and the Durrell Institute of Conservation and Ecology. The UMS Vice-Chancellor and the ITBC Director hosted a lunch meeting at UMS for Prof. Roy Ellen, Dr. Helen Newing and Dr. Gary Martin on 26 April 2006, during their visit to Sabah under the Darwin Initiative project.

Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme

The GDF team and the GDF Community Field Assistants presented papers at the 4th BBEC International Conference (February 2006). The GDF paper entitled *Making Participation Matter: Some Early Lessons from Working with Dusun Communities in the Buayan-Kionop Area of Crocker Range, Sabah, Malaysian Borneo*, which was presented at the 3rd BBEC International Conference has been published in the conference proceedings (see Appendix 12). Additionally, Dr. Agnes Lee Agama (GDF Project Coordinator) and Ms. Rachel Chua (GDF Assistant Project Coordinator) worked closely with Mr. Shunji Usui, a Japan International Cooperation Agency (JICA) advisor, on editing and finalising the Crocker Range Park Management Plan (completed in February 2005, now in press), which is a key output of the BBEC Park Management Component.

Partners of Community Organisations (PACOS)
PACOS continues to play a crucial role in the project. The grant awarded to PACOS supports a community resource mapping project in the communities of Tiku, Timpayasa and Terian that complements the project's effort to develop the RCA GIS. PACOS has conducted several training workshops, field visits, discussions and feedback sessions with community members and has developed an initial GIS for this area (see Appendix 4). In August 2005, Mr. James Wong (GDF Field Coordinator) attended a PACOS advanced level training course on GIS mapping, and continues to work closely with PACOS technical experts on developing the overall GIS of community accessed and valuable areas. The grant also supports PACOS' community organising and community capacity building work in Buayan-Kionop, and we continue to receive valuable feedback from PACOS regarding the implementation of field activities. Additionally, two of PACOS' programme coordinators participated in Modules One, Two and Three of the project training course.

World Wide Fund for Nature (WWF) Malaysia
The link with WWF Malaysia is maintained through Mr. James Wong who is a WWF staff member seconded to the project as GDF Field Coordinator. Another WWF Malaysia staff member, Ms. Perpetua George, was awarded a field research grant to conduct her fieldwork in Buayan and has since completed her MSc in Ethnobotany at the University of Kent. Informal communication and feedback is maintained between the project and WWF Malaysia's Heart of Borneo Programme (begun in late 2004), which identifies the Crocker Range as a focus site for ecosystem conservation in Borneo.

JICA
JICA is another partner with whom the project continues to maintain close links. JICA co-funds BBEC and engaged the services of Dr. Agnes Lee Agama and Ms. Rachel Chua to edit and assist in the finalisation of the Crocker Range Management Plan. Other joint activities include two paper presentations by the GDF Community Field Assistants and GDF team at the 4th BBEC conference, as well as technical collaboration from Mr. Yassin Miki (GDF Assistant Field Coordinator) in the establishment of permanent ecological plots in selected sites around the Crocker Range Park (April and July 2005). Discussions on scientific collaboration between GDF and JICA's local partners to carry out qualitative and quantitative ethnobiological assessments in the ecological plots are underway.

Darwin Initiative Semporna Islands Project
Links have been established with the Darwin Initiative Semporna Islands Project through informal sharing of experiences between both projects. In Module Two held in September 2005, Ms. Helen Brunt, a representative from the Marine Conservation Society working on the Semporna Islands Project, gave a short presentation on their project's work and shared their experiences of working with local communities in the Tun Sakaran Marine Park.

Darwin Initiative Global Canopy Programme project in Sabah
Although there was no specific interaction with the GCP Darwin projects in Sabah this year, we have continued to explore potential collaboration on training and joint scientific research. ITBC is GCP's National Execution Agency in Malaysia for establishing a 'whole forest observatory'. This initiative aims in part to demonstrate the value of tropical forest canopies to local communities, based on ecotourism and other potential uses. In a meeting on 9 May 2006, GDF Director Gary Martin explored various points of common interest with Dr. Henry Bernard, the UMS coordinator of the GCP programme. We envisage in particular a joint exercise on documenting local assessments of the value of the CRP tropical forest canopy by carrying out comparative ethnobiological assessments in BBEC permanent ecological plots. Members of the GDF field research team, including the Community Field Assistants, will probably have the opportunity to take part in a training course on tree climbing and forest canopy biodiversity with the GCP at Danum Valley in early 2007, as part of its Tropical Forest Canopy Training Programme for the ASEAN Region, which is funded by the Darwin Initiative. Our goal would be to build the capacity of Community Field Assistants, GDF team members and Sabah Parks rangers and scientific staff to inventory the plant and animal resources of primary and secondary forest canopy in the heart of the CRP. We are particularly interested in low tech climbing techniques with affordable equipment

that could be used by community members in their biological resource inventory and monitoring efforts.

UNESCO Man and the Biosphere Programme
Mr. Han Qunli, Senior Programme Specialist in Ecological Sciences from the UNESCO Jakarta Office, was invited by GDF to visit Sabah in September 2005. He presented lectures on biosphere reserves during the Module Two training course, and explored the potential of proposing CRP and other protected areas as UNESCO-designated Biosphere Reserves (see Appendices 6 and 13). A follow-up visit organised by Sabah Parks is being considered for 2006, with a particular focus on the Community Use Zone proposal for CRP.

7. Impact and Sustainability

Because of our dissemination and outreach efforts, the project is gaining wide recognition among government agencies, NGOs and academics in Sabah as noted in section 8.

Although the biggest impact on increasing interest and capacity for biodiversity is yet to come from our project, we would like to highlight some interesting developments:

- Based on the project, Sabah Parks has decided to focus on two proposed CUZs: Buayan-Kionop and Ulu Senagang. While PACOS is working with Sabah Parks on resolving the issues in the Ulu Senagang CUZ, Sabah Parks is relying on our project to facilitate the establishment of the Buayan-Kionop CUZ. In March 2006, JICA decided to engage the services of an expert in Community Participation whose primary task is to focus on the facilitation of a CUZ Management Agreement in Buayan-Kionop and Ulu Senagang.
- Several communities upriver in Ulu Papar (Longkogungan, Pongobonon) have expressed an interest in the project, hoping that it will allow them to negotiate similar CUZ arrangements as the neighbouring communities of Buayan-Kionop.
- The GDF Community Field Assistants have developed a Community Protocol for researchers intending to conduct studies in the area. The Protocol is based partly on the Community Research Agreement established between GDF and the local communities, and it sets out ethical guidelines for researcher conduct in the communities such as the need to obtain free prior informed consent, show respect for local customs, return results and share benefits.
- UMS is now pursuing the establishment of a degree programme in Ethnobiology and Conservation, most likely offered through the Postgraduate Studies Centre
- Although informal so far, there has been sharing of experiences between Darwin projects in Sabah: Semporna Islands Darwin is seeking input on how our project works with local communities, particularly in setting up community-based project implementation structures (through our Community Field Assistants); GCP Darwin is seeking collaboration on canopies and local livelihoods in Buayan-Kionop and will provide training for our field research team

Our exit strategy is tied closely to the implementation of Community Use Zones by Sabah Parks, a process that has experienced delays but is now well on its way. Originally, when we conceived this project – and when we started it – Sabah Parks was planning to implement CUZs in the second half of the BBEC programme, from late 2005 onwards. This has been delayed because the CRP Management Plan was only finalised in 2006. A mechanism for establishing the Buayan-Kionop CUZs has now been set in motion, and Sabah Parks guarantees that there will be a draft Community Use Zone Management Agreement[2] in place by the end of our project. GDF and PACOS are playing a primary role by facilitating the interaction between Sabah Parks staff and community members and by assisting in the writing of a draft agreement, incorporating ideas drawn from model agreements and templates produced elsewhere.

GDF, which is committed to a long-term collaboration with partner institutions and communities in Sabah, is formulating the next stage of activities for our applied research and capacity building in Buayan-Kionop to ensure the success of the nascent CUZs. These plans, which include submission of a Darwin post-project grant proposal, comprise the exit plan for the current project.

[2] In the original Darwin project proposal we used the term Community Stewardship Agreement. The recently finalized Crocker Range Park Management Plan uses the term Community Use Zone (CUZ) Management Agreement. Both terms refer to the same negotiated agreement between Sabah Parks and the local communities to collaboratively manage the CUZs.

In consultation with community members and institutional partners, we are exploring three ways of implementing the Buayan-Kionop CUZ Management Agreement that may be included in the Darwin post-project proposal:

(1) Completing the community biodiversity register: The current inventory of 'key' biological resources is not intended to produce a complete register of the plants and animals used locally. The CUZ Management Agreement will be a flexible document (following best practice for adaptive management processes) that can incorporate additional species in open-ended appendices that can be updated by community and outside researchers. Over a two year period, we plan to work with selected community RAs and Sabah Parks naturalists to collect and identify voucher specimens that correspond to the more than 460 Dusun animal names and 690 Dusun plant names detected in our research, and include them in the Agreement with recommendations on community access and management.

(2) Setting up community-based monitoring of key resources: In contrast to the majority of resources that will be of little conservation concern, we are detecting the presence of species (e.g. orang-utans and clouded leopards) that are strictly off-limits to community members and others that require monitoring over time. The emergence of Community Based Natural Resource Management (CBNRM) has brought to the forefront various approaches to community monitoring that Sabah Parks is eager to adapt for use in Buayan-Kionop. GDF plans to work with selected community RAs and Sabah Parks naturalists to design and implement monitoring systems for specific animals (orang utan, pangolin), fish (*sinsilog*, a freshwater eel) and plants (especially high value rattans and *gaharu* trees).

(3) Understanding future scenarios: Although we are accomplishing a detailed picture of current resource and landscape management, Sabah Parks is interested in assessing the potential impact of diverse future scenarios: If a road is built to the community, would subsistence hunting, fishing, agriculture and NTFP gathering turn commercial? What are the possibilities and potential impact of a significant demographic shift in the area (e.g. out-migration to urban areas, immigration of extended family members, illegal squatting or legitimate land claims by outsiders)? GDF would lead a participatory assessment of these and other possible trends.

In addition to these steps of implementation, we are considering working with Sabah Parks and PACOS to extend the CUZ Management Agreement to communities that are found further upriver from the Buayan-Kionop area. An agreement with all communities along the Ulu Papar watershed would form a comprehensive policy for adaptive management of Community Use Zones in a critically important part of the CRP.

Finally, GDF plans to support specific 'Community and Conservation' projects that would enhance livelihoods and decrease pressure on biological resources in Buayan-Kionop. With donations obtained through targeted fund-raising initiatives, we may introduce beekeeping as a commercial and subsistence activity, enhance home gardens and encourage community agroforestry initiatives outside park boundaries.

8. Outputs, Outcomes and Dissemination

As we are now 20 months into a 36 month project, we have taken the opportunity of the second annual report to conduct a midterm review of our performance. We are pleased to report that we are on track to attain all five of the objectives set out in our original proposal and restated in section 3 of this report.

Perhaps of greatest relevance, we are well on our way to delivering the three most important outputs of the project: (1) a final report on community use zones for Crocker Range Management Plan; (2) a final draft of the CUZ Management Agreement; and (3) a "Best Practices for Assessing Community Use Zones" handbook.

We are also satisfied with the large amount of research experience gained by MSc students, field coordinators and community members (an estimated 380 people weeks from April 2005 to March 2006 alone). This has produced an impressive corpus of data on the Buayan Dusun classification, management and use of biological resources and landscapes.

One area in which our proposed outputs will only be partly achieved is in the number of MSc students who will carry out field research with Darwin student grants. We have been unsuccessful in recruiting the eight Malaysian MSc students that we had anticipated. Five MSc grants have

been approved, but one grantee subsequently dropped out of his degree programme and one was not allowed to take up the student grant. Our collaborators at UMS, Prof. Maryati and Dr. Idris, feel that our limited success is because (1) we do not offer full scholarships but only field research grants, and that some potential candidates do not have studentships or other ways of paying academic fees for their degrees and (2) we had not made explicit the specific research themes that interest us. For the record, we should note that UMS was in the end not able to offer fee waivers to MSc students involved in the Darwin project as originally intended. In addition, we have found a lack of available supervisors and MSc candidates at UMS capable of applied multidisciplinary research on themes related to our project. We are currently launching a final call for UMS MSc field research grants, stipulating the themes noted in Table B (see Appendix 7).

As it is unlikely that we will attract five MSc students, we have proposed to the Darwin Secretariat to use the MSc funds to (1) increase our support for current MSc grantees, for example by offering them additional capacity building options and support for academic fees and (2) provide consultancies for collaborators with MSc or PhD level to work on specific research themes, including those given above. A favourable response from the Darwin Secretariat would ensure that we obtain the results that we require to support empirically the Community Use Zone Management Agreement that is being developed by Sabah Parks.

As we noted in our October 2005 midterm report, after beginning with MSc research awards for two University of Kent students, we are unlikely to have more UK MSc students work on the project. Although the first two grants gave excellent results, we feel that Malaysian students and consultants with experience in Sabah are in a better position to conduct research as the project becomes more complex. Kent students face the challenge of obtaining official permission to work in Malaysia (a long process), don't always have required linguistic skills, and are limited by their maximum eight week research period, which unfortunately coincides with a busy time of the agricultural cycle for local people.

We may not need to collect as many biological voucher specimens as originally proposed (1000+) because we have found efficient and precise ways of incorporating specialist sight recognition (for animals, birds and fish) and the use of tagged botanical specimens in ecological plots that have been identified by Sabah Forestry Department and Sabah Parks botanists.

The number of people trained in university courses and field workshops has exceeded our expectations. We had estimated eight MSc students and eight participants from government or non-governmental organisations, but we have had eleven postgraduate students, three undergraduate students, and twenty-one staff members from fifteen institutions thus far. This gives a total of 35 people trained in these popular courses, more than double our projections. Few participants will be able to attend all training units, so awarding UMS 'diplomas' has become a moot issue. In the community, we have recruited eight field assistants instead of the six originally projected.

Some outputs have been modified in form and delivery date, but not in content. We have reorganised the preparation of our manuscripts for publication and the interim manuals on ethnobiological resource inventory, local agriculture & traditional agroecosystems and subsistence hunting in Community Use Zones. The manuals have taken the form of community protocols in local language for direct use in field research by the GDF field team. We have produced 15 of these 'process sheets' (with more on the way) that have guided the collection of a significant amount of empirical data on the use and management of biological resources and landscapes in our Crocker Range Park field site. We are now translating these process sheets into English to present them as research techniques in our "Best Practices for Assessing Community Use Zones" handbook that will be one of the final outputs of the project (see Appendix 11 for draft chapters). We are collating and analysing the data that derive from the use of the process sheets, to be included as 'worked examples' in the handbook, as well as in the final report on viability of Community Use Zones that we will submit to Sabah Parks. This means that the written output is not being produced in discreet manuals according to our original project implementation timetable and measurable outputs table, but in the form described above. Related to this way of conducting our research – and to other delays discussed in the annual reports – we decided to postpone preparation of manuscripts for submission to peer reviewed journals, as we would like to present more advanced analyses of project results rather than preliminary descriptions of our intentions.

A paper describing the project's experience in initiating participatory community research in Buayan-Kionop was published in 2005 following its presentation at the 3rd BBEC International Conference last year. Another paper describing the project's preliminary findings on local forest classification and valuation was presented at the 4th BBEC International Conference (February 2006), and is in the process of publication. Excellent local media coverage has further magnified the outreach of the project (see Appendix 13). Additionally, special invitations for guests to attend, facilitate and speak at Modules One and Two of the training course have resulted in the active participation of several leading figures involved in conservation and local community issues in Sabah (e.g. Sabah Museum Director, Sabah Forestry Department Assistant Director, Sabah Wildlife Department Assistant Director, Sabah Ministry for Tourism, Culture and Environment Senior Officer, Sabah Women's Action Resource Group Executive Director), thus enabling the project to directly link with an influential circle of policy-makers. Apart from these 'special guests', our courses have attracted managerial, research and field personnel from a range of diverse government agencies (Sabah Forestry Department, Sabah Parks, Sabah Wildlife Department, Sabah Agriculture Department, Sabah Environmental Protection Department, Institute for Development Studies), non-government agencies (PACOS, WWF) and academia (School of Social Sciences, School of Science and Technology, School of International Tropical Forestry, School of Business and Economics at UMS).

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

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	TOTAL
(2)	UMS students chosen to receive MSc grants	2 (James Wong, Yassin Miki)	1 (Zuraida Zainudin)	Pending	Pending	3 MSc grantees
(2)	Kent students chosen to receive MSc grants	1 (Perpetua George)	1 (Adam Murphy; double award)	Pending	Pending	2 MSc grantees
(4A) (4B) (4C) (4D)	Local participants in Ethnobiology and Conservation modules	0	3 undergraduates 18 postgraduates or professionals received 2–4 weeks training (April 05: 11 UMS students & 10 staff from 9 GOs & NGOs; Sept 05: 13 UMS students & 5 staff from 4 GOs & NGOs)	0 undergraduates 18 postgraduates or professionals received 2 weeks training (April 06: 4 UMS students & 14 staff from 10 GOs & NGOs; Sept 06: pending)		3 undergraduates 11 postgraduates and 21 professional staff from 15 organisations received 2 weeks training, for a total of 35 people over 3 modules
(6A) (6B)	Research experience gained (MSc students, field coordinators & community members)	10 people; 54 people-weeks total in CRP fieldwork	12 people; 380 people weeks* total in CRP fieldwork (estimated as 40 weeks x 8 Community RAs, 20 weeks x 2 field coordinators, 20 weeks from 3 MSc students)	Pending	Pending	
(7)	Training manuals	0	1 (in the form of 15 community research process sheets and resulting data on ethnobiological resource inventory)	Pending	Pending	1
(8)	Time spent by UK (GDF and Kent) personnel on training and research in	4 weeks (GJ Martin)	10 weeks (GJ Martin, Stuart Harrop, Raj Puri)	Pending	Pending	14 weeks

	Sabah					
(13a)	Reference collection of CRP ethnobiological resources	0	120 plant specimens and 22 fish collections lodged at Sabah Parks research centre	Pending	Pending	
(14A)	BBEC/Darwin scientific conferences and roundtables	Community & Sustainable Resource Use paper, poster; 3rd BBEC Annual International Conference Feb. 2005.	Local forest classification and valuation, community RA papers, was presented at the 4th BBEC International Conference, Feb 2006	N/A	N/A	2
(14B)	Conferences, seminars & workshops attended (Darwin project results presented, disseminated)	2 (Public lectures on the CRP project presented at the University of Florida, University of Texas)	4 (Darwin workshop poster, CRP project presented as case study in Uppsala University, Universitaet fuer Bodenkultur Vienna, University of Kent)	Pending	Pending	
(15A)	National press releases and articles	1 press release Jan 05; 5 articles in three local newspapers	1 press release Sept 05; 2 articles in one local newspaper	Pending	Pending	
(17A)	Mailing list of people interested in ethnobiology and community use zones	30 people or organisations in the contacts database	120 people or organisations in the contacts database	Pending	Pending	

Table 2: Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Conference Proceedings	*Making participation matter: Some early lessons from working with Dusun communities in the Buayan-Kionop area of Crocker Range, Sabah, Malaysian Borneo. Agnes Lee Agama, Maureen Sipanis, Raymond Sipanis, James TH Wong, Yassin Miki, Rachel Chua, Gary J Martin. 2005	Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme: Kota Kinabalu	BBEC Secretariat. Institut Biologi Tropika dan Pemuliharaan, Universiti Malaysia Sabah, Beg Berkunci http://www.bbec.sabah.gov.my	Free

9. Project Expenditure

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

Item	Budget (revised version sent 12/07/2004, acknowledged by C. Halnoun)	Expenditure	Balance (Overspend to be claimed in 2006 – 2007)*
Rent, rates, heating, overheads etc			
Office costs (e.g. postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others			
Salaries (specify)			
TOTAL			

*We have overspent our allotted funds in all budget lines by moderate amount (a total overspend of 6%) that will be recovered in fiscal year 2006-2007.

10. Monitoring, Evaluation and Lessons

We have engaged in a number of formal processes to evaluate our project: Partners' Progress Meetings (April and Sept 2005; see Appendix 14); Modules One and Two Evaluations (see Appendix 15); Academic Review Committee to review submission of Field Grants proposals; Training Course Coordination Committee Meetings to discuss preparation of Modules (see Appendix 6). We are planning Participatory Community Evaluation Workshop(s) in June and July 2006.

On an informal basis, we hold regular meetings and discussions with partners; regular team meetings and discussions (including with Community Field Assistants); and bi-monthly community workshops (A Day with GDF) initiated in August 2005 to return and clarify results, discuss further research, introduce incoming Field Grantees and present their proposed research. We also take advantage of the visit of experienced colleagues from the University of Kent to request their critiques and suggestions.

The positive response of Sabah Parks to our RCA GIS (see following section and Appendix 1) is proof that we are enhancing the Crocker Range Park adaptive management process by strengthening the capacity of local institutions to assess and implement proposed Community Use Zones. The large body of empirical results gained through our fieldwork is evidence of the success of our participatory approach to the analysis of biological resource use by local communities. Quantitative indicators – presented in Table 1 – demonstrate our success in training students and personnel from various governmental and non-governmental agencies, among other achievements.

A primary lesson is that our style of research – which is highly interactive and thus implies intensive commitment from community members and researchers – requires a large amount of fieldwork. This presents a challenge to our field team as the community is busy with subsistence

and other activities. We have modified our approach by introducing rest periods – in which general community discussions are preferred to semi-structured and structured interviewing – to avoid informant fatigue.

Another lesson is that grasping opportunity and securing collaboration is an important way of accomplishing an ambitious field research programme. An example is our use of the BBEC permanent ecological plots established to expand our ethnobiological resource inventory without the time-consuming collection of our own voucher collections (as all woody species in these plots have been collected and identified by the Forest Research Centre).

A final lesson is that institutional commitment is essential to achieving the purpose of the project as well as ensuring specific outputs. For instance, the nascent interest and willingness of Sabah Parks to accommodate community priorities (especially access to non-agricultural lands and hunting grounds) is key to our success. This has led us to focus on strengthening this willingness to negotiate by providing continued technical support, particularly by taking a more prominent role in assisting Sabah Parks to draft a CUZ Management Agreement for Buayan-Kionop.

11. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum)

The Resource Catchment Area (RCA) Geographical Information System (GIS) (Appendix 1)

"*Without the innovative RCA GIS developed by GDF, Sabah Parks would not have been able to proceed with the demarcation of the Buayan-Kionop Community Use Zone of the Crocker Range Park*" Dr. Jamili Nais, Assistant Director (Research and Education), Sabah Parks.

The Resource Catchment Area (RCA) is an exciting conceptual advance that has emerged from our work over the last year. While integrating results from the various ethnobiological techniques that we have been using in the field, we sought to develop an approach to data collation, analysis and representation that concisely demonstrates local appropriation of natural landscapes. We realised that our outputs must be easily understood by both policy makers and community members alike, without simplifying the complexity and dynamism of local resource use patterns and resource management strategies in Buayan-Kionop, our study site.

We define the RCA as the total geographical area covered by all of the ecological areas that the Dusun-speaking people of Buayan-Kionop consider important for resource access and cultural identity. This includes various categories of agricultural lands (such as wet and hill rice fields, home gardens, fruit orchards), and different successional stages of forest that are used for subsistence hunting and gathering of forest products (e.g. timber, rattans, fruits and medicinal plants). Sites of cultural significance include ancestral gravesites, abandoned homesites and areas that figure prominently in oral histories. Together, these land types represent the Resource Catchment Area for the Buayan-Kionop Dusun.

A key method in the RCA approach is to use GIS technology to develop a comprehensive map of community resource use and access patterns, landscape modification, and areas of historical and cultural significance. Contemporary GIS approaches to resource mapping for conservation and management often define habitats according to strict biological criteria and delimit use zones with rigid boundaries, without taking into account indigenous perspectives of the natural landscapes and resources that sustain local livelihoods. Our innovative approach combines detailed ecological and ethnobiological data in a systematic, accessible and attractive way that has immense potential for the long-term collaborative management and monitoring of the Community Use Zones (CUZs).

The current approach for defining CUZs in the Crocker Range Park Management Plan is to identify areas of swidden agriculture by comparing aerial photographs from the 1960s, 1980s and 2000. This approach is misleading because cultivated areas are only one of many diverse land types recognised by the Buayan-Kionop Dusun. Our results show that the local community relies on a wide diversity of landscapes, resources and livelihood strategies for daily survival. A top-down policy decision to restrict local peoples' access to non-cultivated lands will severely limit their ability to meet basic subsistence requirements for food, medicine and materials. It will also displace a sense of indigenous identity closely linked to the lands upon which they depend for their survival.

The resulting RCA GIS will integrate both community and state conceptions of the protection of biological resources and landscapes. In accordance with the definition of IUCN Category V protected areas, it will guide continued local access and management of a variety of landscapes so that the people of Sabah can collaboratively conserve biodiversity, protect subsistence livelihoods and encourage cultural resilience.

Based on the results of this approach, we are developing a manuscript for publication entitled "The Resource Catchment Area: Integrating Ethnobiological Data in a Community Use Zone GIS" that we will submit to a prominent conservation journal.

■ **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: 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 Crocker Range Park adaptive management plan enhanced by strengthening capacity of local institutions to assess and implement proposed community use zones through participatory analysis of biological resource use by local communities.	New knowledge on species used and habitats managed in CRP by yr 1 New knowledge on swidden agriculture and traditional agroecosystems by yr 2 New knowledge of subsistence hunting use in community use zones by yr 3 Agreement on community use zones and management agreement by yr 3	Conducted a diversity of field techniques listed in Table A of this report, obtaining a significant corpus of data on classification, management and use of biological resources and landscapes	**Actions:** Continue data collection, with a focus on the 'ongoing' approaches noted in Table A and the new techniques listed in Table B. Continue to build on Community Research Agreement process as part of enhancing local capacity to manage the access and use of resources. **Lessons:** Community participatory research takes a significant amount of time, and must take into account the busy time schedule of villagers
Outputs			
Community use zones assessment programme established by partner organisations, with community input	Minimum of 8 staff and 8 MSc students from 2 institutions, and 6 community members, trained ethnobiological and conservation assessment techniques. Qualitative and quantitative assessments of community use zones completed by yr 3	11 postgraduate students, 3 undergraduate students, 21 staff members from 15 institutions, and 8 community members trained in ethnobiological and conservation concepts and techniques. 8 community members working as field	**Actions:** Continue to collect data with community field assistants and hands-on training of field assistants **Lessons:** Sabah Parks willingness to accommodate community interests must be strengthened and

		assistants and receiving hands-on training	provided with continued support from GDF
Training modules on ethnobiology and conservation biology delivered at UMS	Curriculum combining modules by Kent and UMS lecturers developed over 3 yrs Minimum of 8 Malaysian MSc students participated in modules by yr 3	First modules delivered in April and Sept 2005 jointly by lecturers from Kent, UMS and other Sabah institutions. 9 MSc students participated	**Actions:** Deliver modules 3 (Apr 2006) and 4 (Nov 2006) of Ethnobiology and Conservation course **Lessons:** Contrary to expectations, participation in the modules by the same students and professionals cannot be assured.
Best practice handbook and training manuals	One "Best Practice in Assessing Community Use Zones" published Three training manuals produced on assessing ethnobiological resources, swidden agriculture and subsistence hunting	First training manual, consisting of 15 process sheets on diverse research techniques, completed and used in the field	**Actions**: Develop manuals (consisting of process sheets) on swidden agriculture and subsistence hunting. Continue analysis of data for "worked examples" of the Best Practices Manual **Lessons:** Development of training manuals as hands-on 'process sheets' in local language is effective
CRP adaptive management plan enhanced	Revised management plan, including detailed section on Community Use Zones, approved by stakeholders by yr 3	Revised CRP management plan completed as a consultancy with BBEC by GDF project coordinators Agnes Lee Agama and Rachel Chua in Feb 2006	**Actions**: Report to Sabah Parks detailing recommendations on Community Use Zones
Community Use Zone Management Agreement established	Strategy developed by a local village committee in consultation with Sabah Parks by yr 3	Pending	Pending **Lessons**: With BBEC ending in January 2007, GDF will have to assume a more important role in creating the CUZ Management Agreement

Note: The only change made in the logical framework is the use of Community Use Zones (CUZ) instead of Traditional Use Zones (this follows the usage in the recently completed Crocker Range Park Management Plan 2006) and the use of CUZ Management Agreement in place of Village Stewardship Agreement.

Annex 2. Timeframe for 1 April 2006 to 31 March 2007

	Activity	Description	Timeframe											
			2006									2007		
			Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
1	Field Research	Compilation, elaboration and analysis of data collected on key plant and animal resource inventory and valuation												
		Data collection, compilation and analysis on key landscapes, farm and fallow sites												
		Data collection, compilation and analysis on patterns of subsistence hunting												
		Inventory of rattan species in Buayan-Kionop												
		Development of RCA GIS including collection of georeferenced data, creation of layers showing distribution and community access to key resources and landscapes												
		PACOS Community Resource Mapping project, including community training workshops, data collection, GIS mapping of key resources and landscapes in Tiku, Timpayasa and Terian												
		Intensive hands-on training, exposure and study exchanges for Community Field Assistants and key community members												
		Participatory community evaluation of Community Research Agreement and overall Ethnobiology of CUZ project												
		Facilitation of discussions between Sabah Parks and local communities on draft Community Management Agreement for the Buayan-Kionop Community Use Zone												
2	Training	Conduct Module Three of the Ethnobiology and Conservation training course: Ethnobiological Knowledge Systems & Conservation, Communities and Tourism												
		3 UMS postgraduate students conducting fieldwork in Buayan-Kionop												
		Advanced GIS training and participation in ESRI International User Conference in California by GDF Field Coordinator (funded by the Society for Conservation GIS)												

	Activity	Description	Timeframe											
			2006									2007		
			Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
		Conduct Module Four of the Ethnobiology and Conservation training course: Ethnobiological Data Analysis												
		Visits by project leader and University of Kent colleagues to provide training and research guidance												
		Visit by project coordinator to UK for data analysis and work on Best Practices manual												
3	Dissemination	Research 'process sheets' and worked examples (in lieu of 'training manuals') compiled for Best Practices manual												
		Project paper and poster presentations at the International Congress of Ethnobiology in Thailand												
		Manuscripts prepared for submission to peer-reviewed journals												