Darwin Initiative for the Survival of Species

Final Report

1. Darwin Project Information

Project Reference No.	162/13/009
Project title	Ethnobiology of proposed community use zones of Crocker Range Park
Country	Malaysia
UK Contractor	Global Diversity Foundation
Partner Organisation (s)	Sabah Parks, Institute for Tropical Biology and Conservation (ITBC) Universiti Malaysia Sabah
Darwin Grant Value	£129 280 (£128,789)
Start/End date	1 August 2004 to 31 July 2007
Project website	www.globaldiversity.org.uk
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2. Project Background/Rationale

- Describe the location and circumstances of the project

The Crocker Range is a slender mountainous range running on a northeast to southwest axis along the west coast of Sabah, Malaysia. Extending from Mount Kinabalu in the north to Mount Lumaku in the south, the Crocker Range is a composite of mixed lowland dipterocarp, lower montane and upper montane forests, rich in biological diversity and exceedingly high in plant endemism including showcase species of orchids and *Rafflesia*. The Range is also the main water catchment for the major rivers in West Coast Sabah, supplying water to almost a third of Sabah's population, including the State Capital of Kota Kinabalu.

The Crocker Range has long been recognized as a conservation priority. State efforts to protect the area were visible from the earliest stages of the inclusion of Sabah in the Federation of Malaysia in 1963. In 1969, vast parts of the Range were gazetted as the Crocker Range Forest Reserve, under the jurisdiction of the Sabah Forestry Department. In 1984, the Crocker Range Forest Reserve was regazetted as the Crocker Range Park (now roughly 140, 000 ha), and remains the largest terrestrial park in Sabah today. The Crocker Range Park is managed by Sabah Parks, a state statutory body responsible for all parks in Sabah, according to IUCN Category II guidelines as a fully protected area with an emphasis on strict biodiversity conservation and scientific research.

The Crocker Range Park is one of the most biologically important conservation areas in Sabah. The conservation journey, however, has been marked by a distinct impact on the indigenous peoples who live in these areas. The establishment of the Crocker Range Park has been a source of conflict between Sabah Parks and indigenous communities because several Dusun and Murut communities have been living inside, and using parts of, the area long before the Park was established. Some communities consider parts of the Crocker Range Park to be their ancestral lands and place Native Customary Rights land claims on these areas. They continue to carry out subsistence activities, and in most cases, they are completely dependent on the natural resources in the Park for their livelihoods. The Sabah Parks Enactment 1984, however, prohibits any human modification of natural landscapes and extraction of natural resources from within a park. Under the Enactment, agriculture, hunting, fishing, gathering of forest products – subsistence activities that are the only source of survival for these communities – are considered illegal.

To resolve this conflict, the Crocker Range Park Management Plan 2006 proposed the establishment of Community Use Zones[1], which are areas set aside specifically for community resource use. The basic premise behind Community Use Zones was to designate specific areas inside the CRP where local communities can continue subsistence activities under the supervision of Sabah Parks in a way that balances biodiversity conservation and community livelihoods. The extent of these subsistence activities, and the overall management of Community Use Zones, would be governed through a Community Use Zone Management Agreement that will be negotiated between Sabah Parks and the respective communities involved. The legal framework for the establishment of Community Use Zones was approved by the State Legislative Assembly in 2007 in an amendment to the Park Enactment.

The proposed Community Use Zone in Buayan-Kionop (the project's fieldsite) could potentially be the largest in the Crocker Range Park, and a complex range of issues must be negotiated in its establishment. The name Buayan-Kionop refers to an area located in the Upper Papar River valley; it is home to about 310 indigenous Dusun people living in four settlements scattered across the area – Buayan, Tiku and Timpayasa on State Land directly bordering the Park, and Kionop, located inside the Park. With no road access, the rugged and hilly terrain makes Buayan-Kionop a remote and difficult area to reach. Community

[1] Originally referred to as Traditional Use Zones in draft versions of the Management Plan, they have now been renamed Community Use Zones.

members report having lived in this area since time immemorial, with the contemporary generation being able to locate the ancestral gravesites, abandoned homesteads, and the more recent river bend hideouts used by the Japanese during World War II, which have all been recorded in their oral histories. A community of cash poor swidden farmers, they rely almost entirely on the surrounding natural resources and landscapes to meet subsistence needs, including plants and animals found in the vast swaths of secondary and primary forests located deep inside the Park. For them, the establishment of the Crocker Range Park in 1984, with its strict enforcement policy that prohibits resource extraction, has severely limited their access to the biological resources and cultural landscapes inside the Park, all of which contribute towards their daily survival and cultural identity.

Unable to excise the vast areas claimed by community members from the Park, and unwilling to forcibly relocate the communities to another area, Sabah Parks has been faced with a difficult situation of mounting conflict over the years. Thus, the establishment of the Buayan-Kionop Community Use Zone is seen as a much needed compromise in attempting to integrate the local community's livelihood needs with the biodiversity conservation priorities of the Park. The Community Use Zone will legalise community access and use of resources and landscapes inside the Park, and additionally open up avenues for the local community to participate in the sustainable management of the areas upon which they depend. This legal status will also enable Sabah Parks and other government agencies to provide the much needed infrastructural (e.g. suspension bridges, gravity feed water supply, micro-hydro powered electricity), economic (e.g. agricultural subsidies for wet rice cultivation, tourism) and social assistance (e.g. health care, education) to the local community.

- What was the problem that the project aimed to address?

The project's main target was to resolve the problematic conceptualisation of Community Use Zones. The establishment of Community Use Zones was proposed during the first phase of the Bornean Biodiversity and Ecosystems Conservation (BBEC) programme, a joint initiative between the Japan International Cooperation Agency (JICA), the Sabah State Government and Universiti Malaysia Sabah (UMS). The concept of what constitutes a Community Use Zone was not based on resource use data, findings from the proposed sites, or consultation with communities living in these areas. The Final Draft of the Crocker Range Park Management Plan 2004 stated that Community Use Zones were to be demarcated based on swidden cultivation sites detected in archival aerial photographs from the 1960s and 2000. This definition was highly misleading because it assumed that swidden cultivation sites alone would be sufficient to support the subsistence needs of the local community, when the community were, in fact, relying on multiple subsistence sources derived from a range of activities that included hunting, fishing and gathering forest products across a diversity of anthropogenic landscapes. This assumption, furthermore, overlooked the dynamic nature of swidden cultivation by attempting to tie the community to sites documented in historical photographs, which may have severe repercussions on the length of the fallow cycle and create emergent soil fertility problems.

The project was therefore designed to carry out field research to document the resource and landscape use patterns in Buayan-Kionop, an effort that aimed to support both Sabah Parks and the local community in coming to a realistic and mutually agreed upon understanding about the way Community Use Zones would be defined. Emphasis was placed on applying a range of qualitative and quantitative ethnobiological methods to develop a database on the key resources and landscapes according to both scientific and local classification systems, thereby creating a common platform upon which park authorities and community members could negotiate the kinds of resource use and extent of subsistence activities that would be permitted inside the Community Use Zone. Using participatory approaches, the project aimed to build the capacity of community researchers to carry out multidisciplinary research techniques that investigate the patterns of cultivation, hunting, fishing and gathering of forest products with their fellow community members, thereby engendering the local community with a growing body of technical knowledge and skills that would enable them to participate in a meaningful way in the negotiations with Sabah Parks. The corpus of data collected over the three-year period of this project would provide a baseline upon which further monitoring

can be carried out jointly between Sabah Parks and the local community as part of adaptive management of the Community Use Zones.

To further strengthen capacity in participatory action research and the application of ethnobiological methods, the project included a series of training modules on Ethnobiology and Conservation, which would be delivered in collaboration with lecturers from Department of Anthropology at the University of Kent, UK. The training modules were designed to train professionals, researchers, students and local community members to conduct participatory research in Community Use Zones and similar sites in Sabah.

A final aspect that we targeted was to raise the profile of community-based research and conservation in Sabah by showcasing the project's processes and results as a case-in-point on the importance of integrating local communities as partners in sustainable resource management.

- Who identified the need for this project and what evidence is there for a demand for this work and a commitment from the local partner?

The initial concept for the project was proposed by Dr. Jamili Nais, Sabah Parks Assistant Director, in 2003. A Darwin Initiative scoping grant allowed Gary Martin, Global Diversity Foundation (GDF) Director, to visit Buayan-Kionop, Sabah in August 2003. During this trip, Gary Martin met with Prof. Maryati Mohamed, Institute for Tropical Biology and Conservation (ITBC) Director, leading to the conceptual formulation of the Ethnobiology and Conservation training modules. Both Sabah Parks and ITBC became the main host country partners for this project.

The project provided a valuable and timely contribution to the establishment of a new paradigm in adaptive protected area management in Sabah, which integrates community livelihoods with biodiversity conservation. At the time of conceptualising the project, the Crocker Range Park Management Plan had not yet been finalised, and the proposal for Community Use Zones existed in principle only. Recognising the need to carry out field research in order to develop concrete parameters for defining Community Use Zones, Sabah Parks requested assistance from GDF to document and analyse patterns of community resource use in the proposed Community Use Zones. This recognition was echoed by Partners of Community Organisations (PACOS, an indigenous NGO), an emergent partner in this project. Together with PACOS, we have carried out extensive participatory mapping exercises with community researchers and community members in Buayan-Kionop. The resulting GIS database, incorporating land and resource use patterns, has been a pivotal instrument in enabling Sabah Parks to define Community Use Zones according to the resources and landscapes important for the local community.

Both the outputs and processes launched through this project have strengthened local partnerships, particularly between Sabah Parks, the local community and NGOs like PACOS who are engaged in a meaningful negotiation to decide the framework for Community Use Zones. A first of its kind in Sabah, the overall approach of this project, which asserts the shared accountability of all stakeholders, has immense potential to be replicated in similar sites in Sabah and the region. The commitment to making Community Use Zones a model for participatory management in Sabah is evident in the launching of the second phase of BBEC, which will focus on the formalisation of Community Use Zones and replication in other sites in Sabah.

Additionally, the project filled a gap in the application of participatory approaches to biodiversity conservation research. Ethnobiological research is a newly expanding field of expertise in Sabah, a State where many of the rural indigenous peoples live either adjacent to or inside protected areas. Demand for scientific and technical training in ethnobiology and participatory approaches can be seen in the unexpectedly high turnout for the Ethnobiology and Conservation training course modules held over the lifetime of the project, attended mainly by professionals working in government and civil society groups involved in biodiversity issues, and university students. A Universiti Malaysia Sabah (UMS)

postgraduate degree programme in Ethnobiology and Conservation – inspired in large part by the training modules – is to be launched in June 2008. This demonstrates UMS's recognition of local demand for training in ethnobiology applied to conservation, and the university's commitment to ensuring that institutionalised multidisciplinary training is made locally available to individuals interested in pursuing biodiversity conservation research and action.

3. Project Summary

- What were the purpose and objectives (or outputs) of the project? Please include the project logical framework as an appendix if this formed part of the original project proposal/schedule and report against it. If the logframe has been changed in the meantime, please indicate against which version you are reporting and include it with your report.

In **general**, the project aimed to build the capacity of local institutions and Dusun communities to improve an adaptive management plan for Crocker Range Park by studying the local appropriation and management of proposed Community Use Zones, and enhancing a policy shift in favour of community-based conservation in Sabah.

The **specific** objectives were to:

1. Identify the key ethnobiological resources used by the local community in Buayan-Kionop,
2. Assess the cultural importance of subsistence agriculture, hunting and NTFP gathering within the proposed Buayan-Kionop Community Use Zone,
3. Contribute to the design and implementation of the Community Use Zones as 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.

The project logical framework is included in Appendix V. The only changes made in the logical framework are the use of the term Community Use Zones instead of Traditional Use Zones (this follows the usage in the Crocker Range Park Management Plan 2006), and the use of the term Community Use Zone Management Agreement in place of Community Stewardship Agreement.

- Were the original objectives or operational plan modified during the project period? If significant changes were made, for what reason, and when were they approved by the Darwin Secretariat?

The original objectives were not modified during the project period, however the operational plan was readjusted prior to the start of the project, as reported in the First Annual Progress Report. Specifically, we obtained approval from the Darwin Secretariat to delay start-up of the project due to the later than expected approval of the project grant by the Darwin Initiative and the delayed availability of start-up funds. As a result, the project period was modified to run from 1 August 2004 to 31 July 2007 (it was orginally proposed for 1 July 2004 to 30 June 2007). Consequently, this delay in project start-up resulted in insufficient time and resources to proceed with the originally scheduled September 2004 training course and methods workshop. We obtained approval from Darwin to readjust the proposed six 5-day modules to be delivered as five 6-day courses, thereby ensuring that all material would be presented. The six methods workshops were condensed into five three day workshops and the series of two day community workshops were converted into flexible training sessions with the team of community research assistants. As we emphasised in the First Annual Progress Report, these modifications to the operational plan would not alter the content and impact of capacity building.

Another change in the operational plan involved the awarding of Field Research Grants. After two successful awards were given to two University of Kent (UKC) students, we obtained approval from the Darwin Secretariat to award all remaining Grants to UMS students. This was because of the limited time made available to UK students to conduct fieldwork (UKC Master's students are only allocated 3 months of fieldwork) and the difficulty in obtaining Malaysian research permits within this short timeframe. We thus felt that Malaysian students were in a better position to undertake more concentrated research. However, due to the lack of suitable UMS candidates as well as data confidentiality agreements between students and UMS that prevented students from sharing their research data until the completion of their degree, project partners decided to redirect the remainder of Field Grant funds towards providing expanded grants to existing grantees and hiring additional consultants to carry out field research projects; a decision which was approved by the Darwin Secretariat.

- Which of the Articles under the Convention on Biological Diversity (CBD) best describe the project? Summaries of the most relevant Articles to Darwin Projects are presented in Appendix I.

The project's primary thrust has been to promote the integration of community livelihood needs with biodiversity conservation and sustainable resource use in the Community Use Zones of the Crocker Range Park. The fundamental approach underlying the project's design and mode of implementation reflects the importance project partners have placed on the principles enshrined in the CBD. Specifically, the incorporation of subsistence activities into Community Use Zones responds to Article 8(j) to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge". This is also reflected in the project's Community Research Agreement, which defines the responsible research conduct of the project, fulfilling the requirements for free prior informed consent and the returning of results to local communities. Similarly, the project also recognises the CBD's call for Sustainable Use of Components of Biological Diversity, specifically Article 10(c), which is to "protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements".

The Resource Catchment Area GIS database, a key output of the project, has set into motion long-term processes and mechanisms by which both Sabah Parks and the local community can continue to identify critical subsistence activities and sensitive sites, and monitor impact over time, which reflects Articles 7(c) which is to "identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques" and 7(d) to "maintain and organize, by any mechanism data, derived from identification and monitoring activities".

The UMS degree programme in Ethnobiology and Conservation implements the CBD's call for Research and Training in host countries, a legacy that has been launched through the project's five-module training course. It responds specifically to Article12(a) to "establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components and provide support for such education and training for the specific needs of developing countries" and 12(b) to "promote and encourage research which contributes to the conservation and sustainable use of biological diversity".

The project has also engaged in Public Education and Awareness, specifically Article 13(a) to "promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in educational programmes". Although a smaller aspect of the

project, we have nevertheless carried out extensive dissemination activities to present the case of participatory research in Community Use Zones at numerous local, regional and international fora.

- Briefly discuss how successful the project was in terms of meeting its objectives. What objectives were not or only partly achieved, and have there been significant additional accomplishments?

The project has contributed substantially towards the reconceptualisation of Community Use Zones by successfully increasing our knowledge about the key ethnobiological resources and landscapes in Buayan-Kionop. Prior to the project, available documentation about resource use in Buayan-Kionop were, primarily, archival aeriel photographs of shifting cultivation patterns in the 1960s and early 2000s. With the project's field research, we have developed a GIS database of subsistence resource use in Buayan-Kionop, including information about the current locations of cultivation sites, hunting grounds, NTFPs, sites of cultural significance. We feel the data accumulated in this project represents a major step forward in understanding the subsistence resource use patterns of the Buayan-Kionop community, with the attractive potential of being replicated in other sites throughout Sabah. The project has, essentially, debunked the commonly held myth in Sabah that community livelihoods centred around swidden cultivation alone, and promoted an appreciation of how human modification of natural landscapes can support sustainable resource management and biodiversity conservation. This has played a crucial role in redefining Community Use Zones from pure cultivation areas to include a composite mosiac of anthropogenic landscapes that accommodate community livelihood needs while maintaining biodiversity conservation priorities.

In addition, technical input from Project Coordinators in the finalisation of the Crocker Range Park Management Plan facilitated the decision to redefine Community Use Zones based on field data collected from each proposed site, thereby ensuring that the diverse livelihood sources in each site would be represented fairly in the delimitation of the Community Use Zone for that site.

This success is reflected in the launching of the BBEC's second phase that dedicates its entire five-year cycle towards the formalisation of Community Use Zones; recognition of the heavy investment required to demarcate each Community Use Zone in a way that will balance both community livelihoods and biodiversity conservation. Data collected in this project will inform the decision-making processes for the Buayan-Kionop Community Use Zone, with both Sabah Parks and PACOS having expressed their interest in replicating our ethnobiological inventory methods to assist in the formalising of the Ulu Senagang Community Use Zone.

As such, we feel the project has been very successful in setting the standards for best practice in assessing ethnobiological resource use in Community Use Zones. The Community Research Agreement, signed by GDF and community leaders and endorsed by Sabah Parks and the Penampang District Office, is a significant milestone in protoming responsible research ethics amongst all agencies working with local communities. The project's continued engagement of local community members as community-based researchers is another accomplishment that demonstrates the importance of community-driven and community-controlled research. Combined, these accomplishments have promoted the visibility and strengthened the credibility of local communities as partners in the adaptive collaborative management of protected areas in Sabah.

The project has made a tremendous contribution towards building local capacity, not just within the local community, but also amongst our partner insitutions and other agencies in Sabah. We successfully delivered the five modules of the Ethnobiology and Conservation training course, which led to a total of 67 individuals from 20 agencies (and communities) from across Sabah having received training in contemporary ethnobiological concepts and methods, far exceeding our original expectations. Crucially, all of our project partners (including the local community) were represented in all of the five modules, from April 2005

to June 2007. The scale of this capacity building effort is further demonstrated in the number of UK and UMS lecturers, local and international speakers: 20 experts over five modules have contributed intensive sessions in their respective fields of expertise, including a senior science officer from the UNESCO Man and the Biosphere Programme.

A significant additional accomplishment is the UMS postgraduate degree programme in Ethnobiology and Conservation, which will be launched in June 2008. It will promote UMS as a regional centre for scientific and technical training in ethnobiology and biodiversity conservation. This is a significant accomplishment in ensuring the provision of institutionalised multidisciplinary training and the creation of an academic hub in ethnobiological research that will further develop this field of expertise within the context of people and protected area issues in Sabah.

Finally, the project has also successfully raised the profile of Community Use Zones, and the issues surrounding them, through the extensive dissemination activities carried out during the lifetime of the project. The Participatory Video, in particular, has conveyed the message from the local community in Buayan-Kionop to a tremendously large audience across the globe, including classrooms in UMS and the University of Kent, local, regional and international conferences, local communities in the PACOS network, and the 2007 Amnesty International Human Rights Film Festival in Kota Kinabalu. Local press releases and our participation in a range of local, regional and international events has strengthened the dissemination of project activities, as well as stimulated discussion about people and protected area issues.

4. Scientific, Training, and Technical Assessment

- Please provide a full account of the project's research, training, and/or technical work.

GDF is the main implementing organisation, working closely with Sabah Parks (in field research), UMS (in training) and PACOS (in community mapping). This core group of partners were responsible for overall project management as well as monitoring and reviewing project progress.

The project is governed by a Memorandum of Understanding between GDF and Sabah Parks, which was signed in 2005 and is in effect for 5 years (including the period of the Darwin post-project from 2007 to 2009). Project partnerships are further strengthened by institutional Letters of Agreement between GDF and UMS, and GDF and PACOS.

A key achievement is the Community Research Agreement developed between GDF and the Buayan-Kionop community, which was signed in 2005. The Community Research Agreement is the first agreement between an indigenous community and outside researchers in Sabah that sets out terms for access to traditional knowledge and genetic resources. As such, it fulfils the requirement to obtain prior informed consent from communities before documenting their traditional ecological knowledge, which is strongly implied as best practice in Article 8(j) and other sections of the CBD and is further elaborated in the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising out of their Utilisation. An innovative aspect of the Agreement is the right of local people to withhold information that they consider culturally sensitive or secretive. In addition, there is a clause on returning results of the project to the community in an appropriate local language.

The Agreement was reviewed through a participatory community evaluation process in 2006, where the community consented to renewing the Agreement with minor changes (e.g. more training for community researchers, revised payments for porters, etc.). The Agreement is currently being revised to accommodate the Darwin post-project, which runs until 2009. Although the Agreement covers only the members of the GDF research team, it sets the foundation for constructive collaboration between the local community and other researchers involved in the project. One of the outcomes is the development of a Community Research Protocol by the Buayan-Kionop community research assistants in consultation with community leaders and with the assistance of GDF Field Coordinators. The Protocol sets out the ethical codes of conduct for outside researchers intending to work in

Buayan-Kionop, as well as making suggestions for logistical (e.g. accommodation) and financial arrangements (e.g. guide and porter fees). The Protocol has been used as the central instrument guiding the field research projects of postgraduate students and local consultants receiving grants under the project.

The development of the Community Research Agreement and Community Research Protocol represent crucial processes that have helped to prepare the community to negotiate with Sabah Parks on the Buayan-Kionop Community Use Zone Management Agreement. Although this Management Agreement (originally called the Community Stewardship Agreement in our proposal to Darwin) was anticipated to be an output of the project, this has not been possible within the lifetime of the project. Reasons for this have been explained in full in previous Annual Progress Reports, particularly the delay within BBEC to conduct on-the-ground discussions with the Buayan-Kionop community. The negotiation process for the Management Agreement has been taken up as one of the main objectives of the second phase of BBEC, which was launched in late 2007. Through the Darwin post-project, we will continue to be part of this process with data generated from the project playing a pivotal role in the upcoming negotiations.

- **Research** - this should include details of staff, methodology, findings and the extent to which research findings have been subject to peer review.

To implement the project, GDF engaged the services of a Project Coordinator Dr. Agnes Lee Agama, Assistant Project Coordinator Ms. Rachel Chua, Field Coordinator Mr. James Wong Tai Hock, and Assistant Field Coordinator Mr. Yassin Miki. When Rachel Chua resigned from her post in 2006 to return to Kuala Lumpur, her hometown, her duties were taken up by the remaining team members. Another key person in the project team is Mr. Adam Murphy who was initially a Field Grant recipient and has been retained as a part-time consultant to the project, playing key roles in the development of the Resource Catchment Area GIS, assesment of subsistence hunting activities and data analyses aspects of the project. Project Leader Dr. Gary Martin conducted five visits to Sabah and has provided technical supervision and input on all levels of field research design and implementation. Other technical supervisors include Dr. Jamili Nais (Sabah Parks) and Mr. Adrian Lasimbang (PACOS).

Buayan-Kionop Community Research Assistants

In the course of the project, we have engaged 14 community research assistants comprising indigenous community members from Buayan-Kionop. Of these 14 individuals, 4 have worked under the project for the full three years, while others have served for various periods ranging from 1 month to almost 2 years. Over this period, the team of community research assistants have received training in a range of multidisciplinary methods such as botanical collection techniques, community mapping, participatory GIS and participatory video. They have continued to monitor and lead the review of the Community Research Agreement, and taken the initiative to develop a Community Research Protocol that outlines ethical research conduct requested of outside researchers intending to work in their community.

Other key contributors to field research includes PACOS who carried out a two-year initiative on participatory community mapping in the neighbouring villages of Tiku, Terian and Timpayasa, and provided technical input on the development of the GIS database and GIS maps; Masters students from the University of Kent (UKC) (Perpetua George) and UMS (Zuraida Zainudin, Yassin Miki and James Wong) who carried out discrete but complementary research projects; other consultants (Adam Murphy, Jusimin Duaneh, Nousi

Giun, Berhaman Ahmad) who carried out field research projects; international experts (Dr. Rajindra Puri, Prof. Stuart Harrop, Dr. Helen Newing, Prof. Roy Ellen, Dr. Ian Bride (all of UKC) and Mr. Nicolas Lunch of Insight UK) who provided technical input on various aspects of field research.

The fundamental approach taken was process-based participatory and community-led field research using a combination of qualitative and quantitative ethnobiological techniques. Over three years, we have invested a significant amount of time and resources in training community research assistants and other principal collaborators in the community on the rationale and methods for each research technique we have used. While this approach has taken up more time that we originally anticipated and the level of data collection was less efficient in the earlier stages of the project when training had just started, we feel it has produced excellent results in the longer-term. Community members, particularly the community research assistants, have developed technical knowledge and skills that enables them to understand resource use patterns and monitor its impact over time. Over the lifetime of the project, the community researchers have played an increasingly active role in driving the research and communicating the research methods and results to their community. With the added capacity building in the Darwin post-project, we feel the community as a whole will be able to participate in a meaningful way in the collaborative management of the Buayan-Kionop CUZ.

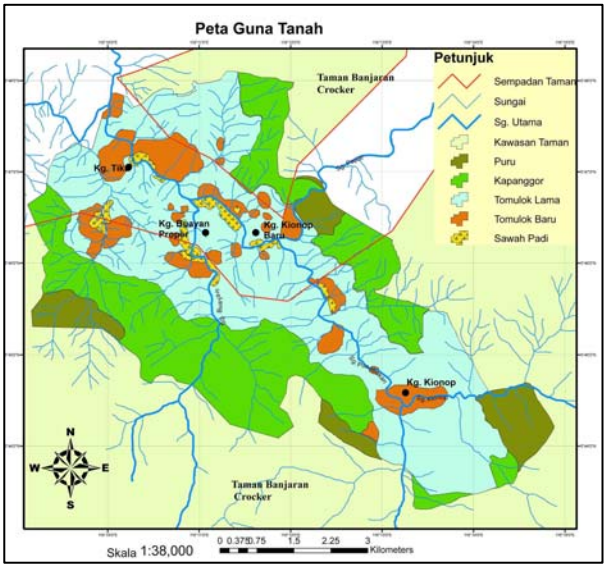
An important aspect of our field research, as documented in the Community Research Agreement, was that community participation in research activities (e.g. interviews, ground surveys, workshops) is voluntary. Community members reserved the right of refusal, whether in their overall participation in the project, participation in particular activities, or giving out specific aspects of information within the context of a particular activity. This created a slight imbalance in how our field data has been gathered because some community members decided not to participate in the early stages of the project, opting instead to wait until they felt more comfortable with the project. This stemmed largely from fear of prosecution from park authorities if community members were found to be extracting resources from inside the Park. Furthermore, community members who requested anonymity were given labelled identities in the database (e.g. some hunters would only participate if they remained anonymous as there was a fear of prosecution from park authorities because of hunting inside the Park, and were thus labelled as Hunter 1, Hunter 2, etc).

With the support of Sabah Parks and the official announcement about the establishment of Community Use Zones in 2006, the project was able to reassure community members that data was being collected to assist community members and park authorities to reach an agreement about the extent of permitted resource use inside the Park. Over the lifetime of the project, these initial fears of prosecution have faded and we have seen a dramatic increase in the number of community members eager to participate in project activities (e.g. we started with 4 anonymous hunters in 2005, and are now working with 12 identified (not anonymous) hunters in 2007). We have attempted to compensate for the initial apprehension of the community by developing a research strategy where we directed the initial period of the project towards PRA data collection techniques and simple listing and sorting exercises, while the groundtruthing aspects of field research (i.e. collecting GPS fixes of cultivation and hunting locations inside the Park) were conducted towards the middle period of the project and onwards. We are currently building upon the existing data in our Darwin post-project with additional data collected through participatory resource monitoring techniques.

The field research findings are summarised in Appendix VI, and progress in various data collection techniques have been reported in previous Annual Progress Reports. The most significant advance in field research is the conceptualisation of the Buayan-Kionop Resource Catchment Area (RCA), which refers to all areas inside and outside the Community Use Zone where community members live, farm, hunt, fish, and gather forest resources. The concept of the RCA was more useful in directing field research because 1) although the Community Use Zone had been officially declared, the exact location of its boundaries have

yet to be determined, and 2) community members were carrying out subsistence activities in areas inside and outside the Park. Therefore it was essential that field research incorporate both the areas inside and outside the Park, as patterns of subsistence activities outside the Park (e.g. land conversion for swidden agriculture) may well influence the nature of activities carried out inside the Park. Data collected through various research techniques have been uploaded to the RCA GIS database, which acts as the central repository of georeferenced information about cultivation, hunting, fishing, and gathering in Buayan-Kionop. This is the first time in Sabah that an initiative has integrated ethnobiological information with GIS technology to map areas important for the community using local toponyms and classification systems.

Extensive structured and semi-structured interviews were conducted to elicit information about key resources and landscapes, which were later groundtruthed and GPS fixes uploaded to the GIS database along with accompanying attributes. Community research assistants conducted several surveys, including freelisting, pilesorting and weighted ranking exercises to determine the relative importance attributed to key resources and landscapes. Data accumulated from Field Grants projects (James Wong on swidden cultivation, Yassin Miki on home gardens, Adam Murphy on hunting, Zuraida Zainuddin on fishing, Jusimin Duaneh on rattans) provided detailed georeferenced information about the patterns of subsistence activities in the area. The resulting GIS map layers depict different forest and land types including areas of current hill and wet rice cultivation, priority hunting areas, important freshwater fishing locations, the locations of forest products (e.g. rattans) important for the community, and areas of cultural significance.



One of the RCA GIS map layers generated using data gathered in the project. The map shows different forest and land types according to Dusun classification, producing an image of land use patterns in the Buayan-Kionop area. Red lines indicate the CRP boundary; white areas are those outside the park, while the pale green area is inside the park; coloured areas indicate parts of the RCA that have been surveyed in the project period.

Our research has found that swidden cultivation, along with wet rice cultivation, is the main livelihood source in the community, comprising 46 farming households. This supports Sabah Parks' assumption that cultivation was the main indicator for delimiting Community Use Zones. In addition, our data also indicates that swidden sites rotate on a cycle of roughly two to four years, depending on the location of the sites and the available household labour within an annual rice cycle. Freshly harvested swidden sites continue to be managed for variable lengths depending on the secondary crops that are planted following the rice harvest, including yams, tapioca, other vegetables and fruits. These fallow sites are highly valued in the community as secondary food sources, not just for food crops but also for medicinal plants and the trapping of small animals for meat. These findings show that the delimitation of Community Use Zones need to incorporate fallow fields as well as active swidden sites, and is particularly important in the case of Kionop, which is located inside the Park.

We also found that subsistence hunting and fishing are the primary protein sources for the community. In the Buayan area most fishing activities are conducted outside the Park, but all fishing activities in Kionop are carried out inside the Park. In the case of hunting, however, most hunting trails extend to areas deep within the Park boundary and most of the priority hunting areas identified by community members are located inside the Park. Hunting offtake is comprised primarily of bearded pig (27%) and deer species (26%), as well as a number of smaller mammals such as palm civets (19%). Hunting of rare or endangered species has not been corroborated. This data has been uploaded to the RCA GIS, generating GIS maps

showing the distribution of hunting locations, according to the categories of importance attributed by community members. Interestingly, distance from the village has not been a factor that influences the perceived importance of hunting areas; instead an area is seen as a priority hunting area based on successful rates of capture.

The GIS database (of approximately 450 GPS fixes) is accompanied by an ethnobiological database of about 800 plant and animal species, identified according to local and scientific names. Both the RCA GIS database and ethnobiological database have been handed over to Sabah Parks, and is being updated with field monitoring data collected in the Darwin post-project. The impact of our field research is evident in the way Sabah Parks has decided to revamp the definition of Community Use Zones. Formerly proposed to be delimited according to archival records of cultivation sites recorded in the 1960s through aeriel photographs, Community Use Zones are now to incorporate the diversity of key plant and animal resource and anthropogenic landscapes that support the livelihood needs of the local community. In the case of Buayan-Kionop, this will incorporate areas accessed for subsistence hunting, fishing and the gathering of forest products, in addition to areas used for rice cultivation. Although subsistence activities permitted inside Community Use Zones will still remain under the supervision of Sabah Parks (to ensure that activities continue to fulfill the biodiversity conservation priorities of the Park), this is nevertheless a significant accomplishment that has resulted from our project's field research. Continued monitoring of subsistence activties inside and outside the Community Use Zone is essential to understand the ecological and social impacts over time.

As such, we feel the RCA concept, which addresses management of the Buayan-Kionop area as a whole, has the potential to engage not only Sabah Parks and the local community, but also several other key government agencies that have jurisdiction over areas outside the Park to develop long-term strategies for the integrated conservation and development of the entire Upper Papar River valley.

- **Training and capacity building activities** – this should include information on selection criteria, content, assessment and accreditation.

The project successfully conducted the Ethnobiology and Conservation Training Course which was hosted by UMS, in collaboration with UKC Department of Anthropology lecturers. Over five modules carried out between April 2005 and June 2007, a total of 6 UKC lecturers taught at the training course, along with 8 UMS lecturers, and 8 local, regional and international guest speakers from 8 organisations. The GDF Sabah Team members also delivered presentations featuring the approaches and methods applied in the project's field research activities, and facilitated sessions where needed.

The training course was coordinated through a Coordination Committee comprising Prof. Maryati Mohamed and Dr. Idris Mohd Said (UMS), Dr. Jamili Nais and Mr. Maipol Spait (Sabah Parks), and GDF Project Coordinators Agnes Lee Agama and Rachel Chua. Among the issues dealt with include discussion over the curricula, selection of participants, invitation of guest speakers (other than the UKC and UMS lecturers), financial and logistical arrangements. The Coordination Committee was convened to prepare for Modules One and Two. It was later felt that Modules Three, Four and Five did not require the conveneing of a meeting as project partners had sufficient experience and preparations for subsequent modules were fairly straightforward. Modules Three, Four and Five were therefore coordinated directly between the GDF Project Coordinators and Dr. Idris Mohd Said, Dr. Jamili Nais and Mr. Maipol Spait through individual meetings and email exchanges. The biannual Project Partners' Meetings additionally set aside time to discuss and evaluate the progress of each module thereon.

Modules One to Four have been reported in full in previous Annual Progress Reports. The full report for Module Five (completed after the submission of the Third Annual Progres Report) is included in Appendix VII of this report. An overview of the training course is provided below:

Darwin Initiative Ethnobiology and Conservation Training Course

Module One (11-20 April 2005)

- Topics: Biodiversity Law, Environmental Anthropology and Ecological Methods
- Lecturers: Prof. Stuart Harrop & Dr. Rajindra Puri (UKC), Dr. Akira Takahashi (BBEC-JICA), Prof. Maryati Mohamed, Dr. Idris Mohd. Said, Dr. Fadizlah Majid-Cooke (UMS), Datuk Joseph Guntavid (Sabah Museum),
- Attended by 21 participants (8 postgraduate, 3 undergraduate, 10 staff from 9 agencies, and 6 community research assistants from Buayan-Kionop)

Module Two (5-14 September 2005)

- Topics: Contemporary Issues in Ethnobiology, Ethnobiological Methods and Soil Sampling Techniques
- Lecturers: Dr. Gary Martin (UKC), Dr. Fadzilah Majid-Cooke, Dr. Anja Gassner, Dr. Faisal Mohd. Noor (UMS), Mr. Laurentius Ambu (Sabah Wildlife Department), Mr. Han Qun Li (UNESCO Man and the Biosphere Programme), Mr. Adrian Lasimbang (PACOS)
- Attended by 18 participants (11 postgraduate, 2 undergraduate, 5 staff from 4 agencies, and 6 community research assistants from Buayan-Kionop)

Module Three (24-28 April and 2-5 May 2006)

Topics: Ethnobiological Knowledge Systems and Conservation, Communities and Tourism
Lecturers: Prof. Roy Ellen & Dr. Helen Newing (UKC), Dr. Jacqueline Pugh-Kitingan & Dr. Janie Liew-Tsonis (UMS), Mr. Maipol Spait & Mr. Alim Biun (Sabah Parks), Ms. Patricia Regis (Ministry for Tourism, Environment and Culture)

Attended by 18 participants (2 postgraduate and 16 staff from 11 agencies, and 7 community research assistants from Buayan-Kionop)

Module Four (13-22 November 2006)

- Topic: Ethnobiological Data Analysis
- Lecturers: Dr. Rajindra Puri & Dr. Gary Martin (UKC), Dr. Henry Bernard (UMS), Mr. Adrian Lasimbang (PACOS)
- Attended by 12 participants (2 postgraduate and 10 staff from 7 agencies, and 7 community research assistants and about 40 community members from Buayan-Kionop)

Module Five (4-15 June 2007)

- Topics: Conservation Education and Participatory Video
- Lecturers: Dr. Ian Bride (UKC), Mr. Nicholas Lunch (Insight UK)
- Attended by 27 participants (3 postgraduate, 15 staff from 7 agencies, 8 community research assistants, 1 community pre-school teacher and about 20 community members from Buayan-Kionop)

These five training modules have successfully trained 67 government and non-government representatives, undergraduate and postgraduate students, Buayan-Kionop community research assistants, and other researchers and professionals in a variety of contemporary ethnobiological concepts and methods. Altogether, participants represented 20 different agencies from across Sabah, including the community research assistants and selected community members from Buayan-Kionop. This number has vastly exceeded our original expectations (we anticipated 16 participants across all modules), which we feel is due to the attractive variety of contemporary topics offered in modules and the high levels of local demand to obtain training in ethnobiology. Furthermore, there were several applications from a range of candidates which had to be turned down (thus local interest in these types of training events is even much higher) for various reasons including the clash in scheduling and applications submitted at late notice.

Participants were selected on the basis of their level of competancy (assesed from information provided by participants in their applications to the course), current involvement with community-based assessments of resource use, their interest in applying the taught concepts and methods in their own work, as well as their availability to attend all sessions. An obstacle in conducting this course was that many participants were unable to attend all five modules due to their own work/academic commitments. In some cases, participants opted to come only for the particular module that offered topics of relevance to their work and interests. Additionally, the Field Methods sessions for Modules Three, Four and Five were held in Buayan (as opposed to the Inobong Station where we held Modules One and Two). This prevented some participants from attending the Field Methods sessions due to the remote location and level of physical fitness required to trek to Buayan. We however felt that holding the Field Methods in Buayan was an important move because it enabled community members, in addition to the team of community research assistants, to participate in the training, with interactive field exercises conducted around the village vicinity in the Dusun language and having direct bearing on our field research activities.

Written evaluations were carried out at the end of each module, with evaluation forms submitted (on a voluntary basis) by course participants for both the Lectures Series and Field Methods sessions. Overall progress for each module was also reviewed in the biannual Project Partner's meetings, and through informal discussions with key collaborators in UMS and Sabah Parks.

The issue of institutional accreditation of the training course presented an unexpected difficulty; first, it was revealed that UMS would not be able to provide institutional accreditation because parts of the content delivered in the course were developed by UKC lecturers. Policies within the Malaysian Federal Ministry of Education require that all content be vetted and approved by the Ministry before insitutional accreditation could be accorded. The Coordination Committee decided not to pursue an application for accreditation because of the extended time, financial resources and national operational tasks (e.g. Certified National Market Survey to establish demand) required to obtain such approval. The second difficulty was that, as envisaged by the Committee, not all participants would be able to attend and complete all five modules because the timing of the modules was spread over the lifetime of the project, clashing with participants' work/academic commitments. An application for accreditation therefore became a moot point given that consistent attendance by all participants could not be assured at the outset. The Committee therefore decided that the project would issue Certificates of Completion to participants who completed each module, whereupon UMS would issue official Certificates of Completion for participants who completed the entire course.

This was a departure from our original expectation that UMS would accredit the training modules as a diploma-level course. However, as UMS was committed to adapting the curricula in the five modules for the (then proposed) degree programme in Ethnobiology and Conservation, it was felt that the best option was to allow that process to develop without the added administrative confusion of requesting insitutional accreditation for this training course. We instead focussed on facilitating closer links between UMS and UKC colleagues to promote a sharing of technical expertise in designing curricula for the UMS degree programme. We began with a half-day Lecturers' Workshop, which we added on to Module One in April 2005, which was aimed at providing UMS and UKC colleagues an opportunity to share expertise. This Lecturers' Workshop was attended by Prof. Stuart Harrop (then Head of the Department of Anthropology) and Dr. Rajindra Puri (UKC lecturer in Environmental Anthropology) who shared the experience of developing the (then recently established) UKC MSc degree programme in Ethnobotany. The Workshop was attended by 11 UMS colleagues and researchers from the Insitute for Tropical Biology and Conservation, School of Social Sciences, School of International Tropical Forestry and a consultant from GTZ (German Technical Cooperation Agency) who was assisting in the curriculum development for the UMS degree programme in Forestry. This was followed through with a visit in September 2005 by UMS Vice Chancellor Datuk Prof. Dr. Mohd Noh Dalimin and Prof. Maryati Mohamed to Robin Baker, UKC pro-Vice Chancellor of international programmes,

Prof. Bill Watson, Anthropology Department Head, and various professors and lecturers from both institutions. In April 2006, these interactions continued with a business luncheon hosted by UMS Vice Chancellor for Prof. Roy Ellen, Dr. Helen Newing and Dr. Gary Martin of UKC during the course of Module Three. In November 2006, Prof. Maryati Mohamed informed the project that concrete institutional plans were underway to launch the UMS degree programme in Ethnobiology and Conservation in June 2008, and that Mr. Paul Porodong (a UMS lecturer completing his PhD in Environmental Anthropology at UKC) would be appointed as course convenor.

Thus, although the project was not able to deliver an accredited diploma-level course as originally promised, we feel that we have responded to emergent obstacles in a strategic and productive fashion. The UMS degree programme in Ethnobiology and Conservation will carry on the legacy of the project's training course, a result which is a product of Prof. Maryati Mohamed's vision and leadership and a consequence of the extensive networking and sustained promotion that has been carried out throughout the lifetime of the project.

The awarding of Field Research Grants is another training activity that has continued to evolve over the course of the project. Initially, we expected to recruit 8 UMS and 4 UKC Masters students. By April 2005, we had successfully recruited 2 UKC students:

Grantee	Research Title
Ms. Perpetua George, MSc Ethnobotany, University of Kent	Identifying Community Valuable Landscapes of the Buayan Dusun in the Crocker Range, Sabah, Malaysia
Mr. Adam Murphy, PhD Ethnobiology, University of Kent	Study of Mammal Hunting in Buayan-Kionop, Sabah, Malaysian Borneo

Ms. Perpetua George, a Sabahan, was able to carry out her fieldwork from April to June 2005, and completed her dissertation in October 2005. Her research on cultural values of landscapes has been expanded by the GDF Sabah Team and has been fundamental in the consequent development of further field research directions. Mr. Adam Murphy, a British citizen, commenced fieldwork in June 2005 but faced tremendous difficulties in obtaining Malaysian research permits within the limited timeframe allocated for fieldwork. Adam did successfully obtain the necessary documentation, and completed a survey of subsistence hunting patterns in Buayan-Kionop. However, Adam's experience with obtaining permits made project partners cautious in attempting to recruit more UKC students. As the project's timeframe was itself progressing, project partners decided against recruiting any further UK students because of the extended time required to obtain a permit and the accompanying immigration visas.

It was decided, and approved by the Darwin Secretariat, that the remainder of awards would be offered to UMS students. Unfortunately, we were not able to recruit the sufficient number of suitable candidates from UMS – after 3 annual calls for proposals (also reported in previous Annual Progress Reports), only 5 applications were forthcoming. Of these five candidates, two withdrew their UMS candidacy due to financial reasons. Thus, only 3 UMS Masters students received Field Grants.

Grantee	Research Title
Ms. Zuraida Zainudin, MSc Biodiversity and Taxonomy, Universiti Malaysia Sabah	Feeding Ecology of the Sucker-Fish (BALITORIDAE: GASTROMYZONTIDAE) from the Northwestern-Northeastern areas of Crocker Range
Mr. Yassin Miki, MSc Biodiversity and Taxonomy, Universiti Malaysia Sabah	Floristic Composition and Diversity of Homegardens in Buayan-Kionop, Crocker Range, Sabah
Mr. James Wong Tai Hock, MArts Geography, Universiti Malaysia Sabah	Swidden Agriculture in Buayan-Kionop, Crocker Range, Sabah

We feel that our limited success in recruiting UMS students was partly because we were not offering full scholarships but only Field Research Grants, which was problematic

because many potential candidates did not have the additional funds needed to cover academic fees for their degrees (GDF Project Coordinators received many enquiries from potential applicants and supervisors on this matter). This was a parallel problem faced by Adam Murphy, who was accepted as a PhD candidate at the University of Kent UK, but was unable to secure funding to cover his tuition fees. Adam has nonetheless decided to remain in Sabah and completed his survey of subsistence hunting as a consultant to the project, under the supervision of Dr. Rajindra Puri who was the UKC supervisor to Adam's PhD candidacy and is also a GDF Scientific Advisor. Adam has since been integrated into the GDF Sabah Team. In contrast, tuition fees for Perpetua George were supported by a British Council full scholarship, and she thus did not face similar financial difficulties. In the case of UMS Field Grantees, UMS had initially proposed that the university would be able to provide academic scholarships, but it later turned out that UMS was not able to offer fee waivers as originally intended. We feel this unexpected turn of events severely limited the number of UMS candidates applying for Field Grants.

Another difficulty was that we found a lack of available supervisors and candidates at UMS capable of carrying out the applied multidisciplinary research on themes related to our project. Finally, it was revealed by Prof. Maryati Mohamed that UMS practices a data privacy policy, which prevents students from disclosing their research findings until completion of their dissertation. This created a de facto limitation on the applicability of UMS students' field research to the project as all of the awarded UMS Grantees would not be completing their degrees until after the conclusion of the project. It was fortunate that all Grantees were able to share their methodologies and GPS fixes with the project, which enabled the project team to carry out parallel field activities to replicate and expand upon the research carried out by Grantees. It was also fortunate that Yassin Miki and James Wong were both Grantees and GDF Field Coordinators, a double status that facilitated the data sharing process and the capacity to expand upon their research through the project. Thus, it turned out that the three UMS Grantees were in the end able to contribute in some ways to the augmentation of our field research results.

This situation had been discussed thoroughly in Partner's Project Meetings, and in November 2006 project partners decided to allocate the remainder of funds in this budget line to provide expanded grants to existing Grantees and hire local consultants to conduct field research projects, a decision which was referred to and approved by the Darwin Secretariat. These consultants comprise specialists from Sabah Parks, PACOS and UMS who have contributed additional data in their own fields of expertise:

Grantee	**Research Title**
Mr. Jusimin Duaneh, Park Naturalist, Sabah Parks (consultancy)	Inventory of Rattans in Buayan-Kionop, Crocker Range, Sabah
Mr. Nousi Giun, Community Mapping Coordinator, PACOS (consultancy)	GIS mapping of the Buayan-Kionop Resource Catchment Area
Mr. Berhaman Ahmad, Lecturer, School for International Tropical Forestry, Universiti Malaysia Sabah (consultancy)	Taxonomic Identification of Plant Voucher Specimens from Buayan-Kionop, Crocker Range, Sabah

We found that all consultants were able to deliver the results in their respective field projects. Over a forty-day period in 2005, Jusimin Duaneh contributed 120 voucher collections of rattans and other plants. In the process, he provided hands-on training to community research assistants on botanical specimen collection techniques. Nousi Giun facilitated the integration of data collected by PACOS (under the community mapping grant in Terian, Tiku and Timpayasa) and data from Buayan-Kionop collected by the GDF Sabah Team. As a result of his consultancy we have been able to generate draft GIS map layers showing patterns of cultivation, NTFP gathering, village settlements and hunting grounds across the entire Buayan-Kionop Resource Catchment Area. Berhaman Ahmad was engaged to assist in the scientific identification of the project's plant specimens (the Kinabalu Park Herbarium was, at the time, facing an overwhelming demand for identifications), and delivered 190 taxonomic identifications most of them to species-level. Adam Murphy, who started

out as a UKC student but later continued as a consultant, delivered an ethnozoological database of 190 animals identified according to Dusun and Latin names (most down to genus or species-level). Adam also supervised and completed a two-year hunting register of subsistence hunting, having collaborated with 4 to 12 hunters at any one time. His data on hunting offtake, priority hunting grounds, and common hunting techniques have all been integrated into the RCA GIS.

Thus, although we were unable to deliver the 12 UKC and UMS Grantees as originally promised, we have nevertheless maintained a sustained effort at garnering the necessary expertise to carry out the field research projects that strengthened our project's overall findings. The 8 student and consultant grantees have delivered valuable contributions to field research and provided opportunities for the capacity building of the community research assistants. As part of our learning curve in this project, we feel that an outright combination of student grants and consultancy grants would have served best to uphold the data delivery targets of the project. This would ensure that the relative inexperience of students, with competing commitments to coursework and other degree requirements would have been counterbalanced by the short-term discrete consultancy-based field projects that would produce results fairly rapidly although of a more limited scope.

Finally, we would like to highlight the training received by the GDF Sabah Team. In July 2005, Sabah Parks provided training in botanical collection techniques to the team of 8 Buayan-Kionop community research assistants. In August 2006, GDF Field Coordinator Mr. James Wong Tai Hock received a scholarship from the Society for Conservation GIS (SCGIS) to attend a two-week advanced GIS training course in Redlands, California, and presented a paper on the Buayan-Kionop Resource Catchment Area GIS at the 26th Environmental Systems Research Institute (ESRI) International User Conference in San Diego, California. At various points in 2006, GDF Field Coordinator Yassin Miki and community research assistants Mr. Raymond Sipanis and Mr. Marius Limpat received field training through the BBEC Programme on the establishment of permanent plots at the Crocker Range Park Stations in Mahua, Gunung Alab and Keningau. In early March 2007, Mr. Raymond Sipanis received field training from PACOS in Participatory GIS techniques. Although an emergent aspect of our work, we feel the project has benefited tremendously from these training opportunities, enhancing the capacity of the GDF Sabah Team to implement field research activities effectively and is evidence of our strengthening networks with collaborating partners.

5. Project Impacts

- What evidence is there that project achievements have led to the accomplishment of the project purpose? Has achievement of objectives/outputs resulted in other, unexpected impacts?

Community Use Zones. The primary impact of our work is stimulating the change in approach to defining Community Use Zones. Previously seen as only the areas currently under cultivation, Sabah Parks has adopted the approach of using site-specific field data to delimit the inclusion of cultivated and fallow areas, and areas used for hunting and gathering of forest products as part of Community Use Zones. In the case of the Buayan-Kionop Community Use Zone, data collected through this project will be used as the basis upon which negotiations between Sabah Parks and Buayan-Kionop community members will take place. We feel this is a tremendous achievement compared to recommendations in the Draft Crocker Range Park Management Plan (2004) where the definition of Community Use Zones were predetermined and confined to cultivation sites only.

The launching of BBEC Phase 2 also reflects this commitment towards Community Use Zones, where the Sabah Parks component of BBEC will focus the next five-year cycle of activities solely on the formalisation of the Community Use Zones. Additionally, BBEC Chief Advisor, Mr. Motohiro Hasegawa has expressed his desire to encourage replication in other protected areas in Sabah that have indigenous peoples living inside or nearby. The

development of this focus in BBEC Phase 2 is one of the unintended impacts of our work, but is nevertheless an important development because of the multiagency structure of BBEC that integrates various government agencies throughout Sabah in pursuing and replicating the Community Use Zone approach in Wildlife Sanctuaries and Forest Reserves.

Collaborative management. The increased commitment to developing Community Use Zones balances the priorities of both park management and the local community in a way that strengthens collaborative management issues of the CRP. This is evident in the direct involvement of PACOS in the Ulu Senagang Community Use Zone, a case study through which the Crocker Range Park is included as the only Malaysian site in the Collaborative Management Learning Network (CMLN). Crossovers with the project's work in Buayan-Kionop have emerged in the Darwin post-project where community research assistants received funding through PACOS to participate in the 3rd CMLN Regional Meeting in the Philippines in December 2007. PACOS has also approached GDF to provide technical support to the Ulu Senagang community in documenting the patterns of resource use in Ulu Senagang as part of supporting the development of that Community Use Zone.

Local capacity building. The increased capacity in the local community to carry out the documentation and monitoring of resource use is an important achievement, and our approach in Malaysia is being more widely replicated. The team of Buayan-Kionop community researchers are a significant achievement because they have a growing body of technical skills and knowledge to conduct a range of community-driven research activities, ranging from participatory mapping of subsistence activities to community advocacy through the platform of participatory video and conservation educational techniques. Additionally, they act as a conduit between park authorities and their community when discussing the technical aspects of Community Use Zone management.

University degree programme. Another impact of our work is stimulating the development of a postgraduate degree programme in Ethnobiology and Conservation at UMS. To be launched in June 2008, the UMS degree programme is the brainchild of Prof. Maryati Mohamed of ITBC, who has played a crucial role in the design and implementation of the project's five module training course. UKC colleagues who taught at each of the modules have participated in discussions with Prof. Maryati on the development of a curriculum and approach that would be, in part, stimulated by the project's training course and adapted to suit the local Malaysian context. UMS aims to develop the postgraduate programme as a regional centre for Ethnobiological training, with the possibility of having students continue to undertake field research in the Community Use Zones of the Crocker Range Park.

- To what extent has the project achieved its purpose, i.e. how has it helped the host country to meet its obligations under the Biodiversity Convention (CBD), or what indication is there that it is likely to do so in the future? Information should be provided on plans, actions or policies by the host institution and government resulting directly from the project that building on new skills and research findings.

We feel the project has made a significant contribution towards facilitating the implementation of Articles 8(j) and 10(c) in particular. The creation of Community Use Zones in the Crocker Range Park is the pioneer effort in Sabah to integrate local community livelihoods with biodiversity conservation, and its implementation has tremendous influence on the future directions of protected area management in Sabah and the region. The project played a crucial role in the finalisation of the Crocker Range Park Management Plan 2006, which clearly reflects the principles enshrined in Articles 8(j) and 10(c), where the subsistence activities of indigenous communities will be allowed inside Community Use Zones in a way that can fulfil subsistence livelihood needs while maintaining biodiversity conservation. The Plan further states that communities will be involved in the co-management of Community Use Zones through a negotiated Community Use Zone Management Agreement that ensures local communities are engaged as meaningful partners in the sustainable management of natural resource use and the equitable sharing of benefits derived from natural resources in Community Use Zones. Although the formalisation of the Community Use Zone Management Agreement has not taken place

during the lifetime of the project as expected, it has nevertheless remained a clear priority for both Sabah Parks and the local community, who aim to have the Agreement in place within the next five years. There is a genuine commitment within Sabah Parks to develop an Agreement that is based on extensive fieldwork and has been thoroughly discussed and deliberated by all parties, rather than a rushed Agreement that satisfies a pre-determined deadline.

The project has also facilitated the implementation of Articles 7(c) and 7(d), in assisting Sabah Parks in the identification of critical subsistence activities, sensitive landscapes and threatened resources in the Buayan-Kionop area. Specifically, the Buayan-Kionop Resource Catchment Area GIS database developed in this project enables Sabah Parks to identify the landscapes and resources important to the local community, and engage in the long-term mapping and monitoring of the Community Use Zone. The GIS database contains georeferenced information according to both scientific and Dusun classification systems, making it a uniquely powerful tool in enabling local community members to participate in the mapping and monitoring processes, as well as decision-making processes on collaborative action for managing the Community Use Zone. We thus feel that the project has successfully increased the knowledge about the key resources important for sustaining community livelihoods, and in addition, established mechanisms for organising the data, and set the stage for future collaborative monitoring of these resources.

Additionally, the successful delivery of the project's training course has assisted in the implementation of Articles 12(a) and 12(b) in promoting the establishment of the UMS degree programme in Ethnobiology and Conservation. The degree programme represents an extended legacy of the project, where UMS will ensure the provision of scientific and technical training in participatory approaches and ethnobiological research in Sabah.

Finally, the dissemination activities conducted during the project have raised the profile of Community Use Zones locally and internationally, and support the implementation of Article 13(a) that promotes public education and awareness. In the lifetime of the project, the Crocker Range Park has become one of the model case studies presented and discussed at a variety of events, ranging from conferences to university lectures, in the print media, and through participatory video screenings at film festivals.

- Please complete the table in Appendix I to show the contribution made by different components of the project to the measures for biodiversity conservation defined in the CBD Articles.

Please refer to Appendix I.

- If there were training or capacity building elements to the project, to what extent has this improved local capacity to further biodiversity work in the host country and what is the evidence for this? Where possible, please provide information on what each student / trainee is now doing (or what they expect to be doing in the longer term).

The most significant achievement in the training component of this project is the capacity we have built in the community, particularly the community research assistants, to document and monitor their resource use patterns. Skilled in Participatory GIS techniques, 11 community research assistants have continued with their work through the Darwin post-project and are potential candidates for Sabah Parks to recruit under the Honorary Park Ranger or other positions in future. PACOS has also expressed interest in recruiting some of the community research assistants to coordinate community-based conservation and development initiatives in Buayan (2 of them are currently involved on a part-time basis in a fresh PACOS initiative, which started in late 2007).

We have also trained 67 representatives from government and civil society groups (including the community research assistants) through the Ethnobiology and Conservation training course. Because not all trainees involved were able to attend all of the five modules of the

training course, we have focussed on building capacity within our institutional partners – Sabah Parks, UMS and PACOS. The Sabah Parks participants (Ludi Apin, Jusimin Duaneh, Alim Biun) have continued to work on biodiversity conservation issues through Sabah Parks and are all actively involved in the formalisation of Community Use Zones (all three are also actively involved in the Darwin post-project). PACOS participants (Adrian Lasimbang, Nousi Giun and Phillip Chin) are similarly continuing their work on community-based natural resource management with indigenous communities throughout Sabah, and are also key collaborators in the Participatory GIS aspects of the Darwin post-project. The UMS participants have proven more difficult to trace because some students have left upon completing their degrees, while other students are still in the process of completing their degree programmes (e.g. Zuraida Zainudin who is also a Field Grant recipient). One UMS participant, Intan Azirah (who attended all five modules), has taken up a post in UMS to assist in the coordination of the UMS degree programme in Ethnobiology and Conservation. To our knowledge, the majority of other participants have continued to work in their respective fields of expertise within their host organisations, where the impact of our training has cast its widest web amongst the core group of agencies involved in biodiversity conservation work in Sabah, including the Sabah Forestry Department, Sabah Wildlife Department, Sabah Fisheries Department, Institute for Development Studies, Sabah Agriculture Department, Sabah Forest Research Centre, Environment Protection Department, Sabah State Ministry for Tourism, Environment and Culture, and WWF Malaysia.

Crucially, the legacy of the project has been taken up by UMS through the institutionalisation of a postgraduate degree programme in Ethnobiology and Conservation. Due to be launched in June 2008, this degree programme will ensure that capacity building in ethnobiological research will be continued beyond the lifetime of this project.

Amongst the Field Grant recipients, Perpetua George, who is a Sabahan, completed her MSc in Ethnobotany at the University of Kent in 2005. She is currently attached to ProForest UK and is working on sustainable oil palm management issues with a focus on Borneo. Adam Murphy, a UK citizen, was unfortunately unable to continue with his PhD in Ethnobiology at the University of Kent due to lack of funding for academic fees, but has remained in Sabah as a Research Associate to GDF UK and is a part of the GDF Sabah team in the Darwin post-project period. Zuraida Zainudin is currently completing her Masters at UMS.

Emphasis should also be placed on the increased capacity built within the GDF Sabah Team, where both our Field Coordinators James Wong and Yassin Miki have participated in all five modules of the training course and gained a substantial amount of field experience throughout the lifetime of this project. James Wong, an ethnic Chinese from Sibu, Sarawak, is currently completing a UMS Master's degree on swidden agriculture (supported by a Field Research grant). Similarly, Yassin Miki, an indigenous Dusun community member from Kiau, Sabah, is completing a UMS Masters degree on homegarden diversity (also supported by a Field Research Grant). Both have continued their roles as Field Coordinators in the Darwin post-project.

- Discuss the impact of the project in terms of collaboration to date between UK and local partner. What impact has the project made on local collaboration such as improved links between Governmental and civil society groups?

The partnership between GDF and Sabah Parks has strengthened significantly over the lifetime of the project. The most significant indicator of this is the request from Sabah Parks for GDF to assist in implementing participatory monitoring of Community Use Zones, which is currently being carried out under the Darwin post-project where Sabah Parks is the main host country partner. In the course of the project, GDF Project Coordinators, Agnes Lee Agama and Rachel Chua, were invited by Sabah Parks (and engaged through BBEC) to assist in the finalisation of the Crocker Range Park Management Plan, which officially established the proposal for Community Use Zones. Additionally, Sabah Parks had agreed

to contractually employ GDF Project Coordinator Rachel Chua and GDF Field Coordinator Yassin Miki for the duration of the project. This agreement has now been extended to include the contractual employment of GDF Project Coordinator Agnes Lee Agama and GDF Field Coordinator James Wong for the duration of the Darwin post-project. The strength of the GDF-Sabah Parks collaboration can also be seen in the consistently high level of technical input received from Sabah Parks personnel, as well as in the amount of logistical support received throughout the project, from use of vehicles and training venues.

We feel that the project has contributed tremendously in building a close working rapport between GDF and Sabah Parks. There are excellent prospects for future collaboration and the potential for individuals in the GDF Sabah Team, including the team of community research assistants, to be absorbed into the Sabah Parks structure in the longer-term. GDF in particular is committed towards developing the work initiated through this project for Buayan-Kionop to act as a long-term observatory of biocultural diversity, which we hope to develop in partnership with Sabah Parks. A renewed interest at Sabah Parks in proposing the Crocker Range Park as a biosphere reserve could be a further incentive for collaboration, as it is likely that GDF would be invited to play a significant role in contributing to the technical proposal required by the Malaysian government and UNESCO.

The partnership between GDF and UMS focussed on delivery of the training course and supervision of Field Research Grants. The training course stimulated a relationship between UMS and UKC, which resulted in several cross-visits between UMS and UKC colleagues that were facilitated by the project. Although UKC does not have an official role in the ensuing UMS degree programme in Ethnobiology and Conservation that will be launched in June 2008, it is crucial to note that UMS has appointed returning UMS lecturer Paul Porodong (who is completing his PhD in Environmental Anthropology at UKC) as the course convenor for this programme. UMS has also stated that the course curricula delivered by visiting UKC lecturers throughout the project's training course has been used as the basis for developing the curricula in the UMS degree programme in Ethnobiology and Conservation.

We feel that the project has been a catalyst in the establishment of the UMS degree programme in Ethnobiology and Conservation, where there has been clear exchange of expertise between both UMS and UKC colleagues. We additionally feel that the UMS degree programme will have far-reaching impacts in the long-term, not just in the training of students from across Malaysia and the Southeast Asian region, but also in fostering multidisciplinary research partnerships across UMS departments, particularly the Institute for Tropical Biology and Conservation, School of Social Sciences, School of International Tropical Forestry, and the School of Science and Technology.

A final note should be made about the partnership between GDF and PACOS, who entered the early stages of the project as an emergent partner. With more than 15 years experience working in the neighbouring village of Terian, PACOS has proven to be a crucial partner in the project, as seen in their community mapping work carried out over the lifetime of the project. We feel the project has played a significant role in building a complementary relationship between GDF, which has the technical expertise in carrying out ethnobiological research, and PACOS, whose main focus is on community advocacy and the advancement of indigenous rights. This is evident in the Darwin post-project in which PACOS (along with Sabah Parks) is one of the main host country partners. GDF has requested for PACOS to assist in community organising and advocacy in Buayan-Kionop, while PACOS has requested for the GDF community researchers to assist in documenting ethnobiological resource use in the Ulu Senagang Community Use Zone.

- In terms of social impact, who has benefited from the project? Has the project had (or is likely to result in) an unexpected positive or negative impact on individuals or local communities? What are the indicators for this and how were they measured?

Our indicators of the social impact of the project are qualitative, and they were measured

through the participatory evaluations that we conducted.

The project has contributed in several ways to the local community in Buayan-Kionop. Primarily, the project has increased local awareness about the value of their biocultural knowledge. Among the comments[2] we received during the participatory evaluation conducted in 2006 are, "field activities help the younger generation to learn about useful plants", that the project has "assisted in the documentation of old village sites", and that "there is increased knowledge in the community about the relationship with the natural environment". Crucially, they report that "the project has opened the minds of community members to protect their natural resources" and "motivated the community to revitalise their ecological knowledge through the various research activities carried out". We feel these are positive affirmations of how the project has motivated a sense of cultural consciousness and strengthened their cultural resilience.

Another aspect is the softening conflict and sense of animosity felt towards park authorities for restricting access to areas inside the Park. Over the lifetime of the project we have made several attempts to bridge the gap between Sabah Parks and the local community. In July 2005, we brought 8 community research assistants to visit the Tunku Abdul Rahman Park, Kinabalu Park and Crocker Range Park Headquarters in Keningau as part of a training cum exposure trip which included a dialogue session with Mr. Maipol Spait, Crocker Range Park Manager. In April 2006, we invited Mr. Maipol Spait to participate in our Field Methods session in Buayan where he conducted an open dialogue with community members to discuss the establishment of the Community Use Zone. Amongst the feedback received in the participatory community evaluation workshop in September 2006, are comments about how the project has "assist[ed] the community to resolve important issues about resource use and access inside the Park" and "assist[ed] the community to improve relations with park management". We feel that the initial feelings over fear of prosecution from park authorities has significantly decreased over the lifetime of the project, and that community members are more aware of the effort Sabah Parks is investing in their attempt to reconcile the difficult issues surrounding land and resource use inside the Park. In the participatory evaluation, community members report the project has "enhanced common understanding about the importance of biodiversity conservation". Interviews with community leaders echo this sentiment; in the Participatory Video (filmed over June and July 2007), Mr. Albert Sipanis Lojima, the Village Safety and Development Committee Chairman states that "what we need is information from the Park about the kinds animals that cannot be hunted, such as orang utans, bears, clouded leopards and so on". In the same video, Mr. John Sobitang, the Village Chief, says "as for the Community Use Zone, I am grateful because Sabah Parks relaxed several restrictions" and "I hope that the communities of Buayan, Kionop, and neighbouring villages, will work together with Sabah Parks and not oppose them".

An unintended impact with regard to the capacity building of community researchers is the emergent impetus for the younger generation of Buayan-Kionop to remain in the village. Instead of migrating to urban areas in search of wage labour, young people are attracted by the field research carried out in the project. The community researchers report that the project has inspired them to document and understand their biocultural heritage, and motivated them to apply their skills to help their community. One example is Ms. Theresia John, a community researcher from Buayan, who left for Kuala Lumpur after two years of working in the project. She has recently returned to Buayan and is now actively involved in the Darwin post-project. Another example is Ms. Maureen Sipanis and Mr. Joiwit Sabandok, also community researchers from Buayan, who were unable to carry out field research because of family commitments have nevertheless maintained their involvement in our work through administrative and deskwork duties. The community in general echoed this feeling during the participatory evaluation when they requested to have more community members trained as community researchers. Project partners, including GDF, have expressed interest in continuing to engage the community researchers in future activities.

A particularly unexpected response we received from the community during the participatory

[2] In all cases, these comments have been translated from Dusun.

evaluation is feedback about how the project has helped the general welfare of the community. For example, they report that "project staff provides additional assistance outside the scope of the project: helping the needy, donating school fees, taking photographs of natural disasters (e.g. flooded rice fields) so community members can apply for government aid", and that "the project supports the local economy by buying fruits, vegetables, meat from community members, rental of field office and equipment in the village, donation for Christmas celebrations". Other responses we received include that "the project has established a field office that has a small library, which is a resource for the community", and that "the project helps to promote the village as an ecotourism destination". We attribute these positive comments to the commitment of both GDF Field Coordinators and the additional time and effort taken by all GDF Sabah Team members to build meaningful relationships with the community as a whole. This is summarised aptly in one of the comments: "Aside from the scope of the project, the project extends additional assistance to community such as contributing to gotong-royong (communal labour), donations to the church and festivals".

The contribution to community welfare will be increased through our post project, which now envisions the construction of a 'Darwin Community Conservation Centre' as an annex to the Sabah Parks control post in Buayan. The Centre would be a meeting place for community members involved in a collaborative resource monitoring programme that will be part of the legacy of our Darwin-funded work. A participatory 3-D model of the community lands ('the resource catchment area' will be housed in the Centre along with the equipment that our project and post project has donated.

The current Sabah Parks Control Post in Buayan

6. Project Outputs

- Quantify all project outputs in the table in Appendix II using the coding and format of the Darwin Initiative Standard Output Measures.

Please refer to Appendix II

- Explain differences in actual outputs against those in the agreed schedule, i.e. what outputs were not achieved or only partly achieved? Were additional outputs achieved? Give details in the table in Appendix II.

Overall, as expressed in our earlier reports and acknowledged in the periodic reviews by the Darwin Initiative, we have by and large achieved the outputs in the agreed schedule as well as our broad objectives. Even if the style and content of some of the outputs has changed, we have stayed true to our purpose, which was to strengthen the capacity of local institutions to assess and implement proposed community use zones through participatory analysis of biological resource use by local communities. We have lagged behind in delivering publically available accounts of our efforts (e.g. articles in journals) and the handbook that will allow others to replicate our efforts, but these will be produced by the end of 2008.

Among the reasons for this delay are that the GDF team in Sabah had to shift its attention immediately to the ambitious Darwin post project which has taken some time and incentive away from these efforts. The GDF Director and other staff members have been

occupied with the launch of a related project in Mexico (Building local capacity to manage Community Conserved Areas in Oaxaca) funded by the Defra International Sustainable Development Fund (ISDF). Ultimately, these new projects will enhance the quality and content of the publications that we produce, even if they are available at a later date than originally planned. The amount of research results available for inclusion in these publications is impressive as can be seen in Appendix VI.

Our ability to produce these outputs is reinforced by funding that our sister organisation, GDF-US, has received from the Christensen Fund to produce an online learning guide on biocultural diversity. The budget includes funds to hire consultants who will assist us in developing training materials, including descriptions of methods and participatory video. Part of their effort will be dedicated to analysing results from the Darwin project and post project and making them available to a general public in a way that gains approval from Buayan-Kionop community members and Malaysian authorities.

Some of the outputs that were not yet achieved, only partially achieved include or achieved in a different way include:

- As discussed at length elsewhere, we did not recruit the number of MSc students desired, but their role was fulfilled with research consultants
- As explained in previous reports we opted for research protocols in local language (process sheets) instead of manuals on ethnobiological resource inventory, local agriculture & traditional agroecosystems, and subsistence hunting
- We made fewer biological collections than expected but the local research assistants are fully trained and equipped to make additional ones as needed, and to train other communities in these techniques
- Participants in training courses were given ‘certificates’ instead of ‘diplomas’ as the latter would have required special authorisation from the Federal Ministry of Education that was not pursued by UMS
- Delivery of manuscripts to peer reviewed journals and handbook on best practices for assessing community use zones is delayed

Some additional outputs that were achieved or for which we achieved beyond the proposed level are:

- Fourteen community members received other forms of long-term (>1yr) training not leading to formal qualification, an output not specifically noted in the original schedule
- There was greater participation in training courses by a larger number of people from more diverse institutions than we had expected
- UMS is building on our training courses to create a MSc degree course, which we hoped would be a result of the project but hesitated to promise
- GIS database is much more elaborate than the database of CRP ethnobiological resources proposed
- The lack of publications is partially offset by the large number of presentations that were given in diverse venues

This different pattern of achievement, which varies in details but not spirit from our original proposal, is related to our reflexive and procesual approach in working with local communities and institutions. Instead of rigidly adhering to outputs promised in 2003, we have left some flexibility to respond to emergent opportunities and challenges. As this is a pioneering initiative of collaborative management in Sabah, our partners required time and some initial experiences to understand how the project could benefit them. This approach has allowed us to integrate the opinions and perspective of our partners on how to adapt the

project so that it would yield outputs that are valued locally.

- Provide full details in Appendix III of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website database.

Please refer to Appendix III.

- How has information relating to project outputs and outcomes been disseminated, and who was/is the target audience? Will this continue or develop after project completion and, if so, who will be responsible and bear the cost of further information dissemination?

The table below lists the 14 major dissemination events where information about the project was presented at local, regional and international settings. The target audience at each event was quite diverse, ranging from a gathering of community members in Sabah, to local agencies and professionals involved in protected area management, to students and researchers undertaking ethnobiological research in various parts of the world.

Forum	Date/s	Presentation Title/s
Working Forests in the Tropics Conference at the University of Florida, Gainesville	14-15 February 2005	Assessing the Viability of Working Forests in Crocker Range Park, Sabah, Malaysia
3rd BBEC International Conference in Kota Kinabalu, Sabah	22-24 February 2005	Making participation matter: Some early lessons from working with Dusun communities in the Buayan-Kionop area of Crocker Range, Sabah, Malaysian Borneo.
Public lecture, Tropical Biology and Ethnobotany Lecture Series at the University of Texas, Austin	2 March 2005	Working Forests: the viability of traditional use zones in protected areas (Sabah, Malaysia)
4th BBEC International Conference in Kota Kinabalu, Sabah	14-16 February 2006	How do indigenous people value the forest? A closer look at the ethnobiological forest classification and forest values of the Buayan-Kionop Dusun in Crocker Range, Sabah
26th Annual ESRI International User Conference in San Diego, California	7-11 August 2006	Exploring the Buayan-Kionop Resource Catchment Area: The Role of GIS in the Collaborative Park Management of the Crocker Range Park, Sabah, Malaysian Borneo
4th Sabah-Sarawak Environmental Convention, in Kota Kinabalu, Sabah	5-7 September 2006	Traditional Knowledge in Ecosystem Management: Sabah Parks' Experience (paper by Sabah Parks)
Indigenous Peoples and the CBD National Capacity Building Workshop, in Donggongon, Sabah	9-11 October 2006	Free Prior Informed Consent and the Research Agreement with Local Communities in Buayan-Kionop
10th International Congress of Ethnobiology in Chiang Rai, Thailand	5-9 November 2006	1. Integrating Community Resource Use with Biodiversity Conservation: Community Use Zones in the Crocker Range Park, Sabah, Malaysian Borneo (paper by Sabah Parks) 2. The Ethnobiological Classification of Forest and Land Types of the Buayan-Kionop Dusun in the Crocker Range, Sabah, Malaysian Borneo 3. Mapping Cultural Landscapes: Using Participatory Approaches to Incorporate Local Ethnobiological Knowledge into GIS 4. Understanding Local Uses and Perceptions of Animals: An Ethnobiological Study of Key Animal Resources in Buayan-Kionop, Sabah 5. Ethnobiology of proposed traditional use zones of Crocker Range Park (poster presentation)

Forum	Date/s	Presentation Title/s
5th BBEC International Conference in Kota Kinabalu, Sabah	6-7 December 2006	The Need for Community-based Natural Resource Monitoring: Some Perspectives from the Ethnobiological Assessment of the Proposed Buayan-Kionop Community Use Zone in the Crocker Range Park, Sabah.
2nd ASEAN Heritage Parks Conference and 4th Regional Conference on Protected Areas in Southeast Asia, in Kota Kinabalu, Sabah	23 to 27 April 2007	From the Ground Up: Documenting Subsistence Patterns in the Buayan-Kionop Community Use Zone, Crocker Range Park, Sabah
Seminar in the Research for Development Forum, in the University of Natural Resources and Applied Life Sciences, Vienna	7 May 2007	Community based biodiversity management in Malaysia. Is there a conflict between environmental protection and poverty alleviation?
3rd Asia Regional Conference on Indigenous Knowledge and Biodiversity in Lijiang-China	27 to 30 June 2007	Group Sharing: The Experience of Documenting Indigenous Ethnobiological Knowledge in Buayan-Kionop, Sabah, Malaysia.
1st Sabah Human Rights Film Festival in Kota Kinabalu, Sabah	7-8 December 2007	A Community in Dilemma. Buayan-Kionop Participatory Video Series. Part I: Land, Resources and Sustainability. (video screening)
3rd Collaborative Management Learning Network Regional Meeting, Philippines	9-17 December 2007	A Community in Dilemma. Buayan-Kionop Participatory Video Series. Part I: Land, Resources and Sustainability. (video screening)

The project has also been featured in the Darwin Initiative Newsletter (Issues 5 and 10) and the 9th Darwin Initiative Annual Report.

The project has been referred to in the following journal article:

Harrop, S.R. (2007). Traditional agricultural landscapes as protected areas in international law and policy. In *Agriculture, Ecosystems and Environment* 121: 296–307

Informally, we disseminate information about our work through several key networks and mailing lists, including:

- IUCN Theme on Indigenous/Local Communities, Equity, and Protected Areas (TILCEPA) Working Group
- IUCN Theme on Governance, Equity and Rights (TGER) Working Group
- International Society for Ethnobiology Discussion Group

In addition to the Darwin Initiative website (www.darwin.gov.uk), information about our project can also be found at www.globaldiversity.org.uk and appears on thematic search engines such as www.earthplatform.com.

We expect dissemination of the project's experience to continue throughout the Darwin post-project period (2007-2009), in part funded through the Darwin post-project, and through independent funds sourced from partners such as PACOS (who channelled funding for project staff to participate in the 3rd Asia Regional Conference on Indigenous Knowledge and Biodiversity in Lijiang-China, and the 3rd Collaborative Management Learning Network Regional Meeting, Philippines), and emergent links with other organisations such as the International Society for Ethnobiology (who channelled funding for project staff to participate in the10th International Congress of Ethnobiology in Chiang Rai, Thailand) and ESRI (who provided a scholarship for the project Field Coordinator to participate in the 26th Annual ESRI International User Conference in San Diego, California).

Publications in peer-reviewed journals and the handbook on best practices for assessing community use zones are delayed outputs of this project that will contribute to the dissemination of results. GDF will bear the costs of this work through in-kind contribution of its Director and salary support to its regional Southeast Asia team. Time and funds

permitting, we would like to prepare a GDF Working Paper that describes the overall five-year Darwin project and post-project.

Methods, results and lessons learned will be disseminated in Latin America through a Spanish language methods manual that will be an output of the 'Building local capacity to manage Community Conserved Areas in Oaxaca, Mexico' project that is supported by the Defra International Sustainable Development Fund (ISDF). Case studies of the Crocker Range Park Darwin projects will be included along with examples from southern Mexico.

The participatory video (PV) that was produced through this project will be shown at the World Conservation Congress (WCC) in Barcelona (5 – 11 October 2008), either in the Conservation Cinema (proposal pending approval) or in a Biocultural Diversity Exhibition Booth that GDF is coordinating. A web-adapted version of the PV will also be part of a community & participatory video portal that is being launched by Insight (www.insightshare.org) and that will be linked to the GDF website and others.

Another avenue for dissemination of project results is through the GDF International Training Program, which provides training courses and materials on biocultural diversity. The Global Diversity Fund (GDF-US), the sister organisation of the Global Diversity Foundation in the United States, received grants totalling approximately £70,000 for 2007 - 2009 from The Christensen Fund (www.christensenfund.org) to provide training courses associated with the Society for Conservation Biology meetings in Port Elizabeth, South Africa (June 2007) and the International Society of Ethnobiology in Pucallpa, Peru (June 2008). Additional training events on ethnoecological methods are presented through a series of Short Courses on Research Methods funded by the US National Science Foundation (July 2007) and the WCC (October 2008). The methods and results of the Darwin project will reach a broader audience through the GDF-US online learning guide on biocultural diversity that TCF is supporting (a very initial version can be consulted on http://www.globaldiversityfund.net).

The Director of GDF, who lectures annually at University of Kent, Uppsala University (Sweden), Autonomous University of Barcelona (Spain) and the University of Natural Resources and Applied Life Sciences, Vienna (Austria), includes the Darwin CRP project as a case study in his lectures on ethnobiology, people and protected areas. Other colleagues from the University of Kent who have been involved in the Darwin project feature it as an example in their lectures, as we have reported in detail in previous Annual Progress Reports to Darwin.

7. Project Expenditure

- Tabulate grant expenditure using the categories in the original application/schedule.

Current Year's Costs	Approved Revised Budget	2004/5	2005/6	2006/7	2007/8	Total spend
Staff costs						
Rent, rates, heating, lighting, cleaning						
Postage, telephone, stationery						
Travel and subsistence						
Printing						
Conferences, seminars etc						
Capital items						
Others (please specify):						

Bibliography	
Financial auditing costs	
Community field assistants	
Community organisers	
MSc Research grants	
TOTAL	

- Highlight agreed changes to the budget.

We requested no changes to the budget lines after our revised budget was accepted by the Darwin Initiative at the beginning of the project. However, a miscalculation (incorrect sum) in the 2006/2007 revised budget led to an unintended reduction of £490.

- Explain any variation in expenditure where this is +/- 10% of the budget.

There was no variation greater than 10% between the proposed budget and the actual spend.

8. Project Operation and Partnerships

- How many local partners worked on project activities and how does this differ from initial plans for partnerships? Who were the main partners and the most active partners, and what is their role in biodiversity issues? How were partners involved in project planning and implementation? Were plans modified significantly in response to local consultation?

Our original proposal envisaged two host country partners: Sabah Parks who would be leading on field research and implementation of Community Use Zones, and the Institute for Tropical Biology and Conservation (ITBC) at UMS who would lead on the training modules. Upon launching of the project, two additional emergent partners were identified: PACOS who would provide valuable assistance in community mapping and community organising, and the BBEC Programme co-funded by JICA that was developing the Crocker Range Park Management Plan.

Sabah Parks
Sabah Parks is the State statutory body responsible for park management in Sabah, under the Sabah Parks Enactment 1984. Currently, there are three terrestrial and four marine parks gazetted, with an additional marine park proposed in the near future. Through the BBEC Programme, Sabah Parks has completed the Crocker Range Park Management Plan that outlines the Zoning Plan for the Crocker Range Park, including the introduction of Community Use Zones as areas inside the Park that are specifically set aside to support subsistence community livelihoods.

The project has received excellent support and technical input from all levels in Sabah Parks, with close collaboration between Park Directorate and GDF Project Coordinators in finalising the Crocker Range Park Management Plan. Sabah Parks also provided the contractual employment of Mr. Yassin Miki, GDF Field Coordinator, which in the Darwin post-project, has been extended to include the contractual employment of Dr. Agnes Lee Agama, GDF Project Coordinator, and Mr. James Wong, GDF Field Coordinator.

Sabah Parks provided generous logistical support through their Park Rangers and other staff, as well as use of vehicles and the facilities at Crocker Range Park Stations. Sabah Parks staff regularly provided training to community research assistants and participated in each of the project's training modules. In November 2006, Sabah Parks and GDF collaborated on a series of presentations at the 10th International Congress of Ethnobiology held in Chiang Rai, Thailand. Additionally, Sabah Parks provide significant technical direction at the biannual Partners' Progress Meeting held to review and evaluate project progress.

The close rapport between GDF and Sabah Parks personnel at all levels has been crucial in consolidating the efficacy of field research, and the overall ownership of techniques and processes set into motion to implement Community Use Zones. Sabah Parks is the main host country partner in the Darwin post-project (2007-2009) to implement participatory resource monitoring of Community Use Zones.

Institute for Tropical Biology and Conservation (ITBC)
ITBC is the premier institute for biodiversity and taxonomy research in Sabah and is a catalyst in leading UMS' role in advancing biodiversity conservation research throughout the State.

The project has received excellent support from ITBC, which hosted the project office and Modules One to Five of the Ethnobiology and Conservation training course. All Modules were successfully completed, with participation from both UKC and UMS lecturers.

Through the project, a series of discussions to explore longer-term collaboration between UKC and UMS were held with cross visits by Datuk Prof. Dr. Mohd Noh Dalimin, UMS Vice Chancellor, and Datin Prof. Dr. Maryati Mohamed, ITBC Director, 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 project.

A crucial outcome is the establishment of a UMS MSc programme in Ethnobiology and Conservation that will carry on the legacy of this project to build local capacity in ethnobiological research. Spearheaded by Prof. Maryati Mohamed, UMS has developed the curricula for an Masters programme in Ethnobiology and Conservation and aims to launch the programme in June 2008. The programme will be coordinated by Mr. Paul Porodong, a lecturer at the UMS School of Social Sciences, who is also a completing PhD student at the UKC Anthropology Department.

Although ITBC is not a core partner in the Darwin post-project, the collaboration continues to be maintained through the exchange of technical expertise with input from Project Leader Dr. Gary Martin on the development of the UMS degree programme, and Mr. Paul Porodong who will be teaching at the post-project training courses and providing technical supervision on monitoring swidden agriculture in Community Use Zones.

Partners of Community Organisations (PACOS)
The emergent partnership with PACOS has proven to be vital in several aspects and particularly in the development of the Buayan-Kionop Resource Catchment Area (RCA) GIS. A project grant awarded to PACOS supported a community resource mapping project in the neighbouring communities of Tiku, Timpayasa and Terian that complements the project's effort to develop the RCA GIS. PACOS has contributed expertise on community mapping and Participatory GIS through several training workshops, field visits, discussions and feedback sessions with community members to develop 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, PACOS staff members participated in each of the project's training modules, and PACOS has sourced independent funds for GDF Sabah Team members to participate in international and regional conferences on indigenous peoples and protected areas.

PACOS continues to play a crucial role in the Darwin post-project as one of the main host country partners, with a specific emphasis on leading the development of Participatory GIS and Participatory 3-D Modelling as tools for the long-term collaborative management and monitoring of Community Use Zones.

Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme
BBEC is a multiagency programme between the Sabah State government, Universiti Malaysia Sabah (a Federal Government agency) and the government of Japan through the Japan International Cooperation Agency (JICA). In the current phase of BBEC (2007-2012), JICA operates through the Sabah Natural Resources Office (NRO), which delegates responsibilities to other local governmental agencies. This follows on from the previous phase of BBEC (2002 to 2007), which operated out of the Science and Technology Unit under the Ministry of Tourism, Culture and Environment. The first phase focussed on enhancing biodiversity conservation and resource management throughout Sabah, and the Park Management Component concentrated on the development of a Crocker Range Park Management Plan which emphasised adaptive management.

BBEC has been an important emergent partner in the project, especially in the mutual interest to promote the integral management of Community Use Zones. The project has collaborated with BBEC on various levels, from the contracting of GDF Project Coordinators to assist in the finalisation of the Crocker Range Park Management Plan, training of community research assistants in the establishment of permanent plots, to co-organisation of conference panels and project paper presentations at annual BBEC international conferences. BBEC-JICA experts have taught and participated in the project's training modules, and BBEC co-funded the printing of the course reader for Module One.

Phase 1 of BBEC ended in January 2007, and Phase 2 of BBEC (2007-2012) was recently launched in October 2007. Under BBEC Phase 2, the Participatory Protected Area Management component will focus on the formal establishment of Community Use Zones in the Crocker Range Park, and the replication of the Community Use Zone model to other similar sites in Sabah. Prospects for collaboration are being explored, starting with an initial meeting in December 2007 between GDF Project Coordinator Dr. Agnes Lee Agama, Mr. Paul Basintal (Sabah Parks Director), Dr. Jamili Nais (Sabah Parks Deputy Director) and Mr. Motohiro Hasegawa (BBEC-JICA Chief Technical Adviser).

Although BBEC is a bilateral cooperation (government to government) cooperation programme, CTA Motohiro Hasegawa has encouraged the participation of selected NGOs. GDF Project Coordinator Dr. Agnes Lee Agama and representatives of PACOS were invited to attend a workshop on developing the implementation plan for the BBEC II protected area management component (and specifically the designation of community use zones) on 28 February and in a follow-up meeting on 13 March 2008 to finalise the Plan of Operation. In this process, GDF is recognised as a main resource institution for the Buayan-Kionop area, and the data from the Darwin project will be incorporated into CUZ implementation plans.

- During the project lifetime, what collaboration existed with similar projects (Darwin or other) elsewhere in the host country? Was there consultation with the host country Biodiversity Strategy (BS) Office?

There was no consultation with the Sabah Biodiversity Centre or Sabah Biodiversity Council for the duration of the project because both entities had not yet been formally established (the Council was recently convened in 2007 and the Centre has yet to be established).

As previously reported, we have collaborated at various levels with a range of organisations:

Darwin Initiative Semporna Islands Project
Links with the Darwin Initiative Semporna Islands Project continue to be maintained through informal sharing of experiences between both projects. In Module Two held in September 2005, Ms. Helen Brunt, a representative from 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. In June 2007, Mr. Irwanshah Mustapha and Project Officer from the Semporna Islands Project participated in Module Five of the training course. A meeting between GDF Project Coordinator Dr. Agnes Lee Agama and Semporna Islands Project Leader Dr. Elizabeth Wood in November 2007 continued to explore various cross-linkages between both project sites over the period of the Darwin post-project, with a visit by Buayan-Kionop community research assistants to Semporna scheduled for 2009.

Darwin Initiative Global Canopy Programme (GCP) project in Sabah
Although there was no specific interaction with the GCP Darwin projects in Sabah, we 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. Our goal would be to build the capacity of the Buayan-Kionop community research 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 Crocker Range Park.

World Wide Fund for Nature (WWF) Malaysia
Mr. James Wong remained a WWF staff member seconded to the project as GDF Field Coordinator until 2006 when he joined the GDF as a full staff member. Another WWF Malaysia staff member, Ms. Perpetua George, was awarded a field research grant to conduct her fieldwork in Buayan and has completed her MSc in Ethnobotany at the University of Kent in October 2005. Two WWF staff members have participated in the project's training modules. Informal communication and feedback is maintained between the project and WWF Malaysia's Heart of Borneo Programme (which commenced in late 2004), which identifies the Crocker Range as a focus site for ecosystem conservation in Borneo. The interaction with WWF has continued in the Darwin post-project, with a WWF staff member participating in the first Darwin post-project training course in January 2008, and ongoing discussions between Dr. Agnes Lee Agama (GDF Project Coordinator), Dr. Junaidi Payne (WWF Heart of Borneo Chief Technical Advisor) and Mr. Motohiro Hasegawa (BBEC-JICA Chief Technical Advisor) to explore opportunities to enhance Crocker Range Park's Community Use Zones and encourage replication in similar sites in Sabah.

- How many international partners participated in project activities? Provide names of main international partners.

University of Kent, Canterbury, UK
The University of Kent at Canterbury (UKC) has been an important collaborating institution in this project. The five training modules were delivered by six UKC Department of Anthropology lecturers who presented a series of lectures and methods workshops. Four of these lecturers visited the project site and provided expert advice on project activities. These lecturers have, in turn, featured aspects of our project as case studies or examples in their classes and other teaching activities in the UK and elsewhere.

Over the period of this project, colleagues at UMS and UKC have been engaged in a series of discussions and cross-visits to explore opportunities for institutional collaboration in establishing a postgraduate degree programme in Ethnobiology and Conservation at UMS. Mr. Paul Porodong, who is a UMS lecturer completing his PhD in Environmental Anthropology at UKC, has been appointed as the convener of the proposed UMS degree

programme, which is expected to be launched in June 2008.

Additionally, both UK Field Research Grantees (Ms. Perpetua George and Mr. Adam Murphy) are postgraduate students from the Department of Anthropology.

Our project was mentioned in the UKC Department of Anthropology Research Assessment Exercise (RAE) Report, which was submitted to the Higher Education Funding Executive (HEFCE) in late 2007, as an example of collaboration between external NGOs and the Anthropology Department.

JICA

The project continues to maintain close links with the Japan International Cooperation Agency (JICA) of the government of Japan. JICA co-funded the first phase of BBEC and engaged the services of GDF Project Coordinators Dr. Agnes Lee Agama and Ms. Rachel Chua to assist in the finalisation of the Crocker Range Management Plan, as well as technical collaboration from Mr. Yassin Miki (GDF Field Coordinator) in the establishment of permanent ecological plots in selected sites around the Crocker Range Park (April and July 2005). Other joint activities include paper presentations at BBEC conferences and training of community research assistants. BBEC Phase 1 co-funded the printing of the Module One course reader.

Phase 2 of BBEC is now underway (2007-2012), with the Participatory Protected Area Management component of BBEC focussing specifically on Community Use Zones. We expect the link with –BBEC-JICA experts involved to continue throughout the period of the Darwin post-project.

Insight, UK

Insight is a UK-based organisation specialising in participatory video. A major drive of Insight's work is to develop the role of bridging the communication and power gulf between decision-makers and local communities whilst promoting indigenous knowledge and local capacity.

In June 2007, Mr. Nicholas Lunch of Insight UK led the Module Five training course on participatory video techniques in a highly interactive community-led process to design, film, and produce video documentaries where 27 people, including seven community members from Buayan-Kionop, were trained in Participatory Video techniques. The training resulted in the production of Part I of the Buayan-Kionop Participatory Video Series, which was completed in October 2007, and has since been screened at various venues around the world.

We envisage the collaboration with Insight to continue throughout the Darwin post-project period, particularly through technical advice in the production of Parts II and III of the Participatory Video Series.

UNESCO Man and the Biosphere Programme

The Man and the Biosphere Programme (MAB), coordinated by UNESCO's Division of Ecological Sciences, is an interdisciplinary research and capacity building programme that seeks to improve the relationship of people with their environment globally. MAB concentrates on the development of the World Network of Biosphere Reserves (WNBR) as a vehicle for knowledge-sharing, research and monitoring, education and training, and participatory decision-making. The biosphere reserve concept was developed initially in 1974 and was substantially revised in 1995 with the adoption by the UNESCO General Conference of the Statutory Framework and the Seville Strategy for Biosphere Reserves. There are currently more than 531 biosphere reserves in over 105 countries, but Malaysia is not among them.

GDF maintains links with UNESCO and the Division of Ecological Sciences in particular.

GDF's Director, Gary Martin, participated in an international workshop organised by UNESCO in October 2007 on "Links between Biological and Cultural Diversity: Concepts, Methods and Experiences and is a co-editor of the workshop report. He presented a synopsis of the Darwin project on CRP community use zones at the workshop.

GDF invited Mr. Han Qunli, Senior Programme Specialist in Ecological Sciences from the UNESCO Jakarta Office, to visit Sabah in September 2005. He presented lectures on Biosphere Reserves during the Module Two training course, and explored the potential of proposing the Crocker Range Park and other protected areas in Sabah as UNESCO-designated Biosphere Reserves. He subsequently met with Sabah Parks representatives and the new JICA CTA for Sabah, Motohiro Hasegawa, who expressed interest in exploring the possibility of obtaining biosphere reserve status for the CRP. He further discussed the CRP initiative at UNESCO National Commission meetings, including briefing a NatCom-hosted joint Malaysian inter-ministerial meeting and the previous and current NatCom Secretary-General. He reported that representatives of both the Malaysian Ministry of Environment and Natural Resources and the Ministry of Science and Technology are keen to pursue the designation of biosphere reserves in Malaysia.

As part of the legacy of the Darwin project, GDF is exploring ways in which it can contribute to the technical study that is a prerequisite for a national government to propose a biosphere reserve to UNESCO.

Collaborative Management Learning Network (CMLN)

As mentioned above, our emergent partner PACOS has developed the Ulu Senagang Community Use Zone as the Crocker Range Park case study for the Collaborative Management Learning Network (CMLN), a program that has run parallel to our Darwin project and has fostered informal interactions between the Ulu Senagang and Buayan-Kionop field sites. In our subsequent Darwin post project, Buayan-Kionop community research assistants have received funding through PACOS to participate in the 3rd CMLN Regional Meeting in the Philippines in December 2007. PACOS has also approached GDF to provide technical support to the Ulu Senagang community in documenting the patterns of resource use in Ulu Senagang as part of supporting the development of that Community Use Zone.

The Co-Management Learning Network (CMLN) was established to implement and exchange experiences of co-management in protected areas between 7 pilot learning sites in 7 countries of South East Asia: Cambodia, Indonesia, Laos, Malaysia, Philippines, Thailand and Vietnam. As a response to the problems that have been identified with 'coercive' approaches to protected area management and strained relationships between many indigenous communities and protected area authorities, the project promotes and strengthens collaborative management of protected areas in Southeast Asia where indigenous peoples live. The project is implemented in phases, with the Inception Phase completed. Phase 1 began on July 1 2006 and will end on June 30 2008. Phase 2 will involve building capacity and spreading co-management processes and experiences in each of the 7 participating countries.

The project proponents are:

- Asia Indigenous Peoples Pact (AIPP) Foundation – (this is the Project "holder" and the implementer in cooperation with local focal points in each project site).
- Theme on Governance, Equity and Rights (TGER - ex Collaborative Management Working Group) of the Commission on Environmental, Economic and Social Policy (CEESP) of the World Conservation Union (IUCN) – this is the provider of technical support, in particular for the regional learning exchanges and with regard to collaborative management and governance of protected areas in general
- Forest Peoples Programme (FPP) and International Work Group for Indigenous Affairs (IWGIA). – these are also providers of technical support, in particular regarding indigenous peoples issues

- To your knowledge, have the local partnerships been active after the end of the Darwin Project and what is the level of their participation with the local biodiversity strategy process and other local Government activities? Is more community participation needed and is there a role for the private sector?

Through the Darwin post-project, our partnerships with Sabah Parks and PACOS have been strengthened and continue to develop. Although our interaction with UMS has decreased within the framework of the Darwin post-project, there is nevertheless strong cross-linkages through the technical input of Project Leader Dr. Gary Martin in the establishment of the UMS degree programme in Ethnobiology and Conservation, due to be launched in June 2008. This collaboration is further emphasised with Mr. Paul Porodong, UMS lecturer and convener of the degree programme, who will be teaching at the First Module of the Darwin post-project training course, as well as visiting the project site in Buayan-Kionop. Additionally, the launching of Phase Two of BBEC has opened up possibilities for cross-collaboration between GDF, Sabah Parks, PACOS and JICA-BBEC particularly since BBEC Phase 2 will focus primarily on the formalisation of Community Use Zones. We have not explored a role for the private sector, beyond the community workshop delivered by Helen Newing which included an evaluation of the community-based tourism potential of our field site. Some local adventure tourism agencies are taking groups through the community periodically, and this activity may expand slowly in the future. For the time being, they have mostly pulled out of promoting packages for the CRP Salt Trail (which passes through Buayan-Kionop) due to weak market response and high operational costs. As we hope is amply clear from this report, the level of community participation is highly satisfactory.

9. Monitoring and Evaluation, Lesson learning

- Please explain your strategy for monitoring and evaluation (M&E) and give an outline of results. How does this **demonstrate** the value of the project? E.g. what baseline information was collected (e.g. scientific, social, economic), milestones in the project design, and indicators to identify your achievements (at purpose and goal level).

To formally evaluate overall project progress, we carried out biannual Partners' Progress Meetings where progress in field research, training and dissemination was presented and discussed with all project partners. This also includes the presentation and discussion of the evaluation results from each training course module (individual written evaluations are carried out at the end of each module). The meeting also discusses the Annual Reviews received from Darwin Initiative. Feedback from each meeting contributes towards the finalisation of progress reports to Darwin. Meetings were held in April 2005, September 2005, April 2006, November 2006 and June 2007; meeting minutes have been included in previous Annual Reports (the minutes for the June 2007 meeting is included in Appendix VIII of this report).

In keeping with the overall approach of our work, this format of evaluating the project has been very valuable in maintaining the high degree of involvement from all project partners. Although it does not result in quantifiable indicators of our achievements, we feel that the process-based approach of having partners communicate about the issues surrounding the project, discuss the emergent challenges and garner resources to find innovative solutions has benefited the project tremendously. The process has additionally strengthened the institutional relations between partners and fostered common goals in pursuing people and protected area issues.

To formally assess project progress in the field, we conducted a participatory community evaluation from June to August 2006, which was carried out over three stages. The evaluation was jointly designed and implemented with the Buayan JKKK (Village Safety and Development Committee), community field assistants and principal collaborators in the community. Feedback was exceedingly positive, with repeated comments from the community about raised awareness on the value of biodiversity and heightened motivation within the community to pursue their own research about the uses and values of

plants and animals. We have also continued to conduct smaller community expositions (called A Day with GDF) at the community level, as an interactive way of presenting research results to the community, clarifying data and obtaining feedback.

- What were the main problems and what steps were taken to overcome them?

We are pleased to report that there were few complications in our Darwin project. Community support and institutional collaboration were excellent throughout, and we were able to cope with the few personnel changes in the GDF team of coordinators and research assistants. We have drawn attention to our difficulty in attracting MSc students to participate in the project, but this was readily resolved by working with short-term consultants who provided the results that we were perhaps naively expecting from thesis projects. Another early difficulty was ensuring cash flow for the field project when Defra reimbursements were slow in coming. The lag time between submission of claim forms and reimbursement improved over the course of the project, and Sabah Parks was supportive in floating salaries for project staff that we reimbursed at a later point.

- During the project period, has there been an internal or external evaluation of the work or are there any plans for this?

In addition to the regular monitoring carried out with partners during the biannual Partners' Progress Meetings, we conducted a mid-term participatory community evaluation with community members in Buayan-Kionop, which was reported in full in the Third Annual Progress Report. We had not planned on conducting an external evaluation, although we plan to conduct a follow-on participatory community evaluation in 2008.

- What are the key lessons to be drawn from the experience of this project? We would welcome your comments on any broader lessons for Darwin Initiative as a programme or practical lessons that could be valuable to other projects, as we would like to present this information on a website page.

We would like to reiterate the key lessons about community participation that we raised in our third annual report, and that we feel deserve a greater focus in the Darwin Initiative. Simply stated, one of the notable achievements of our Darwin project has been the level of participation by community members. We would like to go beyond our suggestion that 'community participation' be a theme for a future Darwin Workshop, and recommend a review of the level of participation by local and indigenous communities across the Darwin Initiative. We imagine that there could be many compelling stories of engaging communities in collaborative work that could reinforce the positive image of the Darwin Initiative worldwide.

This review takes on even greater significance as discussions of CBD Article 8(j) on the knowledge, innovations and practices of indigenous and local communities gains increasing importance. This debate has been reinforced by the adoption of the Declaration on the Rights of Indigenous Peoples by the United Nations General Assembly on September 13, 2007, and by fervent discussions on the role of indigenous peoples at the Second Meeting of the Ad Hoc Open-ended Working Group on Protected Areas held in Rome from 11 to 15 February 2008 Although time is short, one excellent venue for publicising successful local efforts to conserve and sustainably use biodiversity would be the World Conservation Congress, where we imagine that the Darwin Initiative will be represented in some way.

We noted earlier that participation came to fruition in the final year of our project, building on a process of community consultation and free prior informed consent that led to the signing of a community research agreement at the beginning of the project. We described two additional elements of local collaboration – participatory community evaluation and participatory video – that we developed. We repeat here a part of our discussion of these

lessons learned.

Participatory community evaluation was a valuable and essential part of the project. It not only enabled a mid-term review of field progress with the community, but additionally provided an open forum where community members could discuss and review aspects of the project that were important for them. The highly interactive approach was crucial in allowing issues to emerge from within the community, enabling us to assess our impact and respond to community suggestions about improving the project. Having regular and less formal sessions with the community to return results was important. Feedback obtained from community expositions have been a valuable source for clarifying data, thereby enhancing the design and implementation of field activities.

The second approach developed in the final year of the project was participatory video (PV), launched in Buayan in June 2007. The fifth module of the of the Ethnobiology and Conservation training course included sessions given by Nick Lunch of Insight a UK organisation that focuses on PV. A community workshop allowed the local research assistants to share what they learned with fellow community members. Together, they created several scripts (storyboards) on issues chosen by community members in collaboration with GDF-Sabah team members: "Land, resources and conservation in Buayan", "Local research assistants, ethnobiology and community use zones" and "Culturally appropriate education in indigenous preschools". With this report, we are sending the first video to be produced, *A Community in Dilemma. Buayan-Kionop Participatory Video Series, Part I: Land, Resources and Sustainability.* We plan to present this and perhaps a second video focused on the Darwin project in several international venues in 2008, including the Fourth World Conservation Congress in Barcelona. This allows the community to present its perspectives – including its opinion of the Darwin Initiative project – in its own words and images.

As our Darwin post project focuses on community-based monitoring, we will be able to contribute additional experiences to a review of participatory approaches in the future. We hope that our work could eventually culminate in a proposal to designate the Crocker Range Park as a biosphere reserve, perhaps among the first to incorporate a deep and detailed process of community consultation.

10. Actions taken in response to annual report reviews (if applicable)

- Have you responded to issues raised in the reviews of your annual reports? Have you discussed the reviews with your collaborators? Briefly summarise what actions have been taken over the lifetime of the project as a result of recommendations from previous reviews (if applicable).

Three Annual Progress Reports were submitted in the project's lifetime. Annual Reports are reviewed by project partners prior to submission to the Darwin Initiative, and the resulting Reviews received from Darwin are copied to project partners. Reviews and actions in response are discussed during Partner's Progress Meetings. The responding Annual Report Reviews have always been favourable and supportive of the project's progress towards delivering its outputs. A summary of questions raised in the First and Second reviews is as follows:

<u>First Annual Review:</u>
Q: "Are scientific identifications of the biodiversity being made as part of the inventory work?"

This question allowed us to elaborate on our plans to incorporate a number of scientific approaches in the project. We intensified our collection of botanical specimens by organising a one-week training session for community researchers in specimen collection techniques, which was delivered by Sabah Parks botanical specialists at the Kinabalu Park Herbarium. This made a marked improvement in the quality and quantity of voucher specimens collected by the GDF Field Team, and strengthened our capacity to continue collecting plant specimens in the Darwin post-project. Another action taken in response was

the secondment of Sabah Parks naturalist, Jusimin Duaneh, to assist the project in a rattan inventory, which was supported through a Field Research Grant. Jusimin Duaneh contributed more than 120 plant collections of rattans and other plants, and his field presence provided excellent hands-on training to community researchers on plant collection techniques. We also sought the involvement of Berhaman Ahmad, a UMS forestry lecturer, who contributed more than 150 scientific identifications of plant specimens collected. With the support of BBEC, we organised a trip to the Inobong Permanent Plot where community plant specialists gave Dusun identifications to tagged plants in the plot that were known to occur in Buayan-Kionop. In the case of animals, Adam Murphy's work (engaged through a Field Research Grant) has contributed to more than 190 Dusun and scientific names of animals through sight identification using field manuals.

Q: "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?"

This question has been repeatedly discussed in Partner's Project Meetings over the lifetime of the project and the institutionalisation of the Ethnobiology and Conservation course remained a common goal for all project partners. As we described in previous Annual Reports, UMS faced a number of crucial obstacles in developing the degree programme, ranging from the complex bureaucratic requirements of the Malaysian Federal Department of Education, to the lack of qualified UMS staff to lead a multidisciplinary academic programme of this nature. Over the course of the project, Gary Martin (the Project Leader) facilitated a number of cross-visits between UKC and UMS colleagues, including a visit by the UMS Vice-Chancellor and Prof. Maryati Mohamed (ITBC Director) to the pro Vice-Chancellor of the University of Kent to explore opportunities for long-term collaboration in the proposed UMS degree programme. Our effort has proven successful with the confirmed announcement that UMS will launch a post-graduate degree programme in Ethnobiology and Conservation in June 2008, which it aims to develop as a regional hub for ethnobiological research and training in Southeast Asia. Dr. Idris Mohd. Said (ITBC Deputy Director) has emphasised that the UMS degree programme will adapt the curricula in the project's five-module training course, which was delivered primarily by UKC lecturers. The UKC-UMS interaction is further strengthen by the appointment of Paul Porodong, a UMS lecturer in the final stages of completing his PhD in Environmental Anthropology at UKC, as the chair of the UMS degree programme. Paul Porodong is currently involved in the Darwin post-project as a technical advisor to the participatory monitoring of subsistence agriculture in the Buayan-Kionop CUZ.

Second Annual Review:
Q: "The number of Malaysian MSc research projects undertaken in the CRP and supported by the project is not expected to reach that anticipated. The reasons for this have been somewhat beyond the control of the project, and in large part a result of UMS not covering the fees of students as previously promised. This has been discussed by the project, and with UMS, and a number of measures to deal with it suggested. If agreed by the Darwin Secretariat, and adopted, these measures will help ensure that the project produces maximum possible capacity building in this area.

However, will the reduced number of MSc research projects have an effect on the amount of data concerning the ecological impact of resource use?"

We had originally proposed for 8 UMS and 4 UKC students to receive Field Grants supporting their dissertation field research projects in Buayan-Kionop. As we have reported previously, we decided to redirect the grants originally allocated for 2 UKC student (2 UKC students had already received grants) towards the recruitment of more UMS students. We later encountered difficulties in recruiting sufficient numbers of UMS students capable of carrying out the multidisciplinary research required in the project, whereupon project partners decided, and obtained the approval of the Darwin Secretariat, to reallocate the remainder of funds towards hiring local consultants to carry out field projects. As a result, the project ended up supporting 3 UMS, 2 UKC and 3 local consultants on expanded grants.

We acknowledge that the lower than expected number of UMS students has been a

disappointing aspect of the project, and feel that we would have had more success in attracting more UMS students if grants were able to support tuition fees in addition to field costs. This option was however not possible within the budgetary constraints of the project. Furthermore, given the data confidentiality policy of UMS (which was not revealed to us until part way through the project), the project would not have been able to benefit from research carried out by UMS students even if we had successfully recruited 8 UMS students as originally proposed (to date, none of the 3 UMS students awarded grants have completed their degrees).

We have, however, recovered from this situation by hiring local consultants, all of whom were able to deliver concrete outputs on key aspects of the project, which led to substantial advancements in our data collection efforts. We strongly feel that the hiring of consultants was a productive move because their contributions had immediate applicability to the project. We have considered this experience to be part of our learning curve with host country partners, and as such, we have chosen not to rely on UMS students in the Darwin post-project, focussing instead on hiring consultants who can carry out field research under the technical supervision of UMS lecturers (Paul Porodong, Berhaman Ahmad) and UKC lecturers (Rajindra Puri) who have been involved in the first three years of the project. This approach is important for the legacy of the project as it provides capacity building opportunities for local researchers and continuing links with outside researchers.

Third Annual Review:
As the project had officially ended (and therefore there were no further scheduled Partners Progress Meetings) when we received the Third Annual Review, we circulated the Review to our partners by email. The responses to questions raised are as follows:

Q: "There are no major queries for the project leader at this time. Some minor observations are as follows and need clarification in the final project report."

"Partnership with BBEC (Bornean Biodiversity and Ecosystems Conservation Programme) has not seemed very productive within the last year but reasons for this have been given. It is hoped that there will be good collaboration during the post-project phase as BBEC will be instrumental in implementing the CUZ of the Park during this period."

This is a perceptive observation. The reason is simple: a significant lag time between the end of BBEC I and the beginning of BBEC II. The second phase of BBEC was recently launched with the arrival of a JICA inception team in late 2007, and a series of participatory consultative workshops planned for early 2008 to determine BBEC's implementation plan over the next five years (the official launching of BBEC is anticipated in April 2008). Although still in its early days, prospects for collaboration with BBEC during the Darwin post-project have been very encouraging. In December 2007, GDF Project Coordinator, Agnes Lee Agama, was invited to a meeting between JICA Chief Technical Advisor, Mr. Motohiro Hasegawa, and Sabah Parks Director, Mr. Paul Basintal, and Deputy Director, Dr. Jamili Nais. Mr. Hasegawa reaffirmed JICA's commitment to assist Sabah Parks in formalising Community Use Zones, and integrating the field data collected under this project as the baseline for discussing options for delimiting the Buayan-Kionop Community Use Zone and its ensuing Management Agreement between Sabah Parks and the local community. Mr. Hasegawa additionally acknowledged the role GDF Project Coordinators have played in the finalisation of the Crocker Range Park Management Plan in 2006. In January 2008, JICA advisor Dr. Jiro Iguchi participated as an observer in the post-project's first training course, also as familiarisation with the participatory resource monitoring techniques implemented in the post-project. These GDF-JICA interactions have been followed up with email exchanges, primarily between Dr. Iguchi and Agnes Lee Agama about the further strengthening of the Crocker Range Park Management Plan, in anticipation of the BBEC participatory workshops that will be conducted shortly. We feel that, at these early stages of inception, JICA experts have recognised the value of the work conducted under the project, and we anticipate our partnership with the second phase of BBEC to be a productive one.

Q: "It is unclear, however, whether project staff will eventually be assimilated by Sabah Parks

and this is a primary concern for addressing in the next project period."

Although GDF Field Coordinator Yassin Miki was the only GDF Sabah Team member contractually employed for the lifetime of the project (Project Coordinator Rachel Chua was employed by Sabah Parks until the time of her resignation), Sabah Parks has agreed to contractually employ all GDF Sabah Team members (Project Coordinator Agnes Lee Agama and Field Coordinators James Wong and Yassin Miki). Contracts for team members were issued in November 2007 and extend for the entire post project period. Additionally, Sabah Parks provided supporting host country documentation for GDF Research Associate Adam Murphy to obtain his visa permit. Sabah Parks also agreed to host the GDF Sabah office (formerly hosted by UMS, who is no longer a main host country partner in the post project), although the GDF Sabah Team declined the use of physical office space due to the extended amount of time that the Team would be spending in the field. The project's official correspondence address however remains in Sabah Parks. We are also working on a proposal for Sabah Parks to contractually employ two of our community researchers on a full time basis (other community researchers are either part time or daily paid, which makes it difficult for Sabah Parks to employ them under current government policies).

We feel this is a positive development that reflects the commitment of Sabah Parks to support the project, as well as their recognition of the value our technical expertise contributes towards the overall work atmosphere in Sabah Parks. Although it is difficult to speculate at this stage, there are promising indications that Sabah Parks may absorb at least one GDF Field Coordinator into the existing park management staffing structure. GDF, for that matter, is also interested in retaining some members of our Team as we continue to build upon the expertise and experience gained through our Darwin Initiative projects, and pursue exciting avenues for longer-term collaboration with Sabah Parks in future.

It is worth mentioning that PACOS has expressed interest in recruiting several of our community researchers to coordinate community-based conservation and development initiatives in the Upper Papar River valley (where Buayan-Kionop is located). In the post-project, two community researchers have been seconded part time to PACOS to assist in the coordination of a renewable energy project that will provide electricity to the Buayan preschool, installation of computers and training of community members in computer skills.

Q: "The role of PACOS vis a vis the Darwin project in the development of the Resource Catchment Area GIS for the area is unclear. There is obviously mutual co-operation and support between the projects with some field assistants receiving training from PACOS in participatory GIS techniques for example. A comment on the role and achievements of each organisation in this programme would be helpful."

This apparent lack of clarity is, perhaps, because the role of PACOS has continued to evolve over the lifetime of the project. Initially PACOS was an emergent partner with a proven track record in community organising and extensive community-building experience in the neighbouring village of Terian. Thus our early expectations were to have PACOS assist in community organising and outreach aspects of the project. We soon discovered that PACOS also had extensive experience in community mapping and participatory GIS, and agreed to provide a project grant to PACOS to carry out community mapping exercises in the neighbouring areas of Terian, Tiku and Timpayasa. This effort would collect complementary data that would be merged with our data from Buayan-Kionop, thereby generating a comprehensive survey of the major communities along the Upper Papar River valley. We additionally felt this was a necessary step because some amount of overlap exists between areas accessed by each community, as well as some degree of migration between communities, and thus it was logical to be able to generate GIS maps that depict these patterns across all the areas that could potentially be part of the Buayan-Kionop Community Use Zone. This development motivated the project to propose the concept of the Buayan-Kionop Resource Catchment Area (RCA), which encompasses all areas important for the communities living here including both areas inside and outside the Park.

As we progressed in the development of the RCA GIS, PACOS played an increasingly

important role in training project team members and the community researchers in participatory GIS techniques. It should also be noted that PACOS has both the hardware capabilities and licensed GIS software to facilitate the development of our RCA GIS maps. Additionally, we felt that GDF and PACOS possessed complementary fields of expertise, where our collaboration on the RCA presented an opportunity to exchange knowledge and skills, thereby enhancing our overall understanding of the issues in Buayan-Kionop, from ethnobiological research to the advancement of indigenous rights. As such, the RCA GIS database is a product of the intensive collaboration between GDF and PACOS that has developed over the lifetime of the project.

By the end of the project, the resulting role of PACOS had become one resembling a main host country partner, particularly with regards to the RCA GIS. It is a role that PACOS has officially adopted in the post-project, taking lead in the technical supervision of the participatory GIS and participatory 3-D modeling aspects of the post-project.

GDF has invited PACOS representatives to participate in an exhibition booth on biocultural diversity that we are coordinating during the World Conservation Congress (5 – 11 October 2008) and to participate in a Knowledge Café (roundtable discussion) that we hosting on 'Observatories of Biocultural Diversity' at the same event.

Q: "Also it is stated that the GIS will be handed over to Sabah Parks in July 2007. Do Parks staff have the training and equipment to be able to utilise the GIS and develop similar systems for other areas in future?"

The RCA GIS database was handed over to Sabah Parks GIS Technician Mr. Kenneth Sion in October 2007 (some time was needed to consolidate and finalise the database after the project officially concluded on 31 July 2007). Mr. Kenneth Sion heads the Sabah Parks GIS unit based in the Sabah Parks Headquarters in Kota Kinabalu, which is a fully equipped GIS laboratory that was furnished during the first phase of BBEC. Trained under the first phase of BBEC in GIS applications such as Geomedia and ArcGIS, Mr. Sion and his team are responsible for supervising and maintaining the GIS databases for all parks in Sabah.

In the post project, we are working with both Sabah Parks and PACOS to use the RCA GIS as the basis for designing and implementing participatory monitoring protocols that will generate regular rounds of uploading fresh data into the GIS database. As stated in the Crocker Range Park Management Plan (2006: 133), "[s]patial information, or mapping, of the park should be digitised and uploaded into a centralised GIS system. This data bank should be regularly updated and properly managed. Specifically, park management should focus on regular data collection for the GIS mapping of the following areas: 1) Cultivation areas inside the park (Community Use Zones); 2) Illegal activity sites in and around the park; 3) Observation points for endangered species; and 4) Forest fire, landslide and other disaster affected areas". In this respect, the RCA GIS becomes an integral component of the overall Crocker Range Park GIS data bank, with a specific focus on monitoring the Buayan-Kionop Community Use Zone.

It is crucial to understand that the RCA GIS is a unique endeavour in Sabah, being the first of its kind to integrate local classification systems with GIS technology and depicting important resources and landscapes from the viewpoint of the community. Hence, although there are promising indications that similar systems will be developed for other Community Use Zones in the Crocker Range Park, principally the Ulu Senagang Community Use Zone, we feel that a much greater investment is needed to build capacity in the host country so that local agencies are able to carry out the scope of ethnobiological research required to generate a GIS database of this kind. The RCA GIS, and participatory processes that it embodies, has nevertheless generated a tremendous amount of interest amongst other local government agencies, especially the Sabah Forestry Department and collaborating NGOs who are currently developing projects that integrate indigenous communities living near or inside Forest Reserves. For that matter, we feel that the second phase of BBEC (coinciding with the post-project) is a vital platform to connect various governmental agencies addressing similar issues and engage them in the kinds of participatory research approaches carried out

in the Community Use Zones of the Crocker Range Park.

Q: "The community project evaluation while mostly positive, mentioned that some external researchers have failed to honour promises made. Can this be explained?"

This mention in the participatory community evaluation refers, partly, to a promise made by Ms. Perpetua George to certain community members during her MSc fieldwork period in Buayan through a Field Research Grant from the project. Perpetua, who is an indigenous Kadazandusun familiar with Dusun celebratory practices, had promised that she would return to visit the community and commemorate the completion of her MSc degree with a celebratory party involving the slaughter of a buffalo. However, upon completion of her MSc, Perpetua was immediately engaged to work for ProForest UK based in Oxford, with limited travel to Sabah, thus preventing her from fulfilling this promise. The disappointment of the community over this situation has been conveyed to Perpetua by GDF Project Coordinator Agnes Lee Agama.

Another situation this assertion refers to are promises made by Ms. Zuraida Zainudin to selected community members about her planned survey trips to Buayan-Kionop as part of conducting her MSc fieldwork under a Field Research Grant from the project. On several occasions and due to rather unfortunate circumstances (i.e. her wallet had been stolen, her young child had fallen ill), Zuraida was forced to cancel her scheduled trips at the last minute. With no telephone networks operational in Buayan, she was unable to communicate these cancellations to the community members awaiting her arrival in the village. The social impact, however unintended, of these situations has been raised to Zuraida by GDF Field Coordinator James Wong.

Both of the experiences cited above motivated the community research assistants to draft the Community Research Protocol, which sets out the community's expectations of responsible research conduct by any researcher intending to work in the communities of Buayan-Kionop. GDF Field Coordinators facilitated the process of drafting this Protocol, making sure that all Field Grant recipients active in the project at the time were fully aware of their obligation to respect it.

These incidents, and the fact that reference to them emerged in the participatory community evaluation in 2006, further motivated the project to reconsider the costs and benefits of having students conduct field research under the project's Field Grants awards. Although these incidents can be seen as either individual lapses of judgement (in the case of Perpetua) or the consequence of an unfortunate series of events (in the case of Zuraida) which were largely beyond the control of the project, we nevertheless felt responsible to help ensure that such occurrences would not repeat in future. Following on from the decision by project partners (and subsequent approval from the Darwin Secretariat) to reallocate remaining funds in Field Grants to hire consultants, we made a distinct effort to select consultants who are sensitive to the requirements of community-based fieldwork. In addition, GDF Field Coordinators and/or community researchers were always on hand to accompany consultants during their field trips to Buayan-Kionop.

Q: "The development of three training manuals appears not to have been achieved as planned. Mention of community research process sheets is made but it is not clear whether these are one and the same thing."

As we reported in the Second Annual Progress Report, the training manuals have been reformatted and produced as local language process sheets. This was a departure from the original format as we were initially planning on producing methods manuals in English on each of our research themes of ethnobiological resource inventory, agriculture and traditional agroecosystems and subsistence hunting in Community Use Zones. We however discovered that the process sheet format had more direct use in developing our field research, particularly in the training of community research assistants to carry out various methods. We found that community research assistants faced immense difficulties with academic styles of writing and were more comfortable with technical descriptions of

methods. We therefore adapted and summarised material from reference guides and other sources into the format of a process sheet for each technique. A process sheet outlines (in Malay) the rationale, purpose, respondents involved, a step by step outline of how to do it, materials needed and the expected timeframe for carrying out each technique. An example is included in Appendix IX, which is on freelisting of plants and animals. Process sheets continued to be produced for each subsequent technique carried out, and tended to vary in detail (some process sheets included attached sample data sheets) depending on the technique. All process sheets are inserted into the Research Methods Portfolio files for each community research assistant, which then constitutes their field methods manual. We have found this procedure to be an excellent way of developing our research with the community research assistants because they have continued to provide feedback on process and data sheets, which have then been revised and subsequently field tested again. We are replicating this process in our Darwin post-project, and building upon the existing Research Portfolio with process sheets for various resource monitoring techniques.

For each major technique, we have translated the process sheet into English as chapters (or sections of chapters) that comprise the "Best Practices for Assessing Community Use Zones" Handbook, one of the final outputs of the project. The draft chapter for freelisting is included in Appendix X. Each chapter contains a technical description and application of the method, a worked example based on data we have collected in the project, recommended readings, as well as any lessons learnt we may have encountered during the course of carrying out a particular technique. We are currently in the process of completing the Handbook and expect to have chapters available in pdf format for distribution through our dissemination network, as well as being downloadable for free from the GDF website.

The chapters will form part of what is on offer in our online learning guide on biocultural diversity, which will include: (1) an annotated bibliography on biocultural diversity; (2) participatory videos of training and applied research; (3) descriptions of methods with worked examples; (4) a film guide to videos on contemporary issues in biocultural diversity; (5) a syllabus containing synopses of current issues with recommended readings; (6) powerpoint lectures that provide synopses and case studies of issues and methods.

Q: "Finally, in the project director's opinion, has sufficient ethnobiological data been collected over the project period to enable the production of a workable management agreement for the Buayan-Kionop CUZ?"

A substantial amount of ethnobiological data has been accumulated over the lifetime of the project, which we feel is a sufficient platform for parties to develop a workable Community Use Zone management agreement. The project's outputs, particularly the RCA GIS, are at the stage where options for the demarcation of Zone boundaries can be deliberated and negotiated. Importantly, our data on patterns of cultivation, hunting, gathering and other key features of landscapes (e.g. watersheds, gravesites and abandoned homesteads), creates the opportunity for parties to propose a sub-zonation plan inside the Community Use Zone. Sub-zonation will enable the local community to manage various sections of the Zone according to specific resource use and conservation criteria, ranging from community conserved areas (e.g. watersheds) and community resource use areas that can additionally be designated according to intensity of use.

Based on the fundamental principles of adaptive management, we expect the Community Use Zone Management Agreement to be significantly revised over time. The data collected in this project represents a "snapshot" of resource use patterns, and requires further elaboration and monitoring over time to develop a trendline for various subsistence activities. We however feel that the project has made a tremendous contribution in starting a process that will continue to develop in future. Our post project is reinforcing this process, contributing greater capacity building and introducing significant elements of community-based monitoring.

11. Darwin Identity

- What effort has the project made to publicise the Darwin Initiative, e.g. where did the project use the Darwin Initiative logo, promote Darwin funding opportunities or projects? Was there evidence that Darwin Fellows or Darwin Scholars/Students used these titles?

The Darwin Initiative name and logo has been prominently displayed in all official project communications, ranging from training course readers, training course certificates, communications materials and project correspondence. The Darwin Initiative name has been featured in the project T-shirts printed for the GDF Sabah Team, including the community research assistants. Both the Darwin Initiative name and logo were featured in the project poster that was published and displayed at various fora, including the 10th International Congress of Ethnobiology, in Chiang Mai, Thailand in November 2006. The Darwin Initiative name has been consistently used as a branding mark of the project's training course in Ethnobiology and Conservation, which has been cited in 9 host country press articles in January 2005, April 2005, September 2005, and June 2007. The Darwin name and logo are also featured in Part I of the Buayan-Kionop Participatory Video Series (2007), which has been screened in numerous venues including the Amnesty International Human Rights Film Festival in Sabah (December 2007) and the 3rd Collaborative Management Learning Network Regional Meeting in the Philippines (December 2007). Further proposals have been submitted to screen this video at other events, such as the IUCN World Conservation Congress in Barcelona (October 2008) and the 11th International Congress of Ethnobiology in Peru (June 2008).

- What is the understanding of Darwin Identity in the host country? Who, within the host country, is likely to be familiar with the Darwin Initiative and what evidence is there to show that people are aware of this project and the aims of the Darwin Initiative?

In our experience, the Darwin Initiative is held in high regard amongst all our project partners as a UK entity that is committed towards strengthening biodiversity conservation and the responsible implementation of the CBD in host countries. To our knowledge, this is the first Darwin project in Sabah that focuses on understanding and promoting sustainable human appropriation of natural resources through the formalisation of Community Use Zones, which we feel has significantly advanced host country perceptions about the importance of integrating biodiversity conservation and sustainable resource use by indigenous peoples, as advocated in Article 8(j) of the CBD.

Amongst our host country partners, we found that UMS has the most familiarity with the Darwin Initiative, having hosted several Darwin-funded projects and a Darwin Fellow in the past. Prof. Maryati Mohamed, Institute for Tropical Biology and Conservation Director, has expressed her enthusiasm at Darwin's continued commitment to supporting biodiversity related projects in Sabah, ranging from forest canopy to orang utan research projects. In Sabah Parks, there are similar levels of familiarity with the Darwin identity (Sabah Parks currently hosts another Darwin project on marine conservation in the Tun Sakaran Marine Park). With regards to our project, we have found that Sabah Parks is interested in encouraging the consistent involvement of the Darwin Initiative in strengthening the development of Community Use Zones in the Crocker Range Park. This is evident in the request we received from Sabah Parks to assist in the development and implementation of participatory resource monitoring of Community Use Zones, which has successfully secured post-project funding from the Darwin Initiative.

The Darwin Initiative is well know to JICA and all of its Malaysian governmental partners which have participated in the BBEC programme.

- Considering the project in the context of biodiversity conservation in the host country, did it form part of a larger programme or was it recognised as a distinct project with a clear identity?

This project has consistently maintained a unique identity as a Darwin Initiative project on Community Use Zones in the Crocker Range Park. This identity has become a benchmark attracting the attention of prominent local environmental journalist Mr. Kan Yaw Chong of the Daily Express (the main English daily in Sabah), who has consistently responded to press releases (and informal communication from the GDF Sabah Team) with press interviews resulting in the publication of a news article about the project.

Crucially, recognition of the project as a unique identity has also been received from both the first (2002-2007) and second (2007-2012) phases of the Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme, which is co-funded by the Japan International Cooperation Agency (JICA), the Sabah State Government and UMS (a Federal Government agency). This recognition has developed because the project has been able to show concrete research results that integrate both indigenous and scientific understandings of natural resource use in Buayan-Kionop, which stands out as an achievement that, to our knowledge, has not yet been achieved at this level in Sabah. This recognition has promoted the role of the Darwin Initiative as a contemporary catalyst in advancing biocultural research in Sabah, particularly in the current political climate of advocating adaptive collaborative management of protected areas, not only in Parks but also in the Forest Reserves and Wildlife Sanctuaries of Sabah.

12. Leverage

- During the lifetime of the project, what additional funds were attracted to biodiversity work associated with the project, including additional investment by partners?

We have calculated £72,453 in additional investment, including in-kind contributions, from the Global Diversity Foundation and our partners, as shown in the following table. Theses amounts surpass the expectations stated in our original proposal.

	2004-2005	2005-2006	2006-2007	2007-2008	Total
The Global Diversity Foundation	£3,600	£7,195	£4,950	£1,800	£17,545
BBEC	£8,900	£10,800	£2,750	£0	£22,450
Sabah Parks	£2,470	£3,610	£3,388	£1,250	£10,718
Universiti Malaysia Sabah	£2,780	£4,120	£3,500	£1,440	£11,840
University of Kent	£2,700	£2,700	£2,700	£1,800	£9,900
Totals	£20,450	£28,425	£17,288	£6,290	£72,453

Three organisations contributed additional amounts that were not projected in our original proposal. The International Society of Ethnobiology contributed USD2000 in support of GDF personnel to attend the 10th International Congress of Ethnobiology in Chiang Rai, Thailand in November 2006. The Christensen Funds provided support for production of participatory video and methods write-ups, as part of a $75,000 grant to the Global Diversity Fund.
Our emergent partner PACOS contributed staff time and use of vehicles as well as sourcing additional funds for GDF team members to participate in the 3rd CMLN Regional Meeting in the Philippines in December 2007.

- What efforts were made by UK project staff to strengthen the capacity of partners to secure further funds for similar work in the host country and were attempts made to capture funds from international donors?

We have been working with Buayan-Kionop community members and our partners to explore funding from the UNDP GEF Small Grants Programme (SGP) in Malaysia for a

project that would support participatory conservation efforts in community use zones. We have discussed this concept with Martin Abraham, SGP Malaysian National Coordinator and Terence Hay-Edie, biodiversity specialist of the SGP Central Programme Management Team (CPMT) in New York. As part of this effort, the Buayan-Kionop research assistants plan to use their acquired skills in participatory video to make a film proposal to support their application for funds.

The Global Diversity Fund hired a parttime consultant, Dr. Sarah Khan, to explore additional sources of support – especially from the United States – for GDF's field programmes, including the one in Malaysia. She has communicated information about several foundations of interest to Agnes Lee Agama.

13. Sustainability and Legacy

- What project achievements are most likely to endure? What will happen to project staff and resources after the project ends? Are partners likely to keep in touch?

There are several achievements that are most likely to endure:

1) The reconceptualisation of Community Use Zones to incorporate community livelihoods. Our legacy lies in the change of mindset amongst policy makers inside Sabah Parks about the source of community livelihoods. Previously, community livelihoods were perceived as being tied exclusively to rice cultivation. Within the lifetime of the project however, this common misconceptualisation of community livelihoods has been diplomatically debunked, and replaced with a more realistic understanding of the multiple sources of livelihood that communities located in remote areas depend on for daily survival. As a result, the redefinition of Community Use Zones to incorporate these multiple sources of livelihoods, ranging from rice cultivation to homegardens, hunting, fishing and harvesting of forest products, sets the benchmark for replication in other sites throughout Sabah where local communities continue to depend on access to protected areas for daily sustenance.

2) Another important achievement is the capacity and potential of Buayan-Kionop community researchers to represent their community in the technical aspects of monitoring and managing Community Use Zones. With the commitment of PACOS to pursuing the interests of indigenous communities in the Upper Papar River valley, we are confident that the Buayan-Kionop community researchers will be able to share their knowledge with other communities along the Papar River and promote the sustainable management of the entire river valley based on the approaches and methodologies used in this project.

3) The establishment of the UMS degree programme in Ethnobiology and Conservation will ensure that the project's effort at delivering the five-module training course has resulted in a long-term commitment from UMS to provide institutionalised training in integrated conservation and development approaches and methods.

In relation to the project's resources, capital assets such as computers and GPS units are being fully utilised by the GDF Sabah Team (including community researchers) for the Darwin post-project period. Project data has been handed over to Sabah Parks and PACOS, and is being utilised as baseline information for the Darwin post-project.

The project staff members have all been retained for the Darwin post-project period, including GDF Project and Field Coordinators, and community researchers. GDF Coordinators have been contractually employed through Sabah Parks for the post-project period, and we expect at least one GDF Field Coordinator to be absorbed into the Sabah Parks structure to work on Community Use Zones in the longer-term.

The project partners are working together closely (with the exception of UMS which now has a minor role) in the post project, and we expect this collaboration to continue at least through 2012 and probably beyond. The proposal to present Crocker Range Park for biosphere reserve status is a common goal that is motivating a good working relationship between all

parties.

- Have the project's conclusions and outputs been widely applied? How could legacy have been improved?

We have provided ample evidence elsewhere in this report that the projects conclusions and outputs are being widely applied in the specific case of Crocker Range Park, and this should be further consolidated in coming years as we continue to work with community members, Sabah Parks, PACOS and BBECII.

With the legalisation of community access to certain parts of protected areas through an adaptive collaborative management framework (starting with the amendment to the Sabah Parks Enactment that was passed in 2007), we feel that this pioneer effort will be widely applied in many isolated regions of Sabah, This could contribute to the joint goals of poverty alleviation and biodiversity conservation, while safeguarding the indigenous resource management strategies of the local communities of Sabah. In 2008, GDF received requests to share methodologies with the indigenous communities of Ulu Senagang in the Crocker Range, and the indigenous communities of Mangkuwagu who live inside and around the Mangkuwagu Forest Reserve in the District of Tongod, where possibilities for collaborative management are being explored with the respective protected area authorities.

The legacy will be further improved once we finalise publications that will make the methods and lessons learned from this experience more widely available to conservation policy makers and practitioners in Southeast Asia and beyond.

- Are additional funds being sought to continue aspects of the project (funds from where and for which aspects)?

We secured a Darwin post-project grant to implement participatory resource monitoring in the Buayan-Kionop Community Use Zone, from 2007 to 2009. In the post-project, we are building upon the methodologies and baseline data collected during the original project to design and field test a selection of qualitative and quantitative techniques, including participatory 3-D modelling, to monitor critical subsistence activities and priority species and landscapes. Monitoring activities will be carried out by a Resource Catchment Assessment Team, formed in the post-project, comprising field staff from Sabah Parks, PACOS, GDF and community research assistants. This sets up long-term monitoring protocols that can be carried out on a regular basis over time, thereby generating field data that can be uploaded to the RCA GIS for further analyses and comparison to gauge ecological and social changes over time.

PACOS, through the Collaborative Management Learning Network (CMLN), has developed a follow-on project to pursue community organising and community mapping initiatives in the Ulu Senagang Community Use Zone. If funding is successfully secured, this initiative will assist in community exchanges between Ulu Senagang and Buayan-Kionop, particularly for the community research assistants to share their methodologies and ethnobiological knowledge with community members in Ulu Senagang.

The second phase of BBEC is dedicating the ensuing five years towards the formalisation of Community Use Zones. Although a detailed implementation and activity plan has yet to be determined, GDF Project Coordinator Agnes Lee Agama and PACOS Programme Coordinator Adrian Lasimbang have been discussing various options with BBEC-JICA advisors on the kinds of activities that can be conducted under BBEC to support Community Use Zones. Specifically, we are emphasising the need for BBEC to allocate a concentrated amount of financial and human resources towards pursuing grassroots negotiations with the communities of Ulu Senagang and Buayan-Kionop. Previous negotiations conducted during the first phase of BBEC were carried out in urban centres, which led to nominal participation from community members. Whereas, sustained grassroots activities will ensure that different voices within each community will be heard and ensure that the Community Use Zone Management Agreement is drafted based on realistic parameters and feasible expectations.

GDF is embarking on a fundraising drive to raise funds (for example through the UNDP GEF Small Grants Programme) to support a number of small scale initiatives that have emerged as a result of the project. We are interested in pursuing the progression of community mapping activities that have developed over the lifetime of the project, from PRA-styled community mapping workshops, to Participatory GIS and the development of the RCA GIS, to participatory 3-D modelling (P3DM). A P3DM of Buayan-Kionop has been initiated in the post-project, which, according to our host country partners, is the first time in Malaysia that a scaled 3-D model has been produced using participatory approaches. Both Sabah Parks and PACOS are committed to strengthening this initiative, and we are currently developing a longer-term P3DM project proposal to seek funding from a number of agencies in the UK and USA.

Other aspects of the project that we would like to pursue as future projects include the production of Parts II and III of the Buayan-Kionop Participatory Video Series. Part II is currently being filmed by the community research assistants, and we are seeking funds to support the editing and post-production activities, as well as advanced training in Participatory Video techniques for community research assistants. Another project we would like to support is the training of Buayan-Kionop hunters as community wildlife wardens. Our experience in this project has shown that hunters have an immense knowledge of forest habitats and animal behaviour, and they commonly roam vast parts of the forest as part of hunting trips. With training, hunters will be able to monitor wildlife populations and habitats, particularly protected species such as orang utans, sun bears and clouded leapords, the flagship species of the Crocker Range Park.

14. Value for money

- Considering the costs and benefits of the project, how do you rate the project in terms of value for money and what evidence do you have to support these conclusions?

In our original proposal to Darwin we stated that "for a project of its scope and duration, the Darwin budget for our participatory ethnobiological study of [community] use zones in Crocker Range Park is relatively modest. We have been able to keep costs moderate because: (1) most staff time is offered on a *pro bono* basis and (2) the low level of per diems for rural areas of Sabah reduce field expenses. With the added value of hindsight, we feel that our original expectations have been affirmed. The project has benefited from a substantial amount of specialised expertise – salaries for the GDF Director and all 6 UKC lecturers were offered to the project on a *pro bono* basis or as in-kind contributions. GDF Sabah Team members, whose salaries have been supported through the Darwin budget, have offered their services at below normal pay rates, and nevertheless have worked extended hours particularly in the field, and in some cases, over weekends and public holidays. It is perhaps worthwhile in considering that two GDF Field Coordinators have been able to implement the scale and depth of field research that has been achieved in the lifetime of the project; added to that would be the coordination of training courses, paper presentations at local, regional and international conferences, and the intensive training and supervision of a growing team of community research assistants. The community research assistants, furthermore, have offered their services at below normal pay rates, as part of their commitment towards helping their community in developing Community Use Zones.

Our host country partners have invested a significant amount of human and infrastructural resources in supporting the project, all provided on a *pro bono* basis, including salaries, use of vehicles and venues, and overhead administrative costs. Partners such as PACOS and BBEC have provided additional funds to support the project's participation at local and regional conferences, thereby enhancing the project's networking and dissemination impact. The number of high ranking government officials who provided their time to either teach or contribute to open discourse during our project's training course is another gauge: Datuk Joseph Guntavid (Sabah Museum Director), Mr. Rahim Sulaiman (Sabah Forestry Deputy Director), Mr. Laurentius Ambu (currently the Sabah Wildlife Department Director), Ms. Patricia Regis (Senior Officer in the Sabah Ministry for Tourism, Environment and Culture), all contributed towards the discourse on Community Use Zones on a pro bono

basis. Project partners' decision to support our work in the Darwin post project period further affirms the value upon which the project is held.

Finally, the value of the project is best assessed *vis a vis* the contribution we have made in ensuring that Community Use Zones will be established based on scientific research and with the meaningful participation of local communities. As the pioneer case in Sabah, the project's work sets the standard for future efforts to integrate local community livelihoods with biodiversity conservation, which is a significant milestone in creating concrete options for pursuing people and protected area decision-making processes throughout Sabah. It is difficult to put a price on these intangible benefits and the costs they occur in communities. Valuation specialists continue to struggle in their efforts to qualify and quantify these benefits in diverse conservation projects, and the debate is far from over.

15. Appendix I: Project Contribution to Articles under the Convention on Biological Diversity (CBD)

Please complete the table below to show the extent of project contribution to the different measures for biodiversity conservation defined in the CBD Articles. This will enable us to tie Darwin projects more directly into CBD areas and to see if the underlying objective of the Darwin Initiative has been met. We have focused on CBD Articles that are most relevant to biodiversity conservation initiatives by small projects in developing countries. However, certain Articles have been omitted where they apply across the board. Where there is overlap between measures described by two different Articles, allocate the % to the most appropriate one.

Project Contribution to Articles under the Convention on Biological Diversity		
Article No./Title	**Project %**	**Article Description**
6. General Measures for Conservation & Sustainable Use	0	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	10	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	30	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation	0	Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	30	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures	0	Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	20	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).

13. Public Education and Awareness	5	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts	0	Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources	0	Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology	0	Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information	5	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol	0	Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Total %	**100%**	**Check % = total 100**

16. Appendix II Outputs

Please quantify and briefly describe all project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date (reduce box)	Detail (←expand box)
Training Outputs		
1a	Number of people to submit PhD thesis	0
1b	Number of PhD qualifications obtained	0
2	Number of Masters qualifications obtained	1 UK Masters, 3 ongoing UMS Masters
3	Number of other qualifications obtained	0
4a	Number of undergraduate students receiving training	3 UMS undergraduates trained in Ethnobiology and Conservation concepts and methods
4b	Number of training weeks provided to undergraduate students	2-4 weeks
4c	Number of postgraduate students receiving training (not 1-3 above)	10 UMS postgraduates trained in Ethnobiology and Conservation concepts and methods
4d	Number of training weeks for postgraduate students	2-10 weeks
5	Number of people receiving other forms of **long-term** (>1yr) training not leading to formal qualification(i.e not categories 1-4 above)	14 community research assistants, most receiving 1 – 3 years of training
6a	Number of people receiving other forms of **short-term** education/training (i.e not categories 1-5 above)	12 (estimated as 8 community research assistants, 2 field coordinators and 2 MSc students) gained field research experience in the Crocker Range
6b	Number of training weeks not leading to formal qualification	1010 person weeks over three years
7	Number of types of training materials produced for use by host country(s)	1 consolidated training toolkit in the form of 21 process sheets in the local language describing field methods used in the project, which is used by community research assistants
Research Outputs		
8	Number of weeks spent by UK project staff on project work in host country(s)	24 weeks over three years (by GDF Director and UKC lecturers)
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	0
10	Number of formal documents produced to assist work related to species identification, classification and recording.	0
11a	Number of papers published or accepted for publication in peer reviewed journals	0
11b	Number of papers published or accepted for publication elsewhere	3 (see Appendix III)

Code	Total to date (reduce box)	Detail (←expand box)
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1 Buayan-Kionop Resource Catchment Area GIS database 1 Buayan-Kionop ethnobiological database with 631 plants and 250 animals
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0
13a	Number of species reference collections established and handed over to host country(s)	1 Reference Collection of CRP ethnobiological resources with 469 plant specimens and 22 fish collections lodged at Sabah Parks research centre
13b	Number of species reference collections enhanced and handed over to host country(s)	0

Dissemination Outputs		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	3 BBEC/Darwin scientific conferences and roundtables
14b	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated.	14 major presentations at various venues locally, regionally and internationally and numerous other minor presentations at various locations globally
15a	Number of national press releases or publicity articles in host country(s)	0
15b	Number of local press releases or publicity articles in host country(s)	3 press releases resulting in 8 publicity articles in local newspapers
15c	Number of national press releases or publicity articles in UK	0
15d	Number of local press releases or publicity articles in UK	0
16a	Number of issues of newsletters produced in the host country(s)	0
16b	Estimated circulation of each newsletter in the host country(s)	0
16c	Estimated circulation of each newsletter in the UK	0
17a	Number of dissemination networks established	1 Mailing list of organisations and individuals interested in ethnobiology and community use zones
17b	Number of dissemination networks enhanced or extended	0
18a	Number of national TV programmes/features in host country(s)	0
18b	Number of national TV programme/features in the UK	0
18c	Number of local TV programme/features in host country	0
18d	Number of local TV programme features in the UK	0
19a	Number of national radio interviews/features in host country(s)	0
19b	Number of national radio interviews/features in the UK	0

19c	Number of local radio interviews/features in host country (s)	0
19d	Number of local radio interviews/features in the UK	0
Physical Outputs		
20	Estimated value (£s) of physical assets handed over to host country(s)	£4 500 (taking into account devaluation of electronic goods, equipment etc)
21	Number of permanent educational/training/research facilities or organisation established	0
22	Number of permanent field plots established	0
23	Value of additional resources raised for project	£72,453 at a minimum

17. Appendix III: Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications Database that is currently being compiled.

Mark (*) all publications and other material that you have included with this report

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. 2005	Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme: Kota Kinabalu	BBEC Secretariat. Institut Biologi Tropika dan Pemuliharaan, Universiti Malaysia Sabah, Beg Berkunci 2073, 88999 Kota Kinabalu, Sabah, Malaysia http://www.bbec.sabah.gov.my	Free
Conference Proceedings	How do indigenous people value the forest? A closer look at the ethnobiological forest classification and forest values of the Buayan-Kionop community in Crocker Range, Sabah. Miki, Y., Wong, J., George, P., Murphy, A., Chua, R., Agama, A.L. & Martin, G.J. 2006	Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme: Kota Kinabalu	BBEC Secretariat. Institut Biologi Tropika dan Pemuliharaan, Universiti Malaysia Sabah, Beg Berkunci 2073, 88999 Kota Kinabalu, Sabah, Malaysia http://www.bbec.sabah.gov.my	Free
Conference Proceedings (in press)	The need for participatory resource monitoring: Some perspectives from the ethnobiological assessment of the Buayan-Kionop Community Use Zone in Crocker Range Park, Sabah, Malaysian Borneo. Agama, A.L., Wong, J., Miki, Y., Murphy, A. & Martin, G.J. in press	Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme: Kota Kinabalu	BBEC Secretariat. Institut Biologi Tropika dan Pemuliharaan, Universiti Malaysia Sabah, Beg Berkunci 2073, 88999 Kota Kinabalu, Sabah, Malaysia http://www.bbec.sabah.gov.my	Free
Poster	Ethnobiology of proposed community use zones of Crocker Range Park, Sabah, Malaysia. Martin, G., Mohamed, M., Nais, J., Agama, A.L., Harrop, S., Miki, Y., Puri, R. & Wong, J. 2006	Global Diversity Foundation, Canterbury, UK	Global Diversity Foundation, 37 St. Margarets Street, Canterbury, Kent CT1 2TU, UK http://www.globaldiversity.org.uk	Free

Participatory Video*	A Community in Dilemma. Buayan-Kionop Participatory Video Series, Part I: Land, Resources and Sustainability. Buayan-Kionop Community Researchers in association with the Global Diversity Foundation, PACOS, Insight and Sabah Parks. 2007	Global Diversity Foundation, Sabah	Global Diversity Foundation, c/o Sabah Parks, P.O. Box 10626, 88806 Kota Kinabalu, Sabah, Malaysia http://www.globaldiversity.org.uk	Free

18. Appendix IV: Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide contact details below.

Project Title	Ethnobiology of proposed community use zones of Crocker Range Park
Ref. No.	162/13/009
UK Leader Details	
Name	Gary J. Martin
Role within Darwin Project	Project Leader
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Name	
Role within Darwin Project	
Address	
Phone	
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Partner 1	
Name	Jamili Nais
Organisation	Sabah Parks
Role within Darwin Project	Host country coordinator
Address	P.O. Box 10626, 88806 Kota Kinabalu, Sabah, Malaysia
Fax	
Email	
Partner 2 (if relevant)	
Name	Prof. Maryati Mohamed
Organisation	Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah
Role within Darwin Project	Host country coordinator
Address	Locked Bag 2073, 88999 Kota Kinabalu, Sabah, Malaysia
Fax	
Email	

19. Appendix V: Project Logframe

Project summary	Measurable Indicators	Progress and Achievements August 2004 - July 2007
Goal: *To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve* *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		Institutional partnerships between UK and local partners strengthened where: CUZs recognised as crucial development in protected area management in Sabah for both conservation of biodiversity and sustaining community livelihood needs; Sabah Parks strategy developed for discussing use and access of CUZs and sharing of benefits; Sabah Parks commitment for continued monitoring of CUZs in future Increased local commitment and capacity to conduct participatory research; UMS developing curricula for degree programme in Ethnobiology and Conservation to be launched in 2008
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 CUZ Management Agreement by yr 3	**Progress:** Database on key ethnobiological resources established with 600+ plants and animals RCA GIS database on key resources and landscapes for subsistence agriculture, hunting and gathering established with GIS maps showing locations of areas important for subsistence activities CUZs proposed for legal status under amendment to Parks Enactment by Sabah Parks; enhanced effort in Sabah Parks to strategically address development of CUZ Management Agreements in CRP as a whole
Output 1 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	**Progress:** RCA GIS developed as the principal tool for organising information about community access to key landscapes and use of key resources Extensive focus on ethnobiological assessment of subsistence hunting activities; identified key hunting areas, preference ranking of hunted animals, and ongoing monitoring of hunting offtake Continued field collection of information agriculture with a focus on swidden agriculture and homegardens as primary sources of food security **Actions:**

		Finalisation of RCA GIS database and GIS maps for handing over to local partners in July 2007
Activity 1.1 Implementation of ethnobiological field techniques to assess subsistence agriculture, hunting and gathering activities		380 weeks spent on field research by 2 field coordinators, 3 Masters students, and 8 community field assistants receive hands-on training in quantitative and qualitative techniques 4 consultants spend 36 weeks on specific research projects with community field assistants and community members (see Activity 2.2)
Activity 1.2 Development of RCA GIS to database field data and produce GIS maps that show locations of key resources, landscapes and areas used for subsistence activities		Draft GIS maps produced for key landscapes, agricultural areas, village settlements, and hunting areas
Output 2 Training modules on ethnobiology and conservation biology delivered at UMS	Curriculum combining modules by UKC and UMS lecturers developed over 3 yrs Minimum of 8 Malaysian MSc students participated in modules by yr 3	**Progress:** Two training modules delivered in collaboration between UKC and UMS lecturers; field research grantees conducting ongoing research UMS compiling curricula in Ethnobiology and Conservation to launch MSc degree programme in June 2008 **Actions:** Conduct Fifth and final module of training course in June 2007
Activity 2.1 Delivery of Modules Three and Four on Ethnobiology and Conservation at UMS		Modules Three (April-May 2006) and Four (Nov 2006) completed with 21 postgraduate and professionals trained for 2-4 weeks
Activity 2.2 Awarding of Field Research Grants to UMS Masters students and select consultants (as pre-approved by Darwin Secretariat)		3 Masters students at UMS conducting ongoing field research on swidden agriculture, homegardens and fishing 4 grants awarded to consultants to conduct field research on rattan inventory, ethno-ornithology, taxonomic identification of plant specimens, GIS mapping. Results have enhanced overall field research and built local community capacity in these fields
Output 3 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	**Progress:** Documentation of field techniques in local language through training manuals and translation into English for inclusion in Best Practices Handbook is ongoing Extensive dissemination of approach, selected field techniques and data analyses conducted through paper presentations at various fora as described in Section 8 of the main report **Actions:** Finalisation of Handbook draft for publication in July 2007 (see Activity 3.2)
Activity 3.1 Production of process sheets as training manuals in fieldwork (as pre-approved by Darwin Secretariat)		2 sets of training manuals produced in the form of process sheets in the local language as field guides for community field assistants

Activity 3.2 Production of Best Practices Handbook		Handbook draft in production and will be published in July 2007 as a pdf file (as pre-approved by Darwin Secretariat)
Output 4 CRP adaptive management plan enhanced	Revised management plan, including detailed section on community use zones, approved by stakeholders by yr 3	**Progress:** CRP Management Plan completed in 2006 with significant input from Project Coordinators; contains revised definition of CUZs that incorporates multiple sources of subsistence livelihoods including hunting and gathering Sabah Parks submitted amendment to Parks Enactment that will legally establish CUZs as areas inside parks where communities can carry out multiple subsistence activities based on mutual agreement **Actions:** Preparation of Final Technical Report on key ethnobiological resource use to Sabah Parks in July 2007 and handing over of RCA GIS to local partners as primary tool for continued monitoring of CUZs
See Activity 1.1		
Output 5 CUZ Management Agreement established	Strategy developed by 2 local village committees in consultation with Sabah Parks by yr 3	**Progress:** Sabah Parks developed strategy to address CUZ establishment, with priority placed on Ulu Senagang CUZ followed by the Buayan-Kionop CUZ (see Section 6 of the main report) **Actions:** Finalised RCA GIS submitted in July 2007 as focus point for discussions between Sabah Parks and local community
Activity 5.1 Consultations between Sabah Parks and local communities to discuss CUZ establishment		See Section 6 of the main report

20. Appendix VI: Summary of Research Techniques and Results

Carried out from 2004 to 2007, the research techniques below are a combination of qualitative and quantitative ethnobiological methods, participatory rural appraisal exercises, participatory mapping and GIS, participatory video, and data accumulated as part of postgraduate projects funded through the project's MSc Field Research Grants.

Population			
Technique	**Purpose**	**Activity**	**Summary results**
Demographic survey	Gather baseline information about the community.	40 households interviewed, comprising 40 nuclear families	Current population of 310 people; mainly cash poor farmers with high dependence on natural resources for subsistence.
Kinship diagrams	Understand relationships between families.	Conducted family interviews to map kinship ties	Families comprise close knit clan-based kinship ties with high levels of intermarriage between clans, largely linked to ancestral divisions of territory.
Oral histories	Detailed understanding of community history, culture and customs.	Conducted unstructured interviews with 6 respondents	Vast amount of cultural knowledge linking people with the surrounding landscapes, settlement history and events over years.
Timelines	Elicit rough historical outline of the community in the area and their seasonal activities.	Conducted through workshop series	Strong collective memory of events and livelihoods from before1940; awareness of increasing modernisation but still reliant on forest resources.
Livelihood analysis	Gather information about livelihood sources and important resources people depend on for daily activities.	46 households interviewed comprising 50 nuclear families	40 households returned data requested; all households rely on subsistence activities; 7 households report supplementary cash income (school teachers, project community research assistants, government stipends, cash sent from family outside of the village).
Participatory Mapping			
Technique	**Purpose**	**Activity**	**Summary results**
Community resource mapping	Gather baseline information about distributions of key resources and locations of different landscapes in the area.	Conducted through workshop series	Sketch map showing substantial range of community accessed areas inside the park – this map was later groundtruthed and updated, resulting in the Resource Catchment Area GIS.
Resource Catchment Area (RCA)	Develop a GIS for the Buayan-Kionop RCA that systematically integrates ecological, biological and ethnobiological data collected through this project, and provide a means for long-term joint monitoring of the area.	Conducted through participatory GIS with community research assistants and interviews with resource users	RCA GIS database has approximately 450 GPS fixes uploaded; various GIS layers, such as those showing forest types (including agricultural and fallow lands), soil types according to local classification, hunting grounds, and settlements.
Cultural values of plants and animals			
Technique	**Purpose**	**Activity**	**Summary results**
Freelisting	Define the domains of plant and animal knowledge held in the community.	Conducted semi-structured interviews with 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.	Conducted through semi-structured interviews with 33 respondents (on 55 animals), 21 respondents (on 75 plants)	Animal results show strong consensus, based broadly on use values, indigenous ecological and taxonomic knowledge of animals; plant results similarly show strong consensus, also based on use values, indigenous taxonomic knowledge of plant

			morphology and habitats.
Cultural values of plants and animals (cont.)			
Technique	**Purpose**	**Activity**	**Summary results**
Biological resource valuation	Understand how separate resources are valued in relation to each other, and the cultural and utilitarian importance of resource categories (8 resource categories were used, based on findings from pilesorting and other techniques: hunted animals, animals caught while fishing, non-fruit crops, cultivated fruits, wild food plants, medicinal plants, construction materials, basketry/craft plants).	Conducted through individual freelisting and hierarchical weighted ranking exercises with 25 respondents from both Buayan and Kionop	Individual freelists generated top 10 resources for each category. Pebble distribution matrix exercises on each category found high cultural consensus (i.e. no gender effect, no village of residence effect). Of the 8 resource categories, the most highly valued are non-fruit crops, hunted animals, and construction materials. Top 5 resources that are most highly valued were obtained for each category. Results indicate high levels of dependence on natural resources inside and outside the park.
Rattan inventory	Compile an ethnobiological inventory of rattans with Dusun and scientific identifications; collect georeferenced data about the locations of rattan pools in the area.	Conducted freelisting with 9 respondents, followed by voucher collection trips with Jusimin Duaneh (Sabah Parks naturalist contracted under Field Research Grants)	31 Dusun rattan names elicited; 12 voucher specimens identified to species level; 22 specimens identified to genus level; 12 specimens identified to family level resulting from collection trips between August to October 2006. GPS fixes of rattan collection sites uploaded to RCA GIS database.
Specimen identification	Provide scientific identifications of Dusun animal and plant categories; analyse correspondence between ethnobiological and scientific classifications.	Collected voucher specimens of plants in Buayan-Kionop and plant identification tasks at Inobong permanent plot; conducted sight identification of animals using field manuals; collected fish specimens	>470 voucher specimens of key plants lodged at Kinabalu Park Herbarium, 311 specimens identified at least to family level, other specimens pending identification; >200 key animals identified at least to family level, including 22 fish specimens lodged at Kinabalu Park.
Landscapes and agriculture			
Technique	**Purpose**	**Activity**	**Summary results**
Forest and land classification	Determine the Dusun classification of forest and land types; explore cultural and utilitarian values of key landscapes.	Conducted with Perpetua George (UKC MSc under Field Research Grants) through semi-structured interviews; verified and expanded by GDF Field Team.	Of 36 land types recognised, 6 types were identified as most important, encompassing agricultural lands, young secondary, old secondary and primary forests; secondary and primary forests are located mainly inside the park and are a vital source for key resources (e.g. rattans and hunted meat)
Farm and fallow surveys	Gather baseline information about the sizes, locations, land tenure status and forest type (prior to clearing) of family farms and fallows	Conducted with James Wong (UMS MA under Field Research Grants) through semi-structured interviews and participant observation	Families generally have 2-3 acre hill rice plots opened on either young or old secondary forest; mainly located about 1 km walking distance from home; families also have 2-3 acre wet rice located mainly along the Papar River and within proximity of the village. GPS fixes of hill and wet rice fields uploaded to RCA GIS (ongoing Masters)

Landscapes and agriculture (cont.)			
Technique	**Purpose**	**Activity**	**Summary results**
Comparative home garden analysis	Analyse the floristic composition and diversity of gardens near home steads, including a study on the role of home gardens in supporting food security in the community	Conducted with Yassin Miki (UMS MSc under Field Research Grants) through semi-structured interviews and participant observation	194 home garden plants recorded in 21 home gardens surveyed, including 6 gardens inside the park; 188 of those plants identified to either genus or species level; 191 plants have reported uses mainly for food, medicinal and ornamental values; 42 plants reported to have multiple use values (ongoing Masters)
Hunting and freshwater fishing			
Technique	**Purpose**	**Activity**	**Summary results**
Hunting registers	Gather baseline information about hunting methods, areas, off-take and hunter knowledge of different landscapes.	Conducted with Adam Murphy (contracted under Field Research Grants) through hunting registers and structured interviews with 12 hunters	116 hunting trips recorded over two years; off-take of 180 individual animals recorded, representing 20 species; 97% mammals and 3% non-mammals. >76 names of hunting grounds identified, ranging from village areas to primary forests inside the park. GPS fixes of hunting locations uploaded to RCA GIS.
Freshwater fish survey	Gather baseline information about fish species diversity, particularly of fish species commonly caught and ecological study of fishes of the family Gastromyzontidae	Conducted with Zuraida Zainudin (UMS MSc under Field Research Grants) through fish surveys and semi-structured interviews; expanded by GDF Field Team in freelisting and weighted ranking exercises (19 respondents)	Zuraida Zainudin collections lodged at UMS and results are pending completion of her dissertation. Freelisting results had 28 animals caught from the river, including 21 types of fish. The top 10 fish mentioned in freelists importance were ranked according to importance, where food was the main value. 22 fish specimens collected by the GDF Field Team are lodged at Kinabalu Park.
Other process-based participatory approaches			
Theme	**Purpose**	**Activity**	**Summary results**
Community Research Agreement	Establish mutual agreement with the local community about the project's activities, community participation, ownership of data, returning of results, and payments.	Conducted through workshops and discussions over six months in 2004-2005; revised and updated in 2006	Agreement signed in April 2005 between GDF and community leaders, witnessed by Sabah Parks and District Officer; revised in 2006 following feedback from the Participatory Community Evaluation; facilitated the development of a Community Research Protocol compiled by the Community Research Assistants that outlines ethical research conduct requested of other outside researchers; built capacity in the community to comprehend and provide input into the design of formalised written agreements, in anticipation of the negotiation between Sabah Parks and the community to draft the CUZ Management Agreement.

Other process-based participatory approaches (cont.)			
Theme	**Purpose**	**Activity**	**Summary results**
Community Research Assistants	Build capacity in the community to carry out ethnobiological research, including participatory mapping; train community members in systematic data collection strategies, basic data analysis and interpretation; create a group of skilled community field researchers that have a technical understanding of community resource use patterns.	Conducted through the five modules of the Ethnobiology and Conservation training course, community workshops, thematic training courses (e.g. on botanical collection techniques, GPS tracking), hands-on field experience, attendance at conferences and seminars with other agencies	14 Community Research Assistants have been trained over a three-year period (although not all 14 are active for the entire period due to family commitments). In 2007, 10 of these remained active in the project, 4 of whom have been with the project since 2004. They play a crucial role in data collection, especially interviews with community members and participatory mapping. Of the 14 Community Research Assistants, 11 continue to be actively involved in the Darwin post-project.
Participatory Video	Enable community members to record video footage that describes the various issues they face, and create a common space for community members to discuss these issues and present them to outside audiences.	Conducted through Module Five of the Ethnobiology and Conservation training course, followed by community screenings and discussions to finalise the footage	Video produced in 2007: A Community in Dilemma, Land Resources and Sustainability, Part I of the Buayan-Kionop Participatory Video Series (30 minutes, available in DVD and VCD with English and Bahasa Malaysia subtitles). Filming for Part II is ongoing and expected to be completed in 2008. Planning for Part III is expected to commence in 2008.
Conservation Education	Identify suitable methods for stimulating conservation awareness in the community and train community members to design and facilitate discussions about contemporary conservation issues.	Conducted through Module Five of the Ethnobiology and Conservation training course, followed by a puppet theatre performance in the community	Puppet theatre developed and performed in the community, focussing on the theme of hunting and wildlife conservation. 5 community pre-school teachers were trained in this approach (including 1 pre-school teacher from Buayan); puppets, props and script have been handed over to the Buayan community pre-school.
Participatory Community Evaluation	Evaluate the project with the community by examining the strengths and weaknesses of aspects of the project; recommend improvements to project implementation; review the Community Research Agreement; provide suggestions for future project activities.	Conducted as a mid-term project evaluation through core group discussions and community workshops over a 5-month period in 2006	Overall positive response and high levels of commitment from the community; recommendations made on the improvement of Community Research Assistants, further studies on hunting, and a request for the project to be extended. This has been reported in full in the Third Annual Progress Report to Darwin.