

Darwin Initiative

Annual Report

1. Darwin Project Information

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| Project Ref. Number | 14-014 |
| Project Title | <i>Conservation of the Bornean elephant (<i>Elephas maximus borneensis</i>)</i> |
| Country(ies) | <i>Sabah, Malaysia</i> |
| UK Contractor | <i>Cardiff University</i> |
| Partner Organisation(s) | <i>HUTAN</i> |
| Darwin Grant Value | <i>£239,997</i> |
| Start/End dates | <i>1st July 2005-30 June 2008</i> |
| Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..) | <i>1 April 2005 to 31 March 2006 Annual report no 1</i> |
| Project website | <i>none</i> |
| Author(s), date | <i>Michael Bruford (PL), Marc Ancrenaz(PP) & Benoît Goossens (PDRA), 30 April 2006</i> |

2. Project Background

- Briefly describe the location and circumstances of the project and the problem that the project aims to address.

The project is located in Sabah, Malaysia, on the island of Borneo. The need for this project was identified by the wildlife authorities in Sabah during a previous DI grant (09-016) and was the result of a common requirement to implement the CBD in Sabah.

The Asian elephant is protected and is classified as endangered under Sabah legislation. The Bornean elephant sub-species has recently been confirmed as a separate taxon, dramatically increasing its importance in terms of biodiversity. In a recent general survey, the Sabah Wildlife Department (SWD) and WWF-Malaysia estimated that about 1,100-1,500 elephants survive in Borneo. They showed that the remnant populations were mainly found in eastern Sabah, and were highly fragmented. The Bornean elephant is therefore the world's most endangered Proboscidean, highlighting the urgent need to undertake sound conservation action in the near future. SWD has recently produced a first draft of the State Action Plan for elephants. Following explicit recommendations of this State Action Plan, our work will provide information that is currently lacking, including the distribution and movement of individuals, genetic differentiation between populations, threats to genetic diversity, identification of priority areas for the species that should be kept under forest cover to allow movements of individuals between the different sub-populations and the genetic identification of persistent crop-raiding individuals.

3. Project Purpose and Outputs

- State the purpose and outputs of the project. Please include your project logical framework as an appendix and report achievements and progress against it (or, if applicable, against the latest version of the logframe).

The purpose of the project is to:

- (1) Provide a range of essential conservation and management information concerning the ecology, genetics, social structure, dispersal and conflicts with agriculture for the newly described Bornean elephant (*Elephas maximus borneensis*), including extensive field and laboratory training and capacity building in the host country, Sabah, Malaysia.
 - (2) Partner the production of a management plan for the Bornean elephant.
- Have the outputs or proposed operational plan been modified over the last year, for what reason, and have these changes been approved by the Darwin Secretariat? (Please note that any intended modifications should be discussed with the Secretariat directly rather than making suggestions in this report).

The outputs or proposed operational plan have not been modified over the last year.

4. Progress

- Please provide a brief history of the project to the beginning of this reporting period. (1 para)

September 2005: Departure of B Goossens (PDRA) and M Bruford (PL) to Sabah on Sept 5. Meeting with M Mohamed, Director of the Institute for Tropical Biology and Conservation (ITBC) at Universiti Malaysia Sabah (UMS) on Sept 8. Meeting with M Ancrenaz (PP), Director of HUTAN and co-applicant on the current project, on Sept 14. Meeting with L Ambu, Deputy Director of SWD, on Sept 15. Meeting with J Payne (WWF-Malaysia) on Sept 16. PDRA, PL and ITBC Director identified a student (Nurzaharina Othman, NO) who will be trainee during the whole project and will obtain her MSc at the end of the project. She will work full time on the current project. PL returns to UK on Sept 17. Meeting between PDRA, PP and WWF-Malaysia representatives on Sept 20. PDRA starts fieldwork in the Lower Kinabatangan Wildlife Sanctuary (LKWS) and identifies (and hires) one local assistant (Rosdi Sakong, RS) who will work full time in the field for the next 7 months.

October 2005: Fieldwork in the LKWS.

November 2005: Meeting at the SWD Headquarters, on Nov 10, to present the project to stakeholders (Sabah Forestry Department, Sabah Parks, Yayasan Sabah, WWF-Malaysia). Drafting of the Kinabatangan Elephant Population Management Plan (KEPMP). Fieldwork in the LKWS.

December 2005: Fieldwork in the LKWS. Drafting of the KEPMP.

January 2006: Fieldwork in the LKWS with MSc student (NO). Drafting of the KEPMP (submission to SWD for comments). DNA extractions at ITBC and training of NO. 24 February 2006: publication online of the PLoS paper on orang-utans (output from DI 09-016), large international and national press coverage (see Annex).

February 2006: DNA extractions at ITBC.

March 2006: DNA extractions at ITBC. Field training course in wildlife monitoring, Sukau, Kinabatangan, 19-25 March. Meeting with M Mohamed at ITBC and with L Ambu and P Andau (SWD Director) at SWD Headquarters. PDRA returns to UK on 31 March.

- Summarise progress over the last year against the agreed baseline timetable for the period and the logical framework (complete Annex 1). Explain differences including any slippage or additional outputs and activities.

The nine first months of the project (July 2005-March 2006) have been extremely successful and the agreed (amended) baseline timetable has been adhered to. The main objective for this period was to carry out a large non-invasive sampling effort for the whole LKWS elephant population, and this has been more successful than we could have expected (see below). One MSc student (NO) from UMS has been trained in the collection of non-invasive samples and in DNA extraction from faeces. The KEPMP has been drafted by the PDRA and PP, and submitted to SWD. The PDRA and PP organised the field training course in wildlife monitoring in the LKWS in March.

- Provide an account of the project's achievements during the last year. This should include concise discussion on methodologies and approaches by the project (e.g. research, training, planning, assessment, monitoring) and their consequences and impacts as well as results. Please **summarise** content on methodologies and approaches, and, if necessary, provide more detailed information in appendices (this may include cross-references to attached publications).

Research

323 dung samples were collected in the LKWS by the PDRA and RS. Samples were mainly collected from the large herd (about 150 individuals) which ranges between Sukau and Abai villages. Samples from single bulls and persistent crop-raiders were also collected near Sukau and Abai villages. All samples were stored in 50 mL Falcon tubes with 70% ethanol and transported to the laboratory at ITBC. GPS coordinates were taken for each sample. The samples were then extracted at ITBC, in the non-invasive genetic lab, which is one of the legacies of a previous DI project (09-016). We used the QIAamp DNA Stool Mini Kit (QIAGEN) and carried out two extracts per sample. All samples collected in the LKWS were extracted. We also extracted faecal DNA from nine captive individuals kept in the new zoo in Kota Kinabalu. All individuals are originating from a known wild location in Sabah.

Training

The PDRA's counterpart for this project, Nurzhafarina Othman from ITBC, is currently registered at UMS as a BSc student, and received training in the field (non-invasive samples collection) and in the laboratory (DNA extraction from difficult samples). She will register as MSc student in June 2006 and will be working full time on the elephant project for her Master's degree, until June 2008 (end of the project). She will spend 4 months in Cardiff with the PDRA, from April 30 to August 31, 2006 and will be trained in molecular ecology techniques and take part in the genetic analyses of the samples collected in the LKWS.

Teaching

A one-week field-training course in wildlife monitoring and censusing was carried out at the Kinabatangan Orangutan Conservation Project (KOCP) Field Research Station, Sukau, Kinabatangan, March 19-25, 2006. The course was co-organised by the French NGO HUTAN (Marc Ancrenaz), the SWD, and Cardiff University (Benoit Goossens), and funded by the Darwin grant and HUTAN.

Sixteen staff from governmental (SWD: three staff from Tabin Wildlife Reserve and one staff member from Kinabatangan District; Sabah Parks: one staff member from Crocker Range NP and one staff member from Kinabalu Park) and non-governmental (SOS Rhino: one staff member from Tabin Wildlife Reserve; WWF-Indonesia: two staff; HUTAN: two staff from Red Ape Encounters and two staff from Elephant Conservation Unit) organisations as well as representatives from the private sector (Yayasan Sabah: one staff member from Imbak, one staff member from Danum Valley and one staff member from Maliau Basin) attended the course.

The course was principally run by several members of KOCP staff, all native from Sukau village and who were mostly trainees during the previous Darwin project (09-016): Ahbam Bin Abulani, Eddie Bin Ahmad, Hanisah Binti Elahan, Azman Bin Sakong, Marlin Bin Suali and Azri Sawang. They gave lectures on wildlife surveys (principally orang-utans, proboscis monkeys, gibbons and other primates, and crocodiles), which were alternated with practical work in the field. Surveys of primates and other wildlife were carried out along the Kinabatangan river, and data were analysed back at the KOCP headquarters.

The students were taught how to estimate densities of orang-utans and gibbons in the KOCP study site, Lot 2, Kinabatangan Wildlife Sanctuary. They were also briefed about elephant surveys (dung collection and line transects). A night survey was carried out on the river to estimate the density of crocodiles in the Kinabatangan. Results of the surveys were then analysed and discussed by the participants, back at the station.

This course was not only the opportunity to gather staff from different organizations working on wildlife in Sabah and in Indonesia, exchange ideas and views; it was also the opportunity for these staff to extend their knowledge in wildlife monitoring. It was astonishing to see the level of dedication and professionalism showed by the KOCP staff during the course. They are the proof that wildlife conservation and local community are strongly linked.

At the end of the course, we organised a diploma ceremony. The participants were invited to give their impression on the course: *"This was an excellent opportunity given by HUTAN, Cardiff University and the Darwin Initiative to apply theory to the field and we now plan to implement surveys on our own, in our own areas"* said Fadzilawati Zahrah Hamdan from SOS Rhino and Mustamin Mansah from Yayasan Sabah, Danum Valley.

- Discuss any significant difficulties encountered during the year and steps taken to overcome them.

We did not encounter any significant difficulties during the first year of the project, except that we encountered collaboration problems with staff at WWF-Malaysia, who eventually decided to withdraw from the project. A full explanation for this decision was not tendered, but centred around the amount of credit and 'ownership' of the DI project that WWF insisted upon, which the PIs and PDRA (MWB, BG and MA) all judged to be entirely disproportionate to their contribution in the field. This situation is clearly regrettable, but it should be pointed out that it was fully supported by the Sabah Wildlife Department, who have undertaken to assist in sampling where WWF-Malaysia were originally involved, so we judge that aside from its negative 'political' connotations, this development will not have a negative impact on the implementation of the project.

- Has the design of the project been enhanced over the last year, e.g. refining methods, indicators for measuring achievements, exit strategy?

No

- Present a timetable (workplan) for the next reporting period.

1 April to 31 August 2006: PDRA will spend five months in Cardiff University to perform genetic analyses on the DNA extracted at ITBC. Trainee 1 will spend four months in Cardiff to be trained in molecular ecology techniques. Microsatellite analysis will be carried out on the samples collected to estimate the size of the LKWS elephant population and identify the degree of genetic diversity within that isolated population. Sex identification will be performed for the identified individuals. Genotyping and sexing of the LKWS elephant population should be completed by August 31, 2006.

September 2006: PDRA and Trainee 1 return to Sabah for 12 months. PL goes to Sabah for 2 weeks for 1st year evaluation, will meet all host country partners and hold

a one-day workshop on PHVA results for the Kinabatangan Wildlife Sanctuary orang-utan project (resulting from DI 09-016).

September 2006 to March 2007: PDRA and Trainee 1 will carry out fieldwork across the whole of Sabah to sample all elephant populations in the country. They will extract DNA from the samples and carry out sex identification and sequencing at ITBC laboratory facilities. Trainee 1 will also perform behavioural observations on elephant family units in the LKWS and collect samples from the different units and all males from the herd to look at paternity, relatedness, dispersal and social structure in the Bornean elephant. She will be supervised by the PDRA and Marc Ancrenaz. Samples will be analysed at ITBC facilities.

March 2007: Second field training course in wildlife monitoring and censusing.

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

- Have you responded to issues raised in the review of your last year's annual report? Have you discussed the review with your collaborators? Briefly describe what actions have been taken as a result of recommendations from last year's review.

N/A

6. Partnerships

- Describe collaboration between UK and host country partner(s) over the last year. Are there difficulties or unforeseen problems or advantages of these relationships?

Three local partners worked on project activities together in collaboration with PDRA: HUTAN, Sabah Wildlife Department and Universiti Malaysia Sabah. Their relationships during the first year of the project were extremely good. WWF-Malaysia withdrew their participation (see Section 4, above).

1. HUTAN: Relationships between the PDRA and the directors of HUTAN, Marc Ancrenaz and Isabelle Lackman-Ancrenaz were excellent. The PDRA closely worked with the staff of the KOCP Elephant Conservation Unit (ECU) in the Kinabatangan and hired the ex-head of the unit, Rosdi Sakong, as his field research assistant. The experience of Rosdi Sakong on elephants was crucial during the sampling of the population. ECU staff was also instrumental in monitoring the location of the elephant herd during this period of time. HUTAN research station was also used as a base for the field training course in wildlife monitoring organised in March by the PDRA, Marc Ancrenaz and its staff who took a large responsibility in the training of the participants. Their experience in the field and in censusing methodology greatly increased the quality of the course.
2. Sabah Wildlife Department: Patrick Andau (Director) and Laurentius Ambu (Deputy Director) were very supportive and gave all the authorisations required to sample in the LKWS. They also provided an export permit for the DNA extracts. The PDRA and Marc Ancrenaz drafted a Kinabatangan Elephant Population Management Plan which was handed over to Patrick Andau and Laurentius Ambu for comments. SWD were also extremely supportive over collaboration problems with WWF-Malaysia (see above).
3. Universiti Malaysia Sabah: UMS (and ITBC) provided the PDRA with an office and internet access. The PDRA used the laboratory facilities at ITBC to perform DNA extractions. One UMS student is working full-time on the project and will register for a Master's degree in June 2006. Efforts were made by the PDRA to strengthen the capacity of the UMS partner (ITBC) to secure further funds for additional work. A grant application "Combining GIS and genetics to understand movement patterns of the Kinabatangan elephant population" has been submitted to UMS in March 2006.

4. WWF-Malaysia: Unfortunately, this partner has withdrawn from the project following disagreement over ownership of DI project results (see above).

- Has the project been able to collaborate with similar projects (Darwin or other) in the host country or other regions, or establish new links with / between local or international organisations involved in biodiversity conservation?

Strong links have been established with the Sabah Forestry Department, Sabah Parks, Yayasan Sabah and SOS Rhino during the field training course in the Kinabatangan. The participants from these three organisations will help collecting samples in the areas where they work: Tabin Wildlife Reserve, Danum Valley, Maliau Basin and Imbak.

The PDRA has established strong links with SOS Rhino to help them set up a genetic study on the Sumatran rhinoceros population in Sabah. A grant of RMB 10,000 has been allocated to do the work at ITBC.

7. Impact and Sustainability

- Discuss the profile of the project within the country and what efforts have been made during the year to promote the work. What evidence is there for increasing interest and capacity for biodiversity resulting from the project? Is there a satisfactory exit strategy for the project in place?

Every effort has been made to publicise the project in the local and national press. Press releases (Daily Express, New Sabah Times and New Straits Times) were picked up in November 2005 to present the project and in March 2006 to talk about the field training course (Daily Express, New Sabah Times, Jee Hua Daily News and New Straits Times). Cardiff University also released an article for the launching of the project.

We also received global publicity for the results of the previous Darwin project on orang-utans (DI 09-016) carried out by the same team, particularly following the publication of a cutting-edge paper in the scientific journal *Public Library of Science Biology* which made the cover of the 2006 February issue. More than 60 web pages and more than 30 local (Sabah), national (Malaysia) and international (UK, France, Spain, Italy, Germany, USA, Brazil, India, Iran, etc) newspaper articles covered the findings of the study. The fact that the PDRA involved in the elephant project also carried out the orang-utan project and that he was in Sabah at the time of publication was an important factor for the large coverage of the paper in the press.

One satisfactory exit strategy is already in place after only 9 months of the project: a management plan for the Kinabatangan Elephant Population has been drafted by the PDRA and PP and is currently in the hands of the SWD for review. We expect it to be finalised by the end of the project.

8. Outputs, Outcomes and Dissemination

- Explain differences in actual outputs against those agreed in the initial 'Project Implementation Timetable' and the 'Project Outputs Schedule', i.e. what outputs were not or only partly achieved? Were additional outputs achieved?

The only output which has not been achieved as previously stated in the 'Project Outputs Schedule' is the production of a booklet on elephant awareness. On discussion, we felt that it was too early and that we needed more information before producing such an output. It will instead be produced for the workshop on the conservation of the Bornean elephant in Sabah which will be organised at the end of the project, unless conflict mitigation becomes such a pressing issue that an 'emergency' pamphlet becomes imperative. We hope for your flexibility on this.

We produced additional outputs in terms of press releases (15A and 15B).

- Provide details of dissemination activities in the host country during the year, including information on target audiences. Will dissemination activities be

continued by the host country when the project finishes, and how will this be funded and implemented?

We have established strong links with the local (Sabah) and national (Malaysia) press and disseminate our work as much as possible. Dissemination activities will continue by the host country when the project finishes since all participants of the project have excellent relationships and will keep working together for many years.

- Please expand and complete Table 1. **Quantify** project outputs over the last year using the coding and format from the Darwin Initiative Standard Output Measures (see website for details) and give a brief description. Please list and report on appropriate Code Nos. only. The level of detail required is specified in the Guidance notes on Output Definitions, which accompanies the List of Standard Output Measures. Only the summarised totals after the end of your project will be recorded on the Darwin project database from your final report (the totals below will help you to keep track on a yearly basis).

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

| Code No. | Description | Year 1 Total | Year 2 Total | Year 3 Total | Year 4 Total | TOTAL |
|----------|--|--------------|--------------|--------------|--------------|-------|
| 8 | PDRA to Sabah for fieldwork & field/laboratory training of trainee 1 PL to Sabah for meeting all host country partners | 28 + 2 | | | | 30 |
| 4A | Trainee 1 receives training in the field & in the laboratory | 1 | | | | 1 |
| 4B | | 1 + 2 | | | | 3 |
| 6A | NGOs and GOs staff receive one week training in field methodology at KOCP Headquarters | 17 | | | | 17 |
| 6B | | 1 | | | | 1 |
| 14B | Talk (PDRA) at the Rasa Ria Resort Hotel, Kota Kinabalu, Sabah, 11 March 2006: "Conservation of the Bornean elephant in Sabah" | 1 | | | | 1 |
| 15A | Press releases in national (Malaysia) newspapers about the launching of the project and about the field training course | 1 + 1 | | | | 2 |
| 15B | Press releases in local (Sabah) newspapers about the launching of the project and about the field training | 2 + 3 | | | | 5 |

- In Table 2, provide full details of all publications and material produced over the last year 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. Mark (*) all publications and other material that you have included with this report.

Table 2: Publications

| Type * (e.g. journals, manual, CDs) | Detail (title, author, year) | Publishers (name, city) | Available from (e.g. contact address, website) | Cost £ |
|--|--|----------------------------|---|--------|
| Web page | World's smallest elephants | Cardiff News | http://www.cardiff.ac.uk/newsevents/17934.html | free |
| Newsletter | World's smallest elephants January 2006 12(4): 6 | Cardiff News | Cardiff University | free |
| CD of field training course contents | A field training course in wildlife monitoring and censusing | HUTAN & Cardiff University | B Goossens | free |

9. Project Expenditure

- Please expand and complete Table 3.

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

- Highlight any recently agreed changes to the budget and explain any variation in expenditure where this is +/- 10% of the budget.

10. Monitoring, Evaluation and Lessons

- Discuss methods employed to monitor and evaluate the project this year. How can you demonstrate that the outputs and outcomes of the project actually contribute to the project purpose? i.e. what are the indicators of achievements (both qualitative and quantitative) and how are you measuring these?

Field-work and lab-work have been monitored through regular meetings/discussions between PDRA, PL and PP. Both PDRA and PP maintain excellent contacts with the Director and the Deputy Director of SWD and discuss progress and outputs on a monthly basis.

- What lessons have you learned from this year's work, and can you build this learning into future plans?

Darwin projects are allocated for building capacity over a relatively short-term period (usually three years), and although British institutions can apply for follow-up funds or for a scholarship for one trainee, having the opportunity for institutions to build on long-term collaborations with host country partners by funding additional projects involving more or less the same group of partners can be extremely valuable. For a project combining research, conservation, training and capacity building, three years can sometimes be very short in order to take maximum profit of the relationships built and the results obtained during that period. We would like to share the experience that we had recently when our scientific paper (which was a result of our previous Darwin grant, DI 09-016, on the Bornean orang-utan) made the cover of the 2006 February issue of the *Public Library of Science Biology*. It happens that the PDRA on the orang-utan project is also the one working on the current elephant project and he was in Sabah, Malaysia when the paper came out. Therefore, we were able to attract considerable publicity to that paper and to widely disseminate the information at both national and international levels. Being on the ground, the PDRA was also able to assist the Sabah Wildlife Department Director when he had to explain the results and the consequences of the paper. We believe that capacity building requires planning for the medium to long-term and that British institutions should be given the opportunity to do this. We would like to acknowledge the fact that Darwin gave us that opportunity with the current elephant project, following the previous one on orang-utans.

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

Since we started DI 14-014 nine months ago, we do not have an obvious outstanding achievement to report on this project yet. However, we would like to report two outstanding achievements related to our previous DI project (09-016) based in the same location.

1. The publication of the results of our study in the *Public Library of Science Biology* "Genetic signature of anthropogenic collapse in orang-utans", which attracted considerable attention all over the world, but particularly in Sabah and Malaysia. Our results indicated that orang-utan populations in North-eastern Borneo decreased by more than 95% over the past 100 to 200 years. This trend coincides with extensive forest clearance that began in 1890s and accelerated during the past 50 years. This was the first time that a recent and alarming decline of a great ape population, brought about by humans, has been demonstrated, dated, and quantified using genetic information.

2. The Sabah State Government, in a landmark decision that has positive global implications, recently (mid-March 2006) approved nearly 300,000 hectares of forest reserves in the East Coast to be managed under Sustainable Forest Management principles and for conservation of biodiversity. The last orang-utan census that was carried out in 2002-2003 by the Sabah Wildlife Department and the NGO HUTAN (our partners in the project), published in *Public Library of Science Biology* in 2005,

and presented/publicised at the 2003 workshop on the conservation of the Bornean orang-utan in Sabah (partly funded by DI 09-016), was instrumental in that decision, as it showed that the area was extremely important for orang-utan conservation (containing more than 35% of Sabah's orang-utan population).

■ **I agree for ECTF and the Darwin Secretariat to publish the content of this section**

In this section you have the chance to let us know about outstanding achievements of your project over the year that you consider worth highlighting to ECTF and the Darwin Secretariat. This could relate to achievements already mentioned in this report, on which you would like to expand further, or achievements that were in addition to the ones planned and deserve particular attention e.g. in terms of best practice. The idea is to use this section for various promotion and dissemination purposes, including e.g. publication in the Defra Annual Report, Darwin promotion material, or on the Darwin website. As we will not be able to ask projects on an individual basis for their consent to publish the content of this section, please note the above agreement clause.

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

| Project summary | Measurable Indicators | Progress and Achievements April 2005-Mar 2006 | Actions required/planned for next period |
|---|--|--|--|
| <p>Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources | | | |
| <p>Purpose <i>(insert original project purpose statement)</i></p> <p><i>Provide data on ecology, genetics, social structure, dispersal and conflict activities of the Bornean elephant E. maximus borneensis in fragmented habitat through extensive field study and laboratory training and capacity building in Sabah.</i></p> | <p><i>(insert original purpose level indicators)</i></p> <p><i>Studies of Bornean elephant populations by trained local field assistants by yr 2.</i></p> <p><i>Population demographic and genetic analyses by Malaysian (MSc) student by yr 3, supervised by PI's, John Payne (WWF) & PDRA.</i></p> <p><i>Ecological data (distribution, movements, population growth, social structure, dispersal) on Kinabatangan elephant population by KOCP by yr 3</i></p> | <p><i>(report impacts and achievements resulting from the project against purpose indicators – if any)</i></p> <p><i>We are not yet at the stage where we can provide data on ecology, genetics, social structure, dispersal and conflict activities since we only started sampling in one of the main elephant populations.</i></p> | <p><i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i></p> <p><i>No particular lessons learned.</i></p> <p><i>Key actions for next period:</i></p> <p><i>Analyse the samples collected in the Kinabatangan</i></p> <p><i>Sample other elephant populations in Sabah</i></p> <p><i>Continue the training of Malaysian MSc student</i></p> |
| <p>Outputs</p> | | | |

| <i>(insert original outputs – one per line)</i> | <i>(insert original output level indicators)</i> | <i>(report completed activities and outcomes that contribute toward outputs and indicators)</i> | <i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i> |
|---|--|--|---|
| <i>DNA bank for Bornean elephant species in Sabah</i> | <i>Elephant populations in Sabah sampled by yr 2</i> | One population sampled (Kinabatangan) | Other populations sampled by September 2007. |
| <i>Cartography of all Bornean elephant populations in Sabah and genetic mapping of all populations.</i> | <i>Surveys in Sabah by yr 2 and inclusion of ecological & genetic data. Identification of conservation issues.</i> | N/A (was for year 2) | Will be done during year 2. |
| <i>Training of Sabah field assistants</i> | <i>3 local field assistants trained in census & surveys by yr 2</i> | 1 st phase of training achieved during the Field course in wildlife monitoring (March 2006) | 2 nd phase in March 2007 during the second field course in wildlife monitoring |
| <i>Training of local MSc student</i> | <i>1 MSc student trained by yr 3</i> | Training in the field (sample collection) and in the lab (DNA extraction) | Training will continue in Cardiff lab (genetic analyses) and in the field in the Kinabatangan (elephant behaviour) |
| <i>Results disseminated</i> | <i>3 papers published in scientific journals by yr 3, 1 radio broadcast (BBC), workshop proceedings published</i> | We are too early in the project and do not have any results to publish yet. | |

Note: Please do NOT expand rows to include activities since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.