



Darwin Initiative Annual Report

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be about 10 pages in length, excluding annexes



Submission Deadline: 30 April 2011

1. Darwin Project Information

Project Reference	17-024
Project Title	Securing human–elephant co-existence in Sumatra
Host Country/ies	Indonesia
UK contract holder institution	North of England Zoological Society (NEZS; Chester Zoo)
Host country partner institutions	Wildlife Conservation Society – Indonesia Program (WCS)
Other partner institutions	Government of Republic of Indonesia, Department of Forestry, Directorate General of Forest Protection and Nature Conservation ('PHKA').
Darwin Grant Value	£285,350
Start/end dates of project	1st April 2009 – 31st March 2012
Reporting period (eg Apr 2010 – Mar 2011) and number (eg Annual Report 1, 2, 3)	1st April 2010 – 31st March 2011; Annual Report No. 2
Project Leader name	Alexandra Zimmermann
Project website	N/A
Report authors, main contributors and date	Donny Gunaryadi, Simon Hedges, Martin Tyson, Alexandra Zimmermann; 29 April 2011.

2. Project Background

Throughout their range, Asian elephants are in decline due to poaching, habitat loss, and human–elephant conflict (HEC). All of these threats are apparent on the Indonesian island of Sumatra, one of the most important areas for Asian elephants outside of India.

The current status of most elephant populations on Sumatra is unknown. However, we do know that many of the remaining elephant populations are threatened. Our project focuses on identifying those elephant populations where conservation action will make the most difference, not the likely 'lost causes', and then implementing measures to protect them, while simultaneously improving farmers' food security and livelihoods by reducing the impact of HEC, which will foster goodwill towards protected areas.

We are addressing these pressing needs by conducting a three-year Sumatra-wide elephant survey and threat mitigation project. We are building on the experience gained during the extensive previous work on HEC reduction, rural livelihood protection, and elephant population monitoring conducted by project co-leaders, Zimmermann and Hedges, in Assam and Sumatra respectively. Specific project objectives are to:

- i. identify key elephant populations and HEC hotspots using a combination of desk-based map studies and field work, including MIKE-approved survey methods based on dung counts and innovative faecal DNA capture–recapture methods (see "Hedges & Lawson. 2006. Dung Survey Standards for the MIKE Programme. CITES/MIKE Central Coordinating Unit, Nairobi, Kenya");
- ii. protect these key Sumatran elephant populations by promoting measures to reduce HEC, poaching, and habitat loss while working with communities to protect local peoples' crops using both novel and proven methods; and

- iii. build capacity by PHKA staff in: (a) the design and conduct of elephant surveys using modern peer-reviewed sampling-based survey methods approved by CITES/MIKE; (b) the implementation of an HEC, poaching, and habitat loss reduction strategy, using methods that have proven effective elsewhere; and (c) provide opportunities for Indonesian conservation biologists to study for graduate degrees in the UK.

3. Project Partnerships

This project provides UK expertise to the host country through its Project Leader and Co-Leader, whose many years of experience of working in elephant conservation stem from their roles as IUCN/SSC Asian Elephant Specialist Group co-chair (Simon Hedges) and Assam Haathi Darwin Project founder (Alex Zimmermann). Simon Hedges, and recently recruited technical adviser Martin Tyson (also UK-based), each spend several months per year in Asia, providing technical assistance to various elephant projects and particular this Darwin project. The three UK-based scientists meet up whenever needed and communicate by email and telephone. Direct management of the project in Indonesia is overseen by WCS-IP Director, Dr Noviar Andayani, and Donny Gunaryadi is the project manager, both are Indonesian nationals. During the reporting period the only major change to the management of the project was recruitment of additional team leaders, to bring the total to 5 (all are Indonesian nationals, educated at BSc level or equivalent, and are the main executants of this project, working under Donny Gunaryadi's supervision). These additional staff were recruited after discussions between WCS-IP, the co-leaders, and the technical advisers, because they were concerned about adequate personnel to cover all the project sites. Donny Gunaryadi, Martin Tyson, and two team leaders Sugiyo and Ade Sumantri visited the Assam Haathi 'sister project' (Darwin Projects 16-007 & EIDPO-040) during December 2010 to compare experiences of mitigating human–elephant conflict.

- ***Wildlife Conservation Society – Indonesia Program (WCS)***

WCS is the leading NGO in Sumatra developing, testing, and promoting sustainable human–elephant conflict and poaching reduction methods; WCS is the key in-country partner providing local knowledge technical advice, project field staff, and general facilitation. WCS holds a Memorandum of Understanding with PHKA under which it conducts applied conservation projects in collaboration with PHKA, and advises on the conservation of endangered species and the development of wildlife management strategies.

- ***Government of Republic of Indonesia, Department of Forestry, Directorate General of Forest Protection and Nature Conservation ('PHKA')***

PHKA is responsible for managing and protecting national parks, nature reserves, and protection forests in Indonesia. We have worked closely with park rangers, the heads of national parks, and HQ staff on elephant and tiger conservation since 1998. As the lead national agency responsible for elephant conservation, PHKA are the target of much of the capacity building work and are participants in the project's surveys, human–elephant conflict mitigation activities, and law enforcement activities. During this project period we have also conducted training to assist the Indonesian Government meet its obligations to the CITES / Monitoring the Illegal Killing of Elephants (MIKE) programme.

- ***Local Government and local communities***

We have worked closely with the District Authorities (local government) and local community groups in all target sites to discuss human–elephant conflict reduction work and our other proposed elephant conservation activities.

- ***Collaborating projects and partners***

We have worked closely with the Assam Haathi Project (Darwin Project main project 16-007, now post-project EIDPO-040) to share knowledge of community-based conflict mitigation and livelihoods approaches. In Sumatra we have worked closely with other, more localized, HEC mitigation projects in Sumatra run by partners including WWF, Fauna & Flora International (FFI), and the International Elephant Foundation (IEF) and PT. REKI (Harapan Rainforest) again to share knowledge and to promote a common approach to reducing HEC in Sumatra.

4. Project Progress

4.1 Progress in carrying out project activities

Activities in this period closely followed the planned project timetable. A summary of progress against each planned activity for this period is shown below:

• ***Deployment of elephant population and HEC survey teams in areas identified as priorities (Activity 1.2)***

We completed the faecal DNA based capture–recapture elephant population survey in Way Kambas NP, and have collected a total of 310 faecal samples, in five rounds of sampling. The faecal DNA survey in Bukit Barisan Selatan NP has begun, with 313 faecal samples collected on the first of the planned five survey rounds; this survey will be completed in June 2011. The elephant populations in these two national parks were previously surveyed in 2001 (BBSNP) and 2002 (WKNP) and those surveys produced the first estimates of elephant population size for Southeast Asia to be based on peer-reviewed sampling-based methods. The repeat surveys (again the first of their kind) initiated under this project will allow us to identify whether the elephant populations in these two important national parks are declining, stable, or increasing and so provide managers with indicators of management effectiveness.

In addition to the faecal DNA surveys, our survey teams have carried out combined occupancy/questionnaire surveys in Jambi and Bengkulu provinces this year. In Jambi, we expanded the coverage of our questionnaire surveys by interviewing 496 respondents from 24 different villages in the vicinity of five elephant populations identified by WWF in the mid-1980s. Questionnaire surveys provide information about elephant presence and particularly about the likely level of HEC in areas where elephants still occur and thus facilitate more detailed (non-questionnaire) follow-up work. Occupancy surveys provide track- and other sign-based data on the geographical distribution of elephants and other species as well as covariate data on vegetation and human activities that might affect the elephant populations.

Finally in year two, we conducted occupancy surveys in the landscape of Padang Sugihan in South Sumatra province from August to October 2010. We also conducted a survey in Jambi in the area surrounding Harapan Rainforest in April 2010.

• ***HEC reduction plans and guidance handbooks prepared for HEC hotspots (Activity 2.1).***

We have continued to develop a manual on HEC mitigation, which was expected to be completed by the end of Year 2. However we received additional inputs, including various suggestions for HEC mitigation strategies and different traditional tools during village meetings in the various provinces, which we wished to include, and as a result the production of this manual has been delayed until early in year 3 (within the first few months). In addition to developing the manual, we produced posters, leaflets and stickers for use in HEC mitigation training (see Appendices) and these were distributed by our community officer during village meetings.

• ***HEC reduction plans implemented at HEC hotspots (Activity 2.2)***

We have conducted HEC mitigation work in 11 HEC hotspot areas (see section 1.2 above) including implementation of community-led HEC mitigation strategies around Way Kambas and Bukit Barisan Selatan National Parks in Lampung, and at 9 locations at sites in Bengkulu, South Sumatra, and southern Aceh Provinces. In South Sumatra and southern Aceh, development and implementation of the HEC strategies involves conducting additional surveys of HEC conditions and compilation of local knowledge of elephant behaviour.

• ***Law enforcement patrols by PHKA and WCS–IP staff in key/priority sites (Activity 3.1)***

We have continued to encourage our PHKA partners to patrol in key areas and have provided training in law enforcement methods using the internationally-approved CITES/MIKE curriculum developed by WCS's Dr Tony Lynam. These activities included training provided to National Park (PHKA) patrol staff, local government staff, and local NGOs in law enforcement

patrolling methods at the priority sites of Bukit Barisan Selatan National Park and Gunung Leuser National Park (see details below under Activity 4.1). As part of this initiative, we have instigated measures to monitor the patrolling effort – using CITES MIKE-approved methods – at both sites and to provide follow-up support. These measures are intended to ensure knowledge gained during the training is put to use. We will continue to promote the adoption of systematic and effective patrolling in key sites across Sumatra and in particular in Year 3, we will continue focusing on the implementation of the CITES MIKE-approved **Management Information SysTem** (MIST) database.

During this reporting period joint WCS–IP and local government staff law enforcement teams have patrolled both core areas (Langkat and South Aceh) in Aceh Province, both within and along the forest boundaries, and visited villages along the patrol routes. We selected patrol routes based on data recorded and analyzed using MIST (Management Information System) from previous efforts. This system is developed to allow us to translate information on conflicts and illegal activities into spatial data, thus allowing us to plan our future patrol in a “smart” way. We divide patrols into two categories; patrols inside the national park and outside the national park.

• ***Deployment of Wildlife Crimes Unit staff throughout Sumatra (Activity 3.2)***

Our Wildlife Crime Unit (WCU) is supporting the work of the Indonesian law enforcement authorities by providing information and advice on the investigation and prosecution of wildlife crime cases. The unit has created a network of ‘community wardens’ and informants that monitor and investigate suspected wildlife crime cases at markets, shops, and transport hubs across Sumatra and nearby areas of Java. The process of expanding and strengthening this network is ongoing, but it has been successful in bringing a number of cases into the justice system. This year, WCU with BKSDA Lampung arrested 2 suspected ivory traders in Tanjungkarang with 45 ivory pipes in various sizes seized as evidence. This case then led to the successful tracking and arrest of an ivory middleman. The middleman was arrested by Lampung police, and he claimed that he also got ivory from Bangkok via an international syndicate that distributes ivory from Bangkok using container ships to Jakarta and then by fishing boat from Jakarta to Lampung.

Outside of Lampung Province, the WCU working with the National Police and MoF arrested another middleman in Jakarta, who had tried to sell 19 pendants, 10 pipes, and 1 bracelet made from ivory. WCU investigators also found an ivory carving shop in Bali (Tanjung Benoa) which was receiving ivory from Jakarta: this shop will be investigated further.

• ***Workshops and ‘on-the-job’ training in CITES MIKE approved standard elephant population monitoring methods, HEC assessment and reduction methods, and law enforcement and law enforcement monitoring (Activity 4.1)***

PHKA staff (both from National Parks and Natural Resource & Conservation Offices), local government staff (from the regional forestry department offices - Dinas Kehutanan), international NGOs (including staff from ZSL, WWF, FFI, and the International Rhino Foundation), and local NGOs have been trained in questionnaire and occupancy surveys using a “hands-on” approach through participating in surveys with our teams. In total, around 54 people have been trained in this way, including 16 staff from PHKA, 6 team members from local universities, 9 drawn from local NGOs, 22 recruited from local communities, and 1 staff member from local government.

To increase the technical skill levels and effectiveness of law enforcement staff, we conducted a major training course for 39 participants (drawn from PHKA, local government, and collaborating local NGOs) during Year 2, in which expert trainers working for WCS’s regional team in Asia conducted a 9-day intensive course at Bukit Barisan Selatan NP. This course aimed to establish effective multi-party patrolling systems, with data recorded using the internationally-recognized **Monitoring SysTem** (MIST) protocol and database as per CITES MIKE requirements. Early in Year 3, we will carry out a similar process for Rhino Protection Unit staff from the Indonesian Rhino Foundation who patrol in Bukit Barisan Selatan NP.

WCS’s Wildlife Response Unit and BBSNP PHKA staff carried out 4 village consultative meetings and training in HEC areas (Arga Mulya, Kaur Gading, Air Panjang, and Kaur) to increase local

peoples' knowledge of HEC mitigation methods and to give an introduction to national regulations which protect endangered wildlife. Eleven trainers/facilitators from WCS and BBSNP trained a total of 196 villagers and government officers (Arga Mulya: 67, Kaur: 39, Air Panjang: 26, and Kaur Gading: 64).

Martin Tyson trained PHKA and local NGO staff in WKNP and BBSNP on the method for collecting samples of DNA material from fresh elephant dung in August 2010 and January 2011 respectively. Subsequently 5 PHKA staff from WKNP and 9 from BBSNP joined the DNA survey teams and received on-the-job training on survey technique (GPS and navigation skills), dung identification and collection and recording of samples.

•Public awareness and information dissemination activities in support of protected areas and elephant conservation (Activity 4.2)

During this project period, we disseminated awareness and education materials including: posters (3000 units, related to HEC mitigation methods); stickers (1000 units, related to HEC mitigation methods), and T-shirts (50 units, related to implementing CITES/MIKE law enforcement monitoring methods). In addition, the project has been reported in local media on 5 occasions (local newspapers), and national media on one occasion (national newspaper); please see appendixes.

•Training in HEC reduction methods provided for villagers in HEC hotspots at participatory mini-workshops at the district and site levels (Activity 4.3)

We held HEC mitigation training sessions and meetings in 9 villages in Bengkulu, South Sumatra, and Aceh Provinces. These new village sites are suffering moderate-to-high frequencies of HEC incidents. For Bengkulu, we initiated training of HEC mitigation strategy and community preparation for driving the HEC strategy and tools making in Suka Marga and Pulau Panggung villages in March 2011. In Sumatra Selatan, we conducted similar work in the following six villages: Tiga Sakti Buntuan, Lebung Hitam, Ulak Kedondong, Riding, Simpang Tiga Jaya, and Lebung Gajah. While in Aceh, we carried out similar activities as preparation for HEC mitigation training in Aceh with the assistance from the PNPM development project (a World Bank collaboration) in the Menggamat area.

In addition, the Community Organizers (CO) led villager activities to establish monitoring at 13 village HEC hotspots in Lampung (Talang Bangkok, Talang 11, Panjiwayang, Tanjung Aur, Talang Metro, Talang Ujung Pandang, Kubu Gedung, TalangTengah, Talang Siring Balak, Kupang Hulu, Talang Aceh, Talang Sukadi, and Jupang Ilir). They spent 466 hours carrying out checking of conflict information, routine inspections, mitigation activities, and educating farmers and other villagers about human-wildlife conflict mitigation.

•Indonesian student attends UK university (Activity 4.4)

This activity was originally planned for Year 2, but has been postponed until Year 3. The selected candidate has now secured additional donors to cover all his UK living expenses and travel costs and the process of application for the course, which will commence in September 2011, has begun.

•Sumatran Elephant Management Plan written in collaboration with PHKA and other in-country partners (Activity 4.5).

This activity is not due to be completed until the third year of the project, when all data from the project are available. The desk-based mapping and population identification exercise described in detail in our first annual report as well as site-based work in year two will provide the basis for the development of a management plan for Sumatran elephants, and this will be updated as results of further survey, law enforcement, and HEC mitigation work become available.

4.2 Progress towards project outputs

i. Survey data on elephant distribution and status and HEC levels produced and disseminated (including to the CITES/MIKE Secretariat).

For this output we aim to generate baseline data on elephant population distribution and status for all eight Sumatran provinces by end of Year 3. We have already established the status and current distribution of Sumatran elephants in five provinces: South Sumatra, Jambi, Riau, Bengkulu, and Southern Aceh using questionnaire and occupancy methods. We have begun the field components of faecal DNA surveys, which will produce updated population estimates for BBSNP and WKNP, and additional population assessments using faecal DNA methods will be carried out during Year 3 in Bengkulu, Jambi (in collaboration with FZS), and Aceh provinces. As soon as the laboratory and statistical analyses are complete for the BBSNP and WKNP elephant populations (which are in MIKE sites) the population estimates will be made available to the CITES/MIKE Secretariat.

ii. Human–elephant conflict reduced and farmers’ livelihoods improved.

For this output, we aim to create HEC reduction plans and guidance material for 20 HEC hotspots by the end of Year 2 and 30 hotspots by the end of Year 3. At each site, we are seeking significant reductions in measured crop raiding rates and improved harvest rates at the majority of the HEC hotspots. We are progressing well towards this target, having already identified 21 conflict hotspots in the Sumatran provinces of Lampung, South Sumatra, Jambi, Riau, Aceh (southern part), and Bengkulu (Activity 1.2) and by refining our approaches to promoting safe conflict mitigation (Activity 2.2). We have almost completed the production of guidance and education material to promote safe conflict mitigation more widely (Activity 2.1), and expect this to be ready in the first quarter of Year 3. In the coming year, HEC mitigation work will be rolled out more extensively in the 20 already identified conflict hotspots, while the field survey will continue to identify a further 10 priority (hotspot) areas in central and northern Sumatra.

During year 3, we will assess the reduction in HEC by monitoring what proportion of attempted raids by elephants were repelled as a result of the HEC mitigation efforts (see our paper in the journal *Oryx*; Table 2). Improvements in farmers’ livelihoods will be assessed using questionnaires.

iii. Illegal killing and capture of elephants and other illegal activities (especially encroachment) in key areas reduced.

By the end of Year 3, the project seeks a significant reduction in elephant deaths due to illegal activities, a significant reduction in illegal captures of elephants, and a significant reduction in indices of illegal activities in key elephant areas. In Years 1 and 2, we have concentrated on collecting baseline data that will allow us to assess the impact of our measures to reduce illegal killing and capture of elephants.

iv. Improved capacity for cooperative management of Sumatran elephant conservation and HEC reduction by the Indonesian Government and local NGOs.

This year we have trained 441 people from government agencies (PHKA, BKSDA), local NGOs, and local community members in surveys methods (questionnaires, occupancy surveys, faecal DNA based population assessments, and HEC mitigation methods) during 11 formal training workshops. In year 2, we have also begun to collaborate with the Eijkman laboratory in Jakarta in order to develop an in-country facility capable of conducting faecal DNA based elephant population assessments and to build national capacity in the use of such management tools.

Progress against Project Standard Outputs Measures is shown below in Table 1. Publications during this reporting period are shown in Table 2.

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Total to date	Number planned for reporting period	Total planned during the project
2	Number of people to attain Masters qualification (MSc, MPhil etc)	0	0	0	0	1
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	465	441	906	250	750
6B	Number of training weeks to be provided (person-weeks)	188	259	447	200	600
7	Number of training materials to be produced for use by host country	9	3	12	4	4
8	Number of weeks to be spent by UK project staff on project work in the host country	4	4	8	2	9
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country	0	0	0	0	1
11A	Number of papers to be published in peer reviewed journals	1	0	1	1	≥3
11B	Number of papers to be submitted to peer reviewed journals	1	0	1	1	≥3
12A	Number of computer based databases to be established and handed over to host country	1	1	2	1	2
14A	Number of conferences/seminars/workshops to be organised to present/disseminate findings	12	10	22	10	30
14B	Number of conferences/seminars/workshops attended at which findings from Darwin project work will be presented/ disseminated.	2	0	2	0	≥3
15A	Number of national press releases in host country(ies)	1	0	1	0	3
15B	Number of local press releases in host country(ies)	2	0	2	0	3
15C	Number of national press releases in UK	0	0	0	0	2
17B	Number of dissemination networks to be enhanced/ extended	2	1	3	1	2
19A	Number of national radio interviews/features in host country(ies)	0	0	0	0	1
19C	Number of local radio interviews/features in host country(ies)	1	0	1	0	3
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	£1,251	0	1.251	0	£25,451
23	Value of resources raised from other sources (ie in addition to Darwin funding) for project work	£66,429	£82,813	£149,242	£53,300	£159,900
New - Project specific measures		N/a	N/a	N/a	N/a	N/a

Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Journal	Hedges, S. & Gunaryadi, D. 2010. Reducing human–elephant conflict: do chillies help deter elephants from entering crop fields? <i>Oryx</i> . 44 (1), pp139–146.	Cambridge University Press	www.cambridge.org and from the authors (who are project staff)	Journal by subscription; PDF reprint free from authors
HEC posters	See Appendix 2	WCS-IP, Bogor, Indonesia	Project staff	GBP372
HEC stickers	See Appendix 2	WCS-IP, Bogor, Indonesia	Project staff	GBP123
HEC leaflets	Safe methods for managing HEC; WCS–IP, 2010.	WCS-IP, Bogor, Indonesia	Project staff	GBP165

4.3 Progress towards the project purpose and outcomes

The project purpose is to identify key elephant populations on Sumatra, assess their status using CITES/MIKE survey methods; protect these key populations from poaching, habitat loss/degradation, and human–elephant conflict (HEC) while improving farmers’ livelihoods; and to train Indonesian nationals in HEC mitigation methods. The major project outcomes, and progress made against them, are as follows:

i. Map showing all extant elephant populations on Sumatra, with indicators of population size, extent of HEC, and threat level.

The initial map (based on the desktop exercise, Activity 1.1) was completed in the first year of this project (Appendix 1). As field surveys and other work produce additional data it is being revised and updated.

ii. Majority of villages in HEC “hotspots” report major reduction in levels of HEC.

During this project period conflict mitigation work has been expanding to the northern part of Sumatra. To date, where HEC methods have been rigorously promoted, local farmers are starting to implement our methods (Activity 2.1 & 2.2). In Year 3, we will attempt to replicate this success (and those described in our *Oryx* paper; Table 2) in additional conflict hotspots identified by the ongoing surveys (Activity 1.1 & 1.2). During year 3, we will assess the reduction in HEC by monitoring what proportion of attempted raids by elephants were repelled as a result of the HEC mitigation efforts (see our paper in the journal *Oryx*; Table 2). Improvements in farmers; livelihoods will be assessed using questionnaires.

iii. Law enforcement reports show reduced rates of illegal killing and habitat encroachment.

In year 2, we have continued to compile baseline data on illegal killing of elephants and other illegal activities using the standard MIST database. Trends in illegal killing and other activities will be assessed in year 3 from these data.

iv. Large cohort of Indonesian staff trained in CITES/MIKE survey and law enforcement methods, and HEC assessment and mitigation.

This year we have trained 441 people from government agencies (PHKA, BKSDA), local NGOs, and local community members in surveys methods (questionnaires, occupancy surveys, faecal DNA based population assessments, and HEC mitigation methods) during 11 formal training workshops.

v. Sumatran elephant management plan drafted.

This activity is not due to be completed until the third year of the project, when all the data from the project is available. The desk-based mapping and population identification exercise described in detail in our first annual report will provide a basis for the development of a management plan for Sumatran elephants, and will be updated as the results of further survey, law enforcement, and HEC work become available.

4.4 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

The project is making solid progress towards its goals to reduce the threats to elephants in Sumatra and to reduce the impact of human–elephant conflict on both elephants and affected farmers, to the benefit of both. During this second year, we have continued to lay a strong foundation on which to build by increasing our HEC mitigating efforts and in particular by identifying additional conflict hotspots, refining our approach to promoting the mitigation of conflict, and by producing training and education material aimed at local farmers. Rolling-out our work to new conflict affected regions has been a focus in Year 2 and will continue in Year 3. In addition, survey work initiated in year 1 and continued in Year 2 will help the Indonesian Government meet its obligations under the CITES MIKE program and forms the first-ever series of repeat population surveys for Southeast Asian elephants thus allowing for the first time the effect of conservation interventions in Sumatra to be assessed using data on elephant population trend.

5. Monitoring, evaluation, and lessons

Project monitoring is based on the logframe (included as Annex 2). To date this has proved an effective tool to track project progress. Some adaptive management has been required as the implementation of project activities confronts changing local conditions or assumptions but overall the project is on track. For more on lessons learnt please see following section.

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

The reviewer highlighted two main aspects which needed to be addressed: the first was to provide details of project management and internal communications. These have been addressed in the section on project partnerships; please refer to information given in section 3. The second aspect was to provide information on the quality of partnership and partnership performance; these are addressed below.

Our principal partners are the Wildlife Conservation Society's Indonesia Program (WCS–IP) and the Indonesian Government, especially the Department of Forestry, Directorate General of Forest Protection and Nature Conservation ('PHKA') and provincial and local governments in the island of Sumatra.

With respect to our relationship with the government agencies, WCS–IP project staff provide presentations and other information in regular briefing sessions with PHKA and local government partners; we have found that this provide a good working relationship, with all stakeholder aware of the activities to be undertaken. Good relationships with the government are evidenced by the large number of participants attending training courses and 'on-the-job training', described elsewhere in this report. The Wildlife Crimes Unit (WCU) collaborates at many levels with government law enforcement and judiciary staff in order to gather evidence and achieve arrests of ivory traders and other criminals. This multi-partner process is increasingly viewed as a model for such activities.

However, there are also unavoidable bureaucratic problems, which seem endemic in Indonesian Government processes. This leads to some time wasting, for example a need for multiple presentations in different areas which delays the initiation of surveys and HEC mitigation plans. A love of paperwork also means that permission from multiple government agencies for working within and outside national parks is needed.

Finally, we regret that the budget table headers in the year 1 report were indeed incorrectly labelled (the budget and expenditure column heading were reversed as the reviewer correctly surmised).

7. Other comments on progress not covered elsewhere

None.

8. Sustainability

Two key elements of sustainability are being addressed by this project. The first is the development of strong linkages between government agencies and NGOs who are working to protect Sumatran elephants and their habitats. By training people from all of these agencies and organizations in survey work, law enforcement, and mitigation methods we will build a Sumatra-wide base of motivated and skilled field staff who can act together to manage elephant issues and conservation. The second aspect of sustainability is to demonstrate the use of successful low-cost methods such as community-led mitigation work to local governments so that they will not consider using harmful methods such as elephant capture or translocation to deal with HEC, but instead provide funding for community-based local activities. Our work around WKNP has shown that local governments are willing to help fund mitigation scheme when presented with convincing data about their effectiveness. Moreover, by demonstrating to farmers that low-cost, low-tech methods can be effective in reducing elephant depredations we have been able to encourage high-rates of voluntary participation in crop-guarding methods (initial evidence of this aspect was provided in an earlier project publication, "Hedges, S. & Gunaryadi, D. 2010. Reducing human–elephant conflict: do chillies help deter elephants from entering crop fields? *Oryx*, 44, 139–146"; additional detail will be provided in a publication currently in preparation).

9. Dissemination

This project has been implemented in close coordination with the Indonesian Department of Forestry, provincial resource management agencies, and local government bodies. As a result project findings have been disseminated to the key government partners on a continual basis. This includes the formal proceedings of the CITES/MIKE law enforcement training, general advice on conflict mitigation approaches and activities of the Wildlife Crimes Unit. The advice on conflict mitigation has also been widely disseminated among affected local governments, local villages, and local NGOs by means of workshops, posters and stickers. In addition we are finalising the guidance manual for HEC mitigation, in both Indonesian and English languages. The completion of this manual has been delayed in order to allow greater input from stakeholders, as mentioned above, but will be finished and distributed early in Year 3. Results of the repeat elephant surveys of Way Kambas and Bukit Barisan Selatan national parks will be sent to CITES/MIKE secretariat once the analyses have been completed.

10. Project Expenditure

Table 3 project expenditure during the reporting period (1 April 2010 – 31 March 2011)

Current Year's Costs	Budget Year 2	Expenditure Year 2	Comments (please explain any variance)
Staff costs			Higher than expected cost-of-living increments for WCSIP staff and the necessity of additional team members to ensure the DNA surveys could conform to the protocol led to a higher spend.
Overhead Costs			Rental and running costs for field base stations were lower than expected.
Travel and subsistence			Within 10%
Operating Costs			We underspent on costs for HEC mitigation because villagers were reluctant to use some more expensive tools, preferring (very low cost) alternatives. The unusually high market price of chilli meant that farmers were unwilling to use this material against elephants and would have sold the chilli bought for this purpose, so this method was not used in this year
Capital items			We needed two additional laptops for team leaders and camping gear and cameras for DNA surveys; critical to the functioning of this project
Others			Costs for LEM training (for the trainer and the actual courses) were lower than anticipated. HEC training costs were lower; we were able to use government premises for meetings rather than renting venues
Total			

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

I agree for LTS and the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

As a result of this project's activities in year 2, we are now in the process of completing the first-ever repeat surveys, using peer-reviewed methods, of elephant populations in Southeast Asia; there are the faecal DNA-based surveys in the Way Kambas and Bukit Barisan Selatan national parks.

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2010-2011

Project summary	Measurable Indicators	Progress and Achievements April 2010 - March 2011	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 constrained in resources to achieve</p> <p>⇒ 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>			
<p>Purpose To identify key elephant populations on Sumatra, assess their status using CITES/MIKE survey methods; protect these key populations from poaching, habitat loss/degradation, and human–elephant conflict (HEC) while improving farmers’ livelihoods; and to train Indonesian nationals in HEC mitigation methods and CITES/MIKE survey methods to help the Government of Indonesia meet its obligations under CITES and the CBD.</p>	<p>a. Map showing all extant elephant populations on Sumatra, with indicators of population size, extent of HEC, and threat level;</p> <p>b. Majority of villages in HEC “hotspots” report major reduction in levels of HEC; Law enforcement reports show reduced rates of illegal killing and habitat encroachment;</p> <p>c. Large cohort of Indonesian staff trained in CITES/MIKE survey and law enforcement methods, and HEC assessment & mitigation;</p> <p>d. Sumatran elephant management plan drafted.</p>	<p>a. The initial map has been completed in Year 1 (Appendix 1) and additional survey and HEC information is now being incorporated.</p> <p>b. Conflict mitigation work is being implemented in the four provinces of South Sumatra, Bengkulu, Lampung and Aceh... Our law enforcement efforts in collaboration with the Indonesian authorities continue to identify, arrest, and prosecute illegal wildlife traders and hunters...</p> <p>c. In total we have delivered 1812 person-training-days in formal training and an un-quantified number in on-the-job training.</p> <p>d. Baseline data collected in Year 2.</p>	<p>a. As the work continues through Year 3, this map will be updated and published in peer-reviewed literatures</p> <p>b. In Year 3 we will attempt to replicate this success in additional conflict ‘hot spots’ identified by the ongoing survey (Activity 1.1 & 1.2).</p> <p>c. Continue to expand and strengthen the anti-wildlife crime network and review its effectiveness.</p> <p>c. We will continue our comprehensive capacity building program throughout Year 3, focusing in particular on HEC mitigation methods at newly identified priority conflict hotspots.</p> <p>d. Develop management plan in association with our partners</p>

Project summary	Measurable Indicators	Progress and Achievements April 2010 - March 2011	Actions required/planned for next period
Output 1. Survey data on elephant distribution and status and HEC levels produced and disseminated (including to the CITES/MIKE Secretariat).	Baseline data on elephant population distribution and status for all Sumatran provinces available by end of year 3 (ca. 2 provinces per year).	We are making good progress towards this objective, as described in detail below under Activity 1.1 and 1.2.	Updated data on elephant distribution and status will be made available at the end of year 3 and published in the peer-reviewed literature.
Activity 1.1. Desk-based map study to identify key (priority) survey sites for elephant population and HEC assessments.		Completed in Year 1. Nine priority populations were identified.	Updating and revision as necessary during Year 3.
Activity 1.2. Deployment of elephant population and HEC survey teams in areas identified under Activity 1.1		We carried out surveys (occupancy and questionnaire) in Aceh, Bengkulu, South Sumatra, Jambi and Lampung provinces. Survey teams interviewed 496 local people during questionnaire surveys. 21 conflict hotspots were identified. The fieldwork for the intensive faecal DNA based surveys were started was completed at Way Kambas National Park and is near completion in Bukit Barisan Selatan National Park.	Field surveys will continue in Year 3 (occupancy, faecal DNA-based population work, and HEC hotspot surveys).
Output 2. Human–elephant conflict reduced and farmers’ livelihoods improved.	HEC reduction plans and guidance material produced for 20 HEC “hotspots” by end of year 2, revised and extended to 30 by end yr 3; Significant reduction in measured crop raiding rates and improved harvest rates at the majority of the HEC “hotspots”.	We have made good progress towards achieving this output as described below.	We will continue the program of HEC mitigation work in year 3. Crop-raiding rates and trends in these rates will be analysed in year 3.
Activity 2.1. HEC reduction plans and guidance handbooks prepared for HEC “hotspots”		We have developed a guidance manual for conducting HEC mitigation, which was expected to be completed by the end of Year 2. However in the interests of broadening stakeholder involvement we have delayed the production of the manual. In addition to developing the manual, we produced posters, leaflets, and stickers for use in HEC mitigation training. and these were distributed by our community officer during village meetings.	The manual will be completed early in Year 3 and disseminated widely to affected communities, national parks, provincial nature conservation agencies, and local government.
Activity 2.2. HEC reduction plans implemented at HEC “hotspots”		We have conducted preliminary meetings and distributed HEC reduction information at 21 conflict hotspots in the provinces of Lampung, South Sumatra, Jambi, Riau, Bengkulu and Aceh (Activity 1.2); Follow up activities in these villages are in progress. We have conducted HEC mitigation work in 11 identified HEC hotspot areas (see section 1.2 above). As part of work our teams are continuing to monitor HEC incident rates to allow us to assess the effectiveness of the HEC mitigation measures we have promoted.	We will expand our HEC mitigation work to ensure that it is being implemented at the majority of the 30 hotspots that will have been identified.

Project summary	Measurable Indicators	Progress and Achievements April 2010 - March 2011	Actions required/planned for next period
<p>Output 3. Illegal killing and capture of elephants and other illegal activities (especially encroachment) in key areas reduced.</p>	<ul style="list-style-type: none"> a. Significant reduction in elephant deaths due to illegal activities. b. Significant reduction in illegal captures of elephants. c. Significant reduction in indices of illegal activities in key elephant areas. 	<p>Baseline data continues to be collected on elephant killing, capture, and illegal activities in priority areas using the MIST protocol.</p>	<p>Continue to collect MIST data on patrols and prepare an analysis of trends.</p>
<p>Activity 3.1: Law enforcement patrols by PHKA and WCS–IP staff in key/priority sites.</p>		<p>In this period we have provided training to National Park staff, local government staff, and local NGOs in law enforcement patrolling methodologies in one priority site Bukit Barisan Selatan National Park in Lampung Province. We have encouraged our government partners in their patrolling efforts in other sites, and ourselves participated in joint patrols in the Leuser priority site in Aceh Province.</p>	<p>We will continue to promote the adoption of systematic and effective patrolling using CITES MIKE approved MIST methods in the remaining key sites across Sumatra.</p>
<p>Activity 3.2: Deployment of Wildlife Crimes Unit staff throughout Sumatra</p>		<p>Our Wildlife Crime Unit is supporting the work of the Indonesian law enforcement authorities by providing information and advice on the investigation and prosecution of wildlife crime cases. This has led to the arrest of suspected trades and middlemen and uncovered a link to international ivory smuggling routes from Thailand to Indonesia.</p>	<p>Continue to expanding and strengthen the anti-wildlife crime network and its effectiveness.</p>
<p>Output 4. Improved capacity for cooperative management of Sumatran elephant conservation and HEC reduction by the Indonesian Government and local NGOs.</p>	<p>By end of Year 3: 150 PHKA staff trained in technical aspects of elephant survey design and implementation; 600 villagers from 30 HEC “hotspot” villages trained in sustainable HEC reduction methods; Indonesian student completes UK-based MSc by end of year 3.</p>	<p>We are making good progress towards this objective, as described in detail below.</p>	<p>We anticipate completing the target number of trainings by the end of year 3.</p>

Project summary	Measurable Indicators	Progress and Achievements April 2010 - March 2011	Actions required/planned for next period
Activity 4.1: Workshops and 'on-the-job' training in CITES MIKE approved standard elephant population monitoring methods, HEC assessment and reduction methods, and law enforcement (including related to habitat loss) and law enforcement monitoring (LEM) provided for PHKA staff and newly hired WCS-IP project staff at national and provincial levels.		This year we have trained 441 people from government agencies (PHKA, BKSDA), local NGOs, and local community members in surveys methods (questionnaires, occupancy surveys, faecal DNA based population assessments and HEC mitigation methods) during 11 formal training workshops (see body of report).	We will continue our comprehensive capacity building program throughout Year 3. Focusing in particular on HEC mitigation methods at newly identified priority conflict hotspots and DNA based methods in the northern half of Sumatra.
Activity 4.2: Public awareness and information dissemination activities in support of protected areas and elephant conservation.		Awareness material disseminated includes: posters (3000 units, related to HEC mitigation methods); leaflets (1000 units, related to HEC mitigation methods); and stickers (1000 units, related to implementing HEC mitigation methods. In addition, the project has been reported in local media on 5 occasions (local newspapers), and national media on one occasion (national newspaper).	We will continue to produce and distribute public awareness and educational resources and so seek increased media coverage of the project in the local, national, and international media.
Activity 4.3: Training in HEC reduction methods provided for villagers in HEC "hotspots" at participatory mini-workshops at the district and site levels.		This year we have trained 188 people from local government agencies and local community members in HEC mitigation methods) during mini-workshops (see body of report).	HEC reduction training activities will be continued in other areas of Sumatra throughout the project, and will be supplemented shortly with the addition of the Indonesian language training and resource manual that is being developed under Activity 2.1.
Activity 4.4: Indonesian student attends UK university		Not implemented until third year. Process of application already begun.	This activity will be completed in Year 3.
Activity 4.5: Sumatran Elephant Management Plan written in collaboration with PHKA and other in-country partners.		This activity is not due to be completed until the third year of the project, when all data from the project is available.	The mapping workshop (year 1) has provided a basis for the development of a management plan for Sumatran elephants and will be updated as results of further survey work, law enforcement, and conflict mitigation work become available.

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal:			
Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal:			
To reduce the threat to Asian elephants in Sumatra from human–elephant conflict, illegal killing, and habitat loss and to build capacity in the agencies responsible for elephant management especially with respect to CITES and CBD.	Reduction in illegal killing and captures, and habitat loss; reduced rates of human death and injury resulting from conflict; reduced crop raiding rates and improved rural livelihoods in conflict areas. Baseline surveys completed at key elephant sites across Sumatra to facilitate future population monitoring.	The project will establish the systems required to monitor elephant populations and assess the short and long term impact of human–elephant conflict and other threats to Sumatra's elephants. Currently no such system exists.	
Purpose:			
To identify key elephant populations on Sumatra, assess their status using CITES/MIKE survey methods; protect these key populations from poaching, habitat loss/degradation, and human–elephant conflict (HEC) while improving farmers' livelihoods; and to train Indonesian nationals in HEC mitigation methods and CITES/MIKE survey methods to help the Government of Indonesia meet its obligations under CITES and the CBD.	<ol style="list-style-type: none"> 1. Map showing all extant elephant populations on Sumatra, with indicators of population size, extent of HEC, and threat level. 2. Majority of villages in HEC “hotspots” report major reduction in levels of HEC. 3. Law enforcement reports show reduced rates of illegal killing and habitat encroachment. 4. Large cohort of Indonesian staff trained in CITES/MIKE survey and law enforcement methods, and HEC assessment & mitigation. 5. Sumatran elephant management plan drafted. 	<ol style="list-style-type: none"> 1-2. Dung count and faecal DNA based capture–recapture surveys; sampling-based HEC incident rate surveys; sampling-based measures of crop harvest rates; questionnaire based surveys in villages; and District Forestry Dept reports. 3. Law enforcement monitoring (LEM) reports, habitat encroachment data forms, and carcass report forms. 4. Reports on workshops; workshop and on the job training participants' evaluation forms. 5. Management plan disseminated 	<ol style="list-style-type: none"> 1. Government policies (especially forestry, agriculture, and law enforcement) remain supportive of species conservation, protected area management, and wildlife crime prevention. 2. Goodwill between PHKA, WCS-IP, and NEZS maintained for project duration.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Outputs:			
1. Survey data on elephant distribution and status and HEC levels produced and disseminated (including to the CITES/MIKE Secretariat).	1. Baseline data on elephant population distribution and status for all Sumatran provinces available by end of year 3 (ca. 2 provinces per year).	1. Site-based and annual survey reports, academic papers in peer-reviewed journals, presentations at national and international conferences, plus occasional popular media articles.	1a. Goodwill between PHKA, WCS-IP, and NEZS maintained for project duration. 1b. Survey teams and PHKA trainees remain available for project duration.
2. Human–elephant conflict reduced and farmers’ livelihoods improved.	2a. HEC reduction plans and guidance material produced for 20 HEC “hotspots” by end of year 2, revised and extended to 30 by end yr 3. 2b. Significant reduction in measured crop raiding rates and improved harvest rates at the majority of the HEC “hotspots”.	2a. Agreements and HEC reduction plans and guidance handbook checked and approved by village and provincial authorities. 2b. Sampling-based surveys of HEC rates and crop harvest yields.	2. Co-operative relations between villagers and NEZS, PHKA, and WCS-IP can be developed and maintained to ensure effective and coordinated HEC reduction teams in all provinces.
3. Illegal killing and capture of elephants and other illegal activities (especially encroachment) in key areas reduced.	3a. Significant reduction in elephant deaths due to illegal activities. 3b. Significant reduction in illegal captures of elephants. 3c. Significant reduction in indices of illegal activities in key elephant areas.	3. Wildlife Crimes Unit reports plus site-based and annual survey reports, academic papers in peer-reviewed journals, presentations at national and international conferences.	3a. PHKA, law enforcement agencies, journalists, and local NGOs remain supportive of Wildlife Crimes Unit. 3b. Goodwill between PHKA, WCS-IP, and NEZS maintained for project duration.
4. Improved capacity for cooperative management of Sumatran elephant conservation and HEC reduction by the Indonesian Government and local NGOs.	4a. 150 PHKA staff trained in technical aspects of elephant survey design and implementation by year 3. 4b. 600 villagers from 30 HEC “hotspot” villages trained in sustainable HEC reduction methods by end of year 3. 4c. Indonesian student completes UK-based MSc by end of year 3.	4a. PHKA training workshop reports; evaluation of trainees’ performance. 4b. Report on, and evaluation of, cooperative village training mini-workshops. 4c. Successful completion of a UK-based MSc by Indonesian student associated with the project.	4a. Adequate numbers of Indonesian government and local NGO trainees are available to form elephant and HEC survey teams. 4b. Adequate numbers of villagers available and willing to participate in HEC reduction training workshops. 4c. Student performance on MSc course reaches required standard.

Activities:

- 1.1 Desk-based map study to identify key (priority) survey sites for elephant population and HEC assessments (Output 1), following training under Activity 1.1.
- 1.2 Deployment of elephant population and HEC survey teams in areas identified under activity 2.1 (Output 1).
- 2.1 HEC reduction plans and guidance handbooks prepared for HEC “hotspots” (Output 2).
- 2.2 HEC reduction plans implemented at HEC “hotspots” (Output 2), following training under Activity 1.2.
- 3.1 Law enforcement patrols by PHKA and WCS–IP staff in key/priority sites (Output 3), following training under Activity 1.1.
- 3.2 Deployment of Wildlife Crimes Unit staff throughout Sumatra (Output 3), following training under Activity 1.1.
- 4.1 Workshops and ‘on-the-job’ training in CITES MIKE approved standard elephant population monitoring methods, HEC assessment and reduction methods, and law enforcement (including related to habitat loss) and law enforcement monitoring (LEM) provided for PHKA staff and newly hired WCS–IP project staff at national and provincial levels (Output 4).
- 4.2 Public awareness and information dissemination activities in support of protected areas and elephant conservation.
- 4.3 Training in HEC reduction methods provided for villagers in HEC “hotspots” at participatory mini-workshops at the district and site levels (Output 4).
- 4.4 Indonesian student attends UK university (Output 4).
- 4.5 Sumatran Elephant Management Plan written in collaboration with PHKA and other in-country partners.

Monitoring activities:

1. Dung count and faecal DNA based capture–recapture population surveys to provide baseline data against which all interventions can be assessed.
2. Remote sensing based monitoring of elephant habitat.
3. Sampling-based HEC incident rate surveys, sampling-based measures of crop harvest rates, questionnaire based surveys in villages, and District Forestry Dept reports against which HEC reduction interventions can be assessed.
4. Compilation of law enforcement monitoring reports, habitat encroachment data forms, and carcass report forms.
5. Workshop and ‘on-the-job’ training participants’ evaluation forms to allow us to monitor progress with our training and capacity-building aims.

Annex 3: Supplementary material (optional but encouraged as evidence of project achievement)

This may include outputs of the project, but need not necessarily include all project documentation. For example, the abstract of a conference would be adequate, as would be a summary of a thesis rather than the full document. If we feel that reviewing the full document would be useful, we will contact you again to ask for it to be submitted.

It is important, however, that you include enough evidence of project achievement to allow reassurance that the project is continuing to work towards its objectives. Evidence can be provided in many formats (photos, copies of presentations/press releases/press cuttings, publications, minutes of meetings, reports, questionnaires, reports etc) and you should ensure you include some of these materials to support the annual report text.

We have included as a separate report the report by WCS's law enforcement expert, Dr Tony Lynam, on the CITES MIKE approved law enforcement training workshop in the Bukit Barisan Selatan National Park.

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 5MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	No
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	No
Do not include claim forms or other communications with this report.	