Darwin Initiative – Final Report

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)
UK Partner Institution(s)	N/A
Host Country Partner Institution(s)	Wildlife Conservation Society – Indonesia Program (WCS) and Government of Republic of Indonesia, Department of Forestry, Directorate General of Forest Protection and Nature Conservation (PHKA)
Darwin Grant Value	£ xxx
Start/End dates of Project	1st April 2009 – 31st March 2012
Project Leader Name	Alexandra Zimmermann
Project Website	N/A
Report Author(s) and date	Donny Gunaryadi, Simon Hedges, Martin Tyson, Alexandra Zimmermann; 15 August 2012

1   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 (Map 1 in Annex 8), one of the most important areas for Asian elephants outside of India. The project purpose was: 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 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. Project outputs were: (1) Survey data on elephant distribution and status and HEC levels produced and disseminated (including to the CITES/MIKE Secretariat); (2) HEC reduced and farmers' livelihoods improved; (3) Illegal killing and capture of elephants and other illegal activities (especially encroachment) in key areas reduced; and (4) Improved capacity for cooperative management of Sumatran elephant conservation and HEC reduction by the Indonesian Government and local NGOs.

Outstanding achievements of the project include: showing that community-based crop protection methods coupled with a simple evidence-based approach can achieve significant reductions in HEC at the protected area scale; major reduction in the number of elephants caught and removed from the wild as a result of HEC; establishment of regular monitoring of key elephant populations; improved capacity in-country to conduct fecal DNA based population monitoring; creation of a large cohort of government staff trained in modern law enforcement and population monitoring methods; lead role in writing the new Government Action Plan for Indonesian elephants.

2   Project support to the Convention on Biological Diversity (CBD)

The project supported host country institutions (PHKA) build their capacity to meet CBD commitments by providing data for, and significant help with the writing of, an updated government Indonesian Elephant Action Plan (Sumatran elephants are listed as Critically Endangered in the IUCN Red List and thus particularly require conservation efforts); by means

of the project's major monitoring components (elephant population monitoring; monitoring of threats to elephant populations especially HEC and poaching); by providing population data to the IUCN African and Asian Elephant Database (AAED), which is also the official repository of CITES Monitoring the Illegal Killing of Elephant (MIKE) programme data; and by building national capacity in modern DNA based elephant population monitoring methods (Annex 3).

The project also supported the Indonesian government in meeting its obligation to CITES by providing training in CITES MIKE elephant population monitoring and law enforcement monitoring methods and by facilitating elephant population surveys in Indonesia's two MIKE sites (Way Kambas and Bukit Barisan Seletan National Parks).

3   Project Partnerships

This project provided 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 (Alexandra Zimmermann). Simon Hedges and technical adviser Martin Tyson (also UK-based), each spent many months per year in Asia, providing technical assistance to various elephant projects and in particular this Darwin Initiative project. The three UK-based scientists met up whenever needed and communicated by email and telephone. Direct management of the project in Indonesia was overseen by WCS-IP Director, Noviar Andayani, and WCS-IP's Donny Gunaryadi was the project manager; both are Indonesian nationals. Donny Gunaryadi, Martin Tyson, and two Indonesian team leaders Sugiyo and Ade Sumantri visited the Assam Haathi 'sister project' (Darwin Projects 16-007 & EIDPO-040) in December 2010 to compare experiences of mitigating human–elephant conflict; earlier (in May/June 2011) four staff from the Assam Haathi project visited the Sumatran Darwin Initiative project, spending significant time in one of the main HEC mitigation sites on Sumatra (Way Kambas NP). In February/March 2012, Donny Gunaryadi (WCS-IP) spent almost a month at Chester Zoo working with Martin Tyson, Simon Hedges, Alexandra Zimmermann and other Chester Zoo staff to analyse project data and prepare a scientific paper. Donny Gunaryadi also served as the Secretary (essentially the Deputy Chair) of the Indonesian Elephant Conservation Forum (FKGI), working closely with project partners in the Directorate General of Forest Protection and Nature Conservation (PHKA; Ministry of Forestry) to prepare a new official Indonesian Elephant Action Plan (additional assistance was provided by the project's UK-based staff).

4   Project Achievements

4.1   Impact: achievement of positive impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

The project's current or future impact on elephants in Indonesia was mediated through (1) establishing a better understanding of the status of Sumatran elephants, including taking a lead role in having the subspecies listed as Critically Endangered in the IUCN Red List in 2011 (see the Red List account in the Supporting Materials) and then working with the Government of Indonesia to prepare a new Indonesian Action Plan that aims explicitly to improve the status of Sumatra's elephants (see the summary of the Action Plan in the Supporting Materials); (2) training a large cohort of Government and NGO staff in survey, anti-poaching, and HEC reduction methods; (3) effecting a protected area-wide reduction in human–elephant conflict through facilitating community-based crop protection methods and then rolling-out those methods in other key sites (see Annex 1 and the scientific papers in the Supporting Materials); (4) helping secure follow-up funding for continued law enforcement work around key sites including through the development of an intelligence-gathering network (to guide patrolling) and securing funding for an island-wide system of Wildlife Crimes Units to address poaching and illegal habitat destruction (Sections 4.7 and 7.2).

4.2   Outcomes: achievement of the project purpose and outcomes

The project purpose was 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. This was achieved through (1) a program of surveys for elephants and other large mammals; (2) the use of an evidence-based approach to promote community-based HEC mitigation methods; (3) the activities of the Wildlife Crimes Units to address illegal killing of elephants and habitat destruction; (4) an extensive program of capacity-building ranging from training villagers in HEC mitigation methods, to training rangers in standard CITES-approved elephant population and law enforcement methods, to working to develop a DNA-based monitoring facility at the Eijkman Institute in Jakarta; and (5) development with the Government and NGOs of an Indonesian Elephant Action Plan (see Annex 1, Map 1, and the reports and scientific papers in the Supporting Materials section).

The project achieved its outcomes in the following ways: (1) changes in human behaviour towards biodiversity as evidenced by very significant reductions in human–elephant conflict (HEC) rates at the protected area scale achieved through community-based (largely voluntary) crop protection methods and no HEC-driven captures of elephants at our key sites; improved reporting rates by the Indonesian Government to the CITES Monitoring the Illegal Killing of Elephants (MIKE) programme; (2) improved access to knowledge, especially modern elephant and other large mammal monitoring methods using occupancy- and fecal-DNA-based methods plus evidence-based methods for promoting effective reduction of human–elephant conflict (please see report on capacity-building in DNA-based methods at the Eijkman Institute in Jakarta and the papers on the Sumatra-wide occupancy surveys and HEC mitigation in the Supporting Materials); (3) improved access to funding including the additional funds raised for elephant conservation during the project period (Section 7.2) as well as funds raised to continue elephant conservation efforts after the project: post-project funds have been obtained from the US Fish & Wildlife Service to continue HEC mitigation work in three priority sites in Sumatra (Padang Sugihan WS, Gunung Leuser NP, and Way Kambas NP) and to establish an intelligence network to facilitate better patrolling of Way Kambas. Funds were also obtained from the CITES MIKE programme to maintain the improved law enforcement and elephant population monitoring initiatives in Bukit Barisan and Way Kambas NPs.

4.3 Outputs (and activities)

The great majority of project outputs were achieved – please see the logical framework in Annex 1. However, one problem, in particular, caused significant delays: i.e. obtaining government permits for survey work in a timely fashion was unexpectedly difficult requiring multiple presentations to various agencies in different areas, which delayed the initiation of surveys. In addition, developing capacity to analyse fecal DNA samples in Indonesia took longer than expected: this was resolved by bringing-in outside expertise to work with the Eijkman Institute in Jakarta. Unfortunately, the Indonesian Field Coordinator (Mr Donny Gunaryadi) was unable to take-up the offers he received from UK universities to follow an MSc course because he did not achieve a TOEFL score acceptable to the UK Border Agency and so was unable to obtain a UK visa. As a partial replacement for this activity, Mr Gunaryadi attended the Student Conference on Conservation Science at the University of Cambridge in 2012, where he presented a paper on the project's HEC mitigation work. Mr Gunaryadi also spent approximately six weeks as an internship at the North of England Zoological Society (Chester Zoo) in early 2012, where he worked on analysing project data and preparing an additional paper for an international peer-reviewed journal under the supervision of project leaders Alexandra Zimmermann and Simon Hedges and Technical Advisor Martin Tyson (also a UK national): the paper will compare and contrast this project's experiences in mitigating HEC in Sumatra with those of Chester Zoo's Darwin Project in Assam, India. Finally, Mr Gunaryadi's place at the University of Kent was held over and we expect that he will attend the course there in 2013.

4.4 Project standard measures and publications

Please see Annexes 4 and 5.

4.5   Technical and Scientific achievements and co-operation

The project contributed to technical and scientific cooperation in three main areas: fecal DNA based elephant population monitoring using capture–recapture statistical methods, patch occupancy based wildlife monitoring, and human–elephant conflict (HEC) mitigation using an evidence-based approach to promote uptake of successful methods by local communities. The HEC mitigation work achieved very significant reduction in HEC rates at the protected area scale while showing that community-based crop protection methods were more effective than chili-based chemical deterrents. That HEC work is described in two peer-reviewed scientific papers (which are included in the Supporting Material): "Hedges, S. & Gunaryadi, D. 2010. Reducing human–elephant conflict: do chillies help deter elephants from entering crop fields? *Oryx*, 44, 139–146" and "Gunaryadi D., Sugiyo & Hedges S. (in review) Community-based human-elephant conflict mitigation: the value of an evidence-based approach in promoting the uptake of effective methods. *Oryx*". The Hedges & Gunaryadi (2010) paper was selected for the Faculty of 1000 Biology service and is listed as a "recommended" paper that "breaks new ground". Faculty of 1000 Biology is "an award-winning online service that highlights and evaluates the most interesting papers published in the biological sciences, based on the recommendations of over 2000 of the world's top researchers".

The fecal DNA based elephant population monitoring using capture–recapture statistical methods involved a collaboration between project staff, Prof Lori Eggert from the University of Missouri in the USA, and the Eijkman Institute in Jakarta, Indonesia. The methods used followed those described in "Hedges S. & Lawson D. (2006) *Dung Survey Standards for the MIKE Programme. CITES MIKE Programme*, Central Coordinating Unit, PO Box 68200, Nairobi, Kenya" (please see the Supporting Material). The surveys conducted using these methods represent the first-ever such surveys to use these methods in Indonesia; initial results were discussed at the International Seminar on Capacity Building in Forensic Wildlife Genetics at the Eijkman Institute in Jakarta in June 2012 and will be submitted to a peer-reviewed journal in due course.

Much of the elephant survey work across Sumatra conducted by this project formed part of a multi-agency large mammal survey that focussed on tigers and tiger prey species in addition to elephants. Patch occupancy methods were used primarily; analysis of the overall survey results is continuing but has already resulted in one peer-reviewed paper on tiger distribution (and our Darwin Initiative project staff were among the authors): "Wibisono H.T. et al. (2011) Population Status of a Cryptic Top Predator: An Island-Wide Assessment of Tigers in Sumatran Rainforests. *PLoS ONE* 6, e25931" (the paper is included with the Supporting Materials); a further paper based on the elephant occupancy survey data is currently in preparation.

4.6   Capacity building

By training people from between government agencies and NGOs in elephant survey work, law enforcement, and HEC mitigation methods we have helped build a Sumatra-wide base of motivated and skilled field staff who can act together to manage elephant issues and conservation (example training reports and manuals are included in the Supporting Materials). The project's Donny Gunaryadi also spent a month as an intern at Chester Zoo. In addition, we also organized exchange trips for project staff to visit our sister project in Assam (Darwin Projects 16-007 & EIDPO-040) and for staff from the Assam project to visit Sumatra. Evidence of the effectiveness of our capacity building in HEC mitigation methods is provided by the reduction in HEC at the protected area scale described in Section 4.7. We also helped establish a fecal DNA analysis facility at the Eijkman Institute in Jakarta, working with Prof Lori Eggert from the University of Missouri in the US: the institute is now in a position to help monitor elephant populations in Sumatra using the new non-invasive techniques of molecular ecology (a report from Prof Eggert is included in the Supporting Materials). Finally, our project partners in Indonesia (WCS-IP, PHKA) have been able to attract sustained financing for law enforcement, population monitoring, and HEC mitigation work (Section 4.7).

4.7   Sustainability and Legacy

Two key elements of sustainability were addressed by this project. The first was the development of strong linkages between government agencies and NGOs who are working to

protect Sumatran elephants and their habitats and critically capacity-building work with these agencies/NGOs (see 4.6). People from the relevant government agencies and NGOs participated in preparing a new government Action Plan for Indonesia's elephants (see Supporting Materials for an English-language summary of the Action Plan). 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 has shown that local governments are willing to help fund mitigation schemes 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 facilitate high-rates of voluntary participation in crop-guarding methods and achieve very significant reductions in HEC at the protected area scale (see publications in the Supporting Materials).

All project staff continue to work towards elephant conservation in Sumatra. Post-project funds have been obtained from the US Fish & Wildlife Service to continue HEC mitigation work in three priority sites in Sumatra (Padang Sugihan WS, Gunung Leuser NP, and Way Kambas NP) and to establish an intelligence network to facilitate better patrolling of Way Kambas. Funds were also obtained from the CITES MIKE programme to maintain the improved law enforcement and elephant population monitoring initiatives in Bukit Barisan and Way Kambas NPs.

5 Lessons learned, dissemination and communication

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 reports of the CITES/MIKE law enforcement trainings, general advice on conflict mitigation approaches, and the 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.

Information relating to project achievements have also been disseminated and applied through (1) project staff giving presentations at international conferences (Society for Conservation Biology Conference in Beijing in 2009; a side event at the CITES CoP in Doha in 2010; Student Conference on Conservation Science in Cambridge in 2012); and (2) the publication of project results in form of stories in the Indonesian press and through publication in scientific journals (Annex 5). The target audiences ranged from Sumatran villagers, Indonesian government agency staff, NGO staff, and the international scientific community. To date we have produced two scientific papers: "Hedges, S. & Gunaryadi, D. 2010. Reducing human–elephant conflict: do chillies help deter elephants from entering crop fields? *Oryx*, 44, 139–146" and "Gunaryadi D., Sugiyo & Hedges S. (in review) Community-based human-elephant conflict mitigation: the value of an evidence-based approach in promoting the uptake of effective methods. *Oryx*" (please see Supporting materials). The Hedges & Gunaryadi (2010) paper was selected for the Faculty of 1000 Biology service and is listed as a "recommended" paper that "breaks new ground". Faculty of 1000 Biology is "an award-winning online service that highlights and evaluates the most interesting papers published in the biological sciences, based on the recommendations of over 2000 of the world's top researchers". Three further papers are planned: a lessons learnt paper jointly authored by staff from our project and our sister project in Assam (Darwin Projects 16-007 & EIDPO-040); a paper on the fecal DNA based elephant population monitoring work; and a paper on the status and distribution of elephants in Sumatra (to be written as a collaborative project of project staff and collaborators from the University of Kent in the UK and FFI, WWF, and other NGOs working in Sumatra).

5.1 Darwin identity

The "Securing human–elephant co-existence in Sumatra" project was recognized as a distinct project within Indonesia. The Darwin Initiative logo was used on posters, leaflets, and other project products (e.g. the HEC mitigation manual and training reports). A sign about the project with the Darwin logo, was also installed in Chester Zoo's elephant exhibit, which is visited by 1

million people per year. The vital support of the Darwin Initiative was also made clear during presentations by project staff: at the Society for Conservation Biology Conference in Beijing in 2009, a side event at the CITES CoP in Doha in 2010, and at the Student Conference on Conservation Science in Cambridge in 2012. Promotion of the Darwin Initiative continued after the project period, for example at an International Seminar on Capacity Building in Forensic Wildlife Genetics at the Eijkman Institute in Jakarta in June 2012 (our fecal DNA based monitoring work was presented). Understanding of the Darwin Initiative within Indonesia is most well-developed within our immediate partners (WCS-IP) but government agency staff (especially those from PHKA) and other staff of NGOs working in Indonesia are also familiar with the Darwin Initiative.

6 Monitoring and evaluation

Project monitoring was based on the logframe (included as Annexes 1 & 2), which proved to be an effective tool to track project progress. Some adaptive management was required as the implementation of project activities confronted changing local conditions or assumptions but overall the project remained largely on track (see Annex 1 for further detail). During the project period the project also benefitted from an external review provided by the Darwin Initiative (Section 6.1).

6.1 Actions taken in response to annual report reviews

The external reviewer highlighted two main aspects which needed to be addressed: the first was to provide details of project management and internal communications. These were addressed in the section on project partnerships in our End of Year 2 Report. The second aspect was to provide information on the quality of partnership and partnership performance; this was addressed in our End of Year 2 Report and is summarized 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 provided presentations and other information in regular briefing sessions with PHKA and local government partners; we found that this provided a good working relationship, with all stakeholders aware of the activities to be undertaken. Good relationships with the government were 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) collaborated (and continues to collaborate) at many levels with government law enforcement and judiciary staff in order to gather evidence and achieve arrests of ivory traders and other criminals involved with wildlife.

7 Finance and administration

7.1 Project expenditure

All costs are shown in GBP.

Item	Budget	Expenditure	Variance
Rent, rates, heating, overheads, etc.	XXX	XXX	XXX
Office costs (incl. postage, telephone, stationery)	XXX	XXX	XXX
Travel and subsistence	XXX	XXX	XXX
Printing	XXX	XXX	XXX
Conferences, seminars, etc.	XXX	XXX	XXX
Capital items/equipment: Project vehicle	XXX	XXX	XXX
Capital items/equipment: GPS equipment	XXX	XXX	XXX
Capital items/equipment: Walky-talky	XXX	XXX	XXX
Capital items/equipment: Digital camera	XXX	XXX	XXX

Capital items/equipment: Camping equipment	XXX	XXX	XXX
Capital items/equipment: Notebook computer	XXX	XXX	XXX
Other: Crop raiding alarm systems construction	XXX	XXX	XXX
Other: Chili deterrents	XXX	XXX	XXX
Other: Watchtowers & maintenance	XXX	XXX	XXX
Other: Crop raiding noisemakers	XXX	XXX	XXX
Other: Insurance	XXX	XXX	XXX
Other: Fecal DNA lab costs	XXX	XXX	XXX
Other: MIKE Training	XXX	XXX	XXX
Other: HEC reduction training/demonstration	XXX	XXX	XXX
Other: LEM trainer	XXX	XXX	XXX
Other: MSc (D Gunaryadi) fees & living costs	XXX	XXX	XXX
Salary: Finance Assistant	XXX	XXX	XXX
Salary: Project Manager (S. Hedges)	XXX	XXX	XXX
Salary: Field Coordinators	XXX	XXX	XXX
Salary: Assistant Field Coordinator	XXX	XXX	XXX
Salary: GIS Technician	XXX	XXX	XXX
Salary: Technical Advisor (N. Andayani)	XXX	XXX	XXX
Salary: Field surveyors/assistants	XXX	XXX	XXX
Salary: Admin assistant	XXX	XXX	XXX
Salary: Project executant	XXX	XXX	XXX
TOTAL	XXX	XXX	XXX

The project expected to rent more permanent accommodation as bases for field teams; however, the teams found that staying in the accommodation provided at low cost by village headmen was more effective, and cheaper. This resulted in an underspend on rent, rates, etc. and an overspend in office costs because the teams used mobile phone networks for voice communication and internet much more frequently.

Printing costs were not included in the original budget, due to an oversight, but were deemed essential for production of explanatory material and posters, stickers, and information sheets for HEC mitigation work.

The conference/seminar budget line was underspent since suitable venues were often provided at nominal cost by local government officials.

Due to problems of signal capture with the GPS units the team were using (the teams had to search for long periods to locate open areas to get enough signal), we had to buy additional GPS units (Garmin GPS 72) with better antennas which were able to function under dense canopy cover. This overspent the GPS budget line, but did allow the DNA surveys to be complete with the timeframes dictated by the CITES/MIKE protocol.

We did not need to buy walkie-talkie units due to the dramatic expansion of mobile phone networks and almost universal adoption of mobile phones by farmers.

Budget lines for digital cameras, camping equipment, and laptops were exceeded because of a high attrition rate (water damage mainly for digital cameras, accidental and quality-related issues for rucksacks and other field gear). The two laptops had to be replaced due to mainboard and screen failures.

We did not use chili as an elephant deterrent since early in the project we were becoming convinced that it did not produce additional benefits over and above the standard community guarding methods (subsequently demonstrated, please see papers in Supporting Materials). This budget line was used to subsidise the HEC training work.

Watchtower building and maintenance budget, noisemaker, and alarm fence budget lines were underspent because in many villages elephant raiding was either low frequency (and therefore people were unlikely to guard nightly at watchtowers) or unpredictable in spatial terms (the direction from which the elephants raided was unclear, therefore there was no clear indication of where watchtowers and alarm fence should be built). In these conditions, response teams using spotlights were used.

The faecal lab budget was underspent, because of delays in finding students who were suitable to do this work. By the time the students were established and sample processing had begun, this DI project had finished although the work is being completed post-project using additional funds now secured.

The CITES/MIKE training budget was underspent due to the use of PHKA facilities for the workshop presentations, which saved the cost of hiring venues which had been expected and was thus budgeted.

HEC reduction training costs increased because of the need for an increased number of meetings beyond that predicted from previous experience (culturally there is a limit to the amount of information which can be usefully delivered in one session, and so further meetings were often needed, increasing costs).

Donny Gunaryadi was unable to meet the English language criteria of the British immigration authorities and was therefore unable to take up his MSc place at the University of Kent during the project, as a result that budget line was underspent.

Salary scales for WCS-IP were changed during the project leading to increased salaries for some staff members (including the assistant field coordinators and field assistants).

7.2   Additional funds or in-kind contributions secured

WCS-IP was able to secure funds for a period of one year (2011–2012) for the amount of US$ 345,000 from the Liz Claiborne and Art Ortenberg Foundation (LCOAF), a private body devoted to the conservation of nature and the amelioration of human distress. While the LCAOF project focussed mainly on tiger conservation, the project also supports Wildlife Crime Units, which operate at a landscape level and aim to reduce the hunting and trading in protected wildlife species, including elephants. The Wildlife Crime Units were able to arrest three ivory traders and one elephant poacher during 2011. Additional funds (US$300,000) for mitigating human–elephant conflict and park patrolling were also raised in 2011 through the Green Window of the National Community Empowerment Program, supported by the World Bank. The funds were used to provide patrols and train villagers in Manggamat in South Aceh, which suffers from frequent HEC. In addition to training villagers in HEC mitigation techniques, the project also built a watch tower to monitor attempted raids by elephants. The program is currently being expanded to villages in East Aceh, where several communities also face similar severe HEC.

7.3   Value of DI funding

The Darwin Initiative funding has enabled the host country and UK partners to run an intensive Sumatra-wide elephant project that addressed both on the ground conservation efforts (law enforcement, HEC mitigation, and population monitoring) and national conservation policy matters (leading to the preparation of a new governmental Indonesian Elephant Action Plan). A particular advantage of the Darwin Initiative funding was that it was for a 3-year period not the more usual 1-year period of other grants and this helped the project achieve its aims without constantly being distracted by the need to write funding proposals. The Darwin Initiative funds also helped us obtain significant match funding – indeed more than initially anticipated (Section 7.2).

Annex 1 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources		The project's current or future impact on elephants in Indonesia was mediated through (1) establishing a better understanding of the status of Sumatran elephants, including taking a lead role in having the subspecies listed as Critically Endangered in the IUCN Red List in 2011 (see the Red List account in the Supporting Materials) and then working with the Government of Indonesia to prepare a new Indonesian Action Plan that aims explicitly to improve the status of Sumatra's elephants (see the summary of the Action Plan in the Supporting Materials); (2) training a large cohort of Government and NGO staff in survey, anti-poaching, and HEC reduction methods; (3) effecting a protected area-wide reduction in human–elephant conflict through facilitating community-based crop protection methods and them rolling-out those methods in other key sites (see Annex 1 and scientific papers in the Supporting Materials); (4) helping secure follow-up funding for continued law enforcement work around key sites including through the development of an intelligence-gathering network (to guide patrolling) and securing funding for an island-wide system of Wildlife Crimes Units to address poaching and illegal habitat destruction (Sections 4.7 and 7.2).	Not applicable
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	a. Map showing all extant elephant populations on Sumatra, with indicators of population size, extent of HEC, and threat level; b. Majority of villages in HEC "hotspots" report major reduction in levels of HEC; Law enforcement reports show reduced rates of illegal killing and	a. The initial map was completed in Year 1 (Appendix 1) and additional survey and HEC information were added in Years 2 & 3. b. Conflict mitigation work was in the four provinces of South Sumatra, Bengkulu, Lampung and Aceh. We demonstrated that HEC could be reduced at the protected area scale through the use of	All project staff continue to work towards elephant conservation in Sumatra. Post-project funds have been obtained from the US Fish & Wildlife Service to continue HEC mitigation work in three priority sites in Sumatra (Padang Sugihan WS, Gunung Leuser NP, and Way Kambas NP) and to establish an intelligence network to facilitate better patrolling of Way Kambas. Funds were also obtained from the CITES MIKE programme to maintain the improved law

	habitat encroachment;	an evidence-based approach to encourage villagers to adopt community-based methods (see papers in Supporting Materials). Our law enforcement efforts in collaboration with the Indonesian authorities continued to identify, arrest, and prosecute illegal wildlife traders and hunters.	enforcement and elephant population monitoring initiatives in Bukit Barisan and Way Kambas NPs.
Government of Indonesia meet its obligations under CITES and the CBD.	c. Large cohort of Indonesian staff trained in CITES/MIKE survey and law enforcement methods, and HEC assessment & mitigation; d. Sumatran elephant management plan drafted.	c. In total we have delivered 2312 person-training-days in formal training and an un-quantified number in on-the-job training. d. Project staff took a lead role in preparing the government's Indonesian Elephant Action Plan (summary included in Supporting Materials)	
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).	The project's baseline island-wide elephant status data were used to list Sumatran elephants as Critically Endangered in the IUCN Red List in 2011 (see Map 1 and the Red List account in the Supporting Materials); the multi-agency large mammal survey data (especially tigers and elephants) collected by project staff and others are in the process of being published (see the Wibisono et al. paper in the Supporting Materials; a further paper on elephants is in prep.); HEC data were published (see the 2 HEC papers in the Supporting Materials); elephant data were submitted to the CITES/MIKE Secretariat and to CITES ETIS programme. Appropriateness of the indicator demonstrated as data were clearly of policy relevance and were used to inform the new government Indonesian Elephant Action Plan.	
Activity 1.1. Desk-based map study to identify key (priority) survey sites for elephant population and HEC assessments.		Completed, data used to list Sumatran elephants as Critically Endangered in the IUCN Red List in 2011 (see Map 1 and the Red List account in the Supporting Materials)	
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; HEC) in Aceh, Bengkulu, South Sumatra, Jambi, and Lampung provinces. The fieldwork for the intensive faecal DNA based surveys was completed at Way Kambas National Park Bukit Barisan Selatan National Park; laboratory work to estimate population size and structure is ongoing (capacity issues delayed progress but have been resolved and additional funds were obtained to complete the work post-project). Other survey data informed the listing of Sumatran elephants as Critically Endangered in the IUCN Red List in 2011 (see Map 1 and the Red List account in the Supporting Materials)	
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	HEC reduction plans are in place; HEC mitigation posters, leaflets, and a manual were produced and distributed (see Supporting Materials). A significant reduction in HEC was achieved using an evidence-based approach to promote uptake of successful methods by local communities. Specifically, the HEC mitigation work achieved very significant reduction in HEC rates at the protected area scale while showing that community-based	

	the majority of the HEC "hotspots".	crop protection methods were more effective than chili-based chemical deterrents. The approach was then rolled-out to additional sites. That HEC work is described in two peer-reviewed scientific papers (which are included in the Supporting Material). The indicator was appropriate.
Activity 2.1. HEC reduction plans and guidance handbooks prepared for HEC "hotspots"		We produced posters, leaflets, and stickers for use in HEC mitigation training and these were distributed by our community officer during village meetings. An HEC mitigation manual was completed in Year 3 and disseminated widely to affected communities, national parks, provincial nature conservation agencies, and local government agencies. The manual, posters, and stickers are included in the Supporting Materials. The indicator was judged to be appropriate.
Activity 2.2. HEC reduction plans implemented at HEC "hotspots"		We conducted village meetings and distributed HEC reduction information at 21 conflict hotspots in the provinces of Lampung, South Sumatra, Jambi, Riau, Bengkulu, and Aceh. We have conducted HEC mitigation work in 11 identified HEC hotspot areas. Our teams monitored HEC incident rates to allow us to assess the effectiveness of the HEC mitigation measures we have promoted: the HEC data were analysed and included in two scientific papers (see Supporting Materials).
Output 3. Illegal killing and capture of elephants and other illegal activities (especially encroachment) in key areas reduced.	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.	No elephants were killed captured in the two priority sites that were the particular focus of the project (Way Kambas National Park and Bukit Barisan Selatan National Park); illegal killing in these two parks was also reduced compared to pre-project baseline data; elephant carcass data were reported to the CITES/MIKE program in 2012, the first-time that Indonesia has met this obligation under CITES. Outside of the two key sites identified above, data were harder to obtain but additional significant funds have been secured to continue and improve law enforcement activities post-project (see Sections 4.7 and 7.2). Indicators were deemed appropriate.
Activity 3.1: Law enforcement patrols by PHKA and WCS–IP staff in key/priority sites.		We provided training to National Park staff, local government staff, and local NGOs in law enforcement patrolling methodologies in Way Kambas National Park and Bukit Barisan Selatan National Park; we 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 (see example training reports in Supporting Material).
Activity 3.2: Deployment of Wildlife Crimes Unit staff throughout Sumatra		Our Wildlife Crime Unit supported (and thanks to additional funds now secured will continue to support post-project – Sections 4.7 & 7.2) 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 traders and middlemen and uncovered a link to international ivory smuggling routes from Thailand to Indonesia, which was reported to CITES.
Output 4. Improved capacity for cooperative management of Sumatran elephant conservation and HEC reduction by the Indonesian Government and local NGOs.	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.	The target for training in-country PHKA staff and villagers was met. Unfortunately, the Indonesian Field Coordinator (Mr Donny Gunaryadi) was unable to take-up the offers he received from UK universities to follow an MSc course because he did not achieve a TOEFL score acceptable to the UK Border Agency and so was unable to obtain a UK visa. As a partial replacement for this activity, Mr Gunaryadi attended the Student Conference on Conservation Science at the University of Cambridge in 2012, where presented a paper on the project's HEC mitigation work. Mr Gunaryadi also spent approximately six weeks as an internship at the North of England Zoological Society (Chester Zoo) in early 2012, where he worked on analysing project data and preparing an additional paper for an

	international peer-reviewed journal under the supervision of project leaders Alexandra Zimmermann and Simon Hedges and Technical Advisor Martin Tyson (also a UK national): the paper will compare and contrast this project's experiences in mitigating HEC in Sumatra with those of Chester Zoo's Darwin Project in Assam, India. Finally, Mr Gunaryadi's place at the University of Kent was held over and we expect that he will attend the course there in 2013.
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.	The target for training in-country PHKA staff and villagers was met: example reports on training in CITES MIKE methods are included in the Supporting Materials. HEC training materials are also included in the Supporting Materials.
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. Large numbers of the HEC mitigation manual were also distributed. The HEC awareness materials are included in the Supporting Materials. In addition, the project has been reported in local media on 5 occasions (local newspapers), and national media on one occasion (national newspaper).
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 326 people from local government agencies and local community members in HEC mitigation methods during mini-workshops.
Activity 4.4: Indonesian student attends UK university	Unfortunately, the Indonesian Field Coordinator (Mr Donny Gunaryadi) was unable to take-up the offers he received from UK universities to follow an MSc course because he did not achieve a TOEFL score acceptable to the UK Border Agency and so was unable to obtain a UK visa. As a partial replacement for this activity, the candidate attended the Student Conference on Conservation Science at the University of Cambridge in 2012, where presented a paper on the project's HEC mitigation work. Mr Gunaryadi also spent approximately six weeks as an internship at the North of England Zoological Society (Chester Zoo) in early 2012, where he worked on analysing project data and preparing an additional paper for an international peer-reviewed journal under the supervision of project leaders Alexandra Zimmermann and Simon Hedges and Technical Advisor Martin Tyson (also a UK national): the paper will compare and contrast this project's experiences in mitigating HEC in Sumatra with those of Chester Zoo's Darwin Project in Assam, India. Finally, Mr Gunaryadi's place at the University of Kent was held over and we expect that he will attend the course there in 2013.
Activity 4.5: Sumatran Elephant Management Plan written in collaboration with PHKA and other in-country partners.	Project staff took a lead role in having the Sumatran elephant subspecies listed as Critically Endangered in the IUCN Red List in 2011 (see the Red List account in the Supporting Materials) and then working with the Government of Indonesia (PHKA) and other in-country partners to prepare a new Indonesian Action Plan that aims explicitly to improve the status of Sumatra's elephants (see the summary of the Action Plan in the Supporting Materials).

Annex 2 Project's final logframe, including criteria and indicators

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.	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.	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	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.
Outputs:			
1. Survey data on elephant distribution	1. Baseline data on elephant population	1. Site-based and annual survey reports,	1a. Goodwill between PHKA, WCS-IP, and NEZS

and status and HEC levels produced and disseminated (including to the CITES/MIKE Secretariat).	distribution and status for all Sumatran provinces available by end of year 3 (ca. 2 provinces per year).	academic papers in peer-reviewed journals, presentations at national and international conferences, plus occasional popular media articles.	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 Project contribution to Articles under the CBD

Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	40%	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	40%	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation		Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation		Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity		Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures		Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	10%	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness		Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts		Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair

Article No./Title	Project %	Article Description
Technology		and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information		Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Other Contribution (articles 10 and 17)	10%	Smaller contributions (eg of 5%) or less should be summed and included here.
Total %	100%	Check % = total 100

Annex 4   Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
1a	Number of people to submit PhD thesis	0
1b	Number of PhD qualifications obtained	0
2	Number of Masters qualifications obtained	0
3	Number of other qualifications obtained	1 (BSc completed at University of Indonesia included a component on conservation genetics of elephants in Way Kambas NP))
4a	Number of undergraduate students receiving training	3 (BSc projects at University of Indonesia on the conservation genetics of elephants: received training from project staff at the Eijkman Institute in Jakarta)
4b	Number of training weeks provided to undergraduate students	3
4c	Number of postgraduate students receiving training (not 1-3 above)	1 (German student from Frankfurt Zoological Society received training in fecal DNA based elephant survey methods in the field in Sumatra)
4d	Number of training weeks for postgraduate students	1
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(ie not categories 1-4 above)	0
6a	Number of people receiving other forms of short-term education/training (ie not categories 1-5 above)	681 people (villagers, local government officers) from 27 villages were trained in setting up local defence groups for combating human–elephant conflict, construction of watch towers, use of elephant scaring devices and safe practices. 30 park rangers were trained in law enforcement patrolling techniques, use of MIST system to record patrol data and monitor effort and spatial coverage. 10 BKSDA and PT REKI staff were trained in occupancy survey and faecal DNA sample collection.
6b	Number of training weeks not leading to formal qualification	167
7	Number of types of training materials produced for use by host country(s)	4 (posters, leaflets, stickers, manual/handbook)
Research Measures		

Code	Description	Totals (plus additional detail as required)
8	Number of weeks spent by UK project staff on project work in host country(s)	40
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	1 (Indonesian Elephant Action Plan – see supporting materials)
10	Number of formal documents produced to assist work related to species identification, classification and recording.	0
11a	Number of papers published or accepted for publication in peer reviewed journals	2 (1 published; 1 in review)
11b	Number of papers published or accepted for publication elsewhere	0
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1 (Wildlife Crimes Unit database)
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0
13a	Number of species reference collections established and handed over to host country(s)	0
13b	Number of species reference collections enhanced and handed over to host country(s)	0
Dissemination Measures		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	1 (Indonesian Elephant Conservation Forum Meeting in 2012 to present project results and develop the new Indonesian Elephant Action Plan)
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work were presented/ disseminated.	3 (Society for Conservation Biology Conference in Beijing in 2009; a side event at the CITES CoP in Doha in 2010; Student Conference on Conservation Science in Cambridge in 2012)
15a	Number of national press releases or publicity articles in host country(s)	3
15b	Number of local press releases or publicity articles in host country(s)	3
15c	Number of national press releases or publicity articles in UK	0
15d	Number of local press releases or publicity articles in UK	0
16a	Number of issues of newsletters produced in the host country(s)	0
16b	Estimated circulation of each newsletter in the host country(s)	N/A

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Code	Description	Totals (plus additional detail as required)
16c	Estimated circulation of each newsletter in the UK	N/A
17a	Number of dissemination networks established	
17b	Number of dissemination networks enhanced or extended	1 (Indonesian Elephant Conservation Forum)
18a	Number of national TV programmes/features in host country(s)	0
18b	Number of national TV programme/features in the UK	0
18c	Number of local TV programme/features in host country	0
18d	Number of local TV programme features in the UK	0
19a	Number of national radio interviews/features in host country(s)	1
19b	Number of national radio interviews/features in the UK	0
Physical Measures		
20	Estimated value (£s) of physical assets handed over to host country(s)	GBP25,451
21	Number of permanent educational/training/research facilities or organisation established	0
22	Number of permanent field plots established	0
23	Value of additional resources raised for project	USD645,000
Other Measures used by the project and not currently including in DI standard measures		

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Annex 5   Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Journal paper *	Hedges, S. & Gunaryadi, D. 2010. Reducing human–elephant conflict: do chillies help deter elephants from entering crop fields? *Oryx*. 44 (1), pp139–146.	Cambridge University Press	www.cambridge.org and from the authors (who are project staff)	Subscription
Journal paper *	Gunaryadi D., Sugiyo & Hedges S. (in review [2012]) Community-based human-elephant conflict mitigation: the value of an evidence-based approach in promoting the uptake of effective methods. *Oryx*.	Cambridge University Press	www.cambridge.org and from the authors (who are project staff)	Subscription
HEC posters *	Safe HEC mitigation; Securing human–elephant co-existence in Sumatra Project; 2010.	WCS-IP, Bogor, Indonesia	Project staff (see supporting material)	Free
HEC stickers *	Elephant Conservation Awareness; Securing human–elephant co-existence in Sumatra Project; 2010.	WCS-IP, Bogor, Indonesia	Project staff (see supporting material)	Free
HEC leaflets	Safe methods for managing HEC; Securing human–elephant co-existence in Sumatra Project; 2010.	WCS-IP, Bogor, Indonesia	Project staff	Free
HEC handbook *	Handbook of Human–Elephant Conflict Mitigation; Securing human–elephant co-existence in Sumatra Project; 2012	WCS-IP, Bogor, Indonesia	Project staff (see supporting material)	Free

Annex 6 Darwin Contacts

Ref No	17-024
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