

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 2008

Darwin Project Information

Project Ref Number	16-007
Project Title	Building Capacities for Mitigating Human-Elephant Conflicts in Assam, India
Country(ies)	India
UK Contract Holder Institution	North of England Zoological Society (Chester Zoo)
UK Partner Institution(s)	-
Host country Partner Institution(s)	EcoSystems-India
Darwin Grant Value	£ 179,750
Start/End dates of Project	1 June 2007 – 31 May 2010
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 June 2007 – 31 March 2008 Annual Report #1
Project Leader Name	Ms Alexandra Zimmermann
Project website	www.assamhaathiproject.org
Author(s), date	A. Zimmermann & N. Hazarika

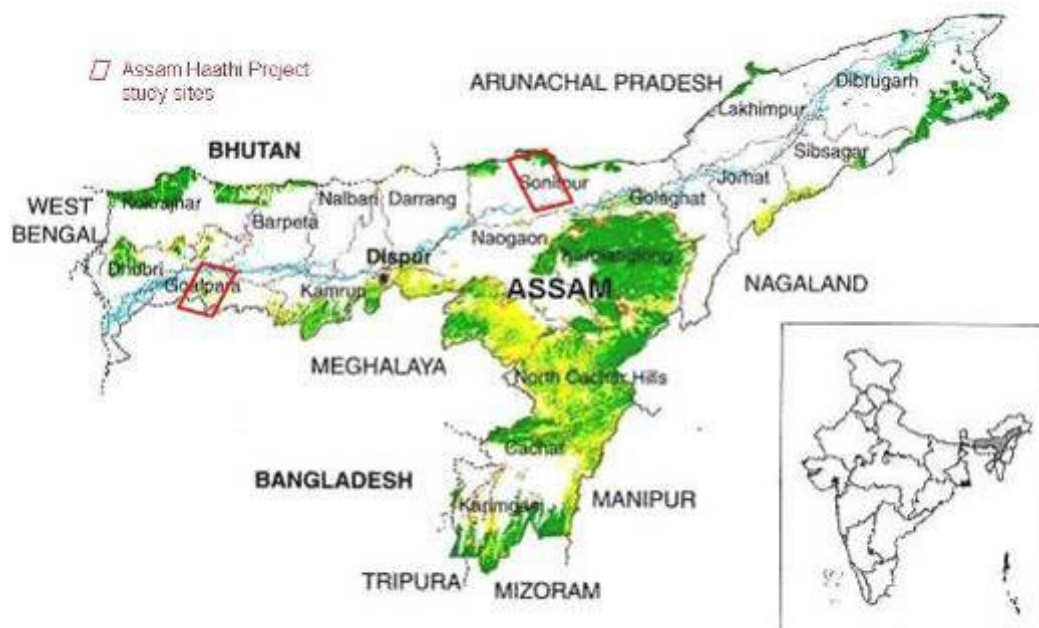
1. Project Background

North-east India has been highlighted by expert groups such as the IUCN Asian Elephant Specialist Group as a top priority for elephant conservation, with a particular need for the mitigation of human-elephant conflict (HEC). The forests of the Himalayan foothills contain one of last remaining large elephant populations but also one of the most acutely threatened. Unsustainable extraction of forest products and slash-and-burn agriculture are fragmenting habitat, the most visible and immediate effect of which is direct conflict between elephants and people. This conflict has become an annual occurrence which results not only in loss of crops,



but also destruction of houses and loss of human lives, and in turn, retaliation against elephants. An indicator of the severity of this conflict is the fact that in this decade, communities, who by religion and culture normally respect all wildlife and especially elephants (related symbolically to the deity *Ganesha*), have taken to poisoning elephants in desperate attempts to protect lives and livelihoods. The conflict in Assam appears to be one of the worst in the world, and, relative to other parts of India, receives little international attention.

Long-term strategies for elephant habitat restoration and conservation are needed, but meanwhile community tolerance levels are rapidly deteriorating. This needs to be redressed urgently so that rural communities re-gain their willingness to protect forests, biodiversity and contribute to regional conservation efforts. Our project focuses specifically on the conflict mitigation need of the larger elephant conservation challenge, while also carrying out research on elephant spatial needs in order to help find solutions for long-term land use strategies in the future.



Combining NEZS' expertise in human-wildlife conflicts and host country partner organisation EcoSystems-India's expertise in community-based conservation, we have merged practical community work (such as helping farmers protect crops with trip-wire alarms, watchtowers and lights), with field research and GIS mapping of elephant herd movements and crop-raiding patterns. During the pilot phase of this project, prior to it becoming a Darwin Project, we were already able to detect a positive shift in the capacities and attitudes of communities, and has attracted great interest from other stakeholders in Assam, as well as observers in the UK such as the Zoo's members, donors, patrons and media contacts.

This Darwin Project encompasses: implementation and monitoring of low-cost crop protection methods (e.g. trip-wires, electric wiring of grain stores, chilli-based deterrents, watchtowers, lights); capacity building and education (on-the-job training, educational resource materials, workshops, etc); support for supplementary livelihoods initiatives (e.g. cash crop cultivation); systematic studies of elephant spatial, behavioural and crop-raiding patterns (by visual tracking, monitoring of conflicts, and GIS mapping and analysis) and dissemination of results to other local stakeholders (via the creation of a regional HEC forum). Key in this project is that all components are fully integrated into the communities, villagers are involved in everything from constructing fences, to collecting data on elephants, to improving ideas initiated by project staff. This way, causes and effects can be fully understood, minds broadened and capacity and knowledge built in a lasting way.

2. Project Partnerships

In this project NEZS manages the overall strategic oversight (having spearheaded the concept) and contributes the human-wildlife conflict expertise, GIS technical skills, and the design of research protocols, and is responsible for overall coordination, financial controlling, strategic planning and liaison with media or other external parties. EcoSystems-India (ESI) is a young, innovative Assamese NGO specialising in community-based conservation and education. ESI's contributes expertise in community-based conservation and participatory management, and is responsible for the recruitment and supervision of field staff, monitoring of workplans, management of local finances, purchase of local materials and equipment, assistance with the production of reports, and dissemination of outputs within India. ESI also maintains excellent relations with the Assamese Forest Department, which is fully supportive (and briefed regularly) about the project. In addition to our main host country co-managing partner, we have three local partner organisation with which we collaborate on specific tasks. In this first project year we have worked with all three organisations already, and relations have been excellent, the collaborative work a win-win for all.

The Pygmy Hog Conservation Programme (a past Darwin Initiative grant co-recipient, Ref. 15/017) provides our project with technical skills and advice for the construction and maintenance of fencing, solar-powering and construction. They also take part in our project meetings and provide valuable feedback and input.

The Centre for Environmental Education (a past Darwin Initiative grant co-recipient, Ref. 06/017) advises our project on educational aspects and works with us to produce training materials and run workshops. Their regional experience and specialisation helps ensure quality control in the educational components of this project and wide dissemination across the region. CEE has produced materials on elephant conservation, but not yet on human-elephant conflicts and related issues; our collaboration in this is therefore be mutually beneficial.

Rashtriya Gram Vikas Nidhi (RGVN) is a national rural development organisation engaged in extending microcredit to communities for promotion of alternative sources of income. RGVN assists our project in training for communities in how to access microcredits and develop small enterprise for the sustainable livelihoods component of this project.

The Project Leader has also explored collaboration with other human-elephant conflict projects to establish links with experiences from further a field. In March 2008, we visited the Project Leader and staff of Darwin Project 15-040 (Building capacity to alleviate human-elephant conflict in North Kenya) in Cambridge to exchange information about our activities and explored several ideas for possible future collaboration.

The Project Leader was also been invited to present at a forthcoming international workshop on elephants in Sabah, Malaysia, organised by Darwin Project 14-014 (Conservation of the Bornean Elephant) and to visit their field sites. One of this project's collaborating organisations is working on human-elephant conflict in the Kinabatangan region; we plan to set up a field staff exchange between our two projects, and advise their project on GIS methods.

In December 2007, the Project Leader also travelled to Bhutan on invitation of the Royal Government of Bhutan, to participate in a workshop to develop a national strategy for human-wildlife conflict in Bhutan, and to advise specifically on human-elephant conflict. This was an extremely enlightening visit, as it emerged that the elephants that are troubling communities here appear to be wandering into Bhutan's southern areas from India, and may indeed be some of the same elephants we are studying in Assam. The Nature Conservation Division of the Bhutanese Government is keen on assistance and advice from other HEC projects, and there are many possibilities for future collaborations such as field staff exchanges and research activities.

3. Project progress

3.1 Progress in carrying out project activities

Our project works in two similar-sized study areas, one in Sonitpur district and the other in Goalpara district. Each area is approximately 500km² large and contains a mosaic of land-use forms and vegetation, including rice cultivation, homestead gardens, villages, grassy and sandy areas, tea plantations, degraded secondary forest, and forest edge or remnants. Each site borders the Brahmaputra river to its southern and northern extents respectively. In each area we carry out the objectives of our project (as listed as the outputs in the project logframe), progress on each of which is described below.

a) Elephant damage control and capacity building

We have extended our monitoring area in Sonitpur district by approximately 10km to the east and west so that we can observe elephants near Sonai Rupai and Nameri National Parks, which are the main points from which elephants enter the agricultural landscape. Analysis of tracking records reveals that elephant groups from Sonai Rupai sanctuary are involved in conflict incidents. Out of the seven groups identified here, two groups are particularly active in frequent crop-raiding. Thus four new villages were inducted as project villages, using standard selection criteria we have developed, and a few further villages have been shortlisted. In Goalpara district, intensive monitoring in partially accessible/difficult pockets within the study area was initiated and monitoring area extended to cover additional 18 km². Hence two new “monitors” (community members) have been recruited at Genderapara and Khermohora since November 2007. Village Bengkanda (53 households) comprising indigenous Garo community is a new project village, which has suffered continuously in the past from conflict incidents. Survey of the households as well as of the physiography of the village is complete and interventions have been planned accordingly. A range of crop damage control measures, or “interventions” were developed in the villages in both districts:

Watch towers: Five wooden and bamboo watchtowers based on traditional *Mising* community design were erected in Jhawani village, Sonitpur in June 2007. The community contributed the building material and labour, while the supervision was carried out by two local *Mising* builders. These are being used at night by the anti-conflict squad members to survey the fields and approaching elephants. The use of chilli smoke from the tower was also demonstrated. Neighbouring villages were invited to the demonstration of watchtower and chilli smoke use. The watch tower in Nichinta, Goalpara is being regularly used both during day and night.

Chilli smoke: Chilli smoke balls were tried out in Nichinta, Goalpara district in July 2007 but were only partly effective, probably because of humid and wet weather conditions. But subsequently in the dry winter months (Oct 2007 - Mar 2008) this technique proved to be useful. For example in Hatigaon village seven elephants were deterred from entering the habitation area for two consecutive nights. In Sonitpur use of chilli smoke was demonstrated in villages through out the year in the monitored areas. Chilli smoke appears to work well, but the wind direction needs to be taken into account. A short video clip of elephants being deterred by chilli smoke was shown to substantiate the efficacy of the smoke method. A novel method of using a liquid mixture of chilli and water as an aerosol spray was tried at Nichinta (project village). A plot of land (0.25 ha) with paddy was sprayed with this mixture. It proved partially successful, 40% of the crop was saved. Modifications are being made to prepare the suitable (ratio of chilli to water) mixture so as not to impart the chilli flavour to the harvested grain.

Chilli rope fencing: Rope covered with chilli and grease paste was tested in Sonai Rupai area, and it was observed that the elephants avoided this stretch. Chilli rope as a fencing option is being adopted by seven villages in the project monitored area since October 2007 onwards. In one of the villages (Tarajuli No. 4) a few households innovated this technique by smearing chilli grease on gunny sacks and strung this around their homes to deter the elephants. The length of the chilli rope fencing varies from 100-200m, and these are being positioned either around homes or across the typical entry paths of the elephants. In Nichinta two stretches (200m and 60m) of chilli rope are in place to protect the paddy fields. In both the project sites, villagers have reported the usefulness of this fencing. However, chilli rope requires weekly maintenance to keep the chilli scent fresh. The common use of electric live wire fencing in Sonitpur poses a grave threat to the elephants. To wean the community from using this dangerous barrier, awareness about chilli rope and smoke was carried out in such villages during the harvest months (Nov 2007 – Feb 2008).



Chilli rope fencing ingredients demonstration



Our chilli plant nursery

Chilli nursery and distribution: the chilli nursery at Gamani (a monitored village), Sonitpur established by the project supplies plants and fruit of the *bhot jolokia* variety for distribution to HEC affected households. This famous chilli, endemic to Assam and Nagaland, was recently acknowledged as the world's hottest. Its hotness quotient (,001,304 heat units on the Scoville scale) makes it twice as fiery as the Red Savina, a Mexican variety that previously held the world record.

The nursery is maintained by one of the field monitors, and can up to 1200 plants can be raised here. Cultivation of chilli is being promoted not only to act as a deterrent but also as a source of income. Unlike other chilli varieties, *bhot jolokia* is sensitive and requires constant care during the initial stages of growth. Between December and March 400 plants were distributed among affected villages.

Following the growing popularity of cultivating *Bhot jolokia* in the study site, the Spices Board (a government agency) responsible for promoting cultivation and marketing of spices in the country requested our project to supply 5000 chilli plants @ Rs 4 per plant to meet its demand from other states. This request comes as a great opportunity to present the community with an alternative livelihood option. We now plan to establish another nursery in Rupajuli to fulfil the local demand for plants for cultivation.

Search lights: We use searchlights to deter elephants once detected at night. Modified chargers for search lights to withstand fluctuations in voltage supply were developed. Six search lights with new charging units and batteries were distributed in project villages in Sonitpur and Goalpara between July-Sept 2007. The users reported that the new search lights were easy to carry and its operation simple. Subsequently (Oct 2007 –Feb 2008) 29 (22 in Sonitpur and 7 in Goalpara) more lights were distributed. Three such lights have developed some problems recently and are undergoing repairs.

Electric fencing: Following a request from the affected community a 2km (2-strand) electric fencing was installed to protect the agricultural fields (about 54ha) and homesteads of 6 villages in Rupajuli area in Sonitpur in August 2007. The beneficiaries are the 504 households mostly belonging to tea labour community. Abandoned and partially cultivated fields following HEC have been reclaimed and farmed after a period of 10 years giving hope to this marginal community. The community contributed labour and the wooden posts for the fencing while the tea estate management donate the wire needed for the fencing.



Search lights



Electric fencing

The fencing system was formally handed over to the community on 15 August 2007 with the estate management and the community having taken the responsibility for its maintenance. 20 village youth were trained in the operation and maintenance of the fencing. Since its installation there have been only two incidents of elephants approaching the fencing. Signboards with caution guidelines are in place to warn the villagers. Minor repairs have been carried out jointly the villagers, tea estate management and our project staff.

With the installation of the fencing the villagers were able to cultivate paddy on all of their lands and reaped rich harvest in December. With no crop raiding incidences, the paddy production more than trebled (from 24 tonnes to 84 tonnes), and the farmers were even able to sell surplus paddy earning an average of Rs1500 (£19) per household.

The effectiveness of the electric fencing at Goalpara demonstrated four times during July-December 2007. The fencing suffered damage during one incidence when a calf tried to break in. Repairs were carried out and the fencing was also extended for another 50m.

Solar lighting: It was decided through community consultation that 12 households of the unelectrified Sagunbahi Garopara hamlet in Nichinta will be connected with a solar photovoltaic battery bank for lighting. In a meeting in March 2008, decision was taken to contribute Rs500 (£6) per household as community contribution towards the expenses. Also the survey of the household electric load and distribution line is complete. The solar panels, battery etc. are stored at the village and the system will be installed in May 2008.

Documentation: The use and effectiveness of the interventions are being monitored and monthly log sheets are being maintained by the field staff. Records show that the modified charger and battery search lights can now operate for about 4 hours continuously. A video clip of chilli smoke being used to deter a group of 13 elephants was shot, and this is being used for giving subsequent demonstration. Villagers from monitoring area have reported the efficacy of chilli smoke but it is subject to wind direction. Evidence of elephants coming and returning from the electric fencing (7 times) in Nichinta, Goalpara was recorded. While post-installation of e-fencing in Rupajuli, there have been no signs of elephants except for two incidences. Monitoring of the effects of our interventions continues and we will soon be able to quantify the extent to which our

Maintenance: All intervention devices/systems (watch towers, trip wire, search lights, electric fencing, and chilli rope) installed in the project and monitored villages are being maintained by the community members themselves, and any expenses incurred are borne by the beneficiaries. Informal committees have been set up in such villages with project monitors/field assistants as members to guide and monitor the use of the systems.

Training: Informal demonstrations about chilli rope and chilli smoke usage were conducted in both project sites from October 2007 – January 2008, covering over 15 villages. Educational material (poster) is under preparation to assist in the awareness demos. On request from state Forest Department training was imparted to Army personnel at Mariani, Jorhat district and Forest Department frontline staff at Gibbon Wildlife Sanctuary, Jorhat district in January 2008 on use of deterrents/barriers such as trip wire, chilli fencing, and chilli smoke. Between February – March 2008, 5 workshops were conducted in Sonitpur to address stakeholders' needs. Four new monitors; two each in Sonitpur and Goalpara have been recruited to monitor additional area or cover the existing gaps in monitoring areas. Our senior tracker and research assistant Dhruba Jyoti Das attended a week-long GIS training programme at Guwahati, organized by the local NGO Aaranyak, with which we often collaborate informally.

b) Collaborative forum of local NGOs working in the region

A meeting which took place prior to the official start date of this reporting period (but already within the Darwin project planning time) established that a number of local NGOs are enthusiastic about creating a formal alliance for collaboration on all efforts to do with elephant conservation in Assam, including human-elephant conflict. We have tentatively named this forum the *Assam Elephant Conservation Alliance* and set up an e-group and prepared documents outlining the structure, concept, and definition of sub-topics and working groups of this alliance. A follow-up meeting for an official launch is planned for the first half of the second project year.

c) Assisting communities with livelihoods

Training workshops: Two farmers' training programmes on alternative cash crops were held at Chariduar and Bihaguri. The two-day programme had sessions on alternate crops such as turmeric, chilli, garlic and vanilla; and loan options and subsidies for farming equipment. Resource persons from Spices Board, state Agriculture Department, and TERI conducted these sessions for our project. In addition HEC issues were discussed and a demo on the use of chilli smoke and chilli rope was given. Chilli plants were distributed among the participant farmers. 30 and 25 farmers attended the above events. It was recommended that follow-up sessions should be conducted for interested farmers, and contact among the Agricultural Department, Spices Board and farmers facilitated for sharing of technical know-how.

Cash crop demonstrations: An agricultural plot of 0.25 ha has been selected in Nichinta for cash crop cultivation. The objective is raise a variety of crops such as black pepper, chilli, turmeric, ginger, vanilla, citrus, etc. to demonstrate the option of alternative and high cash return crops to offset the economic losses suffered by the people. This plot will be managed by a self help group of the village. The preparation of land is underway.

Compensation forms: Compensation for loss of life or injury exists, but the application forms and process are daunting for many villagers. We have produced guidelines and a format for the application process for HEC damage victims and distributed this in Sonitpur and Goalpara. Project staff also assist villagers to record evidence (photographs) and notes.

d) Education and workshops

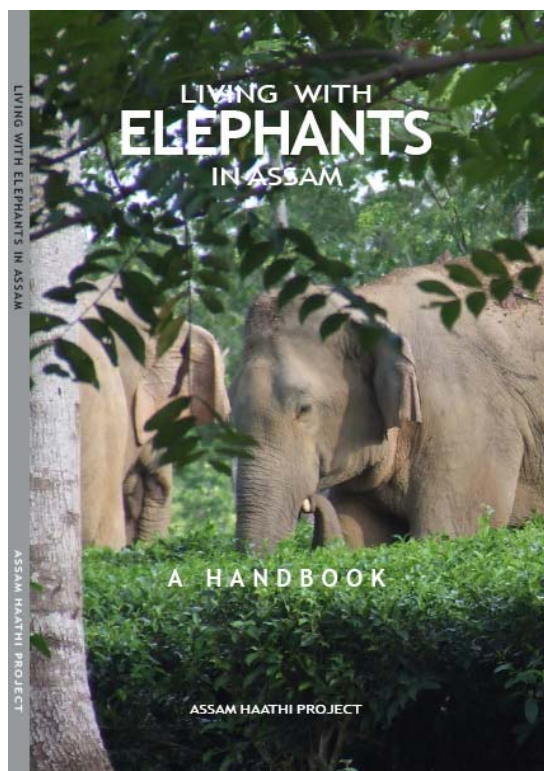
A public meeting was organized in Sonai Rupai (Sonitpur district) to discuss HEC and the plans of the project to work in the area in future. Awareness and demos on interventions were organized in more than 15 villages in both Sonitpur and Goalpara districts; and invitations were extended to non-project villages to visit HEC intervention installations. In addition, senior field staff members were invited by villages located outside our project area to create awareness about HEC interventions and to provide support to HEC affected area. Further, two public events to formally hand over the operation of electric fencing and watch towers were organized in June-August 2007. Assistance was also given to another local conservation NGO, Aaranyak, to organize and participate in consultations with local stakeholders on tiger conservation.

A one-day awareness workshop was attended by 20 college students from local colleges at Sonitpur. The sessions were conducted by our advisors/collaborators Drs. Parag Deka and Bidyut Das (from local partner organisation Pygmy Hog Conservation Programme) along with our project teams. The students were introduced to basic conservation concepts with reference to Nameri National Park and HEC issues prevailing in the region. Teaching aids included presentations, films on environment issues and a visit to the Nameri Park for the practical component.

The students participated with enthusiasm and came up with suggestions on how to increase environment consciousness among their peers and communities. HEC issues were also covered and created new insights for this profile of students who have all experienced conflict in their villages. The feedback was positive and many were keen to continue their involvement with the project and initiate HEC awareness in their communities. It was suggested that follow up workshops and practical training for interested students as well as engaging them in volunteer work, to foster understanding and empathy for the environment in which they live.

A 3-day residential workshop for 11 middle/high school teachers on conservation awareness and environmental education methods was conducted in collaboration with our project partners Centre for Environment Education (CEE) and Pygmy Hog Conservation Programme (PHCP). Sessions included introduction to environmental conservation concepts, and teaching aids (games, story telling, etc.). An innovative mix of theory and practical sessions helped the teachers gain a better understanding of environmental issues and also helped improved their teaching skills. They were also taken to the threatened Nameri National Park to clarify some of the environmental issues discussed in the theory sessions. The workshop closed with a practical demonstration with students of the Gamani village middle school conducted by the teachers themselves. It was suggested that the teachers carry out activities in their respective schools, and that our project could assist and monitor such follow up action.

A one-day awareness workshop on funding schemes for the so-called Self Help Groups (SHGs) and alternate livelihood options was conducted. It was attended by 14 people. Our project partner Rashtriya Gramin Vikas Nidhi (RGVN) helped to conduct this workshop. Participants were informed of various schemes offered by RGVN as well as by other aid agencies that can help them develop alternate livelihood options. RGVN has offered to provide



micro credit to the SHGs in our project study sites. Project field staff at Sonitpur were invited as resource persons at local public meetings in HEC-affected areas outside of our project sites.

We have also completed our planned elephant crop-raiding self-help handbook, "Living with Elephants in Assam". The handbook was pilot-tested by consulting with villagers on early drafts, for their input on which sections they found most useful and how to improve clarity of instructions. The full-colour handbook is now ready in its English version and presently being translated into Assamese. The uncorrected proofs of the English version are enclosed with this report.

e) Elephant research and monitoring

Monthly meetings of field/community monitors were organized to discuss the progress and challenges faced in elephant monitoring. The district and village-level monitoring of elephant movement (tracking) as well as HEC incidents is on-going, although flooding cut off our access to some areas completely. Daily elephant and HEC records are being maintained by the community monitors. The presence of elephants increased from June to September, and one juvenile elephant was electrocuted by live wire in Sonitpur. In Goalpara two herds unexpectedly joined together to raid villages. The villagers were unable to chase such a large number of animals in heavy rain and darkness and were unable to prevent damage to property.

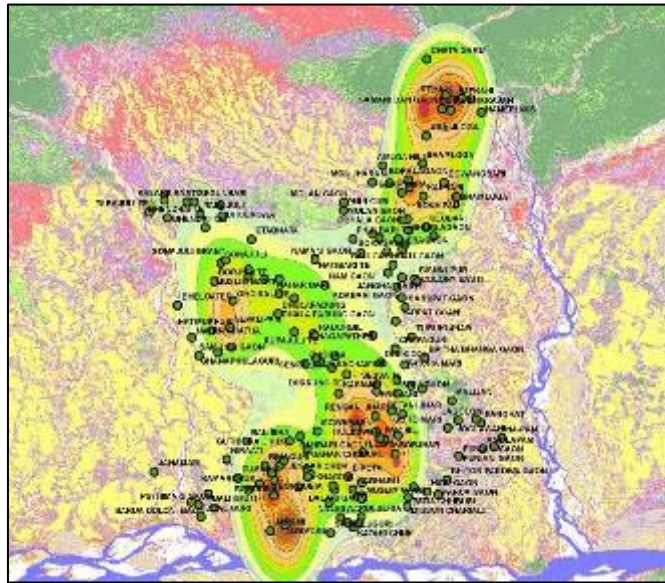
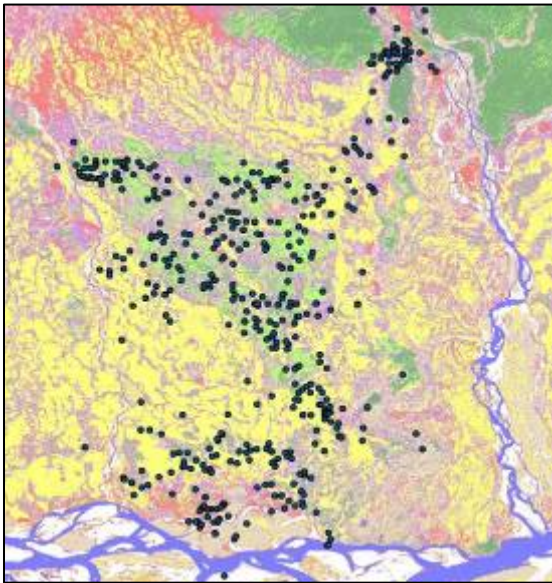
Preliminary results: We have analysed our data on HEC incidences since the beginning of the project (pre-Darwin funding) and report the following sums.

Sonitpur district - from 01/10/2004 to 31/05/2007 (there has been a delay in processing more recent data due to the death of the site's research coordinator): 1769 records collated (a record usually equates to the location of an elephant herd or individual elephant on a single day, multiple records for the same herd on a single day can occur if they are involved in multiple HEC incidents at different locations). 581 records reported crop loss due to HEC, with a total of 482 hectares reported lost of an estimated value of Rs2,858,401 (£35,730). Mean crop loss reported was 0.54 hectares and Rs3,924 (£50). 35 people have been injured by elephants in this area and 7 people were killed. 4 elephants were injured (none killed). 362 individual properties were damaged, an estimated total loss of Rs790,600 (£9890)

Goalpara District - 03/08/04 to 28/02/2008. 1041 records collated from field observations Records are from between the dates of. 265 records reported crop loss due to HEC, with a total of 160 hectares reported lost of an estimated value of Rs10,820,000 (£135,250). Mean crop loss reported was 0.17 hectares or Rs1544 (£19). 50 people have been injured by elephants and 6 people killed. 9 elephants were injured and 4 elephants were killed. 798 individual properties damaged, with an estimated total loss of Rs 1,029,500 (£12,869).

Much more analysis to break down the datasets into time periods of before and after interventions, as well as to show just the data for the Darwin project year duration, is needed and underway.

Extensive mapping work and preliminary spatial analysis of GIS data is also underway, more detailed results can be delivered in the next project report, and we will begin work on a paper publication in the coming months. Preliminary results indicate that HEC is strongly correlated to distance from areas that elephants use for refuges, e.g. tea plantations and patches of forest. Villages within 500 meters of such an area are by far the worst-affected, which creates clear hotspots and predictive and probability predictions that can be made about HEC based on landscape characteristics. This will be explored more in a paper currently being prepared.



Students working with the project: We are in the process of recruiting a PhD student to carry out research on one of three possible topics. The student will be based at an Indian university with a local supervisory, and co-supervised by WildCRU, Oxford University. The research will begin as soon as possible. Meanwhile, we have taken on an Oxford MSc student to carry out a historical analysis of HEC and land-use change over the past three decades, to determine how changes over time has affected HEC. This research will begin in June 2008.

f) Planning for the long-term

Not yet a current activity in this first year, long-term strategic planning using insights and data from our research will begin in year two.

3.2 Progress towards Project Outputs

Overall our progress with project outputs has been excellent, with most targets well within reach. The assumptions stated at the output level of the logframe still hold true: Communities are willing to learn and apply crop protection methods and carry out trials (demonstrated by their coming up with their own improved modifications – a sign of them taking ownership of these approaches); they are willing to experiment with cash crops and livelihood alternative (demonstrated by their lively participation in demonstrations and workshops); communities are willing to receive advice and help from workshops and materials (our draft handbook was well received and workshops well-attended); the media is very interested in our project; our tracking methods are proving to be sufficiently accurate for the project’s monitoring research purposes, and field assistants are collecting data competently; and finally, other NGOs and agencies are keen to collaborate via a region-wide forum or network, as proposed.

3.3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Total planned
15A, B, C & D	6 local and/or national press releases in India and UK	2	6
14A	2 workshops on HEC management, 2 workshops on sustainable/alternative livelihoods	5 and 2	2 and 2
other	Log of trials and their effects recorded in each village.	done	-
6A	8 field assistants trained in elephant deterrent and protection methods	4	8
17A	One collaboration network (an alliance for elephant conservation in NE India) established, with an MOU signed by its members	underway	-
10	1 practical manual for elephant damage control measures (Assamese and English versions) produced and distributed to communities	at proof stage	-
7	Standardized questionnaire survey and protocol and data entry sheets and training of research and field assistants in data collection and quality control	done	-
other	interpretation materials at Chester Zoo, featuring the work as a Darwin Project, viewable by up to 1.2 million visitors per year	done	-
22	8 field plot and demonstration sites to be established by the project, for cash crop training purposes and for growing seedlings to distribute, e.g chilli plants	1	8
other	1 Assamese student undertaking PhD-level research closely linked with the project	delayed, now underway	1
6A	At least 20 community members participating in pilot sustainable livelihoods initiatives, e.g. cash crop cultivation	14 trained	20
8	30 or more weeks spent by UK staff in host country for field work, providing training, data collection/quality control and project management	2 weeks	30 wks
14B	participation in 3 or 4 international conferences by key project staff (UK and India) at which findings of the project will be disseminated and the project promoted as a Darwin project, also participation in training workshops run by others as relevant and beneficial	2 events	4

Table 2 Publications

Type *	Detail	Publishers	Available from	Cost £
article	*Zimmermann, A. (2008). Triumph and Tragedy for the Assam Haathi Project. Z Magazine. Spring 2008. 18-19.	Chester Zoo, UK	www.chesterzoo.org or from any department at Chester Zoo	in kind, part of NEZS' magazine production costs
self-help manual	*Assam Haathi Project. (in press, 2008). <i>Living with Elephants in Assam</i> . English Version. (Assamese version in translation)	Sailesh Art Print	Project Leader for now; later will be uploaded as PDF onto our project website	£5100 production cost

* enclosed with this report

3.4 Progress towards the project purpose and outcomes

The project's purpose is "to facilitate co-existence between elephants and people in Assam by addressing the immediate needs for conflict mitigation, by building the capacities of communities to protect their livelihoods, researching the patterns and dynamics of the conflict, and devising integrated strategies for its mitigation in the long term."

As demonstrated in the sections above, progress towards the overall purpose has been good. This project is very needs-driven, focussing on practical solutions to a serious conflict between biodiversity and rural people, and combining this with research and monitoring of the spatial & biological needs of elephants in order to develop sustainable land-use strategies.

The purpose-level assumption that collaboration and interest of the communities to participate in the project's activities, and continued support from the Forest Department and other local NGOs still hold true, and the indicators we defined for measuring our outcomes – improved capacity of communities to protect crops & buildings, positive attitudinal change and active participation, increased understanding of HEC patterns and data on elephant movements, and increased collaboration among stakeholders are proving to be good indicators that are achievable and toward which we are already seeing positive signs of progress. Even the last, most important and most ambitious indicator we mentioned in our logframe – overall decrease in HEC – can already in only this first year be measured and demonstrates success, with the cases of the villages as reported in Section 3.1 where our project has already saved livelihoods and lives.

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

The project is in too early a stage to be able to demonstrate measurable impact for biodiversity, sustainable use or equitable sharing of benefits, however, various activities leading to these desired impacts are well underway and reported here.

4. Monitoring, evaluation and lessons

We have set up our own internal monitoring methods: for the interventions (elephant damage control) we have logsheets for each type of activity, that are filled in by field staff regularly to record work done and effects achieved. Quarterly checks are carried out by senior field staff and any problems are referred to the project manager and field technical advisors. Consultations and discussions to resolve the problems (repairs/replacement of parts etc.) For example the searchlights used in 2006 were redesigned after monitoring its performance.

Indicators of achievements include the fact that community members are coming forward on their own accord to seek help from the project. Electric fencing at Rupajuli was not a planned activity as these villages were not project villages but only being monitored for conflict incidences. Following our awareness work, representatives from these villages requested our project to install electric fencing with contribution in-kind (labour & material) from their end. The local tea estate also pitched in.

We are also repeatedly receiving requests from the following agencies all over Assam to impart training on deterrents after hearing about the successful performance of our project's interventions. These request are from Forest Department seeking AHP's assistance to train their frontline staff in deterrents, local industries (Numaligarh Oil Refinery and various tea estates), local NGOs within Assam and Northeast India (Aaranyak, Green Guard, Samrakshan) and even the army, and the Spices Board requesting us to supply 5000 chilli plants. In addition to this, our project received an award (BIAZA– see Section 10 below)

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

This is our first annual report, no previous reviews have been received.

6. Other comments on progress not covered elsewhere

Tragedy hit our project when we lost a key staff member, Dibakar Baruah, coordinator of the Sonitpur field team, who died on December 15 in a road accident near his home. Dibakar had been one of the earliest members of the project, he helped to build it, and had worked tirelessly with those communities worst-affected by elephants and begun to make real progress in rebuilding their tolerance and respect for these animals. He also meticulously collected a vast amount of information about elephants and crop-raiding and was certainly one of the most knowledgeable people about elephant conflict in Assam. His dedication, patience and hard work were exemplary and brought great hope to the communities struggling to co-exist with elephants. Dibakar's community leadership has already in itself left a small legacy, his work inspired entire villages and has probably saved many lives.

Our project also faced logistical challenges, when between July and September 2007 many parts of India, including Assam were affected by catastrophic flooding. Our study area Sonitpur was one of the most severely affected areas. Our project has previously experienced a similar event during its early pilot-project phase, in 2004, where most of our Goalpara study area was flooded. These disasters generally create three types of problems for project progress: a) infrastructural obstacles – power losses, access to field sites, etc; b) humanitarian concerns – the communities we work with are suddenly be faced with an entirely different set of survival challenges, and c) changes in the spatial behaviour of wildlife - elephants will use the landscape in a different way from the normal observed patterns. This summer, the office we use in Sonitpur were flooded eight times; facilities and computers were damaged. Several monitoring areas became completely inaccessible, but work continued unhampered in other areas. However, although challenging for the ground team, these obstacles have not affected the project's workplan in any significant way. At times, frequent local road blockades which hinder some daily operations and travel to and from field sites also proved to be a challenge.

7. Sustainability

In our original project application, we proposed this project had potential to leave a legacy in the following ways:

- 1) *make a real difference to the resolution of a long-standing conservation conflict* – good progress has been made already towards this aim – see Section 3.
- 2) *act as an model project, training key people and giving inspirations to others do pursue similar work in other areas* - as above
- 3) *attract talent and international attention for conservation and sustainable development expertise into the region* – no fewer than four Oxford MSc students are carrying out their conservation degree research projects in Assam this summer; two of whom are studying elephants and collaborating with our project. We are also in the process of recruiting an Indian PhD student to work with the project, and a former Research Assistant who worked with us in this first year, will be starting a degree at Oxford later this year.
- 4) *creating a succession of training and capacity building in a variety of areas* – training and capacity building is central to this project and progress is evident, as described in Section 3
- 5) *leaving, on exit, an established collaborative framework for NGOs and government to work together* – the early stages of work towards this aim are well under way.

The project's profile is increasing, it is becoming more widely known particularly in India, so far mostly by word of mouth but our website will give it additional "presence". The press releases so far (see Annex 3) have helped to increase its profile, and with further press, publications and participation in events planned for the coming two years, the project should continue to gain recognition.

8. Dissemination

During this first year the dissemination and promotion of the project, its work, and its sponsorship from the Darwin Initiative, has been carried out in the following ways:

- Interpretation (signage and video) in Chester Zoo's newly extended elephant exhibit, visited by 1.2 million people per year.
- An article about the project in Chester Zoo's magazine, which is sent to over 17,000 member and sponsors, written by the Project Leader; further articles planned.
- Press coverage in UK and India of BIAZA award (see Annex 3), and mention of project in press about "world's hottest chilli" (see enclosed copies of press items).
- Seminar presentation (by project leader) about project to staff and students at Geography Department, Cambridge University, courtesy of Professor Bill Adams (Darwin Project 15-040).
- Completion of project website, www.assamhaathiproject.org launched on 29 April .
- Completion of handbook "Living with Elephants" in its English version, not yet disseminated at time of this report, but translation into Assamese underway and will be handed out to hundreds of villagers over the coming months.
- We have been approached on several occasions by journalists/filmmakers from BBC, National Geographic and independent companies for potential documentary filming projects, but unfortunately to date these have not delivered any concrete plans to us.



A screen shot from our new website, www.assamhaathiproject.org

9. Project Expenditure

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

<i>Item</i>	<i>Budget</i>	<i>Expenditure</i>	<i>Balance</i>
Rent, rates, heating, overheads etc			
Office costs (postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others			
Salaries (specify)			
TOTAL			


*The underspend was discussed with the Secretariat.

10. **OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes.**

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

In November 2007, our project received an award from the British and Irish Association of Zoos and Aquariums (BIAZA) for "Best Field Conservation Project".

Press releases by BIAZA, Chester Zoo and Defra were issued (enclosed with this report) and the story was picked up very quickly in the press, especially the local papers in Assam. Our field teams in particular were delighted, it certainly gave the entire project team a great boost in pride and motivation.




defra

News

Darwin Initiative project receives top award

A Darwin Initiative project has been awarded the top prize at the 2007 BIAZA (British and Irish Association of Zoos and Aquariums) Awards. The Assam Haathi Project was recognised for its human animal conflict resolution project which aims to protect the large elephant population remaining in the forests of the Himalayan foothills while assisting the local peoples.



The awards highlighted the Zoo's efforts in maintaining high levels of animal welfare, field conservation and educating the public. The award-winning programme demonstrates how modern zoos can be a powerful force for conservation, tackling issues such as species extinction in the wild.

Joan Ruddock, Minister for Climate Change, Biodiversity and Waste said:

"This award by BIAZA is really good recognition of the hard work of those involved in the Assam Haathi Project.

"Darwin projects have provided valuable research and support in countries rich in biodiversity but poor in financial resources for the last fifteen years, and the Assam Haathi Project is just one of the many important projects we have supported to conserve the world's wildlife."

The Zoo was one of 14 winners chosen from 62 entries. Held annually for over a decade, the BIAZA awards recognise outstanding contributions and achievements in the fields of wildlife conservation, advances in animal welfare and husbandry, sustained breeding programmes, marketing, PR, education, research, enclosure design and individual outstanding achievement.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2007/08

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008	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		Project is drawing on UK expertise for the aim of the project. Results towards the larger biodiversity and sustainability goals cannot be demonstrated yet.	(do not fill not applicable)
Purpose To facilitate the conservation of elephants by mitigating HEC in Assam through: 1) capacity building to protect communities from elephants, 2) fostering knowledge and tolerance of elephants, and 3) studying the spatial patterns of elephant herds for land-use strategies & local implementation of the CBD	Improved capacity of communities to protect crops & property from elephants. Positive attitudinal change from passive to more pro-active participation. Increased understanding of HEC patterns and causes. Improved information about elephants' movements. Increased collaboration among stakeholders. Overall decrease in HEC (both human & elephant losses).	First year's work already shows extensive work on capacity building for elephant damage control, awareness and educational events have been successful and preliminary research results are being analysed, showing useful patterns and insights	Continue activities as planned in project workplan/timeline, with added effort on precise measurement of impacts. Complete data analysis and begin to publish results in peer-reviewed journals.
Output 1) Capacity of focal community members to develop, maintain and adapt elephant damage control measures.	a) 8 villages actively participating in crop/house protection trials by yr 1 b) 2 people/village trained and able to train others by yr 2. c) all field staff able to collect monitoring data to scientific standard by yr 1 d) 60% or more reduction in HEC incidences by year 3.	all year 1 targets achieved (and exceeded in the case of number of villages actively participating)	
Output 2) Creation of a forum or alliance of local NGOs and FD working on HEC issues in the region	a) proposal agreed with local NGOs/FD by end yr 1 b) meeting with participants to agree communication methods and field exchanges in yr 1	proposal outline agreed and preliminary discussion meetings held	
Output 3) Improved community attitudes and interest in reducing dependency on subsistence crops	a) participation in supplementary livelihoods initiatives, e.g. cash crop cultivation by yr 2 b) positive attitudinal change in 60% of community by yr 3.	several villages already participating in livelihoods initiatives, demonstration projects well underway and several workshops held. target exceeded in year 1	

<p>Output 4) Education materials, and workshops on conservation and HEC mitigation, as well as media support of the project</p>	<p>a) HEC mitigation handbook produced and distributed to communities by end yr 1. b) workshops held in different communities annually – yr 1-3 b) 5 or more features in local media by yr 2.</p>	<p>Handbook produced in its English version, currently at proofs stage and Assamese version in translation. Several educational workshops already held – see Section 3 for details</p>
<p>Output 5) Information about regional elephant movement patterns and conflict hotspots, past and present, in relation to socio-economic activities, landcover and mitigation measures</p>	<p>a) standardized HEC rapid assessment protocol designed and in use by yr 1 b) GIS database of elephant spatial information by yr 2 c) spatial and temporal analysis of elephant movements by yr 3 d) compilation of HEC history from FD records & interviews with villagers by yr 2 e) Postgraduate opportunity for an Indian student to investigate the spatial and behavioural needs of elephants by end yr 1</p>	<p>Data collection protocol designed and in use; several postgraduate opportunities well under way or in planning stages</p>
<p>Output 6) land-use strategy for elephant conservation in the long -term</p>	<p>a) elephant research results provide insights into land-use strategy options by yr 2 b) alliance works together in joint initiative to address elephant habitat protection actions in yr 2-3</p>	<p>Not yet applicable in year 1</p>

Annex 2 Logical Framework

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal:</p> <p>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
<p>Purpose To facilitate the conservation of elephants by mitigating HEC in Assam through: 1) capacity building to protect communities from elephants, 2) fostering knowledge and tolerance of elephants, and 3) studying the spatial patterns of elephant herds for land-use strategies & local implementation of the CBD</p>	<p>Improved capacity of communities to protect crops & property from elephants. Positive attitudinal change from passive to more pro-active participation. Increased understanding of HEC patterns and causes. Improved information about elephants' movements. Increased collaboration among stakeholders. Overall decrease in HEC (both human & elephant losses).</p>	<p>Monitoring of communities' implementation of methods demonstrated. Sociological appraisals to measure changes in attitudes and perceptions. Feedback from communities regarding usefulness of educational material and workshops. Extent of participation by other local groups in HEC forum. Data, reports, GIS, analyses & publications. Surveys to examine change in HEC incidences.</p>	<p>Continued support, collaboration and interest of the communities to participate in the project's activities. Continued support from Forest Department and other local NGOs.</p>
<p>Outputs</p>			
<p>1) Capacity of focal community members to develop, maintain and adapt elephant damage control measures.</p>	<p>a) 8 villages actively participating in crop/house protection trials by yr 1 b) 2 people/village trained and able to train others by yr 2. c) all field staff able to collect monitoring data to scientific standard by yr 1 d) 60% or more reduction in HEC incidences by year 3.</p>	<p>Log of trials and their effects recorded in each village. Training reports and evaluation Monitoring data compiled and analysed to determine effects of interventions</p>	<p>Communities willing to learn and apply crop protection methods, and carry out trials, using provided materials for such purpose only. <i>HEC mitigation techniques implemented correctly as demonstrated</i></p>
<p>2) Creation of a forum or alliance of local NGOs and FD working on HEC issues in the region</p>	<p>a) proposal agreed with local NGOs/FD by end yr 1 b) meeting with participants to agree communication methods and field exchanges in yr 1</p>	<p>Document outlining the objectives of the forum and regular written reports of collaborations and communications that ensue</p>	<p>Other local NGOs and FD willing to collaborate as per letters of intent (to follow in Stage 2).</p>
<p>3) Improved community attitudes and interest in reducing dependency on subsistence crops</p>	<p>a) participation in supplementary livelihoods initiatives, e.g. cash crop cultivation by yr 2 b) positive attitudinal change in 60% of community by yr 3.</p>	<p>Semi-structured interviews to measure knowledge and attitudes at project intervals. Cash crop cultivation training session reports</p>	<p>Community members willing to adapt practices and learn about conservation, and willing to experiment with growing alternative crops</p>
<p>4) Education materials, and workshops on conservation and HEC mitigation, as well as media support of the project</p>	<p>a) HEC mitigation handbook produced and distributed to communities by end yr 1. b) workshops held in different communities annually – yr 1-3 b) 5 or more features in local media by yr 2.</p>	<p>Field staff reports of villagers' feedback on handbook and workshops. Visits to neighbouring communities show whether the training is implemented.</p>	<p>Communities willing to receive advice and help provided by handbook and attend workshops. Media is interested to disseminate the information offered by the project</p>
<p>5) Information about regional elephant movement patterns and conflict hotspots, past and present, in relation to socio-economic activities, landcover and mitigation measures</p>	<p>a) standardized HEC rapid assessment protocol designed and in use by yr 1 b) <i>GIS database of elephant spatial information by yr 2</i> c) <i>spatial and temporal analysis of elephant movements by yr 3</i> d) <i>compilation of HEC history from FD records & interviews with villagers by yr 2</i> e) <i>Postgraduate opportunity for an Indian student to investigate the spatial and behavioural needs of elephants by end yr 1</i></p>	<p>Production of maps, results in reports and publications. Summary report of historical HEC data. All incidences of crop-raiding, building damage, human injury/death or killings of elephants occurring during project recorded. Student research project and products Structured exchange with a UK university for the student</p>	<p>Visual tracking method elephants is sufficiently accurate for the study objectives. Field assistants collect data according to procedures taught; competent use of GPS as per training FD provides historical data. Availability of a good Assamese (or other Indian) candidate to carry out the research</p>
<p>* 6) land-use strategy for elephant conservation in the long -term</p>	<p>a) elephant research results provide insights into land-use strategy options by yr 2 b) alliance works together in joint initiative to address elephant habitat protection actions in yr 2-3</p>	<p>Elephant conservation management plan, data and recommendations produced and discussed with government</p>	<p>Alliance works successfully and is able to develop ideas and plans for long-term strategy</p>

Activities	Activity milestones (summary of project implementation timetable)	Assumptions
1) Community-based crop/house protection trials and training activities	Design HEC rapid assessment protocol and collect baseline data for each site (yr 1). Hands-on training to construct trip wires, chilli-grease fences, etc, specific to each village (yr1). Monitor crop-raiding attempts, analyse results, adapt/improve deterrent methods, hold participatory evaluation discussions (yrs 2-3).	Elephants continue, as in previous years, to crop-raid in the areas where trials are prepared
2) Resource and educational materials, socio-economic monitoring, communication	Research and produce handbook on HEC practical advice, distribute and initiate follow-up conversations with communities (yr 1-2). Conduct annual workshops in villages, (yr 1-3) Collect data on socio-economics and attitudes (yrs 1-3). Initiate HEC forum, propose structure for communication (yr 2)	Community members come to workshops and use the handbook provided.
3) Elephant research, GIS mapping, spatial analysis and recommendations	Review elephant research methods from pilot work (yr1). Analyse elephant movements, HEC, land cover, nutrition of crops vs forage (yr 2-3), GIS maps & spatial analysis (yr 2-3), publish results (yr 3). Produce report with land-use management recommendations (yr 3). Identify project follow-up needs (yr 3).	Visual tracking and other methods developed continues to be the most feasible and appropriate approach.

Annex 3 Supplementary Material

1 Handbook: *Living with Elephants in Assam*. (English version uncorrected proofs)

1 Article: Zimmermann, A. (2008). Triumph and Tragedy for the Assam Haathi Project. Z Magazine. Spring 2008. 18-19.

4 Press items: two about the BIAZA Award, two about the “hottest chilli” in which project is mentioned

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ectf-ed.org.uk putting the project number in the Subject line.	yes
Is your report more than 5MB? If so, please advise Darwin-Projects@ectf-ed.org.uk that the report will be send by post on CD, putting the project number in the Subject line.	-
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.	-
Have you completed the Project Expenditure table?	yes
Do not include claim forms or communications for Defra with this report.	ok