Darwin Initiative Annual Report

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 2009

Darwin Project Information

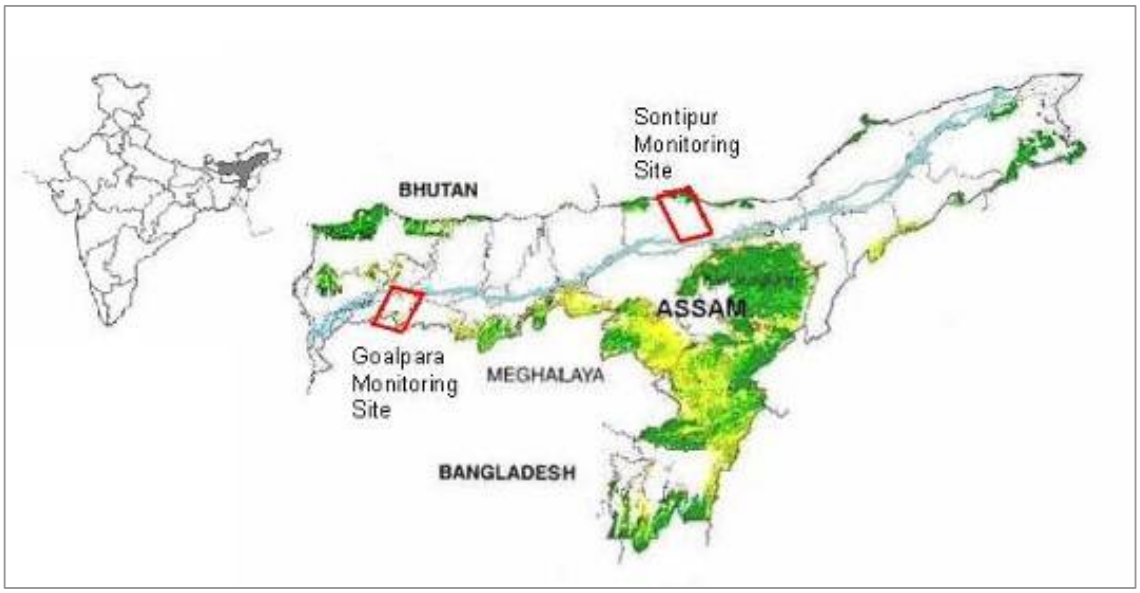
Project Ref Number	16-007
Project Title	Building Capacities for Mitigating Human-Elephant Conflicts in Assam, India
Country(ies)	India
UK Contract Holder Institution	North of England Zoological Society (Chester Zoo)
Host country Partner Institution(s)	EcoSystems-India
Other Partner Institution(s)	-
Darwin Grant Value	£ 179,750
Start/End dates of Project	1 June 2007 – 31 May 2010
Reporting period	1 April 2008 – 31 March 2009 Annual Report # 2
Project Leader Name	Ms Alexandra Zimmermann
Project website	**www.assamhaathiproject.org**
Author(s) and main contributors, date	A. Zimmermann, T. Davies, S. Wilson, N. Hazarika 30 April 2009

1. Project Background

Northeast India is recognised as a high-priority area for elephant conservation and also as a hotspot of human-elephant conflict (HEC). The forests of the Himalayan foothills contain one of the last remaining viable Asian elephant populations and also one of the most acutely threatened. This forest habitat is becoming increasingly fragmented and degraded through unsustainable extraction and encroachment for agriculture; the most visible and immediate effect of which is the increased frequency of 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 the problem is reflected in the communities' actions. South Asian communities traditionally revere all wildlife, especially elephants who are related symbolically to the Hindu deity Ganesha. Within the last decade some communities have taken to poisoning elephants in desperate attempts to protect their lives and livelihoods. The conflict in Assam is severe and escalating, and, relative to other parts of India, receives little international attention.

Long-term, landscape-scale strategies for elephant habitat restoration and conservation are essential, but meanwhile community tolerance levels are rapidly deteriorating, undermining larger-scale conservation efforts. This needs to be urgently redressed so that rural communities re-gain their willingness to protect forests, biodiversity and participate in regional conservation efforts. This task is the main focus of our project, and we approach this by combining community outreach (crop protection and supplementary livelihoods) with research on elephant movements and behavioural ecology. Combining NEZS' expertise in human-wildlife conflicts and host country partner EcoSystems-India's expertise in community-based conservation, we have merged practical community work with field research and GIS mapping of elephant herd movements and HEC patterns.

This Darwin Project encompasses: implementation and monitoring of low-cost crop protection methods (e.g. trip-wires, electric fencing, chilli-based deterrents, watchtowers, search lights); capacity building and education (work-based training, educational resource materials, workshops etc); support for supplementary livelihoods initiatives (e.g. cash crop cultivation); systematic studies of elephant spatial, behavioural and HEC 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 alliance). Full and active participation by the communities in all of these components is the central concept of this project. Villagers are involved in all aspects of the project from constructing fences, to collecting data on elephants, to improving ideas initiated by project staff. Through this approach, causes and effects can be fully understood and capacity and knowledge built in a sustainable way.



Map showing the locations of our two project sites in Assam

2. Project Partnerships

In this project, Chester Zoo manages the overall strategic oversight and provides human-wildlife conflict research expertise, GIS technical skills, and marketing and publication and is responsible for overall coordination, financial controlling, strategic planning and liaison with media or other external parties. Host-country partner EcoSystems-India (ESI) is an Assamese NGO specialising in community-based conservation and education. ESI provides the expertise in community-based conservation and participatory management, and is responsible for the recruitment and supervision of field staff, monitoring of work-plans, management of local finances, purchase of local materials and equipment, and the production of reports and dissemination of outputs within India. Ecosystems also maintains excellent relations with the Forest Department, Govt of Assam, which is consulted and briefed regularly and is very supportive of the project.

In addition to our main host country co-managing partner, we have three local partner organisations with which we collaborate on specific tasks:

The Pygmy Hog Conservation Programme (a past Darwin Initiative grant collaborator to project 15-017) provides our project with technical skills and advice for the construction and maintenance of electric fencing, solar-power 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 collaborator to project 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 mutually beneficial.

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

In the second year of the project we have also developed further links with other organisations:

The Energy and Resources Institute (TERI) is a national pioneering research institute formed to develop sustainable solutions to global problems in the fields of energy, environment and current patterns of development. The central element of TERI's philosophy has been its reliance on entrepreneurial skills to create benefits for society through the development and dissemination of intellectual property. TERI extends its services for our livelihood training programmes on agriculture: they assist with training workshops on sustainable methods of agriculture and cultivation of alternative cash crops including chilli.

The Department of Agriculture, Govt of Assam, is a state agency with the primary responsibility of formulating and implementing policies and programs for achieving agricultural growth through optimum utilization of agricultural resources. Through its agricultural extension services, the Department has been assisting the project in conducting agriculture-based livelihood training programmes for the local farmers. The focus is on cultivation of cash crops and awareness about soft loans and subsidies available under government schemes.

The Animal Husbandry and Veterinary Department, Govt of Assam, is a recent supporter of our project. Its broad objectives are to build the capacity and accelerate the growth of livestock farmers and generate employment through capacity building for project planning and implementation, facilitated through associations with NGOs. The Department helped the project to conduct training programme for the community in sustainable livestock-rearing and income-generation.

We have also explored collaborations with other human-elephant conflict projects:

The Project Manager (N. Hazarika) presented our project's experiences at the international workshop on elephants in Sabah, Malaysia in June 2008. This was organised by Darwin Project 14-014 (Conservation of the Bornean Elephant) and also presented an opportunity to visit their field site. Staff exchanges are planned between our two projects in 2009 to promote knowledge sharing.

We will be collaborating with the new Darwin Project 17-024 (Securing human-elephant co-existence in Sumatra) (Project Leader A. Zimmermann), and have made plans for field staff exchanges to provide professional development opportunities to both projects, for November 2009 (Sumatran staff to Assam) and February 2010 (vice versa).

The Project Manager and four Assam field staff visited former Darwin Project 14-024 (Elephant Conservation Network) in Kanchanaburi, Thailand in November 2008. Jittin Ritthirat, Project Manager of ECN gave our team a tour around Salakpra and the opportunity to meet villagers to see how ECN helps tackle HEC by adopting two crop protection measures (electric fence and earth trench). We also visited their forest restoration tree nurseries. ECN hopes to collaborate with the project to develop their work in sustainable mitigation techniques for rural communities. While in Thailand, the project team also attended the International Elephant Conservation and Research Symposium in Pattaya, Thailand.

A. Zimmermann and N. Hazarika also attended the a conference on Human Dimensions in Fish and Wildlife Management in Colorado USA in September 2008 and presented a paper on our project

3. Project progress

3.1 Progress in carrying out project activities

Our project works in two similar-sized study areas in two districts of Assam: Sonitpur and Goalpara, each approximately 1,250km^2 in area and contains a mosaic of land-use forms and vegetation, including rice cultivation, homestead gardens, villages, tea plantations, degraded secondary forest and forest remnants.

a) Elephant damage control and capacity building

Watch towers: The watchtowers in both districts are inspected on a regular basis. Storms damaged two watchtowers last year and all repairs were completed by the communities.

Chilli smoke: Chilli smoke is being used frequently in the project villages and also by field monitors in their own villages. Chilli smoke demonstrations were completed at Hatigaon in Goalpara in August and at three villages in Sonitpur in January.

Chilli fencing: Elephants approached the chilli fence in Nichinta (Goalpara) four times during October, but did not pass through it. Following on from this success the 700m fence was extended by 300m to cover Kochpara hamlet. Chilli fences have also been installed at four villages in Sonitpur, with a total length of 500m. Regular re-greasing of the rope is required in order to maintain the effectiveness of this method, and this is completed twice-monthly. The installation of chilli fences was proposed for a further two villages in Goalpara, however there has since been no elephant activity in this area, so the installation of the fencing has been put on hold.

Chilli nursery: The capacity of nurseries in Sonitpur district has been increased by 4300 plants and the saplings are doing well. A self-help group (SHG) in Sonitpur approached the project and requested assistance in establishing a chilli nursery for large-scale plantation (>1000 plants). Some of these plants will be supplied to the project in order to maintain our supply and the rest will be sold by the SHG. Currently, the preparation for raising new plants is underway in Sonitpur.

Search lights: A total of 31 search lights have been distributed to various villages throughout Sonitpur and Goalpara. Discussions with villagers indicate that search lights are one of the most popular methods due to their ease of use.

Electric fencing: A 3.4km, 2-strand electric fence was installed at Bengkanda, Goalpara on 31st December 2008. This fence protects 115 acres and 52 households. The fence was installed by the local community assisted by three project staff members. The community of Bengkanda raised Rs.23000 (£329) for a maintenance fund for the electric fence; maintenance kits have been distributed to the community to enable them to conduct regular inspection and minor repairs by themselves. In Sonitpur, the electric fence at Rupajuli is maintained by the community who have been completing minor repairs with the help of the local tea-estate.

Trip wire: The Goalpara team assisted PHCP with the installation of a trip wire at Saurang, a fringe village of Manas National Park. This trip wire is 600m in length and will provide 60 households with an early warning system. A trip wire was also installed in Dhankona, Sonitpur district in January. The trip wire is 2km in length and serves as an early warning system for 18 households.

Household electrification: On repeated request of the un-electrified Sagunbahi hamlet in Nichinta (Goalpara) we have electrified the 11 households and church with solar power. Each household contributed £7 (Rs 500) seems a lot ask NH towards the costs. Two solar modules (35Wph each) and a storage battery were provided to power two 6W lights in each home. The lights are operational for three hours in the evening and the community is very happy.

Maintenance: All intervention methods (watch towers, trip wire, searchlights, electric fencing, chilli rope etc.) installed by the project are being maintained by the community members. Any resultant expenses are covered by the communities and funds are managed by an informal committee guided by project staff members.

Training: Informal demonstrations of using chilli smoke and chilli fencing have been conducted throughout the year.

Plate 1. **A** - Electric fence sign at Bengkanda village, Goalpara. **B** - Making a chilli smoker. **C** - Chilli plants grown by a local farmer for supplementary income. **D** - Elephant identification training for AHP staff at Manas National Park. **E** - Cash crop workshop, with many women in attendance. **F** - Spotlights being distributed to villagers by project staff member.

b) Collaborative forum of local NGOs working in the region
Preliminary meetings towards this task went well and all the local NGOs pledged their support to the idea. A follow-up meeting is planned for June 2009, with further events – probably a 2 or 3 day symposium in situ, planned for the third year.

c) Assisting communities with livelihoods
Cash-crop training & demonstrations: In conjunction with the Spices Board and local office of the Agriculture Department, a cash crop training day was held at Hatigaon, Goalpara in May 2008. The event was attended by 40 farmers including many women. Information was provided on various cash crops, including chilli, turmeric and ginger. The 0.25ha agricultural plot in Nichinta (Goalpara) is developing well. A 30m-deep well was built in September 2008 which provides water for irrigation of the plot. The 160 chilli plants are now well established and produced fruit, which the community will use for chilli grease fencing. It is planned to increase the number of chilli plants with additional plants to be supplied from Sonitpur later this year.

Agriculture workshop: The aim of this workshop was to raise awareness amongst farmers about ways they can improve the sustainability of their traditional agriculture methods. 21 villagers from 14 different villages in Sonitpur were invited to the workshop. Held in February at Balipara, the workshop was interactive and discussions were held on common problems, solutions and modern agricultural practices. A staff member from TERI prepared the workshop and a member from the State Agriculture Department gave an illustrated talk on government schemes. A six month follow up plan has been prepared by project staff, in order to monitor the progress of the trainees.

Animal husbandry workshop: The aim of this three day workshop was to raise awareness about sustainable livestock farming as an alternative income source. The workshop, held in Balipara (Sonitpur), was conducted by two Veterinary Department personnel and was attended by 14 farmers from HEC affected villages. Topics covered were applicable to poultry, pigs and goats and included; general principles of animal husbandry, site selection, suitability of breeds, access to resources, building of shelters, animal disease management, and nutrition. The various Government subsidy schemes were also covered. The progress of the farmers will be monitored by project staff.

Compensation Forms: Compensation for loss of life or injury exists, but the application forms and process are daunting for many villagers. Last year the project produced guidelines and a format for the application process for HEC damage victims and we continue to support communities with their claims. Compensation forms have been distributed to 40 HEC affected villages in Sonitpur and more than 100 forms have been distributed in Goalpara.

d) Education and workshops
HEC-awareness workshop: This workshop was conducted for high school students during May 2008 with the aim of raising awareness about HEC and the environment in the younger generation. 40 students from five schools participated in the activities, which included a talk on HEC, writing essays, painting and creating collages using waste materials.

Self-help-group workshop: 11 SHG groups from four villages were invited to attend the three day workshop in Balipara (Sonitpur) in February. The workshop was prepared by local NGO 'Mahila Shakti Kendra' and presented information on various relevant government schemes to the SHG's. In addition, the workshop included talks on the needs of SHGs, how to develop self-reliance, team management, administration and managing accounts. Also an interactive question and answer session was held with RGVN. A six month follow up plan has been prepared to enable us to monitor the progress of the participants.

Students awareness workshop: This environment-awareness workshop for high school students was arranged in collaboration with the Forest Department, local SHG 'Jyoti' and local NGO 'Nature's Eco-Social Tribune' (NEST). The workshop held in Potasali (Sonitpur), was attended by 22 students and 13 people from Jyoti and NEST, and aimed to increase awareness about the adverse effects of pollution. Jyoti suggested regular clean-ups of the Jiabhoroli River banks, which could be paid for by charging all picnic parties to the area a fee; this idea was supported by the Park Ranger. The pollution problem inside the Nameri National Park was also discussed.

Art Competition: Human-elephant conflict themed art competitions were arranged for three villages in Sonitpur, during February and March 2009. 115 students from middle and high school participated. 20 prizes were distributed to the winning students by the project staff.

Plate 2. **A** – Chilli fence demonstration at Dhankona village, Sonitpur. **B** – Self-help group workshop utilizing a participatory approach in Sonitpur. **C** – Solar panel handover in Bengkanda, Goalpara. **D** – Chilli smoke demonstration in Sonitpur. **E** - The participants from the human-elephant art competition held in Sonitpur.

A capacity building training workshop was held at Manas National Park from 28/02 - 02/03/09 for all field staff. This was led by invited speaker Dr. Ajay Desai (Co-chair of the Asian Elephant Specialist Group (AsESG)) – who covered basic elephant ecology, including herd structure and dynamics. This was followed by a course in elephant identification, including a presentation, practical training at the local mahout camp and a short test. This also provided a good platform for the project team to raise any queries about what they had learnt and to discuss how to improve data collection. Dr. Desai recommended increasing the number of elephant individual identification profiles to improve data collection and this is currently being taken forward.

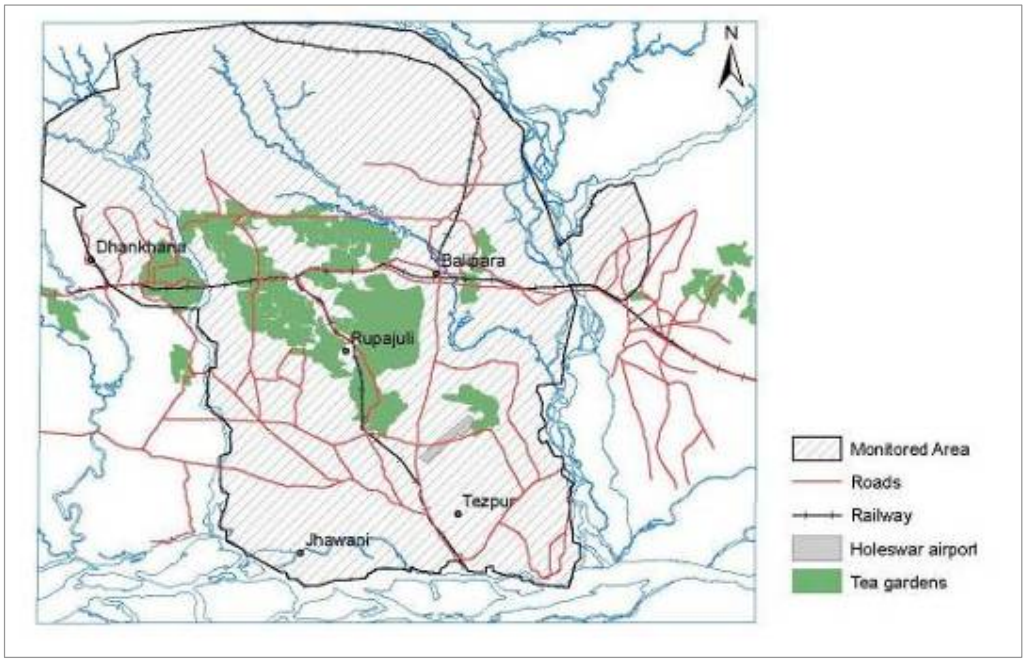
Our handbook "Living with Elephants" will be distributed in early May 2009 to 45 villages in both districts. We are evaluating its effect with a before-and-after survey, to determine any changes in a the communities' knowledge and perceived capacity to protect themselves from elephant depredation. We are assessing three types of villages: those that our project works with intensively, those that are helped indirectly (e.g. neighbouring villages, or those where project staff live) and those which receive no assistance at all for HEC problems (also not from other NGOs). The aim is to determine how significant the differences between these three levels of outreach-intensity are. The "before" surveys (250 questionnaires) have been completed and the handbook is currently being distributed.

Posters have been designed on the various intervention methods, as well as basic elephant ecology, the project and HEC. These will be used at future workshops, demonstrations, conferences and also displayed in the project help centres.

e) Elephant research and monitoring

Both AHP monitoring areas were expanded gradually in 2008 from approximately 500km^2 to 1250km^2. The additional study areas were selected in recognition of their importance to augment the information on elephant movement and HEC that has been previously collected. Additional monitored areas include those adjacent to national parks. The expanded study site now also includes areas that are monitored *ad hoc*, due to difficult terrain or encroached forest habitat.

The project now employs 33 people across the two districts, predominantly from local villages and mainly for monitoring, tracking and HEC mitigation activities, but also for other research and administrative roles. In response to the expansion in project staff, a number of training workshops have been conducted in the last year, as detailed above.



Map showing Sonitpur study site, indicating monitored area and project villages: Rupajuli, Jhawani & Dhankona.

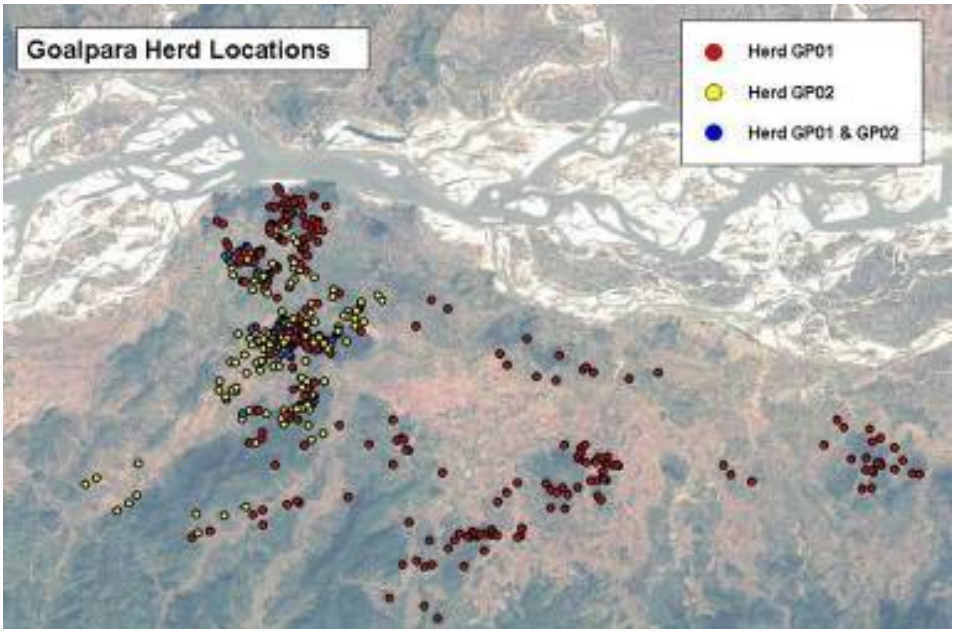
Map showing Goalpara study site, monitored area and project villages: Nichinta, Bengkanda & Bamungopa.

i) Elephant Movements:

Goalpara

There are two identified herds within Goalpara: GP01 and GP02, which have also occasionally been seen moving as a combined herd, or sub-groups of the main herds. The mean herd size recorded for GP01 is 21 individuals and the maximum 50. GP02 has a mean herd size of 22 and maximum of 35. In addition, another (as yet unidentified) herd of around 16 individuals has been observed. This herd has been staying inside the forested areas close to Meghalaya, which makes identification difficult. It has been observed on half a dozen occasions over the last year and no HEC incidents have been associated with this herd. We therefore estimate there to be a minimum of 101 elephants in our study area at Goalpara.

Herd movements can be viewed at www.wildlifetracker.co.uk, a website that was set up to allow the field staff view a simulation of the tracking data online. GP02 predominantly uses the forested Garo Hills in the south of the study area, occasionally moving north to the forested area by the Brahmaputra River. During October to November (crop harvesting season) GP02 is found more frequently in the agricultural areas in between these two sites. GP01 shows similar movements but also uses the forested hills to the east and the forest band travelling east along the river. The herds tend to be found together during the crop raiding season in the central agricultural lands (map below).



Map showing recorded locations of elephant herds in Goalpara district.

Sonitpur

Herd tracking in Sonitpur does not currently provide the degree of information we have gathered for Goalpara. This is partly because many of the villages are located directly adjacent to the reserve forests and national parks, and since elephants usually crop raid at night it is difficult for trackers to make a herd identification as by morning, the elephants have often returned to the forests. Another problem arose during 2008 as many of the identified or 'known' individuals used for herd identification were not seen, possibly not leaving the forests or having moved out of the study area. This has led to reduced herd identification data. To remedy this situation, the Sonitpur team are currently building up a larger database of individual elephant profiles for identification.

Seven herds have been recorded in Sonitpur, SP01 to SP07. The average and maximum (avg/max) herd sizes recorded are; 6/6 (SP01, number of observations N=1); 12/13 (SP02, N=13); 3/3 (SP03, N=11); 4/35 (SP04, N=80); 9/11 (SP05, N=11); 2/2 (SP06, N=5); 6/6 (SP07, N=3). These figures would suggest a minimum of 76 elephants in Sonitpur.

Of the herds most frequently recorded: SP04 has been observed throughout the region, spending the majority of time around the refuge of Nameri N.P. in the northeast, the tea gardens in the centre and also moving down to the banks of the Brahmaputra River in the South. SP05 also moves from the tea gardens down to the river. SP05 and SP02 are not resident herds and known to move out of the study area outside of crop-raiding season, so further data are required to determine the entire movement range of these herds. SP03 is a resident herd of three individuals which often spends the entire year within the study area predominantly around the tea gardens.

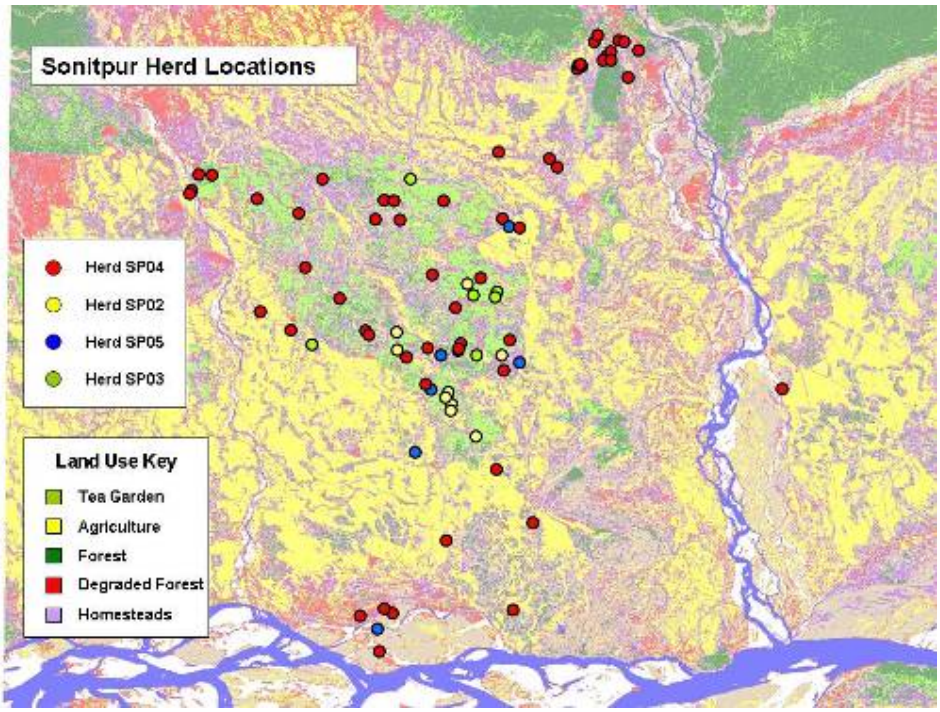
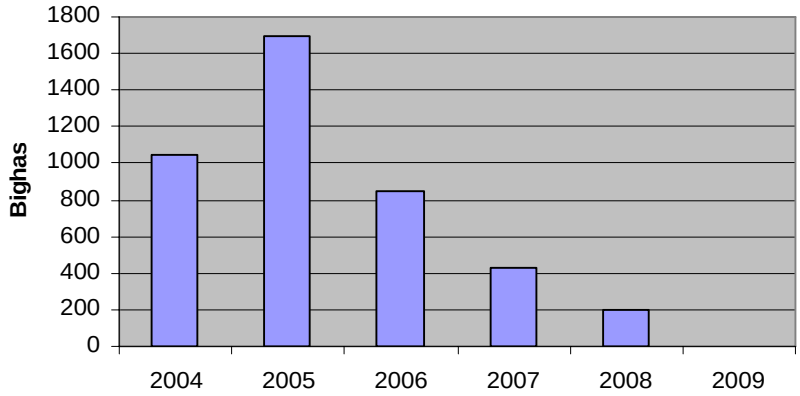


Figure 4. Recorded locations of elephant herds in Sonitpur district.

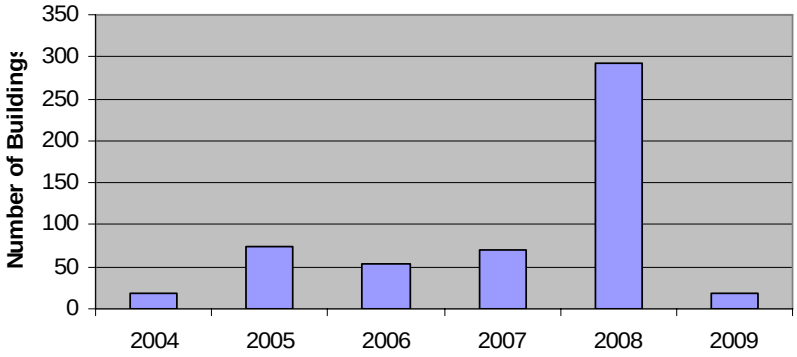
ii) HEC Monitoring

Spatial analysis of observed HEC trends over three crop-raiding seasons until February 2009 is currently underway. The monthly data from the Sonitpur study area continue to show a very marked seasonality, more so than Goalpara, particularly for HEC crop loss. Annually, the data show a dramatic decreases in crop loss and a corresponding (unexpected) increase in property damage (Graph 1&2). The large property damage increase in 2008 is actually a result of a higher number of minor damages, Graph 3 shows that the actual financial impact of both crop raiding and property damage has reduced dramatically over the duration of the project's activities. Conversely, Goalpara shows a slight increase in HEC crop loss and decrease in building damage (Graphs 5&6), but again the financial impact of HEC has decreased (Graph 6). The very low HEC figures for 2005 in Goalpara are the result of heavy flooding which severely restricted elephant movement into the study site. The occurrence of both human and elephant deaths and injures for the most part does not show any clear trend (Graph 4&7), except for human injury, which in both sites has decreased steadily; the only exception being a slight

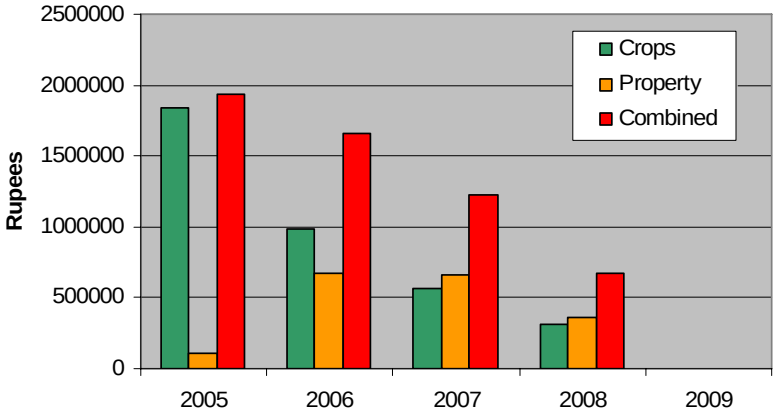
increase in Sonitpur in 2008. This is likely to be related to the increase in property damages in Sonitpur in 2008, indicating a more common occurrence of elephants in populated village areas. Reasons for these trends require further investigation; they may indicate a shift in elephant foraging strategies or herd behaviour, or could be a result of the crop protection measures used, or possibly linked to the expansion in study area. The analysis currently underway will look at all the factors involved in these HEC trend changes.



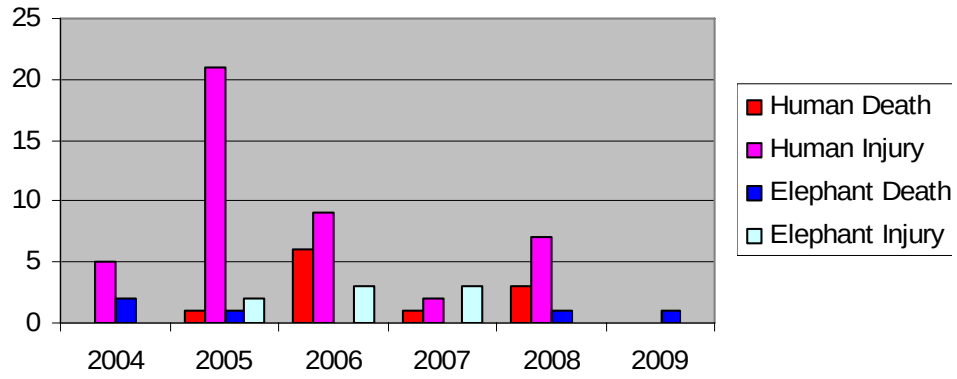
Graph 1. Crop loss in Sonitpur



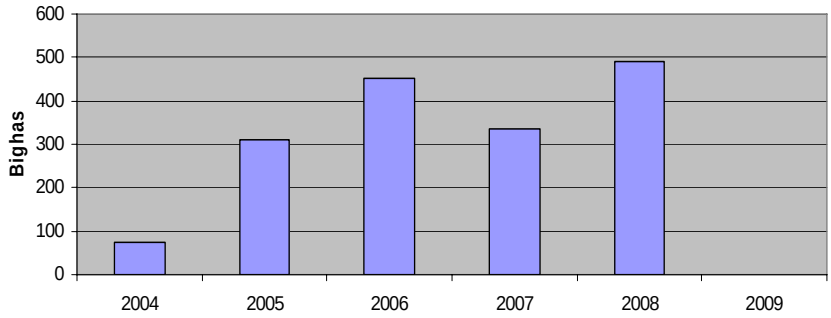
Graph 2. Buildings damaged in Sonitpur



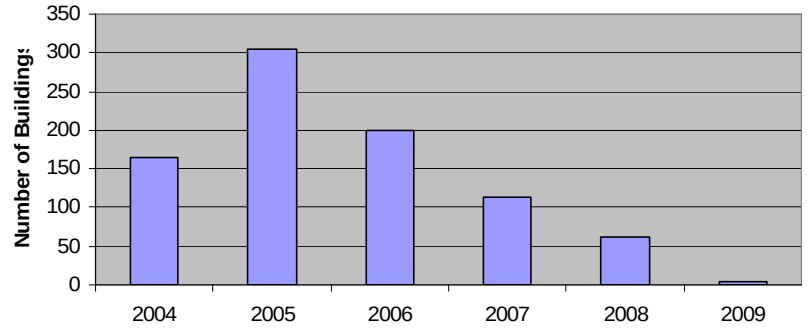
Graph 3. The cost of crop-raiding and property damage in Sonitpur.



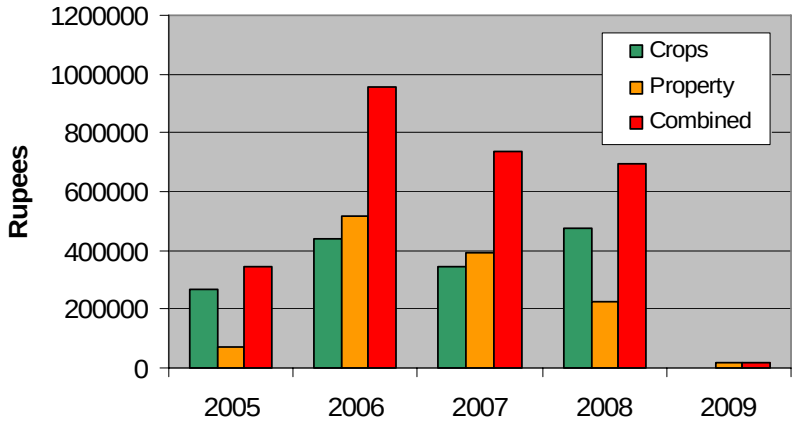
Graph 4. Human and elephant injuries and deaths in Sonitpur.



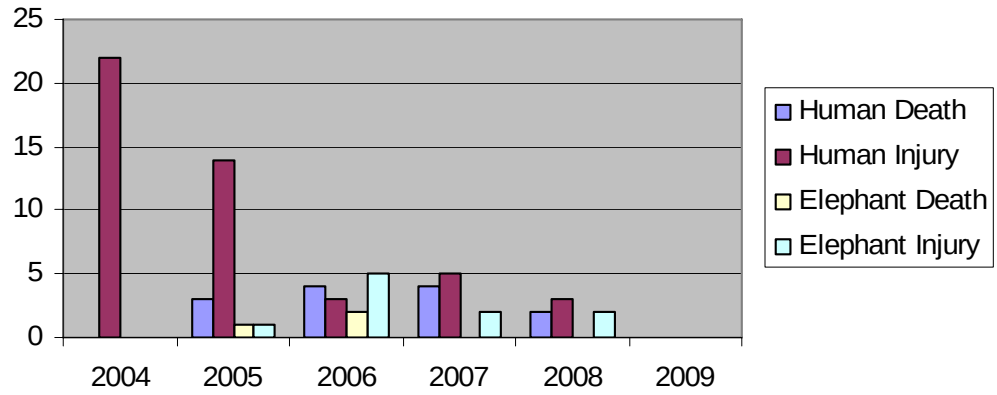
Graph 5: Crop loss in Goalpara



Graph 6. Buildings damaged in Goalpara



Graph 7. The cost of crop-raiding and property damage in Goalpara.



Graph 8. Human and elephant injuries and deaths in Goalpara.

Future analysis will include all data standardised for the change in study area. Analysis will include occurrence of HEC related to land-use features and comparisons between project villages and non-project villages. We are also planning to assess the effectiveness of the different mitigation methods and have acquired comprehensive historical data on HEC in the Sonitpur district from the Forest Department for 1997-2007. The field team are currently gathering GPS co-ordinates for the places identified in the records to enable the data to be added to the GIS database. These data will allow us to assess HEC spatial and temporal trends in the Sonitpur district prior to the project. It will also provide additional data to the current dataset to which it will be compared.

iii) Other Research Activities:

Foraging Project: a 12-month study into elephant feeding ecology project is to identify the nutritional drivers of crop-raiding. The methodology was piloted in March 2009 and involves sampling along transects and following elephant trails to determine what the elephants are eating throughout the year. This project will be conducted in the Sonitpur study site and Sonai-Rupai Wildlife Sanctuary. An Assamese student will be working with our project on this research for his Masters degree.

Kunkie study: a project assessing the effect of elephant drives on wild elephants (using so-called kunkies – elephants trained for this purpose) and the subsequent occurrence of HEC was piloted in March 2009 and started in April. This project will be completed through surveys of all stakeholders, including villagers, mahouts and authorities.

Handbook evaluation: Testing the effectiveness of "Living with Elephants" as an outreach tool has commenced with 250 'pre-handbook-distribution' surveys completed. The same questionnaire will be put to the same individuals in order to determine a change in responses and knowledge as a result of the handbook.

3.2 Progress towards Project Outputs

Overall our progress with project outputs has been excellent, with most targets reached or on track. The assumptions stated at the output level of the logframe still hold true: communities are willing to learn and apply crop protection methods and experiment with cash crops and livelihood alternatives (demonstrated by their lively participation in demonstrations and workshops and their current trialling of other crops e.g. chilli). Communities are also willing to receive advice and help from workshops and materials; our draft handbook was well received and workshops well-attended. Our tracking methods are proving to be sufficiently accurate for the project's monitoring research purposes and field assistants are collecting data competently.

3.3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Number planned for this reporting period	Total planned from application
Established codes							
2	1 MSc qualification by Assamese project staff member, with a research project closely linked to the project's aims	-	1 in prep		in prep	0	1
6A	8 field assistants trained in elephant deterrent and protection methods	4	2		6	2	8
6A	50 community members in turn trained by field assistants	>50	>80		>130	0	50
6A	At least 20 community members participating in pilot sustainable livelihoods initiatives	14	17		31	6	20
6A	At least 8 villages actively participating in crop/house protection trials	4	2		6	2	8
6A	2 or more neighbouring communities informally trained by trainees of the project	-	2		2	0	2
7	Standardized questionnaire survey, protocol and data entry sheets	-	1		1	0	1
8	30 or more weeks by UK staff in host country for field work	7	6		13	8	30
9	HEC management recommendations and long-term strategy plan for Forest Department	-	-		0	0	1
10	1 manual for elephant crop-raiding protection	1	-		1	0	1
11A+B	4 papers in peer reviewed journals in print and submitted	-	1+1 in prep		1	2	4
12B	Comprehensive GIS database on elephant movements, spatial and statistical analysis	-	1		1	1	1
14A	2 workshops on HEC management, 2 workshops on livelihoods	7	6		13	4	12
14B	Participation in 3 or 4 international conferences by key project staff (UK and India)	2	3		5	2	4
15A,B,C, D	6 local or national press releases in India and UK	2	2 in prep		2	0	6
16B,C+D	4 local and/or national TV features in India and UK	1 attempted	1 attempted		0	1	4
17A	One collaboration network established	-	1 in prep		1	1	1
18C+D	3 local radio interviews or mentions in India and/or UK	1			1	0	3
22	8 field plot and demonstration sites	1	1		2	2	8

New -Project specific measures							
other	log of trials and their effects recorded in each village.		done			done	-
other	interpretation at Chester Zoo featuring the work as a Darwin Project to 1.2 million visitors per year	done				done	-
other	1 Assamese student undertaking PhD-level research closely linked with the project	attempted	attempted			2 candidates but neither worked out	1
other	2 people/village trained and able to train others		2		2	2	2
other	Monitoring data compiled and analysed to determine effects of interventions	-	in prep			in prep	
other	Analysed dataset on HEC history and data on all incidences...	-	in prep			in prep	
other	GIS data and maps of elephant dynamics in project areas...	ongoing	ongoing			ongoing	
other	A significant (measurable) reduction of human-elephant conflicts in project villages	-	observed			achieved	

Table 2 Publications

Type (eg journals, manual, CDs)	**Detail (title, author, year)**	**Publisher (name, city)**	**Available from (eg contact address, website)**	**Cost £**
Handbook in 2 languages	Assam Haathi Project. (2009). *Living with Elephants in Assam.* S. Wilson et al (editors). English and Assamese versions.	Sailesh Art Print, Assam, India.	available shortly from: www.chesterzoo.org www.assamhaathiproject.org, www.peopleandwildlife.org.uk	£5100 total production cost
Article	Davies, T. 2009. Living with elephants. *Z Magazine*. 20-21.	Chester Zoo, UK.	www.chesterzoo.org, or from any Chester Zoo.	covered by Chester Zoo
Article	Zimmermann, A., Davies, T.E., Hazarika, N., Wilson, S., Chakrabarty, J., Hazarika, B. & Das, JC. (in press). Community-based human-elephant conflict management in Assam. *Gajah*.	IUCN SSC Asian Elephant Specialist Group	http://www.asesg.org/gajah	covered by IUCN SSC AsESG
Article	Davies, T.E., Wilson, S, Hazarika, N, Zimmermann, A., (in press) Living with elephants in Assam: a community-based approach to conservation. *Ratel*.	Association of British and Irish Wild Animal Keepers	abwak-publications@hotmail.com www.abwak.co.uk/Ratel.html	covered by ABWAK
Brochure	Assam Haathi Project	-	www.assamhaathiproject.com,	-

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 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.

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

The project is still in an early 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. The project is making a real and immediate difference to the lives of community members that are living with elephants in the project target areas. The project is playing a role in saving human lives, reducing serious injury and losses due to property and crop damage caused by elephants. As such it has a very strong component towards equitable sharing of the costs of biodiversity conservation borne by local communities. It is also improving the welfare of the elephants themselves, with fewer elephant deaths and injuries, and improved attitudes towards elephants in project villages. We are currently in the process of analysing the data collected to date in order to demonstrate measurable effects.

4. Monitoring, evaluation and lessons

Our internal monitoring plan is working well, and with regular feedback and guidance the quality and consistency of data collected by field staff has improved dramatically. The use and effectiveness of the interventions are being monitored continuously and monthly log sheets are maintained by field staff of Goalpara and Sonitpur. Any new staff member joining the project is fully trained in all our methodologies and regular monthly meetings are held among staff in Assam to discuss progress and challenges. The herd tracking data collection in Sonitpur encountered some obstacles in the 2008/09 season due to a lack of usable herd identifications; we are working on a solution for the 2009/10 season. An key indicator of our project's success is the fact that occasionally communities independently approach us requesting collaboration. For example, Matia, a village in Goalpara and Thulotika village in Sontipur have approached the project and requested assistance after seeing the beneficial effects of the electric fence installed at nearby project villages.

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

Study site maps have been included in this report as requested in the last annual report review.

We found the process of a mid-term review extremely helpful. The review carried out by Rob Wild, who visited the project in November 2008, and made eight recommendations, which we are presently working to address.

6. Other comments on progress not covered elsewhere

Bandhs (total strike outs) in the project areas from July to September hampered the community extension activities (crop training, SHG training). Many monitoring areas became inaccessible due to floods, and data collection was delayed. Throughout the agricultural high season, June to August, the target community members were unavailable for capacity building programmes.

Guwahati suffers frequent small-scale terrorism/insurgency and one episode of this severely disrupted travel in the region. Although such events are fairly common in Assam, they are usually small-scale and cause little to no disruption to the project. The event in November 2008 however was much more serious, involving 9 bomb blasts which killed 67 people and injured more than 300, although luckily the blasts were not in the same area as the project office, and project staff (including from the UK) were visiting the field sites at the time.

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 a 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*: Despite extensive efforts involving professors from universities in the UK and India and two potential candidates for PhD-level study, we have not been able to get an Indian PhD student to work with our project in Assam. We will continue to pursue this, even though the research would last beyond the duration of this Darwin grant (we would then seek other funding for the student)

4) *Creating a succession of training and capacity building in a variety of areas: T*training and capacity building is central to this project, progress is described in Section 3
5) *Leaving, on exit, an established collaborative framework for NGOs and government to work together*: the structure for this has been developed and initial meetings held, but the initiative then lost momentum. We are re-establishing this now.

Within Assam and wider India the project is well known and the production of the handbook has enabled a wider audience to be made aware of the Assam Haathi Project and also to benefit from its work. The project is becoming more demand driven with communities requesting the help of the project. Internationally, the project's profile is increasing, and it is becoming more widely known particularly in Asia. Our Assamese staff have attended numerous international conferences and our website has added additional "presence". Further press, publications and participation in events are planned for the coming year and thus the project should continue to gain recognition.

8. Dissemination

During this second 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 (sign & video) in Chester Zoo's elephant exhibit, seen by 1.2 million people / year
- Completion of handbook "Living with Elephants" in English and Assamese, distributed to villagers in Assam and available to download
- An article about the project and the production of the handbook was published in Chester Zoo's magazine, sent to 17,000 members and sponsors
- Two conference presentations (in Colorado and Borneo), one seminar (at the Zoo) on the project
- The project website: www.assamhaathiproject.org, regularly updated

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, apparently for lack of funding.

9. Project Expenditure

Project expenditure during the reporting period (Defra Financial Year 1 April 2008 to 31 March 2009)

Item	Budget (please indicate which document you refer to if other than your project application or annual grant offer letter)	Expenditure	Variance
Rent, rates, heating, etc			
Office costs			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Other			
Salaries			
carryover from Year 1			
TOTAL			

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 LTS and the Darwin Secretariat to publish the content of this section

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2008/09

Project summary	Measurable Indicators	Progress and Achievements April 2008 - March 2009	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*			*(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).	We have increased our monitoring area and involved more communities, thereby increasing capacity at the community level. Awareness and educational events have been successful and evaluation results are being analysed.	Continue activities as planned in project workplan/timeline. Increase effort on developing a long-term strategy for Assam and develop and exit strategy. Complete data analysis and 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 2 targets achieved (and exceeded in the case of number of villages actively participating and people trained and able to train others)	
Activity 1.1 Community-based crop/house protection trials and training activities		*Design HEC rapid assessment protocol and collect baseline data for each site*: completed. *Hands-on training to construct trip wires, chilli-grease fences, etc, specific to each village*: completed/ongoing. *Monitor crop-raiding attempts, analyse results, adapt/improve deterrent methods, hold participatory evaluation discussions:* monitoring is ongoing and analysis is underway	
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	Initial efforts were successful, then lost momentum, though the interest among the participants is still intact. A focused effort is now being made to re-establish this task, a meeting is in prep for June 2009 and other events in planning.	

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 are experimenting with alternative and elephant unpalatable crops. Many villagers have received high cash return from growing chilli (*Bhot Jokia*) which is encouraging other farmers to trial this crop also. The demonstration plot Nichinta, Golapara has established well and the nurseries in Sonitpur are developing well.
Output 4: Education materials, and workshops on conservation and HEC mitigation, as well as media support of the project	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.	The handbook has been produced in English and Assamese, and will be distributed to 45 villages across both study sites. Numerous, well-attended workshops have been held throughout the year. These have covered a variety of themes and have been aimed at various audiences varying from farmers to students. See section 3 for further details.
Activity 4.1. Resource and educational materials, socio-economic monitoring, communication		*Research and produce handbook on HEC practical advice, distribute and initiate follow-up conversations with communities*: complete, follow up survey underway. *Conduct annual workshops in villages*: achieved and ongoing. *Collect data on socio-economics and attitudes:* achieved and ongoing. *Initiate HEC forum, propose structure for communication*: underway
Output 5: Information about regional elephant movement patterns and conflict hotspots, past and present, in relation to socio-economic activities, landcover and mitigation measures	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	The GIS database is updated regularly and distributed to the field staff to enable them to see the results and cross-check the data they've collected. Spatial analysis of elephant movements and correlations between land-use and HEC is underway and drafting of a paper for a peer-reviewed journal has begun. We have created an opportunity for an Assamese MSc student to obtain his degree by working with us on one of our sub-research projects (the nutritional analysis of crop-raiding).
Activity 5.1. Elephant research, GIS mapping, spatial analysis and recommendations		*Review elephant research methods from pilot work*: complete. *Analyse elephant movements, HEC, land cover, nutrition of crops vs forage*: underway. *GIS maps & spatial analysis and publish results*: underway. *Produce report with land-use management recommendations* (yr 3). *Identify project follow-up needs* (yr 3).
Output 6: Land-use strategy for elephant conservation in the long term	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	The analysis of elephants spatial use is currently underway and this will form the basis for developing a long-term strategy which will be taken forward during year 3.

Annex 2 Project's full current logframe

Logical Framework

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve 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			
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).	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.	Continued support, collaboration and interest of the communities to participate in the project's activities. Continued support from Forest Department and other local NGOs.
Outputs			
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.	Log of trials and their effects recorded in each village. Training reports and evaluation Monitoring data compiled and analysed to determine effects of interventions	Communities willing to learn and apply crop protection methods, and carry out trials, using provided materials for such purpose only. *HEC mitigation techniques implemented correctly as demonstrated*
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	Document outlining the objectives of the forum and regular written reports of collaborations and communications that ensue	Other local NGOs and FD willing to collaborate as per letters of intent (to follow in Stage 2).
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.	Semi-structured interviews to measure knowledge and attitudes at project intervals. Cash crop cultivation training session reports	Community members willing to adapt practices and learn about conservation, and willing to experiment with growing alternative crops
4) Education materials, and workshops on conservation and HEC mitigation, as well as media support of the project	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.	Field staff reports of villagers' feedback on handbook and workshops. Visits to neighbouring communities show whether the training is implemented.	Communities willing to receive advice and help provided by handbook and attend workshops. Media is interested to disseminate the information offered by the project
5) Information about regional elephant movement patterns	a) standardized HEC rapid assessment protocol designed and in use by yr 1	Production of maps, results in reports and publications.	Visual tracking method elephants is sufficiently accurate for the study

and conflict hotspots, past and present, in relation to socio-economic activities, landcover and mitigation measures	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	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	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
* 6) land-use strategy for elephant conservation in the long -term	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	Elephant conservation management plan, data and recommendations produced and discussed with government	Alliance works successfully and is able to develop ideas and plans for long-term strategy
Activities 1) Community-based crop/house protection trials and training activities	Activity milestones (summary of project implementation timetable) 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).		Assumptions 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.

Annex3 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

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

1) Living with Elephants in Assam, a handbook by the Assam Haathi Project. (English version) - hardcopy sent separately (PDF available on request or download from www.assamhaathiproject.org)

2) Flyer about handbook distributed to villages to raise awareness (English version) – PDF enclosed

3) Assam Haathi Project brochure/flyer – PDF enclosed

4) Article: Living with Elephants in Assam. Z Magazine (Chester Zoo). – PDF enclosed

5) Chill smoke info poster – PDF enclosed

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	✓
Is your report more than 5MB? If so, please advise Darwin-Projects@ltsi.co.uk that the report will be send by post on CD, putting the project number in the Subject line.	
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	✓
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 involved your partners in preparation of the report and named the main contributors	✓
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	