

Darwin Project Information

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| Project Ref Number | 15/040 |
| Project Title | Building capacity to alleviate human-elephant conflict in north Kenya |
| Country(ies) | Kenya |
| UK Contract Holder Institution | Department of Geography, University of Cambridge |
| UK Partner Institution(s) | |
| Host country Partner Institution(s) | Save the Elephants, Laikipia Wildlife Forum, Kenya Wildlife Service, CETRAD, The Symbiosis Trust, Rivercross Technologies Ltd |
| Darwin Grant Value | £ 260,909 |
| Start/End dates of Project | 1/10/06-30/9/2009 |
| Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..) | 1 April 2006 to 31 March 2007 |
| Project Leader Name | Professor Bill Adams |
| Project website | http://www.geog.cam.ac.uk/research/projects/heccapacity/ |
| Author(s), date | Professor Bill Adams and Dr Max Graham 25 April, 2007 |

1. Project Background

Laikipia is an unusual landscape, comprised of large-scale private ranches, communally owned group ranches, forest reserves and smallholder cultivated land, though no government designated wildlife protected areas. Kenya's second largest elephant population, comprised of over 5000 animals, ranges across this land-use mosaic, inevitably coming into conflict with local people, particularly on smallholder farms, in the wetter, southern portion of this district. Laikipia probably experiences the greatest levels of human-elephant conflict (HEC) in Kenya. For example in 2004 alone a total of 3668 human-elephant conflict incidents were recorded by trained enumerators, of which 2420 involved damage to crops. People are injured and killed by elephants every year. In addition more elephant deaths in Laikipia can be attributed to human-elephant conflict than to any other single source of mortality. As a consequence the Kenya Wildlife Service and local conservation organisations are under enormous pressure to address this conservation issue.

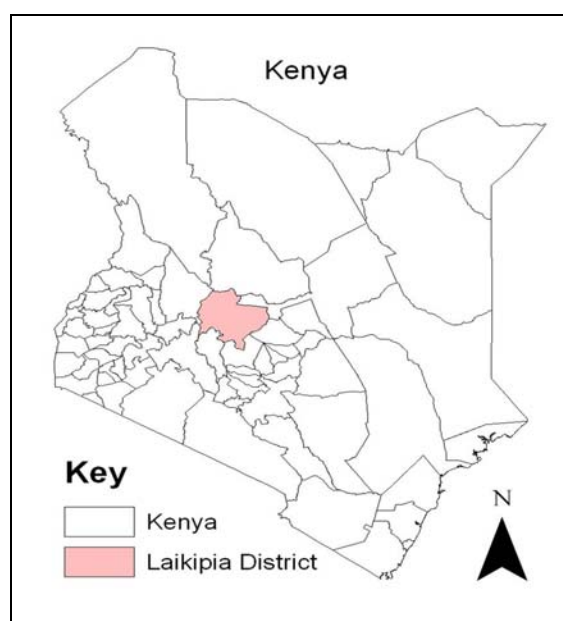


Fig 1: Location of Laikipia District in Kenya

The management of crop-raiding by elephants in Laikipia has taken several forms. Elephants have been shot in defence of crops since the 1920s and continue to be shot on control (legal) by the wildlife authorities or killed by local farmers (illegal). In 1978, at considerable expense, a completely unsuccessful large-scale elephant drive was attempted, aiming to push elephants out of the arable southern portion of Laikipia and north into the arid and semi-arid rangelands of Samburu and Isiolo Districts. Subsequently the preferred HEC management approach for Laikipia has become electrified fencing. In 1982 a district-wide elephant fence was proposed separating elephant tolerant from elephant intolerant areas. Designs for the configuration of this fencing 'solution' were proposed in 1993, 1998 and 2002.

Private ranches in Laikipia have, where resources allow, adopted the fencing strategy, so that today there exist a number of electrified fences separating ranches from smallholder farms. However constructing and maintaining such fences is very expensive and as a consequence much of the human-elephant interface in Laikipia remains unfenced and/or porous to elephant movement, leaving smallholder farmers highly vulnerable to crop-raiding. It is against this background, and at the request of local partner organisations, that this project was developed.

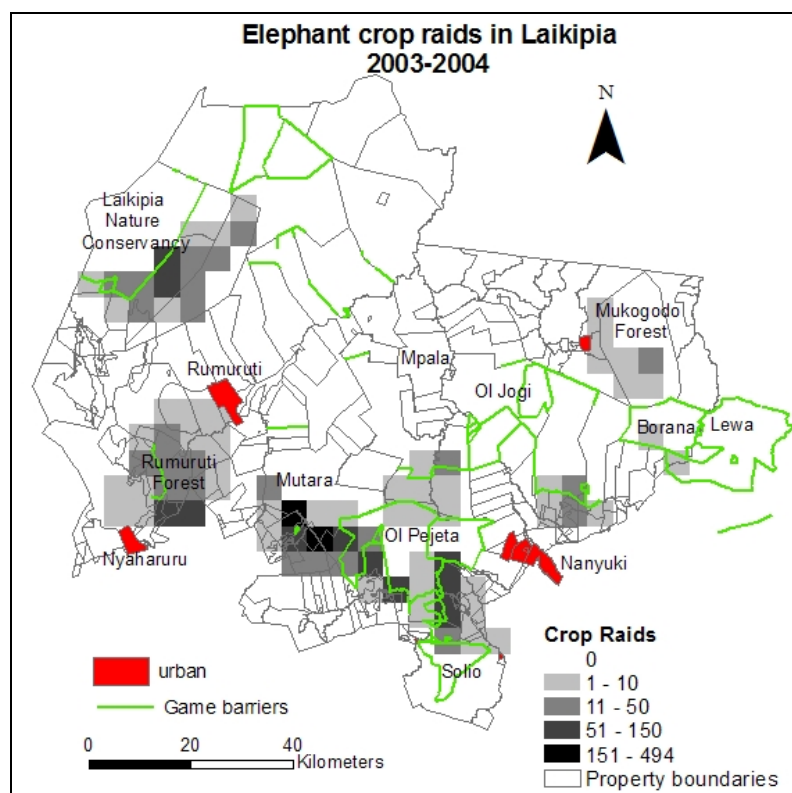


Fig 2: Crop-raiding in Laikipia District in a one year period between 2003 and 2004

2. Project Partnerships

Because of the complex nature of land use in Laikipia, and the interdisciplinary tools required to address human-elephant conflict, this project is being implemented in collaboration with several partner organisations in Kenya. Within the UK a project advisory committee oversees the implementation of the project and provides feedback on proposed activities and work plans. A meeting was held with the UK project advisory committee in January 2007. A meeting of the Kenyan project advisory committee was held with partner organisations on 15th of November 2006, when the project was officially launched. The relationship with each of the Kenyan partners, and collaborative developments, as well as challenges is discussed in further detail here:

- a) Save the Elephants: Save the Elephants are providing the project with GPS radio-tracking expertise and logistical support to develop and apply GPS collar-to-manager

text message reporting capability, ('E-Fence'), when an elephant approaches a designated boundary, so that collared 'problem' elephants can be deterred from smallholder farms/electrified fences before crossing that boundary. Since October, a MoU has been drafted between Cambridge University and Save the Elephants, governing the relationship between the two organisations over the course of the 3 year project. Two collars have now been deployed on problem elephants, well ahead of schedule. STE have pledged to provide the balance of collars, tracking software and E-Fence functionality to the project before August 2007. Cambridge have assisted STE to locate and deploy collars on problem elephants, identify and survey appropriate boundaries to use in E-fencing and design and trial a reporting form to assess performance. Delivery of online GIS courses for training project staff and partner organisation personnel has been delayed during negotiations between STE and ESRI. This is expected to be resolved shortly. A fall-back arrangement for GIS training, Cambridge are negotiating for access to online courses through a separate license held with ESRI.

- b) The Centre for Training and Integrated Research for ASAL Development: CETRAD provide the project with an institutional umbrella, administrative support and an office in Nanyuki (Figure 2). A MoU has been established between CETRAD and Cambridge University, governing the relationship between the two institutions over the project period. As a consequence, local administration of the project is smooth and highly effective. Dr Kiteme, the Director of CETRAD is chairman of the Kenya Advisory Committee for the project and has provided useful feedback on the direction of project activities, through regular meetings. In turn the project has provided CETRAD with support in presentations, including one field presentation made to the Swiss President late last year. CETRAD employees have been involved with 'on the job' training for the effective implementation of project activities. The project has assisted CETRAD with a proposal to the Swiss Government to secure matching funds for this project's training programme, so that trainees can have their costs subsidised.
- c) The Laikipia Wildlife Forum: The Laikipia Wildlife Forum (LWF) brings together all stakeholders in the district involved with wildlife. It is the key local partner in the project area and is the intended legacy organisation. The Director, Dr Anthony King, is an active member of the Kenya project advisory committee and is currently attempting to secure further funding through the GSMA Development Fund so that the project's impact can be amplified in Laikipia, through the provision of GSM communication technology to local farmers and managers attempting to deal with the problem of crop-raiding. Discussions are currently underway as to how and when the current project should move under the umbrella of the Laikipia Wildlife Forum.
- d) Kenya Wildlife Service: The Kenya Wildlife Service (KWS) is the national wildlife authority and is working closely with the project on a day-to-day basis through two local KWS posts (Nanyuki and Nyahururu). Wardens for these posts attend monthly meetings with elephant scouts recruited by the project. KWS rangers are being deployed in response to conflict/potential conflict reported by mobile phone text message by the project scouts. At the national level, the project is assisting the Kenya Wildlife Service to develop a national elephant strategy, through discussions with and support for Keith Lindsey, who is in charge of drafting the strategy.
- e) The Symbiosis Trust: The Symbiosis Trust will be assisting with training so that designated community groups within the human-elephant conflict zone can make and sell elephant dung paper products. This training is due to begin in the next quarter and a group has been identified by this project to receive such training. A key challenge for the Symbiosis Trust will be marketing the resulting dung paper products and discussions are underway to ensure that this is undertaken alongside training.
- f) Rivercross Technologies: Rivercross Technologies are providing the project with IT support, in particular the development of a web-based magazine and interface for the project. To date Rivercross have helped create a database, so that data collected by the

project is properly archived and easily retrievable, as well as a Kenyan project website. In addition a template for the web-based magazine has been designed.

3 Project progress

3.1 Progress in carrying out project activities

The project began on 1 October 2006. Progress in project elements summarized below:

a) GPS/GSM collar based HEC early warning system:

The following activities have been undertaken: GPS/GSM collars ordered, two deployed on known crop-raiding elephants; design of text message warning discussed with Save the Elephants; GPS surveys of property boundaries to be used in the system (i.e. the boundaries that if crossed by problem elephants will trigger text message alarms to designated rapid response teams). Elephant tracking software is currently under construction though is due to be released within the next two weeks. A form has been designed for the collection of data relating to the responses of designated teams to text message warnings on a private conservancy. This form is being trialed in April/May of this year with Ol Pejeta Conservancy where one of the collared problem elephants spends a high proportion of his time.

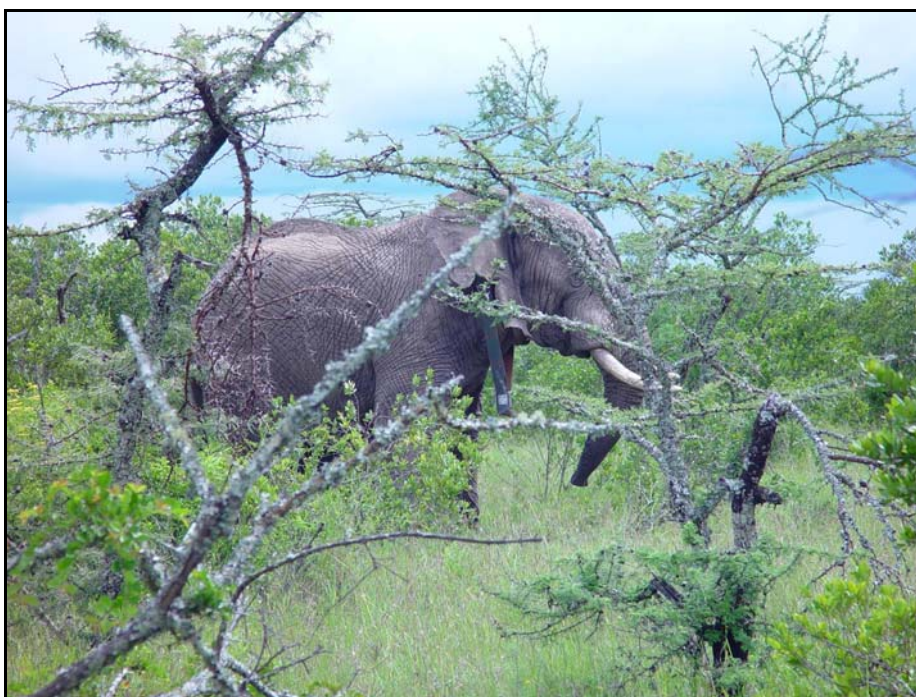


Fig. 3 Crop-raiding bull fitted with a GPS/GSM collar in Laikipia

b) Remote sensing (NDVI) HEC early warning system:

An assessment of the proposed development of a NDVI-based early warning system has been undertaken over the last few months with Mpala Research Centre and project advisors in the UK. An analysis of a sample of crop-raiding data by Dr Nick Georgiadis of Mpala Research Centre, from one particular location, suggested that crop-raiding was highly non-random in relation to NDVI. However when the same analysis was carried out in different locations, the relationship between crop-raiding and NDVI differed (Georgiadis, pers.comm.). It is not clear why this would be but it is possible that different locations experience different patterns in crop-growth and “ripeness”, depending on availability of rainfall and/or irrigation. Further research is needed to establish why the relationship between NDVI and crop-raiding varies between sites.

Unfortunately the main collaborator in this element of the work, Dr Nick Georgiadis is leaving his post at the Mpala Research Centre in May and will no longer be available to assist with this analysis. This has left Cambridge University with two options. The first option is to continue to pursue the analysis of the relationship between NDVI and crop-raiding with a view to developing a model that could be used as a Human-Elephant Conflict warning system. The second option is to develop an alternative approach. A meeting with the UK project advisory committee in January 2007, endorsed the latter option for the following reasons:

- The main collaborator on this element of the project is leaving Kenya, and is unlikely to be able to contribute towards further data analysis to understand the variability in the results.
- The system depends on an updated land-cover map, showing, with a high degree of accuracy, the location of crops. The imagery to produce this is not currently available, and the existing map is out of date.
- The system depends on NDVI data, which while freely available, is difficult to process without sophisticated software and expertise. As a consequence, it is questionable whether a NDVI-based HEC early warning system could be easily taken up by human-elephant conflict managers in Laikipia or elsewhere in Africa.
- An alternative system, based on local knowledge, and using simple cost-effective software (ArcView), may be more appropriate to the Laikipia human-elephant conflict context and would be more easily replicable in other HEC contexts. The development of this system would entail collecting timely information from local people within designated HEC sites, on crop-status (i.e. fallow, plowing, close to harvest, harvested, etc). Such data, if properly spatially referenced, could be uploaded into a simple GIS, to generate maps of vulnerability.

The project leader, will, therefore, write to the Darwin Secretariat shortly, to request that the development of the remote-sensing HEC early warning system be replaced with the development of a local-knowledge based HEC early warning system. The main outputs from this activity and the time frame for the implementation of this activity will, however, remain unchanged.

c) Community-based HEC management and research programme established:

Lists of the 50 farmers worst affected by crop-raiding in each of five different locations were identified using existing data collected by Max Graham. From these lists, ‘trial’ farms, to whom simple and affordable elephant deterrents (including chilli-grease fences, watch towers, noise makers, alarms and chilli dung briquettes) are provided, and ‘control’ farms, have been selected. Training on the use of these simple deterrents has begun in the first site, Rumuruti (Figure 2), with a view to reducing crop-damage over the next crop-raiding/harvest season between May and August.

To evaluate the performance of the trials, data on human-elephant conflict are being collected by trained local scouts. Eight scouts have been recruited and trained for this purpose, using an adapted version of IUCN's *Training package for enumerators of elephant damage*. A database has been created to effectively capture and retrieve data collected by the project on crop-raiding and HEC in Laikipia. In addition a survey form has been designed to collect background information on each of the trial and control farms involved in community-based HEC management. Training for data collection has been carried out 'on the job' and during organised seminars in Nanyuki during monthly scout meetings. In addition to training on data collection, additional training has been carried out on group dynamics, to facilitate interaction and communication with community groups involved in the project.

In order to provide guidance for the implementation of community-based HEC mitigation in Laikipia, data collected from a series of farm-based elephant defence trials, undertaken by Max Graham during his previous PhD fieldwork, were analysed and written up into a paper to present at an International Human-Elephant Conflict Meeting held in Nairobi on 26-27th of September 2006, organized by Dr Matt Walpole, Fauna and Flora International. A version of this paper has now been submitted to *Oryx*, *The International Journal of Conservation*.

d) Dissemination of CBPAC approaches among vulnerable communities and conservation practitioners

A local drama group, Raukati Theatre, was recruited in October 2006 to develop and perform an interactive human-elephant conflict play, through which issues concerning the conservation and management of elephants could be conveyed to communities affected by human-elephant conflict in Laikipia. Two plays have been performed in community contexts, within the time allocated in the project timetable, during which several facilitators have helped to explain and discuss critical issues at various stages of the play. The feedback from the audience has been extremely positive. We plan to further develop this play so that it can be performed under a range of different circumstances and can be used to help local stakeholders understand HEC, and so help reduce tension between the wildlife authorities and local communities.

Five hundred community-orientated comic books have been printed and distributed, providing local people with basic information on methods for reducing risks associated with living in an elephant range. We originally intended to print and distribute 1000 booklets by the end of March, but the cost of printing has almost doubled in Nairobi, compared with the original quotes we were given prior to the beginning of the project.

An A0 poster, describing the project activities, has been designed, though some of the logos were left out of the original design, so this has yet to be printed and distributed. We are waiting for the designer to come back from leave to make the final changes before proceeding to print. This will take place in May, a couple of weeks behind schedule.

Fifteen A3 maps of elephant movement, based on GPS collaring data from 2004 collected by Max Graham in collaboration with Save the Elephants, have been generated and 20 sets have been printed. These are in the process of being distributed to the Kenya Wildlife Service and Laikipia Wildlife Forum members.



Fig. 4 Human-elephant conflict play performed at a school in south-west Laikipia

e) Elephant Defence Livelihood Systems Established

Four community-based organisations (CBOs) have been identified (and in one case established), with whom to provide training and support for the development of 'elephant-compatible' income generating activities (chilli pepper production, elephant dung paper production and bee keeping). These groups include: 1) Waimungu Youth Group; 2) Urumwe Group; 3) Riabanje Group; 4) Mukogodo Elephant Women's Group.

A field day has been organised for both the Waimungu and Urumwe Groups to visit a highly successful community bee-keeping project in north-east Laikipia District, run by the Ngare Ndare Trust by the end of April, ahead of schedule. Negotiations have been organised with HoneyCare Africa, the biggest honey business in Kenya to secure a market for the bee keepers trained through this project.

A market for chillies has been secured in Nanyuki and with a commercial exporter "Maisha", in Eldoret. Chilli seeds and training on chilli farming were provided to Waimungu, Urumwe and Riabanje CBOs in March, several months ahead of schedule. These crops are now in seedling stage. The project is developing an in-house chilli growing manual, promoting the use of harvested rain water and minimises chemical inputs.

The Mukogodo Elephant Women's Group was formally established by the Symbiosis Trust. These women have been trained on the production of elephant dung paper and will be provided with further training on the production of value-added products in the next quarter, in collaboration with the Symbiosis Trust.



Fig. 4 Mukogodo Elephant Women making elephant dung paper

f) Sustainable Revenue Streams

A project website has been designed in collaboration with Rivercross Technologies, with support from the Symbiosis Trust. It is intended that this website will ultimately form a major fund raising tool for the sustaining human-elephant conflict mitigation in Laikipia District. Two draft proposals have been written in collaboration with CETRAD and the Laikipia Wildlife Forum to seek funds that will allow further development of this website, respectively. Feedback from these proposals will be known by the next reporting period. The template for a web-based magazine has been designed in collaboration with The Symbiosis Trust and Rivercross Technologies.

3.2 Progress towards Project Outputs

Progress towards the project outputs, with the exception of the NDVI-based HEC early warning system (see section 3.1, b, above), during the first six months of implementation has been on track and we fully expect that all the measurable indicators will be delivered within the project time-frame. The measurement of performance against each of the proposed project outputs has been carefully considered. So for example with the HEC early warning systems and community-based HEC management outputs, monitoring systems have been designed and put in place so that adequate data is collected for evaluating these project outputs. Ultimately we aim to analyse and publish these data in peer reviewed journals, within the time available. A UK Project Advisory Committee Meeting will be held in the next quarter to provide constructive feedback on these monitoring systems (i.e. data collection forms, target number of observations, research tools etc). Progress towards delivering the other three project outputs is less complicated to measure, and the specific, tangible, means of verification, that have and/or can be generated (i.e. posters, booklets etc.) will be sent out to Darwin with the next report (these are too big to send down the line so Max Graham will bring samples/copies of material with him by plane from Kenya).

Standard Output Measures

Table 1 Project Standard Output Measures

| Code No. | Description | Year 1 Total | Year 2 Total | Year 3 Total | Year 4 Total | TOTAL |
|---------------------------------|--|--------------|--------------|--------------|--------------|-------|
| 2 | 1 x Application to Cambridge to study MPhil in Environment and Development facilitated | 1 | | | | |
| 6A | 8 elephant scouts 2 x project officers 1 x scout supervisor Riabanji Youth Group (12) Waimungu Youth Group (15) Mukogodo Elephant Women (10) Urumwe Group (28) | 76 | | | | |
| 6B | Research Design x 1 Field Methods x 1 Chilli production x 1 Dung paper x 1 | 3 | | | | |
| 7 | Comic book, Plays, Posters, Maps | 4 | | | | |
| 8 | Bill Adams-2 Max Graham-26 | 28 | | | | |
| 11B | 1 x paper submitted to Oryx | 1 | | | | |
| 12A | 1 x HEC database established | 1 | | | | |
| 14 A | 1 x Chilli-based HEC Mitigation Seminar (Dr Guy Parker) in Kenya | 1 | | | | |
| 14 B | 1 x HEC Meeting, Nairobi (FFI) | 1 | | | | |
| 17A | 1 x UK Advisory Committee 1 x Kenya Advisory Committee | 2 | | | | |
| New - Project specific measures | | | | | | |

Table 2 Publications

| Type * (eg journals, manual, CDs) | Detail (title, author, year) | Publishers (name, city) | Available from (eg contact address, website) | Cost £ (if applicable) |
|--------------------------------------|---------------------------------|----------------------------|---|---------------------------|
| | | | | |
| | | | | |

3.4 Progress towards the project purpose and outcomes

The purpose of the project is to alleviate human-elephant conflict and promote tolerance of elephants in Laikipia District, Kenya. The project began on 1 October 2006. It is still too early to judge the performance of the project in terms of meeting this purpose. However the HEC mitigation tools (farm-based elephant deterrents and institutional structures, support for the Laikipia West Electric Fence), communication tools (plays, comic books, school activity plans) and collaborative networks (Save the Elephants, Laikipia Wildlife Forum, CETRAD, GoK District education officer, Kenya Wildlife Service and Ol Pejeta Conservancy) that have been put in place within the first six months will yield measurable indicators of impacts before the end of 2007. We fully expect that the plans that have put in place will yield substantial results when measured against the project purpose by the end of 2009.

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

Once again, it is still too early within the life of the project to gauge progress against the project goal. However we expect the measures that have been put in place within these first six months will have the following impacts, with reference to the project goal: 1) Smallholders living in south-west Laikipia will have the cost of living with elephants substantially reduced by the end of the project period. We expect this will occur as a result of the activities carried out directly by this project and/or carried out by partner organisations in response to this project; 2) Smallholders living in south-west Laikipia will experience increased revenue generation through the 'elephant-compatible' activities currently being facilitated by the project. To date out of the three income-generating activities to be stimulated within the smallholder areas, field days and ongoing support for chilli farming and field days and ongoing support for dung paper production have been held. Details of yields and revenue generated from all three income generating activities will be available for the next end of year report.

4. Monitoring, evaluation and lessons

While it is still too early in the project lifetime to comment on the measures taken to evaluate the project, we can comment on the monitoring measures that have been put in place so that sufficient data is available to properly evaluate performance at more advanced stages in project implementation:

- Human-elephant conflict database: This access database has been designed to capture data on human-elephant conflict collected during the project period accurately. These data will provide the main means for assessing project performance, in terms of the reduction in the level of crop-raiding and other types of human-elephant conflict experienced. The database has been designed to allow querying by two different types of users: a) Human-elephant conflict managers through the provision of user-defined condensed reports on conflict numbers, locations etc; b) Human-elephant conflict researchers through the provision of all data on each incident, which can subsequently be distilled as the user sees fit.
- Incident data forms and training on data collection: The following data forms have been designed to collect data for measuring performance: 1) Human-elephant conflict data form to collect details on crop-raiding, infrastructure damage, human injuries/fatalities and elephant injuries/fatalities; 2) E-fence monitoring form to measure the responses of early warning text message recipients and collared elephants to deterrents used; 3) Farm-bases survey form to collect background information on farmers participating in farm-based elephant deterrent trials and among control farms

5. Actions taken in response to previous reviews

Not applicable. This is the first report made on this project.

6. Other comments on progress not covered elsewhere

There are two areas of project implementation that deserve further mention because of the potential impact these areas may have on enhancing performance against the project purpose:

- Collaboration with the Laikipia Wildlife Forum in pursuit of technology for the mitigation of Human-Elephant Conflict. The Laikipia Wildlife Forum (LWF), through its directors, is actively working to enhance the type and number of resources available to the project so that human-elephant conflict can be reduced in south-west Laikipia. Specifically the LWF has mobilised the interest of the GSM Association (GSMA) in supporting the project activities. In response the GSMA are exploring the option to provide three technologies to the project through the LWF: 1) Push-to-talk mobile phone technology which would allow designated members of smallholder communities/HEC management teams, to use their mobile phone handsets like VHF radios, enhancing communication during crop-raiding events so that managers can reach specific locations more easily; 2) The creation of a GSM enabled database, so that designated reporters can send information on human-elephant conflict and crop status via mobile phones, directly to a database. This will allow such information to be used immediately, rather than after the laborious data-entry process and will also facilitate implementation of the proposed local knowledge-based HEC early warning system (see section 3.1 b); 3) The provision of more affordable tracking devices for deterring crop-raiding elephants (chips that can be inserted into an elephant, sending off an alarm when the animal approaches a beacon), much like the current devices used on pets in the UK. The GSMA have set a tentative date for piloting technologies 1 & 2 in south-west Laikipia as June to August of this year, coinciding with the crop-raiding season. Further feasibility work is being undertaken for using the third type of technology (elephant chips).
- Collaboration with the GoK district education officer to promote elephant tolerance among smallholders in Laikipia. To facilitate the dissemination of project activities and with a view to promoting greater tolerance of elephants within Laikipia District, the District Education Officer has been engaged, through a series of meetings. Through this process GoK has proposed an essay competition and elephant football cup among the 22 primary and 8 secondary schools located in human-elephant conflict hot-spots in Laikipia. The GoK has proposed that the essays be examined by the Kenya National Examination Council to select a winner. Negotiations are currently being undertaken with Save the Elephants and the Amboseli Elephant Project to secure a three day field-trip to study elephants as a prize for the best essay written. A meeting with all the head-teachers of the schools identified, together with the District Commissioner, District Education Officer and District Education Quality Assurance Officer to discuss and plan for both the essay and football competitions has been scheduled for the 11th of May 2007. There will be no cost implication to the project, outside of the existing budget, for facilitating these activities, although the football cup may require a suitable trophy.

The GIS training element of the project has been delayed due to difficulties experienced by Save the Elephants in delivering their ESRI grant within the timeframe proposed by the project logframe. In response, Cambridge University has now sought and secured access to online training through its own license held with ESRI. Online GIS training will commence within the first two weeks of May.

One of the risks that the project faces is with the Laikipia West Electric Fence, an initiative being undertaken by the Laikipia Wildlife Forum, to separate large-scale ranches from smallholder land with electrified fences in one of the worst HEC sites in the district. While this plan will take time to implement and could lead to reductions in HEC, if fences are well maintained, it may also inhibit smallholder farmers from participating in farm-based elephant deterrent trials, as an electric fence is often perceived to be the “final solution”, and there exists a further perception that if farm-based deterrents are indeed successful then this “final solution” may not be delivered. The project has addressed this issue through the following measures:

- The project is providing data to the Laikipia Wildlife Forum to support the best configuration of the Laikipia west fence, with a view to balancing the mitigation of human-elephant conflict with ensuring elephants have access to critical resources
- Project personnel are assisting the LWF to brief local farmers on the status of the fence, so that the project is seen to represent “all solutions” rather than as an alternative to electrified fencing. Thus where relevant, farmers are being encouraged to use farm-based deterrents either prior to or alongside electrified fencing.
- Efforts for the farm-based elephant deterrence trials are being focussed into smallholder areas that are either least likely to be provided with an electrified fence in the immediate future and/or have already been provided with an electrified fence which is failing to deter crop-raiding elephants.
- The project is identifying and/or helping to form community based organisations (CBOS) along the likely fence alignment so that the institutional structure is present for facilitating community ownership and management of the fence, once it is constructed. These CBOs will be provided with training on fence maintenance and “enforcement” through the project, once the fence has been constructed.

7. Sustainability

In terms of sustainability the key development within the last six months has been the growing commitment of the Laikipia Wildlife Forum to supporting the project and its main activities within Laikipia’s smallholder areas. This has been manifested in active fundraising and promotion of the project activities, other than those already committed to, by the LWF. Another key development, in terms of project sustainability, has been with OI Pejeta Conservancy agreeing to support the project through the provision of a rapid-response team (vehicle + three guards) within a nearby community area. This team will liaise with designated community scouts and volunteers recruited by the project to scare crop-raiding elephants back into nearby private ranches. OI Pejeta have also expressed interest in supporting community scouts working along the human-elephant interface within south-west Laikipia from 2009. OI Pejeta is a rapidly growing force of and for conservation within southern Laikipia and they are currently negotiating to take on some degree of wildlife management responsibility for a government ranch in south-west Laikipia, ADC Mutara. The latter property represents the longest and most porous human-elephant conflict interface in Laikipia and OI Pejeta are keen to work with the project to secure this boundary.

The capacity of the project team, in particular the two project officers, to manage project activities, has increased dramatically within the last few months, and with further formal training this team will be in a very strong position to manage the project and HEC mitigation training for other HEC sites in East Africa, independently.

In terms of the exit strategy, there are principally three processes that have been initiated to ensure this strategy is implemented successfully. The first process is that of training so that the project team can carry out project activities independently and fundraise for those activities. Apart from the formal and informal training directly organised by the project, Cambridge University have worked to support an application for an MPhil degree by Tobias Ochieng, a project officer and hope to do the same for another project officer in 2008. The second process is that of committing a willing umbrella organisation to house the project over the long term. At present both CETRAD and the Laikipia Wildlife Forum have expressed an interest in doing this. There is a question, however, as to whether or not the project, should in fact, establish a specific institution for its management, managed by a group of trustees from partner organisations that would act as a ‘gel’ for all the project partners (KWS, LWF, CETRAD Save the Elephants etc) to collaborate, housed within the Laikipia Wildlife Forum. This will be discussed in the next UK advisory committee meeting. The third process is securing ongoing funds for project activities, after the Darwin Initiative grant ceases. To this end, a first cut at the web-based magazine, through collaboration with Rivercross Technologies and the Symbiosis Trust, has been designed and will be refined and improved over the rest of the project period.

In addition 'on the job' training for proposal writing among the project team is being carried out throughout the project period.

8. Dissemination

Information on project activities has been disseminated within Kenya at different levels through the following measures:

- Internationally/Nationally:
 1. Through attendance and a presentation made at a human-elephant conflict mitigation network development meeting held in Nairobi 26th to 27th of September, 2006, organised by Fauna and Flora International
 2. Through a presentation made with CETRAD to the Swiss President in November 2006
- Nationally/Regionally:
 1. Through a project launch and advisory committee meeting held in Nanyuki in November 2006.
 2. Through follow up meetings held with Save the Elephants, the Laikipia Wildlife Forum, the Kenya Wildlife Service, the Symbiosis Trust, Suyian Ranch Ltd, Maisha Ltd, the GoK ministries for education and agriculture, and the Ol Pejeta Conservancy to ensure each of these organisations is committed (in terms of time and resources) to achieving the project purpose and associated outputs.
- Locally:
 1. Through interactive human-elephant conflict plays and dissemination of comic books.
 2. Through field days on chilli production and farm-based elephant deterrents

The only area in which expenditure was less than 10% of the new approved budgets was under conferences/seminars. This was because an international flight was no longer required for one of the project advisors (Dr Loki Osborn) as he was unable to attend the Kenyan project advisory committee meeting.

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

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2006/07

| Project summary | Measurable Indicators | Progress and Achievements April 2006 - March 2007 | Actions required/planned for next period |
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| <p>Goal: <i>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</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p> | | <p><i>Tools put in place to reduce the cost to human communities of living with elephants in north Kenya.</i></p> <p><i>Provision of 'elephant-compatible' revenue streams and employment to improve benefit flows to smallholders living with elephants</i></p> | <p><i>(do not fill not applicable)</i></p> |
| <p>Purpose: Alleviate human-elephant conflict and promote tolerance of elephants in Laikipia District, Kenya.</p> | <p>-Reduction in the total number and severity of elephant crop-raids in Laikipia by year three</p> | <p>-HEC data collection training completed and database designed for evaluating performance</p> <p>-Farm-based elephant deterrence training completed with 25 farmers</p> <p>-Rapid response team secured through OI Pejeta Conservancy</p> <p>-GSMA technology pursued</p> <p>-GPS/GSM collars deployed on 2 crop-raiding elephants</p> | <p>-Training of further 50 farmers on farm-based deterrence measures</p> <p>-Deployment of further 13 GPS/GSM collars on problem elephants and activation of text message warning system</p> <p>-Training of rapid response teams within the community and private conservancies</p> <p>-Planning and institutional support for the Laikipia west electric fence</p> <p>-Design and construction of local knowledge based HEC early warning system</p> |
| | <p>-Permanent community-based HEC management and research project established; HEC management training provided at the local, national and international levels</p> | <p>-Project team and collaborative agreements with partners established and training has commenced</p> | <p>-Formal and informal training modules to provide project staff and the staff of partner organisations with critical skills for conserving and managing elephants</p> |

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| | -Sustainable revenue streams secured to maintain project activities beyond Darwin funding | -Proposals written to GSMA and the Swiss Government -Template for web-based wildlife magazine designed -Kenyan project website designed to enhance the profile of the project | -Proposal writing training of project staff -Construction of web-based magazine -Population of project websites |
| | -Income generated by local communities through sustainable elephant defence livelihoods | -Market for chillies secured -Market for honey secured -Provision of chilli seed and training to three community based organisations (56 farmers) | -Market for dung paper products to be secured -Training on beekeeping -Training on dung paper production |
| Output 1. GPS/GSM collar based HEC early warning system | 15 elephants collared by year 2: collar-mobile phone text message system working by yr 2 | Progress ahead of schedule with two collars deployed. Need tracking software and to undertake thorough tests on text message warning system. Indicators are adequate. | |
| Activity 1.1 Establishing HEC early warning system | | 2 collars deployed, data form for capturing info on responses to early warning text message designed, conservancy and community partners identified, barriers that will trigger text message alarm surveyed. Text message system to be fully tested, tracking software to be fully tested, deployment of further 13 collars to be undertaken, data on response of management/communities to text message warnings to be collected and data on response of elephants to deterrent measures to be collected | |
| Output 2. Remote sensing (NDVI) HEC early warning system | Prediction maps designed and distributed to designated project assistants and partners by yr 2. | NDVI HEC early warning system evaluated against HEC data. Indicators still remain valid for production of a refined HEC early warning system (refer to activity 2.1) | |
| Activity 2.1 Establish HEC early warning system | | Based on the evaluation of this system and one of the key assumptions not being met, and feedback from project advisors, this system will be replaced with a local-knowledge based HEC early warning system, pending approval by DARWIN/DEFRA. This system will be designed and constructed during the next period. | |
| Output 3. Community-based HEC management and research programme established | 5 demonstration sites set up in year one; local HEC alleviation team trained by year 2; HEC database compiled and alleviation tools assessed by year 3 | Progress within schedule. Measurable indicators are appropriate though units should perhaps be in terms of number of farmers rather than number of demonstration sites established, to be referred to Darwin directly. | |

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| <p>Activity 3.1 Training on community-based HEC management and research</p> | <p>Identification of most vulnerable farmers to HEC; Design of data forms and field planning; 'On the job' training and formal seminars held in Nanyuki for elephant scouts and the project team for collection of HEC data; development of HEC database; field days for training farmers on use of elephant deterrence and provision of elephant deterrence materials (watchtowers etc) for 25 farmers. In the next period further 50 farmers to be training, rapid response teams from the community and private conservancies to be trained.</p> |
| <p>Output 4. Dissemination of CBPAC approaches among vulnerable communities and conservation practitioners</p> | <p>-Booklets, play performances, newsletters and posters disseminated each year; East African training workshop; ongoing outreach support provided to vulnerable farmers</p> <p>-Progress within schedule. Some activities have been carried out to further enhance performance against this output, in particular the development of further dissemination tools among communities affected by HEC, in collaboration with the District education officer. In addition participation in a international HEC meeting held in Nairobi and a chilli farming seminar held in Nanyuki have enhanced performance against this output</p> |
| <p>Activity 4.1 Training on community-based HEC management and research</p> | <p>-Drama group recruited and interactive HEC plays created, 2 x plays performed within HEC hot-spots; 500 comic books produced and distributed; poster designed; maps generated and distributed; dissemination activities among schools discussed and planned with GoK district education officer. In the next project period an 'elephant' essay competition among 22 primary and 8 secondary schools will be launched. Further plays and other dissemination materials will be produced.</p> |
| <p>Output 5. Elephant defence livelihoods established</p> | <p>-3 community groups trained to produce dung paper, honey and hot chillies by yr 3. Markets established for sustainable products by year 2</p> <p>-Progress ahead of schedule. These measurable indicators remain relevant for the purpose of monitoring performance.</p> |
| <p>Activity 5.1 Developing sustainable elephant defence livelihoods</p> | <p>-Community based organisations (CBOs) identified/established; chilli seeds provided to three community groups, market secured for chillies through Maisha, an export company based in Eldoret. Market for honey secured through honey care international. In the next project period training and materials will be provided for beekeeping among identified CBOs. Marketing will be undertaken for the sale of dung paper products and training on the production of dung paper will be carried out among CBOs.</p> |

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| <p>Output 6. Sustainable revenue streams established for a permanent HEC training team in Laikipia</p> | <p>-Web-based Laikipia wildlife magazine subscription service set up by year 3; Fundraising and proposal writing training for project assistants by year 3</p> | <p>-Progress ahead of schedule. Strengthening links with the Laikipia Wildlife Forum are, in particular, providing further opportunities for sustaining activities beyond the life of Darwin funding in 2009.</p> |
| <p>Activity 6.1 Building project sustainability</p> | | <p>- Design of web-based magazine initiated; Kenyan-based project website constructed; fundraising and linkages formed between the project (under the umbrella of the Laikipia Wildlife Forum) with GSMA and safaricom Ltd. In the next project period, 'on the job' training on proposal writing will be undertaken with a view to securing grants for activities to be carried out by project staff.</p> |

Project's full current logframe

| Project summary | Measurable Indicators | Means of verification | Important Assumptions |
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| 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 <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 | | | |
| Purpose Alleviate human-elephant conflict and promote tolerance of elephants in Laikipia District, Kenya | -Reduction in the total number and severity of elephant crop-raids in Laikipia by year three | -HEC database, field reports, published papers | -Sustained support from the Kenya Wildlife Service, the Laikipia Wildlife Forum and landowners in Laikipia District. |
| | -Permanent community based HEC management and research project established; HEC management training provided at the local, national and international levels. | -Maps, booklets, posters; training manual; conservation and management plan; elephant fencing impact assessment; workshop assessments/ reports; meeting minutes; newsletters; published papers; popular articles | -Regional expertise in HEC alleviation remains limited |
| | Sustainable revenue streams secured to maintain project activities beyond Darwin funding | Laikipia wildlife magazine website; Successful grant applications by trained project assistants | -Content of the web magazine is sufficiently interesting and marketable to attract paying subscribers -Funding bodies continue to value project activities |
| | -Income generated by local communities through sustainable elephant defence livelihoods | -Financial statements by partner organisations; project reports | -A market exists for products developed through sustainable elephant defence livelihood programme. |
| Outputs GPS/GSM collar based HEC early warning system | -15 elephants collared by yr 2; collar-mobile phone text message system working by yr 2 | -journal paper x 1 -text messages sent -progress reports | -GPS/GSM collars function properly -Partner organisation remains committed and able to support collaring operation |
| Remote sensing (NDVI) HEC early warning system | -Prediction maps distributed to designated project assistants and partners by yr 2 | -NDVI 'early warning maps'; progress reports; meeting minutes; 1 x journal paper | -NDVI data continues to be freely available |
| Community based HEC management and research programme established | -5 demonstration sites set up in yr 1; Local HEC alleviation team trained by yr 3; HEC database compiled and alleviation tools assessed by yr 3 | -Field day reports; training assessments; GIS course certificates; workshop notes; elephant conservation and management plan x 1; journal papers x 3 | -Local farmers willing and committed to participate in grassroots elephant management project; Partner organisations committed to providing GIS support and software |

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| Dissemination of CBPAC approaches among vulnerable communities and conservation practitioners | -Booklets, play performances, newsletters and posters disseminated each yr; East African training workshop; ongoing 'outreach' support provided to vulnerable farmers | -Copies of printed material sent to Darwin; training manual x 1; attendance reports and training assessments | -Partner organisations (the Laikipia Wildlife Forum) is committed to local dissemination of training and education materials -East African conservationists and wildlife managers value content of proposed training workshop |
| Elephant defence livelihood systems established | -3 community groups trained to produce dung paper, honey and hot chillies by yr 3; Markets established for sustainable products by yr 2. | Purchase and sales reports by partner organisations | Economic incentives are sufficient for local producers and partner organisations to develop and sustain production |
| Sustainable revenue streams established for a permanent HEC management training team in Laikipia | -Web-based Laikipia wildlife magazine subscription service set up by yr 3; Fundraising and proposal writing training for project assistants by yr 3. | Website published by partner organisation; financial reports by partner organisation | Sufficient funds are raised and allocated by partner organisation for website construction and programming; web magazine sufficiently attractive to subscribers to generate revenue. |
| Activities Establishing HEC early warning systems | Activity milestones (summary of project implementation timetable) Prediction maps available by yr 2; Elephant collar to mobile phone text message system by yr 2; Early warning systems assessed and 2 x papers submitted by yr 3. | | Assumptions -HEC Predictive models accurate; elephant collars function; partner organisations remain committed |
| Training on community based HEC management and research | Research methods training complete by year 3; East African training workshop by yr 3; All training and education materials disseminated by yr 3; East African training workshop in year 3; Impact assessments complete and 3 x journal papers submitted by year 3. | | -Training materials and opportunities are valued by targeted groups |
| Developing sustainable elephant defence livelihoods | 3 community groups trained and generating revenues through the production of dung paper, honey and chillies by year 3 | | -Private sector partners remain committed to proposed project activities |
| Building project sustainability | A web-based laikipia wildlife magazine will be launched by yr 3 providing a source of revenue to sustain project activities; Trained project assistants apply for follow up grants in yr 3. | | -Partner organisation provides resources for web site construction |

Checklist for submission

| | Check |
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| 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. | |
| 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? | |
| Do not include claim forms or communications for Defra with this report. | |