



## *Darwin Initiative Annual Report*



### Darwin Project Information

Project Ref Number	15/040
Project Title	Building Capacity to Alleviate Human-Elephant Conflict in North Kenya
Country(ies)	Kenya
UK Contract Holder Institution	University of Cambridge
Host country Partner Institution(s)	Kenya Wildlife Service, Laikipia Wildlife Forum, Centre for Training and Integrated Research for ASAL Development, Save the Elephants, Symbiosis Trust
Other Partner Institution(s)	
Darwin Grant Value	£ 260,909
Start/End dates of Project	1 Oct 2006-30 Sept 2009
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 Apr 2008 to 31 Mar 2009
Project Leader Name	Professor Bill Adams
Project website	<a href="http://www.laikipiaelephantproject.org/">http://www.laikipiaelephantproject.org/</a> <a href="http://www.geog.cam.ac.uk/research/projects/heccapacity/">http://www.geog.cam.ac.uk/research/projects/heccapacity/</a>
Author(s) and main contributors, date	Professor Bill Adams Dr Max Graham April 26 2009

### 1. Project Background

This project aims to enhance local capacity to alleviate human-elephant conflict (HEC) in Laikipia District in Kenya (Figure 1). In the last year, the project has adapted too address issues arising from a new HEC alleviation strategy developed by one of the project's major partners, a district-wide electric fence. Land in Laikipia District is held in large-scale private ranches, communally owned group ranches, forest reserves and smallholder cultivated land. There are no government designated wildlife protected areas, yet Kenya's second largest elephant population, comprised of over 5000 animals, ranges across this land-use mosaic. Inevitably, they come into conflict with local people, particularly on smallholder farms, in the wetter, southern portion of the district (Figure 2). People are injured and killed by elephants every year, and more elephant deaths in Laikipia can be attributed to human-elephant conflict than to any other single source of mortality. The Kenya Wildlife Service and local conservation organisations are under enormous pressure to address human-elephant conflict (HEC). This project was developed at the request of KWS and other local conservation organisations.

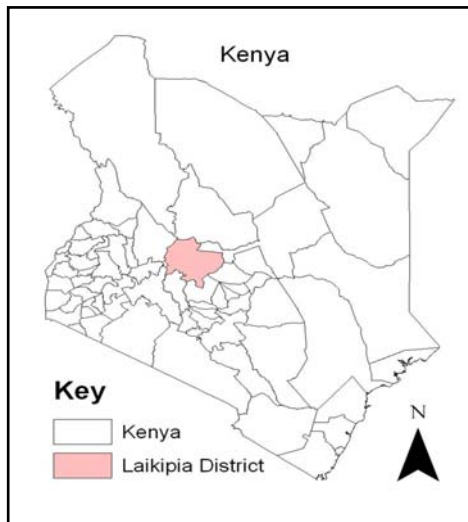


Fig 1: Location of Laikipia District in Kenya

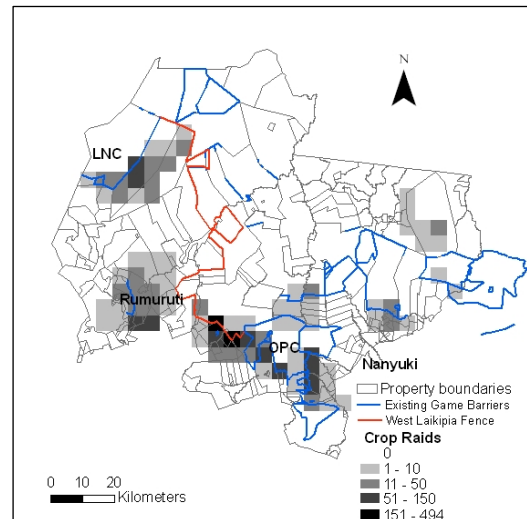


Fig. 2 Crop-raiding and fences

The management of crop-raiding by elephants in Laikipia has traditionally taken several forms. Elephants have been shot in defence of crops since the 1920s and continue to be shot (legally) by wildlife authorities where they threaten people, or killed illegally by local farmers. In 1978, an unsuccessful large-scale elephant drive attempted to try to push elephants out of the arable southern portion of Laikipia and north into the rangelands of Samburu and Isiolo Districts. In 1982 a district-wide elephant fence was proposed to separate elephant tolerant from elephant intolerant areas, and designs for the configuration of such a fence were proposed in 1993, 1998 and 2002. However, the construction and maintenance of such fences is very expensive. Until 2007, the only fences were those built by private ranches, to separate ranch and smallholder farm land. Much of the human-elephant interface in Laikipia remained unfenced and/or porous to elephant movement, leaving smallholder farmers highly vulnerable to crop-raiding.

In late 2007, the Laikipia Wildlife Forum secured, at short notice, a substantial grant from the Government of the Netherlands to construct a 163km electrified elephant fence across West Laikipia, effectively implementing the fencing strategy proposed in 2002. This unexpected development dramatically changed the nature of human-elephant conflict and its management in the District, and created a new set of challenges for our project's partners. While many of the activities we originally proposed remained relevant, the rapidly advancing construction of the West Laikipia Fence demanded new activities to support partner organisations and communities in the new circumstances. We therefore submitted a revised project logframe to Darwin in February 2008, which was subsequently reviewed and accepted in March (email 28 March 2008).

## 2. Project Partnerships

Within the UK a project advisory committee oversees the implementation of the project and provides feedback on proposed activities and work plans. Individual meetings have been held with members of the committee in the last year rather than a single UK meeting, because of members' travel itineraries (Max Graham has met Phyllis Lee and Matt Walpole in Kenya to discuss project progress while Bill Adams has met with the remaining Cambridge-based committee members). Cambridge University (UK lead institution) established a Kenya Advisory Committee in 2006, comprised of a network of local partners (Kenya Wildlife Service, Mpala Research Centre, Save the Elephants, the Laikipia Wildlife Forum, Symbiosis Trust and the Centre for Training and Integrated Research for ASAL Development) to oversee the local implementation of this project. The last meeting of the committee, chaired by Dr Boniface Kiteme, the director of CETRAD, was held on February 18 2008 in the CETRAD seminar room

in Nanyuki and further meeting is planned for June 2009. Formal meetings with this committee have increased-in particular with the KWS and Laikipia Wildlife Forum.

More specific details of partnerships with local institutions over this reporting period are provided below:

The Laikipia Wildlife Forum ([www.laikipia.org](http://www.laikipia.org)): In line with the amended project logframe and focus on the newly constructed West Laikipia Fence, The Laikipia Wildlife Forum is now the main local project partner. The Executive Director, Dr Anthony King, is an active member of the Kenya project advisory committee. The LWF and Cambridge University are working very closely to put in place management and monitoring protocols to ensure the newly constructed West Laikipia Fence is effective at deterring crop-raiding elephants. Mr Tobias Ochieng, who successfully completed his MPhil at Cambridge University under this project is now working under the Laikipia Wildlife Forum as the West Laikipia Fence officer. Tobias generates and circulates monthly reports on the basis of the monitoring and management protocols put in place under this project.

The Centre for Training and Integrated Research for ASAL Development ([www.cetrad.org](http://www.cetrad.org)): CETRAD previously provided a local institutional umbrella for the project but local administration has now shifted to the Laikipia Wildlife Forum in line with the ammended log frame approved in 2008 and as part of the legacy plan. However CETRAD continue to chair the Kenya advisory committee for this project and to administer the Swiss Government's contribution (ESAPP Q605) to this project's training programme. Five formal training courses have been provided with CETRAD over this reporting period, on GIS for conservation (two courses), Proposal Writing for Conservation (two courses) and Human-Elephant Conflict Management.

Kenya Wildlife Service ([www.kws.org](http://www.kws.org)): The Kenya Wildlife Service (KWS) is the national wildlife authority and is working closely with the project on a day-to-day basis through local KWS posts (Nanyuki, Rumuruti and Nyahururu). Moses Litioroh, the coordinator for the KWS Elephant Programme, sits on the Kenya project advisory committee. KWS personnel from across Kenya attended the two GIS courses and the human-elephant conflict management course run under this project. The Kenya Wildlife Service has approached the project leaders with a request for support in drafting the national elephant strategy in 2009.

Save the Elephants ([www.savetheelephants.org](http://www.savetheelephants.org)): Save the Elephants (STE) is a UK registered elephant conservation charity, based in Kenya, that specialise in GPS radio-tracking. Cambridge University have supported Save the Elephants to trial a GPS collar early warning system ('e-fence') through the provision of funds for GPS collars, together with on the ground personnel, research support and expertise. The STE system has two components. The first is a web-linked programme that visually displays up-to-date elephant movement, showing the latest, real time, tracks of collared elephants on a Google Earth background. The second component is an early warning text message system. This is designed so that when a problem elephant fitted with a GPS/GSM collar approaches a designated boundary, a text message warning is sent to a designated manager. A total of eight 'problem' bull elephants have now been collared under this collaborative programme. Since our last Annual Report, and in line with the new project log frame, this component of the project was handed over to STE to continue to develop the e-fence software. With our support, Save the Elephants now produce biweekly reports on elephant movement which are sent out to local and national stakeholders. A report on the e-fence system is still being drafted by Cambridge University and Save the Elephants. Raw data from GPS collars fitted on elephants under this programme have been made available to Cambridge University to analyse in future.

The OI Pejeta Conservancy: Under the revised project logframe, the OI Pejeta Conservancy (OPC) has taken on a bigger role in the project, providing technical and logistical support for the design and construction of the West Laikipia Fence and in the management of persistent fence breakers. This support takes the specific form of training fencers from ranches responsible for the maintenance of the West Laikipia Fence, supervision of alterations to the fence to improve its effectiveness at deterring fence breaking elephants, the monitoring of fence breaking elephants and the creation of a dedicated database holding information on persistent fence breakers that can be passed on to the KWS for management purposes, and assistance with the development of a long term management strategy for the West Laikipia Fence. In view of the greater role OI Pejeta Conservancy are and will play in elephant management in the Laikipia area, a Darwin Fellowship application was drafted under this project to support an OI Pejeta Conservancy employee, Samuel Mutisya, to receive training through the MSc Course in Conservation Biology at The University of Kent. If successful this would greatly enhance OI Pejeta's capacity to evaluate its performance in the management of elephants. A discussion paper has been drafted in partnership with OI Pejeta Conservancy on the performance of their electrified fences in alleviating human-elephant conflict with a view to improving fence performance elsewhere but in particular in west Laikipia.

Mpala Research Centre ([www.mpala.org](http://www.mpala.org)) Since the last reporting period, Mpala Research Centre, based on the Mpala Conservancy in central Laikipia, and supported by Princeton University and the Smithsonian Institute, now provide the project with GIS support. Under this project support and training have been provided to Mpala enabling them to put in place an elephant researcher to study the elephant population living on the conservancy.

#### Other Collaborations

The project has established close working relationships with the Amboseli Elephant Project, through the exchange of staff (Amboseli has provided training to Laikipia project staff and staff from partner organisations on studying elephant populations, while Laikipia has provided training to Amboseli personnel on human-elephant conflict management).

Links have also been established with Fauna and Flora International, through the OI Pejeta Conservancy, and the Wildlife Conservation Society (WCS) through the Laikipia Predator Project and Mpala Research Centre. The link with the WCS resulted in a landscape planning exercise written up in a peer reviewed paper on which one of the project leaders is an author. Lastly links have also been established with the British Army which has recently intensified and extended its training in Laikipia. The purpose of this link is to help establish the impact of the British Army on elephant conservation, and to determine how best to ensure that their activities are conservation compatible.

#### CBD Focal points

This project has helped Kenya to meet its CBD commitments through the provision of support for the development of a national elephant strategy that will intensify in the coming months and in the dissemination of learning on tools to alleviate human-elephant conflict.

### **3. Project progress**

#### **3.1 Progress in carrying out project activities**

##### 0.1 GPS/GSM Collar Early Warning System

In line with our last annual report and the revised project logframe, this element of the project was effectively handed over to Save the Elephants in 2008. However the project continues to provide support to Festus Ihwagi of Save the Elephants to produce biweekly reports on elephant movement in Laikipia. A report on the E-fence trial is in draft and will be finalised before the end of the project.

### O.2 Local Knowledge HEC Early Warning System

In our last annual report we described progress with a trial of mobile phone Push-to-Talk (PoC) technology as a contribution to more effective communication among different local actors involved in nightly farm defence against crop-raiding elephants (ranch fence teams, farmers' groups, KWS staff). PoC combines the functionality of a walkie-talkie or two-way radio with a mobile phone. PoC enables communication between two individuals, or a group of people, and is particularly useful in connecting a user group intermittently over a period of time (e.g., a working day). PoC can be used alongside voice and data services on a single mobile phone handset. Users can make standard phone calls and send SMS, while also accessing two-way communication and group talk through the press of a button. Because network resources are used only for the duration of each talk 'spurt,' PoC technology requires less airtime, demands less energy, and is less costly than a conventional phone call.

The results from this trial suggested that this technology could improve coordination of responses to crop-raiding elephants. It demonstrated that improving group communication on the human-elephant interface can help to alleviating human-elephant conflict incidents. A report on this trial has been drafted and will be finalised and made available to partners before the end of the project.

Unfortunately the local mobile phone operator that sponsored the PoC trial, Safaricom Ltd, opted not to roll out the technology on the basis that it was not commercially viable. However, the real lesson of the PoC trail was the positive impacts of improved communication among relevant actors working in the human-elephant interface. This benefit is not confined to the specific PoC communication technology used. As a consequence the project is helping partners to use conventional communication tools (vhf radios and conventional mobile phone text messages/calls) to provide the basis for improved HEC early warning.

Rapid reporting and response protocols are described briefly in the West Laikipia Fence Management Strategy document drafted under this project. The creation of HEC rapid reporting teams and monitoring protocols hinged on OI Pejeta Conservancy having resources to commit two rapid response teams to the West Laikipia Fence. This commitment was offered during a meeting in February 2008 but was subsequently withdrawn (temporarily) in early 2009 due to the pressure of other commitments on OI Pejeta staff (with management of a neighbouring conservancy). We have explored other options for the creation of rapid response teams. This has now been organised (through several meetings held with the KWS and ADC Mutara Ranch Management) so that the development of the rapid reporting and response protocols for HEC will now be developed in collaboration with other local partners and will be applied during the final months of this project (see O.7 below for further details).

### O.3 Community-Based HEC Management and Research Programme Established

A report on trials of farm-based deterrents carried out in 2007/8 is in progress and will be completed and circulated before the end of the project. A demonstration site of farm-based deterrents has been maintained in south-west Laikipia with a view to supporting farmers living in that area with keeping elephants out of their farms.

A working paper summarising the project's experience with farm-based deterrents, drawing on the M.Phil. thesis by Tobias Ochieng at the University of Cambridge in 2008) is in draft, and will be completed by the end of the project.

An assessment of existing electrified fences in managing human-elephant conflict, through a case study of the OI Pejeta Conservancy, has been completed and published on-line in the first of our Laikipia Elephant Project Working Paper series (provided with this report). This paper highlights the importance of fence configuration, maintenance and enforcement in ensuring fences are effective. The work that went into the paper also provided the basis for the draft West Laikipia Fence Management Strategy (also attached to this report).

#### O.4 Dissemination of information on Elephant Conservation and Human-Elephant Conflict Management among vulnerable communities and conservation practitioners

Over this reporting period the following short courses have been completed: 1) GIS for conservation part 1 (12 participants); 2) GIS for conservation part 2 (5 participants); 3) Proposal writing for conservation part 1 (13 participants); 4) Proposal writing for conservation part 2 (10 participants); 5) Human-elephant conflict management (15 participants).

Tobias Ochieng completed his MPhil in Environment and Development at the University of Cambridge in September 2008 and has returned to work with the project as the West Laikipia Fence Project officer under the LWF. Gabriel Kahiro is half way through his MSc in Conservation and Tourism at Durrell Institute for Conservation Ecology (DICE) at the University of Kent and plans to return to Laikipia to continue working in conservation from September of this year. The OI Pejeta Conservancy have expressed an interest in recruiting Gabriel to support their broader conservation goals (though including human-elephant conflict management) when he does return. Francis Kamau is working towards his MSc in Geoinformation Science and Earth Observation in Environmental Modelling and Management (GEM) which is run by 4 European Universities (Southampton, Lund, Warsaw and ITC). Francis is unlikely to return to Laikipia specifically though it is expected he will continue to use his GIS skills in conservation at the national and international levels. All of these project staff have been supported to secure places and funding for the post-graduate training they have received and/or re currently receiving. An application was made to the Darwin Initiative for a fellowship for Samuel Mutisya, an ecologist working for the OI Pejeta Conservancy, so that he can pursue an MSc in Conservation Biology at the University of Kent.

The drama group has been performing a new version of the interactive play on human-elephant conflict management. This has been rewritten to highlight issues over fence maintenance and management and the interactions between local communities and local organisations. This adapted play has been performed 5 times since the last reporting period, and has facilitated discussions with fence management committees along the West Laikipia Fence.

A workshop on human-elephant conflict management for East African conservation practitioners, originally planned for August 2008, has been postponed to the summer of 2009 at the request of the Kenya Wildlife Service who would like the workshop to coincide with the final stages of drafting a national elephant conservation strategy. In fact the timing of the workshop is better suited for the project as by that time we will have several key discussion papers and project outputs to share with practitioners across the region. The sharing of this information at such a high level workshop will maximise the project's impact. The national elephant strategy will incorporate specific site recommendations made by this project for the Laikipia plateau.

Two peer reviewed papers, written with support from this project, have been accepted for publication over this reporting period:

- 1) "The Movement of African Elephants in a Human Dominated Land Use Mosaic" M.D. Graham, I. Douglas-Hamilton, W.M. Adams, P.C.Lee, *Animal Conservation* (in press);
- 2) "Conservation Planning on a Budget: a "resource light" method for mapping priorities at a landscape scale?" Didier, K; Wilkie, D; Douglas-Hamilton, I; Frank, L; Georgiadis, N.; Graham, M; Ihwagi, F.; King, A; Cotterill, A.; Rubenstein, D.; Woodroffe, R. *Biodiversity and Conservation* (in press).

#### O.5 Elephant defence livelihood systems established

Conventional smallholder agriculture has and will become more feasible with the construction of the West Laikipia Fence. Therefore, as was indicated in our last Annual Report, alternative livelihoods have become less relevant as a HEC alleviation strategy for many of the communities originally targeted by the project. The main activity over this reporting period has been to develop a strategy for handing over this component of the project over to local partner organisations whose work includes micro-enterprise development. The project has worked with a bioenterprise expert, Susie Wren, to survey the programmes in place and prepare a report for partners. This report will: 1) assess existing/past projects and barriers to success based on site visits and stakeholder interviews; 2) identify of potential new producers; 3) describe

training activities that need to be undertaken so that users can generate products to the necessary standard and quantity; 4) identify resources needed for ongoing outreach support; 5) Identify appropriate markets, tentative marketing strategy and a 'warm' contact list."

This work coincides with the development of a bioenterprise programme for Laikipia by the Laikipia Wildlife Forum which is due to begin in 2009 providing an excellent opportunity to implement and incorporate the recommendations from the report. The report will be completed and circulated before the end of the project (September 2009).

#### O.6. Strategy & revenue streams established for long term HEC management in Laikipia

The project has brokered the creation of the West Laikipia Fence Management Strategy and associated budget. This has been difficult work. It is for a period of only two years and has yet to be endorsed in writing by key stakeholders, in particular the OI Pejeta Conservancy and the Kenya Wildlife Service. The former have been affected by the current squeeze on tourism in Kenya caused by the global financial crisis and a commitment to manage a neighbouring ranch on behalf of a consortium of conservation organisations (African Wildlife Foundation and The Nature Conservancy among others). OI Pejeta have committed to reviewing their role within the strategy over the coming months once their financial and management status becomes clearer. The Kenya Wildlife Service have concerns over the protocol for the management of problem elephants as they would rather this was discretionary. These concerns and issues will be incorporated in an updated strategy that will be drafted and agreed to before the end of the project. Some of the budget lines such as those for fence enforcement have not yet been fully developed as implementation time is required to develop accurate estimates for the long term.

Discussions have been held with the Executive Director of the Laikipia Wildlife Forum regarding long term funding for the maintenance and management of the West Laikipia Fence. It is important to be clear that prior to fence construction each property owner on whose boundary the fence was to be constructed committed to the long term upkeep of their respective sections of the West Laikipia Fence. However this did not take into account some of the costs of fence enforcement that this project's work shows are critical to ensuring the integrity of the fence is not compromised. Several options exist for raising the finance for such costs over the long term. These include: 1) annual commitments by each large-scale property located along the fence; 2) a voluntary tourist levy for tourists visiting Laikipia; 3) LWF subscriptions; 4) Additional outside support. Wider discussions will be held with appropriate stakeholders over the summer to firm up the budget and associated long term finance strategy.

#### O.7 Support the Laikipia Wildlife Forum to develop the Institutional Capacity to Manage the West Laikipia Fence

The project has funded the appointment of a West Laikipia Fence Officer working in the Laikipia Wildlife Forum (a post held first by Gabriel Kahiro, then by Tobias Ochieng). The Fence Officer leads on the management of the West Laikipia Fence, carrying out liaison work with ranches, community groups and KWS, and overseeing the collection and collation of data on fence status, voltage and breakages. The Fence Officer prepares a monthly West Laikipia Fence Report for all local partners (copies available on request).

The project has supported the creation and coordination of six fence management committees: 1) Mutara; 2) Ex-Erok; 3) Pesi Kiambogo; 4) Matigari; 5) Thome and; 6) Mwenje. Details of meetings among these committees are included in monthly reports circulated by the West Laikipia Fence Officer. In addition data on crop-raiding and fence breakages continue to be collected by project scouts and will be analysed, together with elephant tracking data before the project end.

A great deal of work has been invested by the project in working with local partners to agree how the West Laikipia Fence should be managed, and by whom. Issues have included 1) the adaptation of the fence to make it effective (early construction was based on a simple multi-stand design that looked impressive, but could be broken by elephants: subsequently KWS approved a new design by OI Pejeta with fewer horizontal strands but with long 'outriggers' of charged wire at chest height); 2) the maintenance of the fence (repairing breaks, maintaining

voltages etc.); 3) agreeing a protocol for dealing with elephants who persist in breaking through fences onto smallholder land.

At a meeting with the OI Pejeta Conservancy and Laikipia Wildlife Forum in January 08, OI Pejeta agreed to help with upgrading sections of the West Laikipia Fence on the condition that KWS agreed to a clear protocol for the management of problem elephants. This formed the basis of a draft West Laikipia Fence Management Strategy and associated budget. This was finally agreed to in June 2008. However implementation was hampered by the lack of an agreement between the LWF and OPC to carry forward elements of the strategy. In December 2008 a further meeting was held to move the strategy forward. Subsequently an agreement was drafted between OI Pejeta Conservancy, the Laikipia Wildlife Forum and ADC Mutara Ranch (which is struggling to manage their section of the fence) to implement the strategy. However OI Pejeta pulled out of this agreement in January 2009 due to other demands on management. Meetings were held with ADC Mutara Ranch and KWS on 11<sup>th</sup> of February and 27<sup>th</sup> of February to create an alternative institutional arrangement for moving the strategy forward. As a result of this meeting the following has been put in place: 1) A new elephant researcher, Mr Joseph Wahome, is now monitoring problem elephants along the West Laikipia Fence under the LWF. Mr Wahome is working with OI Pejeta's existing elephant researcher. The information Mr Wahome collects will be fed into the problem elephant database held at the OI Pejeta Conservancy; 2) A hybrid rapid response team comprising Kenya Wildlife Service and ADC Mutara staff and project elephant scouts has been agreed to. The LWF are providing the vehicle for this team, ADC are providing accommodation for a KWS post and a driver for the vehicle, the KWS are providing armed rangers. This team will be in place in May of this year after which activities under objective two of the project in relation to rapid reporting can be undertaken effectively.

Elephant scouts and ranch fencers have now been trained in a protocol for the collection of information on fence performance including breakages, fence voltage and associated data. These data are now entered into a dedicated database by a trained assistant in Nanyuki and presented in monthly reports compiled by the LWF West Laikipia Fence Officer, Tobias Ocheing, who has been trained and continues to be supervised under this project. A conflict resolution course was held on a trial basis with one fence management committee, Matigari, in March 2009. Discussion have been held with the LWF executive director to roll out this course across fence management committees.

### **3.2 Progress towards Project Outputs**

Overall project implementation is on track to generate the outputs proposed. However in some cases the production of written documents has fallen approximately 5 months behind schedule due to the unexpected amount of time required to organise the institutional and practical arrangements for the management of the West Laikipia Fence. However by early 2009 this issue had been addressed. Time can now be dedicated to completing the writing up of project documents prior to the close of the project. All Working papers will be available on the project website (<http://www.geog.cam.ac.uk/research/projects/heccapacity/>).

More specific details of progress against each of the project outputs are provided below:

O.1 GSM/GPS collar based HEC early warning system: A report has been drafted but is not finalised. We anticipate a short delay in the final draft due to discussions required in wording and content with our local partner organisation, Save the Elephants. At issue is the report's conclusion that this technology offers some potential as a non-lethal alternative to the management of problem elephants but it is expensive and insufficient evidence exists to demonstrate its effectiveness based on the limited trials carried out to date. Therefore further trials are required and cheaper alternatives need to be explored. This is a sensitive issue as it has implications for the future of problem elephants that are currently responsible for breaking the newly erected West Laikipia Fence as, in the absence of viable non-lethal alternatives, some of these animals may need to be destroyed, if neighbouring small-scale farmers are to have food security in 2009/10.



O.2 Local knowledge-based early warning system: A report is in the process of being drafted and will be completed before the end of the project. This will demonstrate the significance of communication tools in assisting with the coordination of responses to human-elephant conflict incidents. The practical application and the associated development of rapid reporting and rapid response protocols of the lessons learned from the PoC trial has been delayed by the difficulties experienced in putting in place a rapid response team. This team will now be in place within the coming weeks allowing these final documents to be developed and assessed.

O.3 Community-based HEC management programme: A range of farm-based deterrents are now widely used across the project area (particularly chilli fences, various forms of simple scaring technologies such as torches, community defence groups). A Working Paper summarising Laikipia experience with these farm-based deterrent trials is in preparation and will be completed by the summer. Two databases are in place (one on problem elephants and one on HEC incidents) and are being updated to provide an empirical base for future assessments of HEC strategies. The conflict resolution course has been piloted but will need to be refined if it is to be rolled out across the West Laikipia Fence.

O.4 Dissemination of information on Elephant Conservation and Human-Elephant Conflict Management among vulnerable communities and conservation practitioners: Two peer review papers have been accepted for publication; The interactive community HEC play has been revised for community orientated fence management (though we have yet to write up the revised script); The formal training component of project training is now complete (attendance lists for courses and course power points available on request); The Cambridge University based website has been updated (<http://www/geog.cam.ac.uk/research/projects/heccapacity/>) while the local project website is being redeveloped, and will be launched prior to the project close. It is intended that this local project website will provide a mechanism by which future funding might be secured for project legacy activities. Discussions are being held to explore the possibility of creating a new comic book as a successor to *Kuishi Pamoja* (on farm-based elephant deterrence, described in the last Annual Report). The new comic will focus on making electrified fences work.

O.5. Elephant defence livelihood systems: Field work has been undertaken and a draft report written with a view to handing over elephant-compatible livelihoods to the LWF and its members. The final report will be circulated before the project close.

O.6 Strategy & revenue streams for long term HEC management in Laikipia: Discussions have been held with ED of LWF to develop a budget and financial strategy. A long term fence budget will be circulated for discussion with relevant properties at the next LWF board meeting (June 2009). The local Laikipia Elephant Project website is being upgraded and updated with a view to providing a platform for future donor support for HEC management.

O.7 Support the Laikipia Wildlife Forum to develop the Institutional Capacity to Manage the West Laikipia Fence: Institutional framework is now in place and operational. Sufficient data has been and is being collected to assess the performance of the West Laikipia Fence to date as can be verified in monthly reports generated by the West Laikipia Fence Officer.

### 3.3 Standard Measures

**Table 1 Project Standard Output Measures**

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for this reporting period	Total planned from application
Established codes								
2	Project staff completing masters degrees at UK universities		1	1		2	0	0
3	2 X Official ESRI Online GIS Courses		5			5	6	6
5	9 Elephant scouts training on data collection and recording; 1 LWF Community Liaison Officer trained on project planning; 4 senior project staff provided with 'on the job' training in data collection, analysis, and project management; 2 Office assistants trained on data entry and office administration	8   4  1	1  1		1	16	0	18
6 A	9 x elephant scouts 3 x project officers 1 x scout supervisor 2 x office admin 1 x LWF CLO Riabanji Youth Group (12); Waimungu Youth Group (15); Mukogodo Elephant Women (10); Urumwe Group (28); Formal course participants (72); 100 smallholder farmers	8     12 15 10 28	1 3 1 1 1    20 25	1		153	40	108
6B	Farm-based		3	2		19	5	8

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for this reporting period	Total planned from application
	deterrence; Chilli Farming; Beekeeping; Dung paper production; Getting to know elephants course; Asking questions course; Field methods; Research Design; GIS for Conservation course GIS for Conservation course II Proposal Writing course Proposal Writing course II Human-Elephant Conflict Management	1 1  1 1 1	1  1 1 1	   1 1 1 1				
7	Comic book, plays, maps and posters	4				4	0	5
8	Max Graham Bill Adams	18 1	44 2	44 2		106 5	44 1	132 4
9	Elephant Conservation and Management Plan					0	1	1
11B	1 x Oryx Paper (08) 1 X Book Chapter (08) 1 x Spatial analysis of crop-raiding paper submitted (being revised) 1 x animal conservation paper 1 x biodiversity and conservation paper		1 1 1	1  1		5	2	5
12A	HEC database created (still being improved) Problem elephant database	1		1		2	1	1
14A	Chilli farming seminar (Dr Guy Parker)	1				1	0	2
14B	HEC Meeting; (FFI/KWS) Nairobi Workshop for Development of	1	1			2	1	3

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for this reporting period	Total planned from application
	Kenya National Elephant Strategy (KWS)							
15A 15 B	LWF Newsletters x 4	1	2	1		4	1	1
15C 15 D	Travel News Articles x 1				1		1	1

In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, eg title, name of publisher, contact details, cost. Mark (\*) all publications and other material that you have included with this report.

**Table 2 Publications**

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Journal paper	Graham et al 2009	Animal Conservation		
Journal paper	Didier et al 2009	Biodiversity and Conservation		
Discussion paper	Graham et al 2009	University of Cambridge, Dept of Geography		

### 3.4 Progress towards the project purpose and outcomes

The construction of the 84km first phase of the West Laikipia Fence has reduced human-elephant conflict, in particular crop-raiding, among smallholder farms in south-west Laikipia. The extent of this reduction will become clearer at the end of the project when we carry out an assessment using crop-raiding data collected by scouts from before and after the fence construction. We expect that crop-raiding will be reduced further, that is to tolerable levels, once the lessons learned from the OI Pejeta Case study report, are applied along the West Laikipia Fence. To this end progress has been made in terms of drafting a fence management strategy, and upgrading of the fence to a design found to be effective on OI Pejeta. The only major component of the fence management strategy that is outstanding is fence enforcement. We will be concentrating on this issue in the coming months.

Training of the project team and employees of partner organisations has been extensive in the past year. This has resulted improved capacity within the LWF and among partner organisations to effectively carry the West Laikipia Fence project forward.

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

With the management systems, personnel and protocols put in place the West Laikipia Fence has and will continue to reduce the cost of living with elephants in West Laikipia to tolerable levels in most places by the end of the project. This will be verified through an analysis of data on crop-raiding collected by local scouts and that is available from 2002. We also believe that the lessons learned this project implemented in Laikipia and written up in discussion papers and peer reviewed journal articles will greatly assist with mitigating human-elephant conflict elsewhere. We are particularly excited at the prospect of these lessons being fed into the Kenyan national elephant strategy which is due to be completed with input from this project in 2009 and that will be shared with wildlife authorities from neighbouring countries.

## **4. Monitoring, evaluation and lessons**

As described in our last project report the main measurable indicator of progress against the project purpose will be levels of human-elephant conflict in Laikipia. A great deal has been invested in ensuring that sufficient data is collected in time and space on crop-raiding, fence breakages and other forms of human-elephant conflict by trained enumerators so that we will be in a position to quantitatively assess project performance. In the last year we have tracked project performance through the production of monthly reports on fence breaking and crop-raiding incidents. These reports are fed into fence management committees to resolve problems flagged and to ultimately improve performance.

The breadth of activities undertaken by this project means that while levels of human-elephant conflict are the major indicator of overall project performance, there have still been a great deal many lessons learned from the tools applied that cannot be captured by this indicator alone. Instead these lessons are being written up and shared principally through the production of discussion papers, peer reviewed articles, public articles and local communication tools. All of these will be available on the project websites in the coming months and are being disseminated to local stakeholders as and when they are generated.

Work undertaken in the last year has demonstrated that the use of electrified fences as an elephant deterrent should not be thought of in terms of a 'project' of construction but rather as a process of adaptive learning and implementation. This may be the reason behind the failure of so many fences in the past. However we expect that the range and depth of lessons learned in Laikipia will provide a significant source of information as to how and when electrified fences can be successful. This will help human-wildlife conflict practitioners across Kenya, the region and indeed any other sites where people and elephants are in conflict.

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

We responded to queries raised in our last review with the half-year report submitted last year.

## **6. Other comments on progress not covered elsewhere**

None

## **7. Sustainability**

The project has been promoted both locally and nationally through the Laikipia Wildlife Forum who send out monthly E-news articles and a quarterly newsletter. In addition the Kenya Wildlife Service have attended all the project's major courses and sent a delegation of senior personnel to open and close our last course on human-elephant conflict management. It was during this course that the project effectively shared experiences and lessons learned on human-elephant conflict with senior KWS personnel from across the country.

The exit strategy was described in our last annual report. We include the elements of this strategy again below but here indicate progress against each element:

- Support the LWF to employ and train a full time fence officer to provide permanent support for the local landowner/smallholder groups that are being established to maintain the West Laikipia Fence.

*This has now been done*

- Support OI Pejeta Conservancy to take on responsibility for overall management of the fence, along the entire stretch of the West Laikipia Fence. This will include supporting the development of protocols and training for monitoring and management

*While OI Pejeta did initially take on a bigger role in the management of the West Laikipia Fence, in particular in relation to the provision of training and supervision for upgrading the fence to an improved configuration, they have now suspended their involvement. As such we have shifted our focus for fence enforcement to KWS and other neighbouring landowners. That said OI Pejeta continue to provide input in the development of appropriate protocols for monitoring and management. The long term strategy, however, is still that OPC take on a bigger role once demands on their management reduce.*

- Hand over database management, future supervision of scouts and GIS services to Mpala Research Centre and CETRAD under a joint long term programme (the new director at Mpala would like to establish a long term elephant research project and so this would complement her planned ecosystem level research).

*MRC have expressed an interest in holding and managing the database. However it is not yet clear if MRC have the interest and resources to continue to supervise scouts and it may be that this activity continues under a dedicated legacy project under the institutional umbrella of the LWF or OI Pejeta if they are willing. MRC are, however, in a position to continue to provide GIS services for HEC management in the ecosystem. Currently this is demonstrated by the bi-weekly reports generated by Festus Ihwaga who is based at MRC.*

- Shrink our project office, and work through staff outposted in partner organisations to meet the project goals, objectives and outcomes

*This has been done.*

- Graft the Laikipia Elephant Project website and planned fundraising tool (Wildlife Direct blog), onto the LWF website.

*This will depend on whether or not the project is sustained in some form as a discrete entity or will merely be absorbed into the programmes of partner organisations. A proposal for the way forward here will be drafted and discussed with Kenya and UK project advisory committees over the summer.*

- Work with large-scale ranches to take over employment of the elephant scouts directly, to support with fence management and community relations.

*This continues to be the exit strategy though there may be a chance that scouts operate under the umbrella of a discrete project with support from the LWF.*

The only addition to add to the elements of the strategy above are that the lessons learned from the development of elephant-compatible livelihoods in Laikipia and the associated community structures put in place will feed into the bioenterprise programme currently being developed by the LWF.

There is a possibility that some elements of the project, in particular the scout programme and associated data collection and management and some support for management of the West Laikipia Fence, may continue locally as the Laikipia Elephant Project. This is an element of the strategy that is being discussed both internally and with the LWF and will be discussed further with Kenya and UK project advisory committees.

## 8. Dissemination

At the international level project activities and outputs are disseminated through peer reviewed journal articles, Working Papers, conferences and the project websites. At the national level dissemination has taken place through input provided to the development of a national elephant strategy, the provision of formal training on human-elephant conflict management and publication of articles in the LWF newsletter. At the local level dissemination has taken place in the last year through circulation of monthly reports on fence performance and elephant movement, and through interactive plays on human-elephant conflict, the distribution of comic books and posters.

## 9. Project Expenditure

Please expand and complete Table 3.

**Table 3 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, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment (specify)			
Others (specify) Drama performances, posters and comic books			
Salaries (specify by individual) Max Graham Richard Hill Local salaries (Gabriel Kahiro, Tobias Ochieng, Adams Kipror, 9 x local scouts, Website + database technical support, Livelihoods Officer)			
TOTAL			

10. **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: 2008/09

Project summary	Measurable Indicators	Progress and Achievements April 2008 - March 2009	Actions required/planned for next period
<p><b>Goal:</b> <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>  <i>The conservation of biological diversity,</i>  <i>The sustainable use of its components, and</i>  <i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>		<p><i>Reduction in costs of conservation of African elephants among small-scale farmers on the Laikipia plateau in northern Kenya</i></p>	<p><i>(do not fill not applicable)</i></p>
<p><i>Purpose</i> Alleviate human-elephant conflict and promote tolerance of elephants in Laikipia District, Kenya</p>	<ul style="list-style-type: none"> <li>-Reduction in the total number and severity of elephant crop-raids in Laikipia by year three</li>   <li>-Permanent community based HEC management and research project established; HEC management training provided at the local, national and international levels</li>   <li>Sustainable revenue streams secured to maintain project activities beyond Darwin funding</li>   <li>-Income generated by local communities through sustainable elephant defence livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>-85 km electrified fence constructed reducing crop-raiding incidents</li> <li>-Strategy for management of fence drafted</li> <li>-Fence upgraded to more robust design</li>   <li>-West Laikipia Fence Officer in place</li> <li>-Project scouts systematically monitoring fence performance</li> <li>-Formal training complete (5 short courses)</li> <li>-2 peer reviewed journals; 1 discussion paper, monthly fence performance reports, biweekly elephant movement reports, drama group performances, LWF articles</li>   <li>-Local project website upgrade and update in progress</li> <li>-Budget for long term fence management under construction</li> <li>-LWF commit to 2 years of post-darwin support for fence management</li> <li>-Field assessment of project livelihood activities</li> <li>-Elephant-compatible livelihoods report near completion</li> </ul>	<ul style="list-style-type: none"> <li>-Second phase of construction (80km)</li> <li>-Rapid response team put in place</li> <li>-Management of persistent problem elephants</li> <li>-Finalise long term fence management strategy</li>   <li>-Legacy strategy finalised</li> <li>-Project staff integrated into partner &amp; legacy institutions</li> <li>-local and national elephant conservation strategy drafted</li> <li>-finalise 4 Working Papers</li> <li>-resubmit one journal paper</li> <li>-submit 2 further journal papers</li>   <li>-Finalise local website &amp; launch</li> <li>-Finalise and secure agreement for long term fence management budget &amp; finance strategy</li> <li>-Apply for grants and fundraise for project legacy arrangements</li> <li>-Finalise elephant-compatible livelihoods discussion paper</li> <li>-Integrate recommendations with</li> </ul>

		-Integration with LWF bioenterprise programme	planned LWF bioenterprise initiative
Output 1. GPS/GSM collar based HEC early warning system	-5 elephants collared by yr 2; collar-mobile phone text message system working by yr 2	All elephants collared. Output handed over to STE. Discussion paper being drafted by Cambridge University and Save the Elephants	
A1.1 Agreement with ranch and elephant collar partner (Save the Elephants, STE)		Completed	
A1.2 Crop raiding elephants identified and collared by Oct 07		Completed	
A.1.3. e-fence software developed programming completed by collaring partner STE)		Completed	
A1.4 Elephant warning messages received by ranch		Completed	
A1.5 Ranch fence team respond to warnings and report success		Handed over to STE April 08	
A.1.6 Analysis report drafted & circulated		In progress	
Output 2. Local Knowledge based HEC Early Warning System	-Mobile phone (Push-to-talk) early warning system trialled among vulnerable communities by year 2  -HEC incident Rapid Reporting teams established and trained by year 2  -HEC Rapid Response Teams established and trained by year 2	-Trial completed. Discussion paper in progress  -Trail completed. Roll out awaiting activity below  -Agreement with KWS and ADC Mutara finalised. Rapid Response Team to be put in place by May	
A2.1 push-to-talk technology trialled with ranch/community teams Dec 07		-Completed	
A2.2 Community and private ranches elect personnel to form 'HEC Rapid Reporting Teams' by July 08		-Fence management committees in place	
A.2.3 Members of HEC Rapid Reporting Teams provided with mobile phones or radios and trained on protocol for early warning reporting of		-Awaiting rapid response team	

<p>human-elephant conflict incidents by July 08</p> <p>A.2.4 Protocol for HEC Rapid Reporting drafted by Oct 08</p> <p>A.2.5 HEC Rapid Response Procedures Document drafted by Oct 08</p> <p>A.2.6 HEC Rapid Response Teams formed and trained on protocol for responding to early warning reports of human-elephant conflict incidents and the identification of fence breaking elephants by July 08</p> <p>A.2.7 Training provided to elephant scouts on data collection protocol for evaluating effectiveness of HEC rapid reporting and response teams by July 08</p>	<p>-Awaiting rapid response team</p> <p>-“ “</p> <p>-In progress</p> <p>-Awaiting rapid response team</p>	
<p><b>Output 3 Community based HEC management and research programme established</b></p>	<p>- Local HEC alleviation team trained by yr 3; Farm-based deterrence demonstration sites set up in yr 1; HEC database compiled and farm-based crop-raiding tools assessed by yr 2</p> <p>-Collection and dissemination of knowledge on the design, management and performance of existing fences in Laikipia by year 2</p> <p>-Procedures identified and training provided for monitoring and reporting fence performance and identifying problem elephants by year 2</p> <p>-Fence management committees trained on conflict management skills by year 3</p>	<p>-Completed; discussion paper on farm-based deterrents in progress</p> <p>-Completed; Working Paper on OI Pejeta fence performance complete</p> <p>-Completed; scouts monitor fence performance; West Laikipia Fence officer generates monthly reports; two elephant researchers monitoring problem elephants</p> <p>-Pilot conflict management field day at Matigari; Roll out conflict resolution plan to be agreed with LWF; Trainer secured (Rupert Watson)</p>
<p>A.3.1 Identify trial sites by Dec 06</p>	<p>-Completed</p>	
<p>A.3.2 Select 25 trial farms and 25 control farms by Dec 06</p>	<p>-Completed</p>	

<p>A.3.3 Carry out baseline surveys for all 50 farms by March 07</p> <p>A.3.4 Design data capture forms for measuring performance of deterrents on trial and non-trial farms by March 07</p> <p>A.3.5 Evaluate performance of farm-based elephant deterrents by July 08</p> <p>A3.6 Collection of data on design and performance of existing fences in Laikipia by Apr 08</p> <p>A3.7 Circulate report on performance of existing fences &amp; fence management protocol by Apr 08</p> <p>A3.8 Fence management meeting held in Nanyuki by July 08</p> <p>A3.9 Data collection protocol drafted and data capture forms for enumerating fence breakages created by Apr 08</p> <p>A.3.10 Elephant scouts and other designated personnel trained on data collection protocol for enumerating fence breakages by elephants</p>		<p>-Completed</p> <p>-Completed</p> <p>-Completed; Working Paper in draft</p> <p>-Completed</p> <p>-Completed</p> <p>-Completed</p> <p>-Completed</p> <p>-Completed</p> <p>-Completed</p>
<p>O.4 Dissemination of information on Elephant Conservation and Human-Elephant Conflict Management among vulnerable communities and conservation practitioners</p>	<p>Booklets, play performances, training courses, website; newsletters and posters disseminated each yr; East African training workshop in year 2; ongoing 'outreach' support provided to vulnerable farmers/stakeholders; website construction</p>	<p>-All completed with exception of regional workshop which will take place over summer of 2009 in line with final phase of national elephant strategy development</p> <p>-Website upgrade and update to be completed before end of project close</p>
<p>A.4.1 Develop a detailed training plan for project staff and partner organisations 10 July 07</p> <p>A.4.2 Carry out informal and formal training elements of the training plan-complete Oct 09</p> <p>A.4.3 Organise an East African Training Workshop on HEC Management Aug 08</p> <p>A.4.4 Establish a community education programme (drama, posters,</p>		<p>-Completed</p> <p>-Completed</p> <p>-Postponed to summer of 09</p> <p>-Completed</p>

<p>booklets, competitions) to improve local knowledge of HEC, fence management, farm-based crop-defence, elephant conservation and elephant management. Complete by Oct 09</p> <p>A.4.5 Evaluate the impact of the education programme by Jan 09</p> <p>A.4.6 Generate an elephant conservation and management strategy for the Laikipia Elephant Population by July 08</p>	<p>-In progress (delayed by implementation of new project objectives)</p> <p>-Part of national strategy development process defined by KWS-to be completed in 2009</p>	
<p><b>O.5. Elephant defence livelihood systems established</b></p>	<p>-3 community groups trained to produce dung paper, honey and hot chillies by yr 3; Markets established for sustainable products by yr 2.</p>	<p>-Training completed but sustainability questionable in absence of broader livelihoods programme to support scaling up of products supply and quality to meet market demand</p> <p>-Elephant-compatible livelihood field assessment completed &amp; discussion paper near completion. This will feed into a broader initiative of wildlife-compatible enterprises initiated by the LWF and will maximise the project's impact at the regional scale</p>
<p>A.5.1 Identify partner organisations that can provide support for livelihood activities by Jan 07</p> <p>A.5.2 Establish markets for 'elephant compatible' products (chillies, dung paper and honey) by Oct 07</p> <p>A.5.3 Identify community groups to train on the production of honey, chillies and dun paper by Apr 07</p> <p>A.5.4 Train communities on the production of 'elephant compatible' products by Oct 09</p> <p>A.5.5 Link community products with markets by Oct 09</p> <p>A.5.6 Evaluate the impact of livelihood activities by Oct 09</p>	<p>-Completed</p> <p>-Completed</p> <p>-Completed</p> <p>-Completed</p> <p>-Current problem with small scale of production-needs bigger initiative by LWF-now in progress</p> <p>-Discussion paper in progress</p>	
<p><b>O.6. Strategy &amp; revenue streams established for long term HEC management in Laikipia</b></p>	<p>-Future HEC management activities identified by year 3</p> <p>-Long term costs identified by year 3</p> <p>-Assessment of capacity and</p>	<p>-Discussions held with LWF and Kenya advisory committee members</p> <p>-Interim budget developed with input from OI Pejeta</p> <p>-Extensive discussions held with OI Pejeta Conservancy, ADC Mutara Ranch and KWS.</p>

	<p>commitment among key stakeholders to implement activities and carry costs by year 3</p> <p>-Commitments secured by year 3</p> <p>-Identify long term finance strategy to plug funding gaps if needed by year 3.</p> <p>-Web-based fundraising interface set up by yr 3; Fundraising and proposal writing training for project assistants by yr 3.</p>	<p>-To be carried out before project close</p> <p>-To be finalised in coming months</p> <p>-Web site upgrade and update in progress</p>
<p>A.6.1 Identify activities still needed for long term fence maintenance and HEC management by Oct 09</p> <p>A.6.2 Collect data on annual expenditure on fence maintenance and HEC management activities by Oct 09</p> <p>A.6.3 Generate a budget for long term fence maintenance and HEC management by Oct 09</p> <p>A.6.4 Identify stakeholders responsible for implementing and funding HEC management activities over long term by Oct 09</p> <p>A.6.5 Assess existing capacity and commitment among stakeholders identified in step to implement and carry costs associated with long term fence maintenance and HEC management by Oct 09</p> <p>A.6.6 Develop a sustainable finance strategy for long term HEC management and secure commitments in relation to this strategy by Oct 09</p> <p>A.6.7 Create a web-based fundraising interface by July 09</p>		<p>-In progress</p> <p>-To be completed</p> <p>-To be completed</p> <p>-To be completed</p> <p>-To be completed</p> <p>-Discussions held with LWF ED, agenda on LWF board meeting in June 09</p> <p>-Web site design and upgrade in progress</p>

<p><b>O.7 Support the Laikipia Wildlife Forum to develop the Institutional Capacity to Manage the West Laikipia Fence</b></p>	<p>-A West Laikipia Fence Committee and four sub-committees, comprised of key stakeholders established by year 2</p> <p>Before vs. After Questionnaire survey among beneficiary communities by year 3; HEC incidents and fence breakages quantified before vs. after fence construction by year 3</p>	<p>-Completed</p> <p>-Assessment exercise to be completed in September 2009</p>
<p>O7.1 Support the Laikipia Wildlife Forum to carry out a survey along each of four sections of the fence to identify beneficiaries within the community by Apr 08</p> <p>O7.2 Help the LWF with meetings with beneficiaries identified in step O2.1.a and election of community representatives for each fence section by Apr 08</p> <p>O7.3 Assist the LWF to identify other appropriate stakeholders to be represented within each of four fence sub-committees by Apr 08</p> <p>O.7.4 Assist the LWF to establish fence management committees by Apr 08</p> <p>O.7.5 Support the LWF in meetings with each fence management committee to establish roles, responsibilities and secure commitments (labour, financial resources, materials etc) among/from members by Apr 08</p> <p>O.7.6 Collect baseline data on livelihood activities and perceptions among a sample of farmers prior and after the construction of the fence by Oct 09</p> <p>O.7.7 Collection and analysis of crop-raiding data before and after fence construction by trained enumerators by Oct 09</p>		<p>-Completed</p> <p>-Completed</p> <p>-Completed</p> <p>-Completed. Two further committees created in 2008/9</p> <p>-Ongoing</p> <p>-To be completed by Sept 09</p> <p>-To be completed by Sept 09</p>

## Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<b>Goal:</b> 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"> <li>• the conservation of biological diversity,</li> <li>• the sustainable use of its components, and</li> <li>• the fair and equitable sharing of benefits arising out of the utilisation of genetic resources</li> </ul>			
<b>Purpose</b> 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	Project 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.
<b>Outputs</b> <b>O.1. GPS/GSM collar based HEC early warning system</b>	-5 elephants collared by yr 2; collar-mobile phone text message system working by yr 2	-journal paper x 1 submitted  -text messages sent  -1 report	-GPS/GSM collars function properly  -Partner organisation remains committed and able to support collaring operation
<b>O.2. Local Knowledge based HEC Early Warning System</b>	-Mobile phone (Push-to-talk) early warning system trialed among vulnerable communities by year 2  -HEC incident Rapid	-1 x report  - 1 journal paper submitted - 1 x HEC rapid reporting procedure document	-Partner organisation able and willing to finance mobile phone trial -Local stakeholders willing to work together and share communication networks (radio call signs, mobile phone groups)



	<p>Reporting teams established and trained by year 2</p> <p>-HEC Rapid Response Teams established and trained by year 2</p>	<p>-1 x HEC rapid response procedure document</p>	<p>-Partner organisations able to provide and sustain communication tools (mobile phones/radios) among teams</p> <p>-Fence management committees able to source personnel and resources to establish and sustain rapid response teams</p> <p>-Sufficient expertise and resources exist to collect and analyse data and write up results.</p>
<p><b>O.3. Community based HEC management and research programme established</b></p>	<p>- Local HEC alleviation team trained by yr 3; Farm-based deterrence demonstration sites set up in yr 1; HEC database compiled and farm-based crop-raiding tools assessed by yr 2</p> <p>-Collection and dissemination of knowledge on the design, management and performance of existing fences in Laikipia by year 2</p> <p>-Procedures identified and training provided for monitoring and reporting fence performance and identifying problem elephants by year 2</p> <p>-Fence management committees trained on conflict management skills by year 3</p>	<p>-1 x report</p> <p>-1 x journal paper submitted</p> <p>- 1 x HEC database</p> <p>- 1 x report on existing fences</p> <p>- 1 x journal paper submitted</p> <p>-1 x fence meeting proceedings</p> <p>-1 x Fence management protocol</p> <p>-Data on fence breakages</p> <p>-Problem elephant ID database established;</p> <p>-conflict management course assessments</p>	<p>-Local farmers willing and committed to participate in grassroots elephant management project</p> <p>- Documented knowledge of existing fences remains limited</p> <p>-Local stakeholders interested and willing to participate in a workshop</p> <p>-Local fence managers are willing to follow standardised fence monitoring procedures</p> <p>-Local stakeholders find course material sufficiently interesting</p>
<p><b>O.4 Dissemination of information on Elephant Conservation and Human-Elephant Conflict Management among vulnerable communities and</b></p>	<p>-Booklets, play performances, training courses, website; newsletters and posters disseminated each yr; East African training workshop in year 2; ongoing</p>	<p>-Posters</p> <p>-Maps</p> <p>-Booklets</p> <p>-Script &amp; Video clip</p> <p>-Course evaluations</p> <p>-GIS course certificates</p> <p>-Community</p>	<p>-Partner organisations are committed to local dissemination of training and education materials</p> <p>- Partner organisations committed to providing GIS support and software</p>

<b>conservation practitioners</b>	'outreach' support provided to vulnerable farmers/stakeholders ; website construction	Education Programme Report x 1 -Workshop proceedings -Elephant conservation and management strategy -Website up & running by year 3	-East African conservationists and wildlife managers value content of proposed training workshop
<b>O.5. Elephant defence livelihood systems established</b>	-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 - construction of West Laikipia Elephant Fence (from Autumn 2007) does not make this work irrelevant in Laikipia
<b>O.6. Strategy &amp; revenue streams established for long term HEC management in Laikipia</b>	-Future HEC management activities identified by year 3 -Long term costs identified by year 3 -Assessment of capacity and commitment among key stakeholders to implement activities and carry costs by year 3 -Commitments secured by year 3 -Identify long term finance strategy to plug funding gaps if needed by year 3.  -Web-based fundraising interface set up by yr 3; Fundraising and proposal writing training for project assistants by yr 3.	-1 x Long term fence strategy document  -Letters of endorsement by appropriate stakeholders  -Web-based fundraising interface up and running by year 3 (will be linked with activity O.4)	-Sufficient resources and expertise exist to generate report  -Key stakeholders willing to share information on current revenue sources  -Well resourced stakeholders accept and commit to costs and implementation of activities associated with long term HEC management  -Under resourced key stakeholders accept and commit to strategy.  -Web-interface sufficiently well marketed and interesting to attract donors  -Project assistants have the capacity to write proposals and secure funding

<p><b>O.7 Support the Laikipia Wildlife Forum to develop the Institutional Capacity to Manage the West Laikipia Fence</b></p>	<p>-A West Laikipia Fence Committee and four sub-committees, comprised of key stakeholders established by year 2</p> <p>Before vs. After Questionnaire survey among beneficiary communities by year 3; HEC incidents and fence breakages quantified before vs. after fence construction by year 3</p>	<p>-Meeting minutes</p> <p>-Report x 1</p> <p>- Journal paper x 1 submitted</p>	<p>-LWF need and value project support. -Key stakeholders are willing to work together to manage the West Laikipia Fence</p> <p>-Sufficient resources and expertise exists to collect and analyse data and write up results.</p>
<p><b>Activities</b></p>	<p><b>Activity milestones (summary of project implementation timetable)</b></p>		<p><b>Assumptions</b></p>
<p><b>O.1 GPS/GSM collar based HEC early warning system</b></p>	<p>O1.1 Agreement with ranch and elephant collar partner (Save the Elephants, STE)</p> <p>O1.2 Crop raiding elephants identified and collared by Oct 07</p> <p>O.1.3. e-fence software developed programming completed by collaring partner STE)</p> <p>O1.4 Elephant warning messages received by ranch</p> <p>O1.5 Ranch fence team respond to warnings and report success</p> <p>O.1.6 Analysis report drafted &amp; circulated-Apr 08</p>	<p>O1.1 Parties agree to commit resources</p> <p>O.1.2 Logistics, support and permissions obtained.</p> <p>O1.3 e-fence software developed successfully</p> <p>O1.4 Warning timely and GPS accurate</p> <p>O1.5 Ranch fence team able and willing to respond; monitoring completed</p> <p>O.1.6 Staff resources sufficient to complete analysis</p>	

<p><b>O.2.1 Local Knowledge based HEC Early Warning System</b></p>	<p>O2.1 push-to-talk technology trialled with ranch/community teams Dec 07</p> <p>O2.2 Community and private ranches elect personnel to form 'HEC Rapid Reporting Teams' by July 08</p> <p>O.2.3 Members of HEC Rapid Reporting Teams provided with mobile phones or radios and trained on protocol for early warning reporting of human-elephant conflict incidents by July 08</p> <p>O.2.4 Protocol for HEC Rapid Reporting drafted by Oct 08</p> <p>O.2.5 HEC Rapid Response Procedures Document drafted by Oct 08</p> <p>O.2.6 HEC Rapid Response Teams formed and trained on protocol for responding to early warning reports of human-elephant conflict incidents and the identification of fence breaking elephants by July 08</p> <p>O.2.7 Training provided to elephant scouts on data collection protocol for evaluating effectiveness of HEC rapid reporting and response teams by July 08</p>	<p>O.2.1 technology and handsets made available by partner organisation GSMA</p> <p>O.2.2 Community members and private ranch management willing to participate together in HEC Rapid Reporting Teams</p> <p>O.2.3 Sufficient resources exist among partner organisations to provide resources for rapid reporting.</p> <p>O.2.4 Resources and capacity sufficient to draft protocol</p> <p>O.2.5 Resources and capacity sufficient to draft protocol</p> <p>O.2.6 Sufficient resources exist (vehicles, staff, torches) to establish and sustain rapid response teams. Team members able to understand course materials and have access to means of elephant identification (binoculars, camera)</p> <p>O.2.7 Sufficient resources exist to continue to employ elephant scouts and/or ranch management committed to collecting such data</p>
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<p><b>O.3.1 Community based HEC management and research programme established</b></p>	<p>O.3.1 Identify trial sites by Dec 06</p> <p>O.3.2 Select 25 trial farms and 25 control farms by Dec 06</p> <p>O.3.3 Carry out baseline surveys for all 50 farms by March 07</p> <p>O.3.4 Design data capture forms for measuring performance of deterrents on trial and non-trial farms by March 07</p> <p>O.3.5 Evaluate performance of farm-based elephant deterrents by July 08</p> <p>O3.6 Collection of data on design and performance of existing fences in Laikipia by Apr 08</p> <p>O3.7 Circulate report on performance of existing fences &amp; fence management protocol by Apr 08</p> <p>O3.8 Fence management meeting held in Nanyuki by July 08</p> <p>O3.9 Data collection protocol drafted and data capture forms for enumerating fence breakages created by Apr 08</p> <p>O.3.10 Elephant scouts and other designated personnel trained on data collection protocol for enumerating fence breakages by elephants by Apr 08</p> <p>O3.11 Database and data-entry interface designed and office assistant trained on data entry Oct 08</p> <p>O.3.12 Conflict resolution course provided to designated members of each fence management committee by Oct 08</p>	<p>O.3.1 Laikipia West Fence doesn't render trial sites irrelevant</p> <p>O.3.2 Farmers are willing to participate with the project</p> <p>O.3.3 Capacity sufficient to design survey/monitoring forms and carry out surveys</p> <p>O.3.4/5 Sufficient data collected; analytical capacity sufficient</p> <p>O.3.6 Staff resources sufficient to carry out survey</p> <p>O.3.7 Staff resources sufficient to analyse and write up results</p> <p>O.3.8 Key local stakeholders find proposed content of meeting interesting</p> <p>O.3.9 Capacity sufficient to design survey/monitoring forms and carry out surveys</p> <p>O.3.10 Scouts and other personnel committed to learning data collection protocols</p> <p>O.3.11 Sufficient resources exist to create database entry interface</p> <p>O.3.12 Potential participants find proposed course contents interesting</p>
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<p><b>O.4 Dissemination of information on Elephant Conservation and Human-Elephant Conflict Management among vulnerable communities and conservation practitioners</b></p>	<p>O.4.1 Develop a detailed training plan for project staff and partner organisations 10 July 07</p> <p>O.4.2 Carry out informal and formal training elements of the training plan-complete Oct 09</p> <p>O.4.3 Organise an East African Training Workshop on HEC Management Aug 08</p> <p>O.4.4 Establish a community education programme (drama, posters, booklets, competitions) to improve local knowledge of HEC, fence management, farm-based crop-defence, elephant conservation and elephant management. Complete by Oct 09</p> <p>O.4.5 Evaluate the impact of the education programme by Jan 09</p> <p>O.4.6 Generate an elephant conservation and management strategy for the Laikipia Elephant Population by July 08</p>	<p>O.4.1 Training materials and opportunities are valued by targeted groups</p> <p>O.4.2 Course participants available and resources are sufficient to carry out training exercises</p> <p>O.4.3 Sufficient interest exists among East African wildlife institutions to attract workshop participants</p> <p>O.4.4 Resources and capacity is sufficient to create an education programme with enough geographical coverage to improve awareness in all major HEC hotspots in Laikipia.</p> <p>O.4.5 Sufficient resources to collect, analyse and write up data on the impact of the education programme activities.</p> <p>O.4.6 Partner organisations endorse the strategy</p>
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<p><b>O.5 Elephant defence livelihood systems established</b></p>	<p>O.5.1 Identify partner organisations that can provide support for livelihood activities by Jan 07</p> <p>O.5.2 Establish markets for ‘elephant compatible’ products (chillies, dung paper and honey) by Oct 07</p> <p>O.5.3 Identify community groups to train on the production of honey, chillies and dung paper by Apr 07</p> <p>O.5.4 Train communities on the production of ‘elephant compatible’ products by Oct 09</p> <p>O.5.5 Link community products with markets by Oct 09</p> <p>O.5.6 Evaluate the impact of livelihood activities by Oct 09</p>	<p>O.5.1 Partner organisations have sufficient resources and capacity to support livelihood activities</p> <p>O.5.2 Market exists; sufficient resources are available to market products</p> <p>O.5.3 Suitable community groups exist and/or can be organised</p> <p>O.5.4 Capacity exists or is available to train communities on production of honey, chillies and dung paper</p> <p>O.5.5 Revenue generated by partner organisations is sufficient for continued support of product supply chain to be financially viable</p> <p>O.5.6 Sufficient information is collected and capacity exists to assess the impact of the livelihood activities.</p>
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<p><b>O.6. Strategy &amp; revenue streams established for long term HEC management in Laikipia</b></p>	<p>O.6.1 Identify activities still needed for long term fence maintenance and HEC management by Oct 09</p> <p>O.6.2 Collect data on annual expenditure on fence maintenance and HEC management activities by Oct 09</p> <p>O.6.3 Generate a budget for long term fence maintenance and HEC management by Oct 09</p> <p>O.6.4 Identify stakeholders responsible for implementing and funding HEC management activities over long term by Oct 09</p> <p>O.6.5 Assess existing capacity and commitment among stakeholders identified in step to implement and carry costs associated with long term fence maintenance and HEC management by Oct 09</p> <p>O.6.6 Develop a sustainable finance strategy for long term HEC management and secure commitments in relation to this strategy by Oct 09</p> <p>O.6.7 Create a web-based fundraising interface by July 09</p> <p>O.6.8 Establish legacy institution for the project by July 08</p> <p>O.6.9 Train project staff on grant proposal writing by Oct 08</p> <p>O.6.10 Apply for legacy funding by Oct 09</p>	<p>O.6.1 Staff resources sufficient to collect these data</p> <p>O.6.2 Relevant stakeholders willing to divulge information on current and future HEC management costs</p> <p>O.6.3 Sufficient expertise exists to draw up detailed budget</p> <p>O.6.4 Stakeholders that are able and willing to take on HEC management and associate costs exist</p> <p>O.6.5 Sufficient resources and expertise exist for assessment and existing stakeholders are cooperative</p> <p>O.6.6 Sufficient resources and expertise exist to develop finance strategy and key stakeholders accept this strategy.</p> <p>O.6.7- Resources are sufficient to create the web-based fundraising interface</p> <p>O.6.8 An existing institution is willing to take on the project and/or there are sufficient resources to create a new institution</p> <p>O.6.9 Project staff have sufficient capacity to write proposals independently</p> <p>O.6.10 Donors are available and are willing to support the project</p>
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<p><b>O.7 Support the Laikipia Wildlife Forum to develop the Institutional Capacity to Manage the West Laikipia Fence</b></p>	<p>O7.1 Support the Laikipia Wildlife Forum to carry out a survey along each of four sections of the fence to identify beneficiaries within the community by Apr 08</p> <p>O7.2 Help the LWF with meetings with beneficiaries identified in step O2.1.a and election of community representatives for each fence section by Apr 08</p> <p>O7.3 Assist the LWF to identify other appropriate stakeholders to be represented within each of four fence sub-committees by Apr 08</p> <p>O.7.4 Assist the LWF to establish fence management committees by Apr 08</p> <p>O.7.5 Support the LWF in meetings with each fence management committee to establish roles, responsibilities and secure commitments (labour, financial resources, materials etc) among/from members by Apr 08</p> <p>O.7.6 Collect baseline data on livelihood activities and perceptions among a sample of farmers prior and after the construction of the fence by Oct 09</p> <p>O.7.7 Collection and analysis of crop-raiding data before and after fence construction by trained enumerators by Oct 09</p> <p>O.7.8 Analyse data collected on fence breakages and voltage along each fence section (from activity O.3.1.d) by Oct 09</p>	<p>O7.1 Staff resources sufficient to carry out survey</p> <p>O7.2 Outreach staff personnel sufficient. Community willing to participate in the management of the fence.</p> <p>O7.3 Other stakeholders willing to participate in the management of the fence</p> <p>O7.4 Different stakeholders willing to work together</p> <p>O7.5 Different stakeholders willing to take on responsibility and commit resources to fence management.</p> <p>O.7.6 Staff resources sufficient to carry out survey</p> <p>O.7.7 Sufficient resources exist to monitor crop-raiding and fence breakages</p> <p>O.7.8 Partner organisations make these data available</p>
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### ***Checklist for submission***

	Check
<b>Is the report less than 5MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	YES
<b>Is your report more than 5MB?</b> If so, please advise <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> that the report will be send by post on CD, putting the project number in the Subject line.	
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	YES
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	YES
Have you involved your partners in preparation of the report and named the main contributors	YES
Have you completed the Project Expenditure table fully?	YES
Do not include claim forms or other communications with this report.	