



**Conserving biodiversity in the modernising  
farmed landscapes of Uganda**

**Third Annual Report  
April 2007 – March 2008**



In September 2007, the third farmer discussion group took place in Mukono. The theme of this discussion was agroforestry and a selection of trees which were useful for both biodiversity and farmers were taken along to the meeting.

*Submitted by*



**British Trust for Ornithology**

April 2008



## ***Darwin Initiative Annual Report***

### **Darwin Project Information**

Project Ref Number	14-032
Project Title	Conserving biodiversity in the modernising farmed landscapes of Uganda
Country(ies)	Uganda, Denmark
UK Contract Holder Institution	British Trust For Ornithology
UK Partner Institution(s)	Royal Society for the Protection of Birds (RSPB), Bournemouth University, University of Reading (Centre for Agri-Environmental Research)
Host country Partner Institution(s)	Nature Uganda (NU); Makerere University Institute of Environment & Natural Resources (MUIENR); Makerere University Department of Forest Biology and Ecosystems Management; Danish Institute for International Studies (DIIS); Ugandan Wildlife Society (UWS); Plan for Modernisation of Agriculture (PMA); National Agricultural Advisory Development Service (NAADS); National Environment Management Authority (NEMA);
Darwin Grant Value	£233,987 total (£64,615 this period)
Start/End dates of Project	Start June 2005; End December 2008
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 April 2006- 31 March 2007, annual report number 3
Project Leader Name	Juliet Vickery
Project website	<a href="http://www.uganda-agro-biodiversity.org/">http://www.uganda-agro-biodiversity .org/</a>
Author(s), date	Phil Atkinson, David Mushabe & Juliet Vickery, May 2008

### **1. Project Background**

Traditionally the wider countryside has been relatively under valued for its biodiversity. Instead, attention has focussed on biodiversity hot spots and protected areas. This project begins to address this knowledge gap by providing quantitative information on patterns and trends in biodiversity (birds, insects [with an emphasis on bees as pollinators and butterflies] and trees)

in relation to agricultural land use in a sample of smallholder and large-scale farming systems in the Ugandan banana / coffee arc around Lake Victoria.

The work is being undertaken in sites that are stratified across a gradient of agricultural intensity, ranging from smallholder mixed-cropping systems to large agricultural systems characterised by mono-cropping and high use of fertilisers and pesticides. Census and survey techniques have been used to quantify the patterns of biodiversity (e.g. species abundance, richness and diversity) in each of these sites. This has been done in parallel with socio-economic studies of these agricultural systems in order to identify agricultural practices that benefit biodiversity and enhance income. These data are being used to identify best practices for sustainable land use options that also support high levels of biodiversity. These best practices will, in turn, be disseminated to agricultural development agencies and service providers and selected local communities within Uganda and be used as a basis for policy advice to the Ugandan Government. The project will also aim to identify indicators of high biodiversity in farmland and data collected will serve as a baseline for future monitoring programmes (particularly for birds and insects) in agricultural systems in Uganda. We expect the results to be applicable to similar agricultural systems elsewhere in eastern Africa and that the approach adopted could serve as a framework for addressing similar issues further afield.

## **2. Project Partnerships**

Project partnerships:

This third year of the project has seen the strengthening of relationships with agricultural service providers as well as continuing the relationships between UK, Danish and Ugandan project partners. This has been achieved through regular visits to Uganda by BTO staff (three visits), University of Reading staff (1 visit) and project partners in Denmark (1 visit). In addition, Professor Derek Pomeroy from Makerere University has made two trips to the UK. As in previous years, these visits have been as part of other work Professor Pomeroy is involved with but they have provided the opportunity for 1-2 days of discussion in Cambridge on each occasion.

The link with the National Agricultural Advisory Services has been improved with the holding of two workshops. The latest held in April 2008 was attended by 22 participants that are engaged in various agriculture and environment related activities. The purpose of the workshop was to seek stakeholders/participants' input into the draft agro-biodiversity draft handbook.

Other collaborations:

The Agro-biodiversity Working Group, set up in year 1 of the project is well established. A visit to Mukono to identify practices suitable for inclusion in the Agro-biodiversity handbook took place in September 2007 and 2 further visits in January 2008 to Mukono and Masaka were undertaken to identify suitable demonstration farms. Each of these visits included discussion groups with farmers and strengthened the relationship between the project staff and local communities.

### 3. Project progress

The project log-frame is given in Annex 1 and 2. This sets out the project purpose and outputs and these remain the same as in the original application. The overall purpose is to identify best practice for the long-term conservation of biodiversity in selected farmed landscapes in Uganda and establish a framework for sustainable agricultural development and monitoring.

The broad objectives are:

- i. To understand the relationships between biodiversity and farming practices and identify best practices (including novel approaches).
- ii. To identify and quantify the economic importance of on-farm biodiversity and its loss, and economic implications of novel land management approaches.
- iii. To enhance capacity in agricultural biodiversity science, policy and practice.
- iv. To translate best practices, including novel approaches, into practical advice for farmers.
- v. To make policy and relevant advice developed within the project available to all relevant parties and stakeholders.
- vi. To establish a system for the long term monitoring of agricultural sustainability.

#### 3.1 Progress in carrying out project activities

This year has seen a shift in emphasis from fieldwork to analysis of data, the development of the agro-biodiversity handbook and set up of the demonstration farms. The amount of fieldwork was limited but included two sets of pollination experiments involving coffee, finishing up the woody vegetation survey of the study plots. The two PhD students have been entering and analysing data and David Mushabe undertook the householder (socioeconomic) survey and began analysis of the data on landuse and woody vegetation for the study sites.

#### ***Progress towards training outputs (1A/B, 5, 6A/B, 7):***

The two PhD students have been entering their data from their fieldwork. This has involved systematic bird and insect surveys, vegetation assessments and collection of socio-economic data at each of the 26 1km x 1km study sites in the banana coffee arc around Lake Victoria (Figure 1). The bulk of the fieldwork finished in February 2007 and in March/April 2007 they, and David Mushabe from Nature Uganda, visited the UK/Denmark to work with their supervisors and discuss data entry and analysis as well as attending the Cambridge Student Conference for Conservation Science. During this visit, Dianah Nalwanga-Wabire was able to spend a month at BTO and undertake the analysis for one of the main data chapters for her thesis. David Mushabe visited Dr Simon Bolwig at the Danish Institute of International Studies (DIIS) in April 2007 for advice on analysis of the vegetation data and how to set up the survey of households to collect socio-economic data. As identification material is so poor, Theodore Munyuli was able to visit the British Museum to identify some of his bee specimens, assisted by Dr David Notton (Collection manager, Hymenoptera). He also spent time at Reading University

with the research group led by Dr Simon Potts. He received specialised training in techniques and approaches required to analyse data from butterfly bait traps and butterfly transects. As a result he was able to produce a poster for the Cambridge Student Conference.

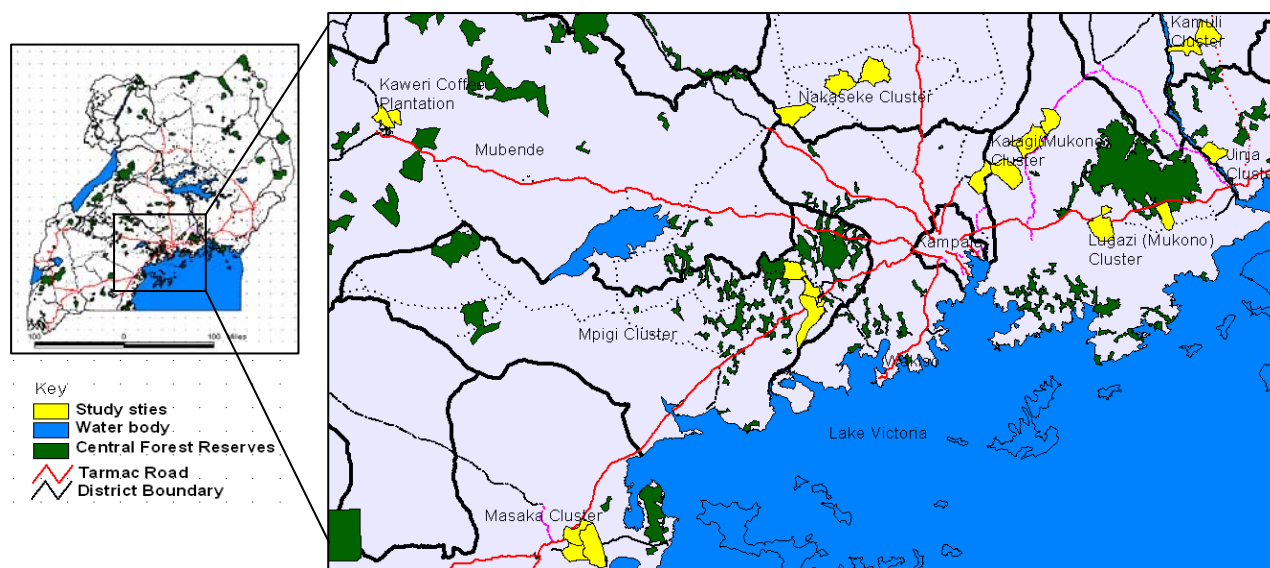


Figure 1. Locations where the 26 study sites are located. Sites were grouped into eight clusters and there were 2-4 sites per cluster. Each yellow polygon represents a parish.

Since their return to Uganda, Theodore Munyuli has undertaken pollination experiments to determine the extent to which coffee relies on insect pollination and with therefore will be able to put an economic value on that component of biodiversity in this agricultural system. Dr Simon Potts visited Uganda to 25 July to 16 August and during this period instructed Theodore and his assistant Maurice Mutabazi on how to run the experiments and set up a number of pilot experiments.

Simon Bolwig visited BTO in mid July 2007 to follow up on David Mushabe's visit to Denmark. The household survey questionnaire was trialled and modified in light of lessons learnt during the trial. The survey is designed to gather information on labour, inputs yields and product value for a sub set of farmers (five per site). This was carried out over several months at the end of 2007 and the start of 2008.

In October 2007, Theodore Munyuli visited Dr Connal Eardley at the Agricultural Research Council Plant Protection Research Institute in South Africa. Dr Eardley is one of the key experts on African Hymenoptera and it was decided, given the priority of identifying all the bees collected, it was worthwhile making a visit. By the end of the two week visit, all the bees were identified.

UK and Danish staff, as well as Makerere supervisors (Philip Nyeko and Derek Pomeroy) have accompanied the field team on a number of visits and provided first-hand input and advice throughout the field work as well as back up via email and phone. Dr Simon Potts spent two weeks in the field with the entomological student (Theodore Munyuli) and his field assistant Maurice Mutabezi. This was especially useful as it ensured that the pollination experiments were carried out in a rigorous standardised manner that can be compared with other studies.

Over the course of the past two years, the six project staff (two PhD students and assistants, one UWS and one NU member of staff) have been trained in the planning of field work, the design of sampling and survey methods and a range of field techniques. As mentioned in the last report, data entry & analysis has been slow due to very intermittent power in Kampala.

However all data was entered by midway through this project year and analysis is progressing well.

The students were due to come to the UK in March 2007 to undertake the second of their GIS courses at Bournemouth University. This has been delayed for two main reasons. First the ornithological PhD student (Dianah Nalwanga-Wabwire) was pregnant and gave birth to a baby boy in March 2008 and is currently on maternity leave. Second, given the need to for correct identification of all the bee specimens, the entomological PhD student has only recently completed his data entry and will come to the UK in the next few months. In consultation with DI, we have changed the emphasis of the course to one on statistics suitable for analysis of their data rather than just GIS methods.

In addition to training these researchers and members of staff at UWS and NU the project is committed to training for agricultural extension service providers and smallholders in practical approaches to integrating biodiversity and agriculture. This will be achieved through a training handbook, leaflets and demonstration farms.

The draft training handbook was due to be produced in February 2007 but this was delayed due to (1) repeated changes in key staff at the Uganda Wildlife Society, (2) a change to the fieldwork so that 'evidence-based' recommendations would not be available to be fed into the hand book until later on in the project and (3) due to the key member of staff (Olivia Nantaba) going off on maternity leave in the autumn of 2007. The work was picked up by Annet Nakyeeyune, UWS Executive Secretary and David Mushabe at Nature Uganda but there were unavoidable delays. Throughout 2007 several discussions were had with the National Agricultural Advisory Service (NAADS) about its development of the handbook and it was presented at a meeting held in December 2007 and trialled at a workshop held on 16 April 2008. The workshop in April was organised by NatureUganda and UWS in collaboration with the District NAADS Coordinator and was attended by 22 participants that are engaged in various agriculture and environment related activities. It was decided to widen the workshop to more organisations than originally intended (i.e. not just NAADS) to get feedback from a wider range of people and organisations. The included: Plan for the Modernisation of Agriculture (PMA), District Agricultural, Fisheries & Forestry Officers, District Entomologists and Vets. The handbook was well received and it was recommended that a new section on below ground biodiversity be added. The project was behind schedule in this respect but, after an intensive period of work in the latter half of 2007, it has now caught up with the original targets. We are delighted that the Minister of Agriculture, Animal Industry and Fisheries, Hon Hilary Onek, has accepted our invitation to write a foreword to the handbook.

Communication with farmers and local communities has continued with another discussion forum being held in Masaka in September 2007. In addition focus group interviews/discussions have taken place with about six farmers in each of the 26 sites.

### ***Progress towards research outputs (8, 9, 10, 11B, 12A/B):***

As outlined above under 'progress towards training outputs' and there have been several visits by UK and Danish staff to Uganda to afford training and advice on the research programme in general and the field work in particular. These have amounted to a total of ca 6 weeks in Uganda (measurable research output 8). In addition Prof Derek Pomeroy has spent c. 12 weeks in Uganda where he has advised students and attended management meetings.

The second annual report, along with a summary of the assessment of this report from the Darwin Initiative was circulated to all project staff and stakeholders.

The Uganda Wildlife Society, Nature Uganda and the agro-biodiversity working group have finalised the criteria for the selections of demonstration farms (measurable research output 9) and selected 4 farms, 2 in Masaka and 2 in Mukono. The aim is for open days for farmers to be completed in October 2008 and for these days to be made available to a wider audience, e.g. more influential people such as members of the Natural Resources sub-committee of the PMA.

The agro-biodiversity working group has produced a well advanced draft of training manual/handbook which was trialled at a workshop in April 2008 (measurable research output 10). The invitation to attend was originally meant just to include NAADS staff but it was felt that it was important to invite a broader range of people who are responsible for the environmental as well as agricultural management of the wider countryside.

The PhD students are progressing well, although it is likely that the ornithological PhD will over run due to pregnancy and maternity leave and DI have been informed of a potential overrun. The theses will take the form of manuscripts submitted for scientific journals with an introduction and discussion to draw the papers together (measurable research output 11B). The data collected in previous years, relating to insects, birds and plants will, in subsequent years, be integrated and stored as part of the National Biodiversity Databank NBDB (measurable research output 12/AB).

#### ***Progress towards dissemination outputs (14A/B, 15A/B/C, 17A, 19A/B):***

The two workshops (measurable output 14A) to discuss the contents of the handbook were delayed but took place in September 2007 and April 2008. These workshops were useful as they included practitioners from not only the agricultural sector but also people working in environmental management. The agro-biodiversity handbook has changed greatly since these meetings.

The PhD students did not come to the UK in September 2007 as originally planned. This was for two reasons – first the ornithological PhD student, Dianah Nalwanga Wabwire was pregnant and the problems of bee identification meant that Theodore Munyuli went to South Africa to visit Dr Connal Eardley, a leading expert in African Hymenoptera. We have agreed with Darwin to reschedule their visit in 2008.

During the last visit to the UK (March/April 2007 thus straddling the reporting period), both students attended the Cambridge Student Conference on Conservation Science which provided them with first hand experience of what is required in a scientific presentation. We are planning the ornithological PhD student will give a presentation at the Pan-African Ornithological Congress in September 2008 (measurable output 14B). Prof Pomeroy & a member of the project team from BTO will also attend and give a paper.

One press release was produced in Uganda with the aim of raising awareness of the project and the value of biodiversity in cropped land. (Measurable dissemination output 15A/B/C). We would produce more but the project has to pay for space in the newspaper if publication is guaranteed. We have not undertaken any radio interviews this reporting period, mostly because airtime is expensive and we would rather wait until we either had some major research findings or another development in the project, such as the production of a handbook.

A newsletter has been produced and circulated to project stakeholders and two project posters have been printed, one in Buganda and the other in English.

The project web site is now hosted in the UK and maintained by the BTO with input from the project partners (Measurable dissemination output 17A).



Dissemination within the project itself progresses through the web site, email updates and, more particularly, steering group & management meetings. Four such meetings were held in the reporting period.

### ***Progress towards physical outputs (20, 21,22):***

The majority of outputs under this section were either completed in the first project year (e.g. project vehicle, computers, field equipment etc totalling c. £20,000) or will be completed in the final year of the project (demonstration farms).

### ***Progress towards financial outputs (23):***

In this financial year UK & Ugandan partners have contributed £26,259.

## **3.2 Progress towards Project Outputs**

Progress in the third year of the project has been good. For various reasons, the production of the handbook and other farmer material was behind schedule but a concerted effort in the latter half of 2007 meant that this is now on schedule. Two workshops were held with NAADS and other organisations and these really identified the target audience for the handbook and this informed the layout and content. Olivia Nantaba (UWS) went on maternity leave during 2007/2008 and much of her workload was picked up by Annet Nakyeeyune (Executive Secretary, UWS) so, despite this reduction in staff, we have been able to catch up.

The effort on the research targets have moved away from data collection to one of data entry and analysis and this has been progressing well, although frequent powercuts has not made this easy. One major milestone was the completion of the identification of all the bees trapped at the study sites. The literature on African Hymenoptera is poor and so a visit to South Africa was needed to identify the remaining species. The student is now cleaning his data and beginning analyses. We plan to bring him back to the UK later on in 2008 to spend a month in Reading working with his supervisor Dr Simon Potts. Dianah Nalwanga-Wabwire, the ornithological PhD student, is currently on maternity leave. At present we do not know how this will affect her ability to finish on time. This will be a priority for the next month and we will update DI of any time and/or financial implications for the project.

The training has involved direct academic supervision in Uganda by Ugandan, Danish and UK staff. We have worked with the students and focused on analysis and reporting of results in written and oral form. We have commented extensively on draft chapters from the ornithological student and the aim is that by commenting heavily on the first few chapters, the students will be able to write the subsequent chapters with less input from ourselves.

### 3.3 Standard Measures

**Table 1 Project Outputs (According to Standard Output Measures).**

<b>Code No.</b>	<b>Description</b>	<b>Year 1 Total</b>	<b>Year 2 Total</b>	<b>Year 3 Total</b>	<b>Year 4 Total</b>	<b>TOTAL</b>
1AB	2 PhD students appointed			2		
5	Other project staff receiving training			5		
6B	Number of training weeks provided (person weeks)			21		
7	Poster and project brochure produced for dissemination to farmers, government and NGOs			2 posters, 1 newsletter		
8	Number of weeks spent by UK project staff on project work in the host country			21		
9	Number of documents produced for host country			3		
10	Number of guides/training manuals produced			1 (in draft)		
11B	Number of scientific papers to be submitted					
12A	Number of data bases established					
14A/B	Number of conferences/seminars to be organised or					

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	attended	
15ABC	Number of national press releases in Uganda,UK	1
16ABC	Articles appear in BTO, NU and UWS newsletters	
17A	Agro-biodiversity Working Group established/meetings	2
19A	Number of national radio interviews or features in host country(ies)	
19B	Number of national radio interviews/features in UK	
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	
23	Matched funding from partners	£26,259

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**Table 2 Publications**

Type *	Detail	Publishers	Available from	Cost £
(e.g. journals, manual, CDs)	(title, author, year)	(name, city)	(e.g. contact address, website)	

### 3.4 Progress towards the project purpose and outcomes

The project purpose as stated in the application, is to

*Identify best practice for the long-term conservation of biodiversity in selected farmed landscapes in Uganda and establish a framework for sustainable agricultural development and monitoring.*

The progress in this, the third year of the project, has been similar to that in the second year.

First, the training received by the field team and the data they have subsequently collected. Both are ongoing and central to the project, the former is part of the direct aim of capacity building, the latter will provide the information required to identify optimal agricultural practices for biodiversity and productivity.

Second, the establishment and progress of the Agro-biodiversity Working Group. This will ensure small holders and policy makers are aware of the project and its aims. It will also help to ensure the results of the project can be used to inform policy in land use, agriculture and conservation and hence help the Government meet its obligations under the CBD. The hand book and associated leaflets, produced with the advice and guidance of this working group, will provide a key tool for small holders and agricultural extension service providers to promote sustainable agriculture that will also maintain biodiversity. The field trips undertaken by this group already have begun a process by which information on best practice can be gathered. Demonstration farms have been identified and a draft hand book on agro-biodiversity has been produced.

Third, the relationship between the project staff and the National Agricultural Advisory Service (NAADS) and the Natural Resources Sub Committee of the PMA. For the project purpose to be achieved, it is essential that the results from the science are filtered up to the policy makers. We have a good relationship with these policy makers and the Hon. Minister of Agriculture, Animal Industry and Fisheries, Hon Hilary Onek, will write a foreword to the handbook. These links are vital if the project is to influence policy and the response so far has been extremely positive

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

The generic Darwin Initiative goals are threefold: (a) a change in state of biodiversity (reduction in species or habitat loss), (b) progress towards sustainable use and (c) a human community living with biodiversity has the costs reduced or the benefits increased stemming from the conservation or use of that biodiversity.

As in the first 2 years of the project, in this reporting period we have made progress towards (b) and (c), both of which will contribute to (a). The field data is now being analysed to identify 'best practices' that maintain or enhance yield and conserve biodiversity. These will be promoted to the communities we are working in through posters, farmer discussion groups, open days at demonstration farms and through radio programmes. We will also raise awareness and increase the benefits that farmers and smallholders accrue from biodiversity conservation (e.g. pollinator services). Adoption of these 'best practices' will undoubtedly contribute to a reduction in the rate of species and habitat loss within agricultural lands as the plans for the modernisation of agriculture in Uganda develops.

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

##### *Monitoring & evaluation*

Monitoring of the project was tightened up during the course of the second project year as a result of comments from the first report. We introduced regular management meetings of key partners in between the larger Steering Group meetings to ensure that progress was regularly assessed and steps taken to deal with anything that was behind schedule.

Supervisors have kept in regular contact with students and the University also requires students to submit more formal bi-monthly reports as a way of monitoring progress. These go to University Supervisors as well as Dr Frank Kansiime, the Director of MUIENR.

During this year the students have been focussing on finishing up the fieldwork and analysing data. The final parts of the fieldwork (the household survey and pollination experiments) have been completed and the data entered. The major outputs are now draft thesis chapters and the ornithological PhD student has produced 3 draft chapters which have been commented on. The invertebrate PhD student has been delayed considerably by the problems of specimen identification but as of October 2007, this is now complete and the data are being cleaned.

In terms of evaluating outputs, all material is being reviewed by project staff or by external reviewers. The draft training manuals has been commented on by agricultural extension workers (NAADS & PMA), district environmental officers, forestry officers and vets. This ensures that there has been a very broad spectrum of input to ensure that the materials can fulfil the overall goals of the project.

The rigour of data collection & student output has been assessed through numerous field visits by UK (Simon Potts, Phil Atkinson and Juliet Vickery), Danish (Simon Bolwig) and Ugandan supervisors (Derek Pomeroy and Philip Nyeko) and these people will also comment on draft chapters.

##### *Lessons learnt*

The work carried out in years one and two had many short term goals (e.g. deadlines for completion of each round of fieldwork) and as such it was easy to keep focussed on these goals. During this year, the tasks have been much longer in length and keeping to agreed deadlines in terms of analysis of data and writing up has been not always happened. It is not always possible to write a PhD thesis

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

The reviewer made some very useful comments on our last annual report and raised several queries. These were addressed in our half year report, repeated below:

*The composition of the ABWG* - the reviewer wanted some information on the make up of the working group. It includes a wide mix of organisations including: government bodies (PMA, NAADS, NEMA, Ministry of Agriculture Animal Industry & Fisheries, Uganda Export Promotions Board); local and international agriculture and conservation NGOs (NatureUganda, Uganda Wildlife Society, Send a Cow, Environmental Alert, Ecotrust, Advocates Coalition for Development and Environment, Wildlife Conservation Society, IUCN); research organisations (Forestry Resources Research Institute, MUIENR, National Agricultural Research Organisation, Kawanda Research Institute, Faculty of Agriculture at Makerere University). It represents a wide group of interests and different organisations contribute to different aspects of the group's work.

*Risks in extrapolation* - the reviewer was worried about the apparent mismatch in timing between bird and insect data collection and the socio-economic studies. To some extent there will be a mismatch. However the socioeconomic data will span a whole year and will therefore cover part of the period of the bird and insect surveys. However, we are confident that the variables such as yield will show a similar relative pattern between sites, even if factors such as weather conditions have changed. The climate in Uganda is less variable from year to year than other areas and we

plan to visit a number of new agricultural sites to test out predictions made from the current set of data. This will determine the robustness of any models and the recommendations derived from them.

*Progress on extension literature* – The progress on the handbook was discussed during a visit made by UK staff in July 2007. We discussed various formats and discussed the state of the current draft. The present version was considered 'too wordy' and it was thought that it would not be read by the average extension worker. We therefore decided to have a book of easily photocopiable 'pull-outs'. Each A4 sheet would describe one issue/technology with text and the artist who produced the artwork for the posters would be commissioned to produce paintings illustrating each technology.

*Project website:* The project now has a dedicated website (see above).

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

With two of the five main project staff going on maternity leave, we have had to expend extra effort in catching up and hitting deadlines. It is inevitable that the ornithological PhD student will overrun and on her return to work later in 2008 we will determine how long this will be.

## **7. Sustainability**

The profile of the project is high in the communities in which we work. Regular discussion groups, establishment of demonstration farms, production of posters in English & Buganda (Figure 2) and visits by the field staff have ensured that farmers are very aware of our activities. At a higher level we have been expanding our network of influence from the NAADS/PMA secretariats to a district level by involving NAADS staff from across the region in workshops. At the beginning of the project it was clear that sustainability might be an issue as NAADS staff were privately contracted by farmers to give advice on certain issues and the value of agro-biodiversity might not be included in that advice. However, this model of extension service is being replaced by the previous approach that it replaces, where extension workers are paid by the government to give general advice. This means that it is much more likely that information non sustainable farming would be included in the advice given to farmers. Once the project ends at the end of 2008, we will have printed and distributed handbooks to a wide variety of extension workers operating in the banana coffee arc around Lake Victoria.

Discuss the profile of the project within the country and what efforts have been made during the year to promote the work. What evidence is there for increasing interest and capacity for biodiversity resulting from the project? Is there a satisfactory exit strategy for the project in place and how likely are project outputs, outcomes and impacts to be sustained?

## **8. Dissemination**

The main dissemination activities this year have been concerned with further developing relationships with communities in our study areas as well as involving extension, and other, workers in the production of the handbook. NAADS have played a full part in developing the handbook along the agro-biodiversity working group. When finalised, this will be distributed to NAADS extension workers for use in the field, thus ensuring sustainability after the project ends.

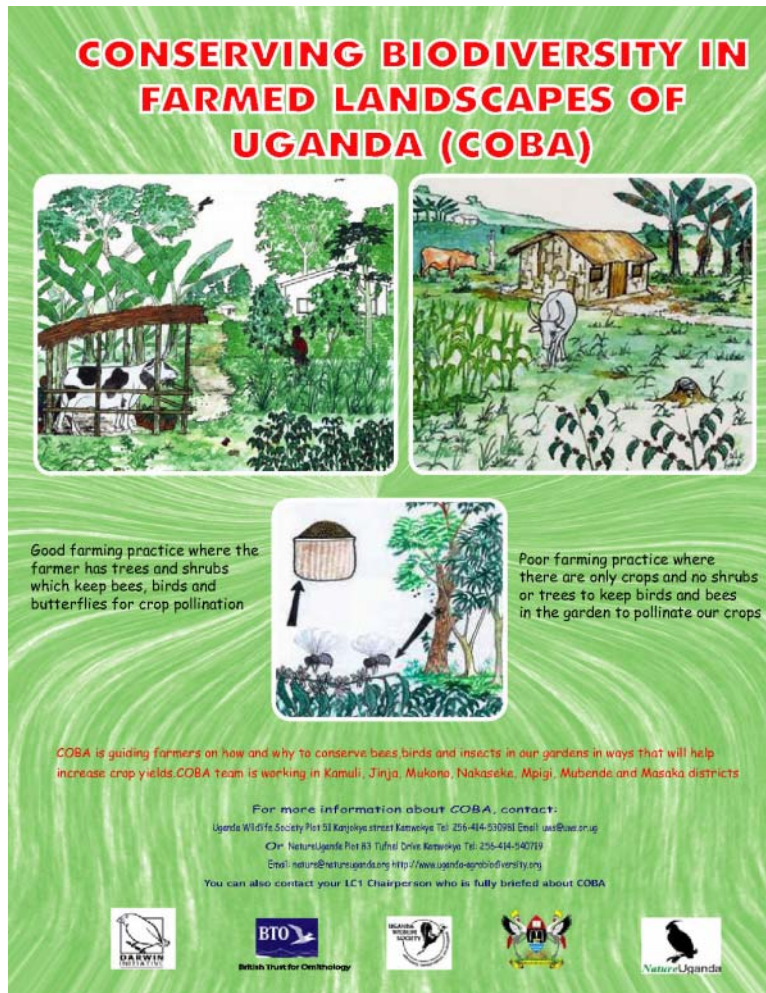


Figure 2. Copies of two of the posters produced to highlight agro-biodiversity issues: in this case the value of agroforestry and the importance of biodiversity in pest management.

## 9. Project Expenditure

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

This is a revised budget incorporating a carry forward to the next financial year. This has been cleared and approved by DI.

Item	Budget (please indicate which document you refer to if other than your project application)	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others			
Salaries (specify)			
TOTAL			

Highlight any agreed changes to the budget and explain any variation in expenditure where this is +/- 10% of the budget.

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

[I agree for ECTF and the Darwin Secretariat to publish the content of this section](#)



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

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008	Actions required/planned for next period
<p><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 constrained in resources to achieve</p> <p>The conservation of biological diversity,</p> <p>The sustainable use of its components, and</p> <p>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</p>			<i>(do not fill not applicable)</i>
<p><b>Purpose</b></p> <p>Identify best practice for the long-term conservation of biodiversity in selected farmed landscapes in Uganda and establish a framework for sustainable agricultural development and monitoring.</p>	<p>Advice on best practice disseminated to policy makers and agricultural extension service providers and integrated into agricultural development strategies by year 4. Baseline data, field and analytical protocols established for monitoring agricultural biodiversity (birds and insects) by year 3.</p>		
<p><b>Output 1.</b> Project management systems in place and effective communication across project partners established.</p>	<p>Activities on schedule, milestones met throughout the project. All project partners have access to all project outputs. Project partners are fully aware of roles and responsibilities and reporting dates</p>	<p>The management structure of the project is effective and regular management meetings between local partners in between larger steering group meetings has ensured that the project has caught</p>	<p>One of the key targets for the last year of the project is to ensure that, in light of 2 staff being on maternity leave, we can reprogram work to ensure the project does not overrun</p>

	and collaborating on all relevant project activities.	up in areas where it was behind in the last project year.	
<b>Output 2.</b> Relationships between biodiversity and farming practices are understood and best practices (including novel approaches) identified	Effects of changing agricultural policies and practices on biodiversity can be predicted by year 4. Biodiversity indicators identified and best practices (including novel approaches) described and documented by year 4.	As in the last reporting period, the initial analyses of the data look very promising and the ornithological PhD student has 3 chapters drafted. All bees are now identified and the pollination experiments have been carried out. All land use data have been collected, entered & checked.	Keeping the students on a strict timetable will be a priority in the last year of the project as it is easy for a thesis to overrun. We will bring the students back to the UK for an extended period to analyse data and write up.
<b>Output 3.</b> Economic importance of on-farm biodiversity and its loss, and economic implications of novel land management approaches are identified and quantified.	The financial implications of changes in farmland biodiversity (particularly loss of pollinators) can be assessed and predicted by year 4. Best practices identified are related to income (from existing IFPRI data) and costs and benefits of novel approaches can be assessed by year 4.	The farmer survey was carried out during this reporting period. This quantified the labour, expenditure, yield and income which gives us a detailed breakdown of the main sources of income. Pollination experiments were carried out	The fieldwork outlined in Output 2 above will determine the loss of yield if pollinators are excluded. The data from the questionnaire can be used to quantify the economic importance of pollination services to the farmer.
<b>Output 4.</b> Capacity enhanced in agricultural biodiversity science, policy and practice	At least two African students trained to PhD level and up to 6 research assistants trained in biodiversity survey and census techniques. At least 50 NAADS agricultural service providers attend two training workshops in biodiversity assessment. Two NU/UWS staff trained in biodiversity assessment,	Two workshops have been held but we invited a wider range of organisations to attend, rather than just NAADS. The handbook has benefited from this wider audience. The working group has taken a lead on the handbook production and selection of demonstration farms.	We have moved the emphasis away from fieldwork to handbook production and training extension workers. Demonstration farms have been established and we will organise open days in the forthcoming year.

	participatory development proposal writing and raising of public awareness. Agricultural working group established		
<b>Output 5.</b> Best practices, including novel approaches translated into practical advice for farmers	Increased awareness of and hands on experience with biodiversity issues and increased recognition of the value of biodiversity among farmers within the study area by year 2 and from nearby communities by year 4. Ability and willingness by these farmers to adopt and trial novel land management approaches by year 4. At least 50 NAADS agricultural extension service providers trained	During the past year we have held two farmer discussion groups and disseminated information about the project and the economic value of biodiversity to them. One concentrated on the value of trees both in terms of their biodiversity value and their economic value to farmers.	The results from the ornithological and invertebrate fieldwork need to be fed into the handbook. During this year, we will push ahead with data analysis and identify those practices that are of benefit both to biodiversity conservation and also of economic benefit (or at least no cost) to the farmers.
<b>Output 6.</b> Policy and relevant advice developed within the project is available to all relevant parties and stakeholders	Information and materials on best practices packaged and distributed to policy makers and agricultural extension service providers by year 4. Biodiversity and agricultural manual produced for extension service providers and distributed by year 4. Two demonstration plots. Two supplementary funding applications submitted to potential donors by year 4.	This output will be completed this period	All the major dissemination outputs from this project will be made available to stakeholders via the project website. The handbook will be distributed to agricultural extension workers.

<p><b>Output 7.</b> System for long term monitoring of agricultural sustainability is established.</p>	<p>Readily repeatable, spatially referenced multi-taxa data collected and entered into National Biodiversity Database (NBDB) by year 4. Monitoring methodology/ protocol established and study sites geo referenced by year 4.</p>	<p>All the sites are now geo-referenced and once the data have been cleaned, they will be entered into the National Biodiversity Data Bank (NBDB) at Makerere University together with details of the methods used.</p>	<p>Many of the sites used in this project will be used by the ongoing bird monitoring carried out by MUIENR. The sites will also be available for use by future students from MUIENR.</p>
<p><b>Output 8.</b> Integration of biodiversity issues into national policy is created.</p>	<p>Project proposals produced. Sustainability mechanism established through establishment of an agricultural biodiversity working group to promote biodiversity issues into future agriculture policy by year 4.</p>	<p>The working group has been established and is working well. Our relationship with the Plan for the Modernisation of Agriculture (PMA) is excellent.</p>	<p>During the next year, we will present the handbook to the PMA &amp; other government departments and seek to identify cross-cutting themes from other initiatives. For example many of our recommendations may well be beneficial to, for example, soil and water conservation.</p>

## Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> <li>• the conservation of biological diversity,</li> <li>• the sustainable use of its components, and</li> <li>• the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</li> </ul>			
<p><b>Purpose</b></p> <p>Identify best practice for the long-term conservation of biodiversity in selected farmed landscapes in Uganda and establish a framework for sustainable agricultural development and monitoring.</p>	<p>Advice on best practice disseminated to policy makers and agricultural extension service providers and integrated into agricultural development strategies by year 4. Baseline data, field and analytical protocols established for monitoring agricultural biodiversity (birds and insects) by year 3.</p>	<p>Advisory materials, training workshop reports, policy documents, scientific papers.</p>	
<p><b>Outputs</b></p> <p>1. Project management systems in place and effective communication across project partners established.</p>	<p>Activities on schedule, milestones met throughout the project. All project partners have access to all project outputs. Project partners are fully aware of roles and responsibilities and reporting dates and collaborating on all relevant</p>	<p>Annual and final Project reports. Bi-annual Steering Committee minutes. Distribution lists of all project partners, stakeholders and donors. Project web site established.</p>	<p>Project area remains safe to work in.</p>

	project activities.		
2. Relationships between biodiversity and farming practices are understood and best practices (including novel approaches) identified.	Effects of changing agricultural policies and practices on biodiversity can be predicted by year 4. Biodiversity indicators identified and best practices (including novel approaches) described and documented by year 4.	At least 4 Scientific papers submitted to peer review journals on project completion. Annual and final project reports. Bi-annual supervisory and training visits to Uganda by UK staff. Two exchange visits to the UK by PhD students.	Project area remains safe to work in. Farmers remain receptive to the project.
3. Economic importance of on-farm biodiversity and its loss, and economic implications of novel land management approaches are identified and quantified.	The financial implications of changes in farmland biodiversity (particularly loss of pollinators) can be assessed and predicted by year 4. Best practices identified are related to income (from existing IFPRI data) and costs and benefits of novel approaches can be assessed by year 4.	At least 2 of the 4 scientific papers submitted to peer review journals will include consideration of economics. Annual and final & project reports. Two training visits by DIIS staff.	Project area remains safe to work in. Farmers remain receptive to the project
4. Capacity enhanced in agricultural biodiversity science, policy and practice	At least two African students trained to PhD level and up to 6 research assistants trained in biodiversity survey and census techniques. At least 50 NAADS agricultural service providers attend two training workshops in biodiversity assessment. Two NU/UWS staff trained in biodiversity assessment, participatory development proposal writing and raising of public awareness. Agricultural working	Two PhD theses submitted and at least 4 scientific papers submitted. Training manual produced, trialled and distributed to agricultural extension service providers with leaflets and posters for farmers. At least 3 open days held for agricultural policy and extension service providers at demonstration farms, Articles produced for popular press and at least 2 radio broadcasts per year. Biodiversity issues integrated into existing and new Government policies.	Farmers Government and NGOs remain receptive and committed to the project

	group established		
5. Best practices, including novel approaches translated into practical advice for farmers	Increased awareness of and hands on experience with biodiversity issues and increased recognition of the value of biodiversity among farmers within the study area by year 2 and from nearby communities by year 4. Ability and willingness by these farmers to adopt and trial novel land management approaches by year 4. At least 50 NAADS agricultural extension service providers trained	At least 2 demonstration farms established with at least three open days for all stakeholders including local communities. Annual discussion fora between NU/UWS and farmers. Leaflets and posters produced for farmers. Two workshops for NAADS agricultural extension service providers. Increased knowledge and understanding of how to integrate the needs of biodiversity with sustainable agricultural practices supported by a manual of best practices.	Farmers remain receptive to the project
6. Policy and relevant advice developed within the project is available to all relevant parties and stakeholders	Information and materials on best practices packaged and distributed to policy makers and agricultural extension service providers by year 4. Biodiversity and agricultural manual produced for extension service providers and distributed by year 4. Two demonstration plots. Two supplementary funding applications submitted to potential donors by year 4.	Annual and final project reports. Bi-annual reports from all Steering Committee meetings and two workshops. One training manual produced and advisory leaflets and posters for farmers. Demonstration plots established. At least 2 grant applications submitted. At least 3 national press releases in Uganda and one in the UK in each project year. At least two radio interviews/broadcasts each project year for national and local radio stations	Relevant government authorities maintain their support for the project.
7. System for long term monitoring of agricultural sustainability is established.	Readily repeatable, spatially referenced multi-taxa data collected and entered into National Biodiversity Database (NBDB) by year 4.  Monitoring methodology/ protocol established and study sites geo	Data entered into the NBDB and at least one article written for an NBDB report. Field and analytical protocols documented in the final report, relevant scientific publications and on the web site Baseline data is fed into the NBDB, study sites geo referenced and protocols and indicators established for future monitoring.	Relevant government, NGO and other stakeholders maintain their support for the project.

	referenced by year 4.		
8. Integration of biodiversity issues into national policy is created.	Project proposals produced. Sustainability mechanism established through establishment of an agricultural biodiversity working group to promote biodiversity issues into future agriculture policy by year 4.	At least two project funding documents submitted. Agricultural biodiversity working group in place.	Relevant government, NGO and other stakeholders maintain their support for the project.

<b>Activities</b>	Activity Milestones (Summary of Project Implementation Timetable)  Note this project runs for 3.5 years
Project management	Yr 1: BTO project manager to establish project management systems and structure and formalising (through MOUs) the roles and responsibilities of each organisation. Establish Project Steering Committee, International PhD Supervisory Committee and project web site (2 months). Recruit NU/UWS project staff and external experts, PhD students and research assistants. First Steering Committee meeting (1 day September 2005), first meeting with government (1 day, February 2006) and local communities (September 2005). Establish regular liaison meetings between researchers, advocates, policy makers, national and local (district) governments and farmers in years 2 - 3.5. Set up information sharing mechanisms between Steering Committee members. Yrs 2 - 3.5 at least two steering committee meetings per year, one discussion forum with local communities and one meeting with government.



Research and monitoring	Yr 1: Establish study sites based on agricultural statistics and National Biodiversity Database. Trial and verify fieldwork methods. Undertake first year data collection on different taxa (birds, invertebrates, bats and agricultural land use. Input data and analyse to refine data collection methods. Yr 2: Refine and test methods in response to Yr 1 results as necessary. Undertake second full year of data collection. Input and analyse data. Feed results into strategy and documentation for providing advice to farmers, identifying best practices for biodiversity and novel management approaches. Yr 3: undertake third and final full year of data collection. Input data and start final analysis. Update provision of advice. Yr 3.5: complete analysis of full data set and write up results for publication. Synthesise results from all studies to identify best practice. Use results to fully update advocacy process. All data entered into National Biodiversity Database, identify indicator species and establish and document protocol for future monitoring system designed. Project proposal for continued monitoring produced.
Training	Yr 1 and 2: Supervisory training visits made by UK staff to Uganda to provide training in study design, field skills and data collection, for researchers (September 2005 November 2006). Yr 1, 2, 3 and 4: 2 training and supervisory visits per year made by BTO/RSPB/DIIS experts. Yr 2 and 3: training visits by key Ugandan research staff to UK. Research staff attend international scientific conference and two GIS training courses at Bournemouth University. Training in biodiversity assessment for NAADS advisors, agricultural service providers and NU/UWS staff. Yr 3 and 4 establish 2 demonstration plots and hold at least 3 open days. Yr 3.5: 2 PhD studies completed
Advocacy and PR	Yrs 1 - 3.5 Annual discussion forums to (a) assess needs and (b) deliver project outcome to extension service providers. Annual meetings with other stakeholders through Steering Committee meetings and discussions with Government. Yr 2 and 3 Production and distribution of advocacy materials including training manual for agricultural extension service providers, leaflets and posters for farmers and radio programmes to access a wider audience. Project proposals produced to ensure sustainability of integration of biodiversity issues into agricultural policy and practice (e.g. developing and expanding the use of participatory methods for biodiversity-friendly technology development amongst smallholders). Agricultural working group established to ensure biodiversity issues are integrated into new and existing relevant government plans and strategies



### ***Checklist for submission***

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