

Darwin Initiative Annual Report

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders – it is expected that this report will be about 10 pages in length, excluding annexes

Submission deadline 30 April 2008

Darwin Project Information

Project Ref Number	14-009
Project Title	Biodiversity Monitoring in Forest Ecosystems in Bale Mountains National Park, Ethiopia
Country(ies)	Ethiopia
UK Contract Holder Institution	University of Aberdeen
UK Partner Institution(s)	
Host country Partner Institution(s)	Bale Mountains National Park (Oromia Bureau of Agriculture and Rural Department, OBARD)
Darwin Grant Value	£155,730
Start/End dates of Project	1 September 2005 / 31 August 2008
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 Apr 2007 to 31 March 2008, annual report number 3
Project Leader Name	M Pinard
Project website	www.abdn.ac.uk/bale
Author(s), date	Pinard, Burslem, Gashaw 11 August 2008

1. Project Background

This project is located in the Harena Forest of Bale Mountains National Park (BMNP) in southeastern Ethiopia (Appendix 3). BMNP is one of Africa's most important centres of biodiversity and endemism with its expanse of afro-montane habitat and broad altitudinal range. The forest ecosystems are the most diverse in the park yet the least well-known. The evergreen forests on the southern and eastern slopes of the massif form the most extensive tract of intact forest in Ethiopia and include cloud forest at the upper altitudes and tropical moist forest at the lower, grading into open, savannah woodland further to the south.

The park has protected status but over 7000 people live within its boundaries. The forest is used by residents for cultivation, livestock grazing, apiculture, collection of bamboo and fuelwood and the management of wild coffee (*Coffea arabica*). The forest is also used seasonally by people living outside the park for grazing and increasingly, cultivation. The Harena forest system extends beyond the park boundaries to the west, south and east. Much of this extension of the forest is within a National Forest Priority Area, with corresponding legal protection, however, within the last three years there has been a rapid expansion of forest clearance in parts of the forest, particularly for intensified coffee production and Khat production (*Catha edulis*), a psychotropic plant that is a lucrative cash crop.

To date, monitoring of the park biota has been largely driven by externally funded research projects and so has been opportunistic, fragmented and biased to few taxa. Almost no monitoring has been done in the forest, despite the serious nature of the threats and the presence of many Ethiopian endemics (7 bird species and 7 mammal species), the endangered Bale monkey (*Cercopithecus (a.) djamdjamentis*), forest lions and hunting dogs. The park staff includes four experts (BSc holders) and about 20 scouts; all but one scout are based at the park headquarters in Dinsho, a 5 hour drive from the northernmost part of the forest. At the start of the project, the management plan for the park was outdated (from 1986) and included no guidance to staff as to how they might implement conservation activities. Although there is expertise in Ethiopia that could support programme development, the expertise is scattered across institutions that are physically isolated and poor communication and transportation facilities constrain cooperation.

2. Project Partnerships

Our main partner institution is the Bale Mountains National Park, within the Oromia Bureau of Agriculture and Rural Development. This section within the regional government body is charged with the management of the park. We continue to work together to decide on project implementation priorities, training needs of the experts and paraecologists, and project activities.

During the third year of the project, there were some changes in the partnership. The park warden, Mr Berhanu Jilcha, took study leave to attend a postgraduate course in the UK. During his absence Mr Addisu Asefa was appointed acting warden. Mr Asefa, therefore has returned to be the main project partner. Mr Mohamednur Jemal leads on the monitoring programme for the park, therefore he has also been a main partner for our project.

Our second main partner institution is the Frankfurt Zoological Society's Bale Mountains Conservation Project. The FZS-BMCP is a long-term park support project in the BMNP focusing its activities on protected area planning, ecosystem monitoring, infrastructure strengthening, tourism development, and natural resource management. They had a change of staff during this past year, with Deborah Randall replaced by Anouska Kinahan as the lead technical person responsible for the monitoring programme in the park. We continue to work closely with Dr Kinahan in planning and implementing activities.

Staff from Addis Ababa University have participated in some field activities and training events for the paraecologists. The Wildlife Conservation Department has been actively involved in the research on Bale monkey. Wondo Genet College of Forestry have been involved in some discussions about project priorities, dissemination and training.

We continue to develop our partnerships with other organizations working in the Bale Region. For example, we are working with staff at Wondo Genet College of Forestry and SOS Sahel and Farm Africa on proposals for new work on building research capacity in relation to interdisciplinary research on ecosystem services and poverty alleviation. Also, we are working with the Macaulay Institution in the UK to seek follow-up funding to continue to develop the monitoring programme in the park and other conservation areas in Ethiopia.

3. Project progress

3.1 Progress in carrying out project activities

Training

Mr Berhanu Jilcha started the MSc in Conservation Biology at the University of Kent (Durrell Institute for Conservation and Ecology) in Sept 2007 and has progressed satisfactorily through the taught component of the programme. He is planning to conduct his thesis research in the park on the impacts of fire on the Erica forest during the months of June and July 2008. Mr Jilcha's tuition and stipend are funded through the project.

The four paraecologists, employed jointly by our project and FZS-BMCP, and working with the park to implement the monitoring programme have received a variety of training opportunities throughout the year. The main contribution of our project to this has been in relation to the implementation of the permanent plots in the forest and the rapid sampling of the forest using transects. Through our partner institutions, the paraecologists have received training in computer use and data entry.

Mr Asefa, the park biologist and acting warden, is leading the work on the bird monitoring programme. He is receiving support and training from an experienced ornithologist, Mr Anteneh Shimelis, during the field work and data analysis. The project is paying these costs.

The project coordinator, Dr Menassie Gashaw, spent three weeks in Aberdeen in November 2007, working with the Aberdeen staff on data analysis and in discussions over project management.

During the final phase of the project, a short course on plant identification will be conducted in the park for the paraecologists, the park experts and representatives from other institutions. The training will include the curation of specimens and a small herbarium will be established at park headquarters.

In addition, FZS-BMCP will bring an expert on database management to the park headquarters to provide training and to work with the park staff to develop a database structure for the monitoring programme. If we are granted a six month extension to our project, we will lead a workshop to discuss and evaluate the database in relation to the monitoring programme, to define and prioritize changes that are required to increase the functionality and utility of the system.

Research

During the first two years of the project, we assessed forest cover and forest cover change at the landscape scale using remotely sensed data (see Netsanet thesis in Annual Report 2). During this year a manuscript was produced by our partners that presents an analysis that includes a more recent image (2005; Appendix 4). Although these efforts provided some insights into the broad patterns of change in land use, we found that satellite derived data are not helpful for evaluating forest structural change, for assessing forest quality, or for differentiating between open and closed forest conditions. Before embarking on a programme of permanent plots, we needed more information about variation in forest quality across the Hareenna; that information would help stratify the forest for achieving representative sampling. To address this information gap, we conducted a rapid assessment of forest structure and quality on the ground.

During this project year a rapid assessment of forest structure was conducted using transects. In two field sessions, 100 transects (100 m length) were established in the forest across the altitudinal gradient. The objective of the rapid assessment was mainly to assess the variation in forest quality and structure in space in the forest. The data have been summarized and a manuscript is being prepared.

To briefly outline the findings, closed forest conditions dominated the sample area, occurring in 79 of the 100 transects, and covering an average of 61% (SE=4%) of the area sampled. Open forest occurred in 52 of the 100 transects, covering an average of 26% (SE = 4%) of the area. Canopy gaps were encountered on one quarter of the transects and covered an average of 11% (SE=3%) of the area sampled. Percentage cover by closed and open forest was weakly correlated with altitude, where closed forest area declined with increasing altitude and open forest area increased.

Evidence of grazing was found in 20% of the sample points and was more frequent at the upper altitudes (2750-3200m) than the lower altitudes. Natural treefall gaps were the second most frequent disturbance recorded (13% overall) but the incidence varied across the altitudinal belts, being higher in the two lower belts (1250-1499, 1500-1749m) and lower in the third (1750-2249m). Disturbance from fuel cutting was most frequent (38%) in the lowest altitudinal belt and in the uppermost (17%). Coffee was found mostly in the lower two altitudinal belts; it occurred in 77% of the sample points in the lowest belt. Bamboo harvest was only encountered in altitudinal belts 2 and 5, and in both cases represented only 1.1% of the sampling points. Evidence of fire was encountered in only 4 sampling points in altitudinal belt 2, therefore represented less than 0.5% of the area sampled.

The main implications of the rapid assessment for the permanent plot programme are that type of disturbance varies across the altitudinal range and is more frequent at the two extremes than at intermediate altitudes. The additional variation associated with disturbance may mean

sampling intensity will need to be increased at the higher and the lower altitudinal belts. The concentration of open forest conditions at higher altitudes needs to be investigated to determine the driving factors.

Following the rapid assessment, a network of permanent plots was also established. A total of 81 plots (20 x 20 m) were established (Appendix 5). The data have been digitized and preliminary analyses are underway. We are also working to establish additional plots in parts of the forest that were under-represented in the sampling to date. Over the final phase of the project we will clean the data, develop an archiving system with the park such that the data are compatible with the other databases held by the park and produce several reports and manuscripts. One aim of the analysis will be to assess the adequacy of the sample size and plot size for capturing the variability in structure and composition in the forest. A second aim will be to describe the forest composition and structure as it varies with altitude and zone within the Harenna. A third aim will be to assess distribution and frequency of threats (e.g., grazing, tree cutting, agriculture, coffee cultivation) to the forest that were measured in the plots and transects.

A second field season was completed on the Bale monkey. The results of this project have been submitted as a manuscript for a special issue of *Walia* to be published in 2008 (Appendix 6). In summary, a total of 163 km of transects were surveyed in three habitats, bamboo forest, bamboo-mixed forest and non-bamboo forest. A total of 204 monkeys were observed, in 31 groups over an altitudinal range of 2200-3400 m asl. Group size ranged from 2-20 (median = 5) and was similar for the two survey periods. Monkeys were found only in bamboo and mixed-bamboo forest. A mean density of 9.6 (SE=8.8) and overall abundance of 1437 (SE=1315) were estimated. The high variability associated with these estimates is a consequence of small sample size and short sighting distance, a consequence of the terrain, climate, and dark and closed conditions in the bamboo forest. Repeated sampling of the site with a team experienced with the terrain and the species is needed to increase the reliability of the population estimates. Mr Kumara Wakjira (WCD) will continue the research in the form of a MPhil thesis at Moi University in Kenya.

The bird monitoring team conducted two additional field seasons and was able to complete a preliminary analysis of bird community structure. The final phase of the project will be to evaluate their results in order to draft a monitoring protocol. The protocol will be completed during the life of the project but the testing of the protocol and the training of the paraecologists will continue on beyond the life of the project. Their draft report is attached as Appendix 7. The work to date indicates that for several species of bird, mean abundance varies with habitat type and anthropogenic factors such as human settlement, grazing and agriculture. A total of 77 species of resident birds was encountered during the census. Our list was used to supplement the existing bird list for the forest and then used to classify species by morphological adaptation to feeding, documented feeding habits, habitat occupancy and taxonomic affiliation. Hierarchical cluster analysis suggested 9 communities. The pattern of species segregation by abundance into communities was evaluated and the significance of the determined structuring in the field was very high. Compositional changes as a function of habitat attributes were evaluated for communities with species specific data separately. The joint abundance/compositional response of each community to habitat attributes and human utilization factors were also highly significant.

An investigation into the distribution, properties and uses of mineral springs in the Harenna was also completed during this year by Giovanni Chiodi. A manuscript has been submitted to *Walia* (Appendix 8). In summary, the Oromo pastoralists that inhabit BMNP use the mineral springs (horas) in the forest extensively in relation to livestock husbandry. A survey was conducted in Nov-Dec 2007 to provide a preliminary account of the distribution, properties and use of horas and hot-springs (tabalas) in the Harenna forest. A total of 47 horas and 3 tabalas were identified. Tabalas are used occasionally for healing skin and stomach illnesses and for thanksgiving celebrations. Six horas are currently important for their value for livestock. Horas are used as a salt supplement for livestock and, in combination with availability of grazing, are linked to the seasonal movement of people in the forest. The results of this survey indicate the

importance of the historical dimension to current resource use patterns and the importance of engagement with local people to document and design relevant management initiatives.

The field work for the project on mineral springs also revealed some previously undocumented cultural history and documented a number of archeological sites (Appendix 9, appendix 3 within the report). The mineral springs or horas are closely associated the tale of the Gabarra people, the legendary “giants” living in the forest prior the Oromo. The story goes that during the war with the Oromo, the Gabarra destroyed many important Oromo horas to discourage their occupation of the forest. The destruction of the horas was achieved by closing the source with wood or with stones; during the survey numerous logs were found in the earth of those sites allegedly destroyed (Lensho, Atai, etc.). Hora Lensho and hora Haro, near Gebicho, were used the most at the time of the war with the Gabarra, but the Gabarra completely destroyed them. Subsequently, the local people unsuccessfully attempted to recover the sites. The Gabarra people also built stone burials in the forest.

The archeological sites that were documented include burial domes, burial chambers and pots and stone pillars. Some of the sites were identified by the residents as Oromo in origin, others were associated with the Gabarra ethnic group. A brief discussion of the cultural significance of the mineral springs, a review of the Gabarra people and documentation of the archeological sites is presented in Appendix 9.

Our research suggests that the forest was previously occupied by a population showing similarities with the ancient cultures connected to the stelae of Southern Ethiopia. Also, it indicates that there is a physical heritage, in terms of places and buildings, associated with the original Oromo traditions. Previously, many authors as well as park managers have considered the Hareenna forest to be “unspoiled” (Hillman, 1986) and human occupation thought to be a contemporary threat for conservation. It seems this interpretation was based on incomplete knowledge: the cultural and historical values in the forest compare in importance to its natural landscape. Archaeological research is needed for a sound assessment. The archaeological findings briefly described could provide insights into the history of human occupation of the forest and the forest’s cultural values. The sites reported here were only found collaterally to the survey on the horas, hence we can expect that a specific archaeological survey would yield a greater number of sites, still hidden among the vegetation.

The research that was initiated in the second project year on traditional management systems in the forest was not progressed during the third project year as the lead researcher was diverted to other work for the park. The park experts were heavily involved in discussions with residents about the locations of the park boundary, and spent a large part of the year in negotiations and field work to demarcate and agree the boundary. The park ecologist, Mr Mohamednur Jemal, was leading this effort and therefore suspended his work on traditional management practices. He plans to complete the work during the final phase of the project.

3.2 Progress towards Project Outputs

Monitoring Programme for Hareenna forest

During this year, together with our partners, we have invested in training four para-ecologists in the implementation of vegetation and bird monitoring. They have gained experience in the field, as well as in data entry and storage. We have collected a variety of datasets that we are now in the process of analysing. Our preliminary analyses have provided us with some descriptive information about the forest and bird communities, the next steps are 1) to evaluate the datasets to create an appropriate form of data storage at the park; 2) to analyse the data to determine how the sampling should be modified to make it both efficient and directed at the key ecosystem components and threats outlined in the GMP. This work is on-going and will result in the production of manuals and reports for our partners and other stakeholders in the park.

Report on the Status of the Hareenna Forest

Several components of the report have been completed. The following manuscripts and theses will contribute to this report:

- Chiodi, G. and M. A. Pinard (in press). The distribution, properties and uses of mineral springs in the Hareenna forest. *Walia* [appendix 8]
- Chiodi, G. and M. A. Pinard. (in press). Characteristics and origins of glades in the Hareenna forest, Ethiopia. *Walia*. [appendix 10]
- Deneke Morie, N. 2007. Land use and land use cover changes in Hareenna Forest, Bale Mountains National Park, Oromia National Regional State, Ethiopia. MSc Thesis Submitted to Addis Ababa University, Faculty of Science. [Annual Report 2]
- Hrdlicka, J. 2008. Altitudinal gradient, forest structure and regeneration of Hareenna forest, Ethiopia. MSc Thesis submitted to University of Aberdeen. [not yet submitted]
- Lefevre, B. 2007. Where the Queen is King. Local understanding of natural resource use in traditional apiculture; Implications for sustainable forest management in the Bale Mountain National Park, Ethiopia. BSc Thesis submitted to University of Aberdeen, Department of Geography. [Annual Report 2]
- Teshome, E., A. Kinahan, and D. Randall (in press). Land cover change study of Bale Mountain National Park. *Walia*. (this is an output from FZS-BMCP) [appendix 4]
- Wakjira, K, M. Gashaw, and M. A. Pinard. (in press). A preliminary assessment of the Bale Monkey (*Cercopithecus djamdjimensis*) in the Hareenna Forest. *Walia*. [appendix 6]

The final compilation of material is underway and will be completed during the final phase of the project.

Report on Traditional Management System

This work has progressed little during this project year but some staffing changes have been made to allow the work to be completed during the final phase of the project. It is likely that Mr Dereje Tadesse will continue this work as part of a postgraduate programme. We are working to secure funding to continue this work, as well as to document the archaeological resources that were identified during our research on mineral springs and glades.

Report on Threats to Forest Conservation

This report will be based on the material cited above under the report on the status of the forest. In addition, the baseline data collected for the monitoring work is being analysed specifically to evaluate specific threats in the forest, such as grazing, fuel wood collection, expansion of coffee cultivation, illegal tree felling and fire. Two students at the University of Aberdeen are conducting some of these analyses as part of their thesis projects. The park warden, Mr Jilcha, is also conducting his thesis work on the impacts of fire, which will contribute to this report.

Lessons learned and best practices disseminated

The Ethiopian Project Manager, Dr Menassie Gashaw, spent three weeks at the U Aberdeen working on the vegetation data analysis with the PIs and the Park Warden, Mr Berhanu Jilcha, spent much of the year at the U Kent working on the MSc in Conservation Biology. These two periods of study in the UK provided these members of the project team with exposure to a variety of resource material and expertise that illustrates best practice.

We produced and disseminated posters highlighting the conservation value of the Bale Monkey to the BMNP, our other partner institutions and the communities within the forest this year. We have also gathered material for posters that will highlight the findings related to the glades, the mineral springs, the threats to the forest and the bird communities. The production and distribution of these will be done during the final phase of the project.

We have been working with our partner institutions to organize a discussion forum in Addis Ababa to highlight the challenges for conservation in the national parks, using Bale as an example. This will be scheduled for the final phase of the project.

A conference presentation was made by Pinard at the annual meeting of the British Ecological Society in Glasgow (Sept 07) (Appendix 11)

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	Total planned from application
2	# people to attain MSc			1 Ethiopian		1	1
4A	# undergraduates to receive field training		4 European	1 European	1 European	6	8
4B	# training weeks provided		6	8	8	24	30
4C	# postgraduate students to receive training		1 Ethiopian		1 European	2	0
4D	# training weeks provided		8		6	14	0
6A	# people to receive other forms of training	24 Ethiopians	12 Ethiopian	6 Ethiopian	6 Ethiopian	24	20
6B	# weeks training	2	1	4	1	6	4
7	# training materials provided		2	1	1	4	2
8	# weeks spent by UK staff in country	3	10	6	4	19	34
	# weeks spent by Ethiopian staff in the UK			3		3	0
11A	# papers published				3	0	0
11B	# papers submitted			3	3	3	2
12A	# databases established and handed over				2	0	2
14A	# conferences organized for dissemination				1	0	1
14B	# conferences attended for dissemination		2	1	1	3	0
20	Estimated value of physical assets to be handed over to host country			Two computers (£1000), field equipment (£1000)	Vehicle (£8,000)	£2,000	£9,400
22	# of field plots established			100		100	To be determined

	and continued						
23	Value of resources raised from other sources for project work	£18,300	20,400	23,990	10,000	£62,690	£42,000

Table 2 Publications

We have submitted three manuscripts for publication but these are still in review. Publication is due in 2008. These manuscripts are listed under section 3.2.

3.4 Progress towards the project purpose and outcomes

During the third project year, we have moved the monitoring programme for the park forward by implementing the first set of protocols for the vegetation and the birds in the Harena forest. The presence of the field staff in the forest during the data collection, as well as the discussions held between the communities and the park staff in relation to the location of the park boundaries have contributed to an increased awareness amongst the communities of the purpose of the park and their roles in protecting the park's resources. Further, the experience and dialogue has heightened the awareness amongst the park staff of the social and cultural values of the park's resources for the people living in and near the park.

Our research has helped to document previously undocumented socio-cultural resources that are located in the forest, as well as to document the seasonal human and livestock migrations through the forest that are associated with the glades and mineral springs. This information is critical to informing efforts by the BMNP to zone areas of the forest for strict protection.

The capacity of the park's staff has increased at all levels, with rangers, paraecologists and experts receiving training both through the formal courses and workshops that have been organized by the institutions working in the park, but also through the implementation of activities in this project and other related projects. Support for capacity building amongst the park staff is coming from a variety of directions and there is good integration and cooperation amongst the projects to ensure efforts are well-directed and complementary.

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

Progress here within the park is very slow and incremental. There has been increased dialogue between the people living in and using the forest and the park staff, which has been facilitated by the employment of paraecologists from within those communities. This is increasing mutual understanding. The research conducted on mineral springs, honey production and forest glades has included interviews and oral histories that serves to recognize and value indigenous knowledge and socio-cultural uses of the park's resources. While this is still very far from a direct impact on biodiversity, sustainable use or equitable sharing of benefits, they are significant steps in building the relationship between the park and the people in the park. Over the next five years, as the park invests in implementing the GMP and Sustainable Natural Resource Agreements with the communities, these initial collaborations and experiences should be helpful.

4. Monitoring, evaluation and lessons

The project RA, Dr Gashaw, is in frequent contact with the PI and with the local collaborators via phone, email and face-to-face contact. A formal appraisal of Dr Gashaw's progress was implemented during his visit to UA in November 2007. Further, when staff from UA are in Ethiopia, project team meetings are held to review progress, work quality and plan activities.

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

There were several comments and queries from the second annual report that require a response here. The comments and queries are presented in italics, followed by our response.

The second year of the project has seen good progress in developing strong partnerships with key agencies, and the research and training outputs appear to be of high quality. There have been some delays, partly due to staff changes and the decision to make changes to two of the project outputs. However, this reviewer considers that both revisions (to Outputs 3 & 4 and the Logical Framework) will strengthen the project as a whole.

We agree that the changes have strengthened the work.

At the time of reporting, the Status Report was being drafted. However, any future Status Reports will depend largely on the development and integration of an appropriate monitoring system (Output 1). This reviewer considers that the delivery of Output 1 & 2 within a 3-year project is particularly ambitious and that it would be prudent to focus attention on the development of the monitoring strategy and capacity building, than delivery of specific monitoring actions (eg species specific research).

Yes, the reviewer is quite right. It has taken much longer to trial the methods and provide a breadth of appropriate training to allow the park staff (the experts as well as the para-ecologists) to implement the vegetation and bird monitoring. Even now as we end the third year, we are only just in discussion of how to construct an appropriate database, one that can be useful for long-term data storage, linked to the park GIS, and capable of being queried to gather information necessary for evaluating management questions. We will ask Darwin if we could have an extension of six months to complete our work. If this is granted, we expect to have the proto-type of the database in place, with the two baseline datasets (vegetation and birds) clean and analysed. The park biologist will have the capacity to continue the bird monitoring but will need to continue to train the para-ecologists to support his field work.

For output two, we have made good progress to date. There will be many important questions about the forest that we are unable to answer but the report that we will be able to submit should substantially increase the information about the forest and the resources therein.

A good deal of work has already gone into developing the monitoring methods, by this project and by partners working on the GMP. However, it is not clear to the reviewer whether the project is working within an already defined GMP monitoring model or tasked with developing one. Please provide a brief explanation.

At the start of the project there was no model. During the construction of the GMP there were many discussions to define the model and this was outlined in the GMP. We have worked with our partners over the last 18 months to develop protocols and continue to evaluate those. The model of implementing the monitoring programme through trained para-ecologists is one that is being developed by our partner institutions and we have supported that approach by targeting resources and training at that level, as well as at the level of park experts and rangers.

The project is clearly strengthening capacity for assessment of the state of the KEAs, and the revised Output 4 will report on locally specific threats. But how will the collection of data feed into positive action on the ground (i.e. feedback loops)? There is a need for a robust, practicable, and reasonably simple model for monitoring - perhaps along the lines of the Pressure, State, Response model used by Birdlife partners and Kenya IBAs?

In the GMP, the links between the monitoring information and management response are outlined, and sketched out to occur on a three year cycle. This is the first GMP for Bale that attempts to define the feedback loops. Because our project will end before this formal

assessment occurs, we aim to provide an analysis that will give the park staff some capacity and information regarding actions in response to the monitoring outputs.

Are there adequate existing resources (equipment and skills) for collating and managing all this new data or is there a need for further database development and training among partners?

Currently, the answer is no. We have been working with the FZS-BMNP over the past six months to try and jointly increase these resources. FZS-BMNP has brought in a consultant to support the park in terms of training in database management and to help structure a prototype. During the final phase of our project we plan to contribute to this with an exercise of integrating the vegetation and bird data in this prototype database and support the park in an assessment of the functionality of the proto-type for their needs. An expert on database construction from UA will go to the park and work with the park experts and FZS-BMCP staff to develop the database and integrate the various types of data held by the park. Further, we will use the opportunity to build the capacity of the staff in relation to examining the links between the database and the management and research needs of the park. The aim of the training will be to provide them with some experience at anticipating relevant queries and problems that could be informed by evaluating the park database.

6. Other comments on progress not covered elsewhere

7. Sustainability

The approval of the GMP by the Oromio Bureau last year was an important step forward for prioritizing monitoring as part of park management. During the third year of the project there have been some significant changes to the national structure that is responsible for the management of wildlife resources in Ethiopia, with potential implications for the management of national parks. As part of a World Bank GEF, the Wildlife Conservation Department was upgraded from a governmental department to a semi-autonomous agency with an expanded mandate, the Ethiopian Wildlife Conservation Authority (EWCA). At present, it is unclear whether or not the EWCA will assume any control over the national parks, although in March 2008, there was an indication that it may be involved with parks that contain endemic species. The EWCA (and previously, WCD) have expressed a concern over proposals to engage with communities in parks for management, because the legal framework for this does not exist in Ethiopia. At present, they are not supportive of the Sustainable Natural Resource Agreements that are embedded in the BMNP-GMP. Until it is clear how much influence and power the EWCA has over BMNP, it is difficult for the park to move forward, despite the support from the Regional Government.

In addition, this year there was a large number of fires in the park that burned a large area of the Hareenna. Although it is difficult to identify any single factor responsible (see appendix Ben Irwin), the destruction was a clear indication that there are still many threats to the forest that are beyond the immediate control of the park staff and even the local government. The lack of a clear policy framework and regulatory system continues to be a major constraint for the protection of the park.

The model that is being developed for monitoring that relies on the para-ecologists has strengths in relation to sustainability in that it frees the few experts in the park to focus their time on analysis and interpretation. In the longer term, however, the sustainability of this model will rely on the government taking these staff on as full-time employees for the park. In the medium-term, their employment is secure with funds from FZS-BMNP.

8. Dissemination

As indicated above in section 3.2, we have disseminated information to the communities in the form of posters and internationally in a conference presentation. We have submitted three

manuscripts to the Ethiopian national science journal (Walia). During the final phase of the project we are organizing a national discussion forum in the capital and will produce a number of leaflets, manuals and posters for the communities, the park, our partner institutions and other stakeholders.

9. Project Expenditure

Table 3 Project expenditure during the reporting period (1 April to 31 March)

Item	Budget	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			

In November, we requested and were granted by Darwin two shifts in the budget allocations. The first was a shift of £5,000 from the travel and subsistence category into the other category to make up a shortfall in the allocation for a stipend for Mr Berhanu Jilcha during his MSc programme in Kent. Our original budget figure of £17,000 seriously underestimated the rise in tuition costs at Kent over the past three years. Without topping up the amount for Berhanu's stipend, he would have found it difficult to meet his living costs in Kent. The bulk of the savings came from reducing the allocation to per diems for experts, relying more heavily on our own paraecologist staff.

The second was a shift of £1,000 pounds from our communication budget and 500 pounds from our "other" budget to capital items. Our research assistant in Ethiopia was robbed in October 2007; a laptop computer, a GPS unit, and a pair of binoculars were among the equipment lost. We replaced the computer. In the itemization of spend given above, however, the spend on the new laptop was included in the "others" category.

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](#) (please leave this line in to indicate your agreement to use any material you provide here)

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>Goal: <i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>			<p><i>(do not fill not applicable)</i></p>
<p>Purpose The purpose of the project is to conduct research and to strengthen the capacity of researchers, park managers and other government agents, and local people to protect native forest species of plants and animals in BMP.</p>	<p>Biodiversity monitoring programme for Hareenna forest in place and functioning by yr 3.</p> <p>New knowledge on biodiversity in Hareenna forest ecosystem in BMP, particularly vascular plants and vertebrates and landscape structure and composition.</p> <p>New knowledge on the threats to forest conservation.</p> <p>Awareness of communities on the role of protected areas and threats to conservation strengthened.</p>	<p>About 80 permanent sample vegetation plots were established and 100 temporary sample transects, data were digitized and preliminary analyses are underway.</p> <p>Two field trips were undertaken for sampling bird communities.</p> <p>Three manuscripts were submitted to a special issue of <i>Walia</i>.</p> <p>One type of poster was distributed.</p>	<p>Key Actions: Completion of analysis of plot and bird data.</p> <p>Production of guidelines for forest and bird monitoring.</p> <p>Completion of study on traditional management system.</p> <p>Production of dissemination materials.</p>
<p>Output 1. Monitoring programme for Hareenna forest ecosystem in BMP established and functioning through three partner institutions</p>	<p>Minimum of 15 staff from partner institutions trained by year 3 in sampling protocols, data analysis, and database maintenance. Sampling protocols elaborated and tested by year 4.</p>	<p>This was completed over the second and third project years although there is more training that is needed in terms of analysis and database development and revision.</p> <p>The protocols haven't yet been fully tested as the data collected needs further analysis to assess sampling adequacy and efficiency.</p>	

Activity: Project planning workshop (relevant also to Outputs 2, 3, 4)		This was completed in November of 2005. Further discussion and refinement of our workplan and the training programme within the project is made regularly when UA staff visit the country.
Activity: Field-based training (1) mammals; (2) birds; (3) plants followed by data management training;		The first two parts were completed and reported on in previous annual reports. This year the paraecologists have received field training in permanent plot establishment and data handling. A plant ID course is scheduled for July/August 2008.
Activity: Training workshop on monitoring design and implementation		Completed in year two.
Activity: Informal training in the field on implementation and data management.		Throughout year two but continues through to project end.
Activity: Develop and implement protocols for sampling forest structure and composition, birds, forest glade biodiversity, and landscape structure and function; develop database structure.		Plant data were collected from permanent plots and rapid transects during the year and analysis is underway. The second field season for the bird monitoring occurred in July-Sept 07.
Activity: Complete analysis of baseline data and revise monitoring plan and database as needed.		We worked on the analysis through the second half of this project year but the work is on-going. We have had some slippage here and only started working with the databases in the final phase of the project. We will request an extension from Darwin to allow us to complete the integration of the vegetation and bird data into a prototype database for the park.
Output 2. Report on the Status of the Harena Forest in BMP published and distributed	Report peer-reviewed and publication date established, distribution arrangements in place. 300 copies produced and distributed by y 3.	Several components of this report have been submitted for publication but the sections on the forest structure and bird communities have been delayed. Further field work has been conducted to fill in some gaps in the datasets and these data are currently being analysed and interpreted.
Activity: Collate historical data on forest cover in the park, including satellite data, conduct spatial and landscape analyses on forest cover and forest cover change.		Completed in year two.
Activity: Complete baseline data collection, process material, digitise data and conduct preliminary analyses on vertebrate and plant diversity.		Data are being analysed and manuscripts drafted by project team and partners.
Activity: Report on spatial analysis of forest cover and landscape diversity.		Two manuscripts have been prepared, one is a thesis from a student from Addis Ababa University, the second is for Walia by a collaborator associated with FZS-BMNP. The satellite image analysis has been less useful than anticipated for understanding landscape diversity because variation within the forest is difficult to identify and quantify. It works for forest / non-forest systems.
Output 3. Report on Traditional Management System	PRAs conducted and results discussed. Focus group research on traditional	

	management practices completed. Report submitted and results discussed in relation to SNRU agreements.	
Activity: Conduct PRA in at least two settlement areas within the park to determine needs and priorities for community awareness programme.		This activity was completed in March 2006. Further consultations and discussions were held between BMNP and communities within the Hareenna in 2006 as part of the development of the GMP.
Activity: Focus group research to describe traditional management practices and to assess local awareness of these		This was initiated in the second project year but very little progress was made in year three. Additional staff resources have been allocated to complete the work during the final project phase.
Output 4. Report on Threats to Forest Conservation	Report peer-reviewed and publication date established, distribution arrangements in place. 300 copies produced and distributed by y 4.	We have accumulated relevant information through a variety of projects and activities but have yet to compile this into a single report. This will be an activity for the final phase.
Activity: Conduct field research on threats to forest conservation.		This is completed and was part of the work conducted using transects for forest quality. Some data from the bird monitoring also contributes to this dataset.
Output 5. Lessons learned and best practices disseminated	1 Booklet on monitoring forest ecosystems produced 1 Booklet on threats to forest conservation produced 2 posters produced 2 papers submitted for publication in scientific journals	The booklets have not yet been produced. These will be done during the final project phase. One poster has been produced and distributed, several others are under construction. Three manuscripts have been submitted for publication to date.
Develop materials for communities about forest resources and threats to forest conservation. At least two posters produced.		We have started working on these materials. To date the first poster on the bale monkey and threats to the monkey was produced; the remainder will be produced during the final phase.
Activity: Final workshop for dissemination		We have been discussing options for this with a national network for increasing environmental awareness, the Forum for the Environment. After the extensive fires in Feb 2008 and the changes in the position of the Ethiopian Wildlife Conservation Authority, we are more aware of the need to direct information to policy makers about threats to the park. We are working with our partner institutions to identify the best way forward with this. We will sponsor an event but are yet to finalize the form and time.

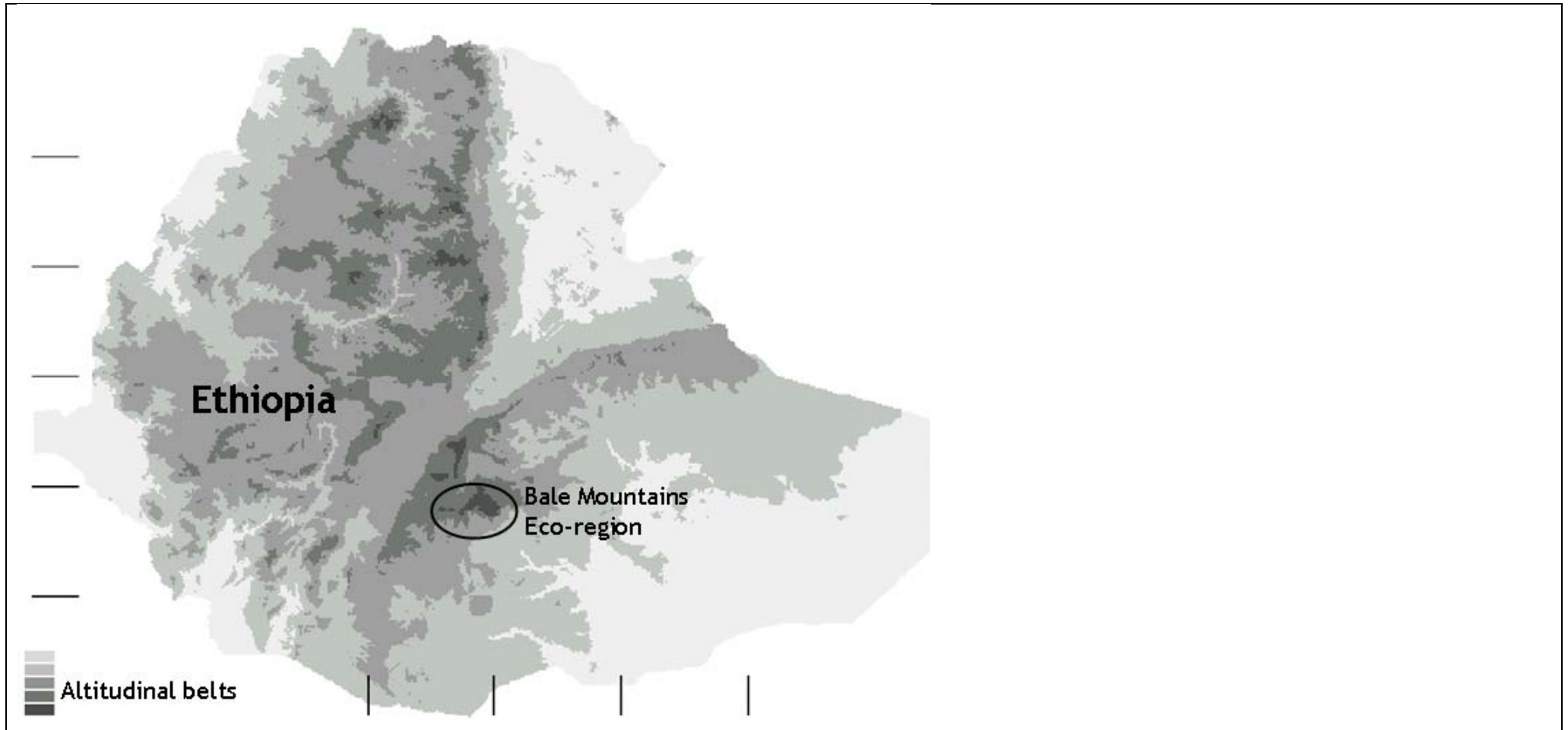
Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources</p>			
<p>Purpose The purpose of the project is to conduct research and to strengthen the capacity of researchers, park managers and other government agents, and local people to protect native forest species of plants and animals in BMP.</p>	<p>Biodiversity monitoring programme for Hareenna forest in place and functioning by yr 4. New knowledge on biodiversity in Hareenna forest ecosystem in BMP, particularly vascular plants, birds and landscape structure and composition. New knowledge on the threats to forest conservation. Awareness of communities on the role of protected areas and threats to forest conservation strengthened.</p>	<p>Field survey reports and publications by partner organisations.</p>	<p>Government policies and programmes remain supportive of conservation work in BMNP; OBARD, BMNP, FZS-BMCP remain viable and committed.</p>
<p>Outputs Monitoring programme for Hareenna forest ecosystem in BMP established and functioning through three partner institutions</p>	<p>Minimum of 15 staff from partner institutions trained by year 3 in sampling protocols, data analysis, and database maintenance. Sampling protocols elaborated and tested by year 4.</p>	<p>Field reports Database with biodiversity data with associated manual. Participant attendance records.</p>	<p>Trained staff remain in institutions and in positions where they can use the skills provided and train others in the skills.</p>
<p>Report on the Status of the Hareenna Forest in BMP published and distributed</p>	<p>Report peer-reviewed and publication date established, distribution arrangements in place. 300 copies produced and distributed by y 3.</p>	<p>Published reviews and feedback on report. 2 copies sent to Darwin Initiative</p>	
<p>Report on Traditional Management System</p>	<p>PRA's conducted and results discussed. Focus group research on traditional management practices completed.</p>	<p>Local meeting reports. Published materials. Participant attendance records.</p>	<p>Users and relevant stakeholders are willing and able to participate in the process.</p>

	Report submitted and results discussed in relation to SNRU agreements.		
Report on threats to forest conservation.	Report peer-reviewed and publication date established, distribution arrangements in place. 300 copies produced and distributed by y 4.	Published reviews and feedback on report. 2 copies sent to Darwin Initiative	
Lessons learned and best practices disseminated	1 Booklet on monitoring forest ecosystems produced 1 Booklet on threats to forest conservation produced 2 posters produced 2 papers submitted for publication in scientific journals		Materials reach and positively influence intended stakeholders.
Activities	Activity Milestones (Summary of Project Implementation Timetable)		
Workshops / Training Events	Yr 1: Project planning workshop with project team to agree workplan, define training programme; Yr 1: Field-based training (1) mammals; (2) birds; (3) plants followed by data management training; Yr 2: Training workshop on (1) monitoring design and implementation; Yr 2: Informal training in the field on implementation and data management; Yr 3: Final workshop, for dissemination and work on publications		
Research	Yr 1: Collate historical data on forest cover in the park, including satellite data, conduct spatial and landscape analyses on forest cover and forest cover change. Yr 1, 2, 3: Develop and implement protocols for sampling forest structure and composition, birds, forest glade biodiversity, and landscape structure and function; develop database structure. Yr 1: Conduct PRA in at least two settlement areas within the park to determine needs and priorities for community awareness programme. Yr 2 and 3: Complete baseline data collection, process material, digitise data and conduct preliminary analyses on vertebrate and plant diversity. Yr 3: Conduct field research on threats to forest conservation. Yr 3 and 4: Complete analysis of baseline data and revise monitoring plan and database as needed		

<p>Reports and publication development</p>	<p>Yr 1, 2, 3, 4: Develop materials for communities about forest resources, and threats to forest conservation. At least 2 Posters produced. Yr 2, 3: Report on spatial analysis of forest cover and landscape diversity. Yr 2, 3: Interim report on monitoring plan for the Harena forest. Yr 3: Booklet on monitoring forest ecosystems. Yr 4: Final report presenting summary of findings from baseline sampling. Yr 3, 4: Manual describing sampling protocols, database and guidelines for use and development. Yr 3, 4: Papers submitted to scientific journals for peer-review.</p>
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Annex 3 Map showing location of Bale Mountains National Park



Taken from the General Management Plan for Bale Mountains National Park (2007-2017).

Annex 4 onwards – supplementary material (optional)

Appendix 4 – Manuscript submitted for Walia, to be published in 2008.

Teshome E, Kinahan A and Randall D. Land cover change study of Bale Mountains National Park

Appendix 5 – Map showing the locations of the permanent sampling plots in the forest.

Appendix 6 – Manuscript submitted for Walia, to be published in 2008.

Wakjira, K, Gashaw M, and Pinard M. A Preliminary assessment of the Bale Monkey (*Cercopithecus djamdjamentis*) in the Hareenna forest.

Appendix 7 - Birds

Appendix 8 – Manuscript submitted for Walia, to be published in 2008.

Chiodi, G and Pinard, M. The distribution, properties and uses of mineral springs in the Hareenna forest.

Appendix 9 Full Report by Chiodi on Mineral Springs

Appendix 10– Manuscript submitted for Walia, to be published in 2008.

Chiodi, G and Pinard, M. Characteristics and origins of glades in the Hareenna forest, Ethiopia.

Appendix 11 – Presentation by Pinard to annual meeting of the British Ecological Society in Glasgow, Sept 2007

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ectf-ed.org.uk putting the project number in the Subject line.	
Is your report more than 5MB? If so, please advise Darwin-Projects@ectf-ed.org.uk that the report will be send by post on CD, putting the project number in the Subject line.	
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	
Have you completed the Project Expenditure table?	
Do not include claim forms or communications for Defra with this report.	