

## DARWIN INITIATIVE FOR THE SURVIVAL OF SPECIES : APPLICATION FOR GRANT FOR ROUND 9 COMPETITION

Please read the accompanying Guidance Note before completing this form. Give a full answer to each section; applications will be considered on the basis of information submitted on this form. Applicants are asked not to use the form supplied to cross refer to information in separate documents except where this is invited on the form. The space provided indicates the level of detail required but you may provide additional information on a separate sheet if necessary. Copies of this form are available on disk or by e-mail on request. You are asked also to complete the summary sheet attached at the end of this form. Although you may reproduce this sheet in a reasonable font, you should not expand it beyond an A4 sheet (leaving the allocated space for DETR comments to be made) as additional information will not be taken into account.

### 1. Name and address of organisation

SCHOOL OF AGRICULTURAL AND FOREST SCIENCES, UNIVERSITY OF WALES, BANGOR, GWYNEDD LL57 2UW
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### 2. Principals in project

Details	Project leader	Other UK personnel (if working more than 50% on project)	Main project partner or co-ordinator in host country
Surname	Teklehaimanot	A full time project officer will be appointed	Assefa
Forename(s)	Zewge		Abaye
Post held	Lecturer in Agroforestry	Project officer	Programme Co-ordinator and Executive Director
Institution (if different to the above)		UWB, but will work in collaboration with ARC	Ethiopian Wildlife and Natural History Society
Department		and will spend at least 90% of her/his time carrying out work	
Telephone		in Ethiopia in very close collaboration with EWNHS and	
Fax		IBCR	
Email			

Details	Main project partner or co-ordinator in host country	Other co-Principal Investigator	Other UK collaborators
Surname	Bekele	Healey	Smith
Forename(s)	Taye	John	John
Post held	Acting Head of Forest Soil Aquatic and Unique Plants Resources Department	Lecturer in Tropical Forestry	Consultant
Institution (if different to the above)	Institute of Biodiversity Conservation and Research, Ethiopia		Alliance of Religions and Conservation (ARC)
Department			
Telephone			
Fax			
Email			

Please provide a one page CV for each of these named individuals.

3. Project title (not exceeding 10 words)

Biodiversity conservation in ancient church and monastery yards in Ethiopia

4. Abstract of study (in no more than 750 characters)

Key Ethiopian NGO and government institutions have identified the need for conservation of the important populations of threatened species retained in ancient church and monastery sacred lands. To enable this, institutional capacity will be strengthened through training, expert advice, networking (institutions/local stakeholders), financial support and joint project implementation. Management plans for priority sites and species will be developed and implemented involving: local values and participation; in-situ and ex-situ conservation; a sustainable programme of species reintroductions and planting by local communities to utilise biodiversity for poverty elimination and to reduce pressure on threatened habitats. Innovative synergistic linkage between spiritual, cultural and environmental value systems will yield success and a high public profile.

5. Timing. Give the proposed starting date and duration of the project.

From April 2001 for three years

6. Describe briefly the aims, activities and achievements of your organisation. (Please note that this should describe your unit, institute or department within a university.)

**Aims**

The aims of the School of Agricultural and Forest Sciences of the University of Wales Bangor are to advance and apply knowledge of the efficient use of land and associated resources in meeting world needs for food, fibre and environment and to communicate this knowledge by the education and training of students and extension to other professionals and local communities.

**Activities**

Research, development, education, training and extension. In meeting our aims, the long-term sustainability of land use systems in relation to biodiversity, environmental quality, and welfare of animals, are major considerations.

**Achievements**

The University of Wales, Bangor has a research income of £ 9.4 million per annum. The School of Agricultural and Forest Sciences, UWB is recognised as one of the leading international institutions in research and education in forest ecology, tropical forest conservation and management, agroforestry and the utilisation of the biodiversity of tropical multipurpose tree species. In these subject areas, over the past three years, the School has:

1. Captured over £ 2.2 million of research grants from: the DFID, EU, Darwin Initiative, NERC etc.
2. Carried out numerous research projects; in addition to those listed in the CVs above, these include:
  - a) Monographs and extension materials on *Prunus africana* and *Sclerocarya birrea*
  - b) Exotic plant invasions: deleterious effects on Mediterranean island ecosystems
  - c) Analysis and design of national park management in Indonesia
  - d) Land trusts and private land conservation
  - e) Ecological economic valuation of biodiversity before and after watershed exploitation
  - f) Improving productivity and sustainability of cocoa farms in West Africa through utilization of native forest trees in agroforestry systems
  - g) Integrating indigenous and biological knowledge to implement improved dry season feeding strategies on farms in the hills of Nepal.
  - h) Participatory crop improvement for maize-millet intercropping in the mid-hills of the Himalayan region.
3. Carried out numerous professional consultancies including those on biodiversity conservation in Zimbabwe.
4. Run formal link programmes with institutions in several developing countries including Swaziland, Ethiopia, Costa Rica, and engaged in formal project collaboration with 15 other tropical research and academic institutions.
5. Educated over 50 students from tropical countries in rural resource management, forestry and agroforestry (25 of these students have graduated with research degrees) and over five hundred European students in biodiversity, rural resource management, tropical forestry, agroforestry and many other related subjects.
6. Run professional training courses for FAO, DFID and other organisations.
7. Published over 60 academic papers, research reports, monographs and extension manuals on tropical resource management and conservation.
8. Co-ordinated the IUFRO Agroforestry research group (since 1994).
9. Achieved a grade 4 in the 1996 Research Assessment Exercise and scored an "excellent" grade for its teaching in forestry in its Teaching Quality Assessment in 1997.

7. Has your organisation received funding under the Initiative before? If so, please give details.

The School of Agricultural and Forest Sciences, University of Wales Bangor has held two Darwin Initiative grants both of which were completed successfully: (a) Biodiversity on Mount Cameroon (1994-7); (b) Invasive tree species (1994-6).

8. Which overseas institutions, if any, will be involved in the project? Please explain the responsibilities of these institutions.

**Ethiopian Wildlife and Natural History Society (EWNHS): Mr Abaye Assefa, Executive Director.**

EWNHS is a membership-based, indigenous, non-governmental and non-profit making organization concerned with awareness-creation and wise and sustainable use of Ethiopia's natural resources and the protection the environment. The Society is registered with the Ministry of Justice of the Ethiopian Government. It was established in 1966. EWNHS is the oldest organization outside the government to advocate the conservation and wise use of Ethiopia's environment and natural resources.

Its objectives are:

- to assist national efforts to conserve and develop the flora and fauna, and to protect the environment, in its totality, for the benefit of present and future generations;
- to conduct, participate in, promote and support research on Ethiopia's flora, fauna and on the environment, and to disseminate information on the same;
- to establish an information center and disseminate information to provide environmental education, and to create an awareness of the need for the conservation of Ethiopia's natural resources, and for protecting the environment;
- undertake, promote and encourage conservation and management activities in key biodiversity sites.

The Society's activities focus on environmental education and biodiversity conservation. Currently the Society is undertaking the following projects:

- Environmental Education Support Publication (EESP);
- Schools' Environmental Education Project (SEEP);
- Plant Locally and Nurture Trees (PLANT);
- Indoor/ Outdoor Activities;
- Important Bird Areas (IBAs) Programme

EWNHS publishes an annual scientific journal 'WALIA', and a quarterly newsletter (over 2500 copies circulated), both of which have readers throughout Ethiopia and worldwide. Through a two-year project on biodiversity conservation research funded by Bird Life International, it has published the book 'Important bird areas of Ethiopia: the first inventory' which is the first bird areas directory to be published in Africa.

**Institute of Biodiversity Conservation and Research (IBCR), Ethiopia:**

**Mr Taye Bekele, A/Head of the Department of Forest, Soil, Aquatic and Unique Plant Resources of the Institute.**

IBCR was established in 1976 and is the only government institution responsible for the conservation of the country's biodiversity. Its objectives are to promote exploration, collection, evaluation, documentation and research of germplasm in Ethiopia; conserve plant genetic resources using both ex-situ and in-situ strategies; and document indigenous knowledge in the field. The Institute has many departments and one of these is the Department of Forest, Soil, Aquatic and Unique Plants Genetic Resources, which is the focus for collaboration in this Darwin Initiative project. The major objectives of the Department are to:

- Explore, inventorize and prioritize;
- Characterize, collect and conserve (in-situ and ex-situ)
- Carry out research on variability and storage behaviour of seeds
- Study the reproduction biology of the priority genetic resource species, particularly forest and aquatic plants

**PROJECT DETAILS**

9. Define the purpose (main objective) of the project in line with the logical framework.

To promote sustainable development in Ethiopia through participatory conservation of the biodiversity of the forests preserved on sacred lands, and their establishment as a resource of value to alleviate the poverty of local people and for the nation as a whole.

10. Is this a new project or the continuation of an existing one?

This is a new project.

11. What is the evidence for a demand or need for the work? How is the project related to conservation priorities in the host country(ies)? How would the project assist the host country with its obligations under the Biodiversity Convention?

How was the work identified?

The need for this work was identified as a top priority by the relevant Ethiopian organisations and UWB has responded to their request to collaborate in this project.

No country in Africa enjoys as great a diversity of geology, land-forms, soils, and climate as Ethiopia, which has a land area equivalent to that of Spain and France combined. There are more than forty five vegetation types where forests, savannas, woodlands, steppes and grasslands comprise 75% of the vegetation cover (Friis, 1987). As a result, Ethiopia possesses one of the richest floras in Africa, with 6,603 species of Pteridophytes and Spermatophytes; of which at least 163 are known to be threatened (WCMC, 1997). The total number of woody plants is estimated to be 1000 out of which about 300 are tree species (Bekele, pers. comm.). Much of this floristic wealth is reflected in the fact that Ethiopia is one of the Vavilov's centres of origin and/or diversity for many domesticated plants and their wild relatives, e.g. wheat, barley, teff, coffee, peas, okra, sorghum, millets, lentils, rape seeds, sesame, noug (*Guizotia abyssinica*), safflower. The flora is 35% endemic and is an independent floristic region closely allied to the flora of tropical East Africa and Central Africa (Getahun, 1976). WCMC estimate that Ethiopia has 60 threatened and 63 near-threatened animal species, and Birdlife International (2000) estimate that Ethiopia is ranked 21st amongst the countries of the world in its number of threatened endemic bird species.

Ethiopia has one of the lowest levels of resources of any country in the world (UNDP, 1998). Deforestation is occurring in Ethiopia at an alarming rate and this is threatening much of the country's unique biodiversity (Teketay and Bekele, 1995), including the genetic diversity of important crop plants such as arabica coffee (Tewolde-Berhan, 1988; Worede et al., 1999). Gamachu (1988) estimated that 87% of the total land area above 1500 m was originally covered by dense forest, but FAO (1988) estimated that only 9% of this land had closed forest cover and FAO (1995) estimated that only 3% of the country's fully stocked natural forest remains, and that it is disappearing at a rate of 7.5% per annum - the fastest rate of any country in the world. The major reasons are the increasingly intensive use of land for agricultural and livestock production and tree cutting for fuelwood and construction materials (Teketay, 1992; Woien, 1995; McCann, 1997; Tekele and Hedlund, 2000). According to the Ethiopian National Energy Steering Committee (1986), 94.5% of the nation's total energy comes from biomass sources and 77% of it is derived from wood and tree residues. Currently, fuelwood is scarce in 75% of the country (Bekele-Tesema, 1993).

Rates of deforestation are not uniformly distributed across the landscape however. They are greatly influenced by issues of tenure and variation in values attached to forest resources by local people (Aregay and Rahmato, 1994; Tefera, 1996; Kasberger, 1999). Most notably, the sacred church and monastery lands of the Ethiopian Orthodox Churches have survived for many centuries as islands of natural forest biodiversity in a sea of deforested landscape in areas of the Ethiopian highlands. For many interesting reasons related to the spiritual values attached to the churches, monasteries and their sacred lands, these biodiversity islands have survived the general pressure for timber and fuelwood gathering that has degraded the surrounding landscape. In ecological terms they are the closest approximation to "ancient woodland" left in the landscape. Ethiopia, contains a total of around 35,000 churches and monasteries, some of which are 1660 years old (Bekele, pers. comm.). Approximately 50 of the ancient churchyards and monastery grounds (older than 200 years), all of which are located in the Central and Northern Highland regions of Ethiopia, contain natural forest vegetation rich in biodiversity (Negusie, pers. comm.). Their vegetation consists not only of trees but also shrubs and herbs, and they constitute important habitats for a variety of rare vertebrate species (Negusie, pers. comm.). However, the biodiversity of some of these churchyard forests is being depleted as a result of continued deforestation of the surrounding areas for fuelwood and timber (which further isolates the churchyards from other forest habitat within the landscape, and reduces the availability of alternative sources of forest products), the displacement of the church community due to drought and famine, introduction of exotics and other natural and man-made calamities (Assefa, pers. comm.).

There is, therefore, an urgent need to conserve the biodiversity of the unique and valuable natural forest remnants in the Ethiopian highlands preserved in ancient churchyards and monastery grounds. No systematic study has so far been carried out to assess their species composition and the status of their biodiversity. Nor has there been any formal investigation of the values placed on this biodiversity by members of the church and the wider population. This information is needed in order to devise sustainable strategies for biodiversity conservation in churchyards and monastery grounds.

How is the project related to conservation priorities in the host country?

In the face of the severity of the loss of Ethiopia's natural resources, it is one of the country's national development objectives (reflected in its biodiversity action plan) to prevent deforestation and promote the conservation and sustainable use of forests and their biodiversity. There is explicit recognition of the important contribution that this will make to poverty elimination, e.g. through community plantations using native species and improved agricultural systems. This need has long been recognised: it was in response to the very real threats of the erosion of genetic diversity that the former Plant Genetic Resources Centre (now Institute of Biodiversity Conservation and Research (IBCR)) was established by the government in 1976. More recently the important role to be played by NGOs, in particular the Ethiopian Wildlife and Natural History Society (EWNHS), has been recognised. Therefore, EWNHS and IBCR are now the two major institutions in Ethiopia that have a mandate for biodiversity conservation. They have both identified the urgent need for a conservation programme for the biodiversity present in ancient churchyards and monastery grounds as a high priority. However, they recognise that they cannot currently implement such a programme because of a lack of trained manpower, technical expertise and other resources (factors that also hinder their current capacity to collaborate as closely as they would like) (Bekele and Asefa, pers. comm.). Therefore, knowing the international

expertise of UWB and ARC in this field, they have requested our assistance. Together we have developed this Darwin Initiative project proposal to directly meet the needs of this top conservation priority in Ethiopia.

The project will meet this need through:

1. strengthening the institutional capacities of EWNHS (NGO) and IBCR (government organisation) through expert technical support and training to enable them to manage long-term conservation work in Ethiopia. Staff will be supported and trained:
  - a) in field techniques of identifying and assessing the status of plant species and monitoring their populations with the participation of local communities.
  - b) in participatory socio-economic survey methods to assess the values placed on biodiversity by the local community and other stakeholder groups; and incorporation of these into long-term participatory biodiversity management plans.
  - c) in methods of establishment of *ex-situ* collections of endangered plant species, though collection of seed and vegetative material, germination and other propagation techniques.
  - d) in plant establishment and monitoring techniques in participation with local people for in-situ conservation of species and, where appropriate, their re-introduction.
2. strengthening the links between the key NGO and government organisation involved in biodiversity conservation in Ethiopia, also with the church and other local stakeholders, through joint project implementation and workshops.
3. providing technical and financial assistance to EWNHS and IBCR in carrying out a practical conservation programme for the biodiversity present in ancient churchyards and monastery grounds via:
  - a) identification of ancient churchyards and monastery grounds that contain important biodiversity resources, through identification of the plant and animal species present (to determine species richness and the presence of threatened or endemic species), in the context of the biodiversity status of the surrounding landscape,
  - b) assessment of the status of the biodiversity in these churchyards through determination of the population size and structure of threatened and endemic species, and their isolation from the nearest populations,
  - c) participatory appraisal with the church authorities, church members, and other members of local communities to elucidate the values that they place on sacred land biodiversity (in terms of individual organisms, individual species, species richness), the relationship of these values to the belief system and the sacred status of the churchyards and monastery grounds, what past practices have led to the conservation of the sacred land biodiversity, and their attitudes to alternative conservation strategies,
  - d) development of short- and long-term sustainable plans for the participatory in-situ and ex-situ conservation of biodiversity in the churchyards and monastery grounds,
  - e) practical conservation measures including: the collection of seed and cuttings of the most endangered plant species; establishment of nurseries at individual church-yards; and, to safeguard the biodiversity of churchyards where such local conservation is not feasible in the short-term, establishment of a centre, to be run by EWNHS, for the ex-situ conservation and propagation of endangered plant species from which re-introductions can be made to churchyards once conditions are right,
  - f) distribution of planting material of locally valued and used plant species from the ex-situ conservation centre and from churchyards to local community members, for establishment on their own and communal lands, to act as a resource that will help to eliminate poverty.
4. dissemination to the wider community in Ethiopia the results of the findings of the biodiversity conservation of the forests of ancient church yards and monastery grounds, through the networks provided by the church, EWNHS, and the national media.

How will the project assist the host country meet its obligations under the Biodiversity Convention?

Ethiopia ratified the Convention on Biological Diversity on January 5th, 1995, with a clear commitment to the promotion of conservation and sustainable use of biological diversity. As detailed above, this project will make a substantial contribution to Ethiopia's capacity to meet Article 8 of the Convention (*in-situ* conservation), Article 9 (*ex-situ* conservation), Article 12 (training) and Article 13 (public awareness). It will also contribute towards Ethiopia's obligations for assessment and monitoring under Article 7.

12 In what ways can this project be considered a Darwin project? How does the project relate to the Darwin principles? How would the project be advertised as a Darwin project and in what ways would the Darwin name and logo be used?

This is a distinctive, flagship, catalytic project with a high probability of a successful outcome, good publicity and the continuation of self-sustaining progress beyond the project's end.

Ethiopia is rich in biodiversity but very poor in resources.

The project is also highly **innovative** and **distinctive**. Paucity of resources presents a real challenge for participatory biodiversity conservation in Ethiopia. However, the extent to which the forests on sacred lands have been preserved to date offers real hope. With this as its focus, the project can build new bridges between spiritual, cultural and environmental value systems; emphasizing the synergy between them. In this way it has a much greater potential to catalyse a real enhancement in public attitudes to biodiversity conservation than projects taking a more narrow technical approach. Through its close connections with an important component of the spiritual and cultural landscape of Ethiopia, the project will receive a high profile both through

the large number of public visits to church sites and media reports. Interpretation materials, including display boards, **bearing the Darwin Initiative name and logo**, will be located at the church yards on which the project activities are focussed and at the new Centre for Ex-situ Conservation of Endangered Plants of Churches and Monasteries.

The project:

- emphasises **institutional strengthening/training**, for **non-governmental and governmental organisations**;
- brings together a powerful inter-disciplinary team of **UK experts of international standing**, who have a strong record of successful project implementation in this field in developing countries, and are strongly committed to active participation in this project in close collaboration with the local partners;
- has a strong focus on the **sustainable utilisation of biodiversity for poverty alleviation**, rather than just its conservation (addressing this comparatively neglected section of the Convention on Biological Diversity); collaboration with **local communities** is central to the project;
- is closely matched to priority sections of Ethiopia's biodiversity action plan which maximises the prospects for the subsequent implementation of the project's outputs and will contribute directly to meeting its obligations under the **Convention on Biological Diversity**;
- will leave a legacy of significantly enhanced and self-sustaining conservation of an important high profile component of Ethiopia's biodiversity;
- adds significant catalysis, momentum and focus to Ethiopian initiatives;
- represents good **value for money** with high-level commitment from the local collaborators and contributions to its costs from non-Darwin sources.

13. Set out the proposed timetable for the work, including the programme's measurable outputs using the attached list of output measures.

**Activities (timing is indicated in terms of number of months (m) after the start of the project):**

1. The project will commence with a planning workshop bringing together the key Ethiopian and UK-based staff (by 2 m).
2. Institutional knowledge (including aerial photograph interpretation) will be used to draw a provisional list of all the churchyards and monastery grounds to be screened by the project (by 3 m).
3. These sites will be visited and preliminary consultation carried out with local church authorities and community members. Subject to their approval a rapid biodiversity assessment (Watt *et al.*, in press) will be carried out at each. The results will be interpreted to determine the biodiversity importance (e.g. Hawthorne, 1996), and the level of threat it is currently under, of each site (by 7 m)
4. The project collaborators will meet for a second planning meeting to discuss the results of this phase, and decide on a sampling strategy for the sites to be subject to detailed appraisal in the second phase. Sampling will be stratified according to geographical location, as well as prioritised by conservation criteria (by 8 m).
5. In the second phase, fuller contacts with church members and the local community will precede a more extensive exercise of participatory appraisal. This will include a focus on key informants, from whom to elicit local knowledge about past changes and management practices in the churchyards and monastery grounds (e.g. changes in tree cover or species composition; the extent to which tree cutting, fire or grazing were prevented; if this protection has diminished more recently, why this has occurred; whether there has been any active tree planting; or whether they were simply left unmanaged). In addition, appraisal will focus on key questions concerning local valuation of the churchyard biodiversity resources (for which a careful stratification of sampling within the community will be required) (Healey *et al.*, 1999; Lawrence *et al.*, 2000): (a) in what ways people's belief system has led to the protection of the biodiversity of the churchyard forests; (b) to what extent is this biodiversity valued in its own right, or is its conservation simply a by-product of the sacred status of the church site? (c) to what extent do people draw any distinction in their valuation of the church building, its surrounding land, and whatever organisms happen to be growing in that sacred land? (d) is it the actual individual trees themselves that people value, or does their valuation extend to more abstract concepts such as "species", or even species-richness and habitat, i.e. is motivation strongest to preserve the individual ancient trees currently standing, or does it extend to ideas of new planting of the same, or different species? Different stakeholders will be asked about their perception of the threats to churchyard and monastery ground biodiversity, e.g. due to change in traditional belief systems, or increase in local deficits of forest products. Then attitudes to alternative conservation strategies will be assessed (by 14 m).
6. Formal inventory of plant and vertebrate species present in each churchyards and monastery grounds (to determine species richness and the presence of threatened or endemic species), together with rapid survey of the biodiversity status of the surrounding landscape as an important context. Past species inventories in other areas of remaining natural forest will provide an important basis of comparison with the churchyard biodiversity (e.g. Sebsebe, 1988; Zerimun and Mesfin, 1990; Bekele, 1994). Data analysis will draw on recent advances in community and landscape ecology (CANOCO, spatial modeling, habitat quality indicator species assessment etc.) (by 15 m).
7. Identification of the high conservation-value threatened and endemic species present, followed by assessment of their status through determination of their population size and structure, and their isolation from the nearest populations (by 18 m).
8. A third series of project workshops, involving the project team, and members of other stakeholder groups, will then play a key role in the development of short- and long-term sustainable plans for the participatory *in-situ* and *ex-situ* conservation of

the biodiversity present in the churchyards, through maintenance and enhancement of the existing protection practices. The information obtained on value-systems pertaining to the biodiversity will be key in maximising local participation in the conservation process and increasing the chance of its sustainability beyond any project phase (Camino-Velozo, 1987; Tefera, 1996; Mequanent, 1998) (by 18 m).

9. It is envisaged that the short-term plan (covering the remaining period of the Darwin project) will involve: the collection of seed and cuttings of the most endangered plant species; and direct sowing/planting of these in selected locations within the individual churchyards and monastery grounds. Care will be taken to capitalise on local, as well as scientific knowledge, to maximise the success of this work (van Leeuwen, 1999). Interpretation material, including notice-boards bearing the Darwin Initiative name and logo, will be established where appropriate (under way by 24 m).
10. It is likely that, because of local socio-economic and environmental conditions, the biodiversity present in certain of the churchyards cannot be conserved *in situ* in the short-term and will therefore need to be “rescued” (Bekele, pers. comm.). The need for *ex situ* conservation of endangered flora has been recognised by the Government of Ethiopia but there are limited resources and know-how in the relevant institutions for establishing and running such a centre. For that reason it is envisaged that a decision will be taken for the project to assist EWNHS and IBCR in establishing a centre for ex-situ conservation of endangered plant species from the churchyards in a central location. UWB has international technical expertise in this field, and will assist through training in plant propagation, establishment and management techniques as well as re-introductions. The existing body of knowledge of management of Ethiopian tree species (e.g. Bendz, 1990; Ruden, 1991; Teketay, 1997; Teketay et al., 1997; Tekle, 1997) would be significantly enhanced through this work (under way by 24 m)
11. Once the ex-situ collection is established, and local conditions at church-yards are right, re-introductions will be made to replenish churchyard biodiversity. In addition, planting material of locally valued and used plant species will be made available from the ex-situ conservation centre and individual churchyards to local community members, for establishment on their own and communal lands, to act as a resource that will help to eliminate poverty, and reduce pressure for further exploitation of remaining natural forest areas (with a consequent additional biodiversity conservation benefit). There are good reasons for believing (Bekele, pers. comm.) that this could become a sufficiently revenue generating commercial activity that it would sustain the maintenance of the facilities into the future (see section 17 below). These exchanges will provide the ideal forum to elicit and satisfy local people’s needs for additional technical information about how to establish and manage trees. Monitoring of the establishment success of planting material will be carried out as a basis to refine and improve methods (by 30 m).
12. Throughout this final phase of the project dissemination to the wider community in Ethiopia of the outcomes and recommendations of the project will be a major activity, carried out through the networks provided by the church, EWNHS, and the national media, and culminating in a final project seminar (24 – 36 m).

#### **Outputs (listed by Darwin Initiative code):**

##### **Training outputs:**

1. – 7. A key component of activities 3, 5, 6, 7, 9, 10 and 11 (above) will be training workshops and on-the-job training as detailed in section 15 below.

##### **Research outputs:**

8. 36 months UK staff time in the host country.
9. One generic management plan for churchyard and monastery ground habitats, together with specific plans for each high conservation priority species encountered in these habitats (number unquantifiable at this stage) and site-specific management plans for each of the target locations for the final phase of the project (c. six).
10. One field guide with separate sections to assist work on species identification, and participatory appraisal of local knowledge, practice and value systems relevant to sacred land biodiversity in Ethiopia.
11. Three papers to be published in peer review journals: one concerning the biodiversity inventory, one the participatory appraisal, and one the conservation management practices developed and tested by the project.
13. The planned ex-situ conservation centre will contain living collections of identified plant species, and thus could be classed as a single reference collection.

##### **Dissemination outputs:**

- 14A. Two project planning workshops and two broader participatory workshop with an explicit dissemination role will be conducted. Each workshop will have a two-day duration and numbers attending will be in the order of 10, 10, 50 and 50 respectively, the latter including representative from a wide range of government institutions, NGOs, church organisations and other stakeholder representatives involved in biodiversity conservation and related activities in Ethiopia.
- 14B. Findings of the Darwin project work will be presented at at least three conferences/seminars in Ethiopia (and probably

many more) and at least two in Europe during the duration of the project.

15A. At least three national press releases will be made in Ethiopia. In addition, the work of the project will be reported in each issue of the EWNHS quarterly newsletter during the project (12 in total).

15B. At least six local press releases will be made in Ethiopia, e.g. for local church publications.

15C. At least two national press releases will be made in UK by UWB.

15D. At least two local press releases will be made in UK, targeted at both the English and Welsh language media.

16A. One issue of the EWNHS quarterly newsletter will be a special issue dedicated to the project.

16B. This newsletter has an estimated circulation in excess of 2,500 in Ethiopia.

16C. This newsletter has a circulation in excess of 20 in UK.

17B. Given the existing networking carried out by the local collaborators, and the church, in Ethiopia, this component of the project's dissemination is likely to be achieved through enhancing these three dissemination networks, rather than establishing new ones.

18. & 19. We envisage that the subject area of this project is sufficiently newsworthy (in either environment or religious affairs programmes, or both) that significant interest in the broadcast, as well as the print media, could be generated. The UWB publicity department has very good connections with the broadcast media. Thus, we envisage at least one programme in UK and at least one in Ethiopia featuring the work of the project, but it is impossible to predict the scale of interest at this stage.

**Physical outputs:**

20. £17,000 (after depreciation of the value of the vehicle).

21 & 22. One centre for the ex-situ conservation of endangered plants will be established and monitoring plots, together with facilities to assist in-situ conservation will be established at at least six church/monastery sites. These field facilities will serve educational, training and research needs, thus they span Darwin output codes 21 and 22.

**Financial outputs:**

23. £95,591.

14. Do you know of any other individual/organisation carrying out similar work? Give the details of the work, explaining the similarities and differences.

In addition to its government budget, IBCR receives external financial support from GTZ (Germany). GTZ is supporting an inventory of the floristic biodiversity of Ethiopian forests and the development of strategies for their conservation. GTZ does not provide the training required to carry out these activities, which is a crucial need to be filled by the Darwin Initiative project. Furthermore, the work supported by GTZ does not also include any sacred lands except five monastery sites; and it focuses only on trees (with no attention to other plants or to animals).

15. Will the project include training and development? Please indicate how many trainees will be involved, from which countries and what will be the criteria for selection. How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length of any training course.

**Training outputs:**

The following outputs will each involve the training, initially, of six Ethiopian members of EWNHS and IBCR staff, selected by their director/department head on the basis of their aptitude and potential for this work. Effectiveness of the training will be judged by the trainees' capacity to carry out the remaining project activities successfully, with progressively decreasing inputs from the UK experts. As the scale of EWNHS and IBCR conservation activities increases, both through the self-sustaining nature of this project, and the expansion of other programmes, such as that funded by GTZ (14. above), new staff will be taken on and trained by the Darwin Project trainees. Furthermore, training will be extended to members of other organisations as they become involved in the project (e.g. church members) and, in response to demand, the more practical training, e.g. in plant propagation, will be extended to local community members. Timing is indicated by the number of months (x m) by when it will be completed.

All of these training outputs fall under code number 5; as not all the same staff will receive each training package, the total number of trainees is estimated as 9. It is also envisaged that elements of training outputs 3. and 4. will also be given to other members of local organisations and communities, giving an estimate of 20 people under code 6A, each receiving three weeks of training under code 6B. New tailor-made printed training materials will be prepared for each workshop and transferred to the participants for their subsequent use and dissemination, thus giving four training materials under code number 7.

1. Training in field techniques of plant and vertebrate species identification; assessment of population size, structure and monitoring; including participation by local communities. UWB will provide an intensive two-week training course (by 6 m), followed by continuous on-the-job training via the UWB Project Officer (in close consultation with UWB academic staff) during the remaining project activities. Two of the trainees with the strongest academic background will receive further



training in more theoretical aspects of landscape, vegetation and population ecology necessary to determine the conservation status of species populations and habitats.

2. Training in participatory rural appraisal with specific application to biodiversity. Whilst drawing on standard approaches (e.g. in the identification of key stakeholder groups and appropriate stratification of sampling) the methods taught will go well beyond this to consider the elicitation of local values placed on biodiversity (utilitarian and non-utilitarian), their interconnection with people's belief system, and effect on management practices. UWB and ARC will provide an intensive two-week training course (by 9 m), followed by continuous on-the-job training via the UWB Project Officer (in close consultation with other UWB and ARC staff) during the remaining project activities.

3. Training in establishment of ex-situ collections of endangered plant species, through collection of seed and vegetative material, germination and other propagation techniques. UWB will provide an intensive three-week training course (by 21 m) followed by continuous on-the-job training via the UWB Project Officer (in close consultation with UWB academic staff) during the remaining project activities.

4. Training in plant species reintroduction, establishment, in-situ conservation and sustainable utilisation, in participation with the local community. UWB will provide an intensive three-week training course (by 24 m) followed by continuous on-the-job training via the UWB Project Officer (in close consultation with UWB academic staff) during the remaining project activities.

16. How will trainee outcomes/destinations be monitored after the end of the training?

Through reports from the director of EWNHS and department head in IBCR, who are both local collaborators in the project.

17. How is the work of the project expected to continue after the end of grant period? A clear exit strategy must be included.

We expect this Darwin Initiative project to provide a high profile success story, acting as a focus for publicity and representing a significant milestone in biodiversity conservation in Ethiopia. It will catalyse future conservation work, e.g. by increasing the self-confidence of the local collaborating institutions to the level that they will be successful in making applications to other funding agencies for support both during and after the project and it will provide an incentive for continued government support.

Continued work will not be solely dependent on new funding and government support however. It is the intention of EWNHS and IBCR to initiate a commercial dimension to the work of the *ex-situ* conservation centre, to promote the sales of planting material of locally valued and used plant species. Their market research already indicates a sufficiently high demand for this to sustain the work of the centre and even expand it to strengthen scientific, environmental and conservation education. The revenue should also support the on-going provision of planting material for the re-introduction of threatened species to the churchyards and monastery grounds. The project partners have agreed that this financial self-sufficiency is a realisable outcome by the end of the project. The knowledge of successful propagation techniques and training given by the project will provide the local expertise to continue and expand this work.

The training provided to local staff will provide the necessary expertise in tree establishment, management and biodiversity monitoring to continue the in-situ conservation work. EWNHS and IBCR have already committed themselves to continue this work and extend it to members of the wider community. Furthermore the close involvement of church members will strengthen the long-term continuity of this work, experience and knowledge.

## MONITORING AND EVALUATION

18. Describe how progress on the project would be monitored and evaluated in terms of achieving its aims and objectives, both during the lifetime of the project and at its conclusion. How would you ensure that it achieves value for money? What arrangements will be made for disseminating results? If applicable, how would you seek the views of clients/customers?

The project's modus operandi described in section 11. – box 2 (above) clearly expresses its aims in terms of specific institutional strengthening, training, networking, conservation and dissemination outcomes. The timing stated for the completion of each activity in section 13. (above) give an explicit set of targets and milestones. Together these provide clear criteria against which the success of the project will be evaluated during its lifetime and at its conclusion. All of the collaborating institutions in the project are already in regular e-mail contact, continuation of this will enable the UK-based project leader to monitor progress and expenditure in the project at at least monthly intervals. In its previous two Darwin Initiative projects SAFS/UWB set high standards in terms of preparation of detailed and explicit six-monthly, annual and final reports (both technical and financial). We also have a high reputation for reporting amongst our other major project funders, e.g. DFID and EU. This will be continued in the new project, through which we will provide robust evaluation of project progress to DETR. Furthermore, the formal annual reports of the two collaborating institutions in Ethiopia will provide an independent basis for evaluating the progress of the project. The IBCR has a Scientific and Technical Advisory Committee and the EWNHS a management committee, both of which routinely monitor the progress of projects and will evaluate this Darwin Initiative project. The SAFS Research Committee and the Finance Office of UWB provide a further element of quality control and monitoring for the scientific work and expenditure on the school's projects. The project's final accounts will be subject to financial audit and the costs of this have been built into the budget. Value for money will also be ensured through the importance of the biodiversity resource to be conserved by the

project, its good prospects of success, the high level of match funding already committed by the collaborating institutions, and the good prospects that the project will generate revenue and catalyse new financial sponsorship.

The project has a strong participatory ethos with a wide range of stakeholders, both institutions and local communities. The local collaborators have already carried out significant work to elicit stakeholder views and needs. As detailed in 13. above, the project will explicitly consult local stakeholders at each site, and only proceed with technical work if they approve. Furthermore, at least four workshops will be conducted during the project, which will provide a further forum for stakeholders together to evaluate the project and influence its subsequent targets and activities.

Dissemination of results is described under Dissemination outputs in section 13. (above).

19. Logical framework. Please enter the details of your project onto the matrix using the note at Annex B of the Guidance Note.

Project summary	Measurable indicators	Means of verification	Important assumptions
<b>Goal</b> To assist countries rich in biodiversity but poor in resources with the conservation of biological diversity and the implementation of the Biodiversity Convention	Improved conservation of biodiversity and implementation of the Biodiversity Convention	National reporting to UN, independent assessment by international agencies, indicating achievement of targets in terms of species, habitats, training, public awareness etc.	
<b>Purpose</b> Sustainable development in Ethiopia promoted through participatory conservation of the biodiversity of the forests preserved on sacred lands, and their establishment as a resource of value to alleviate local poverty and for the nation as a whole	No reduction in number of sacred sites retaining forest, no reduction in species present in sacred sites, increased rate of tree planting by community of native tree species from sacred sites, eventual reduction in local deficit of forest products	Annual reports of gov. agencies, NGOs and church, potential for independent verification via remote sensing interpretation	Sacred-land forests do contain important populations of threatened Ethiopian species; local people are prepared to grow some of the species present and use them as a substitute for further depletion of threatened habitats

<p><b>Outputs</b></p> <p>1. Key NGO/gov institutions strengthened – 6 Ethiopian staff trained in each of:</p> <p>1.1 participatory species identification &amp; assessment, 1.2 participatory rural appraisal for biodiversity, 1.3 ex-situ conservation, 1.4 in-situ conservation;</p> <p>2. Management plans for habitats, species and sites;</p> <p>3. Field-guide on biodiversity identification/appraisal;</p> <p>4. Three peer-rev. papers;</p> <p>5. NGO-Gov-Church-cmnty networks strengthened;</p> <p>6. Wider Ethiopian public informed via media;</p> <p>7. Ex-situ conservation centre established.</p>	<p>1. Enhanced capacity/expertise of institutions/staff in each of these fields;</p> <p>2. Management plans of sufficient quality held and used by key institutions;</p> <p>3. Field-guides held and used by key institutions;</p> <p>4. Papers submitted for publication;</p> <p>5. Increased collaboration in on-going work &amp; new projects;</p> <p>6. Enhanced public attitude to/knowledge of biodiversity conservation;</p> <p>7. Centre exists, is stocked &amp; producing planting material;</p> <p>All by end of project, or earlier if stated in section 13</p>	<p>1., 5., 7. Institutional annual reports, independent reports for/of donor agencies;</p> <p>2. Copies of plans available from institutions on request;</p> <p>3. Copies of guides available from institutions on request;</p> <p>4. Copies of letters of receipt from editorial offices;</p> <p>6. A public attitude survey could be commissioned, otherwise increase in membership of EWNHS would be an indicator;</p> <p>7. Centre could be visited.</p>	<p>1. Trained staff remain working in the conservation sector, institutions retain sufficient staff and resources to remain effective,</p> <p>2. to implement m'g't plans,</p> <p>3. to carry out further biodiversity ident'n/ app'l;</p> <p>4. Papers published and influence key practitioners;</p> <p>5. Network members continue to collaborate successfully;</p> <p>6. Public have means to influence conservation outcomes;</p> <p>7. Centre operations become sustainable, community willing to purchase and plant the material it supplies.</p>
<p><b>Activities</b></p> <p>1. Planning workshop</p> <p>2. Selection of target sites</p> <p>3. Local consultation &amp; rapid biodiversity assess't at each</p> <p>4. W'k'p to select focus sites</p> <p>5. Participatory appraisals</p> <p>6. Biodiversity inventories</p> <p>7. Priority species identifi'n and assessment of status</p> <p>8. Wide-participation w'k'ps to develop conservation plans</p> <p>9. In-situ conservation work</p> <p>10. Ex-situ conservation in newly established centre</p> <p>11. Reintroductions of spp. to selected sites and provision of pl't'g material to local people</p> <p>12. Dissemination of outcomes to local people and wider public</p>	<p>Budget expenditure according to plan</p>	<p>Production of:</p> <p>1. Workshop report</p> <p>2. List of 40+ sites</p> <p>3. Report (data on each site)</p> <p>4. Workshop report containing list of 6 + sites</p> <p>5. Analysed appraisals, and</p> <p>6. scientifically analysed inventories for each site, and</p> <p>7. scientific report on status of each priority species (20+) in full technical report</p> <p>8. W'k'p report and full conservation management plan</p> <p>9. Job sheets detailing work</p> <p>10. + 11. Centre physically exists, job sheets, EWNHS &amp; IBCR annual reports (with financial accounts)</p> <p>12. Newsletters, press cuttings, video/audio tapes</p>	<p>1., 4., 8. Key individuals/ stakeholders attend, recommendations written-up into plans and implemented</p> <p>2. Local co-operation</p> <p>3., 6. Species identified correctly, threatened species present</p> <p>5. Appraisals sufficiently informative</p> <p>7. Status assessment accurate</p> <p>9., 11. Adequate stakeholder participation, experience assessed &amp; incorporated into plans</p> <p>10. Institutional support for centre maintained</p> <p>12. Local people respond, media publish/broadcast project news</p>