DEFRA
Department for Environment, Food & Rural Affairs

DARWIN INITIATIVE

APPLICATION FOR GRANT FOR ROUND 11 COMPETITION: STAGE 2

Please read the Guidance Notes before completing this form. Give a full answer to each section; applications will be considered on the basis of information submitted on this form. Please do not cross-refer to information in separate documents except where invited on the form. The space provided indicates the level of detail required but you may provide additional information on a separate A4 sheet if necessary. Do not reduce the font size below 10pt or the paragraph spacing.

1. Name and address of organisation

The Natural History Museum, Cromwell Road, London, SW7 5BD

2. Project title (not exceeding 10 words)

Xaté palms (*Chamaedorea* spp.) in Belize: conservation and sustainable management

3. Principals in project. Please provide a one page CV for each of these named individuals.

Details	Project leader	Main project partners in host country (1 of 2)	Main project partners in host country (2 of 2)
Surname	Bateman	Sabido	duPlooy
Forename(s)	Richard	Oswaldo	Judy
Post held	Head of Department, Professor	Chief Forest Officer	Director
Institution (if different to above)	NHM	Ministry of Natural Resources, the Environment and Industry	Belize Botanic Gardens
Department	Botany	Forest Department	Administration
Telephone			
Fax			
Email			

4. Describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims

The Department of Botany has 54 scientific staff and is one of five science departments within the Natural History Museum, London. In common with its sister departments, the Department of Botany aims to maintain and develop its collections and to use them to promote the discovery, understanding, responsible use and enjoyment of the natural world.

Activities

Systematic, evolutionary and ecological research on all plant groups, intimately linked to extensive collections of specimens. Particular emphasis is placed on the production of practical tools for the recognition of key taxa, creating databases and reference collections to underpin biodiversity investigations, and developing interactive methods for assessment of conservation priorities.

Achievements

Collaborative projects are currently being pursued with 80 universities and research institutes in 44 countries. Much of the output is placed in the public arena via topical scientific articles, scholarly textbooks, field guides and contributions to conservation literature. Each year, visiting scientists spend ca. 2,500 days in the Department examining the collections and working with staff.

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

In the last 10 years NHM has led 19 Darwin Initiative-funded projects in 15 countries.

6. Please list the overseas partners that will be involved in the project and explain their role and responsibilities in the project. The extent of their involvement at all stages in the project should be detailed, including in project development. Please provide written evidence of this partnership.

PRIMARY OVERSEAS PARTNERS:
Belize Botanic Gardens (BBG): development of alternatives to collection of wild-growing xaté, including research in nursery techniques & identification of potential local growers; training in cultivation of xaté; development of markets for sustainably harvested xaté leaf; provision of demonstration plots and local education
Belize Forest Department (BFD): identification of priority areas for action; facilitation of research in Belize; recipient of staff training and Management Plan
OTHER PARTICIPATING OVERSEAS PARTNERS:
Elijio Panti National Park (EPNP): promotion of sustainable management and cultivation of xaté in EPNP and San Antonio
University of Belize (UB), including agricultural division at Central Farm (formerly Belize Agricultural College): 2 student interns to receive GIS (Geographical Information Systems) training; 3 student interns to receive horticultural training
Teakettle Enterprises – Nursery: provision of commercial palm production techniques and links to markets

7. What steps have been taken to (a) engage at all appropriate levels within the host country partner organisations to ensure full support for the project and its outcomes; and (b) ensure the benefits of the project continue despite staff changes in these organisations?

The NHM has jointly managed Las Cuevas Research Station (LCRS), in the Chiquibul Forest, with the Belize Forest Department (BFD) since LCRS was established in 1993. In 1997, the NHM signed an MOU with the Government of Belize, which built upon an earlier MOU with the BFD. In 2001, LCRS and the Belize Botanic Gardens (BBG) signed an MOU. Also, NHM permanent staff at LCRS work closely with BFD staff on a regular basis, we have successfully collaborated with BFD projects in the past and our Operations Manager is a former BFD employee (recommended to us by the Chief Forest Officer of the BFD). The aims and agreements of these MOUs, our current good relationships with our Belizean partner organisations, and continuing consultation with them throughout the Darwin project, will ensure that benefits continue despite changes in individual staff.

8. What other consultation or co-operation will take place or has taken place already with other stakeholders such as local communities. Please include any contact with the government of the host country not already provided.

Chiquibul Forest Reserve (CFR) and National Park (CFP) are mostly uninhabited. Resource extraction from CFR is strictly licensed by the BFD and undertaken from temporary camps. Current harvesting of xaté leaves is by Guatemalans illegally crossing the forested border into Belize and is unlicensed, unregulated and unsustainable. Initial urgent consultations have been with the BFD and local NGOs to prioritise actions to eliminate unregulated harvesting, to develop a sustainable Management Plan for the CFR that benefits Belizeans and conserves resources, and to determine the feasibility of xaté cultivation to reduce pressure on natural populations. During the project we will identify and consult local stakeholders, particularly small communities and small businesses surrounding the CFR, who would benefit from or be affected by the proposed work. We are also consulting with IFRANOS, the Belizean contact for the Dutch company exporting xaté from Guatemala. [See also Section

PROJECT DETAILS

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

<u>Purpose</u>: To develop the capacity in Belize for conserving and sustainably managing the xaté palms (*Chamaedorea* spp.) of Belize and for improving the economic benefits to Belizeans from xaté collection.

Belize, **a country rich in biodiversity but poor in resources**, lacks funding and expertise to develop an urgently needed Management Plan for sustainable harvesting of xaté palms for the floral trade and to develop supplemental methods to reduce over-exploitation. This project will use **UK expertise**, in **collaboration** with Belizean institutions, industry and communities, to assist Belize in meeting its obligations under the CBD while helping **eliminate poverty** and promote **sustainable livelihoods** among local people primarily by promoting sustainable xaté harvesting, cultivation and marketing. The combined systematic, ecological, forestry and horticultural expertise of partners will yield practical outputs of **high quality** and **scientific excellence,** provide a lasting **legacy** to enable sustainable management of this important resource and contribute to holistic management of Belizean forests. Project development has acted as a **catalyst** to secure in-kind contributions from partner and supporting organisations.

10. Is this a new initiative or a development of existing work (funded through any source)?

This is a new initiative, arising from the sudden increase in unsustainable harvesting of xaté in the Chiquibul Forest (see map in Appendix 1). The need for an urgent but far-reaching response has been recognised by the NHM, whose staff at Las Cuevas Research Station are there on the 'front-line', and our partner organisations in Belize.

11. How will the project assist the host country in its implementation of the Convention on Biological Diversity? Please make reference to the relevant article(s) of the CBD, thematic programmes and/or cross-cutting themes. Is any liaison proposed with the CBD national focal point in the host country? Further information about the CBD can be found on the Darwin website or CBD website.

Capacity in Belize for sustainable management & cultivation of xaté palms will be developed through a well-integrated programme of work in four **Darwin Initiative project areas**, but focussing most strongly on research.
(1) **Research**: (a) Quantify xaté resource base using GIS, survey plots, soil sampling & defoliation plots (Art 7), determine sustainable yields of leaves & seeds (Art 10), & produce a Management Plan (Art 8). (b) Develop & promote local cultivation by establishing demonstration plots in different growing systems (e.g. agroforestry, under-planting citrus, small gardens), promoting cultivation techniques, identifying local growers & markets (Arts 10 & 12, Thematic Programme on Agricultural Biodiversity). (c) Publish guide to Belizean palms for use in resource assessment (Art 7) & education (Art 13). (d) Determine feasibility of eco-labelling scheme through discussions with local suppliers, exporters & international buyers (Art 11) (e) Assess xaté genetic status to determine danger of depletion of genetic variation & existence of markers to underpin a verifiable certification scheme (Art 7).
(2) **Environmental education & awareness** (Art. 13): (a) Provide demonstration plots, educational materials & guided tours of BBG for local people, using xaté as model for sustainable use of non-timber forest products (NTFP). (b) Hold workshops for teachers on importance of sustainable use of xaté & other NTFPs.
(3) **Institutional capacity building** (Art. 6, 9, 18): [see Section 15] (4) **Training** (Art. 7, 12): [see Section 19]

12. How does the work meet a clearly identifiable biodiversity need or priority within the host country?

Chamaedorea is the largest palm genus (80-100 spp.) in the Neotropics, and the most heavily exploited. About 75% of species are threatened by habitat destruction & over-harvesting of leaves (xaté), seeds or whole plants (Conservation Action Plan for Palms 1996). Of the 11 *Chamaedorea* species in Belize (Appendix 2), 4 are threatened (IUCN 1997). The Belize Biodiversity Action Plan (BAP) identified the need to monitor and to quantify the value of non-timber forest products (NTFP), including xaté, for sustainable use and to involve NGOs in monitoring and educating collectors and the public (BAP: 6.6.14, 1998). Xaté collecting activity was negligible in Belize when the BAP was published, but trade in leaves and seeds generates more than US$ 30 million per year in Guatemala and Mexico. By 2002, Belizean organizations (e.g. Belize Forest Department, Belize Botanic Gardens, Belize Biodiversity Information Service) and the British High Commission in Belize noted that xaté collectors were penetrating deeper into the Chiquibul Forest, a protected area critical to Belize's Protected Area System Plan and the Mesoamerican Biological Corridor (BAP 6.1). A sustainable management plan is urgently needed to counter increasing threats to xaté species in Belize and to reduce side-effects of unregulated exploitation (e.g. associated hunting of CITES-listed animals).

13. If relevant, please explain how the work will contribute to sustainable livelihoods in the host country

Sustainable harvesting of xaté would provide long-term livelihoods for Belizeans collecting palm leaf in the forest as well as for those processing leaves for export. In addition, cultivation of xaté leaf for export in local small-holdings, or on the considerable acreage of semi-abandoned citrus groves, would potentially generate sustainable livelihoods for many others. Sustainable harvesting of xaté might replace, in part, local income lost from a down-turn in the timber industry (resulting from a recent out-break of bark beetles in local pine forests and much earlier over-harvesting of mahogany and cedar). A more equitable harvesting industry in Belize could redress the current economic imbalance between illegal collectors (earning less than five pence per 40 leaves harvested) and foreign middle-men (receiving more than 50 pence per 40 leaves sold) now occurring across the border.

14. What will be the impact of the work, and how will this be achieved? Please include details of how the project outputs will be disseminated and put into effect to achieve this impact.

First, the project has been developed in close consultation with Belize Forest Department (BFD) to insure that the sustainable management plan, improved xaté information base, and staff training activities meet the specific needs of the BFD and make a lasting impact. Second, local xaté cultivation and eco-labelling offer potential for further developing the economic contribution of xaté to the local economy while simultaneously decreasing pressure on native populations. Belize Botanic Gardens (BBG) is committed to continuing this work if, as we expect, sufficient potential is demonstrated. Both steps will assist Belize and local NGOs to implement the CBD in terms of conserving biological diversity, sustainably using its components, and equitably sharing the benefits arising from this use within Belize. Training will promote in-country opportunities for students (e.g. GIS [in use at Belize's Land Information Centre], resource assessment and horticulture), BFD & BBG staff (e.g. monitoring, palm identification or cultivation), and local growers and harvesters. It will also facilitate job uptake. The Management Plan and palm guide will be given directly to the BFD for implementation. The palm guide, educational materials, and xaté cultivation manual will be distributed teachers, schools, farmers and other NGOs through networks developed during the project.

15. How will the work leave a lasting legacy in the host country or region?

The project will provide a lasting legacy in Belize through **Institutional Capacity Building** (Art. 6, 9, 18). **The Belize Botanic Gardens** (BBG) will be strengthened through establishment of demonstration plots and ex-situ collections of *Chamaedorea*, staff training and improved links with the local community. This supports the Belize Biodiversity Action Plan objective (6.1.12) of assisting development of private botanical gardens. The **Belize Forest Department** (BFD) will be strengthened through staff training and receipt of the Management Plan, which will enable them to set realistic fees for xaté harvesting that will fund adequate monitoring of the harvest by BFD staff. Stronger links between the **University of Belize** and BBG, BFD, other NGOs and the Las Cuevas Research Station will promote continuing student internships and graduate placements. **Elijio Panti National Park** will develop a sustainable crop within the forest that will provide employment to nearby San Antonio village and demonstrate that, economically, this approach is superior to slash-and-burn methods.

16. What steps have been taken to identify and address potential problems in achieving impact or legacy?

We are working with both government and NGOs to establish a broad base for sustainable management and conservation of xaté in Belize. In addition, we will be evaluating the potential for both sustainable harvesting of xaté from managed but largely intact forest reserves and cultivation of xaté in non-forested areas. This dual strategy will maximise our ability to manage and conserve xaté and help alleviate poverty in Belize and minimize the risks of not achieving a lasting impact. We will not attempt to establish costly facilities for specialist analyses (e.g. genetic assessment) in Belize at this time; rather, urgently needed analyses will be completed at the NHM with existing equipment and data and results will be returned to Belize.

17. How will the work be distinctive and innovative? How will the project be advertised as a Darwin project and in what ways would the Darwin name and logo be used?

This cooperative effort will forge a broad spectrum alliance between government and NGOs to address an urgent threat to biodiversity within Belize. Solving the problem of over-exploitation of xaté requires a well-coordinated programme of work and dual strategy of sustainable harvesting and cultivation. It will draw on the unique expertise and experience of contrasting partner organisations, including a natural history museum, botanic gardens, forest department, national park, commercial nursery, and educational institutions – linked to local farmers, forest workers, businesses and schools. **Darwin Branding**: The Darwin theme of 'Survival of species' will be at the heart of all promotional and educational work undertaken for the xaté project, to illustrate how UK and Belizean organisations can work together to achieve the objectives of the CBD. The Darwin name and logo will appear on all signs, publications, maps and educational material, including demonstration plots, workshop announcements, the palm guide, reports, and xaté seedlings distributed to farmers and schools, and on our website.

18. Are you aware of any other individuals/organisations carrying out similar work? Are there completed or existing Darwin Initiative projects which are relevant to your work? Please give details, explaining the similarities and differences. Show how the outputs and outcomes of this work will be additional to any similar work, and what attempts have been/will be made to co-operate with such work for mutual benefits.

No similar work is current in Belize. H. Porter-Morgan (New York Botanical Gardens) is determining whether pollination or seed production limit population growth at Las Cuevas Research Station. In Mexico, population modelling of one xaté species (Lefkovitch matrix analysis, Oyama 1987) and defoliation studies of two other xaté species (D. Ackerly, in review) are informative but not sufficient for predicting responses in Belize. In Guatemala, sustainable harvesting has been more successful in buffer zones of the MAB Selva Maya reserves than in the unprotected southern Petén (the probable source of illegal collectors in Belize). We will visit both areas to identify best practice and problems (e.g. lack of mechanisms to limit over-harvesting from community-controlled forests), believing problems can be avoided in the more stable and conducive social and economic environment in Belize. Some *Chamaedorea* species are grown commercially in Mexico: we will visit selected nurseries.

19. Will the project include training and development? Please indicate who the trainees will be and criteria for selection. How many will be involved, and from which countries? How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length and dates (if known) of any training course. How will trainee outcomes be monitored after the end of the training?

Training (Art. 7, 12): All trainees will be Belizean.
Student Internships: interns in GIS at NHM (2) and horticulture at BBG (3) from University of Belize; selected by application following advertisement; effectiveness measured by trainer, submitted reports and University's assessment
Forest Department staff: (a) resource assessment training (56 person-months: team of 4, each working 1-3 months);
(b) workshop at LCRS in xaté monitoring (1; 15 individuals); (a & b) selected by application following advertisement within BFD for suitable candidates, with permission from managers; effectiveness determined through field assessments of trainer and reports of BFD managers.
Local xaté farmers and harvesters: workshop at BBG and LCRS (1; 15 individuals); selected from local communities by application and interview, focusing on those who can train others; effectiveness assessed by visits to farms or harvest locations, with continued links to BBG and LCRS to update skills as needed.
Teachers: workshop at BBG on xaté as model for teaching sustainable use of non-timber forest products (1; 15 individuals); selected from local schools by application and interview, focusing on those who can train others; effectiveness measured by trainer and incorporation of material into curriculum.

20. How are the benefits and/or work of the project expected to continue after the end of grant period? Please provide a clear exit strategy.

In the short-term, the Management Plan, staff training, monitoring plots and identification guide will enable the BFD to implement a sustainable harvesting scheme for xaté in Belize that is based on species-specific resource levels and renewal rates. Knowledge of economic value of the xaté resource will allow BFD to set appropriate royalty fees, providing funds for monitoring the harvest to ensure sustainability. In the longer term, cultivation experiments and marketing research should demonstrate that xaté cultivation is economically practical and can reduce pressure to overexploit natural populations. If eco-labelling of sustainably produced xaté is practical and verifiable, this would increase value of local xaté, reduce the pressure to over-exploit resources, and further conservation and sustainable management. Impact will continue after the grant ends because Las Cuevas Research Station remains as an important contact between our partners in Belize and the NHM. The project will also provide: (a) Forest Department staff trained in resource assessment and monitoring; (b) agriculture students trained in conservation and sustainable agriculture techniques; (c) research showing that sustainable harvest of xaté contributes to biodiversity conservation; (d) increased general conservation awareness; (e) employment opportunities for local villagers; and (d) a commercially viable product, with markets, for small farmers.

21. Provide a project implementation timetable that shows the key milestones in project activities.

Project implementation timetable

Date	Key milestones
	Activity areas: F – Field research and training in Belize; B – Belize Botanic Gardens research and training; L – Laboratory research and training at NHM, London; R – Reports, plans and guides; W – workshops.
2003/2004	
May	Planning workshop in Belize completed (W)
June	Xaté harvesting areas in Guatemala and Mexico visited (F)
July	Tropical botanic gardens growing *Chamaedorea* (xaté) species visited (B)
November	Draft of Belize palm guide (L) prepared and tested in field (F)
December	Background report on nursery techniques for xaté prepared and disseminated (B)
January	Background report on sustainable xaté harvesting in Selva Maya prepared and disseminated (R)
March	Defoliation & survey plots in Chiquibul Forest established (F)
March	Nursery techniques tested in Belize and stock grown for planting experiments (B)
March	Training for 2003/04 completed (F, B)
2004/2005	
June	Xaté distribution/abundance survey data from Chiquibul modelled using GIS and map prepared (L)
July	Belize palm guide published and disseminated (R)
October	Defoliation & survey plots in Chiquibul Forest resampled (F)
November	Demonstration plots at BBG established (B)
January	Potential local growers identified and market interest in eco-labelling assessed (B)
February	Genetics of xaté palms from Chiquibul Forest analysed (L)
March	Training for 2004/05 completed (F, B, L)
March	Initial consultations with local farmers, communities and businesses completed (B)
2005/2006	
April	Educational materials completed for schools, growers, and harvesters (B)
April	Xaté cultivation manual disseminated (R)
June	Survey plots elsewhere in Belize established (F)
July	Training workshop(s) held for teachers, using xaté as model for sustainable use of non-timber forest products and presenting xaté plants to schools (W)
October	Defoliation & survey plots in Chiquibul Forest resampled (F)
November	Training workshop(s) in xaté cultivation and market needs held for potential local growers (W)
December	Resampling data from Chiquibul included in GIS model, map revised, sustainable yields predicted (L)
January	Genetic analysis of xaté palms from elsewhere in Belize completed (L)
January	Training workshop(s) for BFD staff in xaté monitoring (W)
February	Xaté distribution/abundance survey data from other Belize sites modelled using GIS and map prepared (L)
March	Demonstration plots enhanced throughout year (B)
March	Regular school education visits to BBG in place (B)
March	Training for 2005/06 completed (F, B, L)
March	Management Plan prepared and sent to Forest Department for comment (R)
2006/2007	
April	Drafts of peer-reviewed papers completed
May	Management Plan revised and presented to Forest Department
June	Final Report submitted to Darwin

22. How will the most significant outputs contribute towards achieving the purpose of the project? (This should be summarised in the Log Frame as Indicators at Purpose level)

To develop capacity in Belize for conserving and sustainably managing xaté and improving the economic benefits to Belizeans from xaté collection, we must: (a) increase the **xaté information base** [output 3], including results from permanent and experimental survey, defoliation and cultivation plots; (b) complete a **Management Plan** for sustainable xaté harvesting [output 1] for the Belize Forest Department, based on the improved xaté information base; (c) publish a **field guide to Belizean palms** [output 2] for use in resource assessment by foresters and environmental awareness by teachers; (d) produce and disseminate **publications, reports and manuals** [output 4], to promote sustainable management and cultivation of xaté in Belize and to train local farmers, harvesters and foresters appropriate methods; and (e) provide **training and education** [output 5] to increase skills and raise environmental awareness, particularly for those who will in turn train others.

23. Set out the project's measurable outputs using the attached list of output measures

Project Outputs

Year/ Month (starting April)	Standard Output Number (see standard output list)	Description (include numbers of people involved, publications produced, days/weeks etc.)
2003/2004		
May	14	Planning workshop
March	4A;4B	Training in xaté horticulture: undergraduate agricultural student (1; 3 months)
March	6B	Training in xaté resource assessment: BFD staff (8 person-months)
March	8	NHM staff in Belize on project (2 [NG, MP], total 10 weeks; 1 [CM] – supervision throughout year)
2004/2005		
July	8	NHM staff in Belize on project (2 [CM, NB], total 10 weeks full-time, supervision throughout year)
August	4A; 4B	Training in GIS data collection and analysis: 1 undergraduate (8 wks, Belize; 4 wks, UK)
October	4A; 4B	Training in xaté horticulture: undergraduate agricultural student (1; 3 months)
March	6B	Training in xaté resource assessment: BFD staff (24 person-months)
March	8	NHM staff in Belize on project (2 [NG, MP], total 10 weeks)
2005/2006		
April	7	Training materials, 2 types: xaté cultivation techniques manual (1), xaté sustainable use poster (1)
June	4A; 4B	Training in xaté horticulture: 1 undergraduate agricultural student, 3 months
July	6A; 6B	Training workshop for teachers (15; 3 days)
July	8	NHM staff in Belize on project (2 [CM, NB], total 10 weeks full-time, supervision throughout year)
August	7	Training materials, 1 types xaté monitoring and assessment guide (1)
August	4A; 4B	Training in GIS data collection and analysis: 1 undergraduate (8 wks, Belize; 4 wks, UK)
November	6A; 4B	Training workshop: local growers in xaté cultivation (15; 3 days)
March	6B	Training in xaté resource assessment: BFD staff (24 person-months)
March	8	NHM staff in Belize on project (2 [NG, MP], total 10 weeks)
2006/2007		

	May	10	Field Guide to Belizean Palms
	June	6A; 6B	Training workshop: Forest Dept. staff in xaté monitoring (15; 3 days)
	July	8	NHM staff in Belize on project (2 [CM, NB], total 10 weeks full-time, supervision throughout year)
	August	9	Permanent xaté cultivation demonstration plots at Botanic Gardens (?number)
	September	5	Education officer completes 3-year period, receiving training and experience in production of educational materials for and teaching schools, teachers, farmers, and local community groups and NGOs
	March	12A	Geo-referenced database, and GIS maps, given to Belize Information Centre and BFD (1)
	March	22	Network of permanent xaté monitoring plots handed to BFD (1 network)
	March	9	Management Plan for sustainable xaté harvesting in Chiquibul Forest, including (a) distribution and abundance of xaté; (b) harvesting potential and (c) feasibility analysis of eco-labelling scheme and supplemental local cultivation of xaté (1)
TBA			
	TBA	14B	Conferences attended: 3 talks or posters
	TBA	11B	Papers submitted to peer-reviewed journals: 2

MONITORING AND EVALUATION

24. Describe how the progress of the project, including towards delivery of outputs, will be monitored and evaluated in terms of achieving its overall purpose. This should be both during the lifetime of the project and at its conclusion. Please make reference to the indicators described in the Logistical Framework.

Progress toward milestones and outputs to achieve the Logistical Framework indicators will be monitored and evaluated through:

a) the NHM's internal project assessment system (linked to staff reporting and forward job planning);
b) the Darwin Initiative's own reporting procedures;
c) annual meetings in Belize between UK and Belize project partners;
d) biannual reports from BBG to NHM on all activities, including seed procurement, planting, progress of demonstration plots, liaison with farmers, local nursery and national park, work with interns and marketing research;
e) regular communication through email and telephone;
f) supervision of fieldwork teams by the Las Cuevas Research Station Manager (C. Minty), a permanent NHM staff member stationed in Belize;
g) supervision of trainees by NHM and BBG staff;
h) completion of workshops; and
i) dissemination of palm field guide and instructional material.

25. How will host country partners be involved in monitoring and evaluation of the project?

Periodic meetings and correspondence with BFD, BBG, and other partners will provide two-way feedback on progress. This will allow all partners to evaluate whether management, methods, and outputs are achieving the project's purpose and, if not, to suggest modifications that are more effective. In particular, BBG will visit farmers on a regular basis to monitor interest and progress of trials initiated. Teakettle Enterprises will report on progress of their plants in cultivation. Elijio Panti National Park will monitor interest and uptake of xaté harvesting and cultivation in that locale. Student interns at BBG will be encouraged to accompany personnel and help prepare reports. The BFD will receive and evaluate Management Plan, requesting revisions if necessary, and evaluate the training received by its forest officers.

26. How will you ensure that the project achieves value for money?

All expenditure will be subject to the NHM's financial control procedures and Darwin guidelines, and monitored by the NHM's Administrative Manager of the Las Cuevas Research Station (N. Bell), stationed in London. Financial transactions in Belize will be supervised by the LCRS Manager (C. Minty), who has been in post 5 years, and the Director of the BBG (J. duPlooy), who has considerable successful business experience within Belize. For both, their long experience in Belize will ensure that in-country expenditures represent value for money. Lastly, as a strong management and facilities infrastructure already exists for this work in Belize, particularly at BBG and LCRS, we have requested no funds for large capital expenditures. Therefore, most funding is directed at producing applied research results and training Belizeans to carry this work forward after the grant period ends.

27. Reporting Requirements. All projects must submit six monthly reports (by 31 October each year) and annual reports (by 30 April each year). Please check the box for all reports that you will be submitting, dependent on the term of your project. You must ensure that you cover the full term of your project.

Report type	Period covered	Due date	REQUIRED?
Six month report	1 April 2003 – 30 September 2003	30 October 2003	Yes
Annual report	1 April 2003 – 31 March 2004	30 April 2004	Yes
Six month report	1 April 2004 – 30 September 2004	30 October 2004	Yes
Annual report	1 April 2004 – 31 March 2005	30 April 2005	Yes
Six month report	1 April 2005 – 30 September 2005	30 October 2005	Yes
Annual report	1 April 2005 – 31 March 2006	30 April 2006	No
Six month report	1 April 2006 – 30 September 2006	30 October 2006	No
Final report	1 April 2003 – 31March 2006	3 months after project completion	Yes

LOGICAL FRAMEWORK

28. Please enter the details of your project onto the matrix using the note at Annex B of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application

Project summary	***Measurable indicators***	***Means of verification***	***Important assumptions***
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 the benefits arising out of the utilisation of genetic resources.			
Purpose To develop capacity in Belize for conserving and sustainably managing xaté palms (*Chamaedorea* spp.) and improving economic benefits to Belizeans from xaté collection	Belize capacity developed and used to ensure xaté populations and harvests do not decline and economic benefits from xaté increase	Licensing agreements incorporate management plan recommendations; Surveys of monitoring plots, BFD records of Commercial harvest; Reports of GoB, IUCN, & CITES	BFD or NGOs continue to monitor plots and make data public Records of harvests made public

Outputs 1) Management plan for sustainable xaté harvest 2) Field Guide to Belizean Palms published 3) Xaté information base increased (permanent, experimental & demonstration plots; databases) 4) Publications/reports/ manuals: Xaté abundance, diversity, distribution in Belize determined; Feasibility of xaté eco-labelling explored; Nursery protocols developed 5) Training & education: BFB, BBG, students & local people trained; group educated about xaté	1) Plan completed and given to BFD 2) Guide tested in field; peer-reviewed; 500 copies distributed 3) Forest plots surveyed, effects of defoliation quantified, harvestable yields calculated; cultivation demonstration plots established & compared 4) GIS analysis completed; maps produced; regional yields calculated; buyers, end-users & local suppliers interviewed; genetic analysis completed; nursery techniques described 5) 30 individuals trained (horti-culture, resource assessment, monitoring or GIS); group visits to BBG increase	1) Acknowledgement by BFD 2) Guide published & reviewed 3) Databases, maps, and protocols distributed in Belize; demonstration plots reviewed 4) Background Reports, Final Reports and publications submitted & disseminated 1-4 Copies sent to DI 5) Trained individuals obtain jobs; numbers of visiting groups	1) Technically possible; BFD adopt plan; outputs 2-4 successful & incorporated into Plan; income to BFD sufficient to carry out Plan 2) Guide used for monitoring & education 3) BFD & BBG continue to monitor plots; sufficient local seed available for BBG work 4) Sampling sufficient to scale up to national levels; interviews successful 5) Students & local people interested in participating and continue to work with xaté
Activities	**Activity Milestones (Summary of Project Implementation Timetable)**		
Field research & training	Yr 1: visit xaté harvesting areas in Guatemala & Mexico; establish defoliation & survey plots in Chiquibul Forest; Yr 2 & 3: resample plots; Yr 2: establish survey plots elsewhere in Belize; Yr 1-3: training in resource assessment & monitoring		
Belize Botanic Gardens research & training	Yr 1: visit tropical botanic gardens growing *Chamaedorea* spp. (including xaté spp.); test nursery techniques in Belize; grow stock for planting experiments; Yr 2: develop demonstration plots at BBG, identify local growers, study market interest in eco-labelling; Yr 3: enhance demonstration plots; Yr 1-3: training in horticultural techniques		
Lab research & training	Yr 2: GIS modelling of distribution/abundance of Chiquibul survey data; Yr 3: revised GIS modelling, including resampling from defoliation & survey plots; GIS modelling throughout Belize; Yr 2-3: training in GIS; Yr 2-3: genetic analysis of xaté palms		
Reports, plans & guides	Yr 1: prepare Belize palm guide and test in field; prepare and disseminate background reports on (a) success of other sustainable xaté harvesting programmes in Selva Maya & (b) nursery techniques for xaté; Yr 2: publish & disseminate palm guide; Yr 3: prepare and disseminate Management Plan		
Workshops:	Yr 1: Project planning workshop in Belize after fact-finding visits to Guatemala, Mexico & neotropical botanic gardens; Yr 3: training workshops for BFD staff in xaté monitoring, workshops in xaté cultivation		