



Submit by Monday 24 October 2011

DARWIN INITIATIVE APPLICATION FOR GRANT FOR ROUND 18: STAGE 2

Please read the Guidance Notes before completing this form. Where no word limits are given, the size of the box is a guide to the amount of information required. Information to be extracted to the database is highlighted blue.

1. Name and address of organisation (NB: Notification of results will be by post to the Project Leader)

Name: The Game & Wildlife Conservation Trust	Address: Burgate Manor, Fordingbridge, Hampshire, SP6 1EF
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2. Project title (not exceeding 10 words)

Enhancing the relationship between people and pollinators in Eastern India.

3. Project dates, duration and total Darwin Initiative Grant requested, matched funding

Proposed start date: 1 April 2012		Duration of project: 3 years			End date: 31 st March 2014	
Darwin funding requested	2011/12 £	2012/13 £96,523	2013/2014 £84,030	2014/15 £90,705	2015/16 £	Total £271,258
Proposed (confirmed and unconfirmed) matched funding as percentage of total Project cost: 30%						

4. Define the purpose of the project (extracted from logframe)

To improve national and local understanding of the status of native pollinators, their ecology and their management for the benefit of local farming communities and the protection of the agro-ecosystem in partnership with Calcutta University, local government and local civil society organisations.

5. Principals in project. Please provide a one page CV for each of these named individuals. You may copy and paste this table if you need to provide details of more UK personnel or more than one project partner.

Details	Project Leader	Other UK personnel (working more than 50% of their time on project)	Main project partner and co-ordinator in host country/ies
Surname	Smith		Basu
Forename (s)	Barbara Maria		Parthiba
Post held	Senior Scientist		Associate Professor
Institution (if different to above)			University of Calcutta
Department	Farmland Ecology		Zoology
Telephone			
Email			

6. Has your organisation received funding under the Darwin Initiative before? If so, please provide details of the most recent (up to 6 examples).

Reference No	Project Leader	Title

7. IF YOU ANSWERED 'NO' TO QUESTION 6 describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims (50 words) Promote for the public benefit, the conservation of game and its associated flora and fauna; conduct research into the effects of land management practices on the environment; publish the results; advance the education of the public and countryside managers in the effects of land management which protects wildlife.

Activities (50 words) Research and development of habitats to support ecosystem service provision on farmland; Landscape, farm, field and plot scale experimental work to study invertebrate biodiversity and bio-control. Long-term monitoring of invertebrates in agricultural ecosystems. Extensive advisory service providing training and advice to farmers and land managers.

Achievements (50 words) Two long-term invertebrate monitoring projects maintained (Loddington Farm 19 years; Sussex Study 43 years); 1497 scientific publications since 1975; 72 PhDs since 1980; approx 30 training courses run annually; 22,000 members and supporters; 70% of the current options available in the Entry level Agri-environment Schemes were developed here at GWCT.

8. Please list all the partners involved (including the Lead Institution) , and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. This section should illustrate the capacity of partners to be involved in the project. Please provide written evidence of partnerships. Please copy/delete boxes for more or fewer partnerships.

<p>Applicant institution and website where available: Game & Wildlife conservation Trust www.gwct.org.uk</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): GWCT is the applicant and will provide the overall administration of the project. Dr Barbara Smith, Farmland Ecology Unit, will be Project Manager in the UK, responsible for monitoring project progress, ensuring that milestones are achieved and for reporting project progress to the Darwin Initiative. Barbara Smith will have access to the expertise of other members of Senior Scientific staff including Dr John Holland (Head of Farmland Ecology), Dr Nicholas Aebischer (Deputy Director of Research and Head of Biometrics) and Prof. Nick Sotherton (Director of Research). The project will be jointly co-ordinated between Dr Smith and Dr Parthiba Basu (see below). GWCT has extensive experience of successfully administering large projects, for a variety of funders including DEFRA. The organisation holds a wealth of expertise establishing functional links on farmland as well as expertise in survey of organisms in natural habitats. Barbara Smith will co-direct and provide in-country training on survey, monitoring and conservation strategies working with international experts in taxonomy through well established partnerships, strongly supported by John Mauremootoo. The highest scientific standards will be maintained. GWCT has an experienced advisory team, which disseminates research into practice and there is a strong evidence base for the success of GWCT in this area. The lead project partners (Barbara Smith and Parthiba Basu) collaboratively developed this project in response to a need clearly identified by Parthiba Basu. Barbara Smith has 10 years experience in project management, and experimental design, in managing field trials and survey, and has had a strong input into this project design and development. Furthermore, she will be able to draw upon the expertise within GWCT as the project progresses. Roles are further laid out in the Memorandum of Understanding.</p>
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<p>University of Calcutta http://www.caluniv.ac.in</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): Calcutta University will provide infrastructure for the project. The University will seek to perpetuate the outcome of this project institutionally by creating a Centre for Pollination Studies (CPS) within the Department of Modern Biology. After the project has ended, this centre will continue applied research and be responsible for maintaining a supportive advisory service for subsistence farmers. The flow of information will be two ways, i.e. farmers can feed back their experiences thereby leading to refined methodologies. The development of the CPS as a focal point for pollination ecology and conservation is clearly of strategic importance for Calcutta University, and will strengthen its position as a key stakeholder in pollination expertise nationally as well as regionally. The development of an accessible extension support will give subsistence farmers access to excellent advice and a legacy of stakeholder involvement. All employees in India will be recruited for the project (co-terminous with the completion of the project) and the University of Calcutta will have responsibility for their management. The staff will include advisors, research fellows and assistants at field sites. Field stations are part of the CPS. In addition Dr Parthiba Basu will collaborate with Dr Barbara Smith to coordinate the project and he will bear overall responsibility for Project Management in India. He will also contribute to regular project progress reports. Previously, Dr. Parthiba Basu designed and coordinated a nationally coordinated research program (18 participating institutions in as many agro-ecological regions across India) on Integrated Farming Systems (funded by Department of Science & Technology, Govt. of India). He also has excellent relationships with major stakeholders in India including the Wildlife Institute of India, Governments of Tripura and Orissa and a network of institutions involved in sustainable agriculture research in the country. He is involved in the dissemination of sustainable agriculture practices through All India People's Science Network (a network of science popularisation organisations)- he is a member of its Agriculture sub-committee.</p>
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<p>Partner Name and website where available: University of Exeter http://biosciences.exeter.ac.uk/staff/index.php?web_id=james_cresswell</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): Dr James Cresswell, Biosciences, College of Life & Environmental Sciences, University academic with responsibilities for research and teaching. His research deals with the performance and sustainability of pollination systems using experiments and mathematical models. The College have approved the workload commitment set out in this project.</p>
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<p>Partner Name and website where available: Dr John Mauremootoo</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): Dr Mauremootoo will coordinate external taxonomic support for the project. An insect ecologist by training Dr Mauremootoo has worked with the BioNET Global Secretariat to strengthen its regional networks to help bridge the gap between end-user taxonomic needs and the ability of the taxonomic sector to meet these needs. Part of this work has been the facilitation of contact between those needing taxonomic support for pollinator identification and established taxonomic expertise in the developing and developed world. The resulting collaboration has built capacity in identification among taxonomists and parataxonomists in the developing world through the production of user-friendly pollinator keys and fact sheets.</p> <p>Dr Mauremootoo has considerable experience in participatory training and capacity building from working with farmers in the Philippines in farmer field schools to designing and implementing training courses in environmental management for practitioners in eastern, western and southern Africa. He will advise the project on all aspects of capacity building to help ensure that the approaches adopted are fully participatory, therefore building local ownership and sustainability.</p>
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<p>9a. Have you consulted stakeholders not already mentioned above? If yes, please give details: The two major stakeholder groups in Tripura and Orissa will be represented respectively by the Department of Agriculture, Govt. of Tripura and Baitarani Trust, Bhubaneswar, Orissa, India, an NGO working for the livelihood development for marginal poor in Orissa (http://baitaraniinitiative.org). These two groups were consulted extensively while developing the project. The General Consultant to the Orissa Forestry Sector Development Program, Govt. of Orissa will also be an active stake holder of the project. The University of Calcutta has an excellent relationship with these stakeholders, having worked on previously successful projects with them and all three have confirmed their support for the project and agreed in principle to incorporate any beneficial outcomes into practice (see letters of support). Furthermore these bodies have agreed to support the project practically wherever possible. Dr Partiba Basu has consulted closely with the Wildlife Institute of India and Dr V.P. Uniyal, a national expert on lepidopteran pollinators will contribute time and expertise freely to the project. We will seek out further host country experts through links established by Dr John Mauremootoo and will engage national expertise when possible. The Baitarani Trust has an excellent network of collaborators in their field to help introduce knowledge based innovations and initiatives into rural areas. Dr Basu has links with local farmers through previous work. Annual 'celebrations' at each field site are an integral part of the project to enable us to maintain ongoing consultation with local stakeholders. In the UK we have consulted with Tim Benton (peer review panel member of the Insect Pollinators Initiative), Bumblebee Conservation Trust and Buglife (see letters of support). Buglife has offered voluntary support and expertise to the project. We are also in contact with Practical Action, a UK based charity which develops practical low costs methodology for poverty alleviation.</p>	<p>xYes <input type="checkbox"/> No</p>
<p>9b. Do you intend to consult other stakeholders? If yes, please give details: We are currently approaching the Bombay Natural History Society to discuss the deposition of a reference collection of insect pollinators with them. The primary collection will be housed at Calcutta University. When appointed, the post-doctoral field project manager will establish links with schools and local community groups to engage teachers and pupils in the project and ensure their participation in the annual celebration and on-going events at the research stations.</p>	<p>x Yes <input type="checkbox"/> No</p>

9c. Have you had any (other) contact with the government not already stated? Yes No

If yes, please give details:

The Department of Science & Technology (DST), Govt. of India and Ministry of Environment and Forests (MoEF), Govt. of India were consulted while developing the project and showed strong support. The DST has agreed in principle to provide matched funding of 34,492 through a separate research proposal which has been submitted to them. The Eastern Regional Division of the MoEF (See letter of support) has also expressed support for the program and stated that they would consider extending the work after the project end.

9d. Will your project support any work in the UK Overseas Territories? Yes No

If yes, please give brief details stating which Territory/ies will be involved.

PROJECT DETAILS

10. Please provide a Concept note (Max 1,000 words) (repeat from Stage 1, with changes highlighted)

Pollination is a vital component of ecosystem services, the value of which contributes to biodiversity and local livelihoods. India is still predominantly an agrarian country with large numbers of small and marginal farming communities whose food security depends on the sustained availability and quality of local crops, particularly legumes and vegetables such as gourds, pumpkins, and brinjals. These crops are pollinator-dependent and so these communities rely on a healthy ecosystem to provide pollinators, which are largely wild insects. Indian farming is becoming increasingly intensive however, which threatens the natural vegetation that provides wild pollinators, yet subsistence farming remains important. Recent research reveals a declining yield in pollinator-dependent crops in India, which is likely due to adverse impacts on the natural pollinator populations (Basu and Bhattacharya, Unpublished; <http://www.bbc.co.uk/news/science-environment-11418033>).

It is vital to avoid a pollination crisis for Indian subsistence farmers. Recent legislation has given land tenure and resource rights to tribal people (Recognition of *Forest Rights* 2006). Hence, there is an urgent need to empower communities like these to sustain their livelihoods. Moreover, Indian government policy requires a focus on the **Conservation and Management of Pollinators for Sustainable Agriculture Development** (4th Report to the **CBD**). Specific targets have been identified by the government as: Development of a knowledge base; Extension and promotion of pollinator friendly management practices; Capacity building; Public awareness, mainstreaming and information sharing. Through an established link with our Indian counterparts this demand driven project will address these key priorities.

In India there is a profound lack of ecological knowledge which is necessary to protect pollination services. There are fundamental knowledge gaps: (1) the diversity and distribution of pollinators; (2) the identity of the pollinators of commonly grown crops; (3) the ecological requirements of important crop pollinators; (4) the efficacy and impact of supplementing pollination by beekeeping. We will address these issues in the following ways:

- **We will support our partners in achieving CBD targets** by, for the first time, identifying key pollinators of subsistence crops in the region and describing their distribution and ecology. This will substantially increase the knowledge base on which to form **coherent conservation strategies based on the ecosystem approach**.
- We will launch and pilot a Darwin Initiative-branded Centre for Pollinator Studies (CPS). This is at the heart of the **strong partnership between the UK and Indian partners**. It will be a **hub for evidence-based good practice**, the development of which will be supported by essential expertise from the UK but which will become integrated into Calcutta University after the project to ensure a strong legacy. **Furthermore, there will be ample opportunity for MSc student programmes which will further build expertise in pollinator ecology.**

- The CPS will manage two field stations which will act in a **local capacity building role** embedding expertise via trained staff, respectfully raising awareness and being a locally available source of advice on good practice to maintain pollination services. **This will support communities in developing sustainable livelihoods.**

We will **increase capacity among farmers** to recognise the importance of **conserving the ecosystem to maintain pollinator services through strong partnerships between advisors and scientists**. We will determine whether there is an added benefit for farmers in keeping native bees. If it proves to be a successful and practical approach, the CPS will act as an advisory service via its field centres to help farmers start-up and maintain hives, thereby **demonstrably supporting the development of sustainable local livelihoods**. We will: 1) facilitate improvements to the existing efforts to maximise the use of honey bees 2) make efforts to facilitate the adoption of pollinator-friendly farming practices beyond beekeeping.

- We will develop this model of a central hub coupled with associated field stations as a transferable demonstration of good practice.
- We will publish in appropriate publications and engage in media activities, promoting the successful approach of the Darwin Initiative.

Strategy:

Work will be based in two locations covering two diverse socio-ecological milieu in Eastern India: States of Orissa, E. India and Tripura, NE India; both are areas of conservation concern.

We will:

- Survey the distribution of pollinating insects in intensive and extensive agricultural systems
- Establish long-term monitoring
- Identify if pollination services are limiting
- Identify the potential native crop pollinators & key ecological requirements
- Design approaches to encourage native pollinators based upon their ecology
- Investigate alternative strategies to encourage pollination
- Raise awareness among farmers of pollination
- Explore the potential to improve the livelihood of farmers in tandem with the pollination of their crops by encouraging farmers to keep native bees
- Test the usefulness of raising pollinator friendly shrub hedge rows around the field margins
- Encourage pollinator-friendly farming practices

Two Research Fellows (RF) will be based, one at each of the field stations having robust links to the CPS as it comes into existence, each assisted by two field assistants. The RFs will be supervised by a Post-doctoral project manager who will develop links within the local farming community and identify enthusiastic members of the farming community to be pollinator champions and encourage community participation. Initial training of RF and local communities will be carried out by host country and UK experts but in the final year, RF will be responsible for training local communities with UK and Indian experts in a supporting role. The farmers who are trained (36) will be effective extensionists thereby extending the value of the project both in time and space.

NB. List of Partners deleted as now listed above

Ways in which this project addresses CBD targets deleted and listed in relevant box below

11a. Is this a new initiative or a development of existing work (funded through any source)?

Please give details:

This is a new initiative that will be the first project specifically directed at establishing an in-country locally based source of expertise on pollinator taxonomy, distribution and ecology. Uniquely the project will facilitate a partnership between the centre of expertise and the end-users of the knowledge in subsistence communities. The project builds on work by Parthiba Basu who coordinated (All India Coordinated Research Program on Integrated farming systems (BIOFARM)) that was funded by the Department of Science & Technology, Govt. of India that involved subsistence farmers in testing integrated farming methods. Subsequently his analysis of long term FAO data showed indications of pollination limitation in India.

11b. Are you aware of any other individuals/organisations/ projects carrying out or applying for funding for similar work? Yes No

If yes, please give details explaining similarities and differences, and explaining how your work will be additional to this work and what attempts have been/will be made to co-operate with and learn lessons from such work for mutual benefits:

11c. Are you applying for funding relating to the proposed project from other sources? Yes No

If yes, please give brief details including when you expect to hear the result. Please ensure you include the figures requested in the spreadsheet as Unconfirmed funding.

After consultation with the Department of Science & Technology (DST), Govt. of India, we were invited to submit a project proposal to act as match funding for this Darwin Initiative application. The outcome of this application will be known by April 2012. These unconfirmed funds are currently associated with (a) *Building awareness on Pollination Services among the rural community*; and b) *Participatory on-farm research on Pollinator friendly farming practice*). Because these funds are restricted in this way (by the DST remit), they are associated with host country costs and consequently the funds we are requesting from DI are more heavily weighted to UK costs than we had originally intended. We will continue to fundraise for this project whatever the outcome of the DST application and are currently in contact with Cobra Beer and Glaxosmithkline. Were we to gain surplus funds, these monies would be used for dissemination of knowledge on pollinators through a) mobile telephone based downloadable application software for easy identification of pollinating insects, b) short films, c) posters and flip charts, d) additional booklets written in easy regional languages. We would also consider a bolt-on study employing molecular methods to investigate pollen transfer.

12. Please indicate which of the following biodiversity conventions your project will contribute to: -

At least one must be selected.

- Only indicate the conventions that your project is directly contributing to.

- No additional significance will be ascribed for projects that report contributions to more than one convention

Convention on Biological Diversity (CBD) Yes No

CITES Yes No

Convention on Migratory Species (CMS)* Yes No

*If CMS please indicate whether it is the main Convention or one or more of the daughter agreements/MoUs (ACAP, AEWA etc)

Is any liaison proposed with the CBD/CMS/CITES focal point in the host country? Yes No

If yes, please give details:

We have been in contact with the Ministry of Environment and Forests (MoEF) (national contact for the CBD) during the development of this project and will be proactive in sharing project outcomes. In addition we will liaise with the Govt. of India through the MoEF, and the Department of Science and Technology to address the existing CBD concerns of the country that includes the conservation of pollination services.

What specific issues covered by the Convention(s) will this project address and how were they identified? (150 words)

The aim of the project is to support our partners in achieving CBD targets, particularly the recent Aichi Targets. It will support our partners in: Ensuring areas under agriculture and forestry are managed sustainably, ensuring conservation of biodiversity (**Strategic Goal B; Target 7**); Ensuring that ecosystems provide essential services, (**Strategic goal D; Target 14**); improving the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, and ensuring this is widely shared, transferred, and applied (**Strategic Goal E, Target 19**). The monitoring and conservation of pollination services address all of the above and was identified through consultation with key stakeholders. Unpublished research by Basu & Bhattacharya also indicates an existing crisis. The project also addresses the following articles: **7** - ID and Monitoring; **12** – Research and Training; **13** – Public Education and Awareness; **18**. – Technical and Scientific Co-operation.

What will change as a result of this project? (150 words)

Fundamental understanding of pollinator identity and ecology will dramatically increase the capacity of India to protect pollination services. There is currently no dedicated focus for the study of pollinators in India and there is insufficient attention paid to the looming pollinator crisis. We will establish a Centre for Pollination Studies (CPS), a cutting edge research facility which will be in the position to raise awareness nationally and internationally. Uniquely, this Centre will be linked to field stations which have two beneficial functions: 1) farmers in these areas will have access to information, solutions and advice; the delivery will be through advisors living in the villages making the advice accessible and inclusive 2) Farmers will have an opportunity to feedback their experiences and further refine techniques with advisors and scientists as information flows freely between the CPS and field stations. We will also establish the first long-term monitoring of Indian pollinators.

Why is the project important for the conservation of biodiversity? (150 words)

The project will provide base-line information on diversity and abundance of pollinators which is critical for their conservation and sustainable use (CBD Article 7a,b) and will identify processes or activities which could have significant adverse impacts on the same (7c). The long-term data set created will be a sensitive tool crucial in devising conservation strategies (7d). The research element will directly investigate the ecology of pollinators about which little is known, this information will facilitate the conservation of a diverse pollinator community (12a,b) and will result in a centre of expertise which will be of long-term value. Building capacity among farming communities to appreciate the importance of pollinators in their own lives will encourage a positive attitude to pollinator conservation and conservation of natural pollinator habitat (12b, 13). Furthermore this project will investigate ways of conserving pollinator abundance by developing innovative solutions in consultation with stakeholders including the farmer community.

13. How will the results of the project be disseminated; how will the project be advertised as a Darwin project and in what ways will the Darwin name and logo be used? (max 200 words)

The Centre for Pollinator Studies (CPS) will be Darwin Initiative branded for the duration of the project and the Darwin Initiative contribution will continue to be acknowledged after the project ends. DI logos will be on all websites, stationary, email footers etc. Dissemination of scientific results will be through academic publications and conferences where the Darwin Initiative will be acknowledged and the logo will appear on all presentation and poster material. We anticipate (based on recent experience) both national and international interest from the press. There will be press releases at major milestones in the project and Darwin Initiative will be acknowledged on each occasion. This will be both in the UK where we will have access to the GWCT press office and in India where we will seek to engage local and national radio and press, supported by Calcutta University. Project progress will be reported in the Game and Wildlife Conservation Trust Annual Review which is delivered to 22,000 members. We will set-up a simple web-page with information about partners and regular up-dates on project progress and DI logos will be appended to all pages. At the end of the project the information will be presented at international conferences.

14. What will be the long term benefits (particularly for biodiversity and local communities) of the project in the host country or region and have you identified any potential problems to achieving these benefits? (max 200 words)

The project will establish for the first time an expertise in pollinator biology which will greatly enhance host-country capacity to conserve pollinator diversity and the associated ecosystem service function. The most important long-term benefits will be the skills and knowledge of the people trained as part of the project; the established Centre for Pollinator Studies as a focal point for expertise; enhanced capacity, nationally, to make informed conservation decisions based on scientific data; enhanced awareness among the farming communities and those who directly benefit from pollinator diversity; a capacity in the local communities to make evidence based decisions on managing habitats for pollinators; a lasting contribution to the knowledge of Indian pollinators (their identity, distribution and ecology) through survey and experimental work. Furthermore the project brings together key stakeholders which have not historically worked in partnership and will form strong links which will enable them to work together in the future. The project provides a mechanism, previously unavailable, for the Department of Science and Technology to provide support for the subsistence farming community and this mechanism will remain in place after the project end.

15. State whether or not the project will reach a stable and sustainable end point. If the project is not discrete, but is part of a progressive approach, give details of the exit strategy and show how relevant activities will be continued to secure the benefits from the project. Where individuals receive advanced training, for example, what will happen should that individual leave? (Max 200 words)

The project is defined and will reach a stable end but structures set in place by the project will continue and the work will be taken forward in-country. The CPS and associated field centres will be taken in-house by Calcutta University which will continue the work of the CPS through a mixed bag of funding, both internal and external. The establishment of the CPS is considered a prestigious project by the University and the University is keen for it to represent a model of good practice demonstrating high quality science that successfully informs conservation practice. We have had positive responses from the Indian government and we intend to mainstream the strategy and outcomes of the project into governmental and university outreach programs through involvement of the Agriculture department, Govt. of Tripura, and Baitarani Trust (see supporting letters). The advisory centres will be maintained by the CPS; the Baitarani Trust will assist the University in maximising the benefits of the project and continuing the dialogue between the academic community and the end-users of innovation. There is interest from the MoEF in trialling successful outcomes in other areas. In most cases advanced training will be given to more than one individual.

16. If your project includes capacity building in local communities in the host country, please indicate how you will assess the training needs in relation to the overall purpose of the project. Who are the target groups? How will the training be delivered? What skills and knowledge you expect the beneficiaries to obtain and how these may be used beyond the life of the project and any wider application. How will you measure training effectiveness. (max 300 words)

You should address each of these points.

We will train farmer extensionists, identifying community champions as the first recruits. We will assess their knowledge of pollinating taxa, the importance of pollinators and their requirements in informal workshops. Farmer extensionists will be trained in pairs at each field site (12 per year, 36 over the project life); year1 successfully 'qualified' farmers will act as trainers in years 2 and 3. This will be monitored by the RF and the advisors. In the first year UK and Indian experts will contribute to the training material and support RF and advisors in the delivery, in the second year the RF will be carrying out training alone with advice and monitoring by experts, by the third year the farmers will be involved in training and contributing to the bulk of further training under guidance. Advisors will remain closely involved throughout the process and it is intended that they stay in post after the project end. The aim is to establish self-supporting farmer groups. These will continue to have contact with the CPS via the local advisor. The farmer extensionists will learn how to 1) identify key pollinators and keep simple records to provide them with information on the status of pollinating insects which are crucial to crop success 2) basic ecology of the key pollinators (food plants, life-cycle etc) which will give them the tools to manage their land for pollinators into the future 3) adopt pollinator friendly farming techniques. We will measure training effectiveness via regular assessments, many oral but some also written. Farmers who successfully complete the training will be given a certificate from the CPS to confirm this.

We will run small educational workshops for children involving game playing and storytelling; we will not assess their training needs as this is an awareness raising exercise for the future.

LOGICAL FRAMEWORK

17. Please enter the details of your project onto the matrix using the note at Annex 3 of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application. Please highlight any changes. (Use no smaller than Arial 10 pt)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.</p>			
<p>Sub-Goal: Ensure that native pollination systems in eastern India are well understood in order to facilitate the conservation and improvement of native pollination services and protect the ecosystems on which they depend and benefit the local subsistence farming community</p>	<p>Increased understanding of native pollinator distribution and pollination ecology leads to improved management of pollinators both on farmland and in natural areas.</p> <p>Improved livelihood conditions of local communities engaged with the CPS.</p>	<p>Pollinator monitoring scheme set-up in Orissa and Tripura together with a network of individuals trained in pollinator monitoring.</p> <p>Database of base-line information constructed and publicly available; Data analysis investigating the effect of farming on pollination completed and published.</p> <p>Centre for Pollination Studies established.</p>	
<p>Purpose To improve national and local understanding of the status of native pollinators, their ecology and their management for the benefit of local farming communities and the protection of the agro-ecosystem in partnership with Calcutta University, local government and local civil society organisations.</p>	<p>Provision of information about pollinator distribution.</p> <p>Improved understanding of native pollinator ecology integrated with information on pollinator-dependent crops' pollination.</p> <p>Local people engaged and convinced about need to maintain a healthy pollinator population through conservation of healthy habitat .</p>	<p>Indian field surveyors and advisors established at field centres with the goal of providing advice and education to the local community</p> <p>Published data analysis revealing status of pollinators, their ecology and impact of farming on them.</p> <p>Final evaluation survey to establish community attitudes to conservation of pollinators and their habitat.</p>	<p>Local administration remains supportive.</p> <p>Motivated local field assistants available for training.</p> <p>There is no social unrest in the project areas.</p>

<p>Outputs (add or delete rows as necessary)</p> <p>1. Monitoring framework for pollinators established.</p>	<p>1. a 1 Post-doctoral level Project Manager 2 senior level Research Fellows trained in pollinator survey and ecology, data management and analysis.</p> <p>1.b 4 Field assistants trained in pollinator survey and basic data-entry.</p> <p>1. c A minimum of 36 enthusiastic members of the local farming community trained in simple survey techniques to enthuse and engage the local community.</p> <p>1. d A network of fixed points and / transects for pollinators at each location in place.</p>	<p>1. a Annual evaluation of Research Fellows together with training reports.</p> <p>1.b – c University of Calcutta workshop training and workshop reports.</p> <p>1.d. Report and evaluation by research fellows in tandem with the project team</p>	<p>Research Fellows and Research Assistants remain enthusiastic and in post.</p> <p>The local community is sufficiently engaged by the project.</p>
<p>2.a. Base-line information regarding pollinator diversity in the east Indian states of Orissa and Tripura</p> <p>2.b Assessment of key pollinator species and determination of their ecological requirements.</p>	<p>2. a Database of base-line information established.</p> <p>2. b Experimental work on crop pollinators and the interrogation and scrutiny of the database to establish ecology of key pollinators and to determine local pollinator networks.</p>	<p>2.a Database made publicly available.</p> <p>2. b. Annual Reports and academic papers.</p>	
<p>3. CPS and satellite field centres established. CPS acting as a hub for pollination ecology in Eastern India and the field centres acting as data collection centres and advice and outreach to local farming community.</p>	<p>CPS integrated into the Centre for Modern Biology at Calcutta University.</p> <p>Future funding for field centres established.</p>	<p>Agreement by University of Calcutta available. Funding for field centres confirmed by Ministry of Environment & Forests.</p>	<p>Difficulty in securing funding because of external changes to the economic situation.</p>
<p>4. Local engagement and increased capacity among farmers to manage pollinator population.</p>	<p>Functioning advice service at CPS field centres established.</p> <p>2 Advisors employed and trained.</p>	<p>Darwin Initiative and third party field inspection and evaluation.</p>	<p>Local communities remain receptive to project initiatives.</p>

Activities (details in workplan)

- 1.1 Project start-up , capital items purchased,
- 1.2 Partner meetings
- 2.1 MSc students trained in taxonomy and research techniques
- 2.2 Resource (Extension) Farmers trained in pollinator survey and recording
- 2.3 Research fellows trained and CPS staff trained in long-term monitoring methods and data management
- 2.4 CPS training: Taxonomy, experimental pollination ecology
- 2.5 Workshops for children
- 3.1 a. Long-term monitoring strategy devised and plots/transects identified
- 3.2 a. Field surveys on farm and in surrounding area
4. 1 Research questions refined
- 4.2 Experimental work initiated
- 5.1 Advisor in place
- 6.1 Data-base for long term data established
- 6.2 Data-base for research projects established
- 6.3 Data-base of long-term data made public
- 6.4 Data analysis
- 6.5 Data integration and final analysis of all data
- 7.1 Annual ‘celebration’ at each field site (6 per year)
- 7.2 Feedback sessions with farmers
- 8.1 Quarterly teleconference between research partners
- 8.2 Reporting to Darwin
- 9.1 Press releases and newsletter articles
- 9.2 Scientific publications submitted and conferences attended
- 10.1 Integration and final analysis of all survey data
- 10.2 Formal handover of all equipment, databases etc.

18. Provide a project implementation timetable that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project.

Activity	No of Months	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Governance													
1.1 a. Project start-up , capital items purchased, b. 1 Post-doc Project manager, 2 Research fellows, 4 Field assistants appointed c. 2 advisors appointed d. Field stations set - up. Advisor accommodation secured (outside project timeframe but if go-ahead given some early preparation will take place)	2	x											
1.2a Partner meetings in host country	<1		x										x
1.2b Partner meetings in UK	<1				x				x				
Training													
2.1 MSc students trained in taxonomy and research techniques (3 per year)	12		x	x			x	x			x	x	
2.2 a. Farmers trained in pollinator survey and recording (12 per year) b. In years 2 and 3 farmers from the previous year will help with training	8		x	x			x	x			x	x	
2.3 Research fellows trained and CPS staff trained in long-term monitoring methods and data management	6	x	x			x	x			x			
2.4 CPS training: Taxonomy, experimental pollination ecology	3			x				x				x	
2.5 Workshops for children	1			x				x				x	
Survey and Monitoring													
3.1 a. Long-term monitoring strategy devised and plots/transects identified b. Permanent gourd plots set-up	2		x										
3.2 a. Field surveys on farm and in surrounding area b. Pollinator visitors to permanent gourd plots recorded c. Gourd yield recorded	6		x	x	x	x	x	x	x	x	x	x	
Research at CPS													
4.1 Research questions refined	2	x				x				x			
4.2 a. Experimental work initiated b. Pollination ecology experimental work c. Testing beehive utility at CPS d. Testing beehive utility in the field e. Testing native floral strips to benefit pollinators (at CPS) f. Testing native floral strips to benefit pollinators (in the field)	27		x	x	x	x	x	x	x	x	x	x	
Advisory													
5.1 a. Advisor in place b. Advisor attending all training courses	36	x	x	x	x	x	x	x	x	x	x	x	x

c. Advisor engaging with farming community														
Data management analysis														
6.1	Data-base for long term data established	2			X									
6.2	Data-base for research projects established	2			X									
6.3	Data-base of long-term data made public	<1												X
6.5	Data analysis	12			X	X			X	X			X	X
6.6	Data integration and final analysis of all data	3												X
Community participation														
7.1	Annual 'celebration' at each field site (6)	<1				X				X				X
7.2	a. Feedback sessions with farmers b. Farmer visit to CPS	<1				X			X	X			X	
Reporting against milestones														
8.1	Quarterly teleconference between research partners	<1	X	X	X	X	X	X	X	X	X	X	X	
8.2	a. Annual report to Darwin Initiative b. Final report to Darwin Initiative	3				X				X				X
Dissemination														X
9.1	a. Press releases b. Newsletter articles	1	X			X				X				X
9.2	a. Scientific publications submitted b. Conferences attended	N/A			X	X			X	X			X	X
Project wrap-up														
10.1	Integration and final analysis of all survey data, completion of specimen databases, results on webpages, final deposition of specimens in CPS collection and duplicates in other collections, writing of conservation assessments and recommendations	3												X
10.2	Formal handover of all equipment, databases etc.	<1												X

19. Please indicate which of the following Standard Measures you expect to report against by providing indicative figures. These will help gauge project achievements if you receive funding. You will not necessarily plan to cover all these Standard Measures in your project. Separate guidance on Standard Measures can be found at http://darwin.defra.gov.uk/resources/reporting/standard_measures/

Standard Measure	Description	Estimate
1A	Number of people to submit thesis for PhD qualification (in host country)	2
1B	Number of people to attain PhD qualification (in host country)	-
2	Number of people to attain Masters qualification (MSc, MPhil etc)	9 (3 /yr)
3	Number of people to attain other qualifications (ie. Not outputs 1 or 2 above)	-
4A	Number of undergraduate students to receive training	-
4B	Number of training weeks to be provided	-
4C	Number of postgraduate students to receive training	9 (3 / yr)
4D	Number of training weeks to be provided	36
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above)	2
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	36
6B	Number of training weeks to be provided	4 per year
7	Number of (ie different types - not volume - of material produced) training materials to be produced for use by host country	4
8	Number of weeks to be spent by UK project staff on project work in the host country	33
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country	2
10	Number of individual field guides/manuals to be produced to assist work related to species identification, classification and recording	4 in 3 languages incl. English
11A	Number of papers to be published in peer reviewed journals	At least 3
11B	Number of papers to be submitted to peer reviewed journals	At least 6
12A	Number of computer based databases to be established and handed over to host country	2
12B	Number of computer based databases to be enhanced and handed over to host country	-
13A	Number of species reference collections to be established and handed over to host country(ies)	2
13B	Number of species reference collections to be enhanced and handed over to host country(ies)	2
14A	Number of conferences/seminars/ workshops to be organised to present/disseminate findings	2 (1 UK, 1 India)
14B	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	At least 4
15A	Number of national press releases in host country(ies)	3
15B	Number of local press releases in host country(ies)	3
15C	Number of national press releases in UK	3
15D	Number of local press releases in UK	3
16A	Number of newsletters to be produced	1 per qtr.
16B	Estimated circulation of each newsletter in the host country(ies)	
16C	Estimated circulation of each newsletter in the UK	
17A	Number of dissemination networks to be established	1
17B	Number of dissemination networks to be enhanced/ extended	1
18A	Number of national TV programmes/features in host country(ies)	2
18B	Number of national TV programmes/features in UK	1
18C	Number of local TV programmes/features in host country(ies)	3
18D	Number of local TV programmes/features in UK	-
19A	Number of national radio interviews/features in host county(ies)	1
19B	Number of national radio interviews/features in UK	2
19C	Number of local radio interviews/features in host country(ies)	2
19D	Number of local radio interviews/features in UK	-
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	£ 9500
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	1 (CPS)
22	Number of permanent field plots to be established during the project and continued after	At least

	Darwin funding has ceased	11
23	Value of resources raised from other sources (ie in addition to Darwin funding) for project work	£114,477

PROJECT BASED MONITORING AND EVALUATION

20. Describe, referring to the Indicators in the Logical Framework, how the progress of the project will be monitored and evaluated, including towards delivery of its outputs and in terms of achieving its overall purpose. This should be during the lifetime of the project and at its conclusion. Please include information on how host country partners will be included in the monitoring and evaluation.

The project will be closely monitored by the project partners, in particular the project leaders Barbara Smith and Parthiba Basu. Parthiba Basu will be based in the Centre for Pollinator Studies and will ensure that excellent training and high scientific standards are maintained. Barbara Smith will keep close contact with Parthiba Basu to ensure that project progress is on target, she has three months allocated to the project per year and will spend two of these in India, based at the CPS but travelling out to field sites to engage in the design and delivery of long-term monitoring, training and monitoring project progress. James Cresswell will spend two weeks per year at the CPS and visiting RF specifically addressing research issues and evaluating research quality. John Mauremootoo has experience of previous Darwin Initiative projects and will give valuable insight into the realities of communicating and evaluating knowledge transfer in rural communities. We will be ably supported by the Baitarani Initiative who's staff will be pro-active in liaising our evaluation. We will monitor the following: 1) Development of the CPS as a centre for excellent research. This will be evidenced by the publication of scientific papers in peer reviewed international journals; presentation of work at conferences; collaboration with national and international experts; the number of students keen to carry out projects with the centre, number of completed student projects; continuing support by the University of Calcutta and new funding sources coming on stream. 2) Awareness of the link between pollination and yield. We will demonstrate the link between pollination and yield to farmers; their understanding will be evaluated in oral discussion and by their willingness to participate in the pollinator friendly farming; 3) Functioning regional advice centres. We will use the engagement and participation of the farming community as a guide to success, specifically: participation in workshops and training programmes; participation in events at the field stations; attendance at the annual celebration; amount of advice sought from the advisor; number of farm visits made by the advisor; extent to which pollinator friendly farming practices are adopted on farm. 4) Development of data-bases which will be evaluated according to the quality of the information and the functionality of the data-base, beta-tested by GWCT staff before release. 5) The development of a pollinator reference collection which will demonstrate expertise and will provide a permanent legacy of the project. 6) The production of a) field for guides famers b) para-taxonomic keys for the CPS. Evaluation of 1, 4, 5 and 6 will be made by project partners and project progress will be reported in annual reports to the Darwin Initiative. Quarterly teleconferences will ensure close communication is maintained, 2, 3 and 6(a) will be evaluated by RF and advisors in partnership with the project partners and local community leaders. The quality of training will be assessed at regular informal workshops and via oral or written assessments. It is important that there is some tangible evidence of training and that this will be of value to the community. We have considered certification or a plaque but we will assess the value of these for the local community and adjust this if necessary.

FUNDING AND BUDGET

Please complete the separate Excel spreadsheet which will provide the Budget information for this application. Some of the questions below refer to the information in this spreadsheet.

NB: Please state all costs by financial year (April to March). Use current prices – and include anticipated inflation, as appropriate, up to 3% per annum. The Darwin Initiative cannot agree any increase in grants once awarded.

21. How is your organisation currently funded? (max 100 words)

Through a combination of charitable donations (we are a membership organisation), and external funding sources including research grants from government departments, research councils and non-governmental charitable trusts

22. Provide details of all confirmed funding sources identified in the Budget that will be put towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity. Please include any additional unconfirmed funding the project will attract to carry out additional work during or beyond the project lifetime. Indicate those funding sources which are confirmed.

Confirmed:

The Game and Wildlife Conservation Trust has confirmed a contribution of costs associated with the financial management of the project and 10% of the overhead costs of the organisation, representing a value of £6028.

Exeter University operates on full economic costing but has confirmed that it will forgo 60% to meet Darwin Initiative requirements of 40% OH, this represents a value to the project of £18,552 over the life of the project.

Wildlife Institute of India has agreed to fund employment of one Research Assistant representing a total of £XXX over three years.

Calcutta University will provide space for the Centre for Pollination studies and other infrastructural facilities representing £ 18270. It would also lend Dr. Parthiba Basu's service representing £ XXXX. Calcutta University will also provide equipments for use rental for which represents £ 900 and consumables at £200 per year

Tripura Government and Baitaraini Trust will contribute £2975 towards fieldwork travel and subsistence and other operating costs.

John Mauremootoo will provide a minimum of 5 days in country consultancy representing a value of XXXX

Unconfirmed:

We have applied to SEED, Department of Science & Technology, Govt. of India for a grant of £34,492.

23. Please give details of any further resources (confirmed or unconfirmed) for this project that are not already detailed in the Budget or Question 22. This will include donations in kind or un-costed support eg accommodation. (max 50 words per box)

Possible additional financial resources (not yet applied for):

- We are currently talking to Cobra Beer and Glaxosmithkline about possible additional funding. We are asking for support to 1) increase the extension work in local communities 2) add to the scientific work, e.g. molecular methods to investigate pollen transfer mechanisms.
- Royal Society India-UK Scientific Seminar scheme

Funding in kind:

FCO NOTIFICATIONS

Please check the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise the project's success in the Darwin competition in the host country.

Please indicate whether you have contacted the local UK embassy or High Commission directly to discuss security issues (see Guidance Notes) and attach details of any advice you have received from them.

Yes (no written advice)

Yes, advice attached

No

CERTIFICATION 2011/12

On behalf of the trustees/company* of Game and Wildlife Conservation Trust

(*delete as appropriate)


I apply for a grant of £271,248 in respect of all expenditure to be incurred during the lifetime of this project based on the activities and dates specified in the above application.

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful. (*This form should be signed by an individual authorised by the lead UK institution to submit applications and sign contracts on their behalf.*)

I enclose CVs for project principals and letters of support. Our most recent audited accounts and annual report are also enclosed/can be found at (*delete as appropriate*):

Name (block capitals)	Professor Nick Sotherton
Position in the organisation	Director of Research

Signed



Date:

24 October 2011

Stage 2 Application - Checklist for submission

	Check
Have you provided actual start and end dates for your project?	Yes
Have you provided your budget based on UK government financial years ie 1 April – 31 March?	Yes
Have you checked that your budget is complete, correctly adds up and that you have included the correct final total on the top page of the application?	Yes
Is the concept note within 1,000 words?	Yes
Is the logframe no longer than 3 pages and have you highlighted any changes since Stage 1?	Yes
Has your application been signed by a suitably authorised individual? (clear electronic or scanned signatures are acceptable in the email, but a wet signature should be provided in the hard copy version)	Yes
Have you included a 1 page CV for all the Principals identified at Question 5?	Yes
Have you included a letter of support from the <u>main</u> overseas partner(s) organisations identified at Question 5?	Yes
Have you checked with the FCO in the project country/ies and have you included any evidence of this?	Yes
Have you included a copy of your most recent annual report and accounts? An electronic link to a website is acceptable.	Yes
Have you read the Guidance Notes ?	Yes
Have you checked the Darwin website immediately prior to submission to ensure there are no late updates?	Yes

Once you have answered Yes to the questions above, please submit the application, not later than midnight GMT on Monday **24 October 2011** to Darwin-Applications@ltsi.co.uk using the application number (from your Stage 1 feedback letter) and the first few words of the project title **as the subject of your email**. However, if you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (eg whether the e-mail is 1 of 2, 2 of 3 etc). **In addition**, a hard copy of the signature page should be submitted to Darwin Applications, c/o LTS International, Pentlands Science Park, Bush Loan, Penicuik EH26 0PL **postmarked** not later than Tuesday 25 October 2011.

DATA PROTECTION ACT 1998: Applicants for grant funding must agree to any disclosure or exchange of information supplied on the application form (including the content of a declaration or undertaking) which the Department considers necessary for the administration, evaluation, monitoring and publicising of the Darwin Initiative. Application form data will also be held by contractors dealing with Darwin Initiative monitoring and evaluation. It is the responsibility of applicants to ensure that personal data can be supplied to the Department for the uses described in this paragraph. A completed application form will be taken as an agreement by the applicant and the grant/award recipient also to the following:- putting certain details (ie name, contact details and location of project work) on the Darwin Initiative and Defra websites(details relating to financial awards will not be put on the websites if requested in writing by the grant/award recipient); using personal data for the Darwin Initiative postal circulation list; and sending data to Foreign and Commonwealth Office posts outside the United Kingdom, including posts outside the European Economic Area. Confidential information relating to the project or its results and any personal data may be released on request, including under the Environmental Information Regulations, the code of Practice on Access to Government Information and the Freedom of Information Act 2000.