



Submit by 13 January 2006

DARWIN INITIATIVE APPLICATION FOR GRANT ROUND 14 COMPETITION:STAGE 2

Please read the Guidance Notes before completing this form. Applications will be considered on the basis of information submitted on this form and you should give a full answer to each question. Please do not cross-refer to information in separate documents except where invited on this form. The space provided indicates the level of detail required. Please do not reduce the font size below 11pt or alter the paragraph spacing. Keep within word limits.

1. Name and address of organisation

Name: Durrell Wildlife Conservation Trust	Address: Les Augrès Manor, Trinity, Jersey, JE3 5BP
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2. Project title (not exceeding 10 words)

Implementing a Recovery Plan for the Critically Endangered Pygmy Hog in Assam.
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3. Project dates, duration and total Darwin Initiative Grant requested

Proposed start date:		Duration of project:		End date:	
Darwin funding requested	Total	2006/07	2007/08	2008/09	2009/2010
	£182,000	£89,300	£53,500	£39,200	£

4. Define the purpose of the project in line with the logical framework

The main purpose of this project is to improve the conservation status of the critically endangered pygmy hog (*Sus salvanius*) in Assam, enhance habitat management practices of tall grasslands in Manas Tiger Reserve (MTR) - a UNESCO World Heritage Site, which supports the last remaining population of this species - and expand the species' distribution by establishing new populations with local captive-bred hogs in a former range area, the Sonai Rupai Wildlife Sanctuary (SRWS) and the adjacent Nameri National Park (NNP). This project will assist India in implementing the CBD and help MTR be removed from the 'List of World Heritage Sites in Danger'. Specifically, it will 1) develop human capacity and procedural mechanisms in wildlife and habitat monitoring, data analysis and status reporting; 2) improve management of the tall-grasslands through enhanced knowledge of the status of the habitats and the impact of factors including grassland burning and extraction activities on pygmy hog densities and other associated species; 3) reintroduce captive-bred animals in one or more areas within their recent known range, and implement improved habitat management and protection of these areas via training of Forest Department personnel, and 4) build community involvement and support for the conservation of the tall grasslands and its wildlife including, (but not confined to pygmy hogs) through the establishment of community-based biodiversity and environmental education, outreach and sustainable development programme. Delivering these objectives coincides with key objectives of the Environment and Forest Departments of the Govt. of Assam and (Union) Govt. of India, under the auspices of a renewed MOA and new 5-year strategic development plan.

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

Details	Project Leader	Other UK personnel (working more than 50% of their time on project)	Main project partner or co-ordinator in host country
Surname	Fa	Amin	Narayan
Forename (s)	John	Rajan	Goutam
Post held	Director of Conservation Science	Research Fellow	Project Manager
Institution	Durrell Wildlife Conservation Trust	Zoological Society of London, London, UK.	PHCPRBC, Assam, India.

Department	Conservation Science	As above	As above
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6. Has your organisation received funding under the Darwin Initiative before? If so, give details

Durrell Wildlife - Devising Solutions To Bushmeat Exploitation In the Sanaga-Cross Region, W. Africa, Project Number 162/10/004, 2001- 2004.

Institute of Zoology, Zoological Society of London – Building Capacity for Conservation of a Critically Endangered Flagship Species, Project Number 162/12/004, 2003-2006.

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)

Activities (50 words)

Achievements (50 words)

8. Please list the UK (where there are partners in addition to the applicant organisation) and host country partners that will be involved in their project and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. What steps have been taken to ensure the benefits of the project will continue despite any staff changes in these organisations? Please provide written evidence of partnerships.

1) Ministry of Environment and Forests, Government of Assam (MoEF, GoA) is a main partner with DWCT's pygmy hog project; 2) The Forest Department of Assam (FD), under the MoEF, GoA, conserves wildlife in Assam, particularly those within its network of protected areas. The MTR is one of India's flagship parks; 3) The Pygmy Hog Conservation Programme Research and Breeding Centre (PHCPRBC) at Basistha, and a pre-release centre at Potasali, run by DWCT in close collaboration with the IUCN/SSC Pigs, Peccaries & Hippos Specialist Group (PPHSG), focuses on captive breeding, field conservation and environmental awareness.

This particular proposal is in line with conservation recovery plan previously agreed with the relevant local governmental authorities and the IUCN Action Plan for this species, and further developed and refined in consultation with the senior-most officials in the Assam Forest Department, up to and including the Minister of the Environment, Shri Pradyut Bordoloi, and the Principal Chief Conservator of Forests – Wildlife (PCCF-W), Shri M. C. Malakar. The latter have provided assurances of full governmental support to this project (see accompanying letter of support). Additional consultations were also held with the Director and Deputy-Director of MTR, who similarly provided their full endorsement of the project (see accompanying letter of support), and park staff at all levels have welcomed the strong research, training and community-based education support to be provided by the project.

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

This project will also be of direct concern to local communities in terms of improving existing tall grassland management and extraction practices with a view to the enhanced sustainability of these resources and amelioration of potential conflicts re. illegal thatch collection, burning and grazing of domestic livestock. Conservation education programme, awareness raising and consultations with communities bordering the MTR will therefore constitute an essential component of this project. We will carry out a detailed social, cultural and economic assessment of MTR adjoining communities. The project education and community liaison officer with support from the Darwin fellows, DWCT and ZSL education officers will work closely with the local communities, NGOs and government authorities (such as the regional centre for environment education) to develop a number of biodiversity and environment education, community awareness and livelihood initiatives. Radio broadcasts will be used to reach a wider audience to garner support. We will also

work with Guwahati University and Assam Remote Sensing Application Centre on specific areas of training and habitat assessment.

PROJECT DETAILS

10. Is this a new initiative or a development of existing work (funded through any source)? Are you aware of any other individuals/organisations carrying out similar work, or of any completed or existing Darwin Initiative projects relevant to your work? If so, please give details explaining similarities and differences and showing how results of your work will be additional to any similar work and what attempts have/will be made to co-operate with and learn lessons from such work for mutual benefits.

This project builds on more than 25 years experience of field research and management of pygmy hogs and related biodiversity conservation undertaken by DWCT/ PPHSG in N. W. Assam. However, it is a new initiative in that it targets a crucially important (and in many ways long overdue) set of agreed research and practical management priorities identified in the conservation recovery plan for this species. As such, this project also aims to achieve conservation at both the landscape and species level.

Additionally, this project will also apply knowledge gained in one part of the world to another, by transferring experience and expertise in information gathering and training from two different Darwin Initiative funded projects, i.e. on tall grass management in southern Nepal (ref: 3023), which is expected to provide important comparative data and practical experience, and on the conservation of the black rhino in Kenya, which has potential important implications for the enhanced future protection of Greater one-horned rhinos in MTR (as rhinos are reintroduced). The latter project (ref: 12004) was led by this project's scientist and has already proved successful in delivering training and developing expertise for the protection of natural habitats, and ensuring viable populations of this species in Kenya.

The project will work closely with the Regional Centre of Environment Education – an Indian NGO who were trained by a previous Darwin Project (ref: 6017) to work effectively with the local community to promote community involvement in the management of biodiversity resources.

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 (see Annex C for list and worked example) and rank the relevance of the project to these by indicating percentages. 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.

The Articles under the Convention on Biological Diversity covered by this project include Articles 7 (identification and monitoring), 8 (in situ conservation), 9 (ex-situ conservation), 12 (research and training), 13 (public education and awareness) and 14 (impact assessment and minimizing adverse impacts). In addition, this project will contribute to achieving key objectives of the National Biodiversity Strategy, namely: 1) developing the expertise within Assam to promote the protection of natural habitats for the maintenance of viable populations (e.g. of pygmy hog and other tall grassland species) in their natural surroundings; 2) providing a scientific and technical training programme to facilitate the conservation and sustainable management of key components of Assam's biodiversity (tall grassland ecosystem); 3) establishing a range of field-based tools and infrastructure supporting Assam's capacity for protected area management and 4) building local knowledge, awareness and support for the protection of unique biodiversity of the region (and within the context of sustainable development) through a community-based education and outreach programme.

12. How does this project meet a clearly identifiable biodiversity need or priority defined by the host country? Please indicate how this work will fit in with National Biodiversity Strategies or Environmental Action Plans, if applicable.

The survival of pygmy hog is closely linked to the existence of the tall wet grassland habitat dominated by

Saccharum – Narenga – Imperata association of grasses. This is a highly threatened ecosystem, crucial to the survival of the pygmy hog and many other endangered species, such as the Greater one-horned rhinoceros (*Rhinoceros unicornis*), tiger (*Panthera tigris*), swamp deer (*Cervus duvauceli*), wild buffalo (*Bubalus bubalis*), hispid hare (*Caprolagus hispidus*) and Bengal florican (*Eupodotis bengalensis*). However, the pygmy hog is not only far more immediately threatened than these species, but arguably the single most important indicator species for wildlife management practices in this habitat as it has disappeared from many tall grassland areas that continue to support these and many other species.

Because management of grassland habitats (through burning, both deliberate by MTR authorities and illegally by neighbouring communities) has aimed to provide only the requirements of the larger mammals, this has undoubtedly, and catastrophically, impacted on the survival of many smaller species. By improved habitat assessment and monitoring of the impact of grassland burning, livestock grazing and harvesting (for roofing thatch and domestic animal fodder) alongside data on the distribution and abundance of the pygmy hog and other associated grassland species, this project will target a set of multi-species objectives within an important World Heritage site in India. Indeed, MTR is not only of highest priority within the narrow confines of 'Project Tiger', but it supports nearly twice as many Schedule One species than any other reserve in the Indian subcontinent. By building technical capacity, improving access to resources and training, strengthening the knowledge base of important biodiversity components of tall grasslands through research as well as establishing a community-based biodiversity and environment education and outreach programme, this project will contribute to meeting key objectives of India's national biodiversity strategy.

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

The project will actively seek to harness support and cooperation of various stakeholders in and around the MTR. By understanding the needs of the community in terms of resource use from the MTR grasslands, the project will assist in finding workable, sustainable, and socially acceptable alternatives in the rural areas outside the park (e.g. reviving the age-old practice of using protected village common lands for growing thatch and fodder, along with establishment of financially independent cattle-pounds). Furthermore, as a follow-up to the capacity building programmes for the MTR staff and students (which also contributes to building local expertise for conservation as most of the people involved in the project come from the surrounding areas), the following measures will be undertaken. 1) Carrying out a social, cultural and economic study of the adjoining communities and using the results to influence and support government authorities and NGOs, particularly those responsible for ongoing eco-development projects around protected areas, in providing viable alternatives and assistance to the people. 2) Training local school teacher trainers, teachers, relevant local groups and NGOs in delivering effective biodiversity and environment education and supporting through the production of education teaching and awareness material in Assamese and local Bodo languages. 3) Running outreach programmes including seminars and community forums to a) generate awareness about immediate and tangible benefits of conserving the biodiversity within protected areas; b) inform about the serious implications of encroaching upon or destroying the last remaining habitats of large herbivores and carnivores (e.g. elephant, deer, tiger), which is one of the main reasons for increased human-animal conflict in *bona fide* human settlements outside protected areas (in effect creating public opinion against encroachment and indiscriminate habitat destruction); c) spread awareness of opportunities and possible benefits from various government and non-government programmes in the area (e.g. eco-development projects such as the introduction of energy efficient devices, appropriate agricultural and horticulture practices for improving livelihoods in the fringe areas) and help initiate such project; and d) create benefits of ecotourism accruing to the local community if the wildlife and their habitat are well preserved in the protected areas; if necessary, work with local government organisations and NGOs to equip the locals with capacity to handle tourists (e.g. nature guides, eco-camp employees, refreshments and souvenir sales).

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

Provided all important assumptions are met, this project will crucially improve monitoring and biological management of the critically endangered pygmy hog and many other threatened terrestrial vertebrates in MTR. It will assist in decision-making and future planning for the conservation of wildlife in the region, and

ultimately greatly increased biodiversity and numbers of diverse severely threatened species. It will significantly improve quality and effectiveness of biodiversity education and awareness in schools and communities and enhance the capacity of local government organisations and NGOs to setup effective livelihood initiatives. This will be achieved by: 1) providing a range of training which meets the needs of persons working in MTR and SRWS/NNP, from field monitoring staff to scientists (specifically developed course supported by written course material and reference work as well as formal courses); 2) building MTR and SRWS/NNP staff capacity using specific data-handling and decision support tools provided by the project; 3) catalysing the production of written standardised annual status reports, which will provide detailed information (on the productivity, health and status of the pygmy hog and associated grassland species populations) needed to improve strategic conservation decision-making; 4) developing habitat assessment and monitoring system, understanding the impact of extractive activities (grass cutting) and fire regimes on pygmy hog populations and other resident wildlife, building habitat suitability and viability models and sensitivity maps, and identifying prime habitats; 5) establishing and the monitoring of one or more viable pygmy hog population in SRWS and NNP, using captive-bred animals from PHCPRBC, and building park staff capacity to monitor and manage these populations; 6) assisting in the refinement of existing (but clearly inadequate) management plan for the MTR; 7) assisting in the upgrading and refinement of existing (but seriously out-dated) FD guidelines re. grassland management and extraction practices issued to all FD staff; 8) developing and providing practical operational guidelines which can also be applied to the management of these habitats in other parts of India and elsewhere; 9) establishing a MTR community-based biodiversity and environment education programme for school children, teachers and local groups; 10) undertaking a social, cultural and economic assessment of the MTR adjoining communities and using the results to inform and work closely with local government authorities and NGOs to develop a number of effective awareness and livelihood initiatives.; 11) running seminars and community forums (local NGOs, government organisations and conservation groups will be involved in organising these) where specific environmental/conservation issues and livelihood initiatives will be discussed; 12) circulating the different findings of the project to relevant funding agencies, relevant government and non-government organisations, local groups and tour operators.

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

A lasting legacy will be achieved by: 1) developing a cadre of well trained MTR and SRWS/NNP park staff in species monitoring and management; 2) creating a critical mass of instructors, who can train park staff in MTR and SRWS/NNP but also in other protected areas within Assam; 3) providing practical data-handling and decision-support tools which will continue to be used after this project; 4) improving the quality and reliability of monitoring data for the pygmy hog and other associated grassland mammals as a direct result of training and field work undertaken during this project; 5) developing habitat monitoring system including procedural manual and undertaking habitat assessment which will increase knowledge of the status of the habitats, provide an understanding of factors (including grassland burning) affecting pygmy hog densities and other grassland species in MTR and SRWS/NNP and facilitate the production of habitat sensitivity maps, PHVA models and estimation of carrying capacities; 6) improving the capacity of MTR and SRWS/NNP park staff to undertake future habitat assessments of existing areas and also new areas for the range expansion of pygmy hogs; 7) implementing standardised annual status reporting, and employing these reports for making appropriate park management decisions that will ensure the long-term conservation of all protected species in MTR and SRWS/NNP, without any conflict arising for others, when pursuing management for any one of these; (e.g. control burning of grasslands); 8) maximising the chance of outputs being disseminated and put into practice by following-up initial training with on-going mentoring; 9) increasing research capacity in the protection of Indian grasslands biological diversity through MSc and BSc studies; 10) establishing a community-based biodiversity and environment education and outreach programme, with a dedicated project education and community liaison officer which will carry on running awareness activities and providing support to teachers in the form of programmes, training and teaching materials; 11) providing the Forest Department, local government organisations and NGOs with the information and support to deliver effective livelihood programmes in the adjoining surrounding communities.

16. Please give details of a clear exit strategy and state what steps have been taken to identify and address potential problems in achieving impact and legacy.

This project will document the current status of pygmy hog and associated wildlife and their grassland

habitats in MTR and in SRWS/NNP (where new pygmy hog populations will be established in Yr 2 of the project). More importantly, it will leave behind the capacity for future monitoring and decision-making. By training, mentoring and enabling multiple instructors to emerge from within MTR and SRWS/NNP staff, we will be creating the ability for these to continue mentoring and training new staff members after project completion. The project will build confidence in MTR and SRWS/NNP staff, through active skills development, support and mentoring, to run the pygmy hog and associated grassland species monitoring, habitat assessment, status reporting and management activities into the future. We are confident that if successful, this project will have a clear catalytic effect on Assam Forest Department and the management of other protected areas in the region. Also importantly, the project will have established a much needed MTR community-based education and outreach programme (including a dedicated education and community liaison officer) which the park will carry on running after project completion (see letter of support). The project will setup a conservation and environment education training programme for local school teachers, relevant park staff, members of local groups and NGOs who will continue educating school children, community members (including community leaders who play a key role in decision making) and also carry out training in other areas with support from the park education and community liaison officer. We will introduce active learning and publish substantial education teaching and awareness material including a conservation book. The information will be provided in a simple way and will deal with a range of issues including conservation of pygmy hogs and other components of biodiversity in Manas, benefits of preserving the grasslands and its wildlife, environmental degradation and sustainable use of grasslands and natural resources. Activity material for engaging young children will also be produced. The material will be published in Assamese and translated to Bodo language to ensure widespread uptake. Translation will be through highly qualified translators. The material will be distributed through schools (trained teachers), local groups, government organisations and NGOs. The project will promote the establishment of school based conservation projects and participation of school students and communities in specific park monitoring exercises.

The project will also have installed a number of support tools such as a grassland mammal information management system, GIS, habitat assessment procedural manual, vegetation database and field monitoring procedures and protocols. Local staff will have been trained and mentored in the use of such tools, and should be able to continue updating and applying them after the project ends. Park research capacity will also have been improved through MSc studies. Because DWCT has a long-term commitment to protecting the pygmy hog (and enhance biodiversity in Assam in general), through its continuous presence at the PHCPRBC in Basistha and Potasali, formal and informal contact with MTR and SRWS/NNP will be maintained beyond the lifetime of the project. Additionally, all Darwin fellows (J. Fa, R. Amin, & G. Narayan) and consultant (W. Oliver) will provide any feasible assistance via e-mail or telephone.

Both DWCT and the PPHSG have worked closely with the Assam Forest Department and other stakeholders for over 25 years; as have two of the proposed Darwin project staff, G. Narayan, and W. Oliver. As a consequence, and at both institutional and personal levels, they have not only developed excellent working relations with these authorities, but are exceptionally well-placed to identify and resolve potential problem areas which could affect project impact and legacy. The *potential problems* and proposed steps/approaches to mitigate them are: 1) **Lack of uptake of training:** Our proposed training will follow an outcomes-based approach and include formalised testing procedures to assess the degree of understanding/competence of trainees. Trainees will only be accredited if specific set standards of knowledge and competence are shown for each aspect of the training. Formal accreditation, and the pride and recognition it will bring, should act as motivator and promote uptake of training. 2) **Staff turnover:** By training multiple trainers and using on-going on-site modular teaching approach, training should continue into the future despite staff turnover. Furthermore, the MTR director and deputy-director are fully committed to retaining trained staff recognising that intensive monitoring, security and active biological management to ensure the conservation of the grassland mammals including the rapid recovery of pygmy hog populations following years of instability requires well trained and highly motivated staff in the field (see letter of support). 3) **Lack of proper implementation:** i) Staff need to know what is expected of them. The park director and deputy-director will therefore draw up Terms of Reference (ToR) for each relevant staff member involved in the project which should provide clear guidance on their responsibilities. The ToR will be established at the start of the project and updated as necessary (please see attached letter). ii) Focus areas of the proposed project such as wildlife or habitat monitoring will have required reporting and evaluation procedures associated with them (monthly field reports, field assessments, annual status reports, habitat evaluation reports). A core group involving

park field director, deputy director, relevant park officers, grassland ecologist, education and community liaison officer and Darwin fellows will be formed to evaluate the project work each month. Local community leaders, groups and school representatives will be invited to relevant meetings. iii) During the project lifetime, Darwin fellows and the park project coordinators will be able to use these to identify problems with implementation at an early stage and take necessary remedial action/training. iv) A lack of confidence and a fear of making mistakes may be a factor that may preclude full implementation. The process of accreditation and mentoring, support and encouragement by Darwin fellows should help provide staff with the necessary confidence to implement what they have learned. v) After this Darwin Initiative has ended, the park directors and committees will be able to monitor the levels of implementation of on-going programme activities introduced/enhanced by the project. 4) **Relevance of academic research projects and choice of appropriate students:** Darwin fellows and the park directors will develop appropriate research programmes for two MSc's to ensure the students continue to make a significant contribution well beyond the study. 5) **Potential lack of community involvement and support:** The project will work closely with MTR staff and relevant local organisations such as the regional Centre of Environment Education to provide extensive support for teachers, NGOs and local groups in the form of programmes, training, teaching materials and support. In addition, given the high poverty levels of the local communities in the fringe area of both MTR and SRWS/NNP, the project will work with local government authorities and NGOs to provide viable and sustainable alternatives for income generation or supplementation as incentive to garner support of the communities.

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

The Darwin Initiative will be fully acknowledged in all reports and scientific papers, and the logo will be displayed on the cover of all reports. The logo will also be advertised on: 1) course notes, presentations, and manuals developed by the project; 2) formal presentations in scientific meetings; 3) resulting databases (habitat assessment, animal distribution and numbers); 4) habitat sensitivity maps; and 5) education material (published in Assamese and local Bodo languages). Press offices in DWCT and ZSL, who are regularly involved in publicising projects undertaken by these organisations, will make reference to the contribution made by Darwin Initiative. Reference to Darwin Initiative will be made in local radio broadcasts and newspaper articles, in the UK as well as in the host country, in DWCT and PPHSG newsletters and other relevant publications; and publicised on the DWCT, ZSL, PPHSG and relevant Indian park websites.

18. Will the project include training and development? Please indicate who the trainees will be and criteria for selection and that the level and content of training will be. 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 and development are considered pivotal to the success of the project. All trainees will be Indians, namely MTR and SRWS/NNP staff, students or other regional officers (e.g. from the adjoining Bodo ethnic community). From within the MTR and SRWS/NNP staff, we will select staff directly linked to wildlife management within the park for training. The training will include: 1) at least 10 MTR and SRWS/NNP park staff trained as instructors in monitoring and surveying of pygmy hog and other grassland mammal species (5-day trainer's course and on-site training and support as needed); 2) a minimum of 30 MTR and SRWS/NNP park patrol and monitoring staff trained in monitoring and surveying techniques, data collection and reporting protocols by new local instructors, with mentoring and additional advisory support given to trainers by Darwin Fellows (intensive 4 week on-site training in each area followed by regular training by local instructors with support from Darwin Fellows where necessary); 3) 8 park officers trained in: a) data entry and management, data quality control, and basic data processing using a customised Grassland Mammal Information Management System (two 5-day hands-on training with follow-up training as needed); b) GIS and map interpretation (see (a) above); 4) 8 park managers, officers and scientists from MTR and SRWS/NNP trained in the production and interpretation of standardised annual park reports (2 weeks in the first year with additional support, training and mentoring in subsequent years); 5) 5 park ecologists and monitoring staff mentored during habitat assessment work and trained in procedures for habitat assessments and carrying capacity estimation (5 day course and extensive on-site training); 6) 1 Darwin project education and community liaison officer (employed from the local community) provided additional training by DWCT and ZSL education staff; 8) At least 60 local school teachers and relevant park staff and members of local groups and NGOs trained in environment education and supported through teaching materials for active

learning and by integrating biodiversity learning into school programmes; 7) Additionally, MTR and SRWS/NNP staff will be involved in studies of the distribution, abundance, movement patterns and habitat needs of the pygmy hog and associated grassland species. This research, which will include formal studies undertaken at MSc level (2 studentships at the University in Guwahati), will be supervised and mentored by J. Fa, R Amin, W. Oliver, and G. Narayan. Local university BSc and MSc student placement studies in wildlife management will also be developed.

Outcomes will be measured by 1) accreditation tests within training courses; 2) field visits by Darwin fellows to evaluate progress; 3) quality checks on monthly monitoring reports submitted by field staff; 4) monthly project progress meetings. The ultimate success of this training will be indicated by the degree of improvement in monitoring and quality of field data, the production of status reports, the assessment of habitats and carrying capacities, improvement in grassland management practices and greater community participation in environment education and awareness programmes. For details of approximate course dates see section 20 – actual dates will depend on staff and venue availability.

LOGICAL FRAMEWORK

19. 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. Please highlight any changes.

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 <ul style="list-style-type: none"> • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
Purpose To build local capacity in Assam to have the capacity and information systems for: 1) pygmy hog conservation; and 2) meet overall CBD objectives for the area.	Improved information on wild pygmy hog populations, and habitat available for effective management and implementation of a forward five-year strategy. Regular reviews and feedback reports.	Annual park staff status reports on wildlife populations. Recommendations for pygmy hog meta-population and habitat management. At least one new pygmy hog population restored.	High level support within FD and MoEF, GoA, for the aims of the pygmy hog conservation and management strategy developed by project.
Outputs a) Comprehensive system for monitoring of pygmy hog populations, other associated grassland species and their habitats in MTR established.	Distribution, habitat use and relative abundance of the pygmy hog, and other grassland species in MTR extrapolated. Fully working GIS database system at MTR (by Y1), SRWS/NNP (by Y2) and PHCPRBC (by Y1). Minimum of 8 staff trained in GIS, use of	Wildlife monitoring data in system database. Papers published on relationship between distribution and abundance of species and habitat characteristics. Report of habitat suitability analyses for pygmy hogs produced to guide management	Retention of staff with specialised training skills and experience, and high motivation. Support for equipment maintenance and repairs.

	<p>database system, data analysis and status reporting (Y1 and Y2).</p> <p>Annual status reports</p> <p>Impact of burning on pygmy hog populations and other wildlife understood, and prime habitats identified by Y2.</p> <p>Habitat sensitive area maps and PHVA models produced (Y2, Y3).</p> <p>Habitat assessment manual produced; at least 5 staff trained in habitat assessment (Y2).</p> <p>Conservation priorities for specific areas in MTR developed by Y2.</p> <p>Long-term plan for pygmy hog conservation developed by Y3.</p> <p>2 MSc's trained.</p> <p>Local BSc and MSc student placement studies.</p>	<p>practices.</p> <p>Number of annual status reports.</p> <p>Sensitivity maps and PHVA models produced to guide management practices.</p> <p>Habitat assessment manual and number of staff trained.</p> <p>Digital and photographic products to aid MTR resource managers.</p> <p>BSc, MSc reports and certificates.</p> <p>5-year conservation plan for pygmy hogs produced.</p>	
b) New pygmy hog populations established in SRWS/NNP.	<p>Suitable release sites within SRWS/NNP identified by Y1.</p> <p>Improved protection, monitoring and grassland habitat management in SRWS/NNP by Y2.</p> <p>Captive-bred hogs from PHCPRBC in Guhawati moved to 'pre-release' holding and management enclosures, and 25 hogs released and monitored in SRWS/NNP by Y2.</p>	<p>Report on habitat assessment and suitable release sites within SRWS/NNP.</p> <p>Number of SRWS/NNP staff trained in protection, monitoring and grassland management.</p> <p>Pygmy hogs released in one new area and status monitored over time.</p>	Full collaboration from SRWS/NNP staff.
c) Trained and accredited instructors for pygmy hog and other grassland	<p>Minimum of 10 park staff trained and accredited as instructors by Y1.</p> <p>Minimum 30 patrol</p>	<p>Numbers of staff trained and achievement levels summarised in training assessment</p>	<p>Trained staff retained and stimulated instructors.</p> <p>Well motivated field patrol and monitoring staff.</p>

species conservation, continuing training of field patrol and monitoring staff.	and monitoring staff trained. Training manuals and posters.	reports. Quality of training manuals and posters	
d) Community education programme.	Community education and liaison officer appointed by Y1. Minimum of 20 school teachers and relevant park staff and members of local groups and NGOs per year trained in accredited conservation and environment education (Y1-Y3). A social, cultural and economic assessment of the MTR adjoining communities undertaken. Outputs used to inform and support local government organisations and NGOs in developing community livelihood initiatives. Outreach programme implemented.	Number of school teachers and relevant park staff and members of local groups and NGOs trained. Community awareness and education material produced. Quality of assessment report, summary produced in local language for communities and local groups. Number of outreach activities undertaken. Number of livelihood initiatives started.	Suitable education and community liaison officer available. Teachers have continued interest in CEE training.
e) Publications and publicity.	Conservation education material produced and published in Assamese and local Bodo languages by Y1. Community education awareness material produced and published in Assamese and local Bodo languages by Y1. Radio broadcasts. 2 papers submitted to peer-reviewed journals by Y3.	Copies of all publications sent to Darwin Initiative.	Outlets for publications and publicity willing to participate.
Activities:	Activity Milestones (summary of implementation timetable)		Assumptions
Field training and	Yr 1: Training workshop in monitoring and		High level of staff motivation.

workshops	<p>survey methods (2 wks Sept 06); Initial intensive on-site training of MTR park monitoring staff followed by on-going training on periodic basis by local trainers (4 wks, Oct 06); training of MTR park officers in GIS, data entry and management, data quality control, and basic data processing using Grassland Mammal Information Management System and field protocols (1 wk, Oct 06); training of MTR staff in the use of radio tracking equipment (2 days, Oct 06); training workshop of MTR and SRWS/NNP park staff in production of annual status reports (1 wk, Mar 06).</p> <p>Yr 2: Intensive on-site training of SRWS/NNP park monitoring staff followed by on-going training on periodic basis by local trainers (4 wks, Oct 06); training of SRWS/NNP park officers in GIS, data entry and management, data quality control, and basic data processing using Grassland Mammal Information Management System and field protocols (1 wk, Oct 06); training of SRWS/NNP staff in the use of radio tracking equipment (2 days, Oct 06); training workshop: park ecologists and monitoring staff trained in habitat assessment and management techniques (1 wk, Oct 07); workshop: PHVA analysis of pygmy hog and associated grassland species data gathered by MTR and SRWS/NNP staff.</p> <p>Yr 3: Training of park staff in GMIMS's future support and development (Jun 08); workshop: final PHVA analysis of pygmy hog and associated grassland species data gathered by MTR and SRWS/NNP staff throughout the project (Mar 09); workshop to develop the long-term plan for the conservation of pygmy hogs and the grassland habitats (Mar 09).</p>	
Field monitoring and research programme	<p>Yr 1: Protocols for monitoring and habitat surveys produced and agreed Aug 06; Monitoring of pygmy hog populations and other associated grassland species started by Oct 06; 2 MSc park students start MSc field projects (Oct 06); Suitable areas within SRWS/NNP identified for establishment of pygmy hog populations by Mar 07; first annual park status reports produced (Mar 07).</p> <p>Yr 2: Establishment and monitoring of pygmy hog populations in SRWS/NNP Apr 07 onwards; Vegetation database and vegetation (Sept 07); Final report on habitat status and impact of burning, livestock grazing and harvesting (Sept 07); Distribution and</p>	<p>Suitable sites identified within SRWS/NNP for introduction of pygmy hogs.</p> <p>Highly trained and stimulated instructors.</p> <p>Good quality monitoring and survey data collected and stored in database.</p>

	<p>abundance of pygmy hog populations known in MNP by Dec 07; MSc studies completed (Dec 07); second annual park status reports produced (Mar 08); Initial PHVA model (Mar 08).</p> <p>Yr 3: third annual park status reports produced (Mar 09); Final PHVA model (Mar 09); Habitat and security assessment of new pygmy hog sites in SRWS/NNP (Mar 09); Forward management plan for pygmy hogs (Mar 09).</p>	
Field tools and procedures	<p>Yr 1: Monitoring training and test material developed (Aug 06); GIS based Grassland Mammal Information Management System developed (Aug 06); GIS database system implemented at MTR (Oct 06), SRWS/NNP (Apr 2007); Data recording and assessment procedures produced (Sept 06); Status reporting templates developed (Mar 07);</p> <p>Yr 2: Habitat assessment manual and management guidelines developed (Sep 07)</p>	None.
Publicity material and papers	2 radio broadcasts per year (Yr 2 & 3); Education material produced (Yr1-3); 5 publications submitted by Yr 3	None.
Community programme	<p>Yr 1: Education and community liaison officer recruited (May 06); Initial set biodiversity and environmental education teaching and awareness material produced (Aug 06); Social, cultural and economic assessment report (summary in local language) and meeting with relevant groups and organisations (Dec 06); Community outreach programme initiated (Jan 07); Support in development of suitable community livelihood initiatives started (Jan 07).</p> <p>Yr 1-3: Training of at least 60 community school teachers and relevant park staff and members of local groups and NGOs in environment education.</p>	<p>Able to employ suitably qualified community education officer.</p> <p>Well motivated school teachers, local groups and NGO staff.</p> <p>Community support.</p>
Project management	<p>Yr 1: Steering committee established (May 06)</p> <p>Yr 1-3: Project monthly meetings; Annual park field assessment reports; 6 monthly and annual Darwin progress reports; Final Darwin project report</p>	None.

Please note that following discussion with the Darwin Initiative advisor, we have readjusted the stage-1 logical frame according to the specified format (but the information is the same)

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

Project implementation timetable		
Date	Financial year	Key milestones
<i>Year 1</i>	Apr-Mar 2006/7	
Apr 2006		Equipment and remote sensing data procured; Social, cultural and economic assessment of MTR adjoining communities starts.
May 2006		Steering committee established; Equipment and software including GIS installed at MTR; MSc student project topics assigned following discussions with Guwahati University; Preparations for pygmy hog field work; Field work started by grassland ecologist with support from park staff; Local education and community liaison officer appointed and additional training provided in environment education.
July 2006		Initial vegetation map of MTR and SRWS/NNP produced from remote sensing images; Available environment information on MTR and SRWS/NNP compiled.
Aug 2006		Development of Grassland Mammal Information Management System (GMIMS) with user manual completed; Training materials (manuals, posters etc) for instructors and park staff in monitoring and census techniques developed; Formal theoretical examinations and practical tests for accreditation of instructors and monitoring staff produced; Initial set of education teaching and awareness material developed.
Sept 2006		First training workshop completed – Training of 10 MTR and SRWS/NNP park staff as instructors in monitoring and census techniques; Field standardised data collection forms and data quality control procedures and protocols produced.
Oct 2006		Intensive on-site training of MTR park monitoring staff by local instructors and Darwin fellows completed; Field tools including GMIMS and procedures implemented in MTR; Hands-on training of 4 MTR park officers in GIS, data entry and management, data quality control, and basic data processing using a customised Grassland Mammal Information Management System and field protocols completed.
Oct 2006		Radio collars fitted on selected pygmy hogs for radio-tracking studies; Training in the use of radio tracking equipment undertaken; Radio-tracking of collared hogs started; 2 MTR park officers enrolled on MSc course at Guwahati University; Students field data collection started.
Dec 2006		Report on Social, cultural and economic assessment completed; Meeting held with park director, deputy director, education and community liaison officer, relevant local government organizations, NGOs and community leaders to discuss the findings; 1 scientific paper prepared from data.
Jan 2007		Training of at least 20 community school teachers and relevant park staff and members of local groups and NGOs in environment education completed by education and community liaison officer with support from DWCT and ZSL education officers.
Jan 2007		Outreach programme initiated. Outreach activities include seminars, community forums, cultural programme such as street theatre and games on market days and during local festivals when people naturally gather and have time away from their daily routine work; Development of suitable

		community livelihood initiatives started with park authorities, local government organizations and NGOs, and community leaders. This includes support in planning, proposal writing and implementation.
Mar 2007		Initial vegetation analyses and impact of burning, livestock grazing and harvesting completed in MTR and SRWS/NNP; Initial report on the habitat status including recommendations on burning regimes produced; Suitable pygmy hog release sites in SRWS/NNP identified; Report submitted to MTR authorities and Ministry, following assessment of training, data quality, entry and reporting procedures; Annual status report template produced; Second training workshop completed - at least 8 park staff trained in data analysis and the production of annual status reports, annual park status report produced, meeting held with park staff and managers to discuss findings and recommendations.
Year 2	Apr-Mar 2007/8	
Apr 2007		Intensive on-site training of SRWS/NNP park monitoring staff by local instructors and Darwin fellows completed; Field tools including GIS, GMIMS and procedures implemented in SRWS/NNP; Hands-on training of 4 SRWS/NNP park officers in GIS, data entry and management, data quality control, and basic data processing using a customised Grassland Mammal Information Management System and field protocols completed; Training in the use of radio tracking equipment undertaken; At least 25 captive-bred pygmy hogs released (some with radio collars) and monitored in SRWS/NNP.
May 2007		1 scientific paper submitted for publication.
Sept 2007		Vegetation surveys in MTR and SRWS/NNP completed; Vegetation database completed; Final vegetation maps produced; Final report on habitat status and impact of burning, livestock grazing and harvesting completed; habitat assessment manual developed.
Oct 2007		Third training workshop completed: park ecologists and monitoring staff trained in habitat assessment techniques; Second pygmy hog captured and fitted with radio collars; Radio-tracking of second group of collared hogs started.
Dec 2007		MSc project theses submitted.
Jan 2008		Training of at least 20 community school teachers and relevant park staff and members of local groups and NGOs in environment education completed by education and community liaison officer; 2 papers based on MSc project theses submitted.
Mar 2008		Further report submitted to MTR authorities and Ministry, following assessments of training, data quality, entry and reporting procedures; Fourth training workshop completed; pygmy hog and associated grassland species data gathered by MTR and SRWS/NNP staff in 2006 and 2007 used in workshop, initial PHVA model of pygmy hog developed; Second standardised annual status reports completed; meeting held with park staff and managers to discuss findings; 2 papers submitted for publication.
Year 3	Apr-Mar 2008/9	

June 2008		Park staff trained in GMIMS's future support and development.
Oct 2008		Analyses of pygmy hog habitat use data finalised. Habitat suitability and viability models and sensitivity maps produced. Scientific paper resulting from research submitted for publication.
Jan 2009		Training of at least 20 community school teachers and relevant park staff and members of local groups and NGOs in environment education completed by education and community liaison officer.
Mar 2009		Habitat and security assessment of new pygmy hog sites (SRWS/NNP) completed by trained park staff with support from Darwin fellows and project ecologist; Fifth workshop completed; pygmy hog and associated grassland species data gathered by MTR and SRWS/NNP staff throughout the project used in workshop, PHVA model of pygmy hog revised; Third standardised annual status reports completed; meeting held with park staff and managers to discuss findings; Forward management plan for pygmy hogs produced and launched; Paper submitted for publication.

21. Set out the project's measurable outputs using the separate list of output measures.

PROJECT OUTPUTS		
Year/Month	Standard output number (see standard output list)	Description (include numbers of people involved, publications produced, days/weeks etc.)
Apr 2006 – Apr 2009	8	JF = 10 x 3 weeks; RA = 10 x 3 weeks
May 2006	6A	Darwin education and community liaison officer trained further in environment education
May 2006	12A	GIS installed in MTR offices
Aug 2006	7	Training manuals, guidance notes and accreditation tests
Aug 2006	7	Training posters
Aug 2006	12B & 7	Fully operational GIS-based Grassland Mammal Information Management System with user manual and tutorials.
Aug 2006 - ongoing	10	Conservation education, awareness and teaching material including conservation education booklet produced.
Sept 2006	6A	At least 10 trained instructors.
Sept 2006	7	Data collection forms and data quality control procedures
Oct 2006	6A	At least 10 trained staff in the use of radio tracking equipment
Oct 2006, Apr 2007	6A	At least 8 trained staff in field tools and procedures, data processing and reporting.
Oct 2006, Apr 2007	6A	At least 8 trained staff in GIS
Oct 2006 – Dec 2007	2	2 MSc students trained in conservation research.

Oct 2006 - ongoing	6A	At least 30 trained staff in large mammal monitoring and survey techniques.
Nov 2006 – Dec 2008	11B	6 scientific papers produced and submitted.
Dec 2006	7	Social, cultural and economic assessment report (summary in local language)
Jan 2007, 2008, 2009	3	At least 60 teachers and relevant park staff and members of local groups and NGOs trained in environment education
Mar 2007	3	At least 8 staff trained in the production and interpretation of standardised annual status reports
Mar 2007, Mar 2008, Mar 2009	9	3 standardised annual large mammal status reports at park level produced.
Oct 2007	6A	At least 5 park ecologists and monitoring staff trained in habitat assessment techniques.
	14A	Community seminar, forums and projects.
Mar 2007 (initial), Sept 2007 (final)	14A	Habitat assessment seminar and report.
Sept 2007	12A	Vegetation database.
Sept 2007	10	Vegetation maps.
Sept 2007	10	Habitat assessment manual.
Mar 2008, Mar 2009	10	Pygmy hog habitat suitability and viability model and sensitivity map produced.
Mar 2009	9	Species/habitat management plans produced for MTR and SRWS/NNP.
June 2006 – Mar 2009	15A & 15B	National and UK press releases, radio broadcasts.
Apr 2006 – Mar 2009	23	Over £210,000 spent by DWCT in running the PPHSG during the three years of this project.

PROJECT BASED MONITORING AND EVALUATION

22. 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.

Project progress will be monitored through: 1) evaluating the reception, satisfaction and impact of all the training courses and community outreach programmes undertaken; 2) the quality of training manuals and posters and their effective use; 3) the number of MTR and SRWS/NNP trainers and trainees passing the accreditation tests in grassland species monitoring; 4) the completion and installation of the Grassland Mammal Information Management System (database) and GIS in MTR and SRWS/NNP, and users trained; 5) the number of MTR and SRWS/NNP park officers trained in GIS, data entry and management, data quality control, and basic data processing; 6) the number of pygmy hogs successfully released in suitable habitat sites in SRWS/NNP; 7) the accumulation of data on numbers, distribution and habitat use by pygmy hogs and associated wildlife in MTR and SRWS/NNP; 8) the number of park officers trained in the production of standardised annual reports and the number of status reports produced and used for decision making; 9) knowledge of the distribution and habitat use of the pygmy hog, relative to large mammal distribution and abundance; 10) production of pygmy hog PHVA model, up-to-date vegetation and sensitivity maps of the MTR and SRWS/NNP and recommendations made on the impact of grassland burning and extraction to guide management of pygmy hog and associated grassland species and their habitats; 11) the completion of vegetation database, quality of habitat assessment manual and number of MTR and SRWS/NNP park staff trained; 12) the training and mentoring of 2 MSc, various BSc and MSc Indian students; 13) the number and quality of biodiversity and environmental education and community awareness material produced and used; 14) the number of local school teachers and relevant park staff and members of local groups and NGOs successfully trained in environment education; 15) the quality of the social, cultural and economic assessment of the MTR adjoining communities; 16) number of school visits, outreach programmes conducted, seminars and community forums organised, livelihood initiatives developed/supported and level of community

involvement; 17) the number of scientific papers produced and sent for publication in peer-review journals; 18) details of newspaper articles disseminating the work undertaken by the project; 19) number of local radio broadcasts; 20) number of presentations and lectures given by the Darwin fellows in India and the UK; 21) adequate reporting to Darwin Initiative.