Darwin Initiative Annual Report

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders – it is expected that this report will be about 10 pages in length – Submission deadline 30 April 2007

Darwin Project Information

Project Ref Number	Project 162/15/017
Project Title	Implementing a Recovery Plan for the Critically Endangered Pygmy Hog in Assam.
Country(ies)	India
UK Contract Holder Institution	Durrell Wildlife Conservation Trust
UK Partner Institution(s)	Zoological Society of London
Host country Partner Institution(s)	1) Ministry of Environment and Forests, Government of Assam (MoEF, GoA). 2) The Forest Department of Assam (FD), under the MoEF, GoA. 3) The Pygmy Hog Conservation Programme Research and Breeding Centre (PHCPRBC) at Basistha.
Darwin Grant Value	£182,000
Start/End dates of Project	Apr 2006 – Mar 2009 (July 2006 start)
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 Apr 2006 – 31 Mar 2007 Annual Report 1

Project Leader Name	Dr. John E. Fa

Project website	None at present
Author(s), date	John E. Fa, Raj Amin

1. Project Background

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.

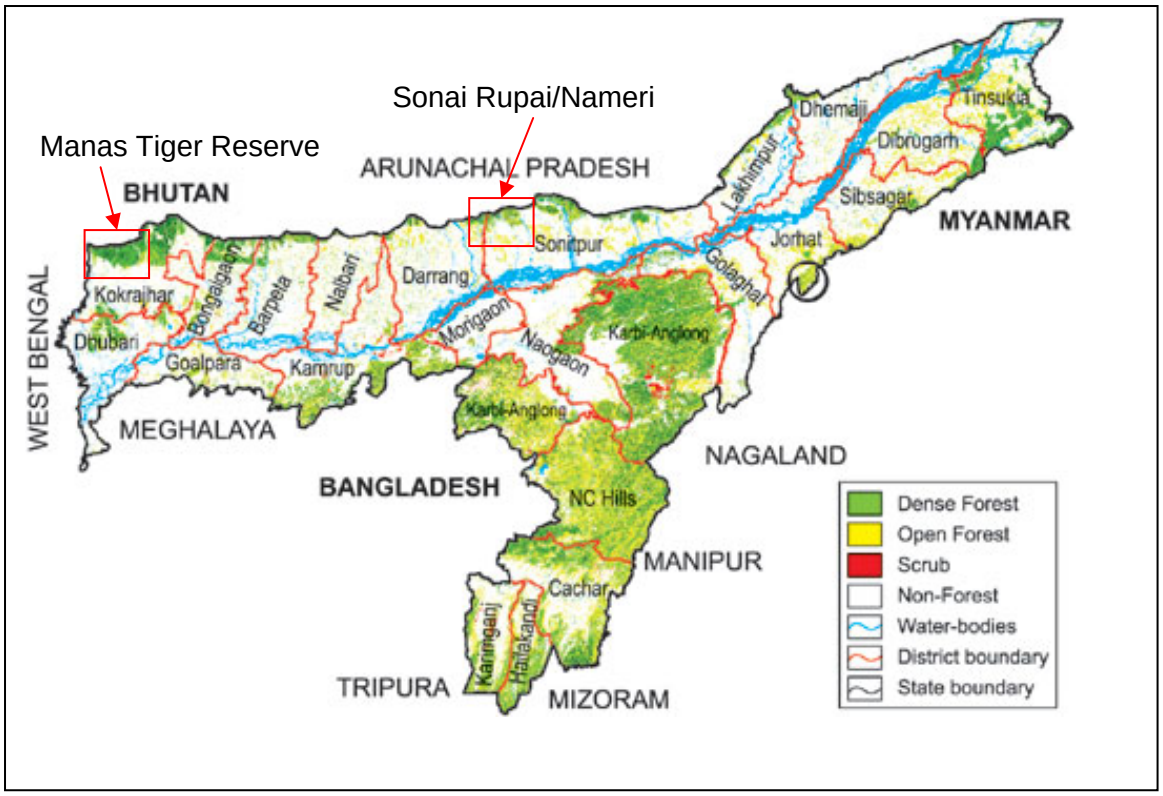

Fig. 1. Map of Assam, showing location of study areas.

2. Project Partnerships

The Darwin Pygmy hog project has three main partners: the Ministry of Environment and Forests, Government of Assam (MoEF, GoA), The Forest Department of Assam (FD), under the MoEF, GoA and The Pygmy Hog Conservation Programme Research and Breeding Centre (PHCPRBC). The PHCPRBC at Basistha, with a pre-release centre at Potasali, is run by the Durrell Wildlife Conservation Trust in close collaboration with the IUCN/SSC Pigs, Peccaries & Hippos Specialist Group (PPHSG). These facilities focus on captive breeding, field conservation and environmental awareness.

The project has worked closely, and most productively, with the Forest Department of Assam in implementing capacity-building, and preparing for field work in the Manas National Park (MNP); the core area of the larger MTR, and where the last remaining populations of the pygmy hog are still found. Project partnership has been most effective, and the project has received the fullest support and encouragement from even the highest level at the MoEF. We have also initiated very promising collaborations with a number of NGOs in the region.

3. Project progress

1. Stakeholder Meetings

The project started in July 2006 with a main planning meeting held in Jersey. The main project participants were gathered here (Dr. Raj Amin, Dr. John E. Fa, Dr. Goutam Narayan, Mr. William Oliver), and the meeting was also attended by Ms Sarah Seymour (Durrell, Conservation Manager) and Dr. Stephan Funk (Durrell Wildlife, Geneticist). This meeting proved crucial to re-assess the magnitude of the project's activities, and to plan a realistic schedule for these to be accomplished during the duration of the project. The new schedule for activities was produced and submitted to Darwin for approval.

The two project leaders, Dr. John E. Fa (JF) and Dr. Raj Amin (RA) visited Assam between 13th Nov and 3rd Dec; JF was in India until 18th Nov, RA remained longer (until 3rd Dec). The main purpose of this trip was to formally introduce the Darwin project to the relevant authorities, and initiate activities with the various partners in the project. Meetings were held, in conjunction with Dr. Goutam Narayan, with Shri M. C. Malakar (Chief Conservator of Forests, Assam Forest Department). Full support by Mr. Malakar and his department was offered to the project. Technical meetings were held with NGOs to examine the possibility of greater collaboration on the socioeconomic surveys and community work required by the project (Mrs. Nandita Hazarika of Ecosystems- India) and on field work, GIS analyses (Mr. Bibhab Talukdar, Director of Aaranyak and Aaranyak's Field Biologist, Bibhuti Lankar). JF and RA visited the MTR where meetings were held with the MNP Field Director, Mr. Rabba, and Deputy Field Director, Mr. Ritesh Bhattacharya. In Manas, the Darwin project leaders visited the Rhino enclosure which currently has one rhino brought in by WTI (Manas's approximately 100 rhinos were poached during the insurgency). Visits were also made to the Potasali Pygmy Hog Pre-release site to meet Dr. Parag Deka, veterinarian at PHCP and in-charge of the site. A guided tour of the site was followed by discussions on pygmy hog releases in SRWS (c. 120 km north-east of Guwahati in Sonitpur District) and NNP (c. 135 km north-east of Guwahati, 20 km east of Sonai-Rupa). On 18th Nov, an all-day planning workshop with all the project partners was organised in Guwahati. Project introduction and meeting facilitation was undertaken by JF, followed by technical presentations by RA. The meeting was opened to discussions on training, monitoring, surveys and grassland assessments, where working groups were agreed for each of the key areas: 1) Satellite Imagery and GIS; 2) Training and capacity building; 3) Community Programme; 4) Field data capture and database; 5) Grassland dynamics and burning; 6) Law enforcement & protection; 7) Pygmy hog & other grassland species survey; 8) Direct incentives. Further meetings by each working group were held 20th–27th Nov. A report on the main findings of each working group is available.

2. Training and Field Tools

The project's training and capacity building element is specifically designed to ensure that its benefits will continue despite staff changes through the implementation of an institutionalised on-site on-going modular training programme. The project has in the first phase developed extensive training material (instructor's handbook comprising of an introduction and 10 course modules; set of laminated training posters and cards; trainees workbook, evaluation tests for each module). The material was first produced in English and then translated in Assamese. The translation took much longer then anticipated as many words and the meaning of sentences do not simply exist in Assamese language. Many of the posters were hand drawn to make sure they depicted the key points or issues. A 5-day training workshop held between the 6th and 10th March successfully trained 13 MNP front-line staff in wildlife monitoring. The training followed an outcomes-based approach and included formalised testing procedures to assess the degree of understanding/competence of trainees. Trainees were only accredited if specific set standards of knowledge and competence were shown for each key module (results of these tests are provided in the training report in supplementary Training.doc). A Darwin certificate was presented to the 13 staff who passed (11 as accredited monitors and 2 as accredited instructors) and prizes awarded. The staff that narrowly missed out on becoming accredited instructors will be re-examined during the next field visit by Darwin Fellows.

The newly trained instructors are now extensively supported during an intensive 1 1/2 months on-site staff training programme in the 3 range areas of the MNP. The park lies on the border with Bhutan, 41km north of Barpeta Road Township. It spans the Manas River and is bounded on the north by the Royal Manas National Park in Bhutan, on the south by the populous region of North Kamrup and on both east and west by forest reserves: 26°30'-27°00'N, 90°50'-92°00'E. Currently MNP has approximately 300 field staff including conservation volunteers that need to be trained. Initial training of staff in 2 range areas has been completed and training in the third range is now being undertaken. The newly trained instructors have been very good in training their fellow staff requiring minimal support and the project field staff have been extremely pleased with the confidence the instructors have shown in delivering the course. The training has been undertaken both in local Assamese and Bodo language and thus been effective. Progress is being monitored through trained field assistants, site visits and monthly reports. The instructors will need to continue training on an on-going basis. The arrival of the heavy monsoon rains over the months of May – September will slow this process. The Darwin project is also considering institutionalising it by incorporating the training into the Assam Forest Department field ranger training programme. This will ensure that all the recruits have the basic set of skills in wildlife conservation, security and monitoring not only in MNP, but other protected areas in Assam and that monitoring and data collection are standardised. Refresher and more advanced training will ensure skills retention. The planned reintroduction of the greater one-horned rhino from Kazinranga will result in at least 13 new security camps being established and these new staff will require on-going training. The one-horned rhinos will also require an individual ID based monitoring approach. It is anticipated that over 400 staff will be trained during the course of the Darwin project in MNP alone.

Additional field instructors will be required and further training workshops will be conducted. The institutionalised on-site on-going modular training programme allows new/transferred staff to enter/continue the training programme anywhere in the course, does not require additional funding, does not take staff away from station, and minimises time away from normal field duties; thus maximising the chance that training and monitoring will continue into the future.

The project has purchased essential field monitoring equipment (10 binoculars and 10 GPS receivers) and suitable staff are being trained in their use. Specific data quality control procedures and tools are also being set up in MNP. Pocket sized field data recording booklet (see supplementary item Data_Recording.doc) have been developed and have been finalised following a period of evaluation in the field. Field staff are now collecting data and data quality control procedures have been developed,

The GIS-based Manas Wildlife Monitoring System is currently being developed as a stand-alone system in Delphi programming language. This will ensure the operation of system is not affected by Microsoft windows or other computer software changes or upgrades. The system is

designed to ensure it is practical and simple to use in the field with minimal training (see supplementary item Databases.doc). It is also being designed to be flexibly configured for use in other protected areas. The Assam Forest Department has shown considerable interest in using this in all their national parks. The development of the system will be completed by July 07. A desktop computer (with printer and power system) has been purchased. MNP field officers are currently being trained in the use of the computer including standard word and data processing software packages (Microsoft Excel and Word). ESRI ArcGIS license from ZSL has been installed on the machine. Suitable staff will be trained in GIS and use of the software in the next project period.

The project is also considering developing additional field tools: Animal ID laminated pocket cards; and pocket patrol grid maps for general patrol and monitoring work and logging patrol movements. These maps will also be very useful in situations where a GPS receiver is not available (batteries being charged or being repaired). A training course for field staff in wildlife survey techniques is also being considered for the next project period.

3. Captive Breeding and Preparation for Re-introductions

The conservation breeding programme of pygmy hogs to release into the wild, within the terms of the Darwin project has focused on furthering preparations for reintroduction of captive bred hogs in 2008. Since the reintroduction plans involves 'soft-release' of captive hogs in selected sites, development of the pre-release centre was one of the important activities of the project in the period. One of the pre-release enclosures at Potasali near NNP has now become ready to receive hogs from the holding enclosure there as well as the primary breeding centre at Basistha. Efforts continued to advise and collaborate with the authorities to restore and protect selected grasslands in the proposed release sites in SRWS and NNP.

The breeding efforts at Basistha centre have also been stepped up to provide adequate animals for the pre-release centre. The breeding plans for 2007 involved pairing younger animals and it is expected that most of the eight females will farrow this year. The breeding was restricted in the last few years due to space constraint. In 2006, attempts were made to utilise some older, genetically valuable animals one last time but predictably most of them had failed to breed.

Table 1. Captive Stock with PHCP (also the global captive stock).

	April 2006	March 2007
Basistha		
Adult wild hogs	1 (1.0)	1 (1.0)
Adult captive-born hogs	*40 (17.23)*	*45 (20.25)*
Young & sub-adult hogs	*23 (12.11)*	*9 (6.3)*
Potasali		
Adult captive-born hogs	6 (3.3)	8 (4.4)
Total hogs in captivity	70 (33.37)	63 (31.32)
Pregnant females	1	8

During the above 12-month period 9 (4.5) captive hogs died and 2 (2.0) were born at Basistha. Two (1.1) more hogs were translocated from Basistha to Potasali. At least 8 litters are expected in 2007 and 30-35 hoglets may be born in captivity.

New installations at the Potasali pre-release centre were completed during the year, in particular the following structures were erected: 1) a security fence (2.1 m high, 650 m long, 6 cm chain link on angle iron posts, with a barbed wire and two strand power-fence lines on top) encircling four pre-release enclosures covering about 2.5 ha of simulated grassland; 2) pre-release enclosure (3,200 m^2) encircled by a 1 m high woven bamboo fence with 3-line power fence and a similar fence for another enclosure is under construction; and 4) small hog-catching enclosure inside pre-release enclosure. An observation tower (3 m high with 3.5 m^2 platform) made with bamboo and thatched roof was built and water supply systems with a well, two overhead tanks, pipes and taps were installed. Additionally, solar power (SPV) panels for charging power fence and emergency power supply batteries (for field computer and lighting) were set up.

In preparation for release of hogs, pre-release work in holding enclosure was undertaken during the year. This included power fence training of the pigs, in which captive animals were exposed and acclimatized to the power fence. Environmental and behavioural enrichment was also started, where training and preparation of the hogs in the pre-release enclosure was performed by encouraging the animals to forage naturally through enrichment of their enclosures and placing appropriate food in soil.

Capacity building of local NGOs and school teachers as environmental education trainers was undertaken during the year. A number of environmental awareness programmes for local school children were taught. These conservation education training programmes were held in local schools around NNP and Pakke Tiger Reserve. In 2006, ten schools, five each in Assam and Arunachal Pradesh, were covered and altogether about 650 children of standard 4 to 9 participated. These programmes were conducted under Centre for Environment Education's Tiger Conservation initiative in collaboration with EcoSystems-India's Capacity Building & Extension Unit. In 2007, ten schools in Assam were covered under similar programmes conducted in collaboration with EcoSystems-India in Nameri Tiger Reserve authorities and approximately 600 school children participated. Conservation education programmes were also organised for some frontline staff of NNP and Pakke Tiger Reserve in addition to training programme for school teachers in the area.

Local NGOs were also assisted in developing and submitting community based project proposals for government funding. The project also started (led by Dr. Parag Deka) an alternative livelihood training for local women (micro enterprise to make cottage products, such as. pickle and jams made from local fruits and condiments, handicraft made from local bamboo and cane). Rapport building with local youth (support for local football team, cultural groups, etc.) was an important activity within the project.

In preparation for the release of hogs to the wild, regular monitoring of grassland habitat at SRWS and NNP was undertaken in conjunction with the Forestry Department. Investigation and fact-finding about new encroachment attempts in SRWS was performed, regular reporting and informing higher authorities including the Minister of Environment and Forest, Government of Assam, about the problem and lobbying for early interventions for improving protection in the Sanctuary. Support to the Forest Department protection staff, mobilizing them for better protection, distribution of some basic camping supplies among SRWS staff, distribution of first-aid kits and providing primary healthcare to NNP staff and veterinary healthcare for captive elephants at NNP have further encouraged a healthy working environment in the proposed release sites.

During the year, extension activities at the facilities at Basistha and Potasali have centres upon training and capacity building for a diverse group of stakeholders (students, teachers, foresters, civil society members, journalists, bureaucrats, etc.). In addition, Dr. Goutam Narayan and Dr. Parag Deka assisted number of training programmes as resource persons: for Zoo Directors and Zoo Keepers (Central Zoo Authority, Assam State Zoo); for Forest Range Officers (Forest School, Ranger's College and Wildlife Areas Development and Welfare Trust); for Wildlife and other Veterinarians (Wildlife Trust of India, College of Veterinary Science); biology teachers and environmental awareness personnel.

3.1 Progress in carrying out project activities

Although there was some delays in implementing parts of the projects as originally planned, we have managed to initiate and conduct all operations envisaged for the year. The project has already started making a significant impact on the ground, by training Forestry Department personnel and motivating communities in the boundary of the MTR. We are also continuing with the preparation of release hogs, for re-introduction during the next dry season (early 2008).

3.2 Progress towards Project Outputs

1) Steering committee established; project planning workshop held.

The steering committee for the project has not been officially established. However, all partners in the project have met regularly during the first year of the project. We are currently considering the merits of making the process of this more officially.

2) Training materials (manuals, posters etc) for instructors and park staff in wildlife monitoring and patrol techniques developed; Formal theoretical examinations and practical tests for accreditation of instructors and monitoring staff produced; 5-day workshop held - 10 MTR staff trained as instructors in wildlife monitoring.

The project's training and capacity building element is specifically designed to ensure that its benefits will continue despite staff changes through the implementation of an institutionalised on-site on-going modular training programme. The project has in the first phase developed extensive training material (instructor's handbook comprising of an introduction and 10 course modules; set of laminated training posters and cards; trainees workbook, evaluation tests for each module). The material was first produced in English and then translated in Assamese (see supplementary item Posters). The translation took much longer then anticipated as many words and the meaning of sentences do not simply exist in Assamese language. Many of the posters were hand drawn to make sure they depicted the key points or issues. A 5-day training workshop was held between the 6th and 10th March. The training followed an outcomes-based approach and included formalised testing procedures to assess the degree of understanding/competence of trainees. Trainees were only accredited if specific set standards of knowledge and competence were shown for each key module (results of these tests are provided in the training report in supplementary item Training.doc). 11 MNP front-line staff were accredited as wildlife monitors and 2 staff were accredited as instructors; one of staff was excellent and passed with very high marks both in the written and practical tests. However, overall, the level of competence of the frontline staff was found to be surprisingly lower compared to Kenyan field staff (Rhino Darwin Programme). A Darwin certificate was presented to the 13 staff and prizes awarded. Further instructors training will be conducted and the staff that narrowly missed out on becoming accredited instructors will be re-examined during the next field visit by Darwin Fellows.

3) Intensive on-site training of MTR park monitoring staff by local instructors supported by Darwin project staff.

The newly trained instructors and monitors are now extensively supported by a trained project field assistant during an intensive 2 months of on-site staff training programme in the 3 range areas of MNP. Currently, MNP has approximately 300 field staff including conservation volunteers that need to be trained. The training of such large number of staff will require time. Initial training of staff in 3 range areas has been completed (13 staff) and. The monsoon rains and the April religious festivals have caused some delays. The newly trained instructors (and some competent monitors) have been very good in training their fellow staff and the project field staff have been pleased with the confidence the instructors have shown in delivering the course. The training has been undertaken both in local Assamese and Bodo language and thus been effective. Progress is being monitored through trained field assistant, site visits by local project manager and monthly reports. The instructors will need to continue training on an on-going basis and support will be required from project field staff. The arrival of the heavy monsoon rains over the months (up-to end of September) will slow this process. The Darwin project team is also considering institutionalising the training by incorporating it into the Assam Forest Department field ranger training programme. This will ensure that all recruits have the basic set of skills in wildlife conservation, security and monitoring not only in MNP but other protected areas in Assam and that monitoring and data collection are standardised. Refresher and more advanced training will ensure skills retention. The planned reintroduction of the greater one-horned rhino from Kazinranga NP will result in at least 13 new security camps being established and these new staff will require on-going training. The one-horned rhinos will also require an individual ID based monitoring approach. It is anticipated that over 400 staff will be trained during the course of the Darwin project in MNP alone. Additional field instructors will be required and further instructors training workshops which were not planned will have to be conducted.

4) Field standardised data collection forms and data quality control procedures and protocols produced and implemented.

Specific data quality control procedures and tools are being set up in MNP. Pocket sized field data recording booklet (see supplementary item Data-Recording.doc) have been developed and have been finalsied following a period of eveluation in the field. Field staff are now collecting data using these forms and data quality control procedures have been developed,

The project is also considering developing additonal field tools: Animal ID laminated pocket cards; and pocket patrol grid maps for general patrol and monitoring work and logging patrol movements. These maps will also be very useful in situations where a GPS receiver is not available (batteries being charged or being repaired). A training course for field staff in wildlife survey techniques is also being considered for the next project period.

5) Monitoring equipment procured and in use in the field.

The project has purchased essential field monitoring equipment, 10 binoculars and 10 GPS receivers have been provided to each monitoring teams in the 3 ranges and suitable staff are being trained in their use. 10 pygmy hog radio collars and 1 antenna have been purchased and delivered to the project field team.

6) The Grassland Mammal Information Management System (database) developed and implemented in MTR; 4 staff trained in its use.

The project team wanted to make sure the requirements specification was thoroughly done before commencing the actual development of the GIS-based Manas Wildlife Monitoring System. This also depended on finalsing the field monitroing data capture elements (data capture forms). The system requirements specification was finalised with the Assam Forest department and Manas park staff in February (see supplementary material, Databases.doc) due to the late start of the project. The development of the GMIMS was started in March and will be completed in June. The data currently being collected by the field staff are being stored in an excel spreadsheet and will be transferred over to the database system when it is implemented in June. GMIMS is being developed as a stand-alone system in Delphi programming language. This will ensure the operation of system is not affected by microsoft windows or other comptuer software changes or upgrades. The system is designed to ensure it is practical and simple to use in the field with minimal training. It is also being designed to be flexibly configured for use in other protected areas. The Assam Forest Department has shown considerable interest in using this in all their national parks. The system is also designed for individual animal ID based monitoring and thus will be of direct use for the management of the Greater One-horned Rhino. There are plans to reintroduce rhinos to MNP by the end of 2007 as part of the Assam 2020 programme. A desktop computer (with printer and power system) has been purchased and installed at the MNP office. MNP field officers are currently being trained in the use of the computer including standard word and data processing software (Microsoft Access and Word). ESRI ArcGIS license has been installed on the machine. Suitable Forest Department staff will be trained in GIS and use of the software in the next project period. Training of SRWS/NNP park officers in GIS, data entry and management, data quality control, and basic data processing is scheduled for the second year.

7) Social, cultural and economic assessment of MTR adjoining communities started.

Preparations for this part of the project were started during the year, including compilation of previous socioeconomic studies in the region, but no ground assessment was undertaken in the first year.

8) 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.

Permission for radio-tracking hogs was applied for from Government of Assam, which is then forwarded onto the Central Government. Permission came through in April; however, this was too late to start radio-tracking since the monsoon rains would have made it impossible to track for the next 6 months of the rainy season. December 2007 is planned as the start date for this activity.

9) Initial vegetation map of MTR and SRWS produced from remote sensing images; Grassland studies initiated - Initial vegetation analyses and impact of burning, livestock grazing and harvesting completed in MTR and SRWS; Initial report on the habitat status including recommendations on burning regimes produced.

A vegetation map has been produced for the region with the assistance of the Geography Department, Kings College, London. The map is based on Aster satellite data at a resolution of 15m. It consists of a mosaic of data from the period 2003 – 2006 to provide maximum coverage due to cloud cover. Active fire data from MODIS hotspot / Active fire detection system has been obtained for the years 2003 – 2007 and will be analysed with the grassland and animal survey data.

The Stakeholder workshop held in November decided that it would very useful to first conduct a review of grassland management practices which would then identify specific studies that need to be conducted. The late start of the project has delayed this work. The project is now planning to set these studies up as MSc projects (WII-Dehradun and WCS-Bangalore). Initial discussions have already been held with the WCS course tutor (Dr. Ajith Kumar). Two students have already shown interest in MTR grassland work. Specific studies can only be conducted after the Monsoon rains in September.

10) Annual status report template produced; at least 8 park staff trained in data analysis and the production of annual status reports, annual park status report produced.

This will now be held towards the end of the year. This will allow the monitoring staff to collect sufficient data for the analysis and reporting and also allow enough time to get the whole monitoring system including trained staff to be functioning properly. The training aspects of the project only started in November with the first training workshop held in February. Prior to this, there was no monitoring data collected and the wildlife monitoring capacity of the MTR staff was very limited.

11) Local education officer appointed; additional training produced in environmental education; 20 teachers trained; community awareness and livelihood programme initiated.

The proposed Teachers' environmental education Training Workshop in collaboration with Centre for Environment Education (CEE) was deferred owing to the unavailability of local teachers on the training dates decided by CEE because of school examinations and incidences of tribal district "bandhs" or total road blockade called by local political organizations. This training is now proposed to be held in July 2007 when the schools will break for their summer vacations, and teachers will be free to attend the training without having to miss regular classes.

12) Scientific papers produced and sent for publication in peer-review journals; newspaper articles disseminating the work undertaken by the project; local radio broadcasts; presentations and lectures given by the Darwin fellows in India and the UK.

A paper (see supplementary material PygmyHog.doc) on the genetics of the pygmy hog is currently in press. This paper is of great significance since the study suggests that the pygmy hog is completely separate from the other pigs and should be accorded its own genus name. This has significant implications in the raising the conservation importance of the species. Although the work undertaken for this publication was not directly linked with the Darwin Project, the project has nonetheless provided much impetus for the completion of this work. We have engaged very, and the findings will be of great importance in terms of lifting the conservation status of the species.

3.3 Standard Output Measures

Code No.	Description	Year 1 Total
8	JF = 10 x 3 weeks; RA = 10 x 3 weeks	Yes
6A	Darwin education and community liaison officer trained further in environment education	1
12A	GIS installed in MTR offices	2
7	Training manuals, guidance	25

Code No.	Description	Year 1 Total
	notes and accreditation tests	
7	Training posters	25
12B & 7	Fully operational GIS-based Grassland Mammal Information Management System with user manual and tutorials.	1
10	Conservation education, awareness and teaching material including conservation education booklet produced.	In progress
6A	At least 10 trained instructors	13
7	Data collection forms and data quality control procedures	1

Table 1 Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £ (if applicable)
Journal	Funk, S.M., Verma, S.K., Larson, G., Prasad, K., Singh, L., Narayan, G., & Fa, J.E. (in press). The pygmy hog is a unique genus: 19th century taxonomists got it right first time round*.	Molecular Phylogenetics and Evolution	http://www.elsevier.com/wps/find/journaldescription.cws_home/622921/description#description	NA
Posters				
Manual	Training Manual			

4. Monitoring, evaluation and lessons

The project has been monitored jointly by Durrell and ZSL through RA and JF, with support from Sarah Seymour and Mark Stanley Price (Durrell) and Richard Kock (ZSL). The situation in Assam especially around the MTR is always precarious. However, despite this, we feel we have able to make sufficient progress on the project. Working with the local authorities has been very encouraging and we are confident we will make even more progress in the next few years. All project participants feel that the Darwin Initiative funding is a very important stimulus and opportunity to undertake long overdue activities to protect the pygmy hog and other species in the Assamese terai grasslands.

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

Not applicable

6. Other comments on progress not covered elsewhere

None

7. Sustainability

Durrell has been actively involved in the pygmy hog project since the early 1970s, when the species was re-discovered. Currently, Durrell, alongside ZSL, is actively seeking further financial support to ensure continuity of activities into the future. Durrell has had a project proposal accepted by the Critical Ecosystems Partnerships, and is planning a major fund-raising dinner (The Pygmy Hog Party) to be held at the Royal Banqueting House, Whitehall in October 2007. ZSL has expressed interest in supporting the project beyond the lifetime of their Darwin involvement. Durrell is not proposing any exit strategy for the project, but it is looking at empowering local expertise to continue the activities started by the Darwin project.

8. Dissemination

Dissemination of results to date has been limited to distribution of reports to partners and associated organisations, and government departments.

9. .

10. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

I agree for ECTF and the Darwin Secretariat to publish the content of this section

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2006/07

Project summary	Measurable Indicators	Progress and Achievements April 2006 - March 2007	Actions required/planned for next period
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve *The conservation of biological diversity,* *The sustainable use of its components, and* *The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources*		*(report on any contribution towards positive impact on biodiversity or positive changes in the conditions of human communities associated with biodiversity e.g. steps towards sustainable use or equitable sharing of costs or benefits)*	*(do not fill not applicable)*
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.	Much progress has been achieved in working with all local stakeholders in the MNP, political office and communities.	Information-gathering and analyses of data on species and habitats to be advanced during this period.
Output 1. Comprehensive system for monitoring of pygmy hog populations, other associated grassland species and their habitats in MTR established.	Wildlife monitoring data in system database. Annual status reports produced.	In combination with GIS analyses, we are advancing our understanding of the relationship between habitat and animal distributions within the MNP. Already we have been able to identify grassland areas in the park, which are in prime condition, since they are remote and have not been burnt for some time. This has been achieved through analyses of satellite images and fire data. This is fundamental for us to propose a coherent management plan for all species and habitats in MNP. We will be in a position to analyse data by the end of Y2.	

Activity 1.1 Fully working GIS database system at MTR (by Y1), and PHCPRBC (by Y1).		Computing equipment and GIS system has been installed at the relevant offices, and the operating software for monitoring wildlife in the MNP will be completed by July 2007.
Activity 1.2 Minimum of 8 staff trained in GIS, use of database system, data analysis and status reporting (Y1 and Y2).		Staff training has been successful, but follow-up is fundamental. This will take place again in Y2.
Output 2. New pygmy hog populations established in SRWS/NNP	Report on habitat assessment and suitable release sites within SRWS/NNP.	
Activity 2.1. Suitable release sites within SRWS/NNP identified by Y1.		Dr. Goutam Narayan has been working closely with park staff in SRWS and NNP to advance the re-introduction of our captive-bred hogs. There are still some major issues in SRWS with regards to preparing the site for the release of animals, but there are strong possibilities in NNP. We are hoping to have the site and animals for release in 2008.
Output 3. Trained and accredited instructors for pygmy hog and other grassland species conservation, continuing training of field patrol and monitoring staff.	Training of MNP initiated. Capacity-building of staff fundamental to monitor wildlife and implement suitable management of the MNP.	
Activity 3.1. Annual status reports		Annual reports from MNP staff, education officer and field assistants received.
Activity 3.2. Minimum of 10 park staff trained and accredited as instructors		Training of staff and instructors was most successful. Further workshops

by Y1.Minimum 30 patrol and monitoring staff trained.		and courses will be undertaken to reinforce learning in the first phase. Language is a slight barrier, but delivery is done in Assamese and Bodo.
Activity 3.3. Training manuals and posters		A variety of training manuals and posters were produced and distributed.
Output 4. Community education programme.	Creating environmental awareness amongst the villages surrounding the MNP is high priority.	
Activity 4.1. Community education and liaison officer appointed by Y1.		Appointments made, but environmental education activities will not start until later on in the year. Environmental awareness
Activity 4.2. 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*).		This is still the target.
Activity 4.2. 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.		Understanding the socioeconomic backdrop for the MNP is essential. Information gathered by NGOs and other organisations have been used and analysed. More data needs to be gathered, especially the importance (economic and cultural) of wildlife and plants found around and within the MNP.
Activity 4.3. Outreach programme implemented.		
Output 5. Publications and publicity.	Production of teaching/learning materials will make a long-lasting contribution to capacity-building.	

Activity 5.1. Conservation education material produced and published in Assamese and local Bodo languages by Y1.	Materials used and made available to all MNP staff participants.
Activity 5.1. Community education awareness material produced and published in Assamese and local Bodo languages by Y1.	In process. To be completed when environmental awareness campaign started.
Activity 5.2. Radio broadcasts	None undertaken yet, but planned as part of the environmental awareness campaign.

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of 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 database system, data analysis and status	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	Retention of staff with specialised training skills and experience, and high motivation. Support for equipment maintenance and repairs.

	reporting (Y1 and Y2). Annual status reports Impact of burning on pygmy hog populations and other wildlife understood, and prime habitats identified by Y2. Habitat sensitive area maps and PHVA models produced (Y2, Y3). Habitat assessment manual produced; at least 5 staff trained in habitat assessment (Y2). Conservation priorities for specific areas in MTR developed by Y2. Long-term plan for pygmy hog conservation developed by Y3. 2 MSc's trained. Local BSc and MSc student placement studies.	management practices. Number of annual status reports. Sensitivity maps and PHVA models produced to guide management practices. Habitat assessment manual and number of staff trained. Digital and photographic products to aid MTR resource managers. BSc, MSc reports and certificates. 5-year conservation plan for pygmy hogs produced.	
b) New pygmy hog populations established in SRWS/NNP.	Suitable release sites within SRWS/NNP identified by Y1. Improved protection, monitoring and grassland habitat management in SRWS/NNP by *Y2*. 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.	Report on habitat assessment and suitable release sites within SRWS/NNP. Number of SRWS/NNP staff trained in protection, monitoring and grassland management. Pygmy hogs released in one new area and status	Full collaboration from SRWS/NNP staff.

		monitored over time.	
c) Trained and accredited instructors for pygmy hog and other grassland species conservation, continuing training of field patrol and monitoring staff.	Minimum of 10 park staff trained and accredited as instructors by Y1. Minimum 30 patrol and monitoring staff trained. Training manuals and posters.	Numbers of staff trained and achievement levels summarised in training assessment reports. Quality of training manuals and posters	Trained staff retained and stimulated instructors. Well motivated field patrol and monitoring staff.
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.	Copies of all publications sent to Darwin Initiative.	Outlets for publications and publicity willing to participate.

	Radio broadcasts. 2 papers submitted to peer-reviewed journals by Y3.		
Activities:	Activity Milestones (summary of implementation timetable)		Assumptions
Field training and workshops	Yr 1: Training workshop in monitoring and 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). 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. 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).		High level of staff motivation.

Field monitoring and research programme	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). 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 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). 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).	Suitable sites identified within SRWS/NNP for introduction of pygmy hogs. Highly trained and stimulated instructors. Good quality monitoring and survey data collected and stored in database.
Field tools and procedures	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); Yr 2: Habitat assessment manual and management guidelines developed (Sep 07)	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	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). 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.	Able to employ suitably qualified community education officer. Well motivated school teachers, local groups and NGO staff. Community support.
Project management	Yr 1: Steering committee established (May 06) Yr 1-3: Project monthly meetings; Annual park field assessment reports; 6 monthly and annual Darwin progress reports; Final Darwin project report	None.

Annex 3 onwards – supplementary material (optional)

1. Training.doc
2. Data_Recording.doc
3. Databases.doc
4. Posters:
    i. Cover
    ii. First Aid
    iii. GPS Use
    iv. Role of Forest
    v. First Aid
    vi. Wild Boar_Pygmy Hog Differences
    vii. Gun Use
    viii. Poaching Threats
    ix. Poaching
    x. Postmortem
5. PygmyHog.doc

Checklist for submission

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