Darwin Initiative Annual Report

Darwin Project Information

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Project Ref Number	14-039
Project Title	Large-scale habitat mapping and local conservation
	initiatives for Jerdon's courser, India
Country(ies)	India
UK Contract Holder Institution	CAER, University of Reading
UK Partner Institution(s)	RSPB, U.K
Host country Partner Institution(s)	Bombay Natural History Society, India
Darwin Grant Value	£163,443
Start/End dates of Project	1 st July 2005 to 30 th June 2008
Reporting period (1 Apr 200x to 31	1 st April 2007 to 31 st March 2008
Mar 200y) and annual report number	
(1,2,3)	Report No. 3
Project Leader Name	Prof. Ken Norris
Project website	n/a
Author(s), date	Jeganathan Panchapakesan and Ken Norris

1. Project Background

Jerdon's courser (Rhinoptilus bitorquatus) is one of the 13 most endangered of India's 170 globally threatened or near-threatened bird species. As a result, it is of global conservation importance. Jerdon's courser is listed under Schedule 1 of the Indian Wildlife Protection Act, and is, therefore, given high conservation priority by the Indian Central and State Governments. This resulted in the establishment of protected areas in areas where the birds have been or were formerly recorded by the Andhra Pradesh Forestry Department. Today, the major threat to the persistence of Jerdon's courser is the loss and degradation of scrub forest within which it lives, due to development pressure (e.g. irrigation schemes), habitat conversion to agriculture, and the inappropriate use/management of remaining scrub forest. Jerdon's courser is considered as a priority species under the National Wildlife Action Plan (2002-2016) of the Government of India. The plan states that it will "identify suitable alternative homes for single isolated populations such as Jerdon's courser [and several other species], and manage the same as protected areas effectively".

This project is a development of a previous Darwin funded project (162/9/018). The original project focused on ecological studies relating to habitat selection and population monitoring. Our present project builds on this work and it focuses on developing the analytical tools to identify and map suitable habitats over large-scales and use this information to underpin local conservation initiatives.

2. Project Partnerships

These remain similar to those we outlined in the 2007 annual report.

The main project partnership is between University of Reading, RSPB and Bombay Natural History Society (BNHS). This partnership is extremely effective and has worked well over the reporting period. Within the partnership, the University of Reading's role is overall project co-ordination and management, plus technical input into field research and its application; RSPB's role is to provide similar technical input, plus staff and other support to field and dissemination activities; BNHS' is the lead project partner in India, and undertakes a range of activities including conducting ecological research in the field, developing local conservation initiatives with Andhra Pradesh Forestry Department (APFD), as well as consultation and dissemination involving a range of stakeholders, user groups and the public (particularly via the media). This partnership has continued to build capacity within BNHS through technical research training, plus support and guidance in applying research findings (details of activities undertaken in the current reporting year are given below). This capacity building relates to a wide range of issues relevant to CBD implementation as outlined in Section 11 of our original proposal.

The other main partnership within the project is between BNHS and Andhra Pradesh Forestry Department (APFD) – the Forestry Dept. is the statutory body responsible for the designation and management of protected areas for wildlife. APFD play an important role in the implementation of practical conservation measures that flow from the research, including the identification and designation of protected areas. Over the current reporting period, this has included an active role in ongoing discussions concerning the Telugu-Ganga canal; and land management activities (see below). Although the relationship between BNHS and APFD could potentially be difficult, particularly because of the conflicts caused by the Telugu-Ganga canal, BNHS have considerable influence with APFD in terms of land management and conservation issues, and the project has built significant capacity within BNHS through research and its application to be a credible partner with APFD in this regard.

3. Project progress

3.1 Progress in carrying out project activities

Satellite imagery analysis: We have completed work on smaller-scale habitat suitability maps for Jerdon's courser within areas of scrub jungle itself mapped from imagery analysis. This allows us to identify potentially suitable habitat for the birds that can then be investigated on the ground using our field census methods, and we have used the map in this way to investigate new potential areas for Jerson's courser (see below) using soil tracking strips. This mapping work has primarily focused on areas in and around the Sri Lankamalleswara Wildlife Sanctuary due to possible loss of scrub habitats resulting from the proposed canal, and has been very valuable in supporting discussions between BNHS and APFD concerning appropriate and management activities on APFD land. The maps have also been critically important in the successful negotiations led by BNHS that have resulted in suitable habitat for Jerdon's courser being incorporated into the sanctuary (see below). We are currently acquiring Landsat 5 images to replace the Landsat 7 imagery that became unusable after 2003 due to a fault in image capture. Analyses will be completed by the end of June 08, at which time we will also be able to produce some large-scale maps of potentially suitable Jerdon's courser habitat outside our current study area. We had originally hoped to complete this work slightly earlier in 2008, but it has been delayed by the time taken to find and acquire the Landsat 5 imagery we need.

<u>Field research programme:</u> The BNHS field team have used our habitat suitability map to search new areas immediately around the Sanctuary for Jerdon's courser using soil tracking strips. However, Jerdon's courser was not encountered during this census work. We repeated the habitat survey associated with the tracking strips we ran in 2001, so we are now able to re-calibrate up-to-date imagery data once we have acquired the appropriate Landsat 5 images, and we can document any habitat changes. The fieldwork was completed in May/June 2007. From December 2007 to March 2008, the field team re-ran

all of the tracking strips we originally ran in 2001 to describe changes in Jerdon's courser numbers and distribution, but to date we have found no tracks of Jerdon's courser. This is very worrying and we are currently discussing plans for addressing this after the Darwin project ends. The BNHS field team has also been mapping the new area for designation within the sanctuary (see following section).

<u>Site designation:</u> As part of the discussions relating to the irrigation canal, agreement has been reached to incorporate land between the planned canal route and the sanctuary, within the sanctuary boundary. This should ensure that an important area of suitable habitat for Jerdon's courser is now protected by APFD, and should not be converted to agriculture. This is a great success given the continued encroachment by local people into the scrub forest immediately adjacent to the sanctuary boundary, and the importance of these areas to Jerdon's courser.

<u>Community Conservation Areas (CCAs)</u>: As explained in our previous annual report (2007) activities relating to CCAs have ceased.

Habitat and monitoring manual: As part of the irrigation canal discussions it was agreed that a Species Recovery Plan (SRP) should be drafted for Jerdon's courser and adopted by APFD. Development of this plan is being led by BNHS with significant input from Birdlife/RSPB and UK project partners. It will include a description of monitoring methods and habitat management requirements, so a distinct manual is now no longer necessary. We hope to have a draft SRP available for comment at a project workshop in June 2008, but realistically production of the SRP by BNHS will be completed after the end of the current Darwin project.

<u>Workshops</u>: The workshops outlined in our previous report and scheduled then for April 2008 have now been scheduled for June 2008. A detailed timetable for these workshops is now being developed by BNHS.

Publicity material: As detailed below.

3.2 Progress towards Project Outputs

Satellite imagery analysis: This is proceeding largely to plan. As we explained in our previous report (2007), the only potential difficulty that we now have to overcome is to change the imagery data we use. It is clear that Landsat 7 data after 2003 is no longer appropriate due to problems with image capture. Having considered various options, we have now decided to use Landsat 5 imagery data instead. However, acquiring Landsat 5 imagery data is less than straightforward because it isn't hosted by the USGS, but by various ground stations. At the time of writing, we have located the appropriate ground station for our study area, and have acquired about 1/3 of the Landsat 5 images we need from them. We

should have the rest by the end of May 2008, and have completed any re-analyses we need to do by the end of June 2008.

<u>Field research programme</u>: This is very much the same as we reported in 2007. The focus of fieldwork activity has been related to areas of scrub jungle in and around the Sanctuary. This is because of the potential loss of scrub forest due to the proposed canal and also due to inappropriate management practices by APFD. Maintaining this local focus enables BNHS to use up-to-date information in its advocacy work on the canal and with APFD. Ensuring the known Jerdon's courser population is effectively protected is the key conservation issue. Influencing the canal route and its impact on surrounding land-use, and ensuring existing scrub habitats on APFD land are managed appropriately are critical actions in this respect. We have been able to census other areas of scrub identified using our imagery analysis during the 07/08 field season, and have repeated our soil tracking strip census within the sanctuary.

<u>Site designation:</u> As mentioned above, the boundaries of the existing Sanctuary are being altered within the context of the Telugu-Ganga canal to include areas that our mapping and fieldwork shows are suitable habitat for Jerdon's courser. This is a great success and means that land between the canal and sanctuary boundary will not be converted to agriculture.

<u>Community Conservation Areas (CCAs):</u> As discussed previous (above and in 2007), these activities have now ceased.

<u>Habitat and monitoring manual:</u> As explained above, this work has now been subsumed by development of the SRP.

<u>Workshops:</u> Our plan is to hold two workshops in June 2008. Dates have been finalised and BNHS is working on workshop content. The workshops will consist of a stakeholder workshop in Hyderabad to discuss the project's findings and draft SRP; followed by a field-based practical workshop to disseminate and discuss forestry management implications of our work with APFD staff. We have amended our log-frame accordingly.

<u>Publicity material:</u> The project continues to achieve a high profile, both in India and in the UK.

3.3 Standard Output Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year	TOT
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					Total	
Established codes						
1A	Number of people to submit thesis for PhD qualification		1 BNHS Research Fellow submitted thesis for PhD to University of Bombay in December 2006	1 BNHS Research Fellow awarded his PhD		
5	Research Fellows involved in the project	1	1	1		
6A, B	Training associated with the project field methods	>10 people for 1-2 days each				
8	UK staff in India	2 person- weeks	9 person-weeks	8 person-weeks		
11a	Paper published in peer reviewed Journal		One paper published in <i>Ibis</i>			
14A, B	Workshops, etc organised and attended	1 field workshop was organised for the radio- tracking work, >2 attended that featured project work				

15A, B	Press releases and coverage	Irrigation canal issue was covered by the Indian press and by the BBC (3 stories in total)	Irrigation canal issue was covered by the Indian press	Irrigation canal issue was covered by the Indian press	
18C	TV coverage in India	Irrigation canal issue covered by local TV (1 news item)	Irrigation canal issue covered by local TV (1 news item)		
New - Project specific measures					

Table 2 Publications (to date)

Type * (eg	Detail (title, author,	Publishers (name,	Available from (eg	Cost £ (if
journals, manual,	year)	city)	contact address, website)	applicable)
CDs)				
Report	Jeganathan, P &	Bombay Natural	Director, BNHS	
	Rahmani, A.R. (2006).	History Society		
	Suggest alternate routes			
	for Telugu-Ganga			
	Canal and management			
	implications to protect			
	the suitable habitat of			
	the Jerdon's Courser			
	Rhinoptilus bitorquatus			
	around the two			
	protected areas in			
	Cuddapah district,			
	Andhra Pradesh. Report			
	submitted to Central			

	Empowered Committee constituted by The Hon'ble Supreme Court of India. Bombay Natural History Society. Pp.16.			
Magazine	Jeganathan, P & Rahmani, A.R.(2006). Are Jerdon's Courser's less important than Tigers? <i>Green Governance</i> . April-October (10-11).Pp.24-27.	Bombay Natural History Society, Mumbai, India.	Director, BNHS	
Journal	Senapathi, D., Vogiatzakis, I.N., Jeganathan, P., Jill, J.A., Green, R.E., Bowden, C.G.R., Rahmani, A.R., Pain, D & Norris, K. (2007). Use of remote sensing to measure change in the extent of habitat for the critically endangered Jerdon's Courser Rhinoptilus bitorquatus in India. Ibis (2007), 149, 328– 337	Ibis, British Ornithologists' Union, U.K.	Director, CAER, University of Reading, U.K.	

3.4 Progress towards the project purpose and outcomes

We have nothing to add to what we stated in this section of our 2007 annual report (given below).

Progress towards the project purpose is good. As outlined above, significant progress is being made with respect to building the information-base through our mapping and field research; supporting tools through our habitat mapping work; and capacity through training and dissemination activity. This activity is being done with respect to BNHS researchers through research training; local Government official through work with APFD on land management issues and with various Government Departments through the Telugu-Ganga canal discussions; and local communities through their interaction with APFD and the Telugu-Ganga canal. Our original purpose-level assumptions hold true, and the fact that the project is playing such an active role in addressing some very difficult land management issues, through BNHS, is evidence that the key relationships identified in these assumptions are working well. The purpose-level indicators are adequate measures of progress because they relate to the acquisition of new knowledge and its application to resolving land-use conflicts; both of which are clearly highly relevant to the issues being addressed by the project and its overall purpose.

3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

A key objective of our project is to effect a change in state of the Jerdon's courser population through a reduction in the loss of its scrub habitat. While it is quite difficult to measure the impact of the project (since we have no control data), it is clear that the project to date has been effective in preventing habitat loss, in promoting more appropriate habitat protection and management, and recently in ensuring increased habitat protection. We would also argue that the project is working towards more sustainable land-use planning, and in this respect is attempting to move land-use from a relatively unsustainable position to a more sustainable one. In the longer-term, if economic benefits can be realised through ecotourism the next phase of the project might be able to increase the benefits of biodiversity to local communities.

4. Monitoring, evaluation and lessons

We have nothing to add to what we stated in this section of our 2007 annual report (given below).

Our methods are outlined in Sections 18 and 22 of our original proposal and we have followed these during the reporting period. Although this project is new, the outputs and outcomes of the project, plus those from the previous project, are already making a contribution to the project purpose. The irrigation canal issue provides direct evidence. The <u>information-base</u> developed by the project was used by <u>researchers</u> from BNHS and <u>Government officials</u> to <u>identify</u> and <u>protect</u> (from habitat loss arising from canal construction) <u>sites important for Jerdon's courser</u>.

There are no obviously new lessons. The UK partners have now worked in India for a number of years, and the project team has learnt how to develop and maintain the collaborative relationships necessary to

sustain effective conservation work. Collaboration is the key to this project and its legacy, and this is currently working well. We understand the need to maintain existing relationships through participation and effective communication.

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

Nothing required.

6. Other comments on progress not covered elsewhere

None.

7. Sustainability

We have nothing to add to what we stated in this section of our 2007 annual report (given below).

The project has a high profile. BNHS have been very effective at using the information generated by the project in advocacy and publicity work. The conservation issues are very much part of the discussions concerning the Telugu-Canal, providing clear evidence of the capacity that the project has built within BNHS. The exit strategy for the project is to provide BNHS with the tools to monitor Jerdon's courser habitat using remote sensing data, which would then allow them to plan repeat censuses for the birds, and use the habitat maps in their advocacy work as is currently the case. However, longer-term sustainability of land management requires steps to be taken to increase the value of scrub habitats to local communities through, for example, ecotourism. Part of the exit strategy for the current project will involve planning for this next phase. We plan to report on these plans in our Final Report.

8. Dissemination

Outputs with respect to dissemination are given in Section 3. After the project ends dissemination will be continued by BNHS as part of their ongoing work as the India Birdlife partner.

9. Project Expenditure

Table 3 Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Item	Budget (please indicate	Expenditure	Balance
	which document you refer		
	to if other than your project		
	schedule)		
Rent, rates, heating,			
overheads etc			
Office costs (eg postage,			
telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others (BNHS MoU)			
Salaries (specify)			
TOTAL			

We agreed a revised budget with the Secretariat earlier in 2008 (shown above).

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: 2007/08

Project summary	Measurable Indicators	Progress and Achievements April 2006 - March 2007	Actions required/planned for next period
Goal: To draw on expertise relevant United Kingdom to work with local p biodiversity but constrained in resou The conservation of biological diver, The sustainable use of its component The fair and equitable sharing of the of genetic resources	partners in countries rich in rces to achieve		(do not fill not applicable)
Purpose (insert original project purpose statement) To build the information-base, supporting tools and capacity among researchers, local Government officials and local communities to identify and protect sites important for the critically	(insert original purpose level indicators) New knowledge on the spatial location of potentially suitable habitats, threats to the remaining habitat and the locations of new sites supporting birds used for the identification, designation	(report on progress towards achieving the project purpose, ie the sum of the outputs and assumptions) The ongoing discussion about the Telugu-Ganga canal route and associated land-use, and the relationship between BNHS and APFD shows that information, tools and capacity are being developed and applied	(Highlight key actions planning for next period) Maintaining key relationships between the project partnership led by BNHS, and India State and National Government Agencies

endangered Jerdon's courser in Andhra	and management of key sites.	to promote more sustainable management
Pradesh, India.	Effective management of existing areas. Establishment of new protected areas.	of Jerdon's courser habitat.
Output 1. Imagery analysis completed giving estimates of habitat loss, threats and potentially new areas supporting birds.	Report on new areas drafted. Minimum of 1 Indian student trained in satellite imagery analysis.	Data collection and analysis are proceeding largely to plan (see Section 3). These are already feeding into BNHS' advocacy work on habitat loss and potential threats (i.e. canal or inappropriate habitat management). Re-analysis adapting the mapping tools to new imagery data will be completed by June 2008. Maps of existing and potentially new areas have been produced in 07/08. Indicator is appropriate – reports on the importance of existing areas have already been produced previously (see 2007 report), any new areas need to be documented, and BNHS' capacity to monitor habitat extent and loss needs to be completed.
Output 2. Partner organisations able to assess and monitor the long-term status of Jerdon's courser and its habitat.	Minimum of 1 BNHS staff member and 1 APFD staff member trained in monitoring and management methods.	BNHS researcher has been awarded a PhD based on work conducted in the previous and current Darwin projects. Basic training in imagery analysis for the BNHS researcher has been done; training to use tools was done in 07/08, and mapping tools used in the field. As explained previously, it is unlikely that one single staff member in APFD will be trained, but a field workshop is planned for June 2008 which will provide additional progress towards the output. The indicator is appropriate since it is clearly related to the project purpose.

Output 3. Plans for site designation in place for appropriate areas.	Discussions on new sites for designation initiated.	Discussions concerning the existing APFD sanctuary boundaries have been ongoing as part of the Telugu-Ganga canal debate, and have resulted in the sanctuary boundaries being expanded to protect key Jerdon's courser habitat. The indicator is appropriate because it shows new sites have been located and that plans are progressing to protect them.
Output 4. Community Conservation Areas in place.	CCAs developed in at least 2 areas not covered by existing protected areas.	This is no longer part of project activities
Output 5. Monitoring and management manual published and distributed.	Manual drafted and reviewed, publication date established, 50 copies produced/distributed.	As explained above, this activity has been subsumed by the SRP and its development.
Output 6. Dissemination workshops.	Three workshops planned, timetabled and conducted.	Two workshops will be held in June 2008 (see above). The indicator is still appropriate because it relates to the dissemination and discussion of project outputs.
Output 7. Publications and presentations.	Six seminars, 3 press releases, 3 popular articles, 3 papers.	Progress is given in Section 3. All indicators have already been achieved with the exception of paper production. Two papers are planned for 08/09 on habitat mapping and population estimates for Jerdon's courser. The indicators are still appropriate because they reflect dissemination activities.

Annex 2 Project's full current logframe (amendments are underlined)

Project summary	Measurable Indicators		Means of verification		Important Assumptions
Goal:	l				
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 di	versity,				
the sustainable use of its compor	nents, and				
the fair and equitable sharing of	benefits arising out of the utilis	sation of genetic resource	S		
Purpose	New knowledge on the	Reports on the research	programme and	APFD offici	als incorporate new knowledge,
To build the information-base, supporting tools and capacity	spatial location of potentially suitable habitats,	publications by partner	organisations.	tools and cap	pacity into future management
among researchers, local Government officials and local communities to identify and protect sites important for the critically endangered Jerdon's courser in Andhra	threats to the remaining habitat and the locations of new sites supporting birds used for the identification, designation and management of key sites.	Participation by Indian and training initiatives. Records of site designate conservation areas meet	·		llaboration between BNHS, APFD mmunities maintained and
			-		

Pradesh, India.	Effective management of		
	existing areas.		
	Establishment of new		
	protected areas.		
Outputs	(1) Report on new areas	(1) & (2) Assessment via exchange visits between	(1) None. Methodologies already partially
(1) Imagery analysis	drafted. Minimum of 1	UK & India, research reports, records of	developed and applied.
completed giving estimates of	Indian student trained in	participation, correspondence records, data	(2) APFD maintains its positive support for the
habitat loss, threats and	satellite imagery analysis.	collected.	project.
potentially new areas	(2) Minimum of 1 BNHS	(3) Site designation meeting reports.	(3) & (4) Co-operation between BNHS, APFD,
supporting birds.	staff member and 1 APFD	(4) Meeting reports for the canal; land	other Governmental Agencies and local
(2) Partner organisations able	staff member trained in	management on the ground by APFD.	communities maintained.
to assess and monitor the	monitoring and	(5) Feedback on manual components, 2 copies	(5) Publisher and distribution method
long-term status of Jerdon's	management methods.	sent to Darwin.	identified.
courser and its habitat.	(3) Discussions on new sites		identified:
(3) Plans for site designation	for designation initiated.	(6) Direct involvement from participants, press releases associated with workshops.	
in place for appropriate areas.	(4) An agreed plan for the	•	
(4) Sustainable plans for	canal route and management	(7) Copies of publications sent to Darwin Initiative.	
Telugu-Ganga canal and	plan for APFD land.	initiative.	
APFD land in place.	(5) Manual drafted and		
(5) Monitoring and	reviewed, publication date		

management manual	established, 50 copies	
published and distributed.	produced/distributed.	
(6) Dissemination workshops.	(6) Two workshops	
(7) Publications and	planned, timetabled and	
presentations.	conducted.	
	(7) Six seminars, 3 press	
	releases, 3 popular articles,	
	3 papers.	

Activities	Activity Milestones (Summary of Project Implementation Timetable)	
(1) Satellite imagery analysis.	(1) Image capture and preliminary analysis (Jul-Dec 05). Collection of additional ground-truthing	
	data (Jan-June 06). Model validation, refinement and site identification Jul-Dec 06). Additional	
(2) Field research programme.	validation and analysis (Jan-June 07). Development of habitat monitoring tools (Jul 07-Jun 08).	
(2) Trefd research programme.	(2) Monitoring known sites (Jul 05-Apr 06). Support ground-truthing data collection (June 06).	
	Surveys of new areas identified by image analysis (Oct 06-Apr 07; Oct 07-Apr 08).	
(3) Site designation.	(3) Identify potentially new areas for site designation and provide support to APFD during any	
	subsequent designation process (reactive: Oct 06-June 08).	
(4) Sustainable land-use planning.	(4) Continue discussions concerning the Telugu-Ganga canal (reactive: May 07-June 08). Continue	
	discussions with APFD about forestry management practices (reactive: May 07-June 08).	
(5) Development of Species Recovery Plan (SRP)	(5) Collation of information from imagery analysis and fieldwork (by Oct 07). <u>Draft SRP produced</u>	
	by BNHS (June 2008).	
(6) Workshops	(6) Dissemination workshop for local, state and national Government officials, NGOS and	
(6) Workshops.	interested individuals (Hyderabad, June 08). Field-based workshop on habitat requirements,	
	management and monitoring methods for local APFD officials and local communities (June 08).	
(7) Publicity material.	(7) Two seminars per year, two press releases associated with workshops (Mar 07, 08) plus one	
	other (reactive). One popular science article per year, two draft papers by June 08.	

Annex 3 onwards – supplementary material (optional)

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.	