



## 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, excluding annexes

Submission deadline 30 April 2009

### Darwin Project Information

Project Ref Number	EIDPO 022
Project Title	Conservation actions to secure the recovery of Gyps species vultures
Country(ies)	India and Nepal
UK Contract Holder Institution	Royal Society for the Protection of Birds (RSPB)
Host country Partner Institution(s)	Bombay Natural History Society (BNHS) Bird Conservation Nepal (BCN) Indian Veterinary Research Institute (IVRI)
Other Partner Institution(s)	Zoological Society of London (ZSL) National Bird of Prey Trust (NBPT)
Darwin Grant Value	£181,386
Start/End dates of Project	1 June 2007 to 31 March 2010 (original end date 31 May 2009, but extension agreed)
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 Apr 2008 to 31 Mar 2009 Annual Report no. 2
Project Leader Name	Dr Richard Cuthbert
Project website	<a href="http://www.vulturerescue.org">www.vulturerescue.org</a>
Author(s) and main contributors, date	Richard Cuthbert, Vibhu Prakash, Anand Chaudhary and Chris Bowden (5/05/2009)

## 1. Project Background

Across South Asia numbers of three species of Gyps vulture have collapsed as a result of widespread use of the veterinary drug diclofenac. Vultures are exposed to diclofenac when they feed upon cattle carcasses of animals that were treated with the drug shortly before death. Diclofenac causes kidney failure in vultures and birds die within 2-3 days of exposure. Modelling of vulture populations indicates that <1% of carcasses need to contain a toxic dose to cause vulture number to decline at the observed rates of >40% a year: measured levels of diclofenac indicates diclofenac is present in >10% of dead livestock in India. As a consequence of these declines, three species of Gyps vulture were classified as Critically Endangered by the IUCN/BirdLife International and two other vulture species (the red-headed vulture and Egyptian vulture) are also Critically Endangered and Endangered, respectively. A paper published by this project in 2008, in the Journal of the Bombay Natural History Society, indicates that number of Oriental white-backed vultures have declined by more than 99.9%. Within India, numbers of white-backed vultures and slender-billed vultures (the rarest species) were estimated to be around 11,000 and 1,000 individuals in 2007, whereas formerly more than 40 million birds were estimated. The collapse of vulture populations in South Asia has resulted in increasing concern over the potential environmental and human health impacts of the loss of this scavenging species and resulting increase in other scavenging species (especially feral dogs) and risk of disease. This project with further support from the RSPB is primarily working in India and Nepal on a wide programme of research, advocacy and in-situ and ex-situ conservation activities to secure the survival and eventual recovery of vultures in South Asia.

## 2. Project Partnerships

The project's three main partner organisations are the Bombay Natural History Society (BNHS) and the Indian Veterinary Research Institute (IVRI) within India, and Bird Conservation Nepal (BCN) within Nepal. Close and good collaboration has continued with these organisations to take forward the project, including increasing the capacity of project staff at both partner organisations.

Within BNHS the main management structure of the project has remained the same with Dr Vibhu Prakash heading the vulture breeding programme and research. Due to the time constraints of Dr Vibhu Prakash with the vulture breeding programme in India, the work related to carcass sampling and analysis is being managed more directly by Richard Cuthbert at the RSPB than in previous years.

Staff changes within BCN have now provided a stronger structure to the vulture team, with four full time staff members now employed by BCN heading the vulture team, as well as additional contract field staff throughout Nepal. Previously vulture related work was undertaken by established full time staff at BCN (primarily Hem Sagar Baral (Chief Executive Officer) and Ishana Thapa (Conservation Officer)) in addition to their other work programmes. The vulture programme is headed by Anand Chaudhary (BCN Vulture Officer), with the support of his team of Tulsi Ram Subedi (Field Biologist), Dr Surya Paudel (Veterinary Officer) and Bhupal Nepali (Community Relations). Together they are providing a strong lead to the work in Nepal, with there being less input required from RSPB in the day to day running of BCN's work programme. The recent resignation of Hem Sagar Baral (CEO) from BCN has left BCN with less experience of the vulture project, however the new team is rising to the challenge and Hem is still advising BCN and the project, as he is still keen to see the project succeed.

New working relationships established within Nepal in early 2008 have continued to grow, with contact regularly made with the National Trust for Nature Conservation (NTNC) and the Department of National Parks and Wildlife Conservation (DNPWC) a government department. Both the NTNC and DNPWC are actively involved and a crucial part of the vulture breeding programme in Nepal and are currently leading the construction of a new colony aviary. Regular contact has also been made between BCN, NTNC and DNPWC and the three organisations

are working well together. Most recently BCN and NTNC (with input from RSPB and ZSL) have finalised the Vulture Action Plan and this has now been submitted to DNPWC for government approval.

Within the RSPB our capacity to support the programme has remained the same with both Richard Cuthbert and Chris Bowden (in charge of RSPB's vulture advocacy and breeding programme) spending considerable periods in the partner countries (>5 months a year) and with Chris based out in India full time during 2009. The new head of the International Research Section (Dr Juliet Vickery) visited the project's programs in Nepal and India in March 2009 and met all of the main partners in both countries.

Within Nepal, Dr Hem Sagar Baral has previously discussed the issue of vulture conservation with the CBD focal point contact Mr Ananta V. Parajuli (Chief Environment Division, Ministry of Forests and Soil Conservation, Government of Nepal), and the vulture programme in Nepal features in Nepal's official report to the CBD which will be published shortly. Within India, Dr Asad Rahmani (Director of BNHS) has previously written to Mr. Desh Deepak Verma (CBD Primary National Focal Point, Joint Secretary C.S. Division, Ministry of Environment and Forests, Government of India) to inform him vulture conservation work that BNHS is undertaking. While both these CBD focal point partners have been informed of the project, they are not playing an active role in the project, however Nepal's official report in 2009 on their progress towards the CBD does include a section on progress on vulture conservation activities.

### **3. Project progress**

#### **3.1 Progress in carrying out project activities**

Output 1. Indian researchers trained in methods for sampling and analysis of NSAID prevalence in livestock carcasses and for monitoring NSAID sales and use by user groups

#### **Activity 1. Staff recruited in India and Nepal to survey NSAID users; training on ELISA methods and NSAID surveys to IVRI & project staff; nationwide surveys of carcasses & NSAIDs undertaken in both years**

Within India three new staff have been recruited on to the carcass collection work, following the departure of the previous researcher (Dr Kalu Ram Senacha) involved in this work. Two of the new staff are vets and as well as assisting with the captive care and capture of birds, Dr Puja Basu and Dr Bhriagu Kumar Neog will be involved in the collection of samples from the field. In addition, the project has very recently recruited a further team member (Dr David Abrahams) on a short-term 4-month contract to collect carcass samples. This short-term position will enable the carcass sampling to get back on track, following a delay following the departure of Kalu Ram. In 2008 a total of 1250 carcass samples were collected. Collection is now underway in 2009 to complete a second full survey. At IVRI in India, a lab technician has been employed full time for 12 months to work on the ELISA analysis of carcass samples. Following the ELISA training delivered by Dr Mark Taggart in April 2008, the IVRI is continuing with this method following the purchase of ELISA equipment by BNHS by the project. At the time of writing 300 samples had been screened for the presence of diclofenac. The screening of all 1250 samples should be completed by July 2009. Within Nepal, the recruitment of Dr Surya Paudel (BCN Veterinary Officer) has enabled carcass sampling work to begin through working with skimmers in the collection of samples. NSAID sampling has continued in both countries, with sampling undertaken by a network of BNHS volunteers as well as in the course of carcass sampling work. Within Nepal, the second year of NSAID surveys of pharmacies is planned to take place during the nationwide road-transect survey in May 2009.

Output 2. In-situ conservation activities established and effective around extant vulture colonies in Nepal and India

**Activity 2. Coordination of in-situ actions between NGOs; training for staff on in-situ activities; diclofenac swapping and colony monitoring in place at >3 colonies**

Within Nepal the role of in-situ conservation sites continues to grow, with four sites now up and running promoting vulture conservation around these remaining colonies. A workshop on the running of in-situ conservation and NSAID monitoring was organised by BCN vulture staff in late 2008, attracting over 20 participants from across Nepal, and promoting best-practice. Funding for the in-situ sites continues to involve a range of organisations, with this project helping to provide seed money for several sites, with further money being provided by NTNC and WWF-Nepal. At the original in-situ site in Nepal numbers of vultures have increased for a second year in a row. Numbers at this site have increased from 17 in both the 2005/06 and 2006/07 seasons, to 33 in 2007/08 to there being 45 nesting pairs in 2008/09 season. The site is also attracting increased numbers of visitors and tourists (most from Nepal), and the BCN team and community involved at the site has organised several site promotional visits, including one for all of the tour operators working in the neighbouring Chitwan National Park. Increased earnings at this site, including night stays within the village, money from sales of merchandise (T-shirts, caps etc), and hiring out the community meeting room (constructed with UNDP funds in 2008) are beginning to make this site self-sufficient with regards funding. Ongoing monitoring and research is taking place and being expanded across Nepal to assess the overall effectiveness of these actions. Continued research over the next years, including tracking adult and fledgling vultures from in-situ sites will determine if the encouraging local increases are effective at a national scale.

Within India progress on the in-situ work has been slower and focused in the State of Gujarat in the west of the country. More intense agriculture and cattle rearing in this area combined with a vigorous pharmaceutical industry has meant that vultures in Gujarat and the in-situ work has faced a bigger challenge than in Nepal. Counts of vultures in Gujarat indicate background rates of declines of >50% a year, and despite the best efforts of BNHS staff and volunteers working and promoting vulture conservation (and carrying advocacy and diclofenac/meloxicam swapping) vulture numbers have continued to decline. Activities undertaken by Ms Ruchi David in the Mohuva area of Gujarat have included organising workshops to para-vets (“quacks”), qualified vets, farmers and pharmacists, working with the Nature Club Surat to sell subsidised meloxicam to user groups, running vulture awareness programme to 47 primary and 23 secondary schools with a total of over 7,000 participants, and visiting all pharmacies within Parnadar district to survey their use of veterinary drugs. Additional work undertaken in Gujarat has also been undertaken by BNHS volunteers Mr Kartik Shastri (in Ahmedabad) and Mr Shantilal Varu and Mr M. B. Khatri (in Kutch). Their work includes monitoring remaining vulture colonies and working close with animal rescue charities (“*panjrapols*”) to ensure that these organisations use meloxicam instead of diclofenac. Because of the very large numbers of cattle held by these charities (>1500 cattle at each site), these sites represent an important feeding site for vultures in the region, hence ensuring these cattle are diclofenac free is an important action for vulture conservation.

*Output 3. Effective mechanisms for the co-ordination of in-situ conservation activities within the region established*

**Activity 3a. Meeting arranged for Nepal Vulture Action plan**

Several informal meetings have taken place between BCN and NTNC, as well RSPB staff when in the country, in order to finalise the Vulture Action Plan. This plan was submitted to the government Department of National Parks and Wildlife Conservation (DNPWC) in April 2009 for final approval. Following review, BCN and NTNC will organise a final workshop meeting (planned to occur by July 2009) to ratify the plan, at which point it will become officially recognised by the government of Nepal. While behind the original schedule this activity is occurring, and all vulture partners in Nepal (BCN, NTNC and DNPWC) are already working from the plan.

### **Activity 3b. Meetings in Indian states to coordinate in-situ plans**

State level meetings were held in Gujarat in February 2009 to understand the conservation work being carried out here and try to coordinate vulture conservation work undertaken by several different NGOs. The time involved in trying to coordinate the in-situ work has led to the project advertising for a full time field biologist position with BNHS to continue working with and coordinating in-situ actions in Gujarat. Despite advertising and interviewing candidates for this post, no suitable full time post has yet been created. In-situ work in India continues to utilise the existing network of BNHS volunteers, and this project is covering their expenses and costs involved.

*Output 4. Capacity to undertake vulture conservation breeding programmes in the region enhanced*

### **Activity 4a. International and national training visits arranged for project vets**

A visit was arranged for Dr Devojit Das (Assam Centre Manager and Project Veterinarian for BNHS) to the UK in August 2008, where he worked with Cambridge University, the RSPB and ZSL. This visit combined gaining experience and knowledge on the statistical analysis of blood parameters and other data, analysing breeding centre records to estimate survival, building simple population models for the centre to help assess the potential numbers of birds in the future, and diagnostic work and experience at London Zoo.

### **Activity 4b. Workshops for centre staff**

In April 2009, Jemima Parry-Jones (NBPT) and Chris Bowden (RSPB) have undertaken another training course at the West Bengal centre in India, specifically on all aspects of vulture husbandry, aviary design and vulture handling, including a major practical component. Feedback from this, including that from the vulture keepers is being incorporated into future protocols and the husbandry manual. Project staff from India and Nepal attended this training.

### **Activity 4c. Visits of staff from new breeding centre to receive training from project staff**

Two visits to the centres in India have been arranged in the last year for staff from the new breeding centre in Nepal. A visit in August 2008 was undertaken by six staff from Nepal (staff from BCN, NTNC and DNPWC) to the breeding centre at Pinjore in India, where Dr Vibhu Prakash undertook a course of training on vulture husbandry and management of centres. Staff from Nepal also attended the recent (April 2009) workshop in West Bengal.

## **3.2 Progress towards Project Outputs**

### **Output 1. Indian/Nepalese researchers trained in methods for sampling and analysis of NSAID prevalence in livestock carcasses and for monitoring NSAID sales and use by user groups**

Training on carcass sampling was given to the new staff in India in February 2009, and in Nepal in March 2009. Training on ELISA analysis methods was for staff from BNHS and IVRI was undertaken in April 2008 (see attached ELISA methodology report) and IVRI have now analysed over 300 of the 1250 carcass samples collected in 2008. Formal verification of the method has been delayed due to the slower than anticipated start to this work (mainly caused by problems in sourcing ELISA reader and plate-washer equipment for IVRI) and full verification will take place by August 2009. Monitoring of NSAID sales in pharmacies continues in both India and Nepal. Additional monitoring work in Nepal has looked at NSAID use by veterinary hospitals.

### **Output 2. In-situ conservation activities established and effective around extant vulture colonies in Nepal and India**

Real progress has been made in Nepal to achieve this output and numbers of nesting vultures have increased from 17 to 45 pairs over the two years at one site. The number of in-situ sites in Nepal has increased to four and workshops organised by BCN have helped ensure best-practise will take place at all of these sites (see photos in Appendices). In-situ work in India has continued in Gujarat, India, however vulture numbers continue to decline despite considerable effort in vulture advocacy work and replacing diclofenac with meloxicam.

### **Output 3. Effective mechanisms for the co-ordination of in-situ conservation activities within the region established**

Within Nepal the involvement of the NTNC and DNPWC in vulture conservation and working partnership between these two organisations and BCN has greatly increased the capacity to coordinate vulture conservation within Nepal, including in-situ conservation activities. In addition, WWF-Nepal has become involved in the in-situ conservation work and is funding an additional site with technical advice provided by BCN. The technical workshop, on in-situ conservation work run by the BCN vulture team, has facilitated the effective coordination of this work.

Within India, the size of the country and number of organisations working towards vulture conservation (even within Gujarat) has created difficulties with coordinating this work. Despite nearly a year's effort to recruit a full-time coordinator for the in-situ project, it has not been possible to find a suitable candidate. Consequently, the work supported by this project is being led by a network of BNHS volunteers within Gujarat who are often constrained in their time commitment. Within Gujarat, the Bird Conservation Society of Gujarat is taking the lead in coordinating vulture conservation activities, and the BNHS volunteers communicate with this group through a "Vulture Cell" of this organisation. The Nature Club Surat (part of the Vulture Cell) have led on providing subsidised meloxicam, and this has been utilised by Ms Ruchi David and Mr Kartik Shastri in the areas that they are working.

### **Output 4. Capacity to undertake vulture conservation breeding programmes in the region enhanced**

Training visits for staff to the UK have been undertaken (and further visits are planned) and training workshops within India have taken place. Regional cooperation within India and between India and Nepal has increased, with staff from Nepal visiting centres in India to work with BNHS vulture teams (see attached report in appendices).

## **3.3 Standard Measures**

**Table 1 Project Standard Output Measures**

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Total planned from
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		Total	Total	Total	Total	date	from application
4C	Project veterinarians trained overseas, IVRI technicians trained in ELISA methods, research biologists trained in NSAID survey methods	7	5			12	6
4D	10 weeks (visits by vets of at least 3 weeks in each year, 2 weeks to IVRI staff, >2 weeks to research biologists)	6	6			12	10
6A	Training to breeding centre staff and attendants	3	27			30	3
6B	4 weeks (at least 2 weeks in each year)	3	12			20	2
7	3 (manual on ELISA methods, guides on data collection and data analysis, husbandry manual)	0	1	1		2	3
8	26 weeks	26	36			62	26
9	1 Action Plan for Vultures in Nepal	1	-			1	1
11A	3 peer-reviewed publications published	5	5			10	3
11B	3 peer-reviewed publications submitted	2	2			4	3
12A	1 database on nationwide prevalence of NSAIDs in cattle carcasses	0	0			0	1
14A	3 workshops to co-ordinate in-situ conservation actions	2	1			3	3
14B	1 meeting for production of Nepali Vulture Action Plan	0	0			0	1
15A	National press release in host country	4	2			6	5
15B	Local press release in host country	5	2			7	10
15C	National press release in UK	2	1			3	4
16A	Newsletters in India and Nepal	1	1			2	2
16B	Newsletter in India 300	500	500			1000	300

17A	2 networks coordinating in-situ conservation efforts and captive breeding programmes	2	2			2	2
18A	host country TV	2	1			3	2
18C	local host country TV	2	2			4	5
19A	National radio in host	4	2			6	5
	National radio in UK	5	0			5	20
	Local radio in host	5	>4			9	4
19B							
19C							
20	£10,900 towards equipment, set-up costs and reagents for ELISA testing, and purchase of land in Nepal	£13K	£20K			£33,000	£10,900
23	£259,450 of support in kind from salaries of UK staff, office costs, overheads, and travel & accommodation of visiting staff	£125K	£125K			>£250K	£259,450

**Table 2 Publications**

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Peer-reviewed journal	Rapid population declines of Himalayan Griffon Gyps himalayensis in Upper Mustang, Nepal RAJU ACHARYA, RICHARD CUTHBERT, HEM SAGAR BARAL and KARAN BAHADUR SHAH (2009)	Bird Conservation International	BCI website Will be published on <a href="http://www.vulturerescue.org">www.vulturerescue.org</a>	£0
Peer-reviewed journal	The role of veterinary diclofenac in the decline of vulture populations in South Asia Richard Cuthbert, Vibhu Prakash, Chris Bowden, Devojit Das, et al. (2009)	Indian Journal of Veterinary Medicine	Will be published on <a href="http://www.vulturerescue.org">www.vulturerescue.org</a>	£0
Peer-reviewed journal	Veterinary diclofenac threatens Africa's endangered vulture species V. Naidoo, K. Wolter, R. Cuthbert, N. Duncan (2009)	Regulatory Toxicology and Pharmacology	Journal website Will be published on <a href="http://www.vulturerescue.org">www.vulturerescue.org</a>	£0
Peer-reviewed journal	The race to prevent the extinction of South Asian vultures	Bird Conservation International	BCI website Will be published on <a href="http://www.vulturerescue.org">www.vulturerescue.org</a>	£0



journal	DJ PAIN, CGR BOWDEN, AA CUNNINGHAM, R CUTHBERT, et al. (2009)	International	www.vulturerescue.org	
Peer-reviewed journal	Diclofenac levels in livestock carcasses in India before the 2006 "ban" K SENACHA, M TAGGART, A RAHMANI, Y JHALA, R CUTHBERT et al. (2009 in press)	Journal of the Bombay Natural History Society	Will be published on www.vulturerescue.org	£0
Manual	Procedures for extracting and analysing tissue samples for diclofenac using ELISA. M Taggart, M Saini, D Knopp (2008)	Report	Will be published on www.vulturerescue.org	£0
Manual	Husbandry Guidelines for 'in range' breeding programmes of <i>Gyps bengalensis</i> , <i>Gyps indicus</i> and <i>Gyps tenuirostris</i> . Anon, (2008)	BNHS/ NBPT/ RSPB/ ZSL report	Will be published on www.vulturerescue.org	£0
Species Action Plan	Vulture Conservation Action Plan for Nepal 2009 – 2013. Anon, (2009)	Government of Nepal, Ministry of Forest and Soil Conservation, Department of National Parks and Wildlife Conservation	DNPWC Will be published on www.vulturerescue.org	£0

### 3.4 Progress towards the project purpose and outcomes

The purpose of this Darwin post-project is to improve national and regional capacity to monitor the use and impacts of NSAIDs and conserve and recover vulture populations through in situ and ex-situ activities across South Asia. The project has made some notable progress towards these ends in the second year of the project, including expanding the in-situ work in Nepal, continued carcass sampling and ELISA analysis in India, and training of staff both overseas and in the host countries.

The purpose level assumptions (political stability in Nepal and Indian states where in-situ and ex-situ activities planned, and continued support from National and State governments towards vulture conservation) still hold true for the project and have been largely met in the second year, however there are serious concerns for the project from political instability within the Indian state of Assam and continued concern from political stability within Nepal. The project indicators are still valid for the vulture programme.

The success of the breeding programme to date has already encouraged the Indian Government and the Indian Central Zoo Authority to offer substantial funds for aviary construction to five zoo initiatives, with BNHS and indirectly RSPB input. This has recently been taken a step further with central Government Ministry funds being pledged for further construction of colony aviaries at each of the existing BNHS centres. This illustrates crucial in-country support for the development of the programme.

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

The project has made significant progress in its second year towards preventing the loss of Gyps vulture populations in South Asia. Notable impacts include successfully fledging two chicks in captivity in the Indian breeding centre (the first time this species has been bred), the expansion of the in-situ conservation work in Nepal, the continued growth of the breeding centre in Nepal and capture of an additional 30 vulture chicks for this centre in April 2009, growing ties between the vulture projects in India and Nepal and training visits to BNHS centres, and increased financial support and leadership played by national government organisations and other NGOs in both India and Nepal.

## **4. Monitoring, evaluation and lessons**

Regular meetings with partners have taken place in both India and Nepal. The annual advocacy, breeding program and research meetings took place in India in July 2008, and in February 2009 (with representatives from BNHS, Wildlife Institute of India (WII), state government Chief Wildlife Wardens, RSPB, NBPT and ZSL present). Breeding and vulture programme review meetings took place in June 2008 and February 2009 in Nepal (with representatives from RSPB, ZSL, BCN, NTNC, DNPWC and Hem Sagar Baral present at the latter meeting). Regular email contact and periodic meetings occur both within the RSPB, and between RSPB, ZSL and NBPT within the UK. Monthly updates from BNHS on the breeding programmes activities help to keep up to date and monitor the progress with this side of the work.

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

The previous review from last year's annual report was largely very positive and supportive of the project's progress. The reviewer raised three main questions, listed below with the response to each in *italics*:

Is carcass sampling planned/occurring in Nepal?

*Carcass sampling has now been initiated in Nepal in early 2009 (one of the responsibilities of the veterinary officer at BCN) in order to provide comparable data to India on the degree of carcass contamination. Because Nepal does not have large carcass dumps, as is the case in India, the collection of samples is trickier to undertake and the project has made contacts with a network of local skimmers (around 80 skimmers in eight areas is the plan) who will collect the samples on a piece-meal rate. This work has recently been initiated and we will judge the effectiveness of this in the next six-months.*

1. Are the user surveys to include surveys of farmers' NSAID use, or is this inferred from the pharmacy data?

*The user surveys have not specifically targeted farmers and we consider that a combination of pharmacy surveys and carcass surveys will give an accurate picture of the progress in preventing the use of diclofenac and uptake of safe alternative drugs. This sampling should also reveal if a large "under the table" market exists for veterinary diclofenac (e.g. if the pharmacies contain no diclofenac but we continue to find levels of contamination from the carcass surveys).*

2. Is the workload/training timetable of breeding facility staff now sorted?

*Staff at the breeding centres continue to have a very heavy workload and this still creates some difficulties in terms of providing training opportunities. Despite these difficulties the project has*

*been successful in providing training for staff in the last year. This includes a visit by Dr Devojit Das (Assam Centre Manager and Project Veterinarian for BNHS) to the UK in August 2008 where he worked with Cambridge University, the RSPB and ZSL. A visit in late August 2008 was undertaken from Nepal (6 staff from BCN, NTNC and DNPWC) to the breeding centre at Pinjore in India, where Dr Vibhu Prakash undertook a course of training to the Nepalese team on vulture husbandry and management of centres (see report in Appendices). Andrew Routh (ZSL) gave autopsy training as well as veterinary care sessions to two of the project vets in June 2008, although unfortunately, one of the staff concerned proved not to be sufficiently competent and left the project two months later. In April 2009 Jemima Parry-Jones (NBPT) and Chris Bowden (RSPB) have undertaken another more structured training course at the West Bengal centre in India, specifically on the rearing and care of young chicks. Fourteen staff from India and one from Nepal have attended this training.*

## **6. Other comments on progress not covered elsewhere**

Political risks and instability remain within both India and Nepal. This has particularly affected the breeding centre and prospects for catching vultures within the state of Assam, where one centre has been constructed specifically for the capture of slender-billed vultures (the largest population of which remains in Assam). Terrorist events within the state capital and local activism against taking birds from the wild have hampered progress. Currently BNHS is reviewing whether it is safe for the staff and viable for the centre to remain within this area. The political situation is far better in Haryana and West Bengal where the other two centres are located. Inter-state cooperation in India remains a challenge and this has also hampered efforts to collect chicks for the centres as individual states where birds remain have not cooperated on issuing permits for the capture of vultures because once captured these birds will need to leave the state to reach one the breeding centres. Time-consuming efforts are continuing to try and ensure that the capture and transfer of birds can go ahead in the next catching season. Within Nepal the political situation has remained peaceful, however local protests and particularly road-blocks (some times lasting more than a week) have repeatedly created problems for the project, particularly for the construction of the breeding centre (the centre is located in the *terai* region of Nepal, where most protests have occurred in the last year). Working around these protests has created some inevitable delays with some of the work programme in Nepal.

## **7. Sustainability**

The growing involvement of other organisations, and particularly national and state government organisations, in both India and Nepal is helping to provide a greater degree of sustainability for the vulture project. For example, the involvement and support of the Ministry of Environment and Forests (MoEF) in India in providing financial support for the advocacy programme (for example MoEF funded full-page diclofenac advertisements in three leading national daily newspapers) and is now committed to fund major construction work needed for the captive breeding programme. This demonstrates a new and increased involvement in the vulture work. Similarly, IVRI have committed their own funds and time in to the ELISA work programme in order to make sure this succeeds. In Nepal the involvement of NTNC and DNPWC, in committing time and resources to the construction of the breeding centre and production of the Vulture Action Plan, has helped shift the workload and costs beyond this project. While external funds and expertise will still be needed in the future, especially for the captive breeding programmes (which the RSPB is committed to support), there is encouraging progress within both India and Nepal in taking responsibility for funding and undertaking the vulture programme.

## **8. Dissemination**

The main source of dissemination within India has come from the BNHS Advocacy Programme led by Dr Nita Shah, which is funded separately by the RSPB with earlier support from the UK Government's Global Opportunities Fund (GOF), and has recently secured some additional

support from the Indian Government Ministry of Environment and Forest (MoEF). This advocacy programme has remained very effective at engaging state and national government departments in the vulture conservation project, as well as at more local levels disseminating information to farmers. Key achievements over the past year have included prompting the Drug Controller General of India in sending a directive in June 2008 to all Indian diclofenac manufacturers to label human diclofenac with the warning: “not for veterinary use”. This was followed in July by a decision to make the ban on the manufacture of the veterinary formulations more legally binding, so that the sale and use of the drug has become an offence punishable by imprisonment. The advocacy programme provided the information and stimulus for the MoEF to produce a full-page press release in three of India’s largest national newspapers in late 2008 (see Annexes). Support from the RSPB will remain for the advocacy programme for at least the next three years.

Within Nepal, BCN has led on disseminating information to the government and to vets and farmers at the local level. The appointment of a veterinary officer by BCN has helped facilitate new meetings with vets and a series of workshops have been undertaken across Nepal targeting the veterinary community. The continued partnership between BCN, NTNC and DNPWC has further raised the profile of vultures, particularly within government circles, and regular news articles on the breeding centres and in-situ conservation work feature in the press in Nepal. Because of the wide range of conservation activities now underway in Nepal BCN is planning to produce a six-monthly vulture newsletter (similar to “Jatayu” produced by BNHS in India). The first issue of this is scheduled for June 2009. Two vulture conservation education posters have been produced by BCN in the last year (both in Nepali), with 5000 and 3000 of these distributed in project areas. A further 10,000 leaflets on vulture conservation have also been distributed. Other dissemination by BCN includes arranging a stall at the World Environment Day (June 5, 2008), where around 15, 000 individuals viewed the exhibition, and the making of a 30 minute film on the in-situ work and vulture conservation which has been shown at this and other exhibitions and workshops.

## 9. Project Expenditure

**Table 3 Project expenditure during the reporting period (Defra Financial Year 1 April 2008 to 31 March 2009)**

Item	Budget (original application)	Expenditure	Variance
<b>Rent, rates, heating, overheads etc</b>			
<b>Office costs (eg postage, telephone, stationery)</b>			
<b>Travel and subsistence</b>			
<b>Printing</b>			
<b>Conferences, seminars, etc</b>			
<b>Capital items/equipment</b> Motorbike for BCN staff Land and start costs for <i>in-situ</i> work in Western Nepal Computer equipment First aid kit, anti-malarials Head torches, batteries etc Buffalo for vulture catching Visa fee for entry to Nepal			

<b>Total Capital items</b>	
<b>Others</b> BCN life/health insurance for 2x BCN core staff BCN work in Rampur valley (Nepal) to protect nesting trees & diclofenac swapping BCN life insurance for 5 x vulture staff BCN in-situ work in Western Nepal (diclofenac swapping, local staff, monitoring)  BNHS payments to skinnners BNHS minor equipment for carcass sampling BNHS purchase of NSAIDs for surveys  ELISA/LCMS analysis of carcass samples (reagents, equipment, R&D)  Bank charges, tax and exchange rates  <b>Total Others</b>	
<b>Salaries</b> RSPB Project Manager (Richard Cuthbert) BCN Vulture Officer (Anand Chaudhary) BCN Vulture Biologist (Tulsi Ram Subedi) BCN Vulture Veterinarian (Surya Paudel) BCN Community Officer (Bhupal Nepali) BCN 3 x local assistants BNHS Carcass sampling biologist (Kalu R Senacha) BNHS driver for sampling BNHS Vet/Biologist (Puja Basu) BNHS Vet/Biologist 6 months (David Abrahams) BNHS driver for fieldwork  <b>Total Salaries</b>	
<b>TOTAL</b>	

Actual expenditure under different budget headings has changed by more than +/- 10% in several of the budget lines in comparison to the original budget, however the overall expenditure in year 2 (£86,151) is as projected.

The large discrepancies between the projected and actual spend on Rents, rates and overheads and Printing (both substantially lower) reflects the fact that at BNHS we are paying 10% overheads on just the salary and office components, whereas in the original budget we estimated 15% overheads on all items within the budget (e.g. capital items etc). Consequently,

the project has saved on these overhead costs. The large difference in the Printing budget is because both ZSL and the RSPB Advocacy Programme have provided additional support to BNHS and BCN to cover costs of conservation advocacy, and printing costs have largely been met by this money. Capital items costs were lower than anticipated due to reduced costs for land purchase for in-situ conservation work, as in several cases this land is being leased or provided at no cost, negating the need to purchase it.

The large increase in Conference/seminars (£1,200 versus £500) is due to providing funding costs for running a workshop in Nepal for the final ratification and approval of the action plan. This will be a larger event than anticipated (20-25 delegates present) and cost for running this are higher than the original allowed under the Conference/Seminars budget.

**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 LTS and the Darwin Secretariat to publish the content of this section

The Darwin vulture project has made significant progress in its second year, with the capacity and expertise of partner strengthening and taking an increasingly active role in the project's running. Key achievements include training of over 20 staff in management and captive care of vultures, international visits between centres in Nepal and India for exchanging skills and securing funding for breeding centres and vulture conservation from national and state governments in both India and Nepal. The Bombay Natural History Society and the Indian Veterinary Research Institute continue to lead on the collection and analysis of carcass samples for the presence of the toxic veterinary drug diclofenac, with over 1250 samples collected across India in the last year. Expansion of this carcass collection work is being set up for Nepal. Progress on in-situ conservation, particularly in Nepal, has expanded and four sites are now undertaking conservation projects around remaining vulture colonies including the removal of diclofenac from surrounding pharmacies and replacing this with the vulture safe drug meloxicam. Bird Conservation Nepal has led on this work and organised workshops to ensure best practise is undertaken at these diclofenac free sites. Lastly, the vulture conservation breeding programme has continued to successfully capture birds from the wild, and achieved the notable landmark of fledging two white-backed vultures in 2008: the first time these critically endangered species have been bred in captivity.

Photos of the project, including staff at training workshops, the capture of vulture chicks and the fledged chicks are available for the Darwin Initiative on request.

## Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2008/09

Project summary	Measurable Indicators	Progress and Achievements April 2008 - March 2009	Actions required/planned for next period
<p><b>Goal:</b> 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</p> <p>The conservation of biological diversity,</p> <p>The sustainable use of its components, and</p> <p>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</p>			(do not fill not applicable)
<p>Purpose</p> <p>Capacity to monitor the use and impacts of NSAIDs and conserve and recover vulture populations through in situ and ex-situ activities enhanced across South Asia</p>	<p>Regional partners running surveys to determine effectiveness of diclofenac ban</p> <p>Local and regional stakeholders involved in a suite of in-situ vulture conservation measures and colony monitoring</p> <p>Increased number of trained staff and increased knowledge to undertake vulture breeding</p>	<p>BNHS and BCN both undertaking surveys of NSAID prevalence in pharmacies in Nepal and India. BNHS continue to monitor carcass contamination with NSAIDs and new carcass sampling work established in Nepal.</p> <p>In-situ conservation efforts in Nepal have grown, with four in-situ sites now set up around remaining colonies. In-situ work has increased in Gujarat India, but against a background rate of population decline (&gt;50% a year) that is still decimating vulture numbers.</p> <p>6 new staff in Nepal with training on vulture captive care. 3 new staff recruited in India for collection of carcass samples and veterinary care.</p>	<p>The analytical method (ELISA) now established in India, but completing the analysis of 1200 samples urgently required in next 3 months.</p> <p>Monitor the effectiveness and sustainability of the expanded in-situ conservation work in Nepal over coming 2 years. Review prospects of in-situ work in Gujarat given rates of decline, and assess if other of India would be better for this work.</p> <p>Training visits for Nepali staff to Indian centres. BNHS vet visit to UK. 2+ training workshops for BNHS staff.</p>
<p>Output 1.</p> <p>1. Indian researchers trained in methods for sampling and analysis of</p>	<p>1a. Training of 2 staff in ELISA methods and 3 staff in NSAID user surveys successfully completed</p>	<p>4 staff trained in ELISA methods and 4 staff trained in NSAID surveys, all completed in first year of project. Subsequent training of lab technician has been undertaken within IVRI without further input from RSPB</p>	

methods for sampling and analysis of NSAID prevalence in livestock carcasses and for monitoring NSAID sales and use by user groups	1b. NSAID carcass surveys and monitoring of NSAID users organised, managed, analysed and reported by regional partners by April 2008 and April 2009, and scientific publications by June 2009	undertaken within IVRI without further input from RSPB Carcass surveys back on track after departure of previous staff member at BNHS and new staff recruited and trained in methods. Reporting of NSAID survey results and analysis of carcass survey results behind schedule due to delays in ELISA training in first year of the project and problems caused by departure of staff. NSAID surveys completed and reporting now required.
Activity 1.1 Staff recruited in India and Nepal to survey NSAID users; training on ELISA methods and NSAID surveys to IVRI & project staff; nationwide surveys of carcasses & NSAIDs undertaken in both years		New staff recruited in India and Nepal to continue with and expand carcass sampling work, and training given in methods. Network of BNHS colony monitoring volunteers used to undertake NSAID surveys in India. Established staff in Nepal continuing with NSAID monitoring. Full time lab technician recruited by IVRI to undertake ELISA analysis, following training in April 2008.
Output 2. In-situ conservation activities established and effective around extant vulture colonies in Nepal and India	2. Colony monitoring protocols developed and baseline data available; meloxicam exchanged for diclofenac, conservation education materials disseminated around at least three vulture colonies	In-situ conservation now successfully established at 4 sites in Nepal. Ongoing work in Gujarat (India) still proceeding, although rates of decline mean vulture numbers are now very low or absent from some sites. Baseline data for colony monitoring in Nepal and India has been undertaken and new in-situ sites in Nepal have been incorporated in to monitoring plans. Within Nepal and Gujarat (India) meloxicam swapping programme has been undertaken around remaining vulture sites, as well as working with cow rescue charities in Gujarat.
Activity 2.1. Coordination of in-situ actions between NGOs; training for staff on in-situ activities; diclofenac swapping and colony monitoring in place at >3 colonies		Good coordination in Nepal at in-situ conservation sites with involvement of local communities and forest user groups. Nationally, BCN has coordinated workshops on in-situ work, attended by >20 participants and a further 3 in-situ sites are now successfully running with diclofenac swapping in place. The original in-situ site in Nepal has growing number of visitors providing sustainability and vulture numbers increasing. Training and activities in India behind schedule and rate of decline of vultures in Gujarat still very high. Colony monitoring present at 8 sites in Nepal, and 6 sites in India.
Output 3. 3. Effective mechanisms for the co-ordination of in-situ conservation activities within the region established.	3. Nepal vulture action plan meeting conducted by July 2007; regional meetings at three sites by September 2007 for in-situ actions	Vulture Action plan finalised for government approval Meetings occurred at three in-situ sites in Gujarat India Workshop on in-situ conservation run by BCN in Nepal with representatives from more than 4 areas visiting to learn project methods
Activity 3.1.		Vulture Action Plan has now been finalised by BCN and NTNC and submitted to Nepal government for approval. One day workshop meeting will take place to



Meeting arranged for Nepal Vulture Action plan		ratify this, scheduled for June 2009. While behind schedule all 3 Nepal partners are already using the Vulture Action Plan to determine work priorities
Activity 3.2. Meetings in Indian states to coordinate in-situ plans		Visit and meetings in Gujarat, India, were made in February 2009 to work with local partners and see progress on in-situ work and plans.
Output 4. 4. Capacity to undertake vulture conservation breeding programmes in the region enhanced	4. Two, one week training workshops completed by August 2007; overseas training visits in 2007 and 2008 for project vets	International and national training undertaken and visits between Nepal and India breeding programmes showing encouraging cooperation and progress.
Activity 4.1. International and national training visits arranged for project vets		BNHS Project Vet (Dr Devojit Das) visited UK during August 2008 to work with staff at Cambridge University, RSPB and ZSL BCN Vulture Biologist (Tulsi Ram Subedi) provisionally awarded Field Studies Council Darwin Scholarship to visit UK in 2009
Activity 4.2. Workshops for centre staff		Training workshop run by BNHS for Nepal staff undertaken in August 2008. Training workshop run by NBPT took place in April 2009f
Activity 4.3. Visits from staff from new breeding centre to receive training from project staff		6 staff from Nepal visited the Pinjore centre in India to receive training on captive breeding in August 2008. A further visit by Nepal staff to the West Bengal centre recently made in April 2009.

## Annex 2 Project's full current logframe

11. Project summary	12. Measurable indicators	13. Means of verification	14. Important assumptions
<p>15. Goal: 16. 17. 18.</p> <p>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</p> <ul style="list-style-type: none"> <li>• the conservation of biological diversity,</li> <li>• the sustainable use of its components, and</li> <li>• the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</li> </ul>			
<p>19. Purpose</p> <p>Capacity to monitor the use and impacts of NSAIDs and conserve and recover vulture populations through in situ and ex-situ activities enhanced across South Asia</p>	<p>Regional partners running surveys to determine effectiveness of diclofenac ban</p> <p>Local and regional stakeholders involved in a suite of in-situ vulture conservation measures and colony monitoring</p> <p>Increased number of trained staff and increased knowledge to undertake vulture breeding</p>	<p>Annual reports and scientific publications produced on NSAID use and prevalence</p> <p>Data on vulture numbers at in-situ sites published, information on amounts of diclofenac exchanged for meloxicam and other activities reported in newsletter and websites</p> <p>New trained staff working at new vulture centres</p>	<p>Political stability in Nepal and Indian states where in-situ and ex-situ activities planned.</p> <p>Continued support from National and State governments towards vulture conservation</p>

<p><b>20. Outputs</b></p> <p>1. Indian researchers trained in methods for sampling and analysis of NSAID prevalence in livestock carcasses and for monitoring NSAID sales and use by user groups</p> <p>2. In-situ conservation activities established and effective around extant vulture colonies in Nepal and India</p> <p>3. Effective mechanisms for the co-ordination of in-situ conservation activities within the region established</p> <p>4. Capacity to undertake vulture conservation breeding programmes in the region enhanced</p>	<p>1a. Training of 2 staff in ELISA methods and 3 staff in NSAID user surveys successfully completed by July 2007</p> <p>1b. NSAID carcass surveys and monitoring of NSAID users organised, managed, analysed and reported by regional partners by April 2008 and April 2009, and scientific publications by June 2009</p> <p>2. Colony monitoring protocols developed and baseline data available; meloxicam exchanged for diclofenac, conservation education materials disseminated around at least three vulture colonies</p> <p>3. Nepal vulture action plan meeting conducted by July 2007; regional meetings at three sites by September 2007 for in-situ actions</p> <p>4. Two, one week training workshops completed by August 2007; overseas training visits in 2007 and 2008 for project vets</p>	<p>1. Carcass survey and NSAID user survey reported to Indian government; one scientific publication; summary results available on project website</p> <p>2. Monitoring protocols and conservation education material available on website; annual monitoring reports and in-situ actions reported for all three sites; publication on in-situ results.</p> <p>3. Nepali vulture action plan produced; meeting results reported and available on website</p> <p>4 Number of staff trained at centres reported in breeding centre newsletter and on website; overseas trip reports and veterinary training reported in newsletters</p>	<p>Key staff trained in NSAID analysis methods and vulture conservation breeding centres remain involved with the project or ensure expertise passed on to replacement staff</p> <p>Support from national, state officials and regional forestry departments remains in areas with in-situ and ex-situ conservation activities</p>
<p><b>Activities</b></p> <p>1. Staff recruited in India and Nepal to survey NSAID users; training on ELISA methods and NSAID surveys to IVRI &amp; project staff; nationwide surveys of carcasses &amp; NSAIDs undertaken in both years</p> <p>2. Coordination of in-situ actions between NGOs; training for staff on in-situ activities; diclofenac swapping and colony monitoring in place at &gt;3 colonies</p> <p>3a. Meeting arranged for Nepal Vulture Action plan</p> <p>3b. Meetings in Indian states to coordinate in-situ plans</p> <p>4a. International and national training visits arranged for project vets</p> <p>4b. Workshops for centre staff</p>	<p><b>Activity milestones</b></p> <p>1. Staff employed, training &amp; manual for ELISA &amp; NSAID surveys by July 2007; annual report to governments on NSAIDs and carcass residues by April 2007 &amp; 2008; publication by June 2009</p> <p>2 Training undertaken by Sept 2007; colony monitoring and conservation actions reported on website &amp; local newsletters; paper on effectiveness of in-situ work produced by June 2009</p> <p>3a. Nepali action plan produced by July 2007</p> <p>3b. Meetings and minutes published by Sept 2007</p> <p>4 Training manuals produced by Aug 2007 &amp; Aug 2008; vet trip</p>	<p><b>Assumptions</b></p> <p>1a. Agreement in place with IVRI and BNHS to support work and IVRI staff available; suitable staff can be found; permits in place to allow surveys</p> <p>2a. NGOs and forest departments willing to collaborate on in-situ conservation</p> <p>2b. Suitable staff found and recruited</p> <p>3. NGOs and forestry departments able to attend meetings and willing to collaborate on activities</p> <p>4. Continued support and cooperation between organisations running captive</p>	

4c. Visits from staff from new breeding centre to receive training from project staff	reports produced; centre staff training reported in newsletter by Sept 2007 & Sept 2008	centres, and availability of staff at key training periods
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## Annex 3 Onwards – supplementary material

PDF copies of the following reports (numbers 1 to 8), recent gazettelement of the diclofenac ban in India (number 9) and publications (10 to 14) are attached.

1. Procedures for extracting and analysing tissue samples for diclofenac using ELISA
2. Husbandry guidelines for young chicks Nepal 2008
3. Report on collection of vulture nestlings for Nepal April 2008
4. Report and recommendations from a visit to Nepal Vulture Centre June 2008
5. Husbandry Guidelines for Gyps Vultures 2008 pages 1 & 2
6. Nepal Pinjore breeding centre visit 2008 report
7. Vulture Group India review meeting minutes June 2008
8. Vulture Conservation Action Plan for Nepal Submitted March 2009
9. July 08 2008 Gazettelement of diclofenac ban GSR 499 4.7.2008
10. Acharya et al 2009 Himalayan Griffon declines Bird Conservation International
11. Cuthbert et al. Diclofenac review for Indian J Vet Med 2009 in press
12. Naidoo et al Diclofenac in Cape vultures Regulatory Toxicology & Pharmacology
13. Pain et al 2008 Vulture Review of Decline Bird Conservation International
14. Diclofenac levels before the ban 2946\_galley proofs JBNHS 2009
15. Ministry of Environment and Forests, India, Vulture Advert Indian Press 2009

### **Checklist for submission**

	Check
<b>Is the report less than 5MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	
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<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	
<b>Do not include claim forms or other communications with this report.</b>	