



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



1. Darwin Project Information

Project Reference	18-008
Project Title	Trans-boundary solutions to the Asian vulture crisis
Host Country/ies	India and Nepal
UK contract holder institution	Royal Society for the Protection of Birds (RSPB)
Host country partner institutions	Bombay Natural History Society (BNHS), Bird Conservation Nepal (BCN), The National Trust for Nature Conservation (NTNC), Department of National Parks and Wildlife Conservation (DNPWC)
Other partner institutions	International Centre for Birds of Prey (ICBP), Zoological Society of London (ZSL)
Darwin Grant Value	£299,960
Start/end dates of project	01/04/2010 to 31/03/2013
Reporting period (eg Apr 2010 – Mar 2011) and number (eg Annual Report 1, 2, 3)	Annual Report 1 (April 2010 to March 2011)
Project Leader name	Dr Richard Cuthbert
Project website	www.vulturedeclines.org and www.vulturerescue.org
Report authors, main contributors and date	Richard Cuthbert, Vibhu Prakash and Anand Chaudhary 30 April 2011

2. Project Background

The collapse in South Asia's vulture populations, due to poisoning by the veterinary drug diclofenac, has received worldwide publicity and has been a recipient of ongoing support from the Darwin Initiative as well as other funders. Detailed population modelling shows that, as this poison is still widespread, a comprehensive programme of *in-situ* action and captive breeding is critical to prevent vulture extinctions. Previous work has identified the main cause of the vulture declines and initiated substantial efforts to secure the recovery throughout India and Nepal including banning the manufacture, sale and use of diclofenac as a veterinary drug. Three complimentary tasks are central to the successful recovery of vultures: consolidating vulture breeding centres and building staff capacity, increasing the effectiveness of the diclofenac ban through education, advocacy and continued monitoring of diclofenac levels, and undertaking *in-situ* conservation actions around remaining colonies. Because of increasingly strong relations between India and Nepalese partners in vulture conservation, the widespread manufacture and flow of veterinary products across borders, and the fact that vultures range over hundreds of kilometres and national borders, this Darwin project focuses on trans-boundary efforts to save these species. This will be achieved by focusing on *in-situ* conservation efforts to establish Vulture Safe Zones where small remaining vulture populations can be protected by removing diclofenac and other threats from around, and by continuing to support *ex-situ* activities of the Vulture Conservation Breeding Centres that are set up and running in both India and Nepal, and which will serve as source of birds for reintroduction in the wild once the environment is free from diclofenac and other threats.

3. Project Partnerships

The project's main partner organisations are the Bombay Natural History Society (BNHS) within India, and Bird Conservation Nepal (BCN), the National Trust for Nature Conservation (NTNC) and Department of National Parks and Wildlife Conservation (DNPWC) within Nepal, as well as continued partnerships with the International Centre for Birds of Prey (ICBP) and the Zoological Society of London (ZSL) in the UK. Close and good collaboration has continued with these organisations to take the project forward, and all six organisations above and the RSPB attended meetings in February 2011 to review project progress and future directions of the work. The principal staff leading the vulture work at the RSPB (Richard Cuthbert and Chris Bowden), at BNHS (Dr Vibhu Prakash) and at BCN (Anand Chaudhary) have remained unchanged during the past year, ensuring continuity to this long-running programme.

Trans-boundary cooperation between India and Nepal continues to develop, with visits to Nepal in June 2010 made by Dr Vibhu Prakash and Richard Cuthbert to see Vulture Safe Zone sites and provide advice on the breeding centres, and during February all three Nepalese partners visited India to view the breeding centres and attend other meetings, followed by a visit of all partners to Nepal. The February 2011 culminated in two separate launches (in Delhi and Kathmandu) of a new consortium for vultures: SAVE (Saving Asia's Vultures from Extinction) aims to coordinate all vulture conservation activities in South Asia over the coming years and act as a focal point for fund-raising.

A key challenge for the project remains in the management of the vulture conservation breeding centre in Nepal which is run by all three Nepalese partners, with further technical advice and support from RSPB and ZSL. Running any vulture centre is far from straight forward, and a centre managed and run by three organisations adds further complications. A meeting in February 2011 openly discussed some of the problems and how best to resolve them, and we are working together to resolve this.

Additional collaborations also continue with researchers at the Indian Veterinary Research Institute (IVRI) which was established under a previous Darwin award, as well as with analytical chemist Dr Mark Taggart (University of the Highlands and Islands). These collaborations continue to analyse liver samples of dead cattle collected across India for residues of diclofenac and other veterinary drugs. This work is our fundamental means of monitoring progress on the complete elimination of these toxic drugs from the food supply of vultures and is being funded separately by the RSPB.

4. Project Progress

Overall good progress has been made towards the project's main purpose, outputs and activities, although as is perhaps inevitable in a complex project across two countries there have been some delays and set-backs.

4.1 Progress in carrying out project activities

See specific comments in section 4.2 below.

4.2 Progress towards project outputs

Output 1. Expansion of *in-situ* vulture conservation projects across Nepal and in neighbouring areas of India

Activity 1.1 Sites and local conservation NGO partners identified for expansion of Vulture Safe Zones (VSZ) in Nepal and neighbouring areas of India

Sites in Nepal continue to expand with BCN taking lead on working with local partners. A new and successful working relationship has been established with the Mahseer Foundation in Corbett National Park India (see Annex 3 Report 1). As well as starting up working relationships with the Katarniaghat Foundation (Uttar Pradesh) and Neo Human Foundation (Jharkhand State).

Activity 1.2. Agreement in place with local and national partners for in-situ work

There is full support for this project both from national government partners (DNPWC) in Nepal and state governments within India.

Activity 1.3. Diclofenac stocks removed and replaced with vulture safe meloxicam in VSZ, infrastructure and agreements in place for herding cattle and feeding sites established around breeding colonies, local advocacy programme and printed materials in place, and monitoring of vulture numbers established by local teams

Diclofenac stocks have been removed from around *in-situ* conservation sites in Nepal and monitoring and removal of stocks is now in place in many lowland areas of the country. In total 965 vials of meloxicam have been purchased by BCN with 914 vials distributed and exchanged for diclofenac. One major seizure of diclofenac was made in the lowlands of Nepal where one pharmaceutical supplier declared they were holding 701 vials of diclofenac. These 701 vials were seized and swapped for meloxicam. In addition diclofenac collection and monitoring has been put in place around Corbett National Park in India.

Output 2. Effectiveness of *in-situ* conservation actions tested across Nepal and India

Activity 2.1. Minimum of one suitable control site for monitoring effectiveness of in-situ work located in same eco zone in India

No formal control sites within the same eco-zone have yet been identified due to difficulty of identifying independent sites where no *in-situ* is being undertaken and knowledge on the wide-ranging behaviour of vultures. However, nationwide surveys of vultures and carcass surveys will provide control data on rates of decline and diclofenac contamination in other states in India to provide effective control data. In addition trials of methods for collecting carcass samples from Nepal have recently been tested (Annex 3 Report 2) where due to the absence of large municipal or cooperative carcass the collection of samples is more difficult than in India.

Activity 2.2. Vulture monitoring, NSAID surveys and carcass samples collected from Nepal and India from in-situ sites and from control area(s) in India

Monitoring of vultures, pharmacy surveys for NSAIDs and carcass surveys underway at nationwide scale as well as within *in-situ* sites. Results of pharmacy surveys are shortly to be published in the journal *Oryx* and results of carcass surveys have recently been published in the journal *PLoS One* (see appendices)

Output 3. Infrastructure for the Vulture Conservation Breeding Centre in Nepal and West Bengal is increased in capacity

Activity 3.1. Continued support from DNPWC and West Bengal State for expansion of project infrastructure at the site in Chitwan National Park and Buxa Tiger Reserve

Continued support is present from government partners for both the Nepal centre and the West Bengal centre.

Activity 3.2. Design and budget for aviaries and visitor facilities agreed with project partners in Nepal and West Bengal

Plans for the new colony aviary in Nepal were discussed by all project partners at the February 2011 meeting and plans are being drawn up. The RSPB also made a renewed commitment and transfer of money to increase the funds available for constructing this colony aviary, as high inflation of building materials has increased the construction costs beyond the original budget supplied by the Darwin project. Visitor facilities are a lower priority at the centre and will be constructed later.

Activity 3.3. Colony aviary, chick aviaries and visitor facilities constructed

Construction will begin following signing of new MOU between the three Nepalese partners. Permanent quarantine aviaries constructed at NTNC head-quarters in Chitwan National Park.

Activity 3.4. Pump and tanks installed to improve water supply, and back-up generator bought and installed to provide reliable electricity

Bore hole and header tank constructed in Nepal and now supply the aviaries. Back-up generator not yet sourced for Nepal centre.

Output 4. Breeding Centre staff supported at Nepalese and West Bengal centres for three-year term of project

Activity 4.1.

Recruitment and renewed contracts for breeding centre staff in Nepal and West Bengal centres

A total of 9 staff are employed within Nepal on the vulture programme, with a further 7 staff employed in India. Two further staff are employed in India through support to the Mahseer Foundation in Uttarakhand. Employment of a *in-situ* conservation coordinator for India has been delayed as finding a suitable staff member has been difficult and recruiting and retaining staff in India remains a concern.

Output 5. Training and capacity of staff in India and Nepal increased with further cooperation between the two country’s programmes

Activity 5.1. Training requirements for project staff identified, air-tickets bought and dates fixed for staff visits to UK

Meetings were held with project partners and one UK visit was identified to undertake training in incubation methods. One team member (Nikita Prakash) visited ICBP in UK for one weeks training on the artificial incubation of eggs. The planned visit of a second staff member (Sachin Ranade from the Buxa centre) to the course was unfortunately postponed due to problems with passport and visa applications. The egg incubation workshop was run at the International Centre for Birds of Prey (ICBP) a long term supporter of the vulture project.

Activity 5.2. Training workshops planned for Nepal/India and ZSL/RSPB/ICBP staff and dates fixed for visits

An in-situ conservation workshop originally planned for March 2011 was postponed until July 2011 due to priority of completing nationwide vulture surveys in India and Nepal. No other formal workshops were run during year 1 and training was given on a individual basis.

Output 6. Trials of alternative food sources for captive vultures undertaken and feasibility of large-scale production assessed

Work on finding alternative food sources for the captive vultures (to reduce the reliance upon and cost of feeding goats) has been delayed due to the priority need to focus on the centres immediate requirements, in particular the captive breeding and artificial incubation in India and colony construction and catching more vulture chicks in Nepal. Discussions on farming “old cows” and feeding their carcasses to vultures in the centre after they have died have been undertaken with project partners (BCN, NTNC, DNPWC) in Nepal, however sensitivities over the issue of feeding cattle in a predominantly Hindu country have resulted in this proposal being shelved for the time being.

4.3 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	Number planned for reporting period	Total planned during the project
4B	Number of training weeks to be provided	2					2	8
4C	Number of postgraduate students	3					4	16

	to receive training							
4D	Number of training weeks to be provided	2					2	6
6A	Number of people to receive other forms of education/training	6					6	18
6B	Number of training weeks to be provided	2					2	6
7	Number of training materials to be produced for use by host country	1					1	3
8	Number of weeks to be spent by UK project staff on project work in the host country	11					8	24
11A	Number of papers to be published in peer reviewed journals	7					3	9
11B	Number of papers to be submitted to peer reviewed journals	2					2	6
12A	Number of computer based databases to be established and handed over to host country	0					0	1
14A	Number of conferences/seminars/workshops to be organised to present/disseminate findings	0					1	3
14B	Number of conferences/seminars/workshops attended at which findings from Darwin project work will be presented/disseminated.	0					1	3
15A	Number of national press releases in host country(ies)	>6					>3	>10
15B	Number of local press releases in host country(ies)	>8					>5	>10
16A	Number of newsletters to be produced	1					1	3
16B	Estimated circulation of each newsletter in the host country(ies)	>500					>500	>1500
17B	Number of dissemination networks to be enhanced/ extended	1					1	2
18A	Number of national TV programmes/features in host country(ies)	1					1	3
18B	Number of national TV programmes/features in UK	1					0	0
18C	Number of local TV programmes/features in host country(ies)	0					1	3

19A	Number of national radio interviews/features in host county(ies)	>150					>2	>10
19B	Number of national radio interviews/features in UK	0					1	3
19C	Number of local radio interviews/features in host country(ies)	>20					>5	>10
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	£28k					£28k	£45k
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	0					0	1
22	Number of permanent field plots to be established during the project and continued after Darwin funding has ceased	5					3	6
23	Value of resources raised from other sources for project work	£81k					£80k	£160k

Table 2 Publications

Type	Detail	Publishers	Available from	Cost £
* Journal article	Acharya, R., Cuthbert, R., Baral, H.S. and Chaudhary, A. (2010). Rapid decline of the Bearded Vulture <i>Gypaetus barbatus</i> in Upper Mustang, Nepal. <i>Forktail</i> 26: 117-120.	<i>Forktail</i>	Author and RSPB	£0
Journal article	Chaudhary, A., Subedi, T.S., Giri, J.B., Baral, H.S., Chaudhary, I., Paudel, K., and Cuthbert, R.J. (in press). Population trends of critically endangered <i>Gyps</i> vultures in the lowlands of Nepal. <i>Bird Conservation International</i> .	<i>Bird Conservation International</i>	Author, RSPB and journal website	£0
* Journal article	Cuthbert, R., Taggart, M.A., Prakash, V., Saini, M., Swarup, D., Mateo, R., Chakraborty, S.S., Deori, P. and Green, R. (2011). Effectiveness of Action in India to Reduce Exposure of <i>Gyps</i> Vultures to the Toxic Veterinary Drug Diclofenac. <i>PLoS One</i> 6(5): e19069. doi:10.1371/journal.pone.0019069	<i>PLoS One</i>	Author, RSPB and journal website	£0

Journal article	Cuthbert, R.J., Dave, R., Chakraborty, S.S., Kumar, S., Prakash, S., Ranade, S.P. and Prakash, V. (2011). Assessing the ongoing threat from veterinary NSAIDs to critically endangered <i>Gyps</i> vultures in India. <i>Oryx</i> , <i>in press</i> .	<i>Oryx</i>	Author and RSPB	£0
* Journal article	Das, D., Cuthbert, R., Jakati, R.D. and Prakash, V. (2010). Diclofenac is toxic to the Himalayan Griffon Vulture <i>Gyps himalayensis</i> . <i>Bird Conservation International</i> , doi:10.1017/S095927 0910000171	<i>Bird Conservation International</i>	Author, RSPB and journal website	£0
Journal article	Naidoo, V., Wolter, K., Cromarty, D., Diekmann, M., Duncan, N., Meharg, A.A., Taggart, M.A., Venter, L. and Cuthbert R. (2010). Toxicity of NSAIDs to <i>Gyps</i> vultures: a new threat from ketoprofen. <i>Biology Letters</i> 6: 339-341	<i>Biology Letters</i>	Author, RSPB and journal website	£0
Journal article	Naidoo, V., Venter, L., Wolter, K., Taggart, M. and Cuthbert, R. (2010). The toxicokinetics of ketoprofen in <i>Gyps coprotheres</i> : Toxicity due to zero order metabolism. <i>Archives of Toxicology</i> 84: 761–766.	<i>Archives of Toxicology</i>	Author and RSPB	£0

4.4 Progress towards the project purpose and outcomes

Despite some set-backs and delays we have made significant gains in the first year of the project towards attaining the overall purpose of improving trans-boundary collaboration and capacity in Nepal and India to implement effective conservation solutions for Asia's Critically Endangered vulture species. Closer working relationships between Nepalese and Indian partners on the *in-situ* and *ex-situ* work have been established, *in-situ* work areas have been identified and established in both countries, and staff capacity has been increased. Further progress is required to build on this first year and key steps towards expanding the work further have been identified.

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

The project has not yet impacted on the biodiversity status of vultures in terms of reducing the Critically Endangered IUCN threat status of the three affected species, however two notable achievements have been made in the past year. These are (1) increased numbers of vultures bred in captivity in India with more than 20 chicks expected to fledge in the 2010/11 breeding season as well as a second successful year of artificial incubation by BNHS staff at the Pinjore vulture centre. And (2) a measured reduction in the prevalence and concentration of diclofenac residues in carcasses of livestock across India (with diclofenac levels reduced from 10-11% prior to the ban and now estimated to be around 6.5%, and a modelled reduction in the rate of decline of vultures in India which has decreased by around two thirds compared to the decline rate prior to the diclofenac ban in 2006.

5. Monitoring, evaluation and lessons

Reviews of the progress of the project are made through regular email and phone correspondence (between UK and in-country partners) as well as through three visits (totalling 2.5 months) in the past year by the programme manager to India and Nepal. The meetings in February 2011 were particularly informative for discussing the progress of the project and evaluating where more effort is required. As indicated above finding a key resource person to manage the in-situ work in India and finding suitable local partners to undertake the work on the ground in the terai areas of India has proven the most difficult aspect of the project, and further effort to take this forward is required for this to be successful.

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

Not applicable

7. 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, and more local in-situ conservation efforts are planned for Assam which should help ease some of the tensions previously present in this area (particularly concerning the collection of nestlings from the wild for the breeding centre). 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 and survey work. Working around these protests has created some inevitable delays with some of the work programme in Nepal.

The other major issue for the project, which is likely to remain is the rising costs of fuel and building materials in India and particularly in Nepal, as well as the rising costs of goat meat. The former has created problems for the budget of constructing a second colony aviary in Nepal and the original sum budgeted under this project (£25,000) is now insufficient given the sharp (>25%) increase in the costs of building materials. The RSPB has provided an extra £15,000 to the Nepalese partners to allow this construction to go ahead, as well as cover other increased costs of the centre. Increases in the price of goat meat in both India and Nepal has again directly impacted on the budget as goats remain the principal food source for the breeding centres. We are pursuing alternative options (including buffalo and other meat sources) in both countries, however higher than anticipated feeding costs will remain an issue.

8. Sustainability

The growing involvement of other organisations and in particular NTNC and DNPWC in Nepal, and the Mahseer Foundation and Neo Human Foundation in India has helped provide a broader base for the project and a greater degree of sustainability for the vulture project. Government support for the vulture programme has grown, particularly in Nepal where direct funding from the Department of Livestock Services has ensured that the appropriate message about diclofenac use is now delivered to livestock departments and veterinarians in all 75 districts of Nepal. Discussions with national and state governments in Nepal and India has also indicated a growing support from government departments for the breeding centre, and at the Pinjore and Buxa centres in India government funding has paid directly for aviary and other construction costs. Other avenues for funding have also been indicated to us in India through applying to grants from the Ministry of Environment and Forests (MoEF) and in the coming year we will apply for funds to help continue the carcass sampling work and also to test the safety or toxicity of other veterinary drugs on vultures. While there is still some way to go there are very encouraging signs that both India and Nepal are taking a more leading role in funding and in running the vulture programmes, which is the long term future for this project and the species.

9. Dissemination

BCN has been extremely effective at disseminating the results of the work in Nepal, with almost weekly news stories now appearing on vultures and diclofenac in the Nepalese press. An example of this is following the launch of the SAVE event in Kathmandu in February when more than 10 articles were published in the news press in the following days, as well as TV and radio interviews. Perhaps more importantly dissemination of the vulture story has now begun at a local level in Nepal, with local VSZ partners regularly producing news stories. In one district this includes a weekly radio broadcast on the vulture issue. A range of publicity and awareness materials are included in Annex 3 and are attached as appendices.

In India disseminating the message has been made difficult by staff changes in the BNHS Vulture Advocacy Programme (funded and run separately by the RSPB) and efforts to recruit a new advocacy officer are currently underway. Nonetheless good coverage has been achieved in the past year both at a national level (due to the efforts of BNHS's press officer) and also at a local level with the Mahseer Foundation and the Neo Human Foundation both successful at publicising vultures in Uttarkhand and Jharkhand states.

Internationally publicity includes recent website reports following a new paper published on the decline of diclofenac contamination in carcass surveys and consequent reduced rate of decline in the vulture populations achieved a lot of publicity (see Annex 3 for websites and Scientific Publication number 3). In addition a film about the loss of vultures from India ('India's Silent Killer' Nature Shock) was produced in 2010 and aired on BBC 5 on 14 September 2010. This film interviewed many of the researchers and project staff involved in the work and gave a lot of publicity about the project to a new audience. The International Union for the Conservation of Nature (IUCN) featured the slender-billed vulture as its "species of the day" on the 14 October 2010, providing further coverage of the decline of Asia's vultures.

10. Project Expenditure

Table 3 project expenditure during the reporting period (1 April 2010 – 31 March 2011)

Item	Budget	Expenditure	Variance/ Comments
Staff costs specified by individual			<p>+24%</p> <p>Higher than expected salary costs due to inflation and key need to retain and promote staff. Additional recruitment also undertaken with 6 month overlap for departing and new vulture conservation officer at BCN</p>
Overhead costs			<p>+28%</p> <p>More in country expenditure on project than anticipated requiring increased share of overheads (set at 10% budget)</p>
Travel and subsistence			<p>-29%</p> <p>Lower than anticipated T&S costs due to</p>

		only one training visit to UK and lower than expected costs in host countries
Operating costs		-1%
Capital items/equipment (specify)		-2%
Others: Consultancy		-
Others (please specify)		-5%
TOTAL		Minor overspend in total budget paid from RSPB vulture funds

11. 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 in India and Nepal has made some notable achievements in the past year. These include rearing a new record number of vultures in captivity in India as well as a second successful year of artificial incubation by BNHS staff at the Pinjore vulture centre. Monitoring of diclofenac contamination in carcasses of domesticated ungulates indicates that there has been a reduction in the prevalence and concentration of diclofenac residues across India (with diclofenac levels reduced from 10-11% prior to the ban and now estimated to be around 6.5%), and a modelled reduction in the rate of decline of vultures in India which has decreased by around two thirds compared to the decline rate prior to the diclofenac ban in 2006. Finally the promising success of the *in-situ* vulture conservation efforts in Nepal was recognised at Nepal's National Conservation day on 23 September 2010 with two project sites (Vulture Safe Zone of Nawalparasi and Lumbini) sharing the prestigious Abraham Conservation Award for outstanding achievement by community based grass root initiatives, with Vulture Program staff Mr. Hirulal Dangaura (Monitoring and Education Assistant/CEPF funded) received the Abraham Conservation Award and Mr. Anand Chaudhary (BCN Vulture Officer) receiving the prestigious Mathew Preece and Yeshe Choden Lama Young Conservation Leader Award.

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2010-2011

Project summary	Measurable Indicators	Progress and Achievements April 2010 - March 2011	Actions required/planned for next period
<p>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</p> <p>⇒ 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</p>			
<p>Purpose To improve trans-boundary collaboration and capacity in Nepal and India to implement effective conservation solutions for Asia's Critically Endangered vulture species</p>	<p>P(1) Increase in number and area of Vulture Safe Zones within Nepal and in neighbouring areas of India</p> <p>P(2) Increased capacity of staff at Breeding Centres and Vulture Safe Zones to sustain vulture conservation activities</p> <p>P(3) Vulture Conservation Breeding Programmes in India and Nepal continue to expand</p>	<p>P(1) Four Vulture Safe Zones (VSZ) managed by BCN in Nepal. Work started at one site in Corbett National Park in Uttarakhand State India, with other sites identified in Uttar Pradesh</p> <p>P(2) One additional staff member recruited as a project veterinarian at the Nepal centre.</p> <p>P(3) More than 20 nestlings reared within two of the Indian vultures centres, and 20 new vulture fledglings caught from the wild to stock the Nepal centre</p>	<p>P(1) Expansion of vulture safe zone sites and collaboration with local NGOs required in India and identification of control sites required</p> <p>P(2) Further staff and capacity required to ensure running of Nepal centre</p> <p>P(3) Construction activities now required to be undertaken to develop facilities</p>
<p>Output 1. Expansion of <i>in-situ</i> vulture conservation projects across Nepal and in neighbouring areas of India</p>	<p>>4 Vulture Safe Zones established in Nepal and minimum 1 Vulture Safe Zone established in adjacent areas of India</p>	<p>Currently four VSZ sites are being managed and run in Nepal by BCN and one site is being established and run in Uttarakhand State in India.</p> <p>Action: further progress required within India to increase</p>	
<p>Activity 1.1 Sites and local conservation NGO partners identified for expansion of Vulture Safe Zones (VSZ) in Nepal and neighbouring areas of India</p>		<p>4 sites established in Nepal.</p> <p>2 local partners for sites established in India and 1 further partner identified</p>	
<p>Activity 1.2, Agreement in place with local and national partners for <i>in-situ</i> work</p>		<p>Support from national and state governments for this work.</p>	
<p>Activity 1.3, Diclofenac stocks removed and replaced with vulture safe meloxicam in VSZ,</p>		<p>Good progress in Nepal removing diclofenac stocks from pharmacies in and</p>	

infrastructure and agreements in place for herding cattle and feeding sites established around breeding colonies, local advocacy programme and printed materials in place, and monitoring of vulture numbers established by local teams		around VSZ sites and
Output 2. Effectiveness of <i>in-situ</i> conservation actions tested across Nepal and India	2a. Monitoring of vulture populations, use of veterinary drugs, and diclofenac in carcasses undertaken in two geographically distinct areas	Nationwide transects of vulture populations currently underway in both India and Nepal, and regularly monitoring of selected colonies. Carcass sampling completed in India and trial methods underway in Nepal.
Activity 2.1. Minimum of one suitable control site for monitoring effectiveness of <i>in-situ</i> work located in same eco zone in India		No formal control site established, but nationwide surveys of NSAIDs and vultures will allow controls to be in place for monitoring.
Activity 2.2. Vulture monitoring, NSAID surveys and carcass samples collected from Nepal and India from <i>in-situ</i> sites and from control area(s) in India		Vultures, pharmacy surveys and carcass surveys underway
Output 3. Infrastructure for the Vulture Conservation Breeding Centre in Nepal and West Bengal is increased in capacity	Second colony aviary, chick aviaries, veterinary facility and visitor & education facilities constructed on the site, with supporting infrastructure (water & power) in place in Nepal. Visitor & education facilities at West Bengal	Infrastructure improved at the Nepal and West Bengal centre. Agreement in place for construction of second colony aviary in Nepal. Permanent quarantine aviaries constructed at NTNC headquarters in Chitwan National Park..
Activity 3.1. Continued support from DNPWC and West Bengal State for expansion of project infrastructure at the site in Chitwan National Park and Buxa Tiger Reserve		Continued support is present from government partners for both the Nepal centre and the West Bengal centre
Activity 3.2. Design and budget for aviaries and visitor facilities agreed with project partners in Nepal and West Bengal		Aviary plans discussed in February 2011 and being drawn up
Activity 3.3. Colony aviary, chick aviaries and visitor facilities constructed		Aviary construction to commence in 2011 in Nepal.
Activity 3.4. Pump and tanks installed to improve water supply, and back-up generator bought and installed to provide reliable electricity		Water supply improved for centre. Back up generator not yet supplied.
Output 4. Breeding Centre staff supported at	A minimum of six staff employed and trained by the project in both India and	9 staff employed in Nepal and 7 staff employed in India

Nepalese and West Bengal centres for three-year term of project	Nepal	
Activity 4.1. Recruitment and renewed contracts for breeding centre staff in Nepal and West Bengal centres		
Output 5. Training and capacity of staff in India and Nepal increased with further cooperation between the two country's programmes	5a. International visits by 2 staff to UK to receive training 5b. Training workshops (2 x 1 week in each year) run by project in host countries and training materials and studbook produced 5c. Annual exchange/training visits between Indian and Nepalese partners in each year of project	5a. Visit by one team member to UK for training. Second team member lined up but problems with passport and visa applications prevented trip. 5b. 1 week veterinary training workshop delivered to Nepalese staff 5c Three inter-country visits by project teams between India and Nepal
Activity 5.1. Training requirements for project staff identified, air-tickets bought and dates fixed for staff visits to UK		Discussion undertaken with main project partners and one visit to UK in year 1
Activity 5.2. Training workshops planned for Nepal/India and ZSL/RSPB/ICBP staff and dates fixed for visits		<i>In-situ</i> conservation workshop postponed until July 2011
Activity 5.3. Themes and visits for staff in Nepal and India agreed and visits arranged		Visits by project manager and other staff from RSPB and ZSL undertaken in Nepal and India to work with project staff (June, December, January-Marcg)
Output 6 Trials of alternative food sources for captive vultures undertaken and feasibility of large-scale production assessed.	Small-scale facilities for rearing rabbits/rats and goats/buffalo established with local communities in areas around vulture centres	Discussions are in place with project partners in Nepal on the feasibility of starting these trials, but set- back on plans for using cow shelter as food resource in Nepal
Activity 6.1. Small-scale trials of alternative food sources established with local communities surrounding breeding centre in Nepal and West Bengal		See above
Activity 6.2. Feasibility study and evaluation of alternative food sources undertaken, with expansion of programme if successful		See above

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal:</p> <p>Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.</p>			
<p>Sub-Goal:</p> <p>The establishment of self-sustaining wild vulture populations in South Asia in an environment free from diclofenac and other harmful toxins</p>	<p>SG(1) Wild vulture populations increase in numbers and expand in range and captive vulture populations successfully released and surviving in South Asia</p> <p>SG(2) Contamination of vulture food sources with diclofenac and other harmful veterinary drugs falls to levels that will not impact on the population</p> <p>SG(3) Improvement in IUCN threat status of critically endangered vulture species</p>	<p>Reports to host country governments and peer-reviewed scientific papers document reduction in levels of diclofenac contamination, increasing vulture numbers and successful release of birds</p> <p>IUCN Red List reflect reduced threat to vultures in Asia</p>	
<p>Purpose</p> <p>To improve trans-boundary collaboration and capacity in Nepal and India to implement effective conservation solutions for Asia's Critically Endangered vulture species</p>	<p>P(1) Increase in number and area of Vulture Safe Zones within Nepal and in neighbouring areas of India</p> <p>P(2) Increased capacity of staff at Breeding Centres and Vulture Safe Zones to sustain vulture conservation activities</p> <p>P(3) Vulture Conservation Breeding Programmes in India and Nepal continue to expand</p>	<p>Vulture Safe Zones are registered within local States/Districts and recognised nationally as focal sites for conservation</p> <p>Training reports and activities produced for partners and posted on project website</p> <p>Breeding centre annual reports to government and international partners document increase in captive vulture numbers and infrastructure</p>	<p>Host countries remain politically stable and local areas surrounding vulture conservation projects remain safe for project staff</p> <p>No other conservation issues arise to provide significant new threat to vulture conservation</p> <p>National and international will and funding remains sufficient to support vulture conservation activities</p>

<p>Outputs</p> <p>1. Expansion of <i>in-situ</i> vulture conservation projects across Nepal and in neighbouring areas of India</p>	<p>1a >4 Vulture Safe Zones established in Nepal and minimum 1 Vulture Safe Zone established in adjacent areas of India</p>	<p>1a. Annual reports for Nepalese and Indian State governments and international partners document establishment of sites</p>	<p>National and local support for <i>in-situ</i> conservation continues</p> <p>Local political and economic situation remains stable and safe for project areas</p>
<p>2. Effectiveness of <i>in-situ</i> conservation actions tested across Nepal and India</p>	<p>2a. Monitoring of vulture populations, use of veterinary drugs, and diclofenac in carcasses undertaken in two geographically distinct areas</p>	<p>2a. Peer-reviewed scientific paper detailed results of work produced and published</p>	<p>Monitored vulture populations remain extent</p> <p>Pharmacies and vets allow monitoring of stocks</p>
<p>3. Infrastructure for the Vulture Conservation Breeding Centre in Nepal and West Bengal is increased in capacity</p>	<p>3a. Second colony aviary, chick aviaries, veterinary facility and visitor & education facilities constructed on the site, with supporting infrastructure (water & power) in place in Nepal. <u>Visitor & education facilities at West Bengal</u></p>	<p>3a. Completed construction and infrastructure in place and documented on project website and reports to Nepalese government and international partners</p>	<p>National and local political situation remains stable and safe for construction to take place</p> <p>Availability of key construction materials, fuel and power to the site during construction</p> <p>Continued support from Nepalese Department of National Parks and Wildlife Conservation for construction on park land</p>
<p>4. Breeding Centre staff supported at Nepalese and West Bengal centres for three-year term of project</p>	<p>4a. A minimum of six staff employed <u>and trained</u> by the project in both India and Nepal</p>	<p>4a. Contracts with BNHS and BCN and annual reports document numbers of staff in employment</p>	<p>Qualified and suitable staff retained and/or available for recruitment to project</p> <p>Local political situation remains safe for staff to work on the project</p>
<p>5. Training and capacity of staff in India and Nepal increased with further cooperation between the two country's programmes</p>	<p>5a. International visits by 2 staff to UK to receive training</p> <p>5b. Training workshops (2 x 1 week in each year) run by project in host countries and <u>training materials and studbook produced</u></p> <p>5c. Annual exchange/training visits between Indian and Nepalese partners in each year of project</p>	<p>5a, b & c. Reports from international visits, training workshops and exchange visits produced for funders and posted on project website</p> <p>Certificates document training received and produced for funders</p>	<p>International visas issued to allow training visits to UK or elsewhere</p> <p>Time and availability of ZSL, RSPB and ICBP staff to visit and run training workshops in host countries</p> <p><u>[n.b. proposed enrolment of staff on degree courses, mentioned in the stage 1 application, has been removed as while of benefit to individual staff it is not essential for the overall programme. If other funding sources allow this, then this will still be pursued]</u></p>
<p>6. Trials of alternative food sources for captive vultures undertaken and feasibility of large-scale production assessed</p>	<p>6. Small-scale facilities for rearing rabbits/rats and goats/buffalo established with local communities in areas around vulture centres</p>	<p>6. Annual reports produced for project funders on success of small-scale projects and feasibility assessment of large-scale project produced</p>	<p>Support and availability of personnel from local community to work on project</p>

Activities

- 1.1 Sites and local conservation NGO partners identified for expansion of Vulture Safe Zones (VSZ) in Nepal and neighbouring areas of India
- 1.2 Agreement in place with local and national partners for *in-situ* work
- 1.3 Diclofenac stocks removed and replaced with vulture safe meloxicam in VSZ, infrastructure and agreements in place for herding cattle and feeding sites established around breeding colonies, local advocacy programme and printed materials in place, and monitoring of vulture numbers established by local teams
- 2.1 Minimum of one suitable control site for monitoring effectiveness of *in-situ* work located in same eco zone in India
- 2.2 Vulture monitoring, NSAID surveys and carcass samples collected from Nepal and India from *in-situ* sites and from control area(s) in India
- 3.1 Continued support from DNPWC and West Bengal State for expansion of project infrastructure at the site in Chitwan National Park and Buxa Tiger Reserve
- 3.2 Design and budget for aviaries and visitor facilities agreed with project partners in Nepal and West Bengal
- 3.3 Colony aviary, chick aviaries and visitor facilities constructed
- 3.4 Pump and tanks installed to improve water supply, and back-up generator bought and installed to provide reliable electricity
- 4.1 Recruitment and renewed contracts for breeding centre staff in Nepal and West Bengal centres
- 5.1 Training requirements for project staff identified, air-tickets bought and dates fixed for staff visits to UK
- 5.2 Training workshops planned for Nepal/India and ZSL/RSPB/ICBP staff and dates fixed for visits
- 5.3 Themes and visits for staff in Nepal and India agreed and visits arranged
- 6.1 Small-scale trials of alternative food sources established with local communities surrounding breeding centre in Nepal and West Bengal
- 6.2 Feasibility study and evaluation of alternative food sources undertaken, with expansion of programme if successful

Annex 3 Onwards – supplementary material

Scientific publications (* indicates attached to the report)

1. *Acharya, R., Cuthbert, R., Baral, H.S. and Chaudhary, A. (2010). Rapid decline of the Bearded Vulture *Gypaetus barbatus* in Upper Mustang, Nepal. *Forktail* 26: 117-120. (APPENDIX 1)
2. Chaudhary, A., Subedi, T.S., Giri, J.B., Baral, H.S., Chaudhary, I., Paudel, K., and Cuthbert, R.J. (in press). Population trends of critically endangered *Gyps* vultures in the lowlands of Nepal. *Bird Conservation International*.
3. *Cuthbert, R., Taggart, M.A., Prakash, V., Saini, M., Swarup, D., Mateo, R., Chakraborty, S.S., Deori, P. and Green, R. (2011). Effectiveness of Action in India to Reduce Exposure of *Gyps* Vultures to the Toxic Veterinary Drug Diclofenac. *PLoS One* 6(5): e19069. doi:10.1371/journal.pone.0019069 (APPENDIX 2)
4. Cuthbert, R.J., Dave, R., Chakraborty, S.S., Kumar, S., Prakash, S., Ranade, S.P. and Prakash, V. (2011). Assessing the ongoing threat from veterinary NSAIDs to critically endangered *Gyps* vultures in India. *Oryx*, in press.
5. *Das, D., Cuthbert, R., Jakati, R.D. and Prakash, V. (2010). Diclofenac is toxic to the Himalayan Griffon Vulture *Gyps himalayensis*. *Bird Conservation International*, doi:10.1017/S0959270910000171 (APPENDIX 3)
6. *Naidoo, V., Wolter, K., Cromarty, D., Diekmann, M., Duncan, N., Meharg, A.A., Taggart, M.A., Venter, L. and Cuthbert R. (2010). Toxicity of NSAIDs to *Gyps* vultures: a new threat from ketoprofen. *Biology Letters* 6: 339-341. (APPENDIX 4)
7. *Naidoo, V., Venter, L., Wolter, K., Taggart, M. and Cuthbert, R. (2010). The toxicokinetics of ketoprofen in *Gyps coprotheres*: Toxicity due to zero order metabolism. *Archives of Toxicology* 84: 761–766. (APPENDIX 5)

Submitted articles

1. Cuthbert R.J., Prakash, V., Saini, M., Upreti, S., Swarup, D., Sharma, A.K., Das, A., Green, R.E. and Taggart, M. (submitted). Are conservation actions reducing the threat to India's vulture populations? *Current Science*.
2. Swarup, D., Prakash, V., Patra, R.C., Saini, M., Sharma, A.K., Kumar, B., Avari, P., Das, D. and Cuthbert, R.J. (Submitted). Hematological and blood biochemistry values of the Oriental white-backed (*Gyps bengalensis*), long-billed (*Gyps indicus*) and Egyptian vulture (*Neophron percnopterus*). *Journal of Wildlife Diseases*.

Reports

1. * March 2011 monthly progress report from the Mahseer Foundation on the vulture conservation work around Corbett National Park, Uttarakhand, India (APPENDIX 6)
2. * Report on carcass study – Dr Sagar Paudel, BCN (APPENDIX 7)
3. * Annual progress report on the vulture programme BCN – March 2011 (APPENDIX 8)

Publicity materials

1. * Leaflets produced by BCN towards vulture conservation (APPENDIX 9)
2. * New "Jatayu" poster produced by BCN (APPENDIX 10)
3. * Vulture conservation poster produced by BCN (APPENDIX 11)
4. IUCN "Species of the day" slender-billed vulture (APPENDIX 12)

Photographs

1. * Photos of the project work

Recent press and publicity

<http://www.channel5.com/shows/nature-shock/episodes/nature-shock-indias-silent-killer>

<http://epaper.timesofindia.com/Repository/ml.asp?Ref=VE9JUFUvMjAxMS8wNC8xMyNBcjAwNTAw&Mode=Gif&Locale=english-skin-custom>

<http://ibnlive.in.com/generalnewsfeed/news/good-news-for-vultures-ban-on-diclofenac-is-working/680521.html>

<http://in.news.yahoo.com/good-news-vultures-ban-diclofenac-working-132600967.html>

<http://onespot.wsj.com/india-news/2011/05/12/bdcad/good-news-for-vultures-ban-on-diclofenac>

http://www.breitbart.com/image.php?id=iafpCNG.e4f462767ca1ace6aa2cd1b04f2c40c5.31p1&show_article=1

<http://mangalorean.com/news.php?newstype=local&newsid=238120>

<http://www.conservationmagazine.org/2011/05/carcass-progress/>

http://news.bbc.co.uk/earth/hi/earth_news/newsid_9483000/9483108.stm

<http://www.dailyindia.com/show/439364.php>

<http://www.google.com/hostednews/afp/article/ALeqM5gHHNQ-1qj-X6AEuTymKUfXfKEqDg?docId=CNG.e4f462767ca1ace6aa2cd1b04f2c40c5.31>

<http://www.medicalnewstoday.com/releases/224921.php>

Nepali Times <http://nepalitimes.com/issue/2011/03/6/LifeTimes/17991>

Deutsche Presse-Agentur http://www.monstersandcritics.com/news/southasia/news/article_1621336.php

The Kathmandu Post <http://www.ekantipur.com/the-kathmandu-post/2011/02/22/nation/dwindling-gyps-population-10-yr-plan-to-save-vultures/218710.html>

My Republica http://www.myrepublica.com/portal/index.php?action=news_details&news_id=28534

Kantipur <http://epaper.ekantipur.com/showtext.aspx?boxid=1322875&parentid=12309&issuedate=2322011>

Rajdhani <http://rajdhani.com.np/2011-02-23/9138.html>

Rising Nepal http://www.gorkhapatra.org.np/detail.gopa.php?article_id=39796&cat_id=10

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Is the report less than 5MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 5MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	n/a
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
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.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	