Darwin Initiative Annual Report

Darwin Project Information

Project Ref Number	162/12/027
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)
UK Partner Institution(s)	Zoological Society of London (ZSL) National Bird of Prey Trust (NBPT)
Host country Partner Institution(s)	Bombay Natural History Society (BNHS) and Bird Conservation Nepal (BCN)
Darwin Grant Value	£181,386
Start/End dates of Project	1 June 2007 to 31 May 2009
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 June 2007 to 31 March 2008 Annual report number 1
Project Leader Name	Dr Richard Cuthbert
Project website	www.vulturerescue.org
Author(s), date	Dr Richard Cuthbert, 30 April 2008

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. In a paper published today (30 April 2008) in the Journal of the Bombay Natural History Society a survey in India undertaken by this project and a previous Darwin project 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) are now estimated to be around 11,000 and 1,000 individuals, respectively, 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) in India, and Bird Conservation Nepal (BCN) within Nepal. Close collaboration has continued with these organisations to take forward this Darwin project including increasing the capacity of project staff at both partner organisations. The major goal of this Darwin post project was to provide "the techniques to enable India and Nepal to monitor the effectiveness of the diclofenac ban, to implement in-situ vulture conservation measures to ensure that populations persist in the wild, and to increase staff capacity and expertise at the vulture conservation breeding centres". At the time of this report training is underway in India to two BNHS and two IVRI staff on analytical methods to

monitor diclofenac residues in livestock carcasses (training led by Dr Mark Taggart from the 28 April to 6 May 2008). Pilot efforts to undertaken in-situ conservation measures have proved effective around one remaining vulture colony in Nepal and staff capacity (including a new vulture officer coordinating position within BCN) and expertise have increased in this area with plans to expand this programme. Nepal has also recently constructed and started a vulture conservation breeding centre and staff from BCN and new partner organisations have received training on the monitoring and capture of birds as well vulture care and husbandry in captivity. Continued support has been given to staff at the breeding centres in India and an application for training in the UK to the project's principal vet has recently been submitted.

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 (>6 months a year). A major meeting within the RSPB in July 2007 has secured internal support to continue working on vulture conservation as a major priority for the society, and the RSPB is committed to supporting the captive breeding programme and in-situ conservation for the long-term period that is required.

New working relationships have been established in both India and Nepal. Within India efforts to expand in-situ conservation activities have led to increasing dialogue and visits to work with several conservation NGOs especially within the state of Gujarat. These include the Nature Club Surat and Ahmedebad Vulture Cell. Nepal's recent efforts to establish a vulture conservation breeding centre (see below) has led to new and/or closer working partnerships between BCN and the RSPB with Nepal's National Trust for Nature Conservation and the government Department of National Parks and Wildlife Conservation.

Within Nepal, Dr Hem Sagar Baral (Director of BCN) has discussed the issue of vulture conservation and the work with the CBD focal point contact Mr Ananta V. Parajuli (Chief Environment Division, Ministry of Forests and Soil Conservation, Government of Nepal) and in India, Dr Asad Rahmani (Director of BNHS) has 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 however playing a particularly active role in the project

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

The project has been successful in carrying out all activities for the output and activities relating to NSAID monitoring work in both Nepal and India, although there was a delay to the start of the ELISA training in India (currently underway at the Vulture Conservation Breeding Centre in Pinjore). Within Nepal 3 field biologists were recruited to monitor vulture numbers and the prevalence of NSAIDs in pharmacies and veterinary clinics. Surveys have been carried out across Nepal with more than >200 pharmacies visited. Pharmacy surveys have followed on from earlier surveys carried out before the ban on diclofenac manufacture in Nepal, allowing a direct comparison in the quantities of this drug available across the country: preliminary analysis suggests the prevalence of diclofenac is down by >90% in some areas. Training on ELISA methods (to detect diclofenac in cattle carcasses) was delayed from the planned November 2007 until April 2008, due to the complexity of establishing the necessary equipment and the new collaboration between the two partners organisations in India (BNHS & IVRI). This training is currently being run in India. Nationwide surveys of carcasses have been undertaken in India with over 800 samples already collected in 2007-08 (and a further 700 samples planned). Surveys of NSAID availability in pharmacies in India have also been initiated, although on a smaller scale to Nepal.

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

In-situ conservation activities were established around a remaining vulture colony in the lowlands of Nepal in August 2007. Actions included swapping all remaining stocks of diclofenac held in vet clinics and pharmacies from the surrounding area and replacing these with the vulture safe drug meloxicam; undertaking a widespread vulture education and advocacy programme to villagers and farmers in areas surrounding the breeding colony; and establishing a safe food supply around the colony by purchasing and herding old cattle (at the end of their working life) in the close vicinity of the vulture breeding area and providing these drug-free carcasses for vultures to feed upon. Whilst it is still early, the initial work of this programme has resulted in a doubling in numbers of breeding birds in this area with 33 nests in the 2007/08 breeding season, in comparison with 17 nests in both the 2005/06 and 2006/07 seasons. This is the only monitored colony in India and Nepal where vulture numbers have increased to such an extent. The success of this project has attracted support from the UNDP-Global Environment Fund small grant programme and further funding to the project's partner BCN (of $US 25,000) has enabled this site to construct a hide and visitor centre to the increasing number of Nepali and international tourists that this site is attracting: providing a further incentive to protect vultures. Plans for Nepal include expanding this programme to another 2-3 sites. Within India progress towards in-situ conservation has been slower, due to the scale of the country and number of conservation organisations involved. However, efforts are being made with Gujarat state to coordinate conservation activities and undertake similar actions to those tested in Nepal. The BNHS vulture programme have recently interviewed and employed a new field biologist to help coordinate this work in Gujarat.

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

Plans for a meeting to produce a Nepal Vulture Action plan changed within the country due to the decision in Nepal to press ahead with developing a vulture conservation breeding centre. The breeding centre plan was pursued by the National Trust for Nature Conservation (NTNC), Department of National Parks and Wildlife Conservation (DNPWC) and Bird Conservation Nepal (BCN) and an agreement and MOU was signed between these three organisations for the established of the breeding programme as well as other conservation measures to conserve vultures. As part of the MOU, BCN were charged with producing a draft Nepal Vulture Action Plan: this was written and produced in January 2008. Final comments on the action plan are expected shortly from DNPWC and NTNC, and this document will be produced with the authority of all three organisations and form the basis for vulture conservation activities in Nepal over the next five years.

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

The project held a meeting in July 2007 with our main partners (BNHS and IVRI) to discuss potential in-situ conservation activities. Following this state level meetings were held in Gujarat in February 2008 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 this 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. Plans to coordinate similar in-situ conservation plans in West Bengal have unfortunately not been realised due to the time these activities are taking.

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

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

Visits by Dr Andrew Routh (ZSL Chief Veterinary Officer) to India's breeding centres in November enabled specific training and guidance to be given to the project vets on the care and treatment of vultures. An application is currently submitted to Cambridge University to cover the cost of six-week visit to the UK for the project veterinarian Dr Devojit Das. If successful this visit will take place in mid-2008.

Activity 4b. Workshops for centre staff

A statistical workshop planned for July 2007 was cancelled due to time constraints on BNHS staff at this time. This workshop is again planned for July 2008 and should take place before the projects annual meeting between RSPB, BNHS and IVRI. Training workshops on incubator techniques and data-recording and stub-book analysis are also planned for late 2008.

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

Staff from the new Nepali breeding centre received training in vulture husbandry and care from the project and visits of these staff has been agreed between the Nepali programme (led by NTNC) and the BNHS vulture breeding centres. Within India Dr Vibhu Prakash, who heads the BNHS breeding programme, has recently been appointed by the Indian Central Zoo Authority (CZA) as their avian captive breeding advisor: consequently Dr Prakash and the project are now advising CZA on the establishment of four more vulture breeding centres in the country.

3.2 Progress towards Project Outputs

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

After an Initial delay progress towards training in methods for the ELISA analysis of diclofenac residues in carcass samples in India is now progressing well, with a training course currently underway. Verifying the results of this training course against already measured carcass samples will be the next key step in assessing the effectiveness of this training: these results should be ready in the next 2 months (by end of June 2008). Other progress in actually collecting carcass samples in India has gone well and carcass sampling should be completed by June (against an original target of March). Monitoring of NSAID availability in Nepal has gone to plan, with vets and pharmacies surveyed over a large area of the country. Analysis of these pharmacy surveys should be completed by the end of June. Providing the ELISA analysis methods are accurate then the project's progress towards output 1 is going well.

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 the initial very encouraging results (a doubling of vulture numbers) are providing a great deal of enthusiasm to expand this work in Nepal. Support from government and conservation NGOs, lower human population densities, along with remaining (small) vulture breeding colonies means that expanding this work in Nepal can realistically be achieved during the second year of this project. Because of the potential for attracting both Nepali and international tourists to such in-situ conservation programmes (especially vulture feeding sites) many other organisations are interested in being involved in such projects and the programme and BCN are providing guidance towards this.

Slower progress has been made in India towards establishing effective in-situ conservation measures and the complexities of India's National and State government system, the much higher human populations and sheer scale of India means such work will remain challenging. Large-scale efforts in India are now focused within one state (Gujarat) where a network of conservation organisations are working on in-situ conservation actions. If the programme and progress in Nepal is continued then hopefully Nepal can act as an example of how such in-situ work can be undertaken in India. Realistically, the project will establish some in-situ activities in India in the next year, although it may take longer than this to see if they are effective.

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

Within Nepal the recent active 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 measures for in-situ conservation, an effective ban on diclofenac and the vulture breeding programme. The completion of a draft action plan, which will be ratified by the three main Nepali organisations (NTNC, DNPWC, BCN), has already helped coordinate all vulture conservation in Nepal.

As above, coordination of in-situ work in India is complicated by the scale and complexity of the country. However, progress should be made with the appointment of a full-time BNHS position charged with this role in Gujarat State.

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

Training of breeding centre staff in India has been slower than expected, although often a consequence of staff being too busy with day-to-day activities at the centres to attend proposed training courses! However, despite this the breeding programmes continue to expand in size in India, with three centres now managed by BNHS (in Haryana, West Bengal and Assam states) and agreement and financial support from the Indian National and State governments to construct another 4 centres at zoos across the country. Specific training courses (overseas and in India) are planned for 2008.

The recent establishment of a vulture breeding centre in Nepal (an objective of the original Darwin vulture project) was unexpected and outside the goals of this project. However, the project was able to work closely with BCN and provide the necessary support to NTNC and DNPWC to ensure the design and rapid construction of vulture aviaries at Kasara within Chitwan National Park, provide the location of vulture nest sites and capture 14 chicks for the breeding centre and arrange their transport to Kasara, and finally provided training for three NTNC vulture keepers in vulture and raptor care and husbandry. Continued training and support will be essential for Nepal's vulture breeding centre and the programme along with the RSPB and ZSL will be able to provide this.

3.3 Standard Measures

See Table 1 below for output measures for the project

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 application
4C	Project veterinarians trained overseas, IVRI technicians trained in ELISA methods, research biologists trained in NSAID survey methods	7				7	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	10
6A	Training to breeding centre staff and attendants	3				4	3
6B	4 weeks (at least 2 weeks in each year	3				3	2
7	3 (manual on ELISA methods, guides on data collection and data analysis)	0				0	3
8	26 weeks	26				26	26
9	1 Action Plan for Vultures in Nepal	1				1	1
11A	3 peer-reviewed publications published	5				5	3
11B	3 peer-reviewed publications submitted	2				2	3
12A	1 database on nationwide prevalence of NSAIDs in cattle carcasses	0				0	1
14A	3 workshops to co-ordinate in-situ conservation actions	2				2	3
14B	1 meeting for production of Nepali Vulture Action Plan	0				0	1
15A *15B* 15C	>5 >10 >4	4 5 2					5 10 4
16A 16B	newsletters in India and Nepal Newsletter in India 300	1 500				1	2 300
17A	2 networks coordinating in-situ conservation efforts and captive	2				2	2

	breeding programmes						
18A 18C	host country TV local host country TV	2 2				2 2	2 5
19A *19B* 19C	National radio in host National radio in UK Local radio in host	4 5 5				4 5 5	5 20 4
20	£10,900 towards equipment, set-up costs and reagents for ELISA testing, and purchase of land in Nepal	£13,000				£13,000	£10,900
23	£259,450 of support in kind from salaries of UK staff, office costs, overheads, and travel & accommodation of visiting staff	>£125 000				>£125,000	£259,450

Table 2 Publications

Type	Detail	Publishers	Available from	Cost £
* Scientific article	Recent changes in population of resident Gyps vultures in India. V. Prakash, R.E. Green, D.J. Pain, S.P. Ranade, S. Saravanan, N. Prakash, R. Venkitachahalam, R. Cuthbert, A.R. Rahmani & A.A. Cunningham (2007).	Journal of the Bombay Natural History Society, 104, 129-135.	www.vulturerescue.org www.rspb.org and BNHS, India	£0
* Scientific article	Rate of Decline of the Oriental White-Backed Vulture Population in India Estimated from a Survey of Diclofenac Residues in Carcasses of Ungulates. Green, R.E., Taggart, M.A., Senacha, K.R., Raghavan, B., Pain, D.J., Jhala, Y. and Cuthbert, R. (2007).	PLoS ONE 2(8): e686. doi:10.1371/ journal.pone.0000 686	www.vulturerescue.org http://www.plosone.org /article/info:doi%2F10. 1371%2Fjournal.pone. 0000686	£0
* Scientific article	Diclofenac residues in carcasses of domestic ungulates available to vultures in India. Taggart, M.A., Senacha, K.R., Green, R.E., Jhala, Y.V., Raghavan, B., Rahmani, A.R., Cuthbert, R., Pain, D.J., Meharg, A.A. (2007).	Environment International 33 (2007) 759-765.	www.vulturerescue.org	£0
* Scientific article	The pharmacokinetics of meloxicam in vultures. Naidoo, K. Wolter, A. D. Cromarty, P. Bartels, L. Bekker, L. MCGaw,	J. vet. Pharmacol. Therap. 31, 128–134, doi: 10.1111/j.1365-	Will be posted on to www.vulturerescue.org	£0

	M. A. Taggart, R. Cuthbert, G. E. Swan (2008)	2885.2007.00923.x		
Scientific article	*Rapid population declines of Himalayan Griffon Gyps himalayensis in Upper Mustang, Nepal.* R. Acharya, R. Cuthbert, H.S. Baral and K.B. Shah (in press 2008)	Bird Conservation International, in press	Will be posted on to www.vulturerescue.org	£0
Conference Proceedings	The role of the veterinary profession in the decline and recovery of vulture populations in South Asia R. Cuthbert (2008)	Indian Society for Veterinary Medicine	Indian Society for Veterinary Medicine and Will be posted on www.vulturerescue.org	£0
* Newsletter	Jatayu 5: A newsletter of the project Conservation of Critically Endangered Gyps Species of Vultures in India (2008)	BNHS	www.bnhs.org will be posted 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 first ten months of the post-project, including the successful trial of in-situ conservation work and establishment of a vulture conservation breeding centre in Nepal, and training and increased capacity to undertake NSAID monitoring in India as well as an expanding conservation breeding programme within this country.

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 first year. The project indicators are still valid for the vulture programme.

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

The project has made significant progress in the last year towards having an impact of the loss of Gyps vulture populations in South Asia. Notable impacts include the in-situ conservation work in Nepal resulting in a doubling of nesting vulture numbers in the focal area; the political agreement, establishment and construction of a vulture conservation breeding centre in Nepal and the capture of 14 vulture chicks for this centre; the continued success of BNHS vulture breeding centres in India that now hold 182 birds and have for the first time bred and fledged vulture chicks in captivity; and the expansion of the number of breeding centres in India with Government support for an additional four centres to be run by the Central Zoo Authority with technical guidance from BNHS.

4. Monitoring, evaluation and lessons

A large internal review meeting was held by the RSPB in June 2007 to discuss progress and future directions of the project. The RSPB remains fully committed to the vulture breeding programme and in-situ conservation activities in both India and Nepal and will support this work for the next 10+ years. An annual review meeting also took place in India in July 2007 to discuss progress and plans. Both of these meetings were useful in taking the project forward and follow up meetings are planned for June and July 2008. Regular (at least six-monthly) meetings at a smaller scale have taken place between staff from the RSPB, Zoological Society of London and National Bird of Prey Trust.

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

N/A

6. Other comments on progress not covered elsewhere

Progress towards training in ELISA analysis methods and in-situ conservation activities in India got off to a slower start than anticipated, although both of these activities are now underway. Time constraints placed on the projects main India partner (BNHS) as a result of the heavy workload of the conservation breeding programme led to these delays.

Political risks remain within both India and Nepal. However the successful (and largely peaceful) completion of elections in Nepal appears to have produced stability in this country, and the project is working in areas of Nepal that we were previously unable to visit. Risks within India remain within certain states, and recently efforts to capture chicks for the breeding centres were hampered by protests against these activities: BNHS is appealing strongly to the State authorities to ensure the capture of these chicks as the programme is fully supported by the State Government.

7. Sustainability

The vulture project frequently receives widespread publicity in both India and Nepal, and press releases on the progress of in-situ conservation actions, vulture breeding within the centres and survey results have helped keep the programme in the news. The vulture breeding programme has expanded within India due to State and National government interest and the breeding programme now falls under the auspices of the Central Zoo Authority which has plans to build a further 4 breeding centres funded by national and state sources and with technical guidance from BNHS.

The RSPB plans to continue long-term support to BNHS and BCN for the conservation breeding programme and in-situ conservation actions, although we are encouraging increased fund-raising activities within both countries. Continued support for monitoring diclofenac contamination will rely upon BNHS and IVRI securing funding within India for this work and this remains a challenge for the programme.

8. Dissemination

The main source of dissemination on vulture conservation within India has come from the BNHS Advocacy Programme, which is funded separately (from the Darwin) by the RSPB with support from the UK Government's Global Opportunities Fund (GOF). This advocacy programme has been effective in engaging state and national government departments in the vulture conservation project, as well as at more local levels disseminating information to farmers. Support from the RSPB will remain for the advocacy programme for at least the next three years. A further opportunity to disseminate information on the project was achieved through an invitation from the Indian Society for Veterinary Medicine to present the plenary lecture at their annual conference from the 26-28th February 2008. Information on the role of vets in the decline and conservation of vultures was presented to an audience of >300 of India's leading practising and teaching veterinarians: a key target audience for the vulture project in the country.

Within Nepal, BCN has led on disseminating information to the government and to vets and farmers at the local level. A series of four workshops to veterinarians attending meetings organised by the Department of Livestock Services presented information on the cause and solutions of the vulture decline to an audience of more than 220 vets. The recent partnership in Nepal between BCN, the NTNC and DNPWC over the conservation breeding programme has greatly expanded the number of organisation directly involved with vulture conservation in Nepal. Consequently the project has a greater chance of continuing disseminating relevant information through these organisations in the future.

9. Project Expenditure

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

Item	Budget (from Post Project application)	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others			
Salaries (specify)			
TOTAL			

Actual expenditure under different budget headings has changed by more than +/- 10% in several of the budget lines in comparison within the original budget submitted in the post-project application, however the overall expenditure in year 1 is as projected.

Correspondence over the changes in the original budget were undertaken between myself and Lisa Fell on the 06/02/2008 and the new budget was agreed on the 13/02/2008 (copies of emails available on request). Deviations in actual expenditure (as above) and the new approved budget on the 13/02/2008 are all within +/- 10%.

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

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

The Darwin Vulture Project has made significant progress in the last year towards having an impact of the loss of Gyps vulture populations in South Asia. Notable achievements include in-situ conservation work in Nepal resulting in a doubling of nesting vulture numbers in the focal area; the political agreement, establishment and construction of a vulture conservation breeding centre in Nepal and the capture of 14 vulture chicks for this centre; the continued success of BNHS vulture breeding centres in India that now hold 182 birds and have for the first time bred and fledged vulture chicks in captivity; and the expansion of the number of breeding centres in India with Government support for an additional four centres to be run by the Central Zoo Authority with technical guidance from BNHS. The project has also increased the capacity of India and Nepal to monitor and quantify the use of diclofenac and other veterinary drugs in South Asia through training and transfer of analytical techniques that will remain in the host countries, as well as continued training and skills relating to the captive breeding of vultures. Lastly, efforts to coordinate in-situ and ex-situ conservation work in India and Nepal are developing in both countries and plans to expand these activities are underway for the second year of the programme.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2007/08

Project summary	*Measurable Indicators*	Progress and Achievements April 2007 - March 2008	*Actions required/planned for next period*
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve The conservation of biological diversity, The sustainable use of its components, and The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources			(do not fill not applicable)
Purpose 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	Regional partners running surveys to determine effectiveness of diclofenac ban Local and regional stakeholders involved in a suite of in-situ vulture conservation measures and colony monitoring Increased number of trained staff and increased knowledge to undertake vulture breeding	BNHS and BCN both undertaking surveys of NSAID prevalence, and BNHS monitoring carcass contamination with NSAIDs Considerable progress in Nepal for in-situ conservation with increasing vulture numbers at study site. Slower progress in India but coordinator now present in Gujurat State. 3 new trained staff in Nepal for vulture breeding centre, and increased capacity in India with expansion of programme to include CZA centres	Analytical (ELISA) training currently underway for BNHS staff and measuring effectiveness of this is key for 2008-09, as well as continued carcass and NSAID monitoring. Expand in-situ efforts in Nepal to 2+ sites to further test effectiveness of this. Coordinated in-situ plan and activities within Gujarat State and try to expand to second state in India. Training visits for Nepali staff to Indian centres. BNHS vet visit to UK. 2+ training workshops for BNHS staff.
Output 1. 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	1a. Training of 2 staff in ELISA methods and 3 staff in NSAID user surveys successfully completed 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	4 staff trained in ELISA methods and 4 staff trained in NSAID surveys, all completed NSAID carcass surveys and monitoring of NSAID use successfully undertaken in India and Nepal. Analysis (of carcass samples) behind schedule but underway. Reporting scheduled for June 2008.	
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		Staff recruited, training in ELISA methods currently underway, NSAID surveys and nationwide carcass surveys completed or still ongoing. The project will continue all of these activities in year 2	

carcasses & NSAIDs undertaken in both years		
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	Baseline data for Nepal and India is currently being reviewed. Within Nepal successful meloxicam swapping programme and conservation around 1 colony. Slower progress in India towards this but now working with several conservation NGOs in Gujarat to achieve this.
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		Coordination complete around one colony in Nepal with staff, melox swapping and monitoring underway. Work in India is around 1 year behind but is now in place. Plan to expand number of in-situ sites in Nepal to 3+, with at least 1 site in India in year 2.
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	Draft Nepal vulture action plan has been completed with partners. Meetings in Nepal and India have been underway at two sites.
Activity 3.1. Meeting arranged for Nepal Vulture Action plan		Meeting not necessary as BCN and RSPB drafted plan. Need Draft plan to be finalised and published in year 2.
Activity 3.2. Meetings in Indian states to coordinate in-situ plans		Further coordination and meetings planned for Nepal and India for in-situ work in year 2, with 3+ meetings to be undertaken.
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	Slower progress than anticipated in India due to time constraints of breeding centre staff. Nepal's capacity increased with establishment of breeding centre.
Activity 4.1. International and national training visits arranged for project vets		*Waiting outcome of application for UK visit for BNHS project vet.*
Activity 4.2. Workshops for centre staff		Training workshops planned for year 2 for centre staff
Activity 4.3. Visits from staff from new breeding centre to receive training from project staff		BNHS coordinating with new CZA centres in India. Plans for Nepali staff to visit India centres in year 2.

Annex 2 Project's full current logframe

Project summary	Measurable indicators	Means of verification	Important assumptions
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources			
Purpose 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	Regional partners running surveys to determine effectiveness of diclofenac ban Local and regional stakeholders involved in a suite of in-situ vulture conservation measures and colony monitoring Increased number of trained staff and increased knowledge to undertake vulture breeding	Annual reports and scientific publications produced on NSAID use and prevalence 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 New trained staff working at new vulture centres	Political stability in Nepal and Indian states where in-situ and ex-situ activities planned. Continued support from National and State governments towards vulture conservation

Outputs *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* *In-situ conservation activities established and effective around extant vulture colonies in Nepal and India* Effective mechanisms for the co-ordination of in-situ conservation activities within the region established *4. Capacity to undertake vulture conservation breeding programmes in the region enhanced*	*1a. Training of 2 staff in ELISA methods and 3 staff in NSAID user surveys successfully completed by July 2007* *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* 2. Colony monitoring protocols developed and baseline data available; meloxicam exchanged for diclofenac, conservation education materials disseminated around at least three vulture colonies Nepal vulture action plan meeting conducted by July 2007; regional meetings at three sites by September 2007 for in-situ actions 4. Two, one week training workshops completed by August 2007; overseas training visits in 2007 and 2008 for project vets	Carcass survey and NSAID user survey reported to Indian government; one scientific publication; summary results available on project website 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. Nepali vulture action plan produced; meeting results reported and available on website 4 Number of staff trained at centres reported in breeding centre newsletter and on website; overseas trip reports and veterinary training reported in newsletters	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 Support from national, state officials and regional forestry departments remains in areas with in-situ and ex-situ conservation activities

Activities	**Activity milestones**	**Assumptions**
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	1. Staff employed, training & manual for ELISA & NSAID surveys by July 2007; annual report to governments on NSAIDs and carcass residues by April 2007 & 2008; publication by	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

years 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 3a. Meeting arranged for Nepal Vulture Action plan 3b. Meetings in Indian states to coordinate in-situ plans 4a. International and national training visits arranged for project vets 4b. Workshops for centre staff 4c. Visits from staff from new breeding centre to receive training from project staff	June 2009 2 Training undertaken by Sept 2007; colony monitoring and conservation actions reported on website & local newsletters; paper on effectiveness of in-situ work produced by June 2009 3a. Nepali action plan produced by July 2007 3b. Meetings and minutes published by Sept 2007 4 Training manuals produced by Aug 2007 & Aug 2008; vet trip reports produced; centre staff training reported in newsletter by Sept 2007 & Sept 2008	2a. NGOs and forest departments willing to collaborate on in-situ conservation 2b. Suitable staff found and recruited 3. NGOs and forestry departments able to attend meetings and willing to collaborate on activities 4. Continued support and cooperation between organisations running captive centres, and availability of staff at key training periods

Annex 3

PDF copies of the following five publications are provided as attachments to the emailed report.

Prakash et al. (2007). Recent changes in population of resident Gyps vultures in India. Journal of the Bombay Natural History Society, 104, 129-135.

Green et al. (2007). Rate of Decline of the Oriental White-Backed Vulture Population in India Estimated from a Survey of Diclofenac Residues in Carcasses of Ungulates. PLoS ONE 2(8): e686. doi:10.1371/journal.pone.0000686

Taggart et al. (2007). Diclofenac residues in carcasses of domestic ungulates available to vultures in India. Environment International doi:10.1016/j.envint.2007.02.010

Naidoo et al. (2008). The pharmacokinetics of meloxicam in vultures. J. Vet. Pharmacol. Therap. 31, 128–134, doi: 10.1111/j.1365-2885.2007.00923.x

Jatayu 5: A newsletter of the project Conservation of Critically Endangered Gyps Species of Vultures in India (2008)