# *Darwin Initiative Annual Report*

**Important note:**

*To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be about 10 pages in length, excluding annexes*

**Submission Deadline: 30 April 2013**

## 1. Darwin Project Information

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|---|---|
| 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 | Annual Report 3<br>(April 2012 to March 2013) |
| Project Leader name | Dr Richard Cuthbert |
| Project website | www.vulturedeclines.org and www.save-vulture.org |
| Report authors, main contributors and date | Toby Galligan, Richard Cuthbert, Vibhu Prakash and Khadananda Paudel<br>30 April 2013 |

## 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. All six organisations above and the RSPB attended meetings in November 2012 to review project progress and future directions of the work. The principal staff leading vulture conservation at the RSPB (Richard Cuthbert and Chris Bowden), BNHS (Dr Vibhu Prakash), and BCN (Mr Khadananda Paudel) have remained unchanged during this reporting year.

BNHS continues to coordinate work in northern India through four local NGOs in northern India: Mahseer Conservancy in Uttarakhand; Tarai Nature in western Uttar Pradesh; the Katerniaghat Foundation in eastern Uttar Pradesh; and the Neo Human Foundation in Jharkhand. In addition, BNHS has established new VSZ areas in Assam and Gujarat; work in the former is undertaken by BNHS staff based at the Assam Vulture Conservation Breeding Centre and the latter is undertaken by two local NGOs. Both local partners in Gujarat State and the partner in Jharkhand State were supported under a previous Darwin Grant (Project Ref EIDPO005 "Conservation actions to secure the recovery of *Gyps* species vultures") and continue to lead the VSZ work in India. MOUs with all local partners have initiated and directed advocacy and education programmes with livestock owners, veterinarians and government officials. Work in Nepal has now established working relations with local NGOs, communities and officials in 29 districts of the country. Trans-boundary cooperation between India and Nepal has enabled knowledge transfer during regular strategy meetings and visits between the two countries.

The RSPB VSZ Coordinator (Ananya Mukherjee) and Conservation Scientist (Toby Galligan) have provided continual steering and support to country and local partners. The VSZ Coordinator has facilitated advocacy and education activities in VSZs through one-on-one meetings and regular email and telephone conservations with country and local partners, and a follow-up strategy workshop for all partners. Similarly, the Conservation Scientist has worked one-on-one with partners to ensure accurate and regular monitoring continues to provide feedback on conservation strategies employed. In total, the VSZ Coordinator and Conservation Scientist have travelled among the Indian and Nepal VSZs three times in this reporting year, and spent 36 weeks supporting conservation actions *in situ*.

A second advocacy strategy workshop (SAVE meeting) was held in March 2012 in India. The RSPB VSZ Coordinator and representatives from BNHS, BCN and local NGOs attended. This event allowed country partners and local NGOs to discuss progress and problems in the past year, and to agree on refined strategies to achieve project aims under the steering of the VSZ Coordinator.

This reporting year saw the construction of a second colony aviary at the Vulture Conservation Breeding Centres (VCBC) in Nepal. Half of the captive population of vultures in Nepal were transferred into this aviary. Buildings for a laboratory and visitor centre were also constructed in Nepal VCBC. Experts from ICBP and ZSL continue to provide technical support on vulture husbandry and veterinary care to the Nepal and three Indian VCBC teams, including the newly recruited West Bengal team.

Additional collaborations also continue with researchers at the Indian Veterinary Research Institute (IVRI) which was established under a previous Darwin award (Project Ref EIDPO005), 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 and dead vultures 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. Importantly, monitoring data have provided the first evidence that this project has slowed the rate of decline in all three Critically Endangered *Gyps* vulture in South Asia; and four other threatened vulture species, marking a key turning point in the race to prevent the extinction of this group of birds.

### 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*

The VSZ in Nepal has continued to expand and now covers 30 districts. Five VSZs in northern, north-eastern and western India cover 29 districts. BCN and BNHS have taken the lead on working with local partners.

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

Clear agreements are in place with local and national partners for *in-situ* work

*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 is being replaced with meloxicam on a case by case basis in Nepal and some PVSZ in India; herding of cattle, and thereby vulture safe feeding sites, have been agreed within the Nepal VSZ; advocacy and monitoring programmes conducted by country partners and local NGOs are in place within all VSZs; regular on-on-one and group meetings between RSPB staff and in-country partners have ensured activities progress towards project objectives.

**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 been identified due to knowledge on the wide-ranging behaviour of vultures and difficulty of identifying independent sites where no *in-situ* conservation action is being undertaken. However, nationwide surveys of vultures in Nepal and India, and carcass surveys will provide control data on rates of decline and diclofenac contamination in other states in India to provide effective control data.

*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 and carcass surveys are ongoing at the local and national level in both India and Nepal, including within all VSZs. Nationwide vulture survey data has shown that rates of declines have slowed in all species. Analysis for the fourth nationwide carcass survey in India is now complete and our findings will be submitted for publication soon. Similarly, data collection and analysis of pharmacy surveys in India and Nepal are nearing completion and will also be submitted for publication later in 2013. The general trend in all these studies is that diclofenac is becoming rarer on pharmacy shelves and in the food available to vultures.

**Output 3. Infrastructure for the Vulture Conservation Breeding Centre (VCBC) 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*

Design and budget agreed for these facilities in Nepal. Funds provided to West Bengal for construction of chick aviaries.

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

Second colony aviary, laboratory and visitor centre constructed at the Nepal VCBC. Construction planned in India during 2013.

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

The pump and water tank are now in place at the Nepal VCBC.

**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*

Staff contracts have been agreed and signed for the third year of the project.

**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*

BCN's Vulture Conservation Coordinator will visit the RSPB headquarters in the UK for one month across March and April 2013. He will primarily work with RSPB Conservation Scientists to analyse monitoring data and prepare his findings for reports and publication. He will also be given training from RSPB advocacy, fund-raising and communications teams. His expenses will be funded separately to the Darwin project (Student Conference on Conservation Science, Miriam Rothschild Internship). As an alternative to training Indian and Nepal staff in the UK, the RSPB VSZ Coordinator and Conservation scientist have made four trips to India and Nepal, for a total period of 20 weeks, to train country partners and local NGOs.

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

One-to-one steering and support for both advocacy and monitoring was given by RSPB staff to BNHS, BCN and local NGO staff in June/July 2012, November 2012 and February/March 2013. A second advocacy strategy workshop was held in India in March 2013 and attended by all representatives from all partners. RSPB project leaders visited BNHS and BCN in November 2012 and February/March 2013. Experts from ZSL visited VCBC in both India and Nepal in February 2013.

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

Funds have been transferred for undertaking a pilot project farming rabbits at one of the Indian vulture centres and land has been set aside for this work. Due to pressures from the current vulture breeding season (in the conservation breeding centre) this work has been delayed but is due to be initiated shortly.

## 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 | 4 | 12 | | 18 | 0 | 8 |
| 4C | Number of postgraduate students to receive training | 3 | 6 | 5 | | 14 | 0 | 16 |
| 4D | Number of training weeks to be provided | 2 | 17 | 12 | | 31 | 0 | 6 |

| 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 |
|---|---|---|---|---|---|---|---|---|
| 6A | Number of people to receive other forms of education/training | 6 | 24 | 3 | | 33 | 0 | 18 |
| 6B | Number of training weeks to be provided | 2 | 11 | 2 | | 15 | 0 | 6 |
| 7 | Number of training materials to be produced for use by host country | 1 | 3 | 1 | | 5 | 0 | 3 |
| 8 | Number of weeks to be spent by UK project staff on project work in the host country | 11 | 0 | 36 | | 47 | 0 | 24 |
| 11A | Number of papers to be published in peer reviewed journals | 7 | 4 | 6 | | 17 | 3 | 9 |
| 11B | Number of papers to be submitted to peer reviewed journals | 2 | 2 | 3 | | 7 | 3 | 6 |
| 12A | Number of computer based databases to be established and handed over to host country | 0 | 2 | 0 | | 2 | 0 | 1 |
| 14A | Number of conferences/seminars/ workshops to be organised to present/disseminate findings | 0 | 1 | 1 | | 2 | 1 | 3 |
| 14B | Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated. | 0 | 0 | 6 | | 6 | 2 | 3 |
| 15A | Number of national press releases in host country(ies) | >6 | 6 | 5 | | >17 | >2 | >10 |
| 15B | Number of local press releases in host country(ies) | >8 | ~100 | ~100 | | ~200 | ~50 | >10 |
| 16A | Number of newsletters to be produced | 1 | 2 | 1 | | 4 | 0 | 3 |
| 16B | Estimated circulation of each newsletter in the host country(ies) | >500 | 250 | 1000 | | >1750 | >500 | >1500 |
| 17B | Number of dissemination networks to be enhanced/ extended | 1 | 1 | 0 | | 2 | 0 | 2 |
| 18A | Number of national TV programmes/features in host country(ies) | 1 | 0 | 0 | | 1 | 0 | 3 |
| 18B | Number of national TV programmes/features in UK | 1 | 1 | 0 | | 2 | 0 | 0 |
| 18C | Number of local TV programmes/features in host country(ies) | 0 | 1 | 0 | | 1 | 0 | 3 |

| 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 |
|---|---|---|---|---|---|---|---|---|
| 19A | Number of national radio interviews/features in host county(ies) | >150 | >50 | 3 | | >103 | >2 | >10 |
| 19B | Number of national radio interviews/features in UK | 0 | 1 | 1 | | 2 | 1 | 3 |
| 19C | Number of local radio interviews/features in host country(ies) | >20 | >20 | >20 | | >60 | >5 | >10 |
| 20 | Estimated value (£'s) of physical assets to be handed over to host country(ies) | £28k | £24k | £3k | | £55k | £0 | £45k |
| 21 | Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased | 0 | 0 | 0 | | 0 | 0 | 1 |
| 22 | Number of permanent field plots to be established during the project and continued after Darwin funding has ceased | 5 | 8 | 1 | | 9 | 0 | 6 |
| 23 | Value of resources raised from other sources for project work | £81k | £29 | £75k | | £185k | £142k | £160k |

**Table 2 Publications**

| Type (eg journals, manual, CDs) | Detail (title, author, year) | Publishers (name, city) | Available from (eg contact address, website) | Cost £ |
|---|---|---|---|---|
| Journal article | Prakash, V., Bishwakarma, M.C., Chaudhry, A., Cuthbert, R., Dave, R., Kulkarni, M., Kumar, S., Paudel, K., Ranade, S., Shringarpure, R., Green, R.E. (2012) **The population decline of *Gyps* vultures in India and Nepal has slowed since veterinary use of diclofenac was banned** *PLoS ONE 7(11): e49118.* | *PLoS One* | Authors, RSPB, journal website and SAVE website | £0 |
| Journal article | Bowden, C.G.R., Prakash, V., Ranade, S., Routh, A., Jakati, R.D., Cuthbert, R.J., Rahmani, A.R., Green, R.E., Prakash, N. and Parry-Jones, J. (2012). **Conservation breeding for the future release of the critically endangered Asian *Gyps* vultures – progress of the programme in South Asia and why it is so important.** *Journal of the Bombay Natural History Society*, 109: 43-45. | *Journal of the Bombay Natural History Society* | Authors, RSPB & SAVE website | £0 |
| Journal article | Clements, T., Gilbert, M., Rainey, H.J., Cuthbert, R., Eames, J.C., Bunnat, P., Teak, S., Chansocheat, S. and Setha, T. (2012). **Vultures in Cambodia: population, threats** | *Bird Conservation International* | Authors, journal RSPB & SAVE | £0 |

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|---|---|---|---|---|
| | **and conservation.**<br>*Bird Conservation International,*<br>doi:10.1017/S0959270912000093 | | website | |
| Journal article | Chaudhary, A., Subedi, T.S., Giri, J.B., Baral, H.S., Chaudhary, I., Paudel, K., and Cuthbert, R.J. (2012).<br>**Population trends of critically endangered *Gyps* vultures in the lowlands of Nepal.**<br>*Bird Conservation International*, 22: 270-278, doi:10.1017/S0959270911000426 | *Bird Conservation International* | Authors, journal RSPB & SAVE website | £0 |
| Journal article | Ghorpade, P.B, Gupta, P.K., Prakash, V., Cuthbert, R.J., Kulkarni, M., Prakash, N., Das, A, Sharma, A.K. and Saini, M. (2012).<br>**Molecular sexing of threatened *Gyps* vultures: an important strategy for conservation breeding and ecological studies.**<br>*SpringerPlus* 2012, 1:62; doi:10.1186/2193-1801-1-62. | *Springer Plus* | Authors, journal RSPB & SAVE website | £0 |
| Journal article | Saini, M, Taggart, M.A., Knopp, D., Upreti, U., Swarup, D., Das, A., Gupta, P.K., Niessner, R., Prakash, V., Mateo, R. and Cuthbert, R.J. (2012).<br>**Detecting diclofenac in livestock carcasses in India with an ELISA: A tool to prevent widespread vulture poisoning.**<br>*Environmental Pollution* 160: 11-16. | *Environmental Pollution* | Authors, journal RSPB & SAVE website | £0 |
| Published report | Prakash, V., Bowden, C., **Cuthbert, R.,** Prakash, N., Routh, A. and Parry-Jones, J. (2012).<br>Husbandry Guidelines for 'in range' conservation breeding programmes of *Gyps bengalensis, Gyps indicus* and *Gyps tenuirostris.*<br>Unpublished report, Bombay Natural History Society, Mumbai, India. | *Bombay Natural History Society* | Authors, BNHS, RSPB & SAVE website | £0 |
| Journal article | Sharma A.K., Saini M., Singh S.D., Prakash V., Das A., Bharathi Dasan R., Pandey S., Bohara D.L., Galligan T.H., Green R. E., Knopp D., Cuthbert R.J. (*In review)*<br>**Diclofenac is toxic to a non-*Gyps* vulture and an *Aquila* eagle: increasing the diversity of raptors under threat of NSAID misuse** | *Animal Conservation* | Authors | £0 |
| Journal article | Galligan T.H., Prakash V.M., Kulkarni M., Shringarpure R., Prakash N., Ranade S., Green RE., Cuthbert R.J. (*In review)*<br>**Population declines in Egyptian vulture and red-headed vulture in India have slowed or reversed since the 2006 ban on veterinary diclofenac.** | *Bird Conservation international* | Authors | £0 |
| Journal article | Paudel K., Galligan T.H., Acharya R., Baral H.S., Shah, K.B, Cuthbert R.J. (*In preparation*)<br>**Population recovery in Himalayan griffon and stabilisation in bearded vultures in upper Mustang, Nepal** | *Bird Conservation international* | Authors | £0 |

### 4.4 Progress towards the project purpose and outcomes

This reporting year's most significant progress towards the project's overall purpose of improving trans-boundary collaboration and capacity in Nepal and India is demonstrated with the continual expansion of Vulture Safe Zones (VSZs); continual improvement to Vulture Conservation Breeding Centres (VCBC); and the knowledge and skills transfer between the two countries.

Currently, a single large VSZ in Nepal has amalgamated the four VSZ previously reported. In addition, a fifth VSZ has been established in India (Assam). Altogether, VSZs cover a large contiguous zone of important vulture habitat on either side of the Nepalese and Indian border.

Three VCBC exist in India and one more in Nepal. The most established VCBC (Pinjore) is using artificial incubation and hand-rearing techniques to supplement natural recruitment. Another good year of breeding at has seen approximately 26 young fledge including all three species. Construction of buildings and infrastructure at the VCBC in Nepal and West Bengal is on track to making these centres ready for natural and artificial breeding in the next year (when the captive population are ready to breed for the first time).

Both our in-country partners and local NGOs collaborate through meetings, workshops and regular communication. The transfer of knowledge and skills has been two-way: for example, BCN and the local NGOs in Nepal have shared their expertise in community and government engagement to clear VSZs of diclofenac; while BNHS in India has shared their expertise in husbandry and captive breeding to best manage the Nepalese VCBC. The RSPB, and our UK partners, have continued to provide support in advocacy, education, monitoring, husbandry and veterinary care.

### 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 *Gyps* species; however three notable achievements have been made in the past year.

(1) Population stabilisation in the three *Gyps* species and four other vulture species in both India and Nepal (and possible partial recovery in four of these species) and also evidence for recovery in neighbouring regions of Pakistan;

(2) Continual decrease in diclofenac prevalence in carcasses of domesticated ungulates across India from 11% in 2006 to 4% in 2009/10 and a concurrent increase in vulture-safe meloxicam prevalence from 4% in 2006 to 8% in 2009/10; and

(3) Continual increase in number of vultures reared in captivity from 20 young in 2010/11 to 26 in 2012/13 across two VCBCs in India.

## 5. Monitoring, evaluation and lessons

The project is monitored through regular communication and visits to Nepal and India by the Programme Manger, RSPB VSZ Coordinator and VSZ Conservation Scientist (totalling 5 months). In addition, data collected and analysed on vulture numbers, NSAID availability in pharmacies and NSAID prevalence in carcasses is being used to identify areas that need more support and effort. The annual project meeting, VSZ team workshop and tour of the VSZs provide opportunities to discuss evaluate and improve progress. Identifying how local NGOs can be most effective in clearing their PVZ of diclofenac is complex. We have learnt that a combination of uniformed and site-dependent strategies works best; and more hands make light work.

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

Not applicable.

## 7. Other comments on progress not covered elsewhere

Construction of buildings and infrastructure in Nepal and West Bengal has been slow due to multiple reasons: 1) competing demands on local workers during crop planting and harvesting periods; 2) political unrest hindering the transport of materials; 3) raising prices of materials and fuel; and 4) unavailability of suitable material and equipment. Despite these challenges, this project objectives for the Nepal and West Bengal VCBC have been largely meet (backup electricity will be finalised post project).

## 8. Sustainability

The growing involvement of other organisations, and in particular NTNC and DNPWC in Nepal, and the Mahseer Foundation, Terai Nature, Katerniaghat 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. Local partners also include a network of volunteers and NGOs in Gujarat State. Government support for the vulture programme continues: in Nepal direct funding from the Department of Livestock Services ensures that the vulture-diclofenac problem is now delivered to livestock departments and veterinarians in all 75 districts of Nepal; and in India direct funds from the Haryana Forest Department has enabled the construction of a fourth colony aviary. Continual discussions with national and state governments in Nepal and India are building support for the breeding centres. India government funding has paid directly for the construction of aviaries and other infrastructure at the Pinjore and Buxa breeding centres. Through our collaboration with IVRI, we are pursuing financial support from the Indian Ministry of Environment and Forests (MoEF) to conduct safety testing experiments on further alternative drugs to diclofenac. BCN is independently pursuing substantial funding from the Hariyo Ban Program to expand its *in-situ* work within Nepal. These are very encouraging signs that both India and Nepal are taking a more leading role in funding and in running the vulture programme, which is the long term future for this project and the species.

In this reporting year, a region declaration on vulture conservation was signed by the governments of Nepal, India, Pakistan and Bangladesh. Under the agreement, among other things, VSZ and VCBC will be supported. A regional steering group has been formed including a member from the RSPB, BCN and BNHS, as well as the IUCN and GEF. The group has met three times since forming and the momentum is building towards sustainability of VSZ and VCBCs in the region.

## 9. Dissemination

BCN and BNHS press releases following publication of the research article on the slowing in decline in *Gyps* vultures have led to media coverage in considerable online news articles, including *The Telegraph* UK websites. In addition, the RSPB media team met with feature writers from *The Internationalist* and *National Geographic Kids*. The plight of South Asian vultures and this project's conservation efforts was the subject of Dr Andrew Balmford's perspective in *Science* magazine and podcast on *Science* online, which generated a Letter to the Editor of *Science* from a concerned Indian researcher. These topics also featured in Tony Juniper's new book *What has nature ever done for us?* which he promoted through the RSPB website as a guest blogger.

BCN has continues to disseminate the project widely through newspapers, online articles and radio segments. The BNHS Press Officer has been increasing the media coverage for vulture conservation in India. As a result, more than 150 news articles have been published in state and national media (including those stemming from the press releases described above). In addition, all five of the local NGOs working in the VSZ in India have successfully publicised vulture conservation at the state level.

The projects progress is also disseminated through the project's *Vulture Rescue* website, *SAVE (Saving Asia's Vultures form Extinction consortium)* website and through news, blogs and podcasts available on the *RSPB* website.

## 10. Project Expenditure

**Table 3 project expenditure during the reporting period (1 April 2012 – 31 March 2013)**

| Item | Budget | Expenditure | % variance / comments |
|---|---|---|---|
| **Staff Costs** | | | |
| RSPB Project Manager | | | Salaries for staff in both India and Nepal have been increased in order to match rising costs of living and inflation in the country. Without further increases to salaries the project faced the prospect of losing (more) trained staff from the vulture teams. |
| BCN vulture manager | | | |
| BCN field biologist | | | |
| BCN community worker | | | |
| BCN project veterinarian (centre) | | | |
| BCN project veterinarian (field) | | | |
| BCN field technician | | | |
| BNHS biologist | | | |
| BNHS biologist | | | |
| BNHS biologist | | | |
| BNHS veterinarian | | | |
| **Overhead costs** | | | Establishing more VSZs than originally planned meant more overhead costs. |
| **Travel & Subsistence** | | | Travel and subsistence costs were lower than budgeted, mainly due to the collaboration with local NGOs which reduced the amount of in-country travel that was required. |
| **Operating costs** | | | |
| **Capital Equipment** | | | Most capital equipment was purchased in previous years resulting in underspend in this area. |
| Rabbits for breeding (96F, 24M) | | | |
| Cages/hutches | | | |
| Feeders/water bottles | | | |
| Other costs (consultancy) | | | |
| Other costs (specified) | | | |
| Income generation activities at Vulture Safe Feeding Sites | | | |
| Expansion of Nepal VSZ (Manang and Mustang districts) | | | |
| Expansion of Nepal VSZ (Doti, Surkhet and Rolpa districts) | | | |
| Printing Vulture Conservation booklet (BCN) | | | |
| Printing 3rd issue of Jatayu Newsletter (BCN) | | | |
| Total | | | **102%**<br>**The RSPB has met the costs of the slight overspend in the project budget** |

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

This project and previous Darwin projects have helped to initiate the beginning of a recovery in the populations of critically endangered vultures in South Asia. From the project's beginning over a decade ago, when the source of the problem was unknown and vulture populations were declining precipitously, the project has helped uncover the role of diclofenac, tested and established alternative drugs (meloxicam), and measured levels of contamination in the vulture's principal food source as well as monitored vulture populations. These national activities have been backed up by local *in situ* conservation initiatives including the expansion of Vulture Safe Zone sites in Nepal and India, and *ex situ* activities with the increasing importance of conservation breeding centres. The results of this project show that contamination of cattle carcasses with diclofenac continue to fall and we are now seeing the first evidence that vulture numbers in Nepal and India have stabilised and may be beginning to increase.

I agree for LTS and the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2012-2013

| Project summary | Measurable Indicators | Progress and Achievements April 2012 - March 2013 | 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*<br>⇒ The conservation of biological diversity,<br>⇒ The sustainable use of its components, and<br>⇒ The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources | | | |
| ***Purpose***<br>To improve trans-boundary collaboration and capacity in Nepal and India to implement effective conservation solutions for Asia's Critically Endangered vulture species | P(1) Increase in number and area of Vulture Safe Zones (VSZ) within Nepal and in neighbouring areas of India<br><br>P(2) Increased capacity of staff at Vulture Conservation Breeding Centres (VCBCs) and VSZs to sustain vulture conservation activities<br><br>P(3) Vulture Conservation Breeding Programmes in India and Nepal continue to expand | P(1) In Nepal, one VSZ covers 30 districts; and in India, 5 VSZs cover 29 districts.<br><br>P(2) In India, a dedicated VSZ Coordinator has been employed.<br><br>P(3) In India,26 nestlings reared in Haryana, West Bengal and Assam VCBCs. Double clutching techniques used at Haryana. In Nepal, second colony aviary constructed. In Nepal and West Bengal, vultures attempted to breed. | Continue programme of VSZ work in India and Nepal for remaining duration and ensure sustainability beyond project end.<br><br>Continue training and capacity building in teams in India and Nepal at the VCBCs and VSZs<br><br>Ensure expansion of breeding activities and infrastructure within both countries through training, husbandry guidance and support. |
| **Output 1.**<br>Expansion of *in-situ* vulture conservation projects across Nepal and in neighbouring areas of India | >4 VSZs established in Nepal and minimum 1 VSZ established in adjacent areas of India | In Nepal, *in situ* conservation action managed by BCN has established in one large and expanding VSZ, encompassing the initial 4 VSZs. In India, *in situ* conservation action managed by BNHS has established 5 VSZs. Two Indian VSZs adjoin the Nepal VSZ, forming a trans-boundary VSZ. | |
| Activity 1.1<br>Sites and local conservation NGO partners identified for expansion of VSZs in Nepal and neighbouring areas of India | | BCN works with 19 local NGOs in Nepal to advocate vulture conservation, monitor vulture populations and NSAID availability, and manage Vulture Safe Feeding Sites. BNHS works with 6 local NGOs in India to advocate vulture conservation and monitor vulture populations and NSAID availability. | |

| Project summary | Measurable Indicators | Progress and Achievements April 2012 - March 2013 | Actions required/planned for next period |
|---|---|---|---|
| Activity 1.2<br>Agreement in place with local and national partners for *in-situ* work | | Agreements maintained. | |
| Activity 1.3<br>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-meloxicam swapping completed. Six Vulture Safe Feeding Sites maintained in Nepal. Advocacy, education and monitoring programme by local partners and NGOs maintained. Best practice frequently assessed and disseminated among teams. | |
| **Output 2.**<br>Effectiveness of *in-situ* 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 | Monitoring undertaken at both the national and VSZ level in Nepal and India. First round of surveys completed in year one; second surveys are partially complete, with full completion expect in the year 2013-2014. | |
| Activity 2.1.<br>Minimum of one suitable control site for monitoring effectiveness of *in-situ* work located in same eco zone in India | | Nationwide surveys in both Nepal and India will encompass both VSZs and non-VSZs, the latter representing controls. | |
| Activity 2.2.<br>Vulture monitoring, NSAID surveys and carcass samples collected from Nepal and India from *in-situ* sites and from control area(s) in India | | Nationwide road transect survey of *Gyps* vultures in India and Nepal published; and for redheaded and Egyptian vultures in India in review. Nationwide cattle carcass survey for NSAIDs in India in preparation for publication. The VSZ pharmacy survey (India) is nearing completion; and in preparation for publication (Nepal) | |
| **Output 3.**<br>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 | All planned facilities built at Nepal VCBC and West Bengal. Water infrastructure in place. Electricity infrastructure nearing completed. | |
| Activity 3.1.<br>Continued support from DNPWC and West Bengal State for expansion of project infrastructure at the site in Chitwan National Park and Buxa Tiger Reserve | | Support maintained. | |

| Project summary | Measurable Indicators | Progress and Achievements April 2012 - March 2013 | Actions required/planned for next period |
|---|---|---|---|
| Activity 3.2.<br>Design and budget for aviaries and visitor facilities agreed with project partners in Nepal and West Bengal | | Agreements maintained. | |
| Activity 3.3.<br>Colony aviary, chick aviaries and visitor facilities constructed | | Second colony aviary, laboratory and visitor facilities constructed. Fitting out the laboratory and visitor centre is underway. | |
| Activity 3.4.<br>Pump and tanks installed to improve water supply, and back-up generator bought and installed to provide reliable electricity | | Water pump and tanks installed. Backup generators to be purchased soon. | |
| **Output 4.**<br>Breeding Centre staff supported at Nepalese and West Bengal centres for three-year term of project | A minimum of six staff employed and trained by the project in both India and Nepal | With the appointment of a dedicated BNHS VSZ Coordinator this year, a total of 9 staff are employed in both Nepal and India. | |
| Activity 4.1.<br>Recruitment and renewed contracts for breeding centre staff in Nepal and West Bengal centres | | Staff and contracts maintained. | |
| **Output 5.**<br>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<br><br>5b. Training workshops (2 x 1 week in each year) run by project in host countries and training materials and studbook produced<br><br>5c. Annual exchange/training visits between Indian and Nepalese partners in each year of project | 5a. In-country training by RSPB staff was identified as better alternative to UK visits by BNHS or BCN staff. However, BCN's vulture manager visited the UK for one month on separate funds. He was trained in data analysis and scientific writing.<br><br>5b. Second VSZ advocacy strategy workshop held in India and attended by BNHS, BCN and local NGOs. In place of further training workshops. One-to-one training was provided to BNHS, BCN and all Indian NGOs during 3 visits by the RSPB VSZ Coordinator and Conservation Scientist.<br><br>5c BNHS and BCN vulture managers met in November 2012 at the annual project meeting. NGOs from border regions of India and Nepal held a trans-boundary meeting. BNHS staff visited Nepal Vulture Safe Feeding Sites; and BCN staff visited BNHS VCBC. | |
| Activity 5.1.<br>Training requirements for project staff identified, air-tickets bought and dates fixed for staff visits to UK | | Training in-country was identified as a better alternative to UK visits by BNHS and BCN staff. | |

| Project summary | Measurable Indicators | Progress and Achievements April 2012 - March 2013 | Actions required/planned for next period |
|---|---|---|---|
| Activity 5.2.<br>Training workshops planned for Nepal/India and ZSL/RSPB/ICBP staff and dates fixed for visits | | VCBC and VSZ training continued. | |
| Activity 5.3.<br>Themes and visits for staff in Nepal and India agreed and visits arranged | | Regular visitation of VSZ Coordinator and Conservation Scientist maintained. | |
| **Output 6**<br>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 | Funds have been transferred for undertaking a pilot project farming rabbits at the Haryana VCBC (India). | |
| Activity 6.1.<br>Small-scale trials of alternative food sources established with local communities surrounding breeding centre in Nepal and West Bengal | | Trial to be conducted at the Haryana VCBC. | |
| Activity 6.2.<br>Feasibility study and evaluation of alternative food sources undertaken, with expansion of programme if successful | | Trial to take place post project. | |

## Annex 2 Project's full current logframe

| Project summary | Measurable Indicators | Means of verification | Important Assumptions |
|---|---|---|---|
| Goal:<br>**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.** | | | |
| **Sub-Goal**:<br><br>The establishment of self-sustaining wild vulture populations in South Asia in an environment free from diclofenac and other harmful toxins | SG(1) Wild vulture populations increase in numbers and expand in range and captive vulture populations successfully released and surviving in South Asia<br><br>SG(2) Contamination of vulture food sources with diclofenac and other harmful veterinary drugs falls to levels that will not impact on the population<br><br>SG(3) Improvement in IUCN threat status of critically endangered vulture species | 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<br><br>IUCN Red List reflect reduced threat to vultures in Asia | [redacted] |
| **Purpose**<br><br>To improve trans-boundary collaboration and capacity in Nepal and India to implement effective conservation solutions for Asia's Critically Endangered vulture species | P(1) Increase in number and area of Vulture Safe Zones within Nepal and in neighbouring areas of India<br><br>P(2) Increased capacity of staff at Breeding Centres and Vulture Safe Zones to sustain vulture conservation activities<br><br>P(3) Vulture Conservation Breeding Programmes in India and Nepal continue to expand | Vulture Safe Zones are registered within local States/Districts and recognised nationally as focal sites for conservation<br><br>Training reports and activities produced for partners and posted on project website<br><br>Breeding centre annual reports to government and international partners document increase in captive vulture numbers and infrastructure | Host countries remain politically stable and local areas surrounding vulture conservation projects remain safe for project staff<br><br>No other conservation issues arise to provide significant new threat to vulture conservation<br><br>National and international will and funding remains sufficient to support vulture conservation activities |

| | | | |
|---|---|---|---|
| **Outputs**<br>1. Expansion of *in-situ* vulture conservation projects across Nepal and in neighbouring areas of India | 1a >4 Vulture Safe Zones established in Nepal and minimum 1 Vulture Safe Zone established in adjacent areas of India | 1a. Annual reports for Nepalese and Indian State governments and international partners document establishment of sites | National and local support for *in-situ* conservation continues<br>Local political and economic situation remains stable and safe for project areas |
| 2. Effectiveness of *in-situ* 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 | 2a. Peer-reviewed scientific paper detailed results of work produced and published | Monitored vulture populations remain extent<br>Pharmacies and vets allow monitoring of stocks |
| 3. Infrastructure for the Vulture Conservation Breeding Centre in Nepal and West Bengal is increased in capacity | 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. Visitor & education facilities at West Bengal | 3a. Completed construction and infrastructure in place and documented on project website and reports to Nepalese government and international partners | National and local political situation remains stable and safe for construction to take place<br>Availability of key construction materials, fuel and power to the site during construction<br>Continued support from Nepalese Department of National Parks and Wildlife Conservation for construction on park land |
| 4. Breeding Centre staff supported at Nepalese and West Bengal centres for three-year term of project | 4a. A minimum of six staff employed and trained by the project in both India and Nepal | 4a. Contracts with BNHS and BCN and annual reports document numbers of staff in employment | Qualified and suitable staff retained and/or available for recruitment to project<br>Local political situation remains safe for staff to work on the project |
| 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<br>5b. Training workshops (2 x 1 week in each year) run by project in host countries and training materials and studbook produced<br>5c. Annual exchange/training visits between Indian and Nepalese partners in each year of project | 5a, b & c. Reports from international visits, training workshops and exchange visits produced for funders and posted on project website<br>Certificates document training received and produced for funders | International visas issued to allow training visits to UK or elsewhere<br>Time and availability of ZSL, RSPB and ICBP staff to visit and run training workshops in host countries<br>[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] |
| 6. Trials of alternative food sources for captive vultures undertaken and feasibility of large-scale production assessed | 6. Small-scale facilities for rearing rabbits/rats and goats/buffalo established with local communities in areas around vulture centres | 6. Annual reports produced for project funders on success of small-scale projects and feasibility assessment of large-scale project produced | Support and availability of personnel from local community to work on project |

**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

All supplied as PDF documents numbered A1-A11

Published articles

1. Prakash, V., Bishwakarma, M.C., Chaudhry, A., Cuthbert, R., Dave, R., Kulkarni, M., Kumar, S., Paudel, K., Ranade, S., Shringarpure, R., Green, R.E. (2012) **The population decline of *Gyps* vultures in India and Nepal has slowed since veterinary use of diclofenac was banned** *PLoS ONE 7(11): e49118.*
2. Bowden, C.G.R., Prakash, V., Ranade, S., Routh, A., Jakati, R.D., Cuthbert, R.J., Rahmani, A.R., Green, R.E., Prakash, N. and Parry-Jones, J. (2012). **Conservation breeding for the future release of the critically endangered Asian *Gyps* vultures – progress of the programme in South Asia and why it is so important.** *Journal of the Bombay Natural History Society*, 109: 43-45.
3. Chaudhary, A., Subedi, T.S., Giri, J.B., Baral, H.S., Chaudhary, I., Paudel, K., and Cuthbert, R.J. (2012). **Population trends of critically endangered *Gyps* vultures in the lowlands of Nepal.** *Bird Conservation International*, 22: 270-278, doi:10.1017/S0959270911000426

UK Press

4. New Internationalist, May 2013
5. Science (Perspective), February 2013
6. RSPB (Guest Blog), January 2013
7. The Telegraph online, November 2012

BNHS press release, newsletters and press coverage (India)

8. The Jatayu will fly again!
9. List of press coverage

BCN press releases, newsletters and press coverage (Nepal)

10. 8th annual vulture survey
11. List of press coverage

## Checklist for submission

| | Check |
|---|---|
| **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. | No |
| **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. | |