

Appendix V

Revised Project Aims and Revised Logical Framework (2003)

Proposed project changes for:

Prediction and Management of Potential Declines in *Gyps* Species Vultures

Submitted by:

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Principals in the project:

Deborah Pain, Head of International Research

Susanne Shultz, Project Manager, *Gyps* vulture declines

Introduction

Several recent developments have occurred since the vulture declines project proposal was submitted. The new situation is explained below and is followed by proposed changes to the project. I have also included a revised project implementation timetable, modification to the anticipated outputs, and summary of the training, research and dissemination plans.

All three species of Asian griffon vulture are now listed as Critically Endangered, but the situation for one of the species, the slender-billed vulture *Gyps tenuirostris* is now particularly critical, as it has recently been separated into a true rather than a sub-species of the Indian white-backed vulture *G. indicus*. It is the least abundant of the three species, very few breeding colonies have been identified, and the overall population size is unknown.

Despite ongoing work on the *Gyps* vulture declines, it remains unclear what the exact cause is, or combination of causes are, driving the declines. Visceral gout, possibly indicating acute renal failure, has been a characteristic pathological finding present in vulture carcasses. Living, but affected, birds appear to present non-specific symptoms of increasing lethargy, and increasing periods of 'neck-drooping' before death. These symptoms may persist for several weeks before the bird dies.

Currently, there are two main hypotheses about the cause of the declines: infectious disease and exposure to a drug, diclofenac (used for veterinary medicine in the Indian subcontinent), from cattle tissues. The spatial and temporal pattern of the declines and indications of immune responses in individual birds point to infectious disease playing a major role. Recently, however, possibly lethal levels of diclofenac were detected in the kidneys of birds with visceral gout in Pakistan. Until the relative roles of infectious disease and diclofenac exposure are determined, the safest and most conservative response to the declines is to assume that they are caused by a combination of these factors.

In light of these new findings, we intend to modify the original structure of our project as described below.

Revised Project Aims

I. The recent reclassification of *G. tenuirostris* as a separate species heightens the priority for estimating their population size and identifying potential populations as a source for

individuals to be used for a captive breeding. This new part of the project will involve the following activities:

- 1) Estimate the extant population size of *G. tenuirostris* across its known range.
- 2) Establish long-term monitoring of slender-billed breeding colonies.
- 3) Establish captive care breeding facilities for *Gyps tenuirostris* in Nepal. This will involve a minimum of four staff that will need to be trained in captive care and management of breeding populations.

II. In the absence of concrete evidence about the causes of the declines, we will have to assume that both disease and diclofenac play a role. As all three Gyps species in India are affected, we will assume that other Gyps species will potentially be affected as well. Consequently, we propose the following, which differs little from the original proposed project:

- 4) Establish migration patterns of *G. fulvus* individuals over-wintering in India to identify other populations potentially affected by the same factors.
- 5) Establish movements between key populations of *Gyps fulvus* in the Middle East and Central Asia to India to identify possible routes of spread of a disease. Develop monitoring activities at these colonies to determine whether they show signs of declines.
- 6) Monitor other *Gyps* and non-*Gyps* scavenging species to ensure there is not a concurrent decline that is less severe and therefore unnoticed.
- 7) Establish patterns of diclofenac usage patterns and vulture exposure.

III. Develop and institute a management planning process to mitigate the impacts of the declines and arrest or reverse them where possible. We propose the following activities, which are slightly modified from the original project:

- 8) Preliminary species recovery workshop to review information, establish importance of causal factors and plan activities for the next few years.
- 9) Host an international management-planning workshop to involve countries from the majority of *Gyps* range states.
- 10) Inform and engage a network of interest groups across all *Gyps* range states (in Asia, the Middle East, Europe and Africa)

Project Partners

All project partners listed in the first proposal are included in the revised proposal. However, the investment in Jordan will be significantly reduced. The following partners will be added, as they will be invited to attend the planning workshop in February 2004.

Satellite tracking and colony monitoring

Hem Sagar Baral, Bird Conservation Nepal; Khaldoun Al Omari,
Bird Research Team Leader, Royal Society for the Conservation of Nature, Jordan;

Management Plan Workshop

Aleem Ahmed Khan, Ornithological Society of Pakistan; Jonathan Eames and Dr. Nguyen Cu, BirdLife Vietnam; Dr. Rebecca Pradhan, Royal Society for the Protection of Nature, Bhutan; Dr. Tin Latt, Burma. To be identified: representative from Bangladesh

Revised Logical Framework

<i>Project Summary</i>	<i>Measurable indicators</i>	<i>Means of Verification</i>	<i>Important Assumptions</i>
<p>Purpose</p> <p>Evaluate relative importance of different causes of declines, including toxins and disease. Mitigation of population declines and potential species extinction. Strategies and capacity developed to minimise spread of <i>Gyps</i> disease across the Middle East and to manage the impacts of <i>Gyps</i> decline.</p>	<p>Representatives of at least 10 key Gyps range states endorse and agree to work towards implementation and management plan.</p> <p>> 50% of actions identified within the plan being implemented within 2 years.</p>	<p>Signed memorandum of Understanding</p>	<ul style="list-style-type: none"> • Countries retain commitment to CBD • Sufficient political stability to implement strategy • Gyps declines across the Middle East and Africa are not so rapid that management strategies to avert this cannot be produced • Declines are caused by disease and/or toxin
<p>Outputs</p>			
<p>Current extent of declines established, estimation of current population size of <i>G. tenuirostris</i> & potential routes of spread predicted.</p>	<p>International scientific community endorses the results of research.</p>	<p>Annual reports, 4 scientific papers published in peer reviewed journals & sent to Darwin Initiative</p>	
<p>Identification of relative contribution of different causal agents in declines across range states.</p>	<p>Key evidence identified and reviewed by participants from Gyps range states (6-8 Asian countries) currently affected by declines.</p>	<p>Results accepted by international conservation community and published in peer review journals</p>	<ul style="list-style-type: none"> • The relative contribution of causal agents is possible to separate
<p>Plan for the management of declines produced</p>	<p>Plans developed & produced collaboratively by participating organisations in the Gyps range states.</p>	<p>Management plan document published.</p>	<ul style="list-style-type: none"> • Organisations maintain collaboration
<p>Participants from ? countries able to implement & monitor management plan.</p>	<p>8-10 staff from 4 countries trained in satellite tagging (Jordan, India, Kazakhstan, Georgia?); Two databases developed; a serum bank established; email network created.</p>	<p>Correspondence; pre project training needs assessment; participants attendance & assessment record; training reports. Databases and serum bank exist. Email network accessible.</p>	<ul style="list-style-type: none"> • Trained staff sustain their involvement in the issues.
<p>Gyps population protected from declines?</p>	<p>Captive breeding centre established. Staff trained in care and management of facility.</p>	<p>Successful captive breeding population.</p>	<p>Permits acquired and long-term sustainability of centre facility and staff</p>
<p>Knowledge gained from project disseminated to governments, scientists & media</p>	<p>10 media events annually; 3 electronic newsletters; 9 presentations; 4 papers & 10 articles published.</p>	<p>Media releases file; project web site report; copies of all publications sent to Darwin Initiative.</p>	
<p>Funding strategy developed.</p>	<p>3 staff trained in fundraising, strategy agreed.</p>	<p>Strategy available on file at RSPB, ZSL & BirdLife partner offices.</p>	

Activities	Activity Milestones (Summary of Project Implementation Timetable)	Important Assumptions
Research programme	Yrs 1 & 2: 15-20 vultures satellite tagged; movements important for disease spread identified. Yrs 1 & 2: <i>Gyps tenuirostris</i> survey in India and Nepal completed. Yrs 1 & 2: Understanding of relative roles of disease and diclofenac in declines. Yrs 2 & 3: identification of key breeding populations in regular contact with Indian birds/habitats.	<ul style="list-style-type: none"> • There is sufficient political stability in the region to permit work to proceed. • Governments of participating countries permit satellite tracking.
Training programme	Yr 1: On site training provided for vulture capture, satellite tagging and data interpretation with staff from at least 4 Gyps range states. Yr 2: 4-6 staff trained in captive management and breeding in Nepal.	
Management plan development	Yr 1: workshop with representative from 6-8 Asian Gyps range states to establish relative contribution of different causal factors. Yr 2: plan approach agreed. Yr 3: Management plan for long-term mitigation of declines with 20 participants from Gyps range states across Asian, the Middle East and Africa. Yr 3: plan written under the auspices of participating organisations & presented to governments of Gyps range states.	
Communication and project dissemination	Yr 1: International communication network developed between vulture range states; constituency in support of vulture conservation developed in Gyps range states; Yr 1: project website established; Yrs 1 – 3: annual newsletter produced & 200 copies disseminated: Yrs 1-3: >10 Media events annually; 4 peer reviewed papers & 10 popular articles.	
Project sustainability	Yr 3: Fundraising strategy developed; funding obtained for long-term monitoring and captive breeding facilities.	

Appendix VI

Photos of Project Work



IVRI staff safety testing meloxicam at the India Centre



Indian and UK project staff involved with safety testing



Safety testing meloxicam on African white-backed vultures



Indian staff visit South Africa to collaborate on safety testing



One of the original aviaries at the breeding centre



Construction of a new colony aviary at the Pinjore Centre



A climber capturing long-billed vulture chicks from cliffs in India



Two captured long-billed chicks at the Pinjore Centre



Bird Conservation Nepal selling books for vulture conservation



A competitor lands in front of the crowd at the paragliding event



BCN staff hold a captured vulture fitted with a satellite tag



A local Nepali woman in front of a vulture conservation poster

Appendix VII

**Banning Order for Diclofenac – Drugs Controller
General, India (May 2006)**

F.No. 18-03/2006-DC

From:

The Drug Controller General (India)
Directorate General of Health Services

Nirman Bhawan, New Delhi
Dated the 11th May, 2006

To

All State Drugs Controllers

Subject: Diclofenac for veterinary use – regarding.

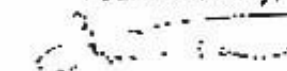
Sir,

Serious concern has been expressed at different fora over the decline in the population of Vultures in Indian subcontinent. Extensive studies have indicated that use of diclofenac in livestock's is the major cause of Vultures decline. Vultures are exposed to diclofenac when they consume carcasses of livestock's treated with diclofenac before death. This results the poisoning of Vultures leading to their death because of renal failure etc. It has therefore been felt that diclofenac for veterinary use should be phased out and alternate safer and effective drug like Meloxicam etc should be permitted to be used for the treatment of animals in veterinary healthcare. This would help in saving the vulture population and ecological balance in animal world.

It is understood that, Dept of Animal Husbandry and Dairying, Ministry of Agriculture has also issued direction to State Veterinary Departments not to purchase diclofenac for further veterinary use.

It has therefore been decided with the approval of Health Ministry that Licences granted to manufacture diclofenac formulations for veterinary use should be withdrawn and the marketing of such formulations to be phased out within a period of three months. You are therefore requested to implement the decision to withdraw the veterinary formulations of diclofenac and to ensure its phasing out within three months.

Yours faithfully,



(ASHWINI KUMAR)

DRUGS CONTROLLER GENERAL (I)

Appendix VIII

Diclofenac Manifesto

Diclofenac Manifesto

Agreed by Bird Conservation Nepal, BirdLife International, Bombay Natural History Society, Ornithological Society of Pakistan, RSPB, The Peregrine Fund, Zoological Society of London.

- Three species of *Gyps* vultures (*G. bengalensis*, *G. tenuirostris*, *G. indicus*) have declined at an alarming rate across India, Pakistan and Nepal in the last decade. In survey areas numbers have declined by more than 95% of former levels. Declines are well documented from survey data published in the peer-reviewed literature. In 2000, *G. bengalensis* and *G. indicus* (recently split into *G. indicus* and *G. tenuirostris*) were listed by IUCN as Critically Endangered, which is their highest category of endangerment and indicates that there is a high risk that they will become extinct in the near future. Current evidence suggests that populations of these species continue to fall very rapidly.
- Recent scientific evidence indicates that diclofenac (a non-steroidal anti-inflammatory drug) is a major cause of the observed vulture declines.
- Exposure of vultures to diclofenac arises through its veterinary use to treat domestic livestock. Experiments show that vultures are highly susceptible to diclofenac and are killed by feeding on the carcass of an animal soon after it has been treated with the normal veterinary dose.
- Modelling shows that only a very small proportion of livestock carcasses need to contain a level of diclofenac lethal to vultures to result in vulture population declines at the observed rates.
- Whilst other factors may influence *Gyps* populations, there is currently no conclusive evidence that any other cause is involved. We believe that recovery from the declines will be possible only if exposure of wild vultures to diclofenac is prevented.
- Evidence suggests that extinction of the three *Gyps* vulture species is imminent. Current captive populations are not viable, so immediate action is needed to obtain, hold, and possibly breed, these species in captivity, until sources of diclofenac exposure have been effectively removed from the vultures' environment. It is possible that wild stocks of some of the threatened vulture species will be insufficient for the establishment of a viable captive population if this recommendation is not acted upon in 2004.
- Vultures are keystone species and their declines are having adverse effects upon other wildlife, domestic animals and humans. In particular, there is a risk of increases in diseases that threaten human life and welfare.
- Halting and reversing the vulture declines is one of the most urgent conservation priorities worldwide. Resolution of this problem requires considerable commitment by governments and the pharmaceutical industry.
- We call upon governments of all *Gyps* vulture range states in Asia, Africa, Europe and the Middle East, and manufacturers of diclofenac, to ban the use of this drug for veterinary medicine, throughout the range or former range of *Gyps* vultures. The need for this action is especially urgent in the main range states of the three currently threatened species, namely Bangladesh, Bhutan, Cambodia, India, Myanmar, Nepal and Pakistan.
- Very small relict and declining populations of *G. bengalensis* and *G. indicus* exist in Southeast Asia, particularly Cambodia, and are thought not to be exposed to

diclofenac. High priority should be given to improving the status of these populations.

Reference

J.L. Oaks, M. Gilbert, M.Z. Virani, R.T. Watson, C.U. Meteyer, B.A. Rideout, H.L. Shivaprasad, S. Ahmed, M.J.I. Chaudhry, M. Arshad, S. Mahmood, A. Ali, & A.A. Khan. 2004. Diclofenac residues as the cause of vulture population decline in Pakistan. *Nature* 427: 630-633. www.nature.com/nature

Appendix IX*

World Birdwatch – Vulture death mystery explained?

* See attached PDF “Appendix IX World Birdwatch”