

**STUDY ON BREEDING SUCCESS, ASSESSMENT OF THREATS AND  
AWARENESS CAMPAIGN FOR SAVING THE WHITE-RUMPED VULTURE  
*GYPS BENGALENSIS* IN BANGLADESH**

[OBC-WILDWINGS REFERENCE P854]

F I N A L R E P O R T



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**ORIENTAL BIRD CLUB - WILDWINGS**



*Submitted by*  
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*Technical assistance*



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## Summary

The project was implemented in 12 months (November 2009 to October 2010) to know the breeding success of the White-rumped Vulture *Gyps bengalensis*, assess the threats and aware people to ensure its survival in Bangladesh. Out of a total of 32 nests that were observed, only five fledglings from five nests successfully left the nest and joined their respective groups. The overall breeding success (15.6%) was very low. The maximum number of nests (n = 14) were observed in Sylhet Division (northeast), most of which were in the tea estates indicating that the shade-trees of tea estates are ideal for vulture nesting. Based on the cues it was obvious that the reason for very low breeding success was poisoning (diclofenac).

The project has identified the poisoning due to cattle medicine diclofenac as the principal cause (90% responsible) for vulture decline. Diclofenac was found to be the most widely available and most commonly used cattle medicine. Availability and use of diclofenac was inversely proportional to the relative abundance of vultures in different areas. Moreover, the lack of food and nesting trees, and disturbance by people, are also contributing to vulture's decline.

A total of six formal awareness programmes and many informal awareness discussions were conducted to educate people regarding the adverse effect of diclofenac and insist them not to use it. In response to our (together with other bird-lovers) repeated appeal through media (TV and newspapers) and meetings the Government has banned diclofenac, for use in cattle, on 25 October 2010. More challenging, however, will be the implementation of this banning.

## **Acknowledgements**

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The Zoological Society of London (ZSL) has provided the technical support and helped in introducing this project with other projects on vultures in the region. Six students (Ashikur Rahman, Jubaier Fahad, Shibli Sadik, Mohammad Moniruzzaman, Sanjida Rahman and Mushfik Majhar) of the Department of Zoology, Jahangirnagar University, Bangladesh, were involved in gathering information on vultures and conducting awareness programmes. Many members of Bangladesh Bird Club (BBC), amateur birdwatchers and the local villagers have provided valuable information on vultures and have supported the activities of this project.

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## 1. Introduction

This project came as the second phase of the 'Vulture Research and Conservation Programme of Bangladesh'. During the first phase the status of vulture in Bangladesh was assessed, the hotspots and major nesting sites were identified, and awareness campaign was initiated. It was realized that the breeding success should be known, which is a key indicator of the future of vultures in Bangladesh. Moreover, the threats should be assessed and extensive awareness programmes should be conducted. As a globally and nationally threatened species (IUCN-Bangladesh 2000, BirdLife International 2001), these activities are necessary to help vultures survive in Bangladesh. Notably, extensive programmes on vultures are going on in the neighbouring India, Nepal and Pakistan, but our programme in Bangladesh is still at the preliminary level. The project was implemented in collaboration with the OBC members, keen birdwatchers, villagers in vulture habitats and other concerned people of Bangladesh. This project was partially benefited from a bird monitoring under Integrated Protected Area Co-management (IPAC) of the Forest Department, which was implemented by the Principal Investigator and his team.

The main focus was on the White-rumped Vulture *Gyps bengalensis*, but two other species of vultures (Himalayan Griffon *Gyps himalayensis* and Cinereous Vulture *Aegypius monachus*) were found during this work. A decade ago the White-rumped Vulture was a common and widely distributed bird in Bangladesh (Harvey 1990, Thompson and Johnson 1996), but in recent years the population has declined very rapidly. Therefore, its global status has been upgraded to 'Critically Endangered' (BirdLife International 2001). In Bangladesh the vulture occurs in villages, crop fields, near wetlands and on the edges of forests. The villagers are not hostile to the vulture, but they indiscriminately treat their cattle with diclofenac, steroids and urea. Recent studies conducted in India, Nepal and Pakistan indicate that the use of diclofenac on cattle indirectly poisons the vulture (Oaks *et al.* 2004, Shultz *et al.* 2004), but nothing is known about the effects of steroids and urea. Our discussion with the villagers has revealed that they are totally unaware of the adverse effect of diclofenac on vultures. Therefore, it is important that the local people are involved with the project and are made aware of the conservation issues.

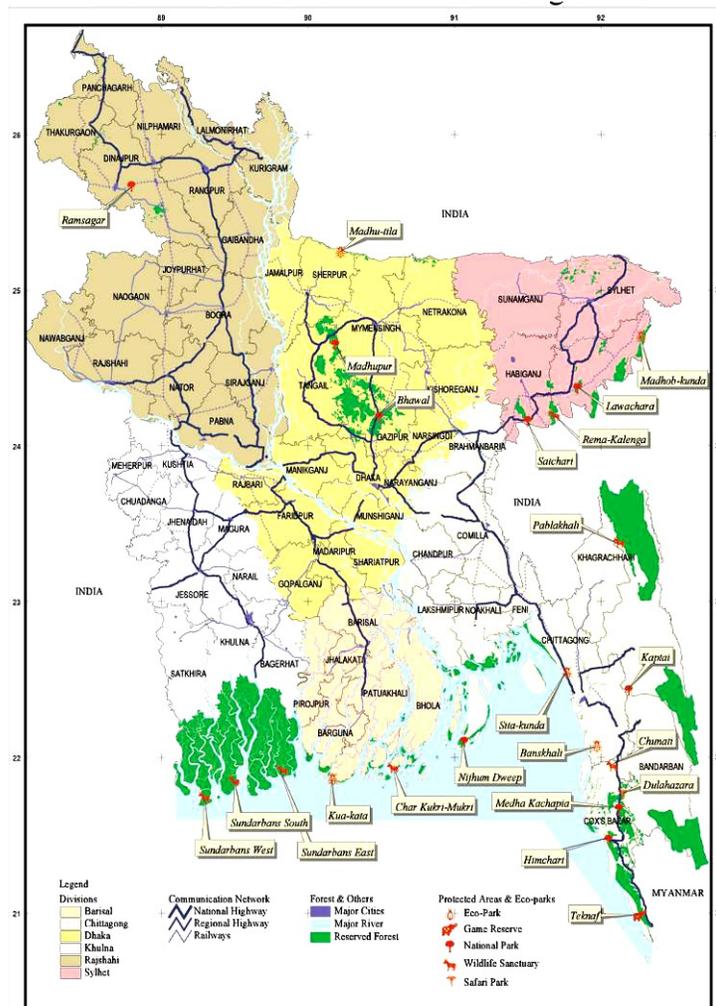
The project team had worked closely with the villagers and tea labours since the vulture mainly occurs and breeds in and around the villages and tea estates. The veterinary doctors and other concerned people were involved with different activities. The project team had liaised with the Forest Department of Bangladesh, i.e., the Government authority responsible for forests and wildlife of the country. A copy of this report will be submitted to the Forest Department.

The project was implemented in different parts of Bangladesh, but the focal area was the Greater Sylhet (northeast), Greater Khulna (southwest), Greater Mymensingh (north) and Manikganj (central) areas where the White-rumped Vulture was known to nest and roost regularly (Figure 1). The information on the breeding of vultures in Bangladesh is extremely scarce (Sarker 1983, 1987).

Geographically, Bangladesh is located between 20°34'-26°33' N latitudes and 88°01'-92°41' E longitudes. The total area of the country is 147,570 km<sup>2</sup>, where around 160 million people live. The climate of Bangladesh is tropical monsoon, characterised by marked seasonal variations. Abundant rainfall during the monsoon (July-October) is followed by a cool winter period (November-February), then a hot and dry summer (March-June).

Bangladesh can be divided into three main physiographic divisions – Tertiary hills, Pleistocene terraces and recent plains. The recent plains comprise 124,266 km<sup>2</sup> of the country (about 86%). The natural forests of the country have gone down to as low as 5% of the country's total area.

The country still has a rich biological heritage as a consequence of its location at the confluence of the two major biotic sub-regions of the Oriental region – Indo-Himalayas and Indo-China. However, due to high rate of the loss of natural habitats, together with the rapid growth of human population, many of the species are now threatened with extinction, including the White-rumped Vulture.



**Figure 1.** Bangladesh showing the administrative divisions, forested areas (green shades) and major protected areas.

## 2. Objectives

The project had the following objectives –

1. Know the breeding success of the White-rumped Vulture in main breeding areas in Bangladesh.
2. Assess the direct and indirect threats in order to identify the roles of different threats in vulture decline. Know the availability and use of diclofenac in different areas of Bangladesh.
3. Organise awareness programmes so that the people of all levels become aware of vulture conservation, and as a result the use of diclofenac is stopped/reduced.

## 3. Methods

The project was implemented from November 2009 to October 2010 (12 months). In the first two weeks the team had prepared the data sheets and prepared for the fieldwork. The observations of nests took place only during the nesting season (dry season). All the hotspots were visited during the 12 months in order to assess the threats and to conduct awareness programmes. Both formal and informal awareness programmes were conducted during this period. Necessary audio-visual and printed materials were used in the awareness programmes. A relevant poster was distributed for free among the participants.

The breeding success of vultures was known by periodically (at least once in two weeks) observing every known nest. Telescopes and binoculars were used for better observation. Hides were used while observing the nests that were in easily visible locations so that the birds were not disturbed by the presence of observers (Plate 1a).

Direct and indirect threats to vultures were assessed on the basis of their relative frequencies and their impacts on vulture population. How many times the birds face the threats of different categories were observed and recorded. On the other hand, the threats of different categories were ranked depending on their nature of impacts. From the studies conducted in India and Pakistan (Oaks *et al.* 2004, Shultz *et al.* 2004) it was established that the use of diclofenac to cattle is the biggest threat to vultures. The availability and use of diclofenac in different areas were recorded by visiting different areas, and interviewing the local cattle-owners and veterinary doctors. Vultures in Bangladesh also face food crisis (since now-a-days the dead cattle are often buried to control the smell or even used as food in shrimp farms) and scarcity of undisturbed nesting trees. Therefore, how often the cattle carcasses are seen in the open in different areas, and whether large trees are available, were taken into consideration.

The awareness campaign had included popular lectures, interactive discussions, quiz contest, drawing contest for children, photographic contest, and distributing poster and other printed materials (Plate 1b). The veterinary doctors, policymakers, researchers, journalists and other concerned people were invited in order to inform them the adverse effect of diclofenac on vultures and gain their support. Although an alternate to diclofenac, viz. meloxicam, is not yet available in the market, but according to the local veterinary doctors paracetamol and antibiotic can be used as a substitute until meloxicam is available.



**Plate 1. Field activities: a) watching the nest of White-rumped Vulture from a hide, and b) awareness programme for vulture conservation.**

#### **4. Results**

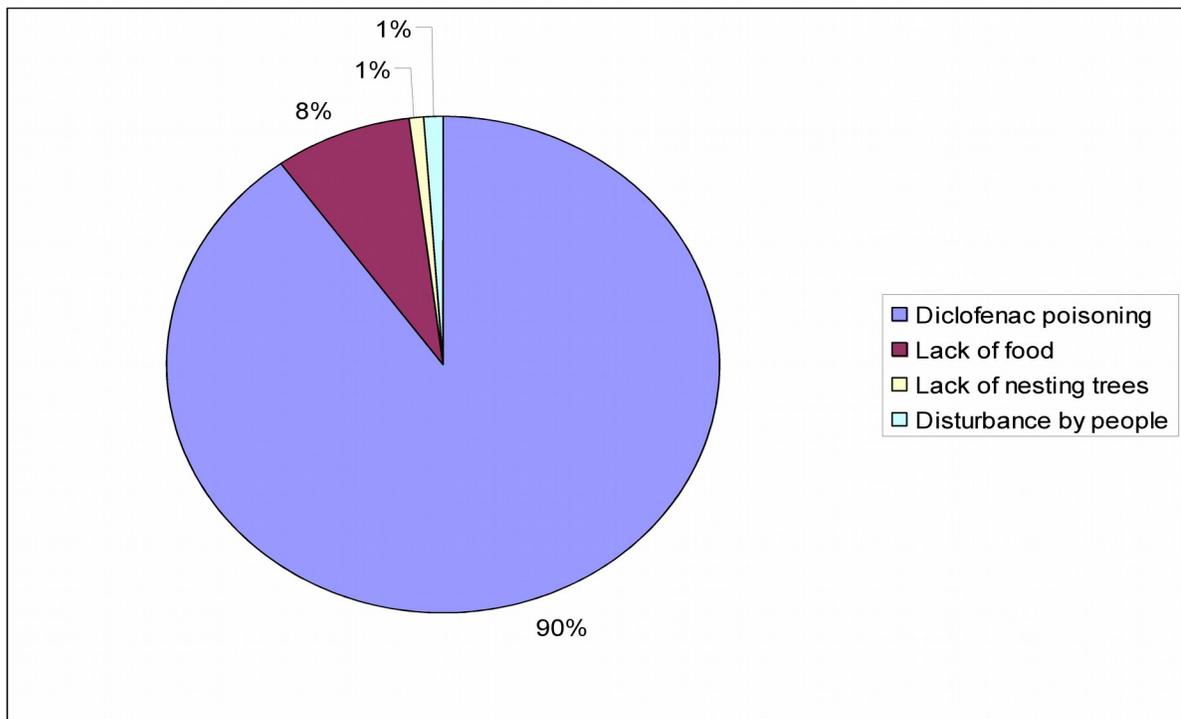
Out of a total of 32 nests that were observed, only a total of five fledglings from five nests successfully left the nest and joined their respective groups (Table 1). Notably, the clutch size of the White-rumped vulture is one. The overall breeding success (15.6%) was very low. The maximum number of nests ( $n = 14$ ) were observed in Sylhet Division (northeast), most of which were in tea estates indicating that the shade-trees (particularly *Albizia lebbbeck*) of tea estates are ideal for vultures' nesting. Moreover, nests were observed in Khulna Division (shouthwest) ( $n = 10$ ) and Dhaka Division ( $n = 8$ ). Each of the nests was observed for at least once in two weeks in order to know the development and breeding success. The breeding took place in dry season (October to March) and

the breeding success was very low. Based on the cues (drooping head, sudden death, etc.) it was obvious that the reason for very low breeding success was poisoning (diclofenac). It is possible that the birds feed more during the breeding, and feed the nestlings, so they become more vulnerable to diclofenac poisoning during the breeding season. In one nest the parent bird was found dead while sitting on the nest, in two nests the birds were found dead and hanging on branches just below the nests, in four nests the parent birds suddenly fell on the ground and died immediately afterwards, and in 20 nests the birds had suddenly vanished. It was observed that, whether the nest had egg or nestling, one parent almost always accompany the nest in order to guard the egg/nestling from crows and other raptors. The parents shift their duties time to time so that both can feed and bring food for the nestling.

The project identified the poisoning due to the cattle medicine diclofenac as the principal cause (90% responsible) for vulture decline. Except the remote areas, and the areas where cattle are scarce (in Chittagong Hill Tracts and parts of Chittagong and Cox's Bazar), diclofenac was found to be the most widely available and most commonly used cattle medicine. Availability and use of diclofenac was inversely proportional to the relative abundance of vultures in different areas (except the areas where cattle are scarce). In most of the cases the cattle owners use diclofenac on their own without following a veterinarian's prescription. Moreover, the lack of food (dead cattle are often buried now-a-days and used as food in shrimp farms) and nesting trees, and disturbance by people are also contributing to vulture's decline (Figure 2).

**Table 1. Status of breeding of the White-rumped Vulture in seven divisions of Bangladesh**

Division	No. of nests observed	Nesting trees	Nest height from the ground (m)	Status of breeding		
				Unsuccessful (nesting birds died/ vanished)	Successful (nestling left nest)	Breeding success (%)
Dhaka	8	<i>Mangifera indica</i> , <i>Cocos nucifera</i> , <i>Ficus bengalensis</i> , <i>Swietenia mahagoni</i>	7-15	7	1	12.5
Chittagong	0	-	-	-	-	-
Sylhet	14	<i>Albizia lebbeck</i> , <i>Mangifera indica</i> , <i>Cocos nucifera</i> , <i>Ficus bengalensis</i> , <i>Ficus religiosa</i>	8-17	12	2	14.3
Rajshahi	0	-	-	-	-	-
Rangpur	0	-	-	-	-	-
Khulna	10	<i>Albizia procera</i> , <i>Cocos nucifera</i> , <i>Borassus flabellifer</i> , <i>Ficus bengalensis</i> ,	7-14	2	2	20.0
Barisal	0	-	-	-	-	-



**Figure 2. Proportions of different factors contributing to the decline of White-rumped Vulture in Bangladesh.**

A total of six formal awareness programmes and many informal awareness discussions were conducted to educate people (especially the children, cattle owners and veterinarians) regarding the adverse effect of diclofenac and insist them not to use it. In order to help disseminate the awareness message a total of one thousand copies of the poster was printed (reprint of the previous version) and distributed, and similar number of book will be published in a few months after the submission of the final report. In response to our (together with other bird-lovers) repeated appeal through media (TV and newspapers) and meetings the Government has banned diclofenac, for use in cattle, on 25 October 2010. More challenging, however, will be the implementation of this banning.

This project has provided the information on breeding success of vultures that will be useful in ensuring the survival of vultures in Bangladesh. Different categories of threats were assessed so that at least the major threats (including the use of diclofenac) could be reduced. The awareness campaign has made people aware of vulture conservation and the adverse effects of diclofenac, and as a result the use of diclofenac is reducing in the intervention areas. Notably, people want vultures to survive, especially for the ‘cleaning’ service they perform. Other than this report, a book and a scientific paper will be published for wider circulation and these will include all the findings from the beginning of the programme. A total of six students were involved in this project and were trained on different aspects of vulture research and conservation. They are valuable additions to the country’s capacity for vulture conservation.

The project team is continuing the activities under the support from Conservation Leadership Programme and intends to continue the activities further under the 'Vulture Research and Conservation Programme of Bangladesh'. The availability of further funding is a key requirement for the smooth continuation of the activities. The local people, however, will continue supporting the vulture conservation since people were not hostile to vultures, but were unaware of the threats.

## 5. Recommendations

The most crucial requirement to ensure the survival of the White-rumped Vulture in Bangladesh is the implementation of the banning of diclofenac for use in cattle. Although the Government took legal steps, actual banning of production and use depends on mass awareness among cattle owners, law enforcing agencies and other concerned people. Moreover, legal actions should be taken against the people who violate the banning.

Research and monitoring of vultures, at least in vulture hotspots and nesting areas, should be continued so that the trend of vulture population is known. These areas should be declared as vulture sanctuaries and special measures should be taken for management. Moreover, regular monitoring should take place on the use of different cattle medicines. More people and institutions should take up programmes and projects on vultures.

People should be encouraged to leave their dead cattle and dogs (which were not treated by diclofenac) in open so that vultures could eat them. The existing nesting trees should be preserved and in areas where large trees are scarce, some trees should be allowed to grow large so that vultures and other large birds can make nest.

A national committee should be formed in order to coordinate and advice all the activities related to vulture conservation and management. This committee can work as the apex body and can guide the relevant governmental and non-governmental activities.

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V U L T U R E

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