

RTD09 Collapse of vulture populations in southern Asia

conveners: Robert W. RISEBOROUGH¹, M.Z. VIRANI², T.E. KATZNER³, J.W. DUCKWORTH⁴

1. 2711 Piedmont Avenue, Berkeley, CA 94705 USA; pelecanus@igc.org

2. The Peregrine Fund, West Flying Hawk Lane, Boise, Idaho 83709, USA

3. Dept. of Biology, Arizona State University, Tempe, AZ 85287, USA

4. UNDP, PO Box 27, Pyongyang, DPR Korea

1 Issues

1.1 Introduction

Once-numerous populations of three species of vultures, the white-backed vulture (*Gyps bengalensis*), the long-billed vulture (*G. indicus*), and the slender-billed vulture (*G. tenuirostris*), have collapsed on the Indian subcontinent within the last five years. Earlier declines in the white-backed, slender-billed, and red-headed vulture (*Sarcogyps calvus*), moreover, have been recorded in the countries of southeast Asia. This report summarizes scientific assessments of the contributing causes while focusing on current priorities in scientific investigation and conservation programs. As previously proposed, contributions by persons who could not attend the Congress are incorporated. Space limitations preclude a bibliography; contributions by the individuals named come from their oral or written communications, unpublished manuscripts, manuscripts in press and published papers.

1.2 Southeast Asia

Surviving populations appear to be restricted to northern Cambodia and adjacent regions, and to have a low rate of reproduction. Loss of habitat cannot explain such population collapses, although human persecution has had a significant impact on other species of larger, conspicuous wildlife. There is no unequivocal evidence that a disease factor has contributed. A greatly diminished food supply, both of domestic animals and of the formerly abundant wild ungulates, could be the cause instead. Thus the best strategy for long-term conservation could be a still broader strategy to restore a diversity of large wildlife species, including ungulates. Feeding stations in northern Cambodia would also benefit surviving birds and facilitate studies of their abundance, distribution and rate of reproduction (J.W. Duckworth and C.M. Poole).

1.3 Vulture mortalities on the Indian subcontinent

During the 1996–1997 nesting season at Keoladeo National Park in India, V. Prakash recorded both a 50 % decrease in the numbers of nests since the late 1980s, and a high rate of mortality in nesting and fledging white-backed

vultures. By 1999–2000, no *Gyps* vultures were nesting in Keoladeo. In April 2000, dead and dying white-backed vultures were found in or under nests in Ranthambhore National Park to the west (H. Vardhan, Virani and Risebrough). Reports of additional vulture mortalities in west Bengal, in Nepal and in Pakistan were compiled by Virani. In 2000, white-backed vultures were still numerous in the Indus Valley in Pakistan, yet the high rate of mortality documented over the past two seasons since (M. Gilbert, Virani and A.A. Khan) could result in the extinction of this population. Deaths continued in a remnant colony in lowland eastern Nepal in 2002 (H. Sagar Baral and J.B. Giri). Sightings of *Gyps* vultures in India are now rare events, in contrast to their abundance only five years ago.

2 Outcomes

2.1 Causes of mortalities

S. Satheesan has proposed that food shortage and poisoning were the principal causes of population declines, and that feeding stations are now necessary. Yet there is an abundance of apparently uncontaminated food and many of the dead birds autopsied have had adequate, even abundant supplies of body fat. Both D. Pain and L. Oaks have pointed out that a noninfectious “disease factor”, defined here as the agent causing the mortalities, in the form of a pesticide or other poison cannot be ruled out. Yet it would be an unusual toxin that would affect only *Gyps* vultures and not other species that feed on carcasses, and which has appeared at different times over several or more years over a very broad area in three different countries. Unlike most pesticides, it does not act as a nerve poison producing body tremors. Moreover, once active, it appears to exert its effects relatively quickly, without affecting the birds’ ability to feed. An infectious disease that appeared by mutation or that was acquired from another species remains one plausible explanation. A striking parallel has been noted between the pattern of mortality in *Gyps* vultures, which have close body contact during feeding, and in house finches (*Carpodacus mexicanus*) in the eastern USA which die of infections by a bacterium (*Mycoplasma* sp.) passed by body contact at bird feeders.

2.2 Research facilities

At present, there is no country that can undertake experiments on captive birds with facilities that are adequately quarantined, have effective and efficient permit requirements in place, possess access to veterinary facilities and an international airport, and which can send or receive birds, tissues, or isolates to or from any other country. Construction of such a facility, one that would work closely with and complement the facilities already developed in both India and Pakistan, is considered to be of the highest priority in identifying and confirming the “disease factor” and is a prerequisite for developing a crude vaccine or mitigant.

2.3 Status of vultures still surviving in India

“In the Indo-Gangetic plains ... (the) population is very slowly recovering...(according to)... reports coming in from various quarters” (R.B. Grubh). Yet such occasional reports of small groups of white-backed or long-billed vultures have included no information on reproduction or whether excessive mortalities are still occurring. Observations at one site in lowland eastern Nepal by Bird Conservation Nepal and Himalayan Nature showed a 5-fold reduction in the number of nests between 2000–2001 and 2001–2002. Twelve nests monitored from December 2001 through June 2002 produced only one young, with the death of adults being documented at one site (Sagar Baral and Giri). Casual observations at this site might have suggested that the local population had “stabilized”. Conclusions that populations in India are recovering therefore are premature. Detailed, intensive studies of each of the three species there over the entire nesting cycle have become a priority for the nearer future, to determine whether some birds have escaped exposure to the “disease factor” or have become resistant. Assam is a critical area for this, being a center of abundance of the slender-billed vulture, about which less is known than the other two species; the impact of the “dis-

ease” was noted there only in 2000–2001, later than in western India (A. Choudhury).

2.4 Captive breeding and development of disease-free flocks

If groups of each species are confirmed as breeding successfully in the wild today, the creation of “disease-free” captive groups assumes a lower priority. If, however, successful breeding with near-normal reproductive success is not found during the current 2002–2003 season and mortalities continue, eggs from the wild should be obtained the following season for artificial incubation. Despite uncertainty, we believe that eggs are more likely to be free of the “disease factor” than adults or juveniles in the wild.

2.5 Detection of westward and northward spread of the “Disease Factor”

No abnormalities have yet been observed in the population of Himalayan Vultures (*Gyps himalayensis*) in Tibet (S. Chan). Studies in Mongolia of cinereous vultures (*Aegypius monachus*) provide a baseline for detecting any future infection of that population (N. Batbayar). The monitoring of mortalities and reproductive success of Eurasian griffons (*Gyps fulvus*), many of which winter in India, is now an urgent priority in countries to the west and north of India.

2.6 Summary: priorities in research and conservation programs

In addition to programs underway, we recommend: (1) an expansion of surveys in India to determine reproductive success and mortality rates during the coming nesting seasons of the surviving birds; (2) experimental investigation of the “disease factor” using captive birds; (3) monitoring of colonies of Eurasian griffons in countries between India and the Middle East for deaths during the breeding season; and (4) active field management of the remnant populations of northeast Cambodia.