

The Bearded vulture seems to be thriving in Himachal, but other Indian vultures are still in peril.

# Vultures on the Precipice

From common to critically endangered in just 10 years, what has caused the cataclysmic fall in the vulture population?

Late in September this year, numerous media reports carried the story of a forest official stumbling upon a hidden colony of 200 Bearded vultures on a visit to Kibber village in the Lahaul-Spiti district of Himachal Pradesh.

Also known as Lammergeiers (or 'lamb catchers,' based on the mistaken belief that they killed lambs), these enormous birds, with a wingspan of nearly 3m, breed high in desert areas of the rocky mountains bordering China. While the press lauded the discovery, *Gypaetus barbatus* is classified by BirdLife International as a species of Least Concern. More pressing is the catastrophic decline of three other vulture species that once filled the South Asian skies. There are only 1,000 Slender-billed vultures left in the wild, for example, so a discovery of 200 of them would have upped the known population by one-fifth. This, for a bird that once numbered in the millions.

Vibhu Prakash, principal scientist with the Bombay Natural History Society (BNHS), was one of the first to recognise that something was amiss with India's vultures in the early 1990s. He had studied the vulture populations in Keoladeo National Park in Rajasthan from 1984 to 1989, and returned a decade later to a barren landscape. "When I came back again, most of the nests were empty. I saw dead vultures everywhere—under the bushes and hanging from the trees; dead in their nests," says Prakash. "I was quite worried." In 1984, Prakash documented 353 nesting pairs in the park. By 1996, only 150 existed, and by 1999, not one pair remained. It was extinction in the making.

In November 1998, the BNHS put out an alert, and biologists and naturalists from all over the country confirmed that the three dominant species of South Asian vultures—Slender-billed (*Gyps tenuirostris*), White-rumped (*Gyps bengalensis*) and





**White-rumped vultures (top), and Indian long-billed vulture in flight (below).**

Long-billed (*Gyps indicus*)—were dying across the region. Within 2 years, the World Conservation Union classified all three species as Critically Endangered, the highest risk category short of extinction in the wild. The Indian scientific community called on their international colleagues for an all-out effort to determine what had caused vulture numbers to plummet 97 per cent from an estimated 40 million (4 crore) in under a



decade. It was the most catastrophic decline in an avian population in recent history.

Initial speculation revolved around an infectious disease, or bioaccumulation of pesticides, similar to the devastating effects of DDT on predatory birds half a century earlier in Europe and North America. The Royal Society for the Protection of Birds (RSPB) in the UK, the US-based Peregrine Fund, the US Fish and Wildlife Service and the IUCN Specialist Group, among others, joined forces to find what was pushing the *Gyps* vultures toward extinction.

Studies soon ruled out pesticides and determined that the cause of death was visceral gout, although what was causing the gout remained a mystery. It wasn't until April 2003 that Dr Lindsay Oaks, a microbiologist at Washington State University, USA, working with the Peregrine Fund and partners around the world, finally isolated the cause of the collapse. Oaks discovered that the three species of *Gyps* vultures were dying from ingesting livestock carcasses treated with diclofenac, a non-steroidal anti-inflammatory pharmaceutical drug (NSAID). It is a mild painkiller akin to aspirin that is commonly used both by humans and to treat their livestock.

Once identified, it took a couple of years before the Indian government officially enacted a ban on the sale of diclofenac for veterinary purposes—although the drug is still available for human use, leaving a loophole in the effectiveness of the ban.

"Human diclofenac is still being used on cattle," says Vibhu Prakash, "and that is a major problem."

Conservationists from WWF India and BNHS are working hard to educate rural communities to use the equally effective, yet

vulture-safe, replacement drug meloxicam on their livestock, but it costs a bit more than diclofenac. Researchers at BNHS are currently conducting a study to determine how much diclofenac is still being used on livestock—in spite of the ban—in the hopes of averting a total collapse.

No one knows why these three species are mortally affected by diclofenac. "*Gyps* are susceptible at residual levels—one-tenth of the normal therapeutic dose for animals," says Oaks. With their zero tolerance to the drug, it is a game of Russian

roulette each time the birds circle down on their massive wings—some as long as 2m tip-to-tip—to feed on a carcass. Studies show that the vulture population cannot survive if even less than 1 per cent of the remains contain the drug. Once ingested, the vultures develop gout and die within a month. Neovet, an Indian pharmaceutical company, estimated that 5 million animals were being treated annually with diclofenac before the ban.

In the meantime, biologists do what they can to keep the *Gyps* species alive. Captive breeding, coupled with a reintroduction to the wild once the environmental threat is removed, has been an effective means of conserving some bird species in the past, most notably the Peregrine falcon in North America in the 1970s. But India's vultures pose a particular challenge.

In 2001, BNHS set up their first vulture breeding facility in Pinjore, northwest of Delhi, but even then, finding enough vultures to support a viable breeding program—25 pairs of each species, located at multiple centres, was the original aim—has proven difficult. So far, BNHS has established three centres holding a total of about 200 vultures, but only seven chicks born in captivity have so far survived. "We are trying very hard to get the necessary birds," says Prakash, "but the populations have become very small. This situation is unprecedented. The government of India is taking steps but it does not match the magnitude of the population crash."

The biologists are also at odds with the basic facts of nature. The *Gyps* vultures are slow to mature and only raise one chick per year, which adds to the difficulty of quickly re-populating the species even if diclofenac is completely removed from their environment.

The fact that diclofenac affects only adult birds and not the young has also been detrimental. "A population can withstand the loss of its young for many, many years," says Rick Watson of the Peregrine Fund, "but they can't survive the loss of breeding adults, especially at this rate."



**The Indian long-billed vulture (*Gyps indicus*, top). Black vulture in the Rajasthan desert.**





This isn't just a loss on a theoretical level. Vultures are vital to maintaining a healthy environment, especially within India. Zoroastrians, largely based in Mumbai, have ritually laid out their dead on the stone Towers of Silence to be consumed by vultures for millennia, as they believe that earth and water are too sacred to pollute with the cremation or burial of bodies. With the absence of vultures, they are struggling to find new

abhors a vacuum. "There's a massive, superabundant source of food readily available," said Munir Virani, who manages the Asian Vulture Crisis Program for the Peregrine Fund. "Something else will take their place. We are sitting on a time bomb."

As the carcass dumps overflow, feral dog and rat populations are exploding. Virani and others have witnessed 1,500 wild dogs at one such dump: a terrorising sight. For India, which already accounts for 80 per

**Feral dogs feed on livestock carcasses at a dump site while the vultures look on.**



The vulture numbers in the wild continue to decline. It is estimated that only 44,000 Long-billed, 11,000 White-rumped, and 1,000 Slender-billed vultures remain in India. There is still hope that pockets of undiscovered colonies exist far from farmlands where diclofenac has the greatest impact, but there is no way to be sure.

Even with the removal of diclofenac, vultures—and many other bird species the world over—continue to be jeopardised by numerous other threats. Pesticides and herbicides take an enormous toll on bird life, while the critical habitats that birds depend on continue to face ongoing destruction. While the attention and funding dollars of conservationists continue to be directed towards more charismatic species like the tiger, many avian, aquatic and mammalian species are quietly disappearing.

ways of disposing of the remains without compromising their beliefs.

Just as the vultures neatly and efficiently disposed of about a thousand Parsi bodies each year, they also dealt with millions of other carcasses in a land where there are numerous Hindu restrictions on the handling of dead animals, and where Muslims won't eat an animal that has not been killed in the prescribed *halal* manner.

"*Gyps* vultures are most effective and efficient scavengers," says a press statement released by the government of India. "Their role cannot be over-emphasised, given the large livestock population, poor carcass disposal and non-consumption of beef."

But all of South Asia, which accounted for more than three-quarters of the world's vultures just a decade ago, will increasingly start to notice their absence, for nature

cent of the world's rabies deaths—30,000 per year—an increase in the numbers of wild dogs is worrying. Neglected animal carcasses also become a breeding ground for diseases, including anthrax, tuberculosis, and foot-and-mouth disease.

The recent discovery of the Bearded vulture is a reminder that there are still places untouched and unknown in the world. Jatayu from the *Ramayana*, who lost his life attempting to protect Sita from the demon king Ravana, is a reminder that vultures have been eternally connected with humans in South Asia.

Only time will tell whether they will survive and again fill the skies with their soaring forms, returning to cleaning up what humans prefer to avoid, and finding their place in the realm of the gods.

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