

The Vulture Restoration Project in Pakistan

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Pakistan covers nearly 900,000 sq. km, extending from the Arabian Sea to the Karakoram Mountain range on the edge of the desert plateau of Central Asia. Because of its dimensions and wide range of topographies, Pakistan has a variety of habitats, from coastal mangroves in the south to some of the highest mountains in the world in the northeast. There are three of the world's eight biogeographic regions in the country, the Palearctic, Afro-Tropical and Indo-Malayan, and these diverse habitats are home to 174 mammals, nearly 200 species of freshwater fish, and 177 amphibian and



White-rumped Vultures

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reptile species. Pakistan is also home to 668 bird species, and many of these are supported by the country's network of 55 Important Bird Areas (IBAs).

The avifauna of Pakistan includes eight vulture species, three of which are Critically Endangered: White-rumped Vulture *Gyps bengalensis*, Indian Vulture *G. indicus*, and Red-headed Vulture *Sarcogyps calvus*. Of the five other species, the Egyptian Vulture *Neophron percnopterus* is Endangered, the Cinereous Vulture *Aegypius monachus*, Bearded Vulture *Gypaetus barbatus* and Himalayan Griffon *Gyps himalayensis* are Near Threatened, and the Eurasian Griffon (or Griffon Vulture) *Gyps fulvus* is listed as Least Concern.

Vultures, their status and recent history in Pakistan

It is now well-known that across most of South Asia, vulture populations suffered major declines since the 1990s, and were at high risk of extinction, particularly the *Gyps* vultures. Vultures in Pakistan were no exception, disappearing from many parts of the country, and during the early 2000s, these declines were dramatic. For example, between 2001 and 2007, rates of decline across the three largest White-rumped Vulture colonies in Pakistan ranged from 10% to an astounding 60% per year. Two of these colonies, Changa Manga (in the Punjab Province, about 80 km south-west of Lahore) and Dholewala (also in Punjab Province, about 90 km north-west of Multan), were extinct by the 2003–04 breeding season. They had declined from over 700 active nests and 400 active nests respectively in 2000–01. A third breeding colony, Toawala (about 50 km northeast of Multan), which numbered over 400 breeding pairs in 2000–01, declined to just 84 pairs in 2005–06. By mid-April 2007, only two active nests remained at Toawala. One nest had an adult incubating an addled egg; the other nest had a chick next to the remains of a dead adult. Following the loss of Changa Manga colony, Toawala colony became the largest known colony of White-rumped Vulture, and its demise

in 2007 highlighted the reality of continued population declines of vultures in Pakistan.

It is now proven and well known that the cause of these vulture declines was veterinary diclofenac. This non-steroidal anti-inflammatory drug was used to treat cattle and other domestic livestock, which are the main food for vultures. If vultures feed from a livestock carcass that has recently been treated with diclofenac, they are poisoned. In the early 2000s, it was the late



The main aviary at Changa Manga Vulture Breeding Centre in Punjab Province, Pakistan (Image: White-rumped Vulture)

Dr Lindsay Oaks of the Peregrine Fund with his team working in Pakistan, who established the link between diclofenac and vulture deaths, a landmark discovery in the field of conservation medicine. This led to the ban on veterinary use of diclofenac in Pakistan and in neighbouring India and Nepal, and marked the advent of new conservation efforts to complement the captive breeding programmes by banning the use of veterinary diclofenac to eliminate it from the environment.

Establishing the Gyps Vulture Restoration Project

In 2004, WWF-Pakistan launched the Gyps Vulture Restoration Project in Pakistan. Its immediate objective was to conserve a viable population of White-rumped Vultures in a safe and secure environment. Plans for Pakistan's first conservation breeding facility for vultures began in 2005. Government approval, land allocation, facility design, fundraising, and staff selection took place over the following 18 months. Subsequently, the Vulture Restoration Project, Pakistan, joined as a core partner of SAVE (Saving Asia's Vultures from Extinction) – the regional conservation consortium established in 2011 to address the Asian Vulture Crisis.

The Changa Manga Vulture Breeding Centre

This vulture breeding centre is located in a secluded area of Changa Manga forest, approximately 80 km southwest of Lahore. The location of the centre is significant, given the history of the former breeding colony of vultures in the forest, previously the largest known White-rumped Vulture colony in Pakistan. Government and local officials, and project partners, attended the opening of the facility in April 2007. There is

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currently one large communal aviary at the facility (Fig. 1), which is 38 m long, 6.5 m high, and increases in width from 14 m to 27.5 m. There are four smaller aviaries designed to hold pairs of vultures. More recently, a large new aviary is under construction, which will be capable of accommodating 30–40 vultures.

The project is a partnership between a wide range of participants, led by WWF-Pakistan,



Indian Vultures in the Karoonjhar Hills, Sindh Province, Pakistan

with the Punjab Wildlife and Parks Department and the Hawk Conservancy Trust (UK). WWF-Pakistan is the project manager and staff provider, while the Hawk Conservancy Trust provides funding and technical support. The Environment Agency (Abu Dhabi) and WWF-US provided initial keystone funding for the construction of the facility.

The Centre houses only White-rumped Vultures, which have been breeding every year since 2014. There are four well-established pairs that produce up to four chicks each year, but with potential for three other pairs, the Centre's target of 5–10 chicks each year is within view. Although smaller than its counterparts in the SAVE partnership, the Changa Manga Vulture Breeding Centre established an important safety-net population and will provide for the eventual release of captive-bred vultures into the wild in Vulture Safe Zones.

Vulture Safe Zones (VSZs)

The establishment of Vulture Safe Zones (VSZs) is one of the key activities of the SAVE partnership and the process aims to create large areas that are free of diclofenac, around the extant vulture populations. Since 2012, Sindh Province in southeast Pakistan has been the focus of field-based efforts for vulture conservation in Pakistan, centred on the creation of a VSZ around the remaining breeding populations of wild vultures in Sindh. These efforts are based near the town of Nagar Parkar.

Nagar Parkar is in the southeast part of Tharparkar district, Sindh, and covers an area of nearly 4,000 sq. km at the crossroads of Thar Desert and the Great Rann of Kutch. The landscape is dominated by the imposing contrast between the pink and grey granitic rock of the enormous Karoonjhar Hills and the relatively flat surrounding areas of sand, silt, and salt. Six of the eight vulture species of Pakistan can be found in the Nagar Parkar area, in particular the three Critically Endangered species, which makes it a key site for vulture conservation in Pakistan.



A group of schoolboys displaying vulture awareness posters

Monitoring of the vultures in the Nagar Parkar area is conducted by WWF-Pakistan, with local participation by the Parkar Foundation, Pakistan, a community-based NGO that helps provide key conservation activities in the VSZ.

The White-rumped Vultures of Nagar Parkar, one of the few remaining breeding colonies in Pakistan used to nest on Kandi/Khejri (*Prosopis cineraria*) trees growing in agricultural fields around the villages. The colony was spread across an area approximately 10 km northwest of the Karoonjhar Hills, but in recent years there have been no active nests, although the birds are still present. Indian Vultures are also found in the area, and Nagar Parkar has Pakistan's only breeding colony of this species, which nests on the cliffs of Karoonjhar Hills that lie south-east of Nagar Parkar town. In the early 2000s, when monitoring of this colony began, there were approximately 350 nests. The number of nests has decreased to approximately 75 in recent years.

Vulture Conservation Initiatives in Nagar Parkar Vulture Safe Zone

The community outreach efforts conducted in the VSZ aim to reduce the use of veterinary drugs that are unsafe for vultures, and to improve animal husbandry. For this, awareness programmes are undertaken for local livestock



Livestock health camp and promotion of vulture-safe veterinary drugs in Nagar Parkar VSZ, Pakistan



VSZ Officer Ramesh Ver from the Parkar Foundation conducting a community awareness session in the Nagar Parkar Vulture Safe Zone

owners and pharmacy providers, focusing on the harmful effects of diclofenac and the importance of vultures to the environment. This work is being conducted by the Parkar Foundation, which was established and is managed by WWF-Pakistan.

This work continues each year to an increasing number of farmers and other community members. This is a major achievement for a comparatively remote area of Pakistan, where villages and small towns are spread across a large area. Additional awareness-raising sessions are being undertaken that engage with hundreds of schoolchildren and their teachers each year. The

over-arching objective of all of these sessions is to develop a sense of ownership with respect to vulture conservation and protection of other natural resources of the area, among the students, teachers, farmers, and local communities.

Successful meetings are continuing with a range of veterinary practitioners, which enable sharing of essential information about the harmful effects of some veterinary drugs on vultures. The meetings are also an opportunity to highlight the government directive banning these drugs within the Vulture Safe Zone. Although Pakistan banned veterinary diclofenac in 2006, other veterinary-use

drugs, such as ketoprofen and aceclofenac, are also harmful to vultures. The Health Department of the Government of Sindh province has also banned the use of these two drugs in District Tharparkar including Nagar Parkar Vulture Safe Zone in 2017 – a major achievement for vulture conservation in the area.

A major positive outcome following several years of this outreach programme is reflected in the results obtained from the undercover surveys of medical stores and other pharmaceutical outlets. These surveys monitor the availability of veterinary drugs that are harmful to vultures, yet are available within the Vulture Safe Zone. The surveys showed that veterinary diclofenac was not available, and that the vulture-safe drug meloxicam was being sold at all stores. Unfortunately, several other vulture-unsafe drugs such as aceclofenac and ketoprofen were on sale, which highlights the need for the outreach and extension work to continue and intensify.

In other areas of Pakistan, work on addressing the removal of unsafe veterinary drugs is in progress. WWF-Pakistan completed a major

**Surveys monitor the availability
of veterinary drugs harmful
to vultures within the
Vulture Safe Zone**

Conclusion survey of pharmaceutical outlets across the entire Punjab Province in 2020, which revealed that the vulture safe drug meloxicam is widely available in the province. Work on establishing a second VSZ in north-east Pakistan, not far from Islamabad, began after pharmacy surveys revealed the presence of diclofenac and ketoprofen in all the surveyed stores, as well as other vulture-unsafe veterinary drugs in many outlets. Encouragingly, the vulture-safe meloxicam was also widely available. With a breeding colony of White-rumped Vultures in the study area, there is a significant amount of work needed to make this area safe for vultures, which



Trees lopped for animal fodder; with vulture nests are threatened by this activity (Image: Indian Vulture)

has the enthusiastic support of the concerned Wildlife Department.

Conclusion

Like the rest of South Asia, Pakistan’s vulture population suffered a huge decline in the 1990s, which carried over to the 2000s. Despite this, and the significant challenges that remain to ensure the safety of vultures in the wild, progress continues. Along with the other partners in SAVE consortium, the future for vultures in South Asia shows promise of improvement each year. ■

