

Sighting of critically-endangered White-rumped vulture *Gyps bengalensis* (J.F. Gmelin, 1788) in Krusadai Island, Rameswaram, India

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Abstract— The most adept scavengers in ecology, vultures, are on the edge of collapse. The Indian subcontinent has nine species of vultures, five of which belong to the genus *Gyps* and the others are the least impact. The White-rumped vulture *Gyps bengalensis*, Long-billed vulture *Gyps indicus*, and Slender-billed *Gyps tenuirostris* vultures were originally and until lately the most numerous variety in India. Nevertheless, during the last ten, the abundance of these vultures has plummeted across the country. The current study reports *Gyps bengalensis* for the first time sighted in cauldrons on the desolate Krusadai Island, located south of Pamban Island in the Gulf of Mannar. The finding of the cauldron highlights the need for long-term research into the region to locate nesting places and aid conservation and management.

Keywords— White-rumped vulture, *Gyps bengalensis*, Krusadai Island, Nesting.

I. INTRODUCTION

A biome is regarded as stable if it contains various amounts of species in their niches; otherwise, it is considered imbalanced (Padmakumar et al., 2020). Any of these species in distress not only causes the food chain to collapse but also causes chaos in the current food web (Sutherland et al., 2004).

Vultures are primarily carrion feeders. Cathartidae, which includes new world vultures, and Accipitridae (sub-family degypiinae), which includes old world vultures, are the two families of vultures. Though new-world vultures (Condor) are not closely related to old-world vultures, their look and behavior are comparable. Both eat the meat of huge mammals that have died. Although numerous birds and animals eat carcasses, vultures compete for the worst-decomposed carcasses. Such food cannot be taken back to the nest in the beak or claws as hawks do with new kills, but must be eaten, regurgitated, and half-digested for the young. Vultures have been found to be able to digest most pathogenic organisms from carcasses (Singh, 1999).

Gyps vultures are found throughout Europe, Asia, and Africa, and there are eight different species. They are all

compulsive scavengers, eating largely on the corpses of huge ungulates and breeding and brooding on cliffs or even in trees, frequently in colonies. They fly significant distances from nesting and roost in search of ungulate corpses using energetically efficient soaring flight (Houston, 1974; Ruxton and Houston, 2004). *Gyps* vultures are thought to have developed alongside enormous herds of migratory ungulates, preying on the carcasses of ill, wounded, or depredated animals (Mundy et al., 1992; Deborah et al., 2008). These herds have vanished from much of the world's *Gyps* vulture range, with just a few huge protected areas left.

Understanding the ecological variables impacting endangered species' large-scale distribution and abundance is critical for defining management, making recommendations, and comprehending population trends (Sutherland and Green, 2004). India has nine vulture species, five of which are members of the genus *Gyps*. The Oriental White-rumped Vulture *Gyps bengalensis*, Long-billed Vulture *Gyps indicus* and Slender-billed Vulture *Gyps tenuirostris* are permanent inhabitants, whereas the Eurasian Griffon *Gyps fulvus* and Himalayan Griffon *Gyps*

himalayensis are mostly wintering species (Prakash *et al.*, 2003, Prakash *et al.*, 2007).

The white-rumped vulture was formerly highly abundant, especially in India's Gangetic plains, and was frequently spotted breeding on avenue trees in big towns. They were once considered a nuisance, especially to airplanes, since they were frequently implicated in bird attacks (Satheesan, 1994). In India, this species, together with the Indian vulture and slender-billed vulture, has had a 99 percent population decline (Prakash *et al.*, 2007). The drop has been related to diclofenac poisoning, a veterinary non-steroidal anti-inflammatory medicine (NSAID) that leaves residues in cow corpses and causes renal failure in birds when eaten (Green *et al.*, 2004). The near-total extinction of white-rumped vultures in Southeast Asia precedes the current diclofenac issue and was most likely caused by the collapse of vast wild ungulate populations and better management of dead cattle, resulting in a scarcity of accessible corpses for vultures. Although diclofenac multi-dose formulae for humans have been banned in the veterinary sector since 2006, the overflow of human diclofenac multidose formulations into the veterinary industry remains a substantial hazard (Shah *et al.*, 2011). Besides the diclofenac consequence, various other factors contribute to vulture reduction in India. For example, kite flying is a severe hazard to all avian bird species, especially vultures in Gujarat, where kite flying was responsible for 47 percent of vulture deaths (Roy and Shastri, 2013). Malaria has also been blamed for the country's wild vulture population decline. However, habitat fragmentation, roadway kills, and other environmental factors are all contributing to the vulture downturn (Chhangani and Mohnot, 2004).

II. MATERIALS AND METHOD

Krusadai Island is located in the Gulf of Mannar near Rameswaram and Dhanuskodi in the Ramanathapuram district of Tamil Nadu (latitude 9° 14'N, longitude 79° 13'E). The island is 6 kilometers from Mandapam on the mainland and 4 kilometers from Pamban Island. It measures 2050 meters in length and 700 meters in width, with a total area of 67 hectares. The coral reefs surrounding the island, as well as the shallow lagoon-like area between the reef and the beach, provide good opportunities for collecting flora and fauna. The island's most notable feature is its easy access to a diverse range of flora and animals, including living coral reefs in their native habitat. Since around 1898, Krusadai Island has been known as the "Biologists Paradise," attracting a steady stream of students, professors, and famous researchers from India and overseas (Jeyabaskaran and

Lyla, 1996). The renowned Galaxea reef is located on the southeastern side of Krusadai Island. Tow net collections are great in the Kundugal canal, which runs along the northern shore of Krusadai island. A strong current runs from the Gulf of Mannar to Palk Bay and the other way around. It's a magical place where dolphins may be seen swimming and diving in big numbers. The western portion of the northern shore is quite muddy, earning it the nickname 'Bushy Point.'

Figure 1 shows the map of Krusadai Island. Research on vulture ecology is now underway, which involves studying nests and breeding behavior. The first sighting of a White-rumped Vulture, *Gyps bengalensis*, during an ornithological survey, is presented in this report. Vulture nests were located through direct observation during a foot survey on the island. The birds were observed and documented at each place using the point transect method. A Nikon D300 digital single-lens reflex camera and binoculars were used to photograph the vultures. The birds were identified with the help of field guides (Grimmett, Inskipp C, Inskipp T-2011; Salim Ali – 2002).

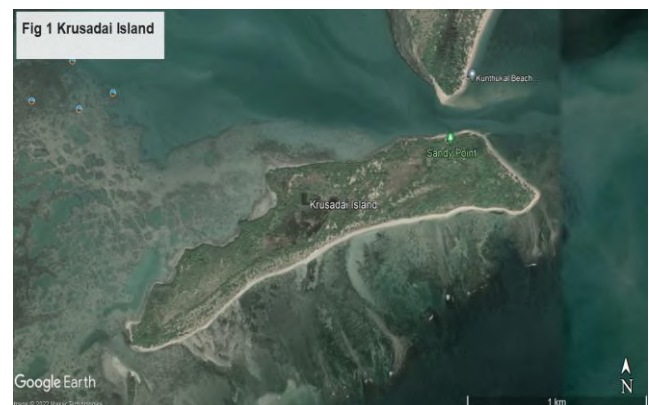


Fig.1: Krusadai Island

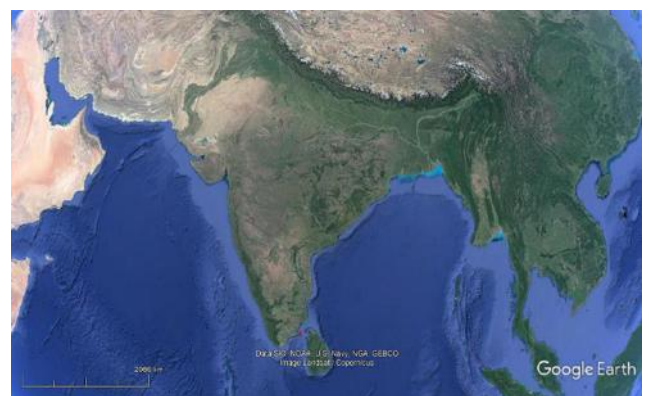


Fig.2: Map showing the location of Krusadai Islands

III. OBSERVATION AND DISCUSSION

On March 14, 2022, a white-rumped vulture was seen soaring about 40 meters above the ground in bright skies between Krusadai Island and Kunthukal Beach towards the Sandy Point beach (9°15'4.07"N 79°13'3.02"E) (Figure 3). During the flight, the white underwing coverts were readily apparent. The bird's identity as *Gyps bengalensis* was established by its blackish body, white neck ruff, and white rump as well as back. The spotted bird was sighted flying towards Sandy Point on Krusadai Island during observation. On the island, there was a swarm of white-rumped vultures with juveniles. There were also a few on treetops which probably are their nesting sites on the island. This work is the first to reveal the presence of vulture species on the island, and more research is needed to ascertain nesting places and population counts of the species that remain on the island.

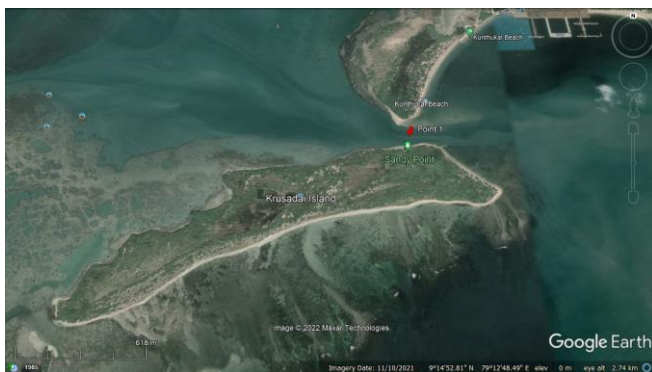


Fig.3: Point 1 shows the point of spotting of White rumped Vulture *Gyps bengalensis*

The cliff-nesting Long-billed Vulture *Gyps indicus* is one of four critically endangered Asian Vultures. Poisoning by veterinary diclofenac, which was prohibited throughout South Asia in 2006, has been related to the death of this species (Chaudhry *et al.*, 2012). In India, a prohibition on the use of the non-steroidal anti-inflammatory drug (NSAID) diclofenac in veterinary medicine was announced in 2006, and the procedure was officially completed in 2008 with an extraordinary gazette announcement (Gazette of India Notification No. GSR 499(E)). The ban was enacted in an attempt to stem the rapid decrease of three vulture species native to South Asia: the White-rumped Vulture *Gyps bengalensis*, the Indian Vulture *G. indicus*, and the Slender-billed Vulture *G. tenuirostris*. The most recent update in 2015 of a prior series of road transect surveys (Green *et al.*, 2012) reveals that the dramatic drop in numbers of White-rumped vultures, which began in the mid-1990s, came to an end around 2010. Since then, the population has remained stable or is slowly expanding. The entire population of this species in India, however, is extremely limited. Previous

reports on the White-rumped Vulture's status primarily cited the numbers of flocks seen at specific roosting and breeding locations (Harvey 1990, Thompson *et al.* 1993, Khan 2009, 2011).



Fig.4: Sighting of *Gyps bengalensis* (White-rumped Vulture) at Krusadai Islands, India

The IUCN Red List 2002 (4) classifies the White-rumped Vulture as Critically Endangered, and it is listed in CITES Appendix II (3). The Oriental white-backed vulture (*Gyps bengalensis* Gmelin), along with the Long-billed Vulture (*Gyps indicus* Scopoli) and Slender-billed Vulture (*Gyps tenuirostris* Gray), are all endemic to South Asia and are listed as 'Critically Endangered' due to rapid population decline in the Indian subcontinent over the last decade (BirdLife International, 2000, 2001; Prakash *et al.*, 2003; Green *et al.*, 2004). Because Vultures were so plentiful, significant population decreases may have gone unreported for many years.

In Pakistan, India, Bangladesh, Nepal, Bhutan, Myanmar, Thailand, Laos, Cambodia, and Southern Vietnam, White-rumped Vultures are found, but they are extinct in Southern China and Malaysia. It has been found in southeast Afghanistan and Iran, but its current state is uncertain. It was once widely distributed and plentiful throughout its habitat, but it vanished from most of Southeast Asia in the early twentieth century and today only occurs locally. Vulture population surveys have been conducted, and the reasons for their abrupt drop have been investigated by many avian experts. Vulture populations in India began to decline in the mid-1980s and early 1990s at

the Keoladeo Ghana National Park in Rajasthan, followed by Northern India road counts. In India, the decline is expected to be greater than 97 percent over 12 years, and 92 percent in Pakistan over three years (Virani, 2006). Similar declines have occurred in Nepal. Since the mid-1990s, when an estimated >150,000 pairs of White-rumped Vultures were known to breed, a severe fall of two species, White-rumped Vultures and Slender-billed Vultures have been observed in Nepal. In Nepal, there are now fewer than 1000 pairs of Slender-billed Vultures. Nepal's current yearly decline rate is predicted to be 90%, with a decade-long fall rate of 90 to 95%. (Nepal Country Report, 2006).

The White-rumped Vultures have fallen by up to 95 percent in India and Nepal (Prakash, 1999; Baral *et al.*, 2001). Vulture mortality is alarmingly high in the Eastern Lowlands, according to studies (Baral *et al.*, 2001). According to early observations made in 2001, West Nepal has a larger population of Vultures than East and Central Nepal (Inskipp and Inskipp, 2001). The Rampur valley today has the highest density of remnant White-rumped Vulture colonies in Nepal (Baral *et al.*, 2005). The White-rumped Vulture, which was once "resident and widespread" on the Thai-Malay Peninsula, is now classified as "local and sparse" (Wells, 1999). The White-rumped Vulture was found throughout India, from the Himalayan west to Srinagar, east to Arunachal Pradesh, Assam, and the northeast hill states, and south to Kerala and Tamil Nadu's Southern Western Ghats (Ali and Ripley, 1978).

The presence of White-rumped vultures has not been reported to date in the regions of Krusadai, Pamban, and the surrounding locales which makes this report one of its kind and calls for the need for immediate monitoring and conservation.

Vultures' ecological, sociological, and cultural significance in India can be summarised as: feasting upon animal corpses and thus helping to keep the environment safe, and disposing of dead bodies according to Parsi religious rituals. In India and beyond, vultures are the major carcass eaters. The absence of a large scavenger from the environment will disrupt the balance of other scouring species and/or lead to an increase in the pile of rotting meat, causing epidemics. Vultures will require long-term research in the future to aid conservation and management.

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