

# Population survey of the highly threatened *Gyps* vultures in Sathyamangalam and Mudumalai tiger reserves, Tamil Nadu, India

## Introduction

Vultures execute a vital role in nature's sanitation process (Houston 1974) and reduce the potential spread of diseases that affect other animals and humans (Ogada et al. 2012a). Nine species of vultures are recorded in India: six are found in southern India (Ali & Ripley 1987) of which two are migrants or vagrants (Srinivasulu & Srinivasulu 1999; Sashikumar 2001; Subramanya 2001; Davidar & Davidar 2002; Thejaswi 2004; Subramanya & Naveen 2006; Davidar 2007; Umapathy et al. 2009; Ramakrishnan et al. 2010, 2012, 2014; Praveen et al. 2014; Samson et al. 2014; Samson et al. 2015; Samson et al. 2016a,b). Fourteen of the world's 23 (61%) vulture species are threatened with extinction of Asia and Africa (Ogada et al. 2012b). The decline of vulture populations in the Indian subcontinent since the 1990s was reported extensively (Prakash 1999; Prakash & Rahmani 1999; Virani et al. 2001; Prakash et al. 2003; Gilbert et al. 2004; Chhangani 2005). The main cause of these declines, is found due to veterinary drug diclofenac (Oaks et al. 2004; Green et al. 2004, 2007; Cuthbert et al. 2006; Prakash et al. 2012). Both Egyptian and Red-headed Vultures have declined in parallel to *Gyps* vultures in the Indian subcontinent, and also considered to be susceptible to diclofenac poisoning

(Green et al. 2004; Cuthbert et al. 2006).

Therefore, these vultures are listed as Critically Endangered with high risk of global extinction (IUCN 2017) and are categorized under Schedule I of the Indian Wildlife (Protection) Act of 1972 (GOI 2002).

## Materials and Methods

### Study Area

The Moyar river extending from Mudumalai to Bhavanisagar bisects the two tiger reserves of Bandipur in Karnataka and Mudumalai in Tamil Nadu and continues its journey through Sathyamangalam Tiger Reserve (STR) (11.4667°-11.8000° N, 76.9167°-77.4500° E). This valley is a significant elephant corridor and tiger habitat in the Nilgiri Biosphere Reserve, the avifauna of this region has not been explored much, compared to work on mammals. Sathyamangalam forest range is a significant wildlife corridor and a sink habitat.

Mudumalai Tiger Reserve (MTR) (11.5333°-11.7167° N, 76.3667°-76.7500° E) lies on the northern flank of the Nilgiri Mountain Range in the Western Ghats and is contiguous with Wayanad Wildlife Sanctuary (WWS) in the west, Bandipur Tiger Reserve (BTR) in the north and Nilgiri North Forest Division (NNFD) in the south. The MTR also forms part of the Nilgiri Biosphere Reserve (NBR) as STR .

### Methodology

In the survey a total of 10 camps were selected, five in Sathyamangalam Tiger Reserve and five in Mudumalai Tiger Reserve, each consisting of two observers and two forest department staff. The teams surveyed the parts known as vulture niches in STR and MTR along the Moyar river and valley. Surveys started between 0630 h and 0730 h and finishing between 1700 h and 1800 h depending upon visibility factor. Vultures observed on the ground, in trees, on cliffs, in nests, flying and soaring during the survey were identified and recorded. The survey was conducted in March 2019. This period was chosen because it coincides with the end of the vulture breeding season. All were fully-grown birds and our counts did not include nestlings at breeding sites. As vultures are large birds, they were easy to detect even in distance without optical equipment but identification of species was done using binoculars and pictures shot with zoom lenses. Observers walked without causing disturbance to the nesting or roosting vultures during the survey in both the tiger reserves.

### Results and Discussion

The most common vulture species recorded during the synchronized survey is White-rumped Vulture, which was about 200 individuals. The reason could be that they are the major breeders and their preferred nesting places are in the Segur Plateau. Though the survey was carried out at the end of the nesting season (end of March), the survey team could record about 30 active

nests belonging to White-backed Vulture. The record of Long-billed Vultures during the synchronized survey is encouraging as many were seen at different locations contrary to the expectation that they are very few (Venkitachalam & Senthilnathan 2015; Anoop et al. 2018). However, there is a need for more systematic scientific work to be carried out about their breeding niches in this landscape. The sheet rock crevices adjoining Thullukkampatti anti-poaching camp (APC) and Eastern Ghats near Talamalai in Sathyamangalam Tiger Reserve (STR) are to be constantly kept in watch. They were around 20 numbers.

During this survey, the King Vultures were sighted in less numbers though they were in good numbers during the previous surveys, coming somewhere near 18. However, no nesting was recorded during this survey for this species. Earlier, they used to nest at Anaikkal along with White-rumped Vulture (Arundavaselman pers. comm. 2008). Similarly, one nest of King Vulture was reported from Singara by Dr. Vasanthan (pers. comm. 2016). The old records also indicate that they were not in huge numbers (Nilgiri Gazetteer 1920). A sustained and exhaustive survey has to be done on their nesting in this valley.

However, this survey has recorded a high count of juvenile vultures of both White-rumped and Long-billed. Based on the observation, this certainly underlines the fact that the nesting has been successful. In addition to this, a single juvenile Cinereous

Vulture was also recorded during this study. The results show that the entire Moyar Valley is used by vultures almost equally, that is, in the Mudumalai Tiger Reserve buffer zone and in Sathyamangalam Tiger Reserve. Interestingly, there are some observations of juvenile Himalayan Vulture associated with Long-billed and White-rumped vultures were recorded near Gulithuraipatti area in 2012 (Vasanthan pers. comm.); another record in 2016 at Aadicombari (Chandrasekar pers. obs.) and very recently in 2018, near Bannari and Dimbum area (Omprakash pers. comm.). Similarly, juvenile Cinereous Vulture was sighted for two consecutive years (March 2018 & 2019) in this landscape, at Moyar, Thengumarahada and Doddarkal areas. It is interesting to note that the juvenile Griffons have a tendency to migrate long distances away from their reported range. (Praveen et al. 2014).

The survey team observed that the White-backed Vulture, Long-billed Vulture, King Vulture, and Cinereous Vulture landing at Doddarkal area in the evening at around 1630 h for a drink presumably, which was latter verified by the survey team on the next day evening. Therefore, vultures do have some spots of congregation, apparently at water holes. This was corroborated by the observation of the synchronized vulture survey team at Adirapatti area where also at a water hole they were congregating.

The Nilgiri district Gazeteer, has mentioned that Egyptian Vultures were very common around Badaga villages. Interestingly, they

are not sighted in this synchronized vulture survey, the last record was in 2007 and before that in 2002. It is surprising when they can adapt to civilization better which was documented by the NDTV at the Kanpur dump yard in Uttar Pradesh; also reportedly nesting in Bengaluru and Mysore areas.

At this landscape in 1980's ERC Davidar observed the population crash of vultures. (Vulture News 42). This may possibly relate only to that period, where he attributes the reason to poisoning of carcasses of tiger kills, which was also confirmed by AJT Johnsingh (pers. comm. 2019). In 2014, 10 vultures had died in Segur nallah, however the reason for its death could not be traced. Moyar valley is the least studied area with respect to vultures over the last few decades and therefore to arrive a base data is very difficult.

The total number of all the four species of vultures recorded in the Moyar Valley may be put about 250 individuals, which is excluding observer bias. However, this is not an accurate population to arrive at a conclusion for this landscape but a better approximation. Therefore synchronized survey has to be done at periodical intervals and at different points of time in both STR and MTR, principally during the breeding season to assess the population status of vultures. The methodology may also be fine-tuned further to suit the landscape and the unique niches for nesting. On the other hand, the entire Nilgiri Biosphere Reserve (including areas in Wayanad in Kerala and Karnataka) can be surveyed when we take into the account of

the nests for consideration. This alone can give an exact idea about the distribution of Gyps Vultures in NBR, since the fact remains that the entire Nilgiri Biosphere Reserve (NBR) is the vast foraging ground for these critically endangered birds.

The vulture population in this landscape that exists at present is precariously small and will remain vulnerable to adverse events. Hence, it is time to establish a more robust long-term strategy for the recovery and future conservation of the vulture populations of Moyar Valley complex comprising of STR and MTR. Occurrence of viable population of prey and predator base in the Moyar Valley supports the vultures present in this landscape with adequate food. Therefore studies on this species in the Moyar Valley are necessary.

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