

Breeding record of Indian vulture (*Gyps indicus*) in Moyar Valley, Tamil Nadu, India

Gyps vulture population in the Indian subcontinent and Southeast Asia has declined due to accidental poisoning when they feed on dead livestock that has been already treated with diclofenac^{1–3}. A recent study has shown that aceclofenac is toxic for the *Gyps* vultures in India⁴. The drug Ketoprofen is toxic for the African white-backed vulture (*Gyps africanus*) and Cape griffon vultures (*Gyps corprotheres*), and toxic levels of residual ketoprofen have been noted in cattle carcasses in India⁵. Conservation efforts in the country have taken up through research and captive breeding programme to save the three critically endangered *Gyps* species of vultures, namely Oriental white-rumped vulture (*Gyps bengalensis*), long-billed vulture (*Gyps indicus*) and slender-billed vulture (*Gyps tenuirostris*)^{2,6}. These species have a higher density in North India⁷.

Detailed studies are lacking on vultures in Tamil Nadu (TN). Between 2012 and 2014, an attempt was made to study vultures in the Moyar Valley, TN. Four species of vultures have been recorded in the Moyar Valley – white-rumped vulture and Indian vulture (belonging to species *Gyps*), red-headed vulture (*Sarcogyps calvus*) and Egyptian vulture (*Neophron percnopterus*; non-*Gyps* species)⁸. Recently, a few breeding sites of Indian vulture have been recorded in Ramanagaram hill in Karnataka, South India⁴. Breeding of Indian vulture on the steep rocky slopes in the Nilgiri North

Forest Division and Sathyamangalam Tiger Reserve, TN was observed in 2013 and 2014 during field traverses.

The Moyar Valley is located between 11.70°N, 76.59°E and 11.47°N, 77.14°E. The Nilgiri plateau is to its southeast, Thalamalai plateau to the northeast, and Mudumalai Tiger Reserve to the west. The approximate length of the valley is 50 km falling within the TN and Karnataka states. Mudumalai and Sathyamangalam Tiger Reserves of TN and Bandipur Tiger Reserve of Karnataka within the Moyar Valley have been declared as Protected Areas (PAs). The uniqueness of the landscape is the connection with the Western and Eastern Ghats, considered as the Global biosphere hotspot of the world. Elevation of the area ranges from 209 to 1950 m. Extremes of climate are experienced with temperature varying between 17°C and 37.5°C. During the northeast monsoon season, the eastern part of the Moyar Valley receives heavy rainfall and during the southwest monsoon the western part receives heavy rainfall. There is a 260 m deep gorge called ‘Moyar Gorge’, located in the eastern end of Nilgiri district, which separates the Segur and Mysore plateaus. The study area sprawling over 600 sq. km covers parts of Masinagudi Range in Mudumalai Tiger Reserve,

Segur Range, Nilgiri mountain, eastern slope of the Nilgiri North Forest Division and Bhavanisagar Range of Sathyamangalam Tiger Reserve. Different types of the vegetation, healthy prey and predator base of the Moyar Valley, support the four species of vultures.

Vulture nests were searched at dusk and dawn. Vultures were encountered along road transects taken in 2013 and 2014, and are widely distributed in the Nilgiri North Forest Division and Sathyamangalam Tiger Reserve of the Moyar Valley. Transects were positioned in and near the PAs and on either side of the roads in the PAs. Nest search was carried out during the drier months of January–June, wherever the movement was frequently observed, on tall trees alongside the streams. Vulture species were counted from vantage points using a telescope (29×) and a binocular (40 × 10).

A total of four breeding pairs of Indian vulture were recorded in the Moyar Valley between 2013 and 2014 (Figure 1). Indian vultures reused the same area for nesting in consecutive years. The maximum number of nests (90%) was situated at altitudes greater than 900 m amsl. The nests of Indian vultures were distributed in the Nilgiri North Forest Division and Sathyamangalam Tiger Reserve of



Figure 1. A pair of Indian vultures nesting in the Moyar Valley, Tamil Nadu.

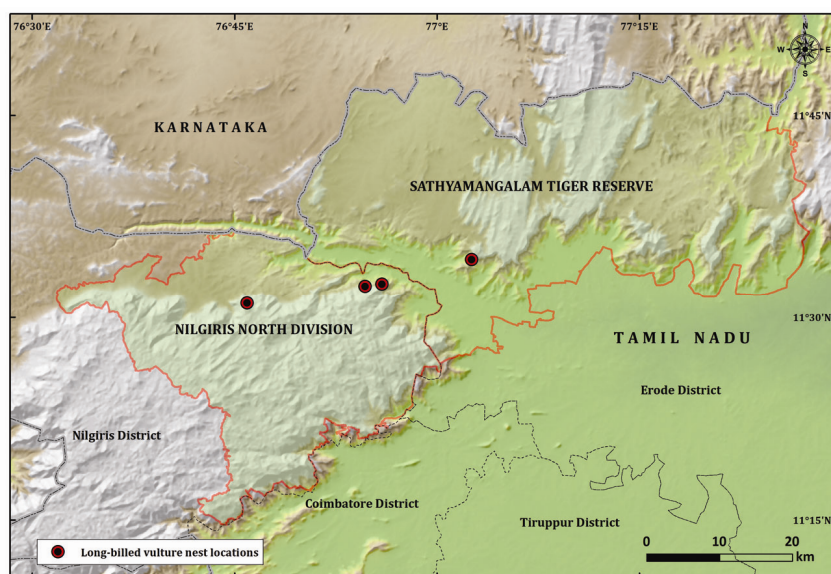


Figure 2. Map showing Indian vulture nesting locations in the Moyar Valley, Tamil Nadu.

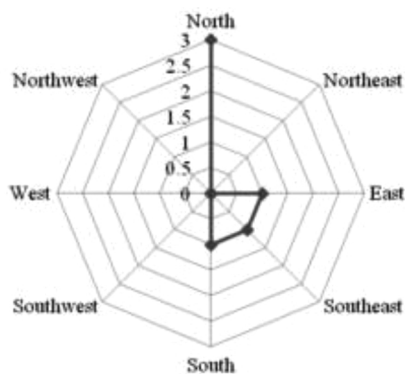


Figure 3. Placement of Indian vulture nest in relation to cliff location in the Moyar Valley, Tamil Nadu.

Moyar Valley (Figure 2). Fifty per cent of the nests were located on the north-facing exposures, 16% on the east-facing exposures and 17% on the south and southeast-facing exposures (Figure 3). The Indian vultures was found to coexist with the white-rumped vultures during feeding and soaring. On one occasion 18 Indian vultures were recorded on a gaur carcass in the Sathyamangalam Tiger Reserve.

Indian vultures tend to nest on rock cliffs and forts. Rasmussen and Parry observed that Indian vultures build nests on treetops in western Rajasthan⁹. In the Moyar Valley, Indian vultures build their nests on rock cliffs on the eastern side of the Nilgiri mountains, as it receives more sunshine, and usually has congenial atmospheric temperature compared to the

south and north faces. In addition, Indian vulture nests were located mostly at suitable altitudes and exposure faces. Nests were open enough for landing and taking off¹⁰. The nests were not be exposed to rain and over heating as they were often sheltered by rock ledges at the entrance; the vultures land on the ledge and then walk to the nest. The rocky cliffs of the eastern slopes in the mountainous of Nilgiri North Forest Division and Bhavanisagar Range in Sathyamangalam Tiger Reserve are a potential habitat for Indian vulture for breeding and roosting. Therefore, significant nesting and roosting height of Indian vulture, may help in the study of other scavenger bird species. Viable population of prey and predator base in the Moyar Valley supports vulture nesting in the region. However, further studies of Indian vultures in the Moyar Valley are necessary.

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