



Notes on Natural History

Breeding Biology of Critically Endangered Long-billed Vulture (*Gyps indicus*) at a Unique Site in Telangana State, India

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Study Area: Bejjur Reserved Forest of Adilabad Circle, Telangana State, India

Coordinates: 19°21'29"8 N and 79°91'38"3 E

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Introduction:

Out of nine species of vultures, the population of three Gyps species, White-backed Vulture (*Gyps bengalensis*), Slender-billed Vulture (*Gyps tenuirostris*) and Long-billed Vulture (*Gyps indicus*) has declined drastically by 99% over the past decade (Prakash, 1999). The Gyps vultures' population declined in India by 97% and by 92% in Pakistan (Virani, 2006, Prakash *et al.*, 2012). Possibly the widespread usage of Diclofenac drug in the animal led to the rapid population decline for these Vultures (Green *et al.*, 2004). The Long-billed Vulture *G. indicus* is a bald headed vulture with very broad wings and short tail feathers, having no sexual dimorphism. In Malabar hills region of India the breeding season of Long-billed Vultures was noted to be November to May where it breed mainly on cliffs (Edward, 1915). Presently, it is in the most critical category of endangerment, listed in Schedule-I of the Indian Wildlife Protection Act-1972 followed by IUCN, 2015 (<http://www.iucnredlist.org/details/22729731/0>). The Andhra Pradesh State Biodiversity Board, Hyderabad announced that vultures are already 'Extinct' in the state (Medicheti, 2013).

Our Survey:

During January to July, 2015 while conducting the Long-billed vulture conservation study, we identified a breeding colony of Long-billed Vulture characterized by elevated rock cliff named "Palarapu cliff" to note some natural history of this species. The height of the cliff ranges from 75 to 108 meter, which lies in Bejjur Reserved Forest adjacent to Nandigaon village at the confluence of Pedda Vaagu stream and Pranahita River. This cliff consists about 40 white washed ledges (fecal droppings), which were indirect evidence of the birds' past usage (Rondeau *et al.*, 2006). With that reference current occupancy estimated is 25 % (N=10 nests/roost sites). Among these 8 are active nests and 2, roosting sites.

The area consists of Southern tropical dry deciduous forests dominated by Anjan (*Hardwickia binata*) species along with 20 other tree species. Along with the Long-billed

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Vultures, the targeted habitat is also seen to be shared by various birds, mammals for nesting and roosting. Some of them are Shaheen Falcons (*Falco peregrinus peregrinator*), Black Ibis (*Pseudibis papillosa*), House Swifts (*Apus nipalensis*), Indian Peafowl (*Pavo cristatus*), Indian Jungle Nightjar (*Caprimulgus indicus*), Bonnet Macaques (*Macaca radiate*), Hanuman Langur (*Semnopittheaus entellus*), Four-horned Antelope (*Tetracerus quadricornis*) and Wild Boar (*Sus scrofa*). Six reptiles species were also recorded i.e., Indian spectacled cobra (*Naja naja*), Brahminy skink (*Eutropis carinata*), Fan-throated lizard (*Sitana ponticeriana*), Peninsular Rock Agama (*Psammodromus dorsalis*), Common Garden Lizard (*Calotes versicolor*) and Bengal monitor lizard (*Varanus bengalensis*).

Our Observations suggest that the habitat is appearing conducive for the Long-billed Vulture possibly due to the following reasons:

- i) Presence of ledges on the high elevated cliff suitable for nesting/roosting. Due to the arduous inaccessibility, except Shaheen Falcons (*Falco peregrinus peregrinator*) and Hanuman langur (*Semnopittheaus entellus*) no other animal were seen to reach the nests.
- ii) These vultures are camouflaged to their habitat. A trained eye can only locate the birds.
- iii) Availability of water, in adjoining perennial stream Peddavagu and Pranahita River.
- iv) Availability of nesting material (grass, *Themeda* sp.) around the habitat.

The present observations aimed to: i) estimate population, nesting and roosting sites in the targeted habitat; ii) study the breeding behavior and success in a complete breeding season; iii) design in situ Conservation strategy.

In front of the PalaRapu cliff (Vulture breeding colony), a shanty was made on the river bank from where the habitat was monitored using Nikon (12x-50mm) binoculars. After marking all nests and roosting points, we counted all the individuals in regular basis during the daytime.

Breeding Behaviour:

During observation, we found total eight nests, each with one pair. One site was shared by three adults. In the first week of February, all the eggs hatched and one chick in each nest appeared. Thus, in 8 nests the population reached as 16 adults and eight juveniles and 3 adults in adjacent roosting site (total=27). Unfortunately, on the third week, a chick died. By the end of month May fledgling in juveniles was observed. Chicks' survival rate was monitored till the last week of May.

Both male and female birds participate in the nest construction, incubation and protection. After hatching one adult bird (male / female) was always found on the nest to protect its chick from the predators. It was observed that the adult bird allows only its partner in their nest. Surprisingly, some of the sites which were used as nests in earlier years were rejected in the forwarding years. As noted, in the year 2014, where we locate one nest was not found in existence in the year 2015. Chicks were gradually grown-up by the month of



Figure 1: Parent disgorge lump of meat into chick's mouth

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March, when both the adult birds left them alone in the nest and flew away for feeding.

Parental care:

Before sunrise parents were seen to leave their nest sites, while returning back during mid day, the parents disgorge great lump of meat into chick's mouth (Fig.-1). The chick feeding time were found to be varied from nest to nest and day to day, depending on the availability of the food. For each day a single feeding period was observed and which was varied from 9.51 (min.) to 17.30 m (max.).

Male and female both the birds involve in parental care and protect the juveniles by spreading wings to hide its chicks for protection from sunlight and natural predators. During observation, most of the times chicks remained out of sight as they were under parent's wings. In the month of March, parent birds collected grass stalks and spreaded on their nest which might act as cushion and insulate against heat for the chick. In April, both the parent birds were observed to leave the nests in the early hours leaving the grown chick alone and flew back by noon.

Conclusion:

The present report suggests that if the proper conservation strategies would be taken in favour of their habitats, the population of Long-billed Vulture will be definitely increase. Currently Telangana Forest Department is implementing the Vulture Conservation Plan for the present habitat. Long term studies will be needed to frame the proper strategy to save this Critically Endangered Species from extinction.

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