

Study of population and breeding habitat of *Gypus* genus and *Neophron percnepterus* at Chittorgarh Fort, Chittorgarh, Rajasthan, India.

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ABSTRACT

Vultures are important scavengers and they provide ecological, economic and aesthetic value. Their presences are recorded around dead animal dumping yards in Village, cities and natural habitat. All vulture species are mainly feed on the small & large size wild and domestic animals, they mainly feed on domestic animals like- cow, buffaloes, goat and sheep. During study period (December 2017 to July 2018) nine nests of long-billed vulture (*Gypus indicus*) & eight nests of Egyptian vulture (*Neophron percnepterus*) were observed at Chittorgarh fort and fourteen nest of *Neophron percnepterus* was observed on trees in surrounding of study area. A population of vulture at site maximum number of individuals were belonging to *Neophron percnepterus* (47) followed by *Gypus indicus* (33), *Gypus himalayensis* (14), *Gypus fulvus* (10) and minimum number of individual was belongs to *Gyps bengalensis* (5). *Gypus himalayensis* and *Gypus fulvus* are winter migratory and remaining three species are resident in southern Rajasthan. Vulture population dramatically decline in India, due to mining activities, habitat loss & degradation, forest degradation, cutting of old trees and anthropogenic activity in breeding area are main factors responsible for declining vulture population.

Keywords- Scavengers, aesthetic value, migratory, population, forest degradation.

INTRODUCTION

Vultures are very sensitive to environment changes, they have long life span, and need big territories have a selective diet, at the highest position in the food chain and have a low reproductive rate. Vulture performs a vital role in the nature sanitation by feeding meat from dead animals before it rots, while carcasses feeding also prevent the spread of disease which would affect other mammals including human. The study has been planned to find out the status and number of nests *Gypus*, *Nephron*, species faun and population status of all vulture species. Studies were made in Chittorgadh district for distribution, breeding habitat, nesting sites and population counting. Vulture population rapidly decline in South Asian region (>95%) was first recorded in late 1990'S in Bhartpur district, Rajasthan, India (Prakash 1999). Vulture are now categorized as critically endangered on the IUCN red list of threatened species and provided schedule I category animal according to wildlife law of protection act (WLPA) 1972. Long-billed vulture is generally colonially breeder and use to make nest upon rock cliffs or old historical building. Egyptian vulture nesting was observed on trees and rock cliffs, maximum number of that species nests observed on trees. Mining activities disturbance and destruction of nesting habitat and breeding colonies. Breeding play major role in fitness of individual and survival of bird (Martin 1998). Each species require different size & environmental condition for successful breeding (Wiens, 1976).

MATERIALS AND METHODS

During December, 2017 to July, 2018 while conduction the survey of number of active nests of long-billed and Egyptian vulture, additionally we were observed other species closing associated with selective breeding habitat. The Chittorgarh fort located on hills approximate 180 meter in height spread over an area of 280 hectors above the plains of the valley drained by the Berach River. The forts wall make cliff like structure they are suitable habitat for vulture breeding and roosting in the area. Observations of vulture were done by using Nikon 8X40 binocular, Nikon Coolpix P900, Canon D-60, 150-600 Sigma lens. Studies were conducted by direct observation at roosting & nesting site, breeding colonies, fecal dropping at nesting areas and Indirect vultures presence sign such as white guano on rocky cliffs, and molted feathers around breeding colonies.

RESULTS AND DISSCUSSION-

Five species of vultures were recorded in the study area out two species nest were found in breeding sites. The *Gypus indicus* observed in maximum numbers of nests (9), *Neophron percnopterus* (8) on cliff & *Gypus bengalensis* *Gypus himalayensis*, and *Gypus fulvus* no nest were observed in Chittorgarh Fort during study period. *Neophron percnopterus* was nest build upon both habitat rock cliffs and as well as on trees, *Gypus indicaus* usually build nest upon rocky cliffs and slopes of Aravalli hills. Male and female play important role in selection of breeding site in well protected area of all species of vulture. In surrounding area were found 14

nests of *Neophron percnopterus* on trees. Maximum number of individuals were observed from *Neophron percnopterus* species (47) followed by *Gypus indicus* (33), *Gypus himalaynesis* (14), *Gypus fulvus* (10) and minimum number of individual belonging to *Gypus bengalensis* (5). These historical cliff consist about 27 white fecal drooping, which indicate sign of vultures presence (Rondeau et al., 2006). According to migration status of species three were resident and two winter migratory; Categorization of IUCN (2018) status 2 species were listed in Critically endangered, one species Endangered & one species in Near threatened and one species was Least concerned. In surrounding habitat have commonly sighted other avian species like- Indian peafowl (*Pavo cristatus*), Black kite (*Milvus migrans*), Black-winged kite (*Elanus caeruleus*), House sparrow (*Passer domesticus*), Jungle babbler (*Turdoides malcokmi*), Indian silverbill (*Euodice malabarica*), common myna (*Acridotheres tristis*), Common babbler (*Turdoides caudate*), Red-vented bulbul (*Pycnonotus cafer*), Indian robbin (*Saxicoloides fulicatus*) and Indian grey francolin (*Francolinus pondicerianus*) in study area. Both male and female birds participate in construction of nest, incubation and protection. After egg laying one adult (male and female) was always present in nest to protect its egg and chick from predators. During sunrise adult were flight in the sky from their nests for searching food and water. When adults returning in back nest; they hold piece of carcasses in beak for food of chick. Chicks feeding time vary from day to day and depending on availability of food in nearby breeding colonies. Our studies suggest that the microhabitat is developed for vulture breeding site possible due to supportive reason like- (1) Cliff is present in historical fort area region they provided suitable habitat for vulture breeding. (2) Vulture camouflaged to surrounding habitat. (3) Cow shelter home present near the breeding sites, they increase change of availability carcasses. (4) Water body is present in nearby breeding colonies. (5). Availability of nesting material (grass, shrub and trees) in large quantities around breeding colonies.

Table 1. Show number of vulture species recorded in study area and their nest and population number

Sr.no	Common name	Zoological name	IUCN status	Number of nest observed on rock cliffs	Number of adult individuals recorded	Sighting	Migration status
1.	Egyptian vulture	<i>Neophron percnopterus</i>	Endangered	8	47	Common	Resident
2.	Long-billed vulture	<i>Gypus indicus</i>	Critically endangered	9	33	Common	Resident
3.	White-backed vulture	<i>Gypus bengalensis</i>	Critically endangered	0	5	Very rare	Resident
4.	Himalayan griffon	<i>Gypus himalaynesis</i>	Near threatened	0	14	In winter	Winter migratory

	vulture						
5.	Eurasian griffon vulture	<i>Gypus fulvus</i>	Least concerned	0	10	In winter	Winter migratory

CONCLUSION

Studies suggest that need effective conservation efforts for save all vulture species in breeding area. And long term studies will be need for find out all threats and possibilities of vulture conservation. Aravalli range, continuous decline in availability of food leads to decreasing habitat and vulture species in study area so stop mining activities in breeding area.



Figure A- Breeding sites of Long-billed vulture and Egyptian vulture



Figure B- White-backed vulture and long-billed vulture



Figure C- Long-billed vulture nest



Figure D- Long-billed vulture Adult and Juvenile



Figure E- Egyptian vulture



Figure F- Eurasian griffon vulture



Figure G- Long-billed vulture wing spreading

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