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RESEARCH ARTICLE

Status and distribution of Vultures in Gautam Budh Nagar District, Uttar Pradesh, India

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Abstract

Vultures are excellent indicators of the state of a healthy environment and as carrion feeders vultures play an important ecological role. Twenty villages were surveyed in the Sikandrabad and Dadri Forest Ranges of Gautam Budh Nagar districts, Uttar Pradesh. Scanning of dumping sites for dead cattles and carcasses and slaughter houses (either government or private) were done. Informal questions with locals were also conducted. Direct observations were made at feeding and roosting sites to assess the population size and different vulture activities. There are 9 species of vultures in India and six species in the State of Uttar Pradesh are found in the wild. Among this, three species of vultures i.e. White-rumped Vulture *Gyps bengalensis*, Indian Vulture *Gyps indicus* and Egyptian Vulture *Neophron percnopterus* are reported in this district. Direct sightings of Egyptian Vulture *Neophron percnopterus* were possible from Surajpur wetland (n=2), Jhajar (n=8) and Bilaspur (n=4) villages of the district Gautam Budh Nagar. This work will establish the region as an important area that harbours vulture species of conservation importance.

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INTRODUCTION

Vultures are nature's most successful scavengers, and they provide an array of ecological, economic and cultural services [1]. Vultures perform a vital role in nature's sanitation processes by tearing meat from carcasses before it rots and prevent the spread of diseases which would affect other mammals, including humans [2]. Throughout the Indian subcontinent, the populations of vulture species declined rapidly, beginning in the 1990s [3]. *Gyps* vultures in the Indian subcontinent and South-East Asia have declined catastrophically during the last decade and current populations are estimated to be <5% of the original [4]. There are numerous reasons behind the global vulture decline, however, either poisoning or human persecution, or both, feature in the list of nearly every declining vulture population [1]. The major reason for these declines appears to be the use of the veterinary drug diclofenac for treating cattle [5], [6] and [7]. Conservation efforts in India have included research and captive breeding programs [4], [8] and [9].

Globally, there are 23 species of vultures, of which the majority occur in the Old World and within the family Accipitridae. The remaining seven species comprise the New World Cathartidae family [1]. India has nine species of vultures in the wild, viz.: Oriental White-backed or White-rumped Vulture *Gyps bengalensis*, Slender-billed Vulture *Gyps tenuirostris*, Long-billed or Indian Vulture *Gyps indicus*, Egyptian Vulture *Neophron percnopterus*, Red-headed or King Vulture *Sarcogyps calvus*, Indian Griffon Vulture *Gyps fulvus*, Himalayan Griffon *Gyps himalayensis*, Cinereous Vulture *Aegypius monachus* and Bearded Vulture or Lammergeier *Gypaetus barbatus* [9]. Vultures occurred at their highest densities in the Northern India in the Past [10]. Of nine species found in India,

Uttar Pradesh has six: Egyptian Vulture *Neophron percnopterus*, Slender-billed Vulture *Gyps tenuirostris*, Indian Vulture *Gyps indicus*, White-rumped Vulture *Gyps bengalensis*, Red-headed Vulture *Sarcogyps calvus* and Himalayan Griffon *Gyps himalayensis* vulture species [11]. The aim of this paper is to review the vulture species in the district Gautam Budh Nagar by combining my own observations with other published and unpublished records, and to discuss the conservation issues of this area.

1. MATERIALS AND METHODS

Study Area

Gautam Budh Nagar (28°3'N 77°2' E) covers an area of 1354 km², is a district of Uttar Pradesh state in the Northern India (Figure 1). The district falls in Upper Gangetic Plain Biogeographic Zone [12]. The River Yamuna separates the district from Haryana state and Delhi to the west and Hindon River also passes from the district. The district is bounded by Ghaziabad district to the north, Bulandshahar district to the east, and Aligarh district to the south. There are three administrative Tehsils Dadri, Jevar and Sadar. The forest areas of the district are divided into two Dadri and Sikandrabad forest Ranges. Being in the purview of National Capital Region, the development of the district is moving with a fast pace and are the world class industrial hubs. The district is important not just at state level but also at national level, 25% of the total revenue of Uttar Pradesh has been received from this district [13].

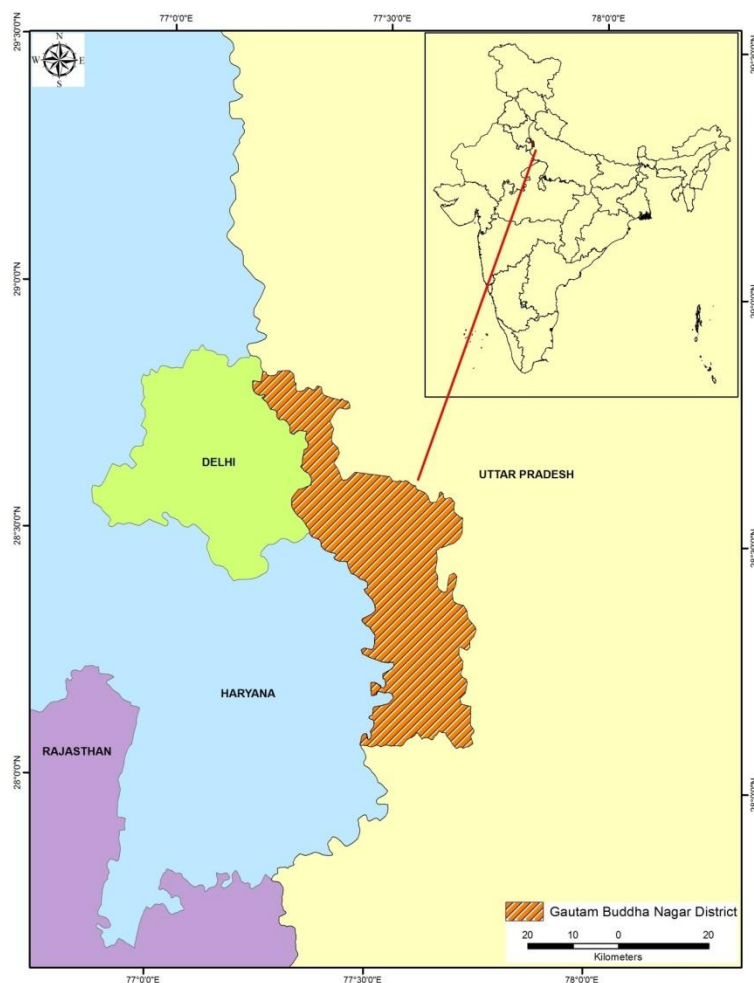
Methods

The survey was conducted across the 20 villages of Sikandrabad and Dadri Forest Ranges of the district Gautam Budh Nagar during July 2010 using the road-transect survey method [14] and [3] (Table 1). Direct observations were made at feeding and roosting sites to assess the population size and different vulture activities. The landscape was scanned and all individuals seen perched or flying were counted [15]. In addition to running transects, we also visited dump yards, slaughter houses, looking for carcasses and vultures in and around the villages [10]. Questionnaire surveys were also made in these twenty villages. The questions focused recent vulture sightings and the availability of carcasses. The survey was conducted between 0700hrs to 1800hrs and 10'X' binoculars were used for sighting vultures [10]. The sighted species were confirmed by consulting standard field guides [16] and [17].

2. RESULTS AND DISCUSSION

3. Table 1. List of villages surveyed in the Gautam Budh Nagar district Uttar Pradesh

S. no.	Name of Village	Forest Range
1	Bhuda	Dadri
2	Bilaspur	Sikandrabad
3	Dadupura	Sikandrabad
4	Devla	Dadri
5	Dubli	Sikandrabad
6	Gadana	Sikandrabad
7	Ghanghola	Sikandrabad
8	Husainpur	Sikandrabad
9	Imilia	Sikandrabad
10	Jhajar	Sikandrabad
11	Junedpur	Sikandrabad
12	Kanarsi	Sikandrabad
13	Kasna	Sikandrabad
14	Khanpur	Sikandrabad
15	Ladupura	Sikandrabad
16	Maycha	Sikandrabad
17	Pobari	Sikandrabad
18	Roshanpur	Sikandrabad
19	Surajpur	Dadri
20	Thesrana	Sikandrabad



4. Figure 1. Map of the study area [13]

In total, we covered approximate 100 km road across the Sadar, Dadri and Jevar Tehsils of the district including Dadri and Sikandrabad Forest Ranges. In all, we saw 14 individuals of only one species Egyptian Vulture *Neophron percnopterus* in the three different sites viz: Jhajar (8 individuals, 28° 15' 93.9" N and 77° 39' 53.6" E); Bilaspur (4 individuals, 28° 23' 00.2" N and 77° 37' 38.1" E) and Surajpur wetland (2-individuals, 28°31.425'N; 77°29.714'E). During the survey, maximum 8 individuals were recorded in Jhajar was a dumping ground of the Jhajar village and 4 individuals recorded in Bilaspur was a slaughter house nearby the Bilaspur village while the 2 individuals recorded in the Surajpur wetland was a reserve forest area in Dadri Forest Range. In the questionnaire survey, 22% respondents had seen vultures at least once in the previous five years and 4% had sighted vultures on carcasses during the last five years. Most respondents (78%) said that they had not seen any abandoned carcasses in the previous five years. Majority of the villages had no any dumping sites of their dead cattle. Cause of disappearance of Vultures were unknown by majority of peoples from villages. Mostly dogs and crows were feeding on dead carcasses of the cattle. Out of twenty surveyed villages, seven villages were marked as probable site of vulture occurrence by interviewing the locals (Table 2). Other birds and animals in the study region were crows *Corvus splendens*, *Corvus macrorhynchos*, Cattle Egrets *Bubulcus ibis*, eagles and hawks, feral Dogs, Blackbucks and Spotted Deer, Blue Bull, snakes.

Table 2. A list of probable sites of vulture occurrence in the study area

S. No.	Name of the site	Co-ordinates	Type	Sightings	Interviewee name	Age (years)
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1.	Dadupur	28° 33' 64.7" N and 77° 34' 27.8" E	Village	0	Premi	70
2.	Kanarsi	28° 22' 56.3" N and 77° 34' 87.6" E	Wasteland	0	Ranveer	75
3.	Jhajar	28° 16' 02.3" N and 77° 39' 94.9" E	Village	0	Abdul Raseed	80
4.	Jhajar	28° 15' 93.9" N and 77° 39' 53.6" E	Dumping ground	8*	Aas Mohammad	36
5.	Bilaspur	28° 23' 00.2" N and 77° 37' 38.1" E	Slaughter house	4*	Ibrahim	65
6.	Kasna	28° 26' 38.1" N and 77° 32' 24.3" E	Reserve Forest	0	Digambar	40
7.	Surajpur Wetland	28° 31' 43.2" N and 77° 29' 63.8" E	Reserve Forest	2*	Jagbeer	42

* Egyptian Vulture *Neophron percnopterus*

The district Gautam Budh Nagar reported two more species of vultures, Indian Vulture *Gyps indicus* and White Rumped Vulture *Gyps Benghalensis*, but these two species was never seen after 1992. These species used to be fairly common and resident prior to 1992, with flocks numbering 25–30, regularly seen roosting on trees [18]. The Gangetic plain and the semi-arid eco-zones only had Egyptian Vultures [11]. Food supply appears to be the limiting factor in these regions. The food supply available to any large scavenging animal came largely from the carcasses of ungulates and these were widely dispersed, transient and unpredictable in this location [19]. Domestic ungulates were available outside forests but a majority of the cattle were sold, resulting in non-availability of carcass as vulture feed, and whatever was left from the transaction had the potential danger of diclofenac infestation, possibly forcing the vultures to avoid feeding on them. Egyptian Vultures could be seen in non-forested areas (semi-arid and Gangetic eco-zones) as they chose to feed on small animals, debris or rubbish dump, human and ungulate faeces, and vegetable matter [20], [21] and [22] available in plenty, and lived in an open landscape in arid and rugged areas [23] and [24]. Their presence in large numbers in the campus of the bone factory indicated that they could feed on bony remains of old dry carcasses collected for fertilizer making.

We found very few vultures compared with similar studies in northern India. For example Prakash et al. [4] surveyed northern, eastern and western India, and Jha [11] surveyed the State Uttar Pradesh to explore the vulture species. The population of the vulture in Uttar Pradesh was very low, especially the critically endangered ones (Indian Vulture, Red-headed Vulture, Slender-billed Vulture and White-Rumped Vulture). Vulture species in general are carrion feeders and old world vultures are slow breeders with low growth rates [25]. Therefore, there is a need to take necessary steps to save them from all possible threats, primarily by ensuring safe and sufficient food, recovery from accidents and rehabilitation, and a protected environment [11]. We suggest urgent implementation of steps to monitor population sizes and reproduction of vultures at these sites. In addition, monitoring diclofenac in cattle and enforcing the ban on its use are crucial. Maintaining feeding facilities ('vulture restaurants'), where diclofenac free carcasses are provided regularly is a conservation action that may provide immediate respite to the vulture populations in these areas [10]. Other than diclofenac-tainted food, the most serious threat to vulture species is the loss and alteration of habitat [26]. Since vultures are sensitive to disturbance during the breeding season there should be an effort to maintain an anthropogenic disturbance free zone around such nested and roosted trees. A buffer zone of a minimum of 500m [27] between source of disturbance and breeding colony should be used as shock absorber, since minimum human disturbance is critical to successful breeding of raptors [28] and [29]. The base line data generated in this study could be used for future monitoring and further detailed study. Better supported findings could define better management action in the direction of the conservation of this highly endangered group of species.

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