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Inland nesting of grey heron *Ardea cinerea*: An important record for Gujarat state, India

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Abstract

Total eight nests of the Grey Heron *Ardea cinerea* were recorded on Banyan trees (*Ficus benghalensis*) during August 2018 at Nanodara village of (Bavla tahsil) Ahmedabad district, Gujarat, India. This breeding record was considered as an important one in want of published records on inland wetlands in Gujarat. Nesting was done on large Banyan trees located at the edge of the village pond. One pair of Large Egret was associated in the heronry. On nearby Banyan trees, 100+ Flying Foxes (*Pteropus gigantius*) were roosting during day time. Its breeding records and respective breeding period in Gujarat is reviewed. Taxonomic status of the Grey Heron (both resident breeding and migratory populations) occurring in India is discussed at length. Published evidences suggest that the Grey Herons occurring in India are nominate subspecies *Ardea cinerea cinerea* Linnaeus, 1758.

Keywords: grey heron, *ardea cinerea*, inland heronry, breeding season schedule, taxonomic status

1. Introduction

The Grey Heron *Ardea cinerea* has four subspecies^[1,2] of which two subspecies occur in India^[3]. The nominate European subspecies *Ardea cinerea cinerea* is a casual winter visitor to Pakistan and India, including Gujarat; the second subspecies *Ardea cinerea restirostris* (= *jouyi*) occurs in India and several south-eastern countries^[3]. The subspecies *A. c. jouyi* ranges from India, Mongolia, China to Taiwan and Hainan, Korea, Japan, Myanmar, Indochina, Malaysia (peninsular), Indonesia to Java and Sumatra^[2,4]. The subspecies *A. c. restirostris* (= *jouyi*) is a resident species in India and affects inland water-jheels, marshes, rivers; also tidal creeks, estuaries, mangrove swamps, coastal backwaters, and rocky offshore islets^[3]. The Grey Heron is usually solitary but occasionally occurs in small parties but it is gregarious when nesting^[3]. Though a large number of heronries have been listed in India, records of Grey Heron nesting are very few^[5-7]. The distribution map of the species^[8] shows that it breeds all over Gujarat state, India. However in Gujarat, breeding of the Grey Heron is reported mainly from the Gulf of Kachchh^[5,9-11]. Inland breeding of the Grey Heron in Gujarat is very poorly documented^[12-14]. In this note, photographic evidences of breeding of Grey Heron on inland wetland of Gujarat are provided; some eminent characters of the heronry are described, variations in its breeding season are discussed and status of the subspecies of Grey Heron occurring within Gujarat/India is discussed.

2. Materials and Methods

2.1 Study Area

Observations on nesting of Grey Herron were made at Nanodara Village (22.824057N; 72.205126E) of Bavla Ta., Ahmedabad District. According to Census 2011, its total population is 3329 and the numbers of houses are 622. The village Nanodara is located at 54 km south-west to Ahmedabad and ca. 10 km south-west to Bavla town. Kavla (3 km), Metal (4 km), Zamp (6 km), Rethal (7 km), Baldana (7 km) are the nearby villages to Nanodara. Its distance to Nalsarovar edge (Meni village) is about 15-20 km (Fig. 1).

There are two ponds on the eastern and western sides of the village. Both ponds were covered with floating and emergent aquatic vegetation. Even eastern edge of the village had shallow depression. Size of the village ponds were ca. 1km² and 0.25 km², respectively.

Rice crop *Oryza sativa* was just transplanted in the crop fields at the time of visits; hence the fields were inundated. Even in preceding summer (2018), water had not dried out in Nalsarovar.

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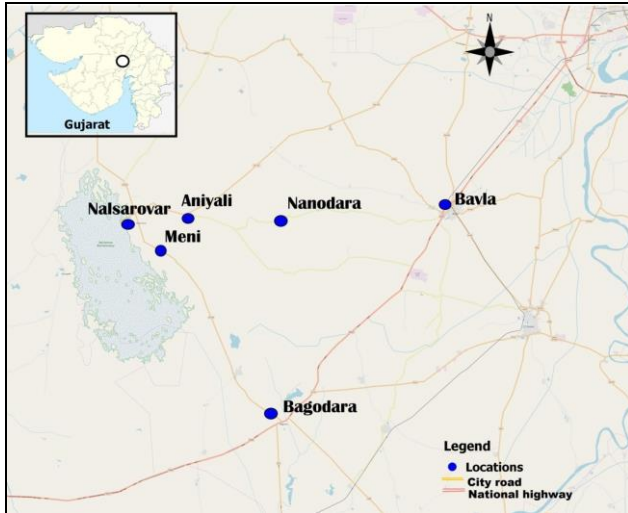


Fig 1: Map 1. Location of the Nanodara village with reference to Nalsarovar Bird Sanctuary, Gujarat

2.2 Methodology

Several villages of Bavla Tahsil of Ahmedabad District, Gujarat were visited in search of waterbirds nesting in heronries on 09 & 12 August 2018. At Nanodara Village, we saw Grey Herons landing on Banyan trees (*Ficus benghalensis*) and hence the trees were closely observed.

3. Results and Discussion

3.1 Observations

The Banyan trees on which the Grey Herons were landing were on the edge of the village pond. There were at least seven Banyan trees of which three were occupied by the Grey Herons.

All Banyan trees on edge of the pond were fairly large; above 10 to 15 meter (35 ft) height.

Total eight nests were seen on Banyans. Nest distribution was 4, 3 and 1. Young ones of the Grey Heron were grown up, at least of four week age (Fig. 2). Considering chick age (four weeks) and reported incubation period of 25 to 26 days [3], this nesting might have started in early June 2018.

There were no other water birds nesting with the Grey Heron except a pair of Great Egret (*Ardea alba*) nesting on nearby Banyan tree (Fig. 3). Other Banyan trees nearby had 100+ Flying Foxes (*Pteropus giganteus*), roosting during day time. There were no nests on the banyan on which Flying Foxes were roosting.



Fig 2: Young ones of the Grey Heron being guarded by parent



Fig 3: Young ones of grey heron and great egret on nearby banyan tree

3.2 Discussion

Heronry Features: This heronry was within human habitation (rural area), at the edge of a water body on large trees. Though it was a mixed species heronry, only two species were associated forming a very small colony of nine nests only. These features are very much similar to the most of the heronries in India [5] (Subramanya 1996).

Number of breeding records: In Gujarat, the Grey Heron occurs on all types of coastal and inland wetlands during winter. However, its breeding records during summer or monsoon are scanty. Ali (1945) [15] could not collect actual breeding data for Kachchh but opined that small numbers must be breeding in Kachchh as in Sindh. Without mentioning the name of any location of heronry, Ali (1954) [16] wrote that its breeding was in progress during August in the Gulf of Kachchh. Dharamakumarsinhji (1955) [12] too provided indirect evidence of its inland breeding in Saurashtra without mentioning name of the inland heronry. The first definitive mention of the nesting colonies of Grey Heron on many of the islands in the Gulf of Kachchh was given by Parasharya (1984) [9] and Naik *et al.* (1991) [10].

Parasharya (1984) [9] mentioned about several heronries on the coastal areas of Gujarat but did not mention breeding of Grey Heron anywhere except at Pirotan island in the Gulf of Kachchh. Patel (1996) [17] did extensive survey of the heronries of Anand and Kheda districts in central Gujarat but did not come across breeding of the Grey Heron. Inland breeding of the Grey Heron in Gujarat is evident only from Pomal (2003) [13] and Mashru (2004) [14].

Subramanya (1996) [5] recorded breeding of the Grey Herons only in 20 (5.5%) sites out of 360 sites evaluated from entire India which included all recorded breeding sites of the Grey Heron in the Gulf of Kachchh, Gujarat [10]. In the south Indian states also, reported numbers of Grey Heron colonies were very few [5-7].

Breeding season: Considering age of the chicks, it appeared that the breeding activity of the Grey Heron at Nanodara village might have been completed during June to August. This period certainly falls within south-west monsoon period. Breeding season of the Grey Heron varies across the country: mainly March to June in Kashmir; July to October in northern India; November to March in South India and Sri Lanka [3]. Hence, recorded breeding season of the Grey Heron for this particular case on inland wetland fits well with the season

given by Ali and Ripley (2001) [3] for north India.

In Gulf of Kachchh, the Grey Heron breeds during August [16]. Generalizing about all the ardeids in the Gulf of Kachchh, Khacher (1996) [11] wrote that breeding commences early in April and continues into May and June. Parasharya (1984) [9] had seen incomplete clutch of Grey Heron at Pirotan island on 08 March 1980. Breeding of the Grey Heron during March/April in the Gulf of Kachchh is too early for the season given for north India [3]. The Western Reef Heron (*Egretta gularis*) in the coastal area of Gujarat breed over a longer time (February/March to August/September) compared to its inland population which breed during June/July to September [18]. Probably in the Gulf of Kachchh (coastal area), the Grey Heron might have longer breeding season than on the inland wetland near Nalsarovar.

Contrasting to the extended breeding season of the Grey Heron in the Gulf of Kachchh, its breeding season on the inland wetlands of Gujarat was highly variable but restricted to the monsoon and post-monsoon period: June to August (present report), till November [13], or till January [14]. It is presumed that all inland heronries might have started only after the onset of south-west monsoon (June/July).

Presence of Grey Herons during summer and monsoon on the inland wetlands of Gujarat is scanty. There is only one report of a single nest of Grey Heron at Nyari dam near Rajkot [14]. Pomal (2003) [13] reported 20 nests of Grey Heron at Luna heronry in Kachchh. On the other hand, pairs of Grey Herons breeding in the Marine National Park of the Gulf of Kachchh were less than 450 [10] ! This is certainly a small number for the entire Gulf of Kachchh. Obviously, the number of Grey Herons gets augmented only during winter, probably by the winter influx of nominate subspecies *A. c. cinerea*. However, further studies are needed to establish subspecies of the individuals breeding in the Gulf of Kachchh/inland wetlands and those arriving in the winter.

Taxonomic Status: The Grey Heron is a winter migrant to Pakistan, north and western India except Gujarat where it is known to breed [19]. It is migratory even in most parts of central India and western parts of south India. Long back, the nominate *A. c. cinerea* was recorded from Dakshin Kannada district of Karnataka during winter [20]. Now, when the Grey Heron is known to breed in Rajasthan [21, 22], Maharashtra [23, 24] and Karnataka [5, 25] too, population size of resident breeding subspecies *A. c. jouyi* appears to be very low and its distributional area is extensively overlapped by wintering nominate subspecies *A. c. cinerea*.

Of the four subspecies of Grey Heron, two [*A. c. cinerea* and *A. c. rectirostris* (=jouyi)] are distinguished on the bases of extremes of clinal variation across Eurasia [2]. In the catalogue of the birds in the collection of BNHS, Abdulali (1968) [26] found it difficult to distinguish *A. c. rectirostris* (=jouyi) Gould from *A. c. cinerea* Linnaeus, in want of availability of typical skin material. A ringed sub-adult bird collected from South Kanara and accepted as *A. c. cinerea* was hardly darker than the other specimens from the same area; however the ringed bird was certainly larger in all size parameters. He (*Opp. Cited*) quoted Vaurie (1965: 73) who wrote: birds from Iraq and eastward to India are also slightly paler, but in my opinion these populations are best referred to nominate *cinerea*. He accepts *jouyi* Clark from Seoul, Korea. Unfortunately, taxonomic studies based on museum specimens are lacking in India; otherwise subspecies status of the population breeding in India would have been solved long

back.

Now, the most recent book Handbook of the Birds of the World [27] considers Indian and Sri Lankan population (thinly populated) belonging to the nominate subspecies *Ardea cinerea cinerea* Linnaeus, 1758; and subspecies occurring in China (except NW), Russian Far East and Japan S to N Myanmar, Indochina, Greater Sundas and W Lesser Sundas; more widespread in winter in SE Asia, and Philippines as *Ardea cinerea jouyi* A. H. Clark, 1907.

4. Conclusion

The Grey Heron *Ardea cinerea* was recorded breeding inland during August 2018 at Nanodara village of (Bavla tahsil) Ahmedabad district, Gujarat, India. In want of available breeding records on inland wetlands, this record is considered as important one. Nesting was done on large Banyan trees located at the edge of the village pond. Only one pair of Large Egret was associated in the heronry, besides Flying Foxes roosting during day time. Its breeding records and respective breeding period in Gujarat is reviewed. Taxonomic status of the Grey Heron sub-species occurring in India is discussed at length. Published evidences suggest that the Grey Herons occurring in India are nominate subspecies *Ardea cinerea cinerea* Linnaeus, 1758.

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