



Fig. 15



Fig. 16

I have often observed the Shikra preying upon Spiny-tailed Lizard hatchlings. Another interesting observation was the pairing of the sub-adult male with the adult female. Naoroji (2006) has stated that this raptor starts breeding after one

year; hence, it is likely that this sub-adult male was suitable for the adult female. However, further study is required to check whether this is a frequent occurrence or if sub-adult males find it difficult to get mates. It is also interesting why the male did not go to the nest tree to transfer the lizard. The effect of the cyclone on the adult pair and the chicks was observed for the first time in this species during the nesting period. Another interesting observation is that it meticulously collects tiny, one-inch wood bark as a nesting material. The survival of the chicks during the cyclone was noteworthy and showed the resilience of the birds in adverse conditions.

Though the Shikra is well studied, many things about this species' breeding biology are still unknown. In a dry area like Kachchh, the breeding biology and food requirements may differ slightly from those of other parts of the country. It is recommended that more studies on the breeding biology of this raptor be carried out in this region.

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Regular Nesting of Asian Openbill Stork *Anastomus oscitans* at Jalalpore within Urban areas of Navsari city of Gujarat State, India

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Introduction

The Asian Openbill Stork (*Anastomus oscitans*) is a long legged large wader belonging to Ciconiidae family. It is a “Least Concerned species” according to IUCN RedList categories. The species is very rare in the Sind and Punjab regions of Pakistan, but widespread and common in India, Sri Lanka, Burma and Thailand (Ali and Ripley, 1978). It breeds in India, Pakistan, and Nepal eastward throughout Indochina and is now dispersing more widely in Southeast Asia, due to changes in climate and food availability (BirdLife International, 2024). It inhabits inland wetlands agricultural landscapes, irrigation

canals, seasonal marshes, river banks and tidal flats and feeds on molluscs, small fishes and frogs (Sundar, 2006; Sundar *et al.*, 2016). The Asian Openbill Stork breeds from April to September (Ali and Ripley, 1978). The knowledge of Asian Openbill Stork is available through the detailed studies conducted at many parts of India and Nepal, describing them inhabiting and nesting in and around wetlands, agricultural lands and urban areas (Datta and Pal, 1993; Sundar, 2006; Sundar *et al.*, 2016; Mohapatra, *et al.* 2019; Koju, *et al.* 2020). However, the species is not much studied in Gujarat. The Openbill is a common resident species in Navsari district,

however no published information from this region is there. Their nesting ecology was studied and published by the author (Vaghela Harshit, B., 2022). The study was extended for further two years to understand their regularity of nesting at the same site.

Study Area

Navsari (20.95°N 72.93°E) is located near the Purna river in South Gujarat at an elevation of 9m above sea level. It covers an area of 43.71 sq. km. Nesting colony of Asian Openbill Stork

is located at Jalalpore (20°56'46.66" N, 72°53'56.50" E), within human dominated area of Navsari city, near Udyog nagar and Navsari railway station (Fig.1). The Abrama Lake, Sultanpur wetland and Chijgam wetland are situated about 9.6 km, 13km and 16km from the nesting site. The minimum distance of nearest water body, Purna river, agricultural field and human habitation were 0.931 km, 2.05 km, 1.19 km and 68.84 m respectively.

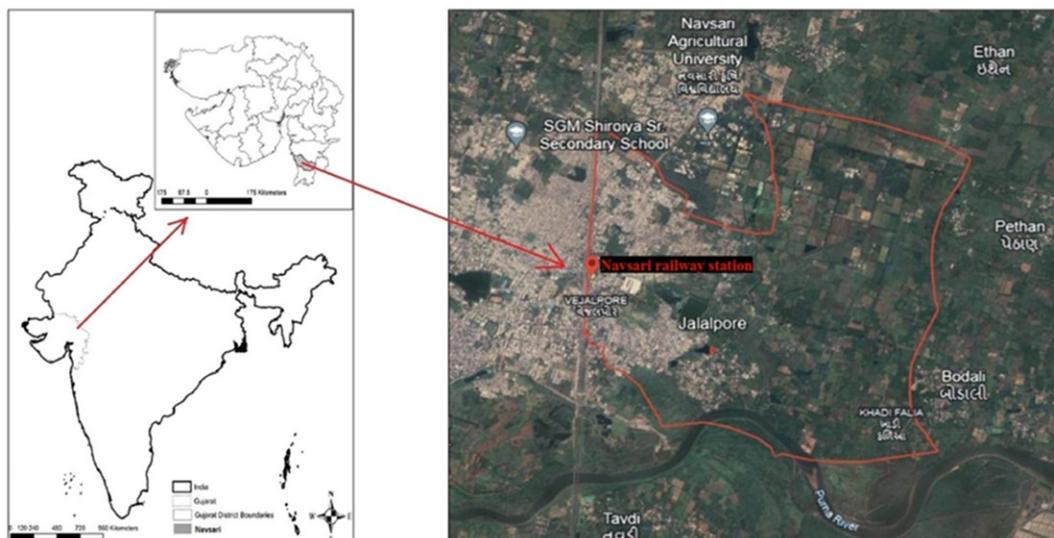


Figure 1: Location of nesting site of Asia Open-billed Stork at Jalalpore in Navsari city, Gujarat state, India.

Methodology

The Jalalpore nest site was surveyed weekly every month from April to October for five successive years viz. 2019 to 2023. The numbers of birds, nests and chicks were counted by Total Count Method using 20x50 binoculars. The tree species were identified by using scientific books. Data such as species and number of nesting trees, numbers of nest per tree and species, height of tree, height of nests, nesting material etc. was collected on the data sheets. The parameters such as height and canopy were measured by ocular estimation. Fledging success was measured by counting total numbers of chicks hatched and numbers of young ones fledged successfully from the nests. Photography and video recordings were done with by using OPPO mobile camera. Local people were asked for past history of nesting and also nesting in nearby potential sites.

Observations

The Asian Openbill Stork was found nesting in a 457m area at Jalalpore, near Navsari railway station for five successive years from 2019 to 2023. The storks nested on trees amid human habitation, within urban areas with constant vehicular and

train movements. Asking the local people revealed that the species nest at the Jabalpore site for 17 years.

The adults arrived at nesting site in months of April to June each year during the study period. The storks started building nests in mid-April and the successively arriving birds continued till June. The highest number of adult birds were recorded in 2020 (Fig.1). The number of nesting birds and active nests declined in the following two years due to pruning of a few nesting trees. Both the parents were involved in nest construction. The nests were huge made of sticks and straws, green branches and leaves of nesting trees. Periodic maintenance of nests was done by addition of fresh twigs from nesting trees. After occupying the nest, one partner always guarded the nest, while another left for collection of nesting material. Mating and egg laying were recorded immediately after the completion of nest building. The average incubation period recorded was 25-27 days. Both male and female were found incubating alternately and feeding to the young ones. The birds bred asynchronously and those initiating nest building activity late in June, left the nests by the end of October along with the young ones. Asian Openbill Stork

Asian Openbill....

goes to feeding in Purna river, agricultural field, Abrama Lake, Sultanpur wetland and Chijgam wetland.

Total 26 trees of nine species were used for situating the nests. Maximum number of nesting tree species was Asopalav (*Monoon longifolium*). However, maximum numbers of nests were recorded on a single Yellow-flame trees (*Peltophorum pterocarpum*). The maximum and minimum height of nests was 16.2m and 7.5m respectively. The height of tree and canopy varied from 10.3m to 20.2m and from 2.5m to 6.3m respectively (Table 1).

In majority of nests two chicks were observed with one and three chicks in a few nests. Total of 6253 juveniles fledged successfully. Mortality of about 1065 juveniles and chicks was reported during the five years due to natural disasters such as heavy rain with strong winds and also falling down from nest. A few still survived after falling on ground but died due to

starvation as remained unattended by the parents. Every year, a few pairs were found discarding single egg from nest.

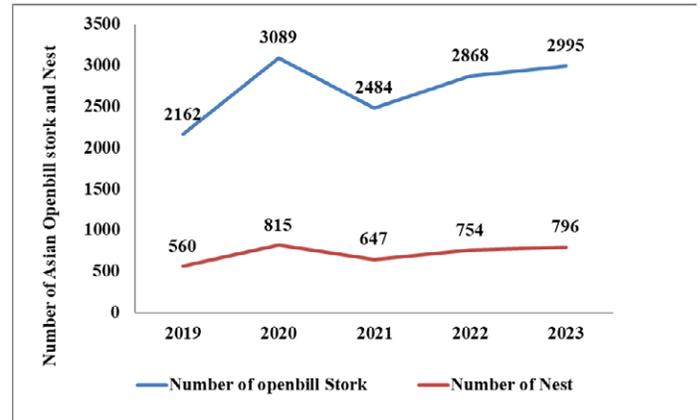


Figure 2: Number of Asian Openbill Stork including adults and juveniles and total Nests at the Jalalpore site during the peak of nesting activities

Table 1: Morphometry of Nest Trees and Nests at Jabalpore, Navsari.

Sr. No.	Nesting Tree	Scientific Names	No. of Trees Used for Nesting	Canopy (m)	Average Tree Height(m)	Average Nest Height(m)
1.	Asopalav	<i>Monoon longifolium</i>	6	03.40	11.16	10.66
2.	Mango	<i>Mangifera indica</i>	4	04.70	13.90	12.20
3.	Neem	<i>Azadirachta indica</i>	4	04.90	12.50	11.66
4.	Pipal	<i>Ficus religiosa</i>	1	06.40	15.00	12.96
5.	Yellow flame	<i>Peltophorum pterocarpum</i>	3	07.73	19.40	15.40
6.	Rain	<i>Samanea saman</i>	1	06.96	19.66	16.06
7.	Jamun	<i>Syzygium cumini</i>	2	05.00	13.43	09.50
8.	Bottle-brush	<i>Melaleuca citrina</i>	1	03.83	11.43	08.16
9.	Almond	<i>Terminalia catappa</i>	4	04.10	12.20	10.46
Total			26			

Discussion

The Asian Openbill Stork was found nesting for five successive years in a 457m area at Jalalpore in Navsari city. The local inquiries revealed that they were nesting at this site for 17 years. This explains the site fidelity and regular nesting of storks in Navsari, which is reported here for the first time at the same location as published in a 2022 paper (Vaghela Harshit, B., 2022). This heronry is old, regular and vast covering a small area, variety of nesting tree including uncommon trees such as almond trees. The current findings can be a pioneer study for detailed research at the same site in the future. The nesting colony was within urban area, very close to human habitation and exposed to heavy vehicular noise and air pollution. Many species of storks are recorded nesting near human habitation, waterbody and agricultural fields. It is believed to provide

protection from predation and easy access to nearby feeding grounds (Thabethe 2018, Tere 2021, Sundar et. al, 2019; Kittur and Sundar 2021). However, a detailed study is required to monitor this site and understand the factors supporting.

In the present study, the storks selected tall trees with large canopy which is matching with other regular sites in Gujarat and India. Conservation of such trees is very important to conserve the species. Cutting of trees, Falling of chicks, natural calamities and pollution were the threats identified at the nesting site. A few people from Forest Department were contacted to rescue the falling chicks during the study, however collaborative involvements of local people, researchers, government and NGOs is required to avoid mortality and conserve the species and nesting site.



Photo 1: Nesting colony of Asian Openbill Stork



Photo 2: Juvenile of Asian Openbill Stork surviving after falling on ground but remained unattended by the parents



Photo 3: Partners with 4 Juvenile from nesting on almond tree



Photo 4: Adult Asian Openbill Stork

All Photos: Harshit Vaghela



Photo 5: Asian Openbill Stork in nest (Almond Tree)

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Fifth update to the Gujarat checklist: December 2024

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This paper is the fifth update to the Gujarat checklist; the checklist was published in 2016 (Ganpule 2016), the first update in December 2017 (Ganpule 2017), the second update in March 2020 (Ganpule 2020), the third update in December 2021 (Ganpule 2021), and the fourth update in December 2022 (Ganpule 2022), which took the number of species documented within the boundaries of the state of Gujarat, along with the adjoining Union Territories of Diu & Daman, and Dadra & Nagar Haveli, to **615** until 31 December 2022; this is also the number of species included in the Gujarat field guide (Ganpule et al. 2022). This paper reviews vital records, lists recent additions to the state checklist and discusses significant sightings from the state from 1 Jan., 2023 till 31 Dec., 2024. A taxonomic update is also included in this note.

The records of the following species have been reviewed:

Eastern Buzzard (*Buteo japonicus*): A recent paper confirmed the occurrence of the Himalayan Buzzard (*Buteo refectus*) in Gujarat (Ganpule 2023). An unanswered question remains whether these buzzards seen in peninsular India are Himalayan Buzzards or the long-distance migrant Eastern

Buzzards. The Himalayan Buzzard was considered sedentary in the Himalayas with only altitudinal movements, while the Eastern Buzzard is known to be a long-distance migrant.

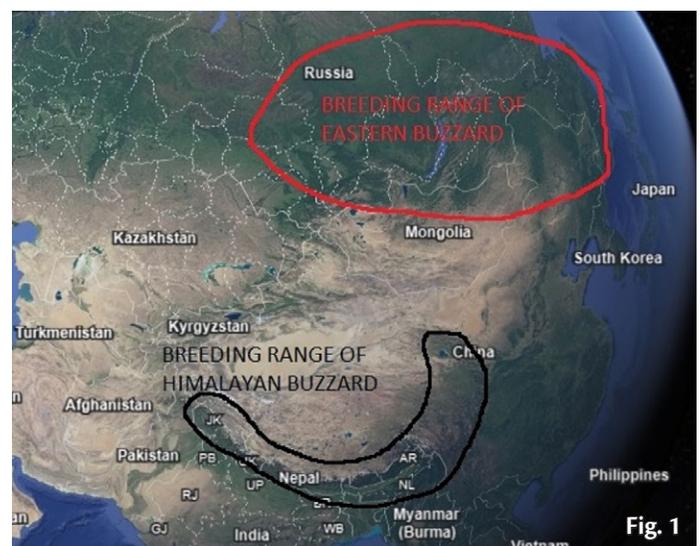


Fig. 1

Anecdotal evidence suggests that Eastern Buzzards from Siberia migrate southwards and could well be visiting India; the Eastern Buzzard was the most common migrating raptor in the South Baikal migratory corridor (Fefelov et al. 2012), and