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First Sightings of Indian Grey Hornbill in Sikar Rajasthan



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ABSTRACT

Hornbills are among the most charismatic bird species in the tropical rainforest. Hornbills are called farmers of forests for playing a key role in dispersing seeds of tropical trees. Out of the 54 species of Hornbills nine species occur in India. Indian Grey Hornbill *Ocyrceros birostris* is endemic to the Indian Subcontinent. Indian Grey Hornbills were observed for the first time in Sikar Rajasthan from December 2018 to March 2019. They were seen in pairs and were foraging Ficus tree fruits. It prefers dense vegetation and was seen making loud vocalizations and rapid movements. As no earlier records of Indian Grey Hornbill are available from Rajasthan. The present study focuses on the hornbill detections and fruit availability in this arid town of Rajasthan. The study will pave the road for more research-oriented activities towards their diversity in Rajasthan and create awareness to conserve these beautiful birds. There is a need to develop a management and action plan for monitoring, protection, and conservation of these critical hornbill populations.

INTRODUCTION

Indian Grey Hornbill is mostly arboreal and is commonly sighted in pairs. It has grey feathers all over the body with a light grey or dull white belly. The horn is black or dark grey with a casque extending to the point of curvature of the horn. There are 54 species of hornbills in the world and nine species occur in India. All species except the Oriental pied hornbill are listed under Schedule I of the Wildlife Protection Act (1972). Hornbills represent an ideal surrogate for population monitoring because of their ecological roles and conservation values. (Kaur 2019, Beastall 2016 and Dhami *et al* 2020). They act as indicators of forest condition and anthropogenic disturbance as hornbills require large and relatively undisturbed forests with large and tall trees for feeding and nesting (Hadiprakarsa and Kinnaird 2004). Moreover, these species contribute to maintaining forests due to their ability to disperse fruit seeds over vast distances (Kitamura 2011).

Hornbills Bucerotidae is one of the most recognizable groups of birds in the Old World tropics. The Indian Grey Hornbill *Ocyrceros birostris*, also known as Common Grey Hornbill, is distributed throughout the country, excepting for Malabar, parts of Rajasthan and Assam (Ali 2002). Hornbills are secondary cavity nesters, using natural cavities or those excavated by other birds. The breeding habits of hornbills are unique in that the female of most species seals herself into a nest cavity and leaves only a narrow slit through which the male passes her food until the nesting period is completed. Hornbills often show high nest-site fidelity, returning to the same nest cavity year after year provided some information on the nesting of Indian Grey Hornbill, but a review of the literature reveals the absence of detailed studies on breeding ecology suggested by Datta *et al* 2018. The assessment of the hornbill food sources is also important as a potential factor influencing the hornbill density. Anggarini *et al.* (2000) and Kinnaird and O'Brien (2007) suggested that hornbill densities in Sumatra and Sulawesi were significantly influenced by the type, amount, and ripeness of fruits available in their habitat. Grey Hornbills has been spotted in an urban environment by Gadikar 2017.

However, hornbill population data from Rajasthan has so far been not reported. The present study was undertaken to assess the ecology distribution and nest tree preference of Indian Grey Hornbill in an arid town of Rajasthan. The observations were done on hornbill detections and fruit availability in Maru park of Sikar from December 2018 to March 2019.

MATERIALS AND METHODS

Study area

Sikar district are located in the north-eastern part of the state of Rajasthan between 27.6094° N, 75.1398° E. It is bounded on the north by Jhunjhunu district, in the north-west by Churu district, in the south-west by Nagaur district, and in the south-east by Jaipur district.

Sikar is 429m above sea level. The climate here is considered to be a local steppe climate. During the year, there is little rainfall in Sikar. This climate is hot and arid type. The average annual temperature in Sikar is 24.9 °C. The rainfall here is around 452 mm. Maru park is located at 27.5966° N, 75.1418° E. The study was done from 10.30 m to 12.30 pm daily December 2018 to March 2019 in Maru park of Sikar where the hornbills were observed in pairs. They were seen eating fruits of a large Ficus tree. The binoculars and camera were used to observe their behavior during these months.

The Indian grey hornbill is a medium-sized hornbill, measuring around 61 cm in length. The upperparts are greyish brown. The flight feathers of the wing are dark brown with a whitish tip. The tail has a white tip and a dark subterminal band. The male has a larger casque on a dark bill. The female has a more yellowish bill with black on the basal half. The call is a squealing call. Indian grey hornbills usually nest in tree hollows on tall trees. The female enters the nest hollow and seals the nest hole, leaving only a small vertical slit through which the male feeds her. The nest entrance is sealed by the female using its excreta and mud-pellets supplied by the male. They were found to indulge in various social activities like bill-grappling and aerial jousting.

RESULTS AND DISCUSSION

The hornbills started to prepare themselves for breeding in early December, when such pre-nesting behaviors nest-cavity searching, mating, and courtship feeding are seen (Kempet *al* 2020). Nearly five pairs of Hornbills were seen in Maru Park. Both male and female hornbills have been noticed peeping into tree cavities (Shukla *et al* 2015), one after the other, and this was often noted and continued until the female entering into the nest cavity. (Fig 1)



Figure No. 1: Indian Grey Hornbills pairs were seen atop a tree in Maru Park

In the study area, Indian Grey Hornbills used a tall tree *Ficus* with a large girth. Hornbill's preference for using tall trees with large girths was also reported in various other studies. Mudappa & Kannan (1997) reported Malabar Grey Hornbill nests at an average height of 24 m and the diameter at breast height as 60– 89 cm. Maheswaran & Balasubramanian (2003) reported a mean tree height of 36 m and 283 cm width for Malabar Grey Hornbills.

Previous studies reported the increase of hornbill abundance to fruit availability Anggraini *et al.* 2000 and Naniwadekar *et al.* 2015. Their study found that overall hornbill detections were positively correlated with the percentage of ripe fruits in the canopy. Our findings confirmed the importance of ripe fruits reported by Anggraini *et al.* (2000), as was observed in this study that hornbills were attracted to the trees with abundant ripe fruits which was also recorded by Datta & Rawat 2003. The ripe fruits provide more sugar and nutrients than unripe fruits, thus they are preferred by hornbills (Kitamura 2011). A notable observation of this relationship was also seen in the present study (Fig 2) which shows similarity with the observations of Franco and Minggu 2019. The flight movement showed similarity with the findings of Vikrant *et al* 2021.



Figure No. 2: Ficus tree Fruits of Maru Park

Significance

Hornbills are called ‘forest engineers’ or ‘farmers of the forest’ for playing a key role in dispersing seeds of tropical trees, hornbills indicate the prosperity and balance of the forest they build nests in. Since hornbills consume and spread seeds of fruit species, they are important for the economy and culture of local rural communities.

Threats

Hornbills are hunted for their casques and feathers for adorning headgear. Tribal people hunt them for their parts for rituals and making headgears and other decorations and even as a delicacy. Habitat loss and hunting are major threats. Forest clearance for agriculture has also dwindled their numbers. There is a need to conserve them as they move into new arid habitat having few large trees. More afforestation and least human interference will help to increase their population.

CONCLUSION

Future research is needed to better understand the population and ecology of Indian Grey Hornbills in the sparse vegetation cover found in Rajasthan. The following conservation management strategy will be fruitful for saving them:

Firstly, as hornbill densities fluctuate over time concerning fruit supplies, long-term monitoring is needed to identify the population dynamics.

Secondly, as the current study only covers a small portion of the Sikar it is suggested to conduct population surveys in additional sites in this area namely Samriti Van and Harsh Mountains which are also having dense vegetation and less human interference.

Thirdly, hornbill foraging behavioral studies are needed to identify the species and characteristics of fruits and animals consumed by hornbills. Finally, as Maru Park is located in heart of Sikar studies of hornbill densities and disturbed habitats in this region could provide important information on hornbill responses to foraging and nesting behavior.

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