

Observations of Woolly-necked Stork nesting attempts in Udaipur city, Rajasthan, India

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Abstract The Woolly-necked Stork is widely perceived to prefer isolated areas for nesting, but there have been multiple observations of this species nesting successfully near urban areas in south Asia. In this note, I provide additional observations of Woolly-necked Storks attempting to nest in Udaipur city and in an agricultural field and provide some observations about two unsuccessful attempts that were observed. This note adds to growing observations of the Woolly-necked Storks being able to nest in urban areas and farmlands.

Keywords Breeding biology, *Ciconia episcopus*, nest abandonment, urban nesting

Introduction

The Woolly-necked Stork *Ciconia episcopus* is a large tropical wading bird species sparsely distributed throughout the Indian subcontinent and breeds in Africa and in Asia from India to Indonesia (Ali and Ripley 1987). It has been known to be a solitary nester and observed nesting in tall and dense canopy trees and on cliffs along rivers, and was assumed for a long time to require undisturbed areas to breed (Ali and Ripley 1987; Vyas and Tomar 2006). In India, it breeds between July-September during the monsoon season while in Indonesia December-March and in the dry season throughout Africa. However, records of Woolly-necked Storks readily using man-made structures such as cell phone towers are growing, suggesting that the species is more versatile than was previously believed (Vaghela *et al.* 2015; Greeshma *et al.* 2018; Hasan and Ghimire 2020). The number of reports on the storks' ability to

breed in or near urban areas is still sparse, and this study adds to existing literature with observations on two nesting attempts in and near Udaipur city in Rajasthan, India.

Study area and methods

Observations for this note were made in and immediately around Udaipur city, Rajasthan, when I was engaged in field work during June 2019 to September 2019 to enumerate bird diversity in Udaipur. The entire city limits were overlaid with a grid of 2.5×2.5km, and the center of each grid was visited thrice a year in each of three seasons. The city experiences strong seasonality with scorching summer (March-June), monsoon (July-October) and dry winter (November-February).

When Woolly-necked Stork nests were located, I conducted focal observations on nesting birds for one hour during each visit. At first site, I spent a total of four hours and at second site six hours for observing the stork pair's activities. I visited nest sites on alternate days until storks were no longer seen at nests. At each nest site, I briefly interviewed a few locals including a farmer regarding the storks' both nesting and foraging habits.

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Results

I observed Woolly-necked Storks attempting to nest on two occasions and provide a description of each attempt below.

The first nest site was discovered on 21 June 2019 in a densely populated area of Kanpur village in Udaipur city adjoining a road with a high level of traffic. I saw a Woolly-necked Stork on a 15m high *Ailanthus excelsa* tree (Figure 1). The stork was arranging sticks into a platform apparently building a nest and was joined by a second stork after a few minutes. One stork stayed at the nest while the second made forays bringing in additional nesting material. I visited the nesting site again on 23 June 2019 and observed similar behavior for another hour. On 1 July 2019, I visited the nesting site again and found both storks missing, and they did not return in the 45 minutes I waited. The storks remained missing during additional subsequent visits despite the platform remaining intact. The cause of nest abandonment could not be determined.



Figure 1. A pair of Woolly-necked Stork organizing nesting material on a forked branch of tree by picking sticks in bill at Kanpur village road in Udaipur. Photographed on 21 June 2019 by Kanishka Mehta.

The second nest was observed on 29 August 2019, also on a 15m high *Ailanthus excelsa* tree. This tree was almost 5 km away from the first nest site and was located a little distance away from the main Udaipur city in a crop field. I observed the pair constructing the nest using thick twigs and branches for nearly an hour. The farmer who owned the fields with the nest tree was aware of the storks and indicated that he had observed them feeding in the crop fields and had also noticed that the storks were active after sunset. I visited the nest every alternate day and observed them feeding in the crop fields, and once observed both

of them sitting at the nest. After 14 days, the storks were not visible at nests and the farmers also indicated that the birds had not returned despite the platform remaining intact. The cause of nest abandonment could not be determined.

Discussion

This is the first observation of Woolly-necked Storks nesting in and near Udaipur city despite the species being seen in small numbers in fields and wetlands inside and around the city (pers. obs). In both instances, storks built nests but did not appear to lay eggs, and abandoned both nests. There could be several reasons for this. Both storks could have been driven away by either predators or humans. Alternatively, the stork pair may be very young attempting to nest for the first time making the second nest slightly away from the city after being disturbed at the first nest inside the city. Udaipur city hosts many species of waterbirds that use the lakes as foraging and breeding habitats (pers. obs), and many large waterbirds roost on large trees inside the city (Koli *et al.* 2019). According to Ali and Ripley (1987), the Woolly-necked Stork may use old nesting sites in subsequent years if the birds are left undisturbed. This suggests that storks may revisit the nesting sites in subsequent years for nesting.

Woolly-necked Storks are assumed to prefer isolated areas for nesting but were seen building a nest in a very busy area in Udaipur. Human disturbance could be the major issue dissuading nesting in ciconiiform birds (Bouton *et al.* 2005). The first site I observed had high human disturbance and likely caused the stork pair to move away, similar to observations that have been made for other stork species nesting near human habitation in India (Tiwary and Urfi 2016). These nest or nest like structures doesn't necessarily receive eggs but are made as decoy or dummy nests to distract predators' focus. Unlike other observations near cities where Woolly-necked Storks used cell phone towers to potentially avoid being disturbed (Vaghela *et al.* 2015; Greeshma *et al.* 2018), in Udaipur the storks used existing trees and were not seen nesting on towers. It is not clear if Woolly-necked Storks in Udaipur will continue their nesting attempts in Udaipur city. It also remains to be seen if they will continue using natural nest platforms such as trees or whether they will start using artificial platforms such as cell phone towers like in other cities in south Asia.



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