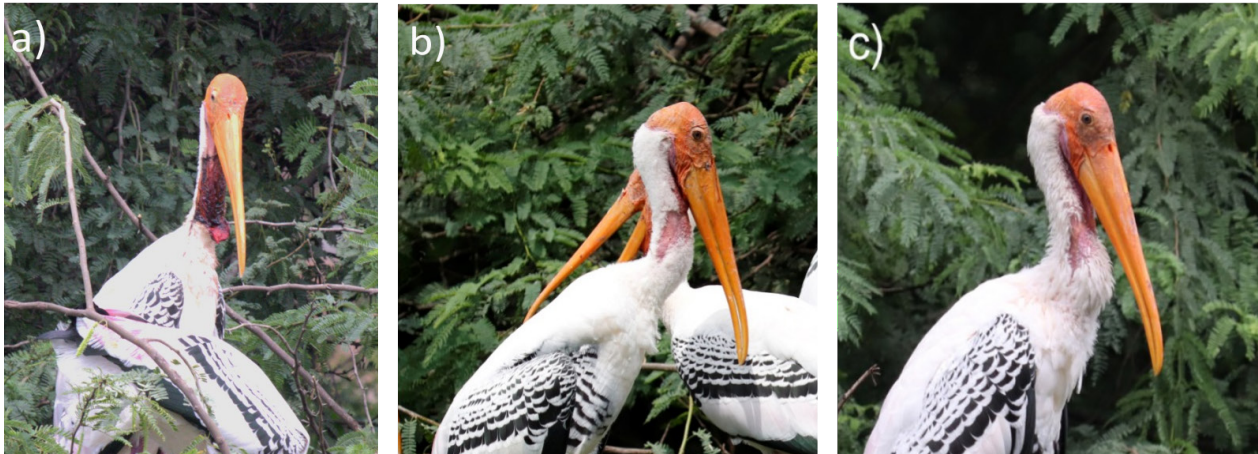


Injuries sustained by free ranging Painted Stork nesting in the National Zoological Park, Delhi by Chinese 'manjha' strings



An individually identifiable Painted Stork with an injury mark clearly visible on the neck, most likely caused by kite flying thread, observed at the nesting colonies of Delhi Zoo in three successive breeding seasons. a) 2022, b) 2023, c) 2024. Note progressive reduction of the scar and the growth of skin and feather tracts. © Paritosh Ahmed.

Kite flying has been a popular pastime in India since Chinese explorers Fa Hien and Hiuen Tsang introduced it around 600 AD (Desai 2010). Traditionally enjoyed during festivals like Lohri, Basant, and Makar Sankranti, it later evolved into the competitive sport of kite fighting during the Mughal era (Desai 2010; Singh et al. 2014). After India's independence in 1947, kite flying became a symbol of celebration. In India, primarily two types of kite strings are used, i.e., '*manjha*', a glass-coated abrasive string, and '*saddi*', a non-abrasive cotton string.

However, the sharpness of *manjha* makes it essential for kite fighting (Desai 2010). Recently, synthetic '*Chinese manjha*' a glass-coated polymer line has gained popularity due to its superior cutting ability and lower cost. In the local market, 12 reels of Chinese *manjha* cost

around Rs.350, while cotton *manjha* can cost up to Rs.1,150 depending on quality (Indian Express 2016).

This extensive use of Chinese *manjha*, has become a cause of concern in India due to the accidental injuries it causes to wild birds in flight especially in urban areas as these strings get tangled up in tall tree branches, telegraph or electricity poles, protuberances on tall buildings, roads, etc. when it is carried by the wind and drifts with the kite (Roy & Shastri 2013; Babu et al. 2015; Gupta et al. 2018). Due to the thin and near-invisible nature of the kite string, common birds in flight (which generally fly low, within a height 6–46 m) often get tangled and experience extreme stress and strain, and sustain injuries, particularly severe cuts, and bruises, and even die if not saved (Babu et al. 2015). In August



Map showing the location of the National Zoological Park where the Painted Stork nesting colony is located, and the river Yamuna where the birds fly frequently for foraging. Note extensive built-up areas between the two where birds fly low during the month of August when kite flying is at its peak. Source: Google Earth.

2024, it was reported that more than 100 birds which included pigeons, black kites, and even a cormorant got injured by kite flying in Delhi (Gandhiok & Jha 2024).

Here we document a case of severe injury sustained by an adult Painted Stork *Mycteria leucocephala* nesting in the open heronries of National Zoological Park (NZP) or Delhi Zoo, Delhi.

The Painted Stork, a colonial waterbird of southern and southeastern Asia, is a regular nester at Delhi Zoo, where it has been nesting in large colonies on clumps of *Prosopis juliflora* trees growing on islands in its ponds, since 1960 (Urfi 2011). Each year, in the month of August these storks congregate in the zoo premises and usually occupy previous years' nests or repair the old nests by adding fresh twigs and leaves from nearby trees. The nesting activities in the Painted Stork nesting colonies can be studied easily from designated pathways built close to the ponds, with binoculars or a telescope,

with a viewing distance of 30–50 m. During the course of our field observations in August 2022, an individual Painted Stork with prominent injury marks, likely caused by kite string, on the neck was sighted. In this individual, the entire gular area appeared to be scraped off over a length of approximately 15–20 cm, exposing the trachea. Subsequently, the injuries healed over time and left a prominent scar on the neck. The same individual with the injury scar was seen in subsequent years, 2023 and 2024, also. The particular bird was observed nesting in the same patch (in Pond 1, colony 1) in each of the three years.

The Painted Storks nesting in the Zoo are known to make foraging trips to nearby foraging areas associated with the river Yamuna nearby (Urfi 2010). Since their flight path is over residential areas and generally these storks fly low, it is quite possible the throat injury was caused by an abrasive cord, a kite string which was made of Chinese manjha. Interestingly, the time when Painted Stork start congregating at the Delhi

Zoo, i.e., in the month of August (a couple of months after the commencement of the summer monsoon) is also a period when the popular sport of kite flying is at its peak. In fact, on India's Independence Day celebrations on the 15 August kite flying activities are at their peak.

As the individual with injury marks on its throat was seen regularly each of the three years it was possible to note the healing process of the wound. Except for a slight reduction in the size of the scar, the wound remained nearly of the same size. The repeated occurrence of this bird at the site strongly suggests nest-site fidelity (Vergara et al. 2006) although other and rigorous tests would also be required to unequivocally establish the identity of the individual bird.

Injuries to birds caused by kite flying string are becoming increasingly common in India, especially as new varieties of kite string are extremely abrasive and almost invisible (Roy & Shastri 2013; Babu et al. 2015; Gupta et al. 2018). While the authorities concerned seem cognizant of the damage being caused by the free use of Chinese manjha to free flying birds and frequent notices and appeals are issued by government agencies, more stringent steps need to be taken to stop the use of this material for the harm that it causes to the environment. From a conservation viewpoint, this is fast becoming a serious issue as many types of birds are reportedly being affected, and calls for serious discussion and legislative solutions.

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Paritosh Ahmed & A.J. Urfi*

Department of Environmental Studies
University of Delhi, New Delhi 110007, India
E-mail: paritosh.ahmed@gmail.com,
ajurfi@es.du.ac.in* (correspondent author)

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