

## Distribution, and potential breeding records, of Lesser- *Leptoptilos javanicus*, and Greater- *L. dubius* Adjutant-Stork in Bihar, India

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### Introduction

There are about 2,000 species of birds found in the Indian Subcontinent (Ali & Ripley 1987) including the migrants that come during winter to this part of the world. Out of 1,200 species found in India around 22% are totally dependent on wetlands (BirdLife International 2007). One such wetland-dependent group, whose population is declining alarmingly, comprises storks (Order Ciconiiformes) (Ishtiaq 2001).

There are 19 species of storks found in the world of which 15 are regionally threatened. Tropical Asia and Africa have the largest concentrations of storks (Ishtiaq 2001).

Since 2004 we have been studying the breeding and nesting behavior of a few stork species, mainly Asian Openbill-Stork *Anastomus oscitans*, Lesser- *Leptoptilos javanicus*, and Greater- *L. dubius* Adjutant-Storks, Black-necked Stork *Ephippiorhynchus asiaticus*, and Painted Stork *Mycteria leucocephala* in different parts of Bihar.

Besides Asian Openbill-Stork the other four species, which have been categorised as Threatened, are breeding successfully in different districts of Bihar, especially in the northern and eastern parts of the state, and their numbers are significantly increasing (Choudhary *et al.* 2008; Mishra *et al.* 2010; Choudhary *et al.* 2010). In this note, we provide our observations on breeding Lesser- and Greater- Adjutant-Storks in new locations.

### Breeding of Lesser Adjutant-Stork

According to Ali & Ripley (1987) the Lesser Adjutant-Stork breeds only in Sri Lanka, India (Kerala, Tamil Nadu, parts of the Malabar Coast, and Assam), and Bangladesh. Subramanya (1996), in his detailed work on heronries in India, reported the nesting of Lesser Adjutant-Stork at Bhitarkanika Wildlife Sanctuary, Orissa. This is the only documented breeding site outside north-eastern India. The Lesser Adjutant-Stork has been declared Vulnerable. Its global population is estimated at about 5,000 birds, and the population of this species in Assam is believed to exceed 2,000 individuals (BirdLife International 2007).

However, 31 nests in 2004, 33 in 2005, and 38 in 2006 in Kishanganj- and Katihar- districts of northern Bihar have already been reported by Choudhary *et al.* (2006), and Mishra *et al.*, (2005) recorded about 42 nests in the Koshi region of northern Bihar. In Kishanganj district we found nine nests in 2006 and 14 in 2008. In 2008, the storks nested on banyan *Ficus bengalensis* and semal *Salmaalial malabarica* trees at Koabari village under Taiyabpur railway station (Fig. 2). In 2008 many nests of Asian Openbill-Stork surrounded the two nests of Lesser Adjutant-Stork.



Fig. 1. Greater Adjutant-Stork *L. dubius*. Photo: D. N. Choudhary

This was the first time that Asian Openbill-Storks bred at this site. Presently both the species are breeding together on these trees.

Koabari village is located on the Thankurganj–Kishanganj road, and River Mahananda flows c. 500 m away from this village. This river is most likely the major source of food and water for both Asian Openbill-Stork and Lesser Adjutant-Stork.

About 150 m away from this nesting site stands another big semal tree, on the same side of the road, completely covered with Indian flying fox *Pteropus giganteus*. According to the villagers more than 1,000 have been roosting on this tree since a decade or more. Asian Openbill-Storks have also occupied this tree, and we recorded three nests, containing three grown-up chicks each, in October 2008. Roosting flying foxes surrounded all the three nests, but there was apparently no disturbance to the nesting birds. In July 2009 we recorded 21 nests of Asian Openbill-Stork on the same tree. Asian Openbill-Storks start to assemble here to breed after the second week of May, where as Lesser Adjutant-Storks commence building nests in August.

Dr Lakshmi Narayan Sharma, a popular Ayurveda doctor of this region, owned this tree, and he was ready to sell it. Our regular visits to study the birds convinced him and his family members not to do so. Gradually they began protecting the nesting birds. Mr Gopal Choudhary, a local press reporter and resident of this village (Koabari) is enthusiastic to save these



Fig. 2. Lesser Adjutant-Stork *L. javanicus* on nest with juvenile.

nesting birds. His articles favouring their conservation have created a positive awareness among the villagers and local community. The awareness for protecting the birds is one of the main reasons for letting them breed undisturbed. The number of nesting Lesser Adjutant-Storks, and Asian Openbill-Storks are gradually increasing in this area.

Lesser Adjutant-Storks are regularly seen in pairs or in a flock of five–seven, in cultivated fields and nearby wetlands, in other parts of the district. We regularly communicate with villagers and remain alert for new nesting records in other areas. Recently we received some reports about their nesting in villages along the Indo–Nepal border, in the Kishanganj-, and Araria- districts of Bihar. We plan to survey these areas in the near future. The numbers of nests of Lesser Adjutant-Storks have increased at Dandkhora (10 in 2008), and Karhagola (8 in 2008) in Katihar district, in comparison to the previous report of Choudhary *et al.* (2006).

### Breeding of Greater Adjutant-Stork

The Greater Adjutant-Stork (Fig. 1) has been categorised as Endangered by BirdLife International (2007). According to IUCN (2007) the global population of this species may be 650–800 birds. At the beginning of the Twentieth Century the Greater Adjutant-Stork was found often in large numbers in South and South-East Asia, from Pakistan through northern India, Nepal, Bangladesh, Vietnam, and the Kingdom of Cambodia. But now their global numbers have decreased alarmingly. This massive decline is due to the effects of pollutants, and the continuous reduction in the availability of nesting-, and the quality of, feeding sites (Islam & Rahmani 2002).

IUCN (2007) reports that there are only two potential breeding sites in the world: Assam (India), and Cambodia. Indian records are from the Brahmaputra and Gangetic plains (Singha 2001; Choudhury 2007, 2009). Choudhary (2009) reported that 313 Greater Adjutant-Storks were recorded by a local birdwatcher, Mr Lakhan Tron, near Deepor beel, Guwahati (Assam), in January 2008. However, a larger congregation of 446 birds was recorded by Choudhary (2009) at the Paschim Boragaon dumping ground in Guwahati in September 2008.

We recorded 13 live nests of Greater Adjutant-Storks with their chicks for the first time in December 2006 at two *diara*<sup>1</sup> villages under Naugachia block in Bhagalpur district. These two diara villages are Kashimpur and Ashramtola surrounded by many smaller and larger wetlands but mainly affected by River Koshi and its tributary. The Greater Adjutant-Stork was also found foraging and roosting in these wetlands and tributaries. The distance between these two villages is about two kilometers. Six nests were recorded at Kashimpur on a big peepal tree *F. religiosa* located adjacent to this village, whereas seven nests were recorded at Ashramtola on a pakar tree *F. virens*. In both the sites the nests were located at the top of the tree, which has thin foliage covering. Both the trees were very large, and widely branched.

One of us (JM) observed the nesting for the first time and was the basis for a more detailed survey that resulted in the information provided above.

The birds were provisioning chicks at the end of the third week of March 2007. Out of 13 nests, eight (four each in Kashimpur and Ashramtola) contained two chicks each, whereas five nests (two in Kashimpur and three in Ashramtola) contained three chicks each (Fig. 3). However, two dead chicks were found

fallen on the ground in Kashimpur in the first week of April 2007. In all, the birds successfully raised 29 chicks, i.e., 2.2 chicks per breeding pair. When we observed them, they were leaping in the air from the nest floor, flapping their wings.

In January 2009, in the same diara villages Kashimpur and Ashramtola, we recorded 17 nests in both the sites. Of these, seven were at Kashimpur on the same peepal tree. Ten were found at Ashramtola, of which four were on the top of a large kadam tree *Anthocephalus cadamba*, and six on a large semal tree. This shows an increasing trend in the population of Greater Adjutant-Storks in Bihar.

### Additional observations regarding Greater Adjutant-Stork

- Greater Adjutant-Storks generally prefers to build their nests on large, widely-branched trees with thin foliage cover.
- Though nesting sites were located within the village, they suffered minimum human disturbances.
- The tributary of River Koshi, and the wetlands surrounding the villages are the main sources of food and water for Greater Adjutant-Storks.
- All the nests were looking like spherical baskets made of plant twigs of c. 1–1.5 m diameter at the treetop.
- Both the parent birds alternately shared in incubation.
- After the eggs hatched, the parents were observed guarding the chicks alternately, during which time they also rearrange the nesting materials, nurse the chicks by preening and shading by spreading their opened wings above the chicks.
- Juvenile birds (90–100 days old) were observed leaping into the air, from the nest floor, flapping their wings vigorously.
- Sometimes the juveniles took short flights, and returned to their nest, just like those of Asian Openbill-Stork and Lesser Adjutant-Stork.
- Parents fed their young more actively during the middle of the day.
- We found that the breeding period of Greater Adjutant-Storks in Bihar is between October and March. Nest construction begins before mid-October, and the chicks fledge between March and April.

Choudhary & Ghosh (2004) first reported Greater Adjutant-Stork from the wetlands of Bihar, i.e., near Kursella, Naugachia, Bihpur, and Pasraha, while Choudhary *et al.* (2004) reported it from Vikramshila Gangetic Dolphin Sanctuary in Bhagalpur,



Fig. 3. Greater Adjutant-Stork *L. dubius* juveniles (110–120 days) in Ashramtola.

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<sup>1</sup> Area covered by floodwaters of a river.

Bihar. However, the largest congregation of Greater Adjutant-Storks, containing 53 individuals, was recorded on the banks of River Ganga, within Vikramshila Gangetic Dolphin Sanctuary in May 2006, along with 57 Painted Storks, and other water birds (Choudhary & Mishra 2006). The sighting of such a large numbers of Greater Adjutant-Storks and Painted Storks catalysed us to be more vigilant.

In the last week of January 2009 two Greater Adjutant-Storks were recorded roosting, with seven Lesser Adjutant-Storks, on a large banyan tree in Koabari village (Kishanganj district, northern Bihar). Villagers report that their number could be more than five. But their sudden appearance here reveals that in future this could become a preferred site for roosting or breeding and that their numbers may ultimately increased. This is certainly a good sign for us.

### Conclusion

The above facts make it quite clear that both the threatened storks are breeding successfully in Bihar. Tolerance of villagers towards the birds, and awareness created by members of Mandar Nature Club, Bhagalpur help in their successful breeding. Traditional beliefs of farmers combined with relatively simple awareness programmes to ensure villagers retain pride can aid to improve numbers of species that are of global conservation concern.

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## High density nesting of White-Bellied Sea-Eagles *Haliaeetus Leucogaster* on Netrani Island, Karnataka: a possible IBA site

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### Introduction

Netrani Island (14°59'N 74°19'E) is a heart-shaped, steep-sloped offshore island jutting out of the Arabian Sea off Uttara Kannada district. It is about 19.6 km from the coastal town of Murudeshwar, and 24 km from coastal town of Bhatkal, in Karnataka, India (Figs 1 & 2). It is 4.2 km<sup>2</sup> in area, and ranges in altitude from 0 m to 77 m above mean sea level. It is covered with dense evergreen vegetation, with *Ficus* sp., dominating, along with lianas, climbers, shrubs, and grasses. A small un-named rocky islet is located to the south-west of Netrani (Fig. 2), and is devoid of trees, but some grass was seen.

White-bellied Sea-Eagle *Haliaeetus leucogaster* is widely distributed along the Indian seaboard and offshore islands south of the latitude of Mumbai (c. 19°N), and affects the seacoast, tidal creeks, and estuaries (Ali & Ripley 1968). Extraliminally, it is recorded on the coasts of Myanmar, the Malay Peninsula, and archipelagos east to Australia, Tasmania, and W. Polynesia (Ali & Ripley 1968). It breeds in India from October to January (Ali & Ripley 1968).

Pande (2005) had recorded pre-breeding activity of about 60 White-bellied Sea-Eagles flying over Netrani Island during October 2005, when Pande, and others (NS, SP) had observed