Lesser Adjutant Stork and Stork-billed Kingfisher, additions to the birds of Kawal Wildlife Sanctuary, Andhra Pradesh

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The Kawal Wildlife Sanctuary (19º05'45"N 78º45'10"E; henceforth Kawal WLS) is situated in Adilabad district in northern Andhra Pradesh, and is the oldest and one of the largest protected areas in the state, covering over 893 km^2. The sanctuary is situated on the northern banks of the Godavari River, and stretches across the Satmalai range of hills. The general vegetation of Kawal WLS consists of dry and moist deciduous forests interspersed predominantly with teak and bamboo plantations (Srinivasulu 2004). Kawal is linked to Tadoba–Andhari Tiger Reserve in Chandraprur district, Maharashtra, through a series of forested corridors stretching north across the Satmalai range. The Kaddam River, a major tributary of the Godavari, bisects the sanctuary towards its western fringes.

Through this note we report new site records and provide an update on the geographic range of two bird species. We relied on published literature for ascertaining previous geographic records of these two species.

Lesser Adjutant Stork

The Lesser Adjutant Stork *Leptoptilos javanicus* is a vulnerable species and is a rare visitor to Andhra Pradesh. The previous records of this species in Andhra Pradesh are from ICRISAT Asia Center, Rangareddi district (Hash *et al*. 1996; Hash & Peacock 1996; Pittie 2002), Manjeera dam, Medak district (Islam & Rahmani 2008), and Visakhapatnam and Vizayanagaram districts (Kumar 1981). Although Ali (1934a) did not come across this bird during his ornithological survey in the erstwhile Hyderabad State, he mentions its presence by quoting from Davidson & Wenden, "Wenden is sure that he has seen this bird on more than one occasion about the marshy tanks on the outskirts of the Nulwar jungles, Gulbarga, Karnataka. It is however a very rare visitant, and seen in the rainy season only" (Ali & Whistler 1934a).

Maps: Wikimedia

Stork-billed Kingfisher distribution in Andhra Pradesh.

The current records of this species come from Kawal WLS and Eturnagaram Wildlife Sanctuary in the northern part of Andhra Pradesh. In Kawal WLS, a solitary Lesser Adjutant Stork was sighted in the reeds at a seasonal wetland right beside the left bank canal emerging from Kaddam reservoir (19º07'N 79º03'E), near the Alinagar–Dongapally villages under the Jannaram Forest Range of Kawal WLS. It was sighted feeding on an Indian bull frog *Haplobatrachus tigerinus* after a heavy downpour on 28 July 2007 at 1500 hrs. Later the bird was observed perched on the top most branch of a tree which could possibly be its roosting site. This species has not been recorded from Kawal WLS prior to our sightings (Srinivasulu 2004).

A fair number of Lesser Adjutant Storks could be visiting the Kawal WLS and its surrounding corridors. The Gond (local tribal) trackers helping us in our studies informed about its sightings prior to our surveys within the sanctuary. Further investigations must be carried out on the bird's presence in the sanctuary, as it is a threatened species.

In Eturnagaram Wildlife Sanctuary (18º19'N 80º25'E), Warangal district, a solitary Lesser Adjutant Stork was sighted on 6 November 2008, in a wet deciduous forest with some patches of seasonal waterholes. It flew right above us, less than 7 m from the ground, which made it very easy to identify. Its huge size with large bill and retracted neck while in flight was the main key for its identification.

From these records and Salim Ali's notes, it can be assumed that a few Lesser Adjutant Storks travel south to the northern parts of Andhra Pradesh (above Krishna River), mainly during the rains, when there are a good number of seasonal waterholes. They mostly prefer undisturbed moist forests with tall grass.

Stork-billed Kingfisher

Stork-billed Kingfisher *Halcyon capensis* is one of the six species of kingfishers that occur in Andhra Pradesh (Taher & Pittie 1989). The records of this bird in the state are from Utnoor and Asifabad in Adilabad disrict, Pakhal Lake in Warangal district (Ali & Whistler 1934b), Kambalakonda in Visakhapatnam district (Sekhar *et al.* 2009), Machlipatnam in Krishna district and Coringa in East Godavari district (Srinivasulu, *pers. obs.*).

Lesser Adjutant Stork distribution in Andhra Pradesh.

A solitary Stork-billed Kingfisher was sighted twice at

Kaddam reservoir [19°06'48.98"N 78°48'09.46"E] on the western fringes of the Kawal WLS, on 30 July 2007. It was first sighted at 0700 hrs while it was in the process of feeding. The same bird was again sighted at 1000 hrs when it flew overhead and landed on a tree. The microhabitat consisted of densely wooded mixed forest with dense undergrowth. Our sighting adds the Stork-billed Kingfisher to the birds of Kawal WLS (Srinivasulu 2004).

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Gleanings

Ragupathy Kannan

Cunningham , S., Castro, I., & Alley, M., 2007. A new prey-detection mechanism for kiwi (*Apteryx* spp.) suggests convergent evolution between paleognathous and neognathous birds. *Journal of Anatomy* 211: 493–502.

Cunningham, S. J., Alley, M. R., Castro, I., Potter, M. A., Cunningham, M., & Pyne, M. J., 2010. Bill morphology of ibises suggests a remote-tactile sensory system for prey detection. *Auk* 127: 308–316.

In my Ornithology course at the University of Arkansas—Fort Smith, we use the most recent edition of Cornell Lab's *Handbook of Ornithology*: a lavishly illustrated and up-to-date tome. Yet, often in the past six years I had to go back to my lecture files to update my notes. Such is the flood of new information on bird biology. The way birds find food by use of special organs in their bill tips is the latest addendum to my lectures.

Ornithologists have long assumed that ibises and shorebirds rely on tactile senses in bill tips to physically touch and capture invertebrate prey from the wetlands they feed. I have always told my students that birds feel for their prey as they probe or jab into the squelch or litter and then snap them up. I have also used kiwis as a good example of the few birds that use the sense of smell to "sniff out" prey. Kiwis seem tailor-made to use smell not only because of their enlarged olfactory lobes, but also because their nares ("nostrils") are placed at the very tip of their bills as opposed to the side of the bill in other birds. But experimental studies have not conclusively established the importance of smell in kiwi prey detection (the two major studies cited by the authors in this regard—Jenkins 2001, and Flinn 1995—are unpublished works).

Two recent papers, one in an anatomy journal and the other in a leading bird journal, add fresh perspective on this. Both studies were spear-headed by Susan Cunningham of Massey University in New Zealand. The authors extensively examined bill morphology (including histology) of kiwis and ibises, and correlated this with habitat use information.

Susan and her colleagues report that these birds find food by detecting vibrations or pressure changes generated by prey movements and not by mere physical contact with prey. They use the term "remote touch" for this phenomenon and say that it is aided by special organs of mechano-reception (termed Herbst Corpuscles) embedded in the bone of the bill tips. They surmise that in kiwis this sense may either act as a supplement to olfaction or even be the predominant mode of prey detection. Among 11 species of ibises they found that the number of corpuscles increases in species with more aquatic habitat usage.

Also interesting is the fact that this "remote-tactile sensory system" appears to have evolved independently in two unrelated groups of birds, the kiwis and shorebirds, which belong to two different super-orders, Paleognathae and Neognathae, respectively.

Errata

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Page 138, bottom row, both pictures are of Saunders's Tern *Sterna saundersi*.

The back cover picture was taken by Dhritiman Mukherjee, not Arpit Deomurari, as credited. Our sincere apologies.