Breeding record of Black-necked Stork in Hexham Swamp near Newcastle, NSW

Ann Lindsey

37 Long Crescent, Shortland NSW 2307, Australia ann.lindsey@bigpond.com

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Up to eight Black-necked Stork *Ephippiorhynchus asiaticus* are known to be in the Hunter Estuary (Stuart 2018). Although these birds are seen at many locations within the estuary, the two most regular sites for them are Tomago Wetland and Hexham Swamp.

A pair of storks bred at Tomago in 2017 and 2018 raising one young on each occasion. These were the first and second confirmed breeding records for the Hunter Estuary (Lindsey 2019). An adult accompanied by two juveniles was also observed at Tomago Wetland in December 2019 (Lindsey in prep.). Although the nest site was not established, it is likely that the same Tomago pair was involved. Breeding in Hexham Swamp had not been confirmed but a pair was nest-building in 2014, while in 2015 – 2016 an adult pair with two juveniles were regularly present and suspected to have bred nearby (Stuart 2017, Lindsey 2019). However, there was no definite evidence of a nest in Hexham Swamp until 12 August 2020 when a local resident saw an adult Black-necked Stork returning repeatedly to the same bush.

This note documents the third confirmed breeding record for Black-necked Stork in the Hunter Estuary.

Nest Site

The nest was situated at 32°51'17" S 151°39'44" E (G. Little pers. comm.) in the top of a four-metre-high shrub *Melaleuca linariifolia* which was surrounded by dense vegetation consisting of mainly Common Reed *Phragmites australis*. The nearest trees *Casuarina glauca* were approximately fifty metres to the south-east. **Figure 1** shows the nest shrub and nearby vegetation. I observed the nest site from Kauma Park, Fletcher and from Tumpoaba Reserve, Maryland. Because of the distance from observation points, I was unable to see the nest itself or details of adult behaviour while at the nest.

Observing the nest

On 13 August 2020 from 0700 h to 1100 h I watched the nest site with the aid of Swarovski 10x40 binoculars and Swarovski Telescope x20. The pair attended the nest either singly or together on multiple occasions. I was unable to discern the sex of the adults. On five occasions during the 4-hour watch both adults were standing on the nest, frequently with necks stretched, looking down into the nest. On two occasions an adult carried in a stick and deposited it in the nest.

Figure 1. Black-necked Stork nest site in Hexham Swamp October 2020 (the nest shrub is mid-image). The picture also shows two shrubs, one to left of the nest site and the other behind the nest site, where the adults landed on 1 November 2020 to attend fledged young. Photographed from Kauma Park, Fletcher. Photo: A. Lindsey.

On 14 August, a drone (launched from a location near the nest) was flown over the nest by R. McDonald at a height of 16 metres, for approximately five minutes. Photographs taken from the drone revealed that at 0906 h a male bird was sitting on the nest. He did not move or show any visible signs of distress at the presence of the drone. I continued to watch the nest until 1130 h. A second bird landed on the nest at 1030 h, presumably the female. At 1032 h the male flew off the nest and landed close to my observation point.

He spent four minutes collecting black, wet vegetation in his bill probably to be used as nest lining. At 1036 h the male flew back and landed on the nest. The female stood up and sat down again, whereupon the male flew to a higher area again close to my observation point, collected a stick and returned to the nest. At 1045 h an adult flew off the nest, but I could not see whether it was the male or female. The bird returned at 1056 h. Both adults stood for a few minutes and attended the bottom of the nest before both sat down. At 1101 h an adult flew off the nest and returned at 1112 h. When I left at 1130 h both birds were hunkered down on the nest and were not visible.

On 19 August, between 0900 h and 0945 h, R. and M. Stewart observed constant activity at the nest site, with two adult birds in attendance. One of them was already present on the nest at 0900 h. At 0915 h a second adult flew in, remaining until 0925 h. That adult left again, returning ten minutes later but staying only five minutes. The first adult remained on the nest during this time.

I watched the nest site on 24 August from 0825 h to 1030 h. When I arrived, one adult was standing on the nest. At 0830 h, a second adult arrived but it flew off two minutes later. The adult on the nest stood up and attended the bottom of the nest for about five minutes before sitting down again. At 0900 h, a second adult could be seen foraging in open water to the east of the nest site but at 0920 it flew off and was not seen again during my watch. The bird on the nest stood occasionally, tending the bottom of the nest or preening.

On 26 August no adults were visible when I arrived at 0830 h. However, at 0835 h, an adult, which must have been sitting low in the nest, stood up and commenced feeding from the bottom of the nest. This continued until 0915 h. I saw it swallow food including a long black item approximately the length of its bill. At 0945 h, the drone was again flown over the nest, and a short segment of video footage was taken. The video showed two tiny chicks with dark heads and white bodies. They were lying at the feet of an adult and bobbing their heads. On 9 September from 0850 h to 0920 h, I observed both adults attending the nest.

On 12 September G. Little and R. Kyte walked out into the swamp to see if they could reach the nest so that they could band the chicks when they were large enough. Whilst they were walking out, R. Klyve and I watched the nest. At 0800 h both adults were standing on the nest. At 0835 h, one of the adults swallowed two fish, which had been cached in the bottom of the nest. The adults remained at the nest, standing and tending the bottom of the nest, until the walkers were approximately 15 metres away. The birds then flew to open water to the south-west of the nest site where they remained standing still. G. Little and R. Kyte spent less than ten minutes at the nest site. During this time G. Little climbed the tree and took photos (see **Figure 2**) and video of two chicks lying in the nest. There were no visible signs of droppings, food or feathers on the ground beneath the nest (R. Kyte pers. comm.). At 1035 h, an adult flew back to the nest and landed. When we left at 1110 h, the same adult was still standing on the nest. A second adult flew in and circled over the nest at 1044 h before flying to the west.

I checked the nest site on 30 September for activity from 1030 h to 1045 h and found one adult standing on the nest.

Figure 2. Two Black-necked Stork chicks 12 September 2020 with view of Hexham Swamp in background. The estimated age is four weeks. Photo: G. Little.

Banding day

On 15 October in clear, hot conditions, licenced banders, Dr G. Clancy, G. Little, R. Kyte and photographer, D. Getaz, walked out to the nest site. At 0950 h G. Little climbed the shrub which was in full flower. He lowered the chicks individually in a bag to R. Kyte and G. Clancy for banding. By 1020 h the chicks had been returned to the nest and the group left the site at 1030 h. **Figures 3** and **4** are photos of the chicks taken at the nest that day.

At 1107 h the adults flew over the nest and landed to the east, close to the residential area. They stood c. 100 metres apart and were still in the same place when we left at 1215 h.

Figure 3. Two Black-necked Stork chicks on 15 October 2020 with a view of Hexham Swamp in background. Photo shows underparts and primary and secondary feather development of the chick which is standing. The estimated age is 9 weeks. Photo: G. Little

Figure 4. Two Black-necked Stork chicks lying down in nest in Hexham Swamp on 15 October 2020. Photo shows plumage of upper parts. The estimated age is 9 weeks. Photo: G. Little.

To assess if adults were still attending the nest, L. Date-Huxtable checked it for activity on 16 October, from 1315 h to 1330 h. One adult was present on the nest.

Fledging

In late October after a long dry spell, weather conditions changed, and heavy rainfall filled Hexham Swamp. On 1 November from 0700 h, a team of eight Hunter Bird Observers Club members viewed the nest from various points around Hexham Swamp in an effort to ascertain whether the nest was still active and/or whether the chicks had fledged. At 0845 h two adults flew to and landed on a shrub north of the nest site (**Figure 1**) and spent *c*. five minutes bobbing their heads down into the shrub and flapping their wings, before flying to a different shrub a little further to the north (**Figure 1**) where they repeated the head-bobbing and wing-flapping. One adult then flew and landed east of Pipeline Track. We lost sight of the other bird.

The estimated nestling period

The nestling period is difficult to ascertain as hatching and fledging events were not observed. However, adult behaviour at the nest such as constant looking at the bottom of the nest, frequent flights to and from the nest and eating of cached items of food suggested that young were present from 13 August even though chicks were not visible on 14 August when the male was photographed on the nest. Similarly, adult behaviour on 1 November suggested that chicks had fledged and were hidden in different shrubs in the vicinity of the nest site. Using these dates, the nestling period would have been 80 days which is within the known range of 78 to 100 days (Clancy & Ford 2013).

CONCLUSION

I believe that the behaviour of the adults on 1 November 2020 is evidence that the chicks had left the nest and that each was in one of the two shrubs. I deduce that they would have been *c*. 12 weeks old. Banding these chicks before they fledged has provided an opportunity to study their movements/dispersal as well as plumage changes from an early age. If one chick is female it may also be possible to establish when the iris changes from dark brown to the bright yellow of the adult female stork.

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