A second successful nesting attempt by the Black Kite in the Hunter Region, New South Wales

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Black Kites *Milvus migrans* are uncommon residents in the Hunter Region, New South Wales. They have been recorded annually since an irruption occurred in 2013. However, a successful nesting attempt has only been confirmed once, near Martindale in 2015. To investigate nesting attempts at other sites, observations of Black Kites were made between 2016 and 2020. Two unsuccessful nests and one successful nest (2019) were found at Fletcher and two unsuccessful nests were found at Beresfield. Frequent sightings of Black Kites in conjunction with observations of consecutive nesting attempts at two sites suggest that Black Kites are beginning to establish territories in the Hunter Region.

INTRODUCTION

Black Kites *Milvus migrans* are found in Asia, Europe and Africa (BirdLife Australia 2019), where they may undergo annual migrations (Agostini & Logozzo 1997). They are also found over most of mainland Australia (BirdLife Australia 2019). They inhabit northern and inland areas but sometimes irrupt in areas outside their normal range (Debus 2012).

Black Kites irrupted in the Hunter Region between March and June 2013. The greatest numbers were recorded at the Mt. Vincent and Summerhill Waste Management Centres. After the irruption, small groups, pairs and single birds were observed at several Hunter locations, including Hexham Swamp and Lenaghans Flat (Stuart 2014-2018).

Black Kites breed from July to November in southern Australia (BirdLife Australia 2019; Debus 2012). They occasionally breed successfully outside their known breeding range, for example near Melbourne (McDonald 2003).

Black Kites are now considered to be resident in the Hunter Region and are thought to be breeding. On 13 October 2015, a Black Kite nest containing two nestlings was discovered near Martindale. A fledgling accompanied by an adult was later observed (Alexander 2016). To date, this is the only successful breeding record of Black Kites in the Hunter Region. To confirm breeding in the small resident Black Kite population, observations were made of two pairs of Black Kites between 2016 and 2020. This paper describes their nesting behaviour and nesting success.

MATERIALS AND METHODS

Between 2016 and 2020, searches for pairs of Black Kites were carried out in areas surrounding Hunter Wetlands National Park (HWNP). Occupied territories were identified in the suburbs of Beresfield and Fletcher (City of Newcastle 2019a, 2019b). Searches for guard-roosts and nest trees (**Table 1**) were carried out by car and by foot. Nests that appeared to be active were observed throughout the breeding season to determine whether they were successful or unsuccessful (**Table 1**).

Table 1. Terminology used to describe territories and nests of Black Kites *Milvus migrans* (adapted from Dennis *et al*. 2012)

Occupied territory	Territory in which an adult pair was regularly seen near the nest and was repairing the nest or defending the territory
Guard-roost	A vantage point in the occupied territory which was used as a day-roost by the non-incubating bird
Nest tree	A tree containing a nest
Active nest	A nest in which an adult bird showed incubation behaviour, suggesting that eggs were present
Successful nest	A nest from which at least one fledgling was observed away from the nest
Unsuccessful nest	An active nest from which no young fledged

Field observations were made opportunistically for a maximum of two hours twice per week. To minimise disturbance, camouflage clothing was worn and a tree or car was used for concealment. Nests were observed using binoculars (Barska 10-30x50 mm Gladiator Zoom) and photographs were taken using a digital SLR camera (Canon 7D with an EF 100-400 mm F/4.5-5.6L IS lens).

RESULTS

A pair of Black Kites made nesting attempts at Fletcher between 2016 and 2019 and another pair of Black Kites made nesting attempts at Beresfield in 2018 and 2019.

Fletcher

On 30 September 2016, a Black Kite was observed in a nest (nest 1) in a eucalypt *Eucalyptus* sp. (nest tree 1, **Figure 1**) in an area of high disturbance (**Table 2**). A Black Kite was observed in nest 1 during each of four visits between 5 and 18 October but none were observed during three visits between 2 November and 6 December 2016.

Table 2. Disturbance categories for nest sites (adapted from Dennis 2004)

Disturbance category	Criteria
Low	Remote setting Cannot be reached by terrestrial predators or people No roads or tracks within 1000 m Few people visits on foot within 1000 m during breeding season
Moderate	Semi-remote setting Cannot be reached by terrestrial predators but reached by people with difficulty No roads or tracks within 500-1000 m Few people visits on foot within 500 m during breeding season
High	Disturbed or developed setting Can be reached by terrestrial predators and people Roads or tracks occur within 200-500 m Frequent people visits on foot within 200-500 m and above during breeding season

In 2017, two Black Kites were observed in or near nest tree 1, but not in nest 1, during three visits between 16 August and 19 September.

On 29 August 2018, a Black Kite was observed in a second nest (nest 2) in a eucalypt (nest tree 2) located approximately 20 m from nest tree 1 (**Figure 1**). A Black Kite was observed in nest tree 2 on 5 September but none were observed during three visits between 9 September and 10 October 2018.

On 30 April 2019, two Black Kites were observed copulating in nest tree 2. Black Kites were seen in or near nest tree 2, but not in nest 2, during twenty-five of thirty visits between 30 April and 18 October. On 18 October, a third active nest (nest 3) was found in a eucalypt (nest tree 3) approximately 250 m from nest tree 2 (**Figure 1**). On 21 October, a juvenile attended by adults was observed nearby (**Figure 2**). On two visits on 28 and 31 October, Black Kites were observed perching on a fourth nest (nest 4) approximately 10 m from nest tree 3 (**Figure 1**) and it was not clear whether the pair had nested in nest 3 or nest 4. On 4 November, a second fledged juvenile was observed (**Figure 3**) and on 6 November 2019 one fledged juvenile was observed on a street light (**Figure 4**).

In 2020, no Black Kites were seen in the former nests. However, on 15 September, two Black Kites were seen flying over the site.

Beresfield

On 1 September 2018, an adult was observed calling from a nest (nest 5) in a eucalypt (nest tree 5, **Figure 5**) in an area of high disturbance (**Table 2**). A Black Kite was observed perched with food 2 m from nest 5 on 6 October and in nest 5 on 23 December 2018 (**Figure 6**). No nestlings or fledglings were observed.

On 21 July 2019, no trace of nest 5 was seen but a sixth active nest (nest 6) was found in a eucalypt (nest tree 6) approximately 100 m from nest tree 5 (**Figure 5**). The female was observed in nest 6 during nine of ten visits between 8 September and 16 October. No Black Kites were seen during eight visits between 20 October and 27 November 2019.

In 2020, no Black Kites were seen in the former nests or flying over the site during eight visits up to 22 September 2020.

Each Black Kite nest was approximately 3-7 m from the top of a *Eucalyptus* sp. approximately 20-35 m in height.

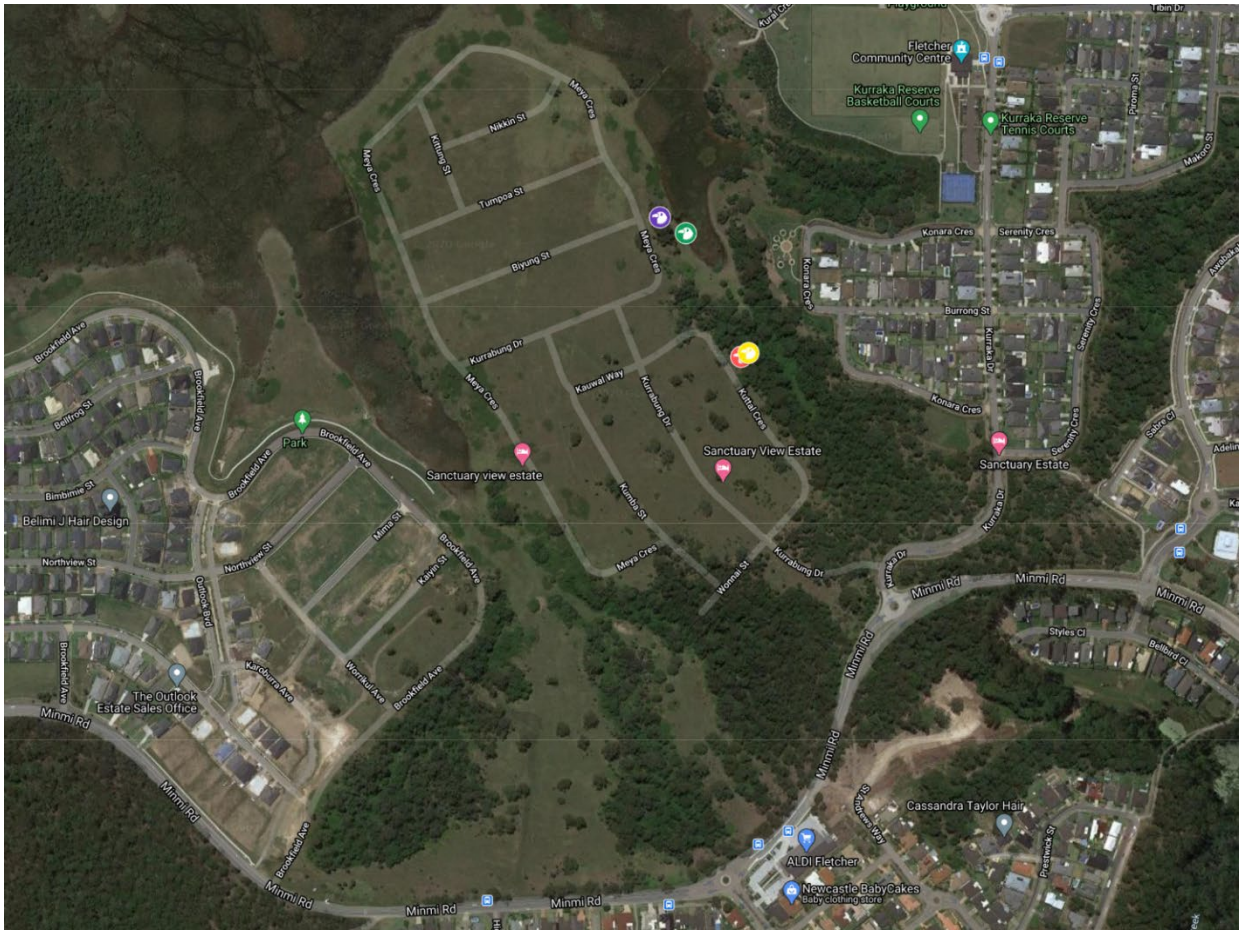
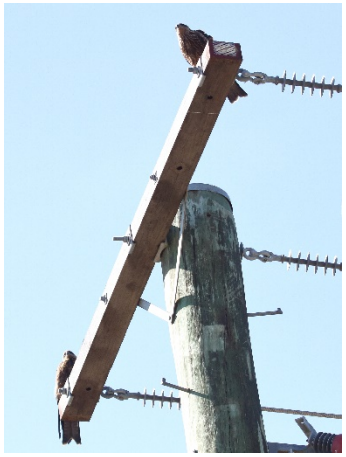
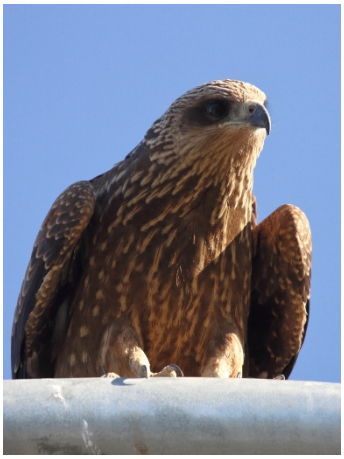


Figure 1. Active nests at Fletcher: nest 1 green 2016 and 2017; nest 2 purple 2018; nest 3 red and nest 4 yellow 2019.





L – R: **Figure 2**. A newly-fledged juvenile (right) with an adult at Fletcher on 31/10/2019
Figure 3. Two newly-fledged juveniles at Fletcher on 4/11/2019
Figure 4. A newly-fledged juvenile at Fletcher on 6/11/2019

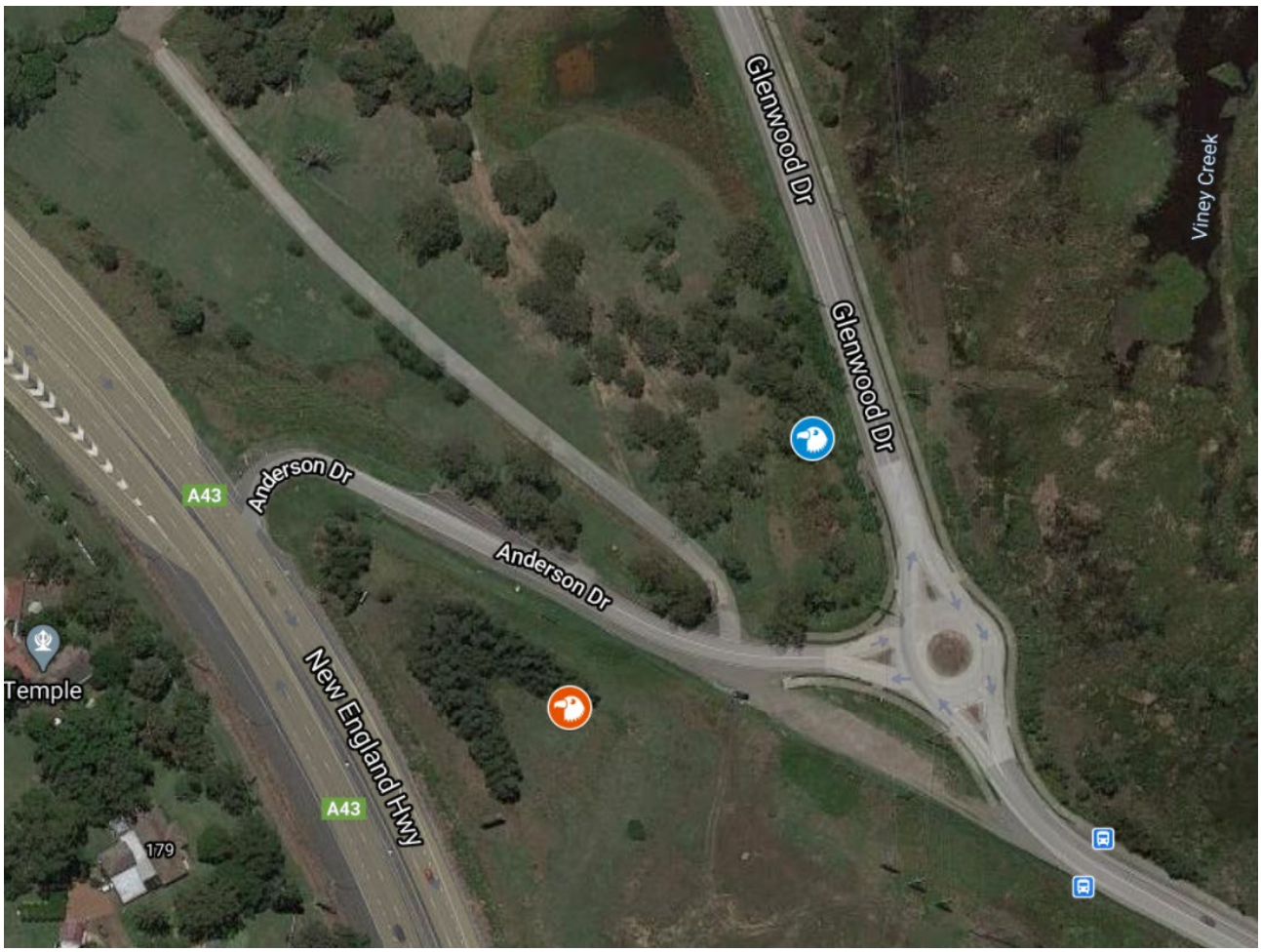


Figure 5. Active nests at Beresfield: nest 5 blue 2018; nest 6 orange 2019

Figure 6. An adult in nest 5 at Beresfield on 23/12/2018

DISCUSSION

This study provides evidence of a second successful nesting attempt by Black Kites in the Hunter Region. It confirms that the region can provide suitable territories, nest trees and food for resident Black Kites.

Both territories in this study were located where open land with water bodies met residential, light industrial or recreational land. As expected, each territory was less than 12 km from one of the waste management centres at which hundreds of Black Kites congregated in 2013. These findings agree with previous findings that Black Kites select open habitats (Tanferna *et al*. 2013) and often breed near large water bodies and rubbish dumps (Bordjan 2018).

The nest trees were all tall (20-35 m) eucalypts. The choice of nest tree is influenced by several factors, the most important of which are the height and type of tree (Bakhtin 2015). The height range reported in this study is similar to the range of 7-32 m reported by Bakhtin (2015). Interestingly, the type of tree reported in this study is the same as the type of tree most commonly used in Delhi, India (Kumar *et al*. 2014). Usually, different trees are used in different countries according to the local flora. For example, the most commonly used nest tree in Italy is the oak *Quercus* spp. (Zocchi *et al*. 2004) and in western Siberia is the poplar *Populus* spp. (Bakhtin 2015).

All nests were located 3-7 m from the tops of the nest trees. This is in good agreement with Debus (2012), who reported that nests are placed within the tree canopy, and with Zocchi *et al.* (2004), who reported that nests are placed at approximately 70% of relative tree height.

All nests were large stick nests, as previously reported (Debus 2012). It is not known whether they were built by the Black Kites or by other birds such as ravens or crows *Corvus* spp. (Sergio & Boto 1999). The linings of the nests could not be seen, so the presence of human-made materials, such as paper, cloth and plastics (Mazumdar *et al*. 2016), could not be ascertained.

For the successful nesting attempt, the first fledged juvenile was seen on 21 October 2019, suggesting that egg-laying occurred in early to mid-August (BirdLife Australia 2019; Debus 2012). The fledging of two young is consistent with a reported mean clutch size of 2.5 +/- 0.7 (Olsen & Marples 1993). The sightings of at least one of the two fledglings with the adults until 20 November 2019 are consistent with a reported post-fledging dependence period of 15-36 days (Bustamante & Hiraldo 1989).

The reasons for the unsuccessful nesting attempts are unclear. Others have suggested that failed nesting attempts may be due to low food availability, water pollution or prey contamination (Sergio & Boto 1999). Both Fletcher and Beresfield contain open land in which prey can live and predators can hunt. In addition, Black Kites eat a variety of foods including rabbits (Viñuela *et al*. 1994), rodents (Boumaaza, *et al*. 2016), birds (Kumar *et al*. 2014), fishes (Sergio & Boto 1999), meat (Kumar *et al*. 2014) and carrion (Debus 2012). Whether water is polluted or prey is contaminated at the sites is unknown.

In this study, human disturbance was likely to have contributed to, but not necessarily caused, the unsuccessful nesting attempts. In 2016, road and house construction had not commenced in the Sanctuary Cove Estate in Fletcher, yet the nesting attempt appeared to be unsuccessful. Conversely, in 2019, when house construction was underway along a new road 25 m from nest tree 3, the nesting attempt was successful. Black Kites have bred in areas of high human disturbance in other countries (Kumar *et al*. 2014; Mazumdar *et al*. 2016). However, their absence from the former nests at Fletcher and Beresfield in the 2020 breeding season suggests that they have not successfully adapted to breeding in areas of high human disturbance in the Hunter Region.

CONCLUSION

The observations presented here confirm that Black Kites are making nesting attempts over consecutive breeding seasons in the Hunter Region. They provide evidence of a successful nesting attempt resulting in two fledged young.

Nesting attempts may also be continuing elsewhere in the Hunter Region. Further research is needed to explore this possibility.

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