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# Biodiversity Record: Unsuccessful nesting attempts of the brahminy kite at West Coast Park

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**Subjects:** Brahminy kite, *Haliastur indus intermedius* (Aves: Accipitriformes: Accipitridae).

**Subjects identified by:** Chin Yu Xun.

**Location and dates:** Singapore Island, West Coast Park; mid-December 2024 to 12 February 2025.

**Habitat:** Urban parkland.

**Observers:** Chin Yu Xun (CYX), Dominic S. K. Tan (DT), Kenan W. E. Chin (KC), Tay Rui En (TRE) and Rachel R. T. Thng (TR).

**Observations:** A brahminy kite was first reported by a member of the public nesting at Jetty Lawn in mid-December 2024 (Fig. 1A). The nest was verified by CYX on the morning of 7 January 2025, where a lone brahminy kite was observed sitting in the nest, presumably incubating eggs (Fig. 3). The nest, constructed on a *Syzygium grande* tree (height = 22.2 m, girth measured at 1 m from ground level = 2.4 m; Fig. 2), was measured using a Haglöf Sweden's Laser Geo 2 rangefinder to be 16.2 m above the ground. Although no direct visual confirmation was obtained, a single brahminy kite was heard persistently calling from the nest on the morning of 9 January 2025. On the evening of 14 January 2025, CYX, KC, TRE and TR observed a pair of brahminy kites near the nest, with one returning to sit in it while the other flew away.

Further observations of a lone brahminy kite sitting in the nest were made on the mornings of 14 and 15 January 2025 (CYX). The pair was sighted again on the morning of 22 January 2025, when both briefly left the nest tree before one returned to sit in the nest while the other perched on a branch of the nesting tree (CYX). The final recorded observation occurred on the evening of 23 January 2025, when a solitary brahminy kite was seen circling the area before returning 15 minutes later to sit in the nest (CYX) (Fig. 4). The only other relevant sighting was of an individual perched on a tree behind the nest on the morning of 27 January 2025 (CYX). At no point during these observations were the kites seen taking food to the nest.

Observations of the nest at Jetty Lawn continued until early February 2025, when it was determined to have been abandoned since no brahminy kites were seen returning to the nest. On 12 February 2025, a tree-climbing team accessed the nest, which remained in good condition and measured 0.87 m in length and 0.7 m in width (Fig. 5). No eggs were found. Given the prolonged period during which an individual brahminy kite was observed sitting in the nest, it is likely that eggs were once present.

At Marsh Garden, a different pair of brahminy kites was observed nesting (Fig. 1B). On the morning of 9 January 2025, CYX recorded nesting activity over a period of approximately 30 minutes, during which one individual was seen delivering nesting material before flying away, while the other remained perched on a branch of the nest tree, feeding on a fish (Fig. 6). The partially constructed nest was on a *Terminalia bellirica* tree (height = 20.8 m, girth = 2.5 m; Fig. 7), and measured to be 20.1 m above ground. However, no further observations of the pair at the nest were made until mid-February 2025. As the nest remained unchanged during this period, it is presumed that nest-building activity had ceased and that the nest was abandoned.

**Remarks:** The brahminy kite is a widely distributed species, with its range extending from the Indian subcontinent through Southeast Asia to Australia (BirdLife International, 2024). The subspecies found in Singapore, *Haliastur indus intermedius*, is considered a very common resident (Bird Society of Singapore, 2025). This raptor primarily inhabits coastal regions (Robson, 2002), large estuaries, and flat shorelines (Wells, 1999). While it typically nests along coastlines,

rivers, and in mangrove forests (Khaleghizadeh & Anuar, 2014; Wooding, 2017), the species has also been recorded nesting near human settlements (Sivakumar & Jayabalan, 2004). As an urban park with a coastal shoreline, West Coast Park provides a habitat consistent with those documented in previous studies. It is therefore unsurprising that brahminy kites have been observed nesting here.


Fig. 1. Map of West Coast Park showing locations of brahminy kite nests at Jetty Lawn (1A) and Marsh Garden (1B). Fig. 2. The *Syzygium grande* tree (middle) at Jetty Lawn, with the brahminy kite nest situated on the left side of the tree crown (Photograph by: Chin Yu Xun).

Although the brahminy kite is a common species in Singapore, little is known about its breeding biology, ecology, and behaviour there. Existing studies on these aspects are primarily from India, Malaysia, and Australia (Sivakumar & Jayabalan, 2004; Lutter et al., 2006; Indrayanto et al., 2011; Khaleghizadeh & Anuar, 2014; Rourke, 2016; Wooding, 2017). Records of brahminy kites breeding in Singapore are often limited in detail and insufficient to develop a comprehensive understanding of their breeding biology in this context (Wee, 2007; Lim, 2022). As such, the nesting observations described here contribute valuable insights into the breeding behaviour of local brahminy kites.

The height of the nest trees and the nests above ground in both observations are consistent with those reported in other literature (Khaleghizadeh & Anuar, 2014). The use of different tree species for nesting suggests that brahminy kites in Singapore do not exhibit a strong preference for specific tree species in which to nest. In contrast, studies from other regions have found that brahminy kites tend to nest on the same tree species within a given area (Sivakumar & Jayabalan, 2004; Khaleghizadeh & Anuar, 2014). Although the sample size is limited to two, the observations imply that tree height may be a more important factor than tree species in nest site selection in Singapore.

Fig. 3. A brahminy kite in the nest at Jetty Lawn, presumably nesting, on 7 January 2025. Fig. 4. A brahminy kite in the nest at Jetty Lawn after returning on 27 January 2025 (Photographs by: Chin Yu Xun).

Fig. 5. Top-down view of the abandoned brahminy kite nest at the Jetty Lawn (Photograph by: Chin Yu Xun).

Regarding the nest at the Jetty Lawn, incubation is presumed to have occurred from mid-December to 23 January, as a brahminy kite was frequently observed sitting in the nest. This duration of approximately five weeks is broadly consistent with the reported incubation periods in existing literature (27–34 days) (Sivakumar & Jayabalan, 2004; Rourke, 2016). However, the incubation duration in this observation was considerably shorter than that of another unsuccessful nesting attempt, where the eggs were presumed to be infertile or addled (embryos died). In that study, incubation behavior persisted for 94 days (Lutter et al., 2006). The timing of incubation in this case is earlier in the year than observations from Australia and similar to those recorded in Malaysia (Lutter et al., 2006; Indrayanto et al., 2011; Rourke, 2016). This pattern is consistent with previous studies, which link earlier breeding in brahminy kites at lower latitudes to rainfall and sunlight intensity (Baker, 1939).

Fig. 6. A brahminy kite feeding on a fish in the nest tree at Marsh Garden on 9 January 2025. Fig. 7. View of the *Terminalia bellirica* tree (middle), with the brahminy kite nest situated on the right side of the tree crown (Photographs by: Chin Yu Xun).

Nest failures at the two sites may have resulted from different factors, namely human disturbance and weather. The nest at the Marsh Garden was situated approximately 250 m from an active tunneling site for a deep tunnel sewerage system. Notably, works had commenced before the brahminy kites began nest building, indicating some level of tolerance toward human activity. However, studies on other urban raptors have shown that frequent disturbances can elevate stress hormone levels, ultimately leading to nest abandonment (Strasser & Heath, 2013). In this instance, the nest abandonment may have been influenced by increased noise levels, possibly resulting from intensified machinery movement.

Adverse weather conditions may have contributed to the unsuccessful nesting attempt at Jetty Lawn, as studies on raptors have linked higher rainfall to increased nest failures, likely due to the high energetic costs of incubation for females (Olsen & Olsen, 1989; Monaghan, 2008; Kicko, 2022; Nägeli et al., 2022). The incubation period at the Jetty Lawn coincided with a monsoon surge from 10 to 13 January 2025, which brought prolonged and heavy rainfall (Lee, 2025). Data from the nearest rainfall station recorded 236.76 mm more rainfall over this four-day period compared to the expected amount based on the country's five-year average daily rainfall (NEA, 2025; unpub. data). It is likely that the eggs addled due to the prolonged exposure to lower temperatures associated with sustained rainfall. Subsequently, the eggs could have been abandoned and scavenged by the time the nest was inspected. Alternatively, the brahminy kite parents may have consumed the eggs, a behaviour observed in other raptor species following nest failures (Rejt, 2005; Kicko, 2022; Coleman et al., 2024). This has been suggested as a strategy to maintain nest hygiene or recover nutrients from non-viable eggs (Rejt, 2005; Coleman et al., 2024).

The nesting observations featured herein provide valuable insights into the breeding behaviour of brahminy kites in Singapore, a topic that remains understudied. While many findings align with studies from other regions, differences such as the apparent lack of preference for specific tree species suggest potential local adaptations. The observations also highlight key challenges faced by urban nesting brahminy kites, particularly human disturbance and adverse weather, which may reduce breeding success. Given Singapore's highly urbanised landscape, the close proximity of nests to human activity could further impact the species' reproductive outcomes or behaviour. Future research is needed to better understand these dynamics, which would be crucial for informing conservation efforts and the management of urban raptor populations in Singapore.

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