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**Breeding Phenology, Pairing Patterns and Parental Behaviour of *Dinopium* flamebacks in Sri Lanka**

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**Abstract**

Understanding the breeding ecology is crucial for managing and conserving species and their habitats. Insights into the breeding ecology of *Dinopium* Flamebacks in Sri Lanka remain incomplete, despite considerable studies of other aspects, especially of their systematics, evolution, and dispersal. This study focused on investigating the breeding ecology of *Dinopium* Flamebacks in Sri Lanka. The study was conducted from June 2022 to February 2023 in three distinct study areas in Eppawala (dry zone), Kaduwela (wet zone), and Talaimannar (arid zone), each covering 2 km<sup>2</sup>. Nests were studied using a USB-android endoscope camera, and observations were conducted in the morning from 06:00 to 09:00 and in the evening from 16:30 to 18:30. Active nests were monitored from hatching to fledging, including observations of pairing patterns of the parent birds. To understand pairing patterns, observations were made regarding the plumage colour of male and female birds at each active nest, with colour variations noted and recorded using a standardized colour index. Previously documented eBird data from active nest sites ([www.ebird.org](http://www.ebird.org)) were also used for the analysis. The study identified a breeding peak from August to October, with the nesting season extending from late July to February. Nestlings underwent a development period of 25 days (25.4±0.894) within the nesting chamber, and fledglings left the nest between 24 to 26 days after hatching. The observed fledging success rate was 66.6% (8 out of 12 nestlings successfully fledged), indicating their ability to successfully rear their hatchlings in the observed nesting sites. The male was primarily involved in the night shift, while both parents shared the day shift. Males and females were both responsible for nourishing the nestlings. Short breaks during the day allowed parents to leave the nest for feeding. Our visual observations indicated a diet primarily consisting of soft-bodied insects, such as ants, regurgitated directly into the nestlings' mouths. This study also observed parental pairing patterns in 15 active nest sites. Males tend to have redder plumage in hybrid pairs, likely driven by social preferences for the red colour in females. Breeding seasons were influenced by the climatic zone and environmental factors. *Dinopium* Woodpeckers require a stable and dry environment to successfully nourish their young. Sporadic heavy rains made increased nest failures, probably due to dampness, predator pressure and interruption to the feeding intervals. This knowledge can inform land use management practices, such as harvesting and irrigation to minimize disturbance during critical nesting periods.

**Key words:** *Dinopium*, flamebacks, Breeding ecology, Pairing patterns, Behaviour