
Short Note

Observation of Nest Predation by a Spotted Wood Kingfisher (*Actenoides lindsayi*) on a Yellow-breasted Fruit-dove (*Ramphiculus occipitalis*) Nest

Jean Henri M. ORACION^{1*} and Victor B. AMOROSO²

¹*Negros Oriental State University, Dumaguete City, Negros Oriental, Philippines.*

²*Institute of Biological Sciences and Center for Biodiversity Research & Extension in Mindanao, Central Mindanao State University, Musuan, Bukidnon, Philippines*

*Corresponding author email address: jeanhenri.oracion@gmail.com

Received 05 September 2024 | Accepted 03 December 2024 | Published 20 December 2024

DOI: <https://doi.org/10.51200/jtbc.v21i.5406>

Keywords: Nestling; Columbidae; Alcedinidae; camera trapping.

In nature, numerous ecological pressures exert selection on bird species as part of their survival (Martin, 1995). One of these pressures, described as applying strong selection on species coexistence, is nest predation (Ricklefs, 2000). It is recognized as a major factor, among other environmental pressures with a significant impact on population structure, because it directly affects the fledglings (Ricklefs, 1969) and can result in total nest failure (Nilsson, 1984). The structure and placement of the nest itself also influence the frequency of predation and interactions with other birds (Nilsson, 1984).

When studying nest predation, three key active elements are involved: offspring, adults, and predators. Understanding the role of each in their natural habitat is now vital in advancing avian studies (Ibáñez-Álamo et al., 2015). Technological advancements, such as the use of camera traps, have allowed researchers to observe the natural behaviour of certain species up close (Ibáñez-Álamo et al., 2015; O'Brien & Kinnaird, 2008). In light of this, this study presents a brief observation of a Spotted Wood Kingfisher (*Actenoides lindsayi*), a forest kingfisher that feeds on insects, small vertebrates, and invertebrates, predating on a Yellow-breasted Fruit-dove (*Ramphiculus occipitalis*) nestling. This kingfisher species is known to search for prey in the covered spaces in the understory (Pagaduan & Afuang, 2012). Both of these birds have a close association to forest habitats. They are currently listed as Least Concern but with decreasing population trend (Birdlife International 2018; Birdlife International 2024). Other observations regarding the behaviour of the latter and its parent are also included.

The study site is in Balinsasayao Twin Lakes Natural Park (BTLNP), Negros Oriental, Philippines—a protected area (Fig. 1). A single nest was discovered along a man-made trail during transect surveys intended for a larger scope of the study on May 3, 2024. It was situated around 2.5 to 3 meters above the ground on a branch and about 1.5 meters from the *Syzygium* sp. (Myrtaceae) stem. Because of this, only one camera trap was placed on the stem of the same tree, facing the direction of the nest at the same height. The stem was the only part where the camera trap could be securely placed. The camera trap used was a 20-megapixel, 1080p mini outdoor trail

camera with infrared night vision (SuntekCam). It was left for four weeks, set to capture photos and videos with 30 seconds record time. Sensitivity of the camera capture was set to medium to prevent it from being triggered by leaf movement.

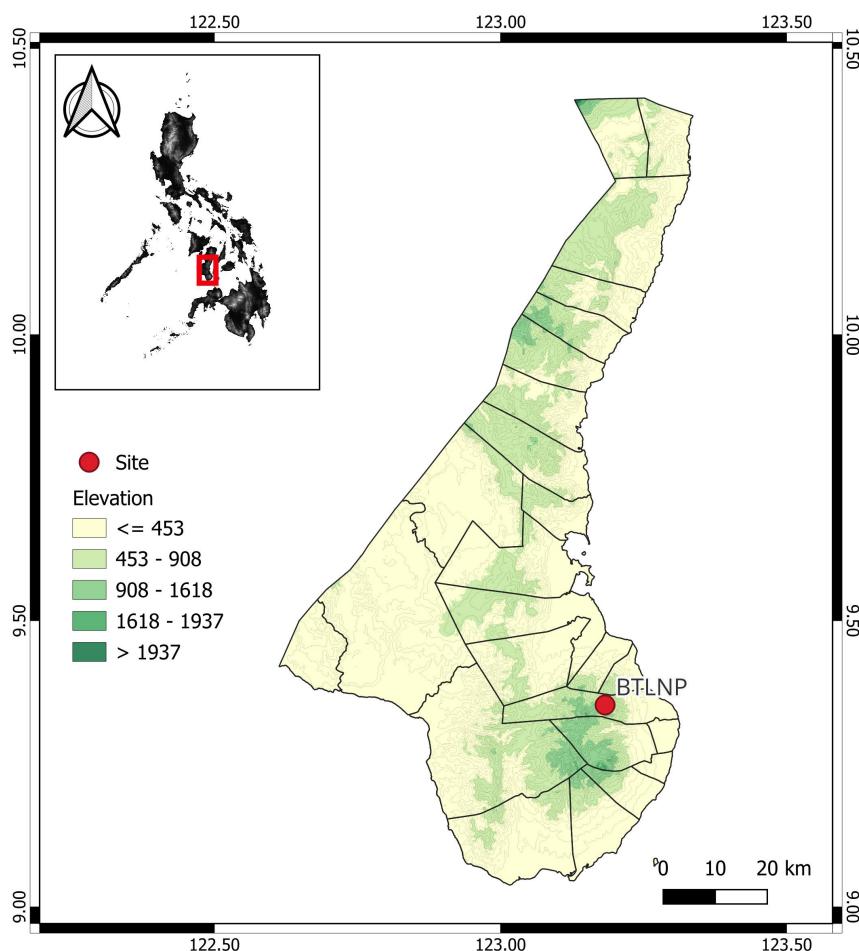


Figure 1: Location of Balinsasayao Twin Lakes Natural Park (BTLNP) in Negros Oriental, Philippines.

The result of camera trapping shows interaction of the three key players in nest predation involving the Yellow-breasted Fruit-Dove nestling and its parent, and the Spotted Wood Kingfisher, the predator. Before the predation happened, the parent dove could be seen not immediately perching on the nest but on nearby branches, apparently checking the surroundings. It did not directly perch in close contact with its nestling unless the nestling gave signals, such as shivering or making calls, indicated by bill movements (Fig. 2A). As the parent finally climbed onto the nest, it fluffed up its feathers (Fig. 2B) as a means of thermoregulating (Mota-Rojas et al., 2021) by increasing thickness of the plumage for better insulation. Through this, it may have shared its body heat as the nestling nestled under the parent since it was still covered with mostly down feathers. Unexpectedly, in one instance at night, which is expected to be colder, the parent was not present, but it may have just been away for a moment (Fig. 2C).

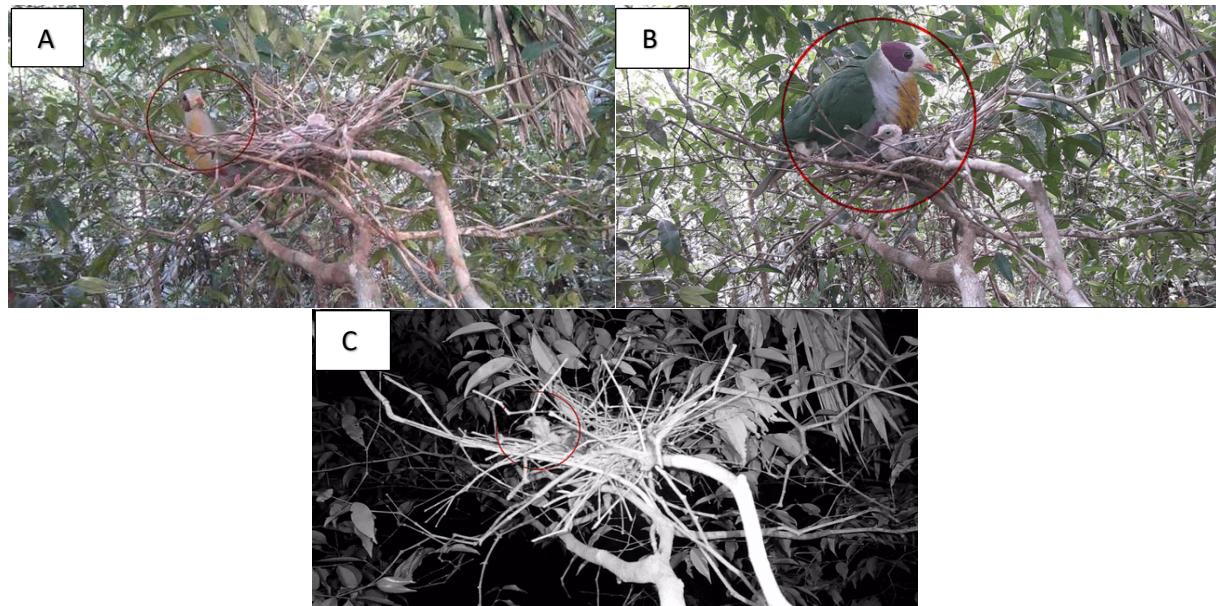


Figure 2: Camera trap images of a Yellow-breasted Fruit-dove nest. A) The parent approaching the nest. B) The nestling nestled near its parent. C) The nestling alone in the nest.

The exact age of the nestling could not be determined, but it was at the stage where it was mostly covered by down feathers and wobbled when it attempted to move. At this point of the nestling's developmental stage, it did not seem to be actively moving around the nest. It spent most of its time sitting whilst waiting for the arrival of its parent. According to a local guide, based on his past observations of nestlings of this species, once a nestling becomes quite mature, it would probably walk back and forth on the branch close to its nest (J. Zerna, personal communication, 2024).

The actual predation happened a day after the setting up of the camera trap. The kingfisher appeared to observe the surroundings first before attempting to prey on the nestling (Fig. 3A). It even left the tree to where the nest was, but returned after a moment. The kingfisher finally took on the nestling, biting its head and pulling it downwards, out from the nest (Fig. 3B). This method likely leveraged the nestling's weight for easier handling, rather than lifting it from above. However, the exact manner of eating the nestling was not captured in the footage. As the kingfisher was doing this, the parent was nowhere to be seen and no signs of retaliation was observed. Later that same day after the incident, the parent returned to the nest, did its usual routine as mentioned above before climbing onto the nest, and searched for the nestling, but unfortunately it was gone (Fig. 3C). In the subsequent frames captured by the camera, the nest was abandoned and neither of the birds returned (Fig. 3D).

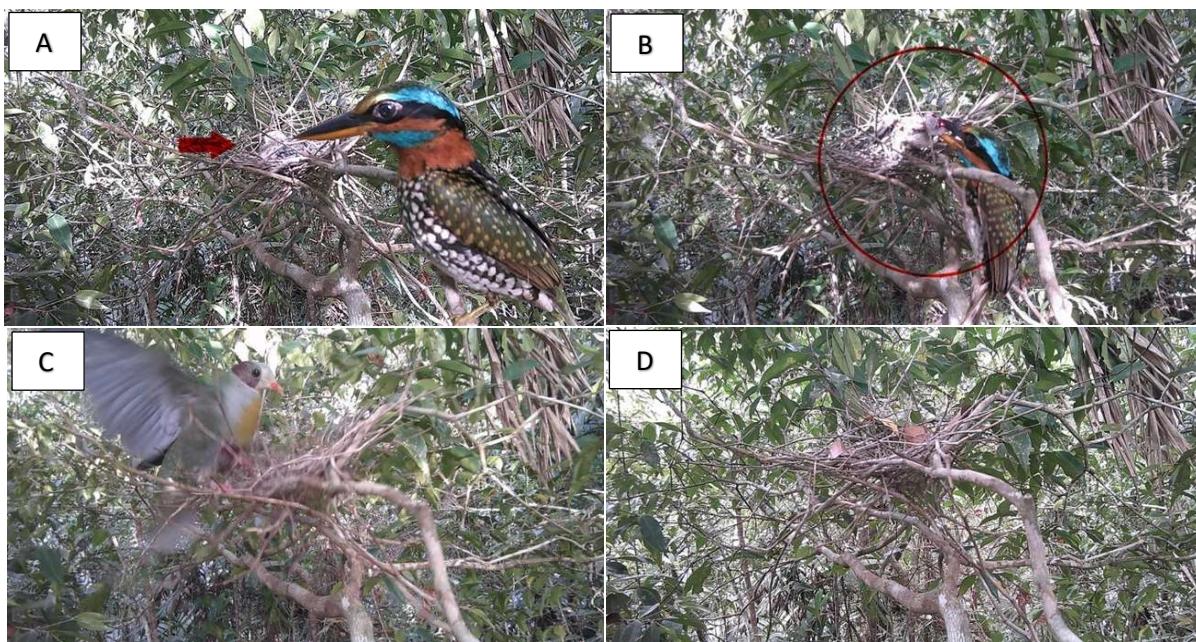


Figure 3: Camera trap images of a predatory event at a Yellow-breasted Fruit-dove nest. A) The arrival of a Spotted Wood Kingfisher. B) The actual predation on the dove nestling. C) The dove parent returning to its nest. D) The abandoned nest after predation.

The dove's nest appeared to be mostly made up of piles of twigs, with the nestling fully exposed on it. The nest was placed at a height that was relatively lower and seemingly obscured by the dense forest cover. It was almost within reach of potential poachers. This could be a form of defence strategy from certain predators, such as flying raptors in the area, by disrupting their search efficiency through reduced nest visibility (Horie & Takagi 2012; Kleindorfer et al., 2005). However, this may have introduced a trade-off by making the nest more noticeable to other predators dwelling below the canopy level, like the kingfisher (Pagaduan & Afuang, 2012). The openness of its nest does not even seem to provide much security for the young against predators. The nest predation observed may be one example of a density-dependent factor wherein likelihood of predation increases as the number of nests in an area increases (Caro, 2005). The frequency of predation is also related to how the nests are positioned, as well as their type and structure (Djomo et al, 2014; Nilsson, 1984). Such attacks on nestlings could possibly influence the population structure of a species (Ibáñez-Álamo et al., 2015). Additional attacks from other potential predators, such as raptors that exploit nestlings (Sazima & Hipolito, 2017), could exacerbate the effect. In relation to this, although this study lacks sufficient data to discuss the population of doves in the area, the detrimental effect of nest predation on them remains plausible but requires further study to be verified.

The use of a camera trap effectively captured the natural behaviour between the interaction of the species involved. However, this single nest observation poses limitations, such that, there may have been other interactions that had occurred beforehand. Other forms of interactions may have taken place around the nest as well. Therefore, placement of more camera traps to observe more nests interactions may provide holistic and comprehensive information on the behaviour of these

birds. It can also be a practical method to assist in determining if other bird species could be predating on nestlings.

ACKNOWLEDGEMENTS

We would like to acknowledge the Commission on Higher Education (CHED) for the research grant, as well as the Protected Area Management Board of Balinsasayao Twin Lakes Natural Park (PAMB-BTLNP) and Department of Natural Resources (DENR) for granting us the Wildlife Gratuitous Permit (WGP No. 325) to conduct for the larger scope of this study.

REFERENCES

BirdLife International (2024) Species factsheet: Yellow-breasted Fruit-dove *Ramphiculus occipitalis*. <https://datazone.birdlife.org/species/factsheet/yellow-breasted-fruit-dove-ramphiculus-occipitalis> (Accessed 16 November 2024).

BirdLife International (2024) Species factsheet: Spotted Kingfisher *Actenoides lindsayi*. <https://datazone.birdlife.org/species/factsheet/spotted-kingfisher-actenoides-lindsayi> (Accessed 16 November 2024).

Caro TM (2005) Antipredator Defences in Birds and Mammals. Chicago: University of Chicago Press. 590 pp.

Djomo NE, Sedláček O, Vokurková J, Hořák D (2014). Nest position and type affect predation rates of artificial avian nests in the tropical lowland forest on Mount Cameroon. *Ostrich*, 85(1): 93–96. <https://doi.org/10.2989/00306525.2014.900830>.

Horie S, Takagi M (2012) Nest positioning by male Daito White-eyes *Zosterops japonicus daitoensis* improves with age to reduce nest predation risk. *Ibis*, 154(2): 285–295. <https://doi.org/10.1111/j.1474-919X.2011.01204.x>.

Ibáñez-Álamo JD, Magrath RD, Oteyza JC, Chalfoun AD, Haff TM, Schmidt KA, Martin TE (2015) Nest predation research: recent findings and future perspectives. *Journal of Ornithology*, 156: 247–262. <https://doi.org/10.1007/s10336-015-1207-4>.

Kleindorfer S, Fessl B, Hoi H (2005) Avian nest defence behaviour: assessment in relation to predator distance and type, and nest height. *Animal Behaviour*, 69(2): 307–313. <https://doi.org/10.1016/j.anbehav.2004.06.003>.

Mainwaring MC, Hartley IR, Lambrechts MM, Deeming DC (2014) The design and function of birds' nests. *Ecology and Evolution*, 4(20): 3909–3928. <https://doi.org/10.1002/ece3.1054>.

Martin TE (1995) Avian life history evolution in relation to nest sites, nest predation and food. *Ecological Monographs*, 65: 101–127. <https://doi.org/10.2307/2937059>.

Mota-Rojas D, Titto CG, de Mira Geraldo A, Martínez-Burnes J, Gómez J, Hernández-Ávalos I, Pereira AM (2021) Efficacy and function of feathers, hair, and glabrous skin in the thermoregulation strategies of domestic animals. *Animals*, 11(12): 3472. <https://doi.org/10.3390/ani11123472>.

Nilsson SG (1984) The evolution of nest-site selection among hole-nesting birds: the importance of nest predation and competition. *Ornis Scandinavica*, 15: 167–175. <https://doi.org/10.2307/3675960>.

O'Brien TG, Kinnaird MF (2008) A picture is worth a thousand words: the application of camera trapping to the study of birds. *Bird Conservation International*, 18(S1): S144–S162. <https://doi.org/10.1017/S095927090800034X>.

Pagaduan DC, Afuang LE (2012) Understorey bird species diversity along elevational gradients on the northeastern slope of Mt. Makiling, Luzon, Philippines. *Asia Life Sciences Journal*, 21(2): 585–607.

Ricklefs RE (1969) An analysis of nesting mortality in birds. *Smithsonian Contributions to Zoology*, 9: 1–48. <https://doi.org/10.5479/si.00810282.9>.

Ricklefs RE (2000) Lack, Skutch, and Moreau: the early development of life-history thinking. *Condor*, 102: 3–8.

Sazima I, Hipolito JV (2017) Peaceless doves: predators of two columbid species at an urban park in southeastern Brazil. *Revista Brasileira de Ornitologia*, 25(1): 67–70.