

1. Chandrasiri P.H.S.P., Dharmarathne W.D.S.C. and Mahaulpatha, W.A.D (2018). Diversity and Distribution of Avifauna at the Tropical Montane Cloud Forests of Horton Plains National Park. *Journal of Tropical Forestry and Environment*. Vol 8, No 1.036-049.
2. Chandrasiri P.H.S.P. and Mahaulpatha W.A.D. (2018). Diurnal Activity Budget of Yellow-eared Bulbul (*Pycnonotus penicillatus*) in Different Habitats of Tropical Montane Cloud Forests of Horton Plains National Park, Sri Lanka. *Proceedings of WildLanka International Symposium 2018*.
3. Chandrasiri P.H.S.P., Mahaulpatha W.A.D and Dharmarathne W.D.S.C (2018). Interactions of Sri Lanka Yellow-eared Bulbul (*Pycnonotus penicillatus*) in the Mixed-Species Feeding Flocks at Tropical Montane Cloud Forests of Horton Plains. *Proceedings of the 5th International Conference on Multidisciplinary Approaches - 2018*, Faculty of Graduate, University of Sri Jayewardenepura, Nugegoda, Sri Lanka pp-159.
4. P.H.S.P. Chandrasiri, S.B.R. Lakmal, E.K.D. Maduranga and W.A.D. Mahaulpatha (2018), Aspects of Parental Care Approaches and Nestling Diet of Yellow-eared Bulbul (*Pycnonotus penicillatus*) in Montane Region of Sri Lanka. *Proceedings of the International Forestry and Environment Symposium 2018 of the Department of Forestry and Environmental Science, University of Sri Jayewardenepura, Sri Lanka*. pp – 11.

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Aspects of Parental Care Approaches and Nestling Diet of Yellow-Eared Bulbul
(*Pycnonotus penicillatus*) in Montane Region of Sri Lanka

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Abstract

Parental care is an important scenario of life history of many birds. Yellow-eared Bulbul (*Pycnonotus penicillatus*) is an endemic threatened bird occurs in forests at middle and higher elevations of Sri Lanka. This research was aimed to fill research gaps of aspects of parental care approaches and nestling diet of *P. penicillatus*. The study was conducted at the tropical montane cloud forests of Horton Plains National Park, of the central highlands, from September 2015 to July 2018. Five to 12 days spent at the field in the breeding season. The observer stayed at a hidden position and behaviour of the breeding couples was studied by using a binocular (10×42). Incubation patterns such as on-bout and off-bout duration, nest trips rate and nest attentiveness was studied. Moreover, after the eggs hatching on-bout and off-bout duration, feeding trips rate and nest attentiveness of *P. penicillatus* was observed in the nestling period separately. The diurnal period was divided as, dawn (0600-0900h), morning (0901-1200h), mid-day (1201-1500h) and evening (1501-1800h). Nestling diet was observed using a spotting scope (60×82 ED), hidden camera (SJCAM, M20) and faecal sack analysis. This process was conducted on five active nests. Incubation period lasted 14 to 17 days and nestling period was continued 14 to 17 days. They laid a single egg 3 to 5 days after completing the nest construction, and other egg was laid within next 24hrs. In the incubation period, on-bout duration (22.40 ± 7.18 min) and nest attentiveness ($75.07 \pm 9.62\%$) was higher in the evening period. Off-bout duration (21.83 ± 7.57 min) was higher in the dawn period. Nest trips rate ($4.01 \pm 0.83h^{-1}$) was higher in the mid-day. In the nestling period, on-bout duration (8.14 ± 4.06 min) and nest attentiveness ($68.80 \pm 14.65\%$) was higher in the mid-day period and off-bout duration (4.06 ± 1.35 min) and feeding trips rate ($8.58 \pm 1.17h^{-1}$) was higher in the dawn period. They have selected eight Orders of invertebrates and seven plant species to feed their nestlings and the Order Diptera was their major food source. Both male and female participated in incubation and feeding the nestlings. There was high predator pressure observed throughout the breeding period. Parental caring effort was significantly higher than the other bulbul species. High predation risk is a reason for population decline in the future. Therefore, control measures should be conducted to minimize threats from predators, to warrant the protection of future generations of *P. penicillatus*.

Keywords: Parental care, Nestling diet, *Pycnonotus penicillatus*, Horton Plains National Park, Endemic birds

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INTERACTIONS OF SRI LANKA YELLOW-EARED BULBUL (*Pycnonotus penicillatus*) IN THE MIXED-SPECIES FEEDING FLOCKS AT TROPICAL MONTANE CLOUD FORESTS OF HORTON PLAINS

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Abstract

Interactions of Sri Lanka Yellow-eared Bulbul (*Pycnonotus penicillatus*) in the Mixed-Species Feeding Flocks (MSFF) at Horton Plains National Park (HPNP) was studied from September 2015 to May 2018. *P. penicillatus* is an endemic threatened bird, assessed under IUCN global conservation status of Near Threatened (NT) and the national conservation status of Vulnerable (VU) categories. The objective of this study was to fulfil the research gaps about the interactions of *P. penicillatus* in MSFF. When a flock was encountered composition of the MSFF was studied. Vertical and horizontal distribution of each species within the MSFF was recorded. Feeding sites and feeding methods were observed. Roles of the species were classified according to their occurrence. Flocking frequency, flocking propensity, crossing score, correlation of occurrence of species, cluster analysis, Cole's coefficient of association and niche breadth of *P. penicillatus* was appraised. *P. penicillatus* participated in 84.52% (n=213) of the MSFFs. Twenty bird species and two mammal species were associated with *P. penicillatus*. Flock propensity was 64% and they were a core species in the MSFFs. There were 4.42 ± 2.17 individuals participated per MSFF. Vertical distribution of *P. penicillatus* was 5.60 ± 1.13 m and horizontal distance between individuals was 12m. There was a positive correlation between number of species in the MSFF and total number of individuals (Spearman rho = 0.691, P-Value < 0.05). Furthermore, there was a positive correlation between number of species in the MSFF and number of individuals of *P. penicillatus* (Spearman rho = 0.215, P-Value < 0.05). Moreover, there was a positive correlation between total number of individuals and number of individuals of *P. penicillatus* (Spearman rho = 0.461, P-Value < 0.05). They highly utilized the canopy layer of the forest (45%) and the niche breadth of the foraging height was 0.739. Twigs and small branches were their main foraging substrate (42%) and niche breadth of foraging substrate was 0.701. Gleaning was their major foraging method (86%) and niche breadth of foraging method was 0.377. They usually crossed in the middle position of the MSFFs. There were ten species with significant associations with *P. penicillatus* in the MSFFs. The dendrogram has confirmed that the Great Tit (*Parus cinereus*), Dark-fronted Babbler (*Rhopocichla atriceps*) and Pale-billed Flowerpecker (*Dicaeum erythrorhynchos*) are the close associates with *P. penicillatus*. Conclusively, the present study affirmed the *P. penicillatus* is a core species with enormous interactions in the MSFFs. Hence habitat protection is the major enforcement to warrant the protection of *P. penicillatus* for the future. To achieve that, the remnants of Tropical Montane Cloud Forests need to be protected. Therefore, this research will guide the management approaches to keep mixed-forest zones as forest belts in the surrounding forest plantations to make passages to move between feeding habitats. Moreover, this will encourage to practice mixed tree plantations techniques to authenticate habitat protection of MSFFs correspondingly.

Keywords: Sri Lanka Yellow-eared Bulbul (*Pycnonotus penicillatus*), Mixed-Species Feeding Flocks, Horton Plains, Endemic Birds, Tropical Montane Cloud Forests