

Avifauna at Padang Chong Forest Reserve, Perak

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Abstract. Avifauna are widely visible and can be found in a variety of habitats, including primary forests up to the urban gardens. Surveys on avifauna using the mist-netting technique were carried out at Padang Chong Forest Reserve (PCFR) in Perak for five sessions starting from June 2022 until November 2022. From these, a total of 176 individuals from 49 species were recorded. The main objective of these surveys was to document and update the avifauna diversity at this forest reserve. Grey-throated Babbler (*Stachyris nigriceps*) was the most abundant with 27 individuals captured throughout the surveys followed by Emerald Dove (*Chalcophaps indica*) and Oriental-dwarf Kingfisher (*Ceyx erithaca*) with 14 individuals and 11 individuals captured respectively. From the surveys, it is shown that a diverse array of avifauna, with the remaining individuals representing a variety of species, each with fewer than 10 individuals recorded. Out of 49 species of avifauna, only Brown-chested Jungle-flycatcher (*Cyornis brunneatus*) is listed as Vulnerable, and the remaining species are listed as Near Threatened and Least Concern. These brings the checklist of avifauna in PCFR a total of 85 species from 19 families. Understanding the species richness of avifauna in Padang Chong Forest Reserve (PCFR) is crucial for effective conservation management strategies since this forest reserve is identified as one of the ecological corridors in Central Forest Spine (CFS) initiative known as A-PL2.

1 Introduction

Malaysia is home to over 863 avifauna species [8]. Malaysia's avifauna can be classified as endemic, resident, migratory, or introduced species [1, 8-9]. Endemic species are those that only occur in one location, whereas resident species can be found both locally and in other nations. Migratory species nest in the northern hemisphere from spring to summer, then migrate south to find new feeding grounds before winter and returning in spring for the following year [1,8]. There are 18 species of avifauna which are endemic and introduced to Malaysia. Some of the endemic species namely Malayan Partridge (*Arborophila campbelli*), Malayan Crested Argus (*Rheinardia nigrescens*), Dulit Frogmouth (*Batrachostomus*

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harterti) and Black-crowned Pitta (*Erythropitta ussheri*). Javan Myna (*Acridotheres javanicus*), Red-billed Starling (*Spodiopsar sericeus*), White-crested Laughingthrush (*Garrulax leucolophus*) and House Crow (*Corvus splendens*) are some of the introduced species in Malaysia [8].

The Central Forest Spine (CFS) plan, initiated by the Malaysian government, seeks to connect Peninsular Malaysia's scattered forest through ecological corridors to create larger forest regions. The Padang Chong Forest Reserve (PCFR) has been recognized by PLANMalaysia's documentation as one of the ecological corridors classified within the northern part of Peninsular Malaysia. It has been classified as the ecological linkage A-PL2 (CFS1-PL4) in Perak (Padang Chong FR – Sungai Kuak FR – Lapang Nening FR) [11]. Through pre-existing natural forest connections or movement pathways like rivers, valleys, and ridges, ecological linkages are forest habitats that connect or permit wildlife movement across the forest within the CFS area [11].

Therefore, the main objective of this study is to document and update the avifauna diversity at Padang Chong Forest Reserve (PCFR) using the mist-netting technique. Mist-netting is commonly employed to determine which species are present in a study site. The approach is an important part of species inventory since it finds more cryptic, ground-foraging, and non-singing birds than aural or visual surveys [7]. To date, there have been only two studies at PCFR, thus this information will aid stakeholders to manage, undertake further conservation actions, and maintain the richness of the avifauna at PCFR.

2 Methodology

2.1 Study Area

A secondary lowland forest, Padang Chong Forest Reserve (PCFR) is in the Hulu Perak District of Perak (Figure 1). And borders Thailand and Kedah State. The study was carried out in PCFR, Compartment 12. Plot 1 establishes 500 meters (N 05°41'03.4", E 101°01'11.0") and Plot 2 establishes 1000 meters (N05°41'19.1", E 101°00'58.0"). Plots 1 and 2 are both densely vegetated with scrubs and have closed canopies that are covered in bamboo and tiny trees. An old logging road connects to Plot 2, and there's a tiny river stream to cross alongside Plot 1.

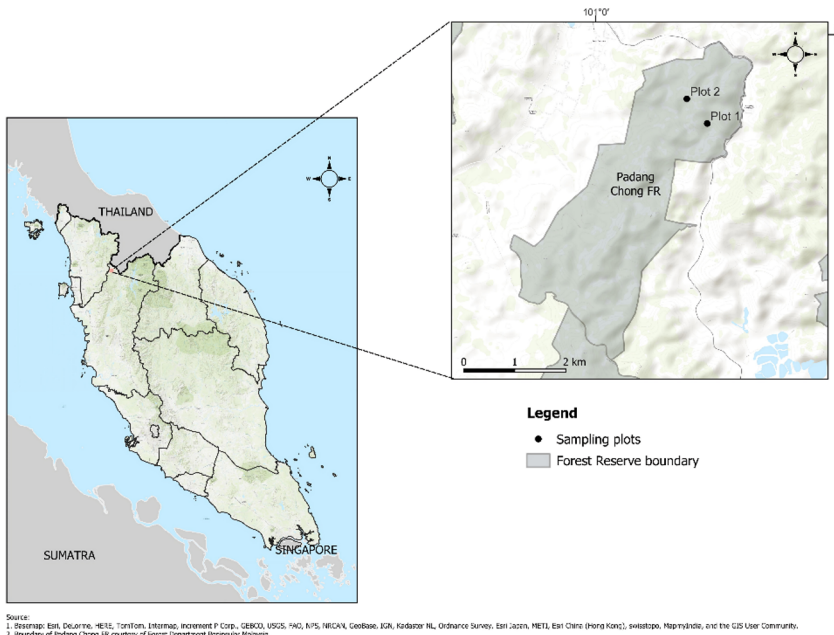


Fig. 1. Locations of the study site: Plot 1- 500 m and Plot 2- 1000 m at PCRF, Perak

2.2 Field Sampling Method

From June to November 2022, five sample sessions were conducted. Along the gradient towards from the PCRF border, surveys were carried out at two plots: Plot 1 (500m) and Plot 2 (1km). A transect line measuring 100 m x 100 m (1 hectare) made up each plot. A total of 10 mist-nets (12 m x 2.6 m x 33 mm) were set up between 0.3 and 0.5 meters above the ground at each plot. Mist nets were randomly placed, especially close to potential fly pathways. To record both nocturnal and diurnal birds, the mist nets were kept open for 24 hours on five consecutive nights. Every two hours from 0800 to 1130 and then again from 1630 to 1930, the nets were checked out.

2.3 Measurements of Avifauna

The captured birds were temporarily kept and transported in cloth bags. After being measured, recognized, and photographed, every bird that was taken was released back to the study sites. In addition to documenting the bird's body measurements were made, including tarsus (T), bill length (BL), bill width (BW), bill depth (BD), head bill (HB), total length (TL), tail (TA), wingspan (WS), wing length (WL), moulting (MO), brood patch (BP) and live weight (g). Robson [6], Lim et al. [10], and Jeyarajasingam [1] reference book were used to identified on the bird's morphology.

3 Result and Discussion

The results of these five sessions show that, we have identified 49 species from 19 families through capturing using mist-netting technique. Moreover, Manoshini et al. [2] reported that 9 species belong to the Pycnonotidae family, and Asyraf et al. [3] also have mentioned they

identified 42 species from 22 families through observations at PCFR. By combining this study, Manoshini et al. [2] and Asyraff et al. [3] there been documented at PCFR with a total number of 85 species from 30 families of avifauna.

According to the PCFR documentation, the most abundant species is Grey-throated Babbler (*Stachyris nigriceps*), which has 27 individuals (15.3%). Although Grey-throated Babbler commonly found in mountain forests between 1000 m and up to 3000 m [4]. Thus, Biun et al. [5] have recorded these species down as low at the Penang National Park. In this study, these species are also recorded in the lowland forest between the elevation up to 500 m in PCFR.

The second most abundant species is Emerald Dove (*Chalcophaps indica*), which has 14 individuals (8%). This species come from pigeon family and its common species in the forest, forest edge, mangroves and plantations [1]. This shows that PCFR was the most appropriate habitat for these species. Grey-throated Babbler and Emerald Dove are listed as Least Concern (LC), this shows their current local and global populations sizes remained large and stable. Perhaps, this could be a possible explanation behind their high abundance in PCFR.

The third most abundant species is Oriental Dwarf-kingfisher (*Cery erithaca*), which have 11 individuals (6.3%). This species is locally common resident, and common passage migrant from low elevations up to 450 m [1]. Their habitat are mangroves, forests (including stream courses), plantations and wooded areas [1]. Even though, this species is listed as Near Threatened (NT) according to IUCN status. This species recorded abundant in this study because there are stream courses in PCFR, which makes a suitable habitat and easy access for food resources. The remaining species consist of less than 10 individuals.

For this study using the mist-netting technique only Brown-chested Jungle Flycatcher (*Cyornis brunneatus*) is listed as Vulnerable (VU). This species is a migratory bird, a rare and localised passage migrant and winter visitor. The small population is dwindling due to the degradation of lowland forests, both breeding and wintering sites, due to logging and agricultural conversion [1]. Besides that, there are four Vulnerable (VU) species that were documented Black Hornbill (*Anthracoceros malayanus*), Great Argus (*Argusianus argus*), Great Slaty Woodpecker (*Mulleripicus pulverulentus*) and Grey-cheeked Bulbul (*Alophoixus tephrogenys*), while Greater Green Leafbird (*Chloropsis sonnerati*) is listed as Endangered (EN) according to IUCN status based on the previous studies.

Plot 1 has 106 documented individuals because of the presence of a close canopy and shrubs that allow understory birds to fly and shield themselves from predators. While only 70 species were obtained in Plot 2, this is because of the old logging roads that are located near the Plot 2 deployment. Because there are fruiting trees in Plot 2, birds only travel there to feed.

Table 1. Checklist of birds at Padang Chong Forest Reserve – Plot 1 and Plot 2

No	Family	Scientific Name	Common Name	IUCN Status	Present Study		Manoshini et al., 2023		Asyraff et al., 2023	
					P 1	P 2	P 1	P 2	P 1	P 2
1	Accipitridae	<i>Spilornis cheela</i>	Crested Serpent-eagle	LC						x
2	Alcedinidae	<i>Alcedo meninting</i>	Blue-eared Kingfisher	LC	x					
3	Alcedinidae	<i>Alcedo peninsulae</i>	Malay Blue-banded Kingfisher	NT	x					

4	Alcedinidae	<i>Ceyx erithaca</i>	Oriental Dwarf-kingfisher	NT	x		
5	Alcedinidae	<i>Actenoides concretus</i>	Rufous-collared Kingfisher	NT	x	x	
6	Alcedinidae	<i>Halcyon smyrnensis</i>	White-throated Kingfisher	LC			x
7	Bucerotidae	<i>Anthracoceros malayanus</i>	Black Hornbill	VU			x
8	Bucerotidae	<i>Anorrhinus galeritus</i>	Bushy-crested Hornbill	NT			x
9	Calypptomenidae	<i>Calypptomena viridis</i>	Green Broadbill	NT	x		
10	Campephagidae	<i>Pericrocotus igneus</i>	Fiery Minivet	NT			x
11	Chloropseidae	<i>Chloropsis sonnerati</i>	Greater Green Leafbird	EN			x
12	Cisticolidae	<i>Orthotomus sutorius</i>	Common Tailorbird	LC			x
13	Cisticolidae	<i>Orthotomus atrogularis</i>	Dark-necked Tailorbird	LC	x		x
14	Cisticolidae	<i>Prinia flaviventris</i>	Yellow-bellied Prinia	LC			x
15	Columbidae	<i>Chalcophaps indica</i>	Emerald Dove	LC	x	x	x
16	Columbidae	<i>Ducula aenea</i>	Green Imperial-pigeon	NT			x
17	Columbidae	<i>Spilopelia chinensis</i>	Spotted Dove	LC			x
18	Columbidae	<i>Geopelia striata</i>	Zebra Dove	LC			x
19	Cuculidae	<i>Phaenicophaeus sumatranus</i>	Chestnut-bellied Malkoha	NT			x
20	Cuculidae	<i>Cacomantis variolosus</i>	Brush Cuckoo	LC	x		
21	Dicaeidae	<i>Prionochilus percussus</i>	Crimson-breasted Flowerpecker	LC		x	x
22	Dicaeidae	<i>Dicaeum trigonostigma</i>	Orange-bellied Flowerpecker	LC		x	x
23	Dicaeidae	<i>Prionochilus maculatus</i>	Yellow-breasted Flowerpecker	LC	x	x	
24	Dicruridae	<i>Dicrurus aeneus</i>	Bronzed Drongo	LC			x
25	Dicruridae	<i>Dicrurus paradiseus</i>	Greater Racquet-tailed Drongo	LC	x	x	x
26	Estrildidae	<i>Erythrura prasina</i>	Pin-tailed Parrotfinch	LC	x		x
27	Estrildidae	<i>Lonchura punctulata</i>	Scaly-breasted Munia	LC			x

28	Estrildidae	<i>Lonchura leucogastra</i>	White-bellied Munia	LC		x	
29	Eurylaimidae	<i>Eurylaimus ochromalus</i>	Black-and-yellow Broadbill	NT			x
30	Irenidae	<i>Irena puella</i>	Asian Fairy-bluebird	LC			x
31	Laniidae	<i>Lanius tigrinus</i>	Tiger Shrike	LC		x	x
32	Megalaimidae	<i>Psilopogon chrysopogon</i>	Gold-whiskered Barbet	LC			x
33	Megalaimidae	<i>Psilopogon franklinii</i>	Golden-throated Barbet	LC			x
34	Megalaimidae	<i>Caloramphus hayii</i>	Malay Brown Barbet	NT			x
35	Meropidae	<i>Merops viridis</i>	Blue-throated Bee-eater	LC			x
36	Meropidae	<i>Nyctyornis amictus</i>	Red-bearded Bee-eater	LC			x
37	Monarchidae	<i>Hypothymis azurea</i>	Black-naped Monarch	LC		x	
38	Motacillidae	<i>Anthus rufulus</i>	Paddyfield Pipit	LC			x
39	Muscicapidae	<i>Cyornis rubeculoides</i>	Blue-throated Blue-flycatcher	LC		x	
40	Muscicapidae	<i>Cyornis brunneatus</i>	Brown-chested Jungle-flycatcher	VU		x	x
41	Muscicapidae	<i>Cyornis glaucicomans</i>	Chinese Blue-flycatcher	LC		x	
42	Muscicapidae	<i>Ficedula elisae</i>	Green-backed Flycatcher	LC		x	x
43	Muscicapidae	<i>Cyornis sumatrensis</i>	Indochinese Blue-flycatcher	LC		x	
44	Muscicapidae	<i>Ficedula mugimaki</i>	Mugimaki Flycatcher	LC			x
45	Muscicapidae	<i>Ficedula zanthopygia</i>	Yellow-rumped Flycatcher	LC		x	x
46	Muscicapidae	<i>Cyornis unicolor</i>	Pale Blue-flycatcher	LC		x	
47	Muscicapidae	<i>Enicurus ruficapillus</i>	Chestnut-naped Forktail	NT		x	
48	Muscicapidae	<i>Larvivora cyane</i>	Siberian Blue Robin	LC		x	
49	Muscicapidae	<i>Copsychus malabaricus</i>	White-rumped Shama	LC		x	
50	Nectariniidae	<i>Arachnothera longirostra</i>	Little Spiderhunter	LC		x	x
51	Nectariniidae	<i>Arachnothera robusta</i>	Long-billed Spiderhunter	LC		x	x
52	Nectariniidae	<i>Kurochkinogramma hypogrammica</i>	Purple-naped Spiderhunter	LC		x	x

53	Nectariniidae	<i>Anthreptes simplex</i>	Plain Sunbird	LC		x				x
54	Pellorneidae	<i>Pellorneum nigrocapitatum</i>	Black-capped Babbler	LC	x					
55	Pellorneidae	<i>Pellorneum bicolor</i>	Ferruginous Babbler	LC	x					
56	Pellorneidae	<i>Malacopteron magnirostre</i>	Moustached Babbler	LC	x	x				
57	Pellorneidae	<i>Pellorneum ruficeps</i>	Puff-throated Babbler	LC			x			
58	Pellorneidae	<i>Pellorneum malaccense</i>	Short-tailed Babbler	NT	x					
59	Pellorneidae	<i>Pellorneum rostratum</i>	White-chested Babbler	NT	x					
60	Phasianidae	<i>Argusianus argus</i>	Great Argus	VU						x
61	Phasianidae	<i>Gallus gallus</i>	Red Junglefowl	LC					x	x
62	Picidae	<i>Meiglyptes tukki</i>	Buff-necked Woodpecker	NT	x	x			x	
63	Picidae	<i>Picus puniceus</i>	Crimson-winged Woodpecker	LC						x
64	Picidae	<i>Mulleripicus pulverulentus</i>	Great Slaty woodpecker	VU						x
65	Picidae	<i>Blythipicus rubiginosus</i>	Maroon Woodpecker	LC	x					
66	Picidae	<i>Sasia abnormis</i>	Rufous Piculet	LC	x	x				
67	Picidae	<i>Chrysophlegma mentale</i>	Javan Yellownappe	NT			x			
68	Pycnonotidae	<i>Brachypodius atriceps</i>	Black-headed Bulbul	LC					x	
69	Pycnonotidae	<i>Iole charlottae</i>	Buff-vented Bulbul	NT						x
70	Pycnonotidae	<i>Pycnonotus simplex</i>	Cream-vented Bulbul	LC					x	
71	Pycnonotidae	<i>Ixidia cyaniventris</i>	Grey-bellied Bulbul	NT			x	x		x
72	Pycnonotidae	<i>Alophoixus tephrogenys</i>	Grey-cheeked Bulbul	VU			x			
73	Pycnonotidae	<i>Tricholestes criniger</i>	Hairy-backed Bulbul	LC			x	x		
74	Pycnonotidae	<i>Pycnonotus plumosus</i>	Olive-winged Bulbul	LC						x
75	Pycnonotidae	<i>Ixidia erythrophthalmos</i>	Spectacled Bulbul	LC			x			
76	Pycnonotidae	<i>Pycnonotus finlaysoni</i>	Stripe-throated Bulbul	LC						x
77	Scotocercidae	<i>Abroscopus superciliaris</i>	Yellow-bellied Warbler	LC	x	x				
78	Stenostiridae	<i>Culicicapa ceylonensis</i>	Grey-headed Canary-flycatcher	LC	x	x				

79	Strigidae	<i>Otus sunia</i>	Oriental Scops-owl	LC		x					
80	Strigidae	<i>Otus lempiji</i>	Sunda Scops-owl	LC		x					
81	Timaliidae	<i>Cyanoderma erythropterum</i>	Chestnut-winged Babbler	LC		x					
82	Timaliidae	<i>Macronus ptilosus</i>	Fluffy-backed Tit-babbler	NT	x				x		
83	Timaliidae	<i>Stachyris poliocephala</i>	Grey-headed Babbler	LC	x						
84	Timaliidae	<i>Stachyris nigriceps</i>	Grey-throated Babbler	LC	x	x					
85	Vireonidae	<i>Erpornis zantholeuca</i>	White-bellied Erpornis	LC		x					
Total number of species						32	32	4	4	2	41
Total number of family						16	15	1	1	2	23
Total number of individuals						106	70	10	15	2	52

Note* IUCN - International Union for Conservation of Nature and Natural Resources, **LC** – Least Concern, **EN** – Endangered, **VU** – Vulnerable, **NT** – Near Threatened

4 Conclusion

To summarise this study, 176 individuals from 49 different species were captured throughout five sessions employing a mist-netting method. The Grey-throated Babbler is the most abundant species, with 27 individuals, followed by the Emerald Dove, which has 14 individuals, and the Oriental Dwarf-kingfisher, which have 11 individuals. Therefore, the conservation and management of PCFR are every crucial to preserve this forest fragmentation. Since PCFR is one of the forest reserves listed as A-PL2 under the CFS initiative, this study and the previous studies can aid to connect, maintain, preserve and conserve the forest area. This will enhance the high value natural resources that are maintained and persevered to ensure the sustainability and the well-being of the nature.

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