

PAPER • OPEN ACCESS

Surveys of Bird Species in the Gunung Basor, Kelantan

To cite this article: Aainaa Amir *et al* 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **549** 012052

View the [article online](#) for updates and enhancements.

Surveys of Bird Species in the Gunung Basor, Kelantan

Aainaa Amir^{1*}, Kamarul Hambali¹, Adib Bahar¹, Huda Abdullah¹ and Fahmi Wahab²

¹Faculty of Earth Science, Universiti Malaysia Kelantan, Kelantan, Malaysia

²SM Sains Jeli, Kelantan, Malaysia

E-mail: syazwani@umk.edu.my

Abstract. This document reports the avian survey results in Gunung Basor, in the state of Kelantan (5°29'N, 101°50'E). The survey is part of the Pergau Expedition 2019 conducted by TNBR-UMK (Tenaga Nasional Berhad Research-Universiti Malaysia Kelantan). In this study, a total of 32 point stations at 200 meters interval were established. Point stations were approached stealthily and any birds selected had been recorded. The two-day survey 23 species of birds had been recorded. The results show the recorded birds were mostly very high altitude of species-packing (from low elevations up to 60m to 2000m), except for four species that are common residents at low elevations. Of the 23 species, eight species were noteworthy records. Two species were not previously reported in Kelantan, three species are winter visitors and two species are classified as Near Threatened according to the IUCN Red List.

1. Introduction

There have been few surveys of avian communities in Jeli [1,2]. Access to the sites surveyed has generally been made possible by rivers or roads. Anthropogenic changes at these sites, such as habitat alteration, hunting or both, tend to obscure the composition and structure of birds in virgin forest. In addition, accessible sites with little or no habitat alteration generally consist of hill dipterocarp forest, upper dipterocarp forest, montane forest and ericaceous forest because logistical problems become severe away from navigable rivers.

However, studies in other parts of Jeli demonstrate the dominant influence of habitat selection on birds. Therefore, bird communities are likely to differ considerably from those in the more remote upland forest, particularly in areas far from large rivers and tributaries. Factors that help explain the generalized dichotomy between these two main types of forest include the lack of hydroperiodicity and the seasonal influx of nutrients in the forest, as well as a sharp decrease in the level of habitat diversity at greater distances from large rivers.

Here, we report on the results of the two-day survey of an undisturbed and non-hunted forest site near the upper Sungai Suda (5°29'N, 101°50'E), which to date represents one of the few avian surveys in Jeli, Kelantan.

2. Study Site and Methods

This study was conducted in the Gunung Basor Forest Reserve, in the Jeli District, in northeastern Peninsular Malaysia in the state of Kelantan (Figure 1). The Gunung Basor forest reserve covers an area of 406.1 km². The area is undulating (150-1840 m) with floristic areas ranging from the lowland dipterocarp and the upper hill dipterocarp forest to the lower montane forest. The type of soil varies



according to the terrain conditions. The average maximum and minimum temperature of Gunung Basor is 32°C and 25°C with an average annual rainfall of 2750-3000 mm, being the wettest period between the months of September and December. The dipterocarp forest of this forest reserve has been selectively logged several times since the 1970s and more recently during 2004-2006 [3].

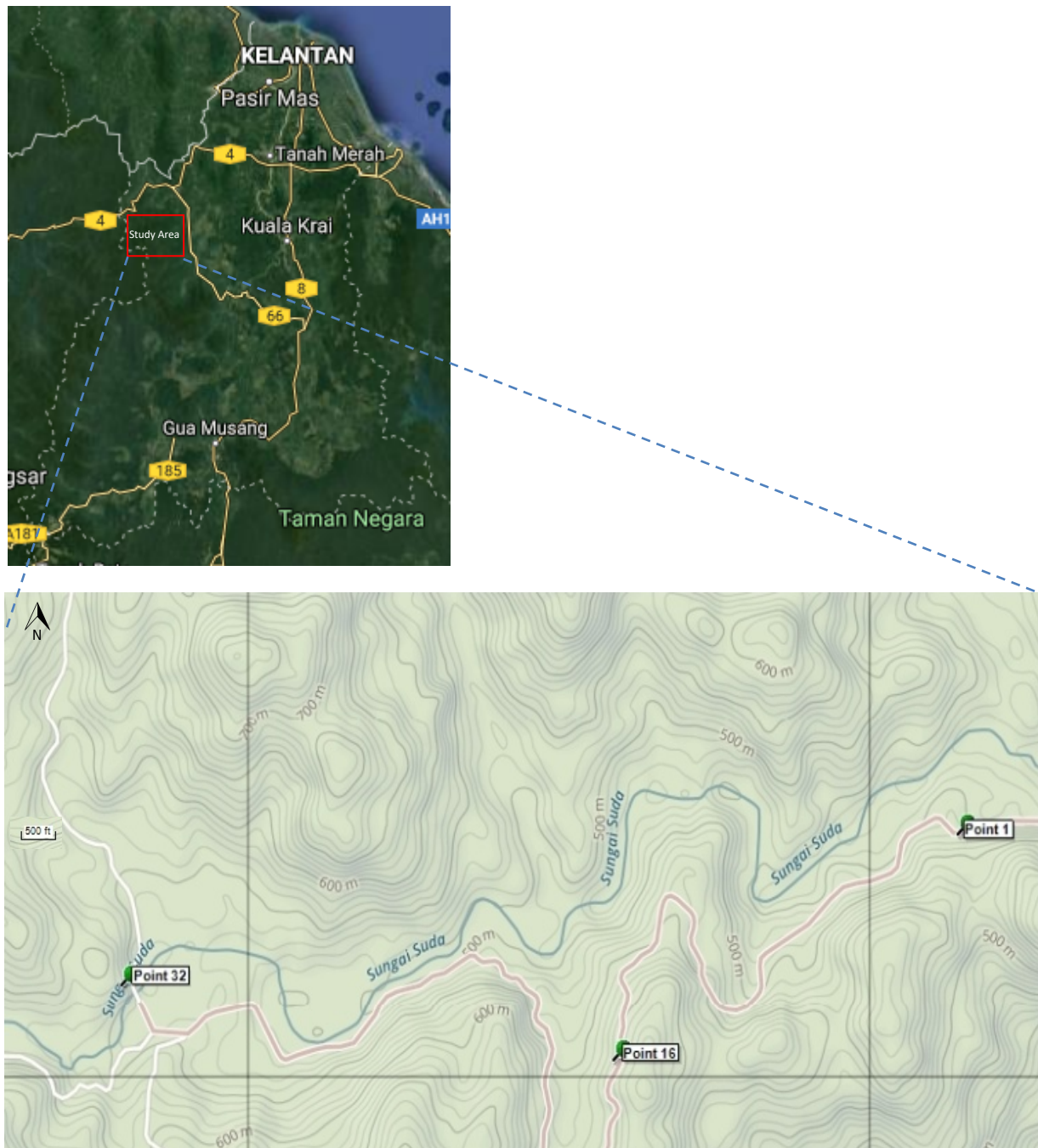


Figure 1. Location of the survey site in the Gunung Basor. Point 1, Point 16, and Point 32 represents three of the 32 point counts spread at intervals of at least 200m based on ease of observations for the avian survey.

2.1 Habitat Types

Gunung Basor has been classified into four classes, i.e. Non-forested area, broad leaves forest area, forest area with fern and unclassified [4]. According to Norashikin *et al.* [5], Gunung Basor, as a production forest, possessed the highest composition, diversity, evenness and floristic richness compared to Bukit Bakar and Gunung Stong Tengah. The area is mainly covered by broad leaves with coverage of 33.15% and ferns with 22.34% compared to the non-forested area with coverage of 8.79%. Therefore, the area has not yet undergone any major changes due to natural or human forces. Dipterocarpaceae was the most speciose family in Gunung Basor followed by Euphorbiaceae, Anacardiaceae, Anisophylleaceae, Celastraceae, Combretaceae, Cornaceae, Crypteroniaceae, Icacinaceae, Ixonanthaceae, Lythraceae, Magnoliaceae, Melastomataceae, Meliaceae, Oleaceae, Polygalaceae, Rhamnaceae, Rosaceae, and Ulmaceae.

2.2 Avian Survey

The list here was compiled by researchers through field work held from November 9 to 10, 2019. The records were mainly based on intensive observations and, to a lesser extent, live vocalizations. Bird studies were conducted between 0730 and 1100 hours on days without rain or strong wind. This time is appropriate because most birds are active early in the morning. More than 0700 h of field time were recorded in two days of observation.

In this study, a total of 32 points were established at random with intervals of at least 200 m. Points were selected based on ease of access and security during observation. The method requires observers to stop at each sampling point, although they can choose to move through the points to find the birds and record all the birds seen or heard for a specific period of time (the observing period). Each point station was surveyed for 10 minutes. Clearly, the duration count (usually 5-10 minutes) influences the probability of detecting birds, which is more critical according to the assumption that all birds are detected at 0m from the point. The points were approached stealthily and any bird that was detected moving away from the measurement point near the arrival of the recorder will be recorded as present during the observation period. The birds were identified at the species level using "A Field Guide to the Birds of Peninsular Malaysia and Singapore" [6].

A total of 66 birds representing of 23 bird species, 15 families and 19 genera were recorded by positive sightings, almost always confirmed by subsequent sightings and vocal cues.

3. Results

3.1 The Checklist

A total of 23 bird species were recorded in Gunung Basor (Table 1), within the real study area (see Figure 1) microsympatrically coexisted in the predominant habitat type – high forest - representing a very high altitude of species-packing (from low elevations up to 60m to 2000m). The nomenclature and the sequence of families follow del Hoyo and Collar [7,8]. The highest bird individuals were recorded at the point 32, followed by point 3 and point 26. The habitat at point 32 is much more complex compared to the other point counts. This habitat is made up of wooded, scrub, grass at hilly roads and forested rivers. As mentioned by Buckton and Ormerod [9] among all riparian organisms, birds are the most visible, with specialized traits developed to exploit the energy resources and habitat conditions provided by rivers. In addition, river birds along montane rivers are easily identified and reliably analysed, creating an opportunity for cost-effective assessment on a range of scales from basin to region [10]. However, at point 3 and point 26, the habitat is more likely to be the same as the habitat at other points, such as forest, forest edges, scrub and secondary growth; but perhaps what makes it special is the tree species grown there. Anyhow, tree species were not recorded in this study.

Table 1. List of 23 bird species recorded in the Gunung Basor, Jeli, Kelantan.

Family and species	Documentation	No. of individuals observed	Point Count	Habitats	Foraging position	Sociality	Abundance
ACCIPITRIDAE (1)							
<i>Spilornis cheela</i>	S	2	1, 32	Sc, Fo	Ca, Cr	S	C
COLUMBIDAE (1)							
<i>Chalcophaps indica</i>	S	4	2, 3, 17, 32	Fo, Fe	T	S	C
CUCULIDAE (2)							
<i>Cacomantis merulinus</i>	S	5	5, 13(2), 18, 28,	Fe, Sc	T, Cr	S	C
<i>Centropus sinensis</i>	S	5	10, 12, 14, 22, 27,	Fe, Sc	T	S	C
HEMIPROCNIIDAE (1)							
<i>Hemiprocne comata</i>	P	4	3, 8, 16, 28,	Fo, Fe	Ca	G	C
TROGONIDAE (1)							
<i>Harpactes oreskios</i>	P	1	26	Fo	Sc	S	C
MEROPIIDAE (1)							
<i>Merops leschenaulti</i>	P	4	2, 23, 30, 32	W	A	G	C
BUCEROTIDAE (1)							
<i>Anthracoceros albirostris</i>	S	3	18, 21, 32	Fo, Fe	T, F	S, G	C
LANIIDAE (1)							
<i>Lanius tigrinus</i>	P	1	28	Fe, W	Br	S	C, M
MONARCHIDAE (1)							
<i>Terpsiphone affinis</i>	S	5	4, 10, 12, 23 (2)	Fo, Fe, W	A	M	C, M
PYCNONOTIDAE (2)							
<i>Pycnonotus finlaysoni</i>	S	3	3, 15, 20	Fo, Fe	U, F	M	C
<i>Pycnonotus brunneus</i>	P	5	3, 15, 18, 29, 30	Fo, Fe	U, F	G	C
CISTICOLIDAE (2)							
<i>Orthotomus sericeus</i>	S	3	5, 26(2)	Fe, Sc	U	S	C
<i>Orthotomus atrogularis</i>	S	2	6, 7	Fo, Fe, Sc,	U	S	C
MUSCICAPIDAE (2)							
<i>Copsychus saularis</i>	S	4	4, 18, 21, 28	Fe, Sc	T	S	C

Family and species	Documentation	No. of individuals observed	Point Count	Habitats	Foraging position	Sociality	Abundance
<i>Enicurus ruficapillus</i>	P	4	10, 20, 21, 31	R	W	S	C
DICAEIDAE (2)							
<i>Dicaeum agile</i>	S	3	26, 30, 32	Fo	Ca, Sc	*	U, R
<i>Dicaeum everetti</i>	S	1	3	Fo	*	*	R
NECTARINIIDAE (3)							
<i>Cinnyris jugularis</i>	S	5	3, 10, 26, 32(2)	Sg	U	*	C
<i>Aethopyga temminckii</i>	S	1	28	Fo	U	*	U
<i>Arachnothera longirostra</i>	S	3	15	Fo, Fe, W	U	*	C
MOTACILLIDAE (1)							
<i>Motacilla cinerea</i>	P	4	6, 21, 30, 32	H, R	T	S	C, M

Codes used in the Table 1

Documentation

S Confirmed sightings

P Sighted and photographed (Figure 2)

Point Count

(x) More than one individuals found in that particular point count

Habitats

Sc Scrub

Fo Forest

Fe Forest edge

W Wooded

R Forested river

Sg Secondary growth

H Grass at hilly roads

Foraging Position

Ca Canopy

Cr Crown

T Terrestrial

Sc Scrub

A Aerial

F Fruits

Br Branch

U Understor

ey

W Water

Sociality

S Solitary or in pairs

G Groups

M Mixed flocks

***** not enough information

Abundance

C Common

M Winter migrant

U Uncommon

R Rare



Merops leschenaulti



Enicurus ruficapillus

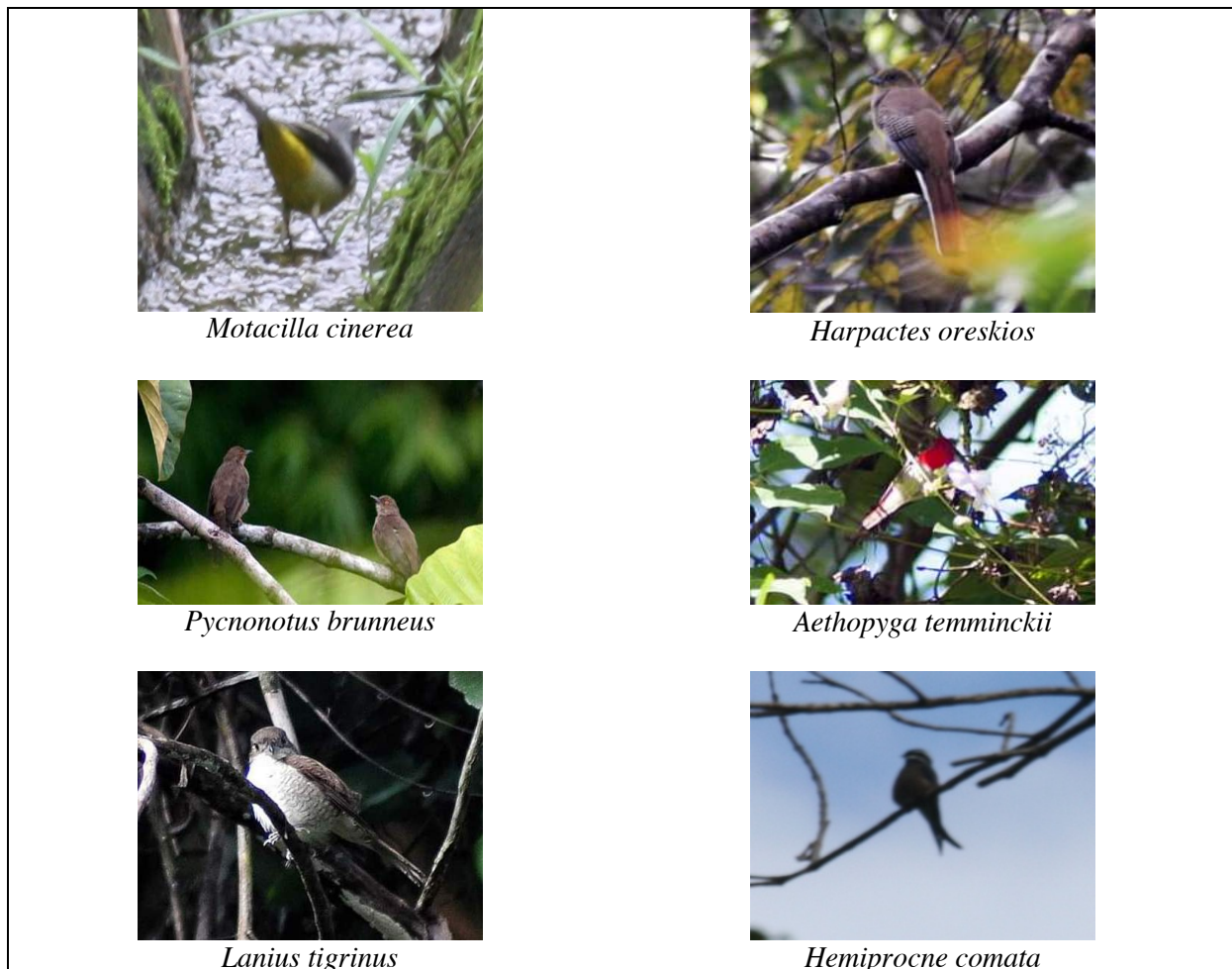


Figure 2. Eight photographed bird species

3.2 Noteworthy Records

Here we highlight important records for the Kelantan ornithology, mainly in terms of species distribution. One species recorded in Gunung Basor were not previously reported in Kelantan [11]. Important records in terms of geographic location are of two types: those that are outside the range of a species, thus defined as real range extensions, and those that are within the range of a species, but bridging large gaps within a distribution. These bridge records are not very surprising since this site is large (reserved forest) and Kelantan is a poorly observed region but rich in natural resources. In addition, we provide some additional notes on winter visitor species, low altitude species and high conservation species.

Range extensions. Cases of significant range extensions were recorded for one species that are not yet registered found in Kelantan based on Lepage [11]. Following, we briefly mention of the species.

BROWN-BACKED FLOWERPECKER *Dicaeum everetti*

The species is within the range of the Malay Peninsula, but it is considered very rare because it is assumed that it experienced a moderate population declines due to the extensive loss of the lowland rainforest. Based on Jeyarajasingam and Pearson [6] and eBird website, this species was recorded only in the center of Selangor, Raub District, Fraser's Hil, Kuala Tahan, and Johor. Although the conservation status is Near Threatened, but is not considered more threatened due to its ability to use secondary habitats. Perhaps this is also being the cause of this species found at high altitude.

Winter visitor. Migrants generally begin to arrive in Peninsular Malaysia as early as July and August, but in large numbers from September to November, most of which pass to more southern wintering areas. As the field work was carried out in November, three of the 23 species recorded were winter migrations.

BLYTH'S PARADISE FLYCATCHER (white morph) *Terpsiphone affinis*

Although this species are locally common resident, some of them are also migrant passenger and winter visitor at lower elevations up to 1500m.

GREY WAGTAIL *Motacilla cinerea*

This species is a fairly common winter visitor from low elevations up to 2000m and the most common wagtail in a mountainous country throughout the Malaysian Peninsula. It breeds throughout Europe and temperate Asia, but winter passes in southern Africa, south and Southeast Asia to New Guinea.

TIGER SHRIKE *Lanius tigrinus*

Like Grey Wagtail, Tiger Shrike is a fairly common passage, migrant and winter visitor from low elevations up to 1200m. However, this species is less common than Brown Shrike. This species is territorial during wintering quarters. It was also observed perches on exposed branches at the edge of the forest.

Low altitude species. Most registered bird species represented a very high altitude of species-packing (from low elevations of up to 60m to 2000m) except the Plaintive Cuckoo (*Cacomantis merulinus*), the Olive-backed Sunbird (*Cinnyris jugularis*), Stripe-throated Bulbul (*Pycnonotus finlaysoni*), and Brown-backed Flowerpecker (*D. everetti*) that are always found at low elevations.

PLAINITIVE CUCKOO *Cacomantis merulinus*

Although this species is a fairly common resident at low elevations, heavily wooded areas are often used as habitat. It frequents the crowns of tall trees. This is perhaps the cause of observing them in high latitude habitats.

OLIVE-BACKED SUNBIRD *Cinnyris jugularis*

Olive-backed Sunbird are common and widespread residents at low elevations that always frequent the middle and lower storey. However, this bird has also been found in Pulau Pinang, Pulau Tioman (Pahang) and Pulau Langkawi (Kedah), where it is found up to 820m. Therefore, it would not be surprising if it was in Gunung Basor at 150-1840m.

STRIPE-THROATED BULBUL *Pycnonotus finlaysoni*

This species is reported as a common and widespread resident at low elevations in the north. However, in Perak, it inhabits mainly in a mountainous country from 200-800m and also seen until 1770m in Gunung Kali. This finding may be due to the location of the Gunung Basor, not far from the Titiwangsa Range and adjacent to Perak, so it is not surprising that this bird is also found at high latitudes.

High conservation concern species. Among the 23 species recorded, two species are considered Near Threatened according to The IUCN Red List of Threatened Species [12]; the Chestnut-naped Forktail (*Enicurus ruficapillus*) and the Brown-backed Flowerpecker (*D. everetti*).

CHESTNUT-NAPED FORKTAIL *Enicurus ruficapillus*

This species is a locally common resident mainly in the mountainous country from low elevations of up to 900m. It frequents the floor, along the edges of the stream, hops along rocks, and collecting small aquatic invertebrates. Populations are experiencing a moderately rapid decline due to the loss

and destruction of the lowland rainforest. However, it is not considered more threatened due to its ability to use secondary habitats and also occurs in low mountain forests.

3.3 Other Avian Surveys

In the future, it is proposed that the bird studies in Gunung Basor be carried out with mist nets and acoustic methods. This is because, in this area, forests are dense. Most birds are in the forest, which makes the observer cannot identify the species of the bird if it is too far. Small birds also appear to be active flyer and make identification difficult. Of course, there are so many bird calls in this area. If there is an experienced researcher in identifying birds through sound, then of course more species can be recorded.

Acknowledgements

This survey was conducted as part of Pergau Expedition 2019. We are indebted to Tenaga Nasional Berhad Research and Fakulti Sains Bumi, Universiti Malaysia Kelantan for directing and carrying out this expedition.

References

- [1] Aainaa A and Kamarul H 2016 Birds of Universiti Malaysia Kelantan (Jeli Campus). Poster.
- [2] Aimie M 20117 The diversity of birds in Gunung Reng, Jeli, Kelantan. Thesis of B.Appl.Sc. Universiti Malaysia Kelantan.
- [3] Ryan M D and Wan Mohamad S 2009 *Oryx* **43(1)** 48-51
- [4] Intan N M R, Shaparas D, Radhiah Z and Ibrahim B 2018 Characterisation of tropical rainforest tree structure parameter based on remote sensing imagery. *39th Asian Conference on Remote Sensing (ACRS 2018), 15-19 October 2018, Renaissance Kuala Lumpur Hotel, Kuala Lumpur, Malaysia*, Vol. 2, pp: 835-842.
- [5] Norashikin F, Azizi S and Latiff A 2015 *Malayan Nature Journal* **67(1)** 71-80
- [6] Jeyarajasingam A and Pearson A 2012 *A field guide to the birds of Peninsular Malaysia and Singapore* (second edition). Oxford: Oxford University Press.
- [7] del Hoyo J and Collar N J 2014 HBW and BirdLife International Illustrated Checklist of the Birds of the World. Volume 1: Non-passerines. Lynx Edicions and BirdLife International, Barcelona, Spain and Cambridge, UK. Introduction to Volume 1: Non-passerines.
- [8] del Hoyo J and Collar N J 2016 HBW and BirdLife International Illustrated Checklist of the Birds of the World. Volume 1: Passerines. Lynx Edicions and BirdLife International, Barcelona, Spain and Cambridge, UK. Introduction to Volume 2: Passerines.
- [9] Buckton S T and Ormerod S J 2002 *Freshwater Biology* **47(4)** 695
- [10] Vaughan I P, Noble D G and Ormerod S J 2007 *Freshwater Biology* **52(11)** 2270-2284
- [11] Lepage D 2020 Avibase-Bird checklist of the world. Kelantan. <https://avibase.bsc-eoc.org/checklist>.
- [12] IUCN 2020 The IUCN Red List of Threatened Species. Version 2019-3. <https://www.iucnredlist.org>