

Checklist of avifaunal diversity in Nilgiris Forest Division, The Nilgiris – Conservation Prospective

Indian Subcontinent ranks among the top ten countries in the world in terms of most number of bird species (Lepage 2016); covering 2.2% of the world's terrestrial landmass, India is known to harbour about 12.5% of its avifauna. This spectacular diversity is believed to have arisen from multiple factors that include its unique biogeographical, and ecological history, its heterogeneity of physical features, and a high degree of eco-climatic variations ranging from tropical to temperate.

The Indian checklist acknowledges a total of 1263 species of birds constituting about 12% of the world avifauna (Alström et al. 2016), Taxonomically, it covers 23 orders, 107 families, and 498 genera, representing the global avian diversity by about 64%, 45%, and 21% respectively. Predictably, passerines (Order Passeriformes) form the most predominant group followed by the orders Charadriiformes and Accipitriformes (Praveen et al. 2016).

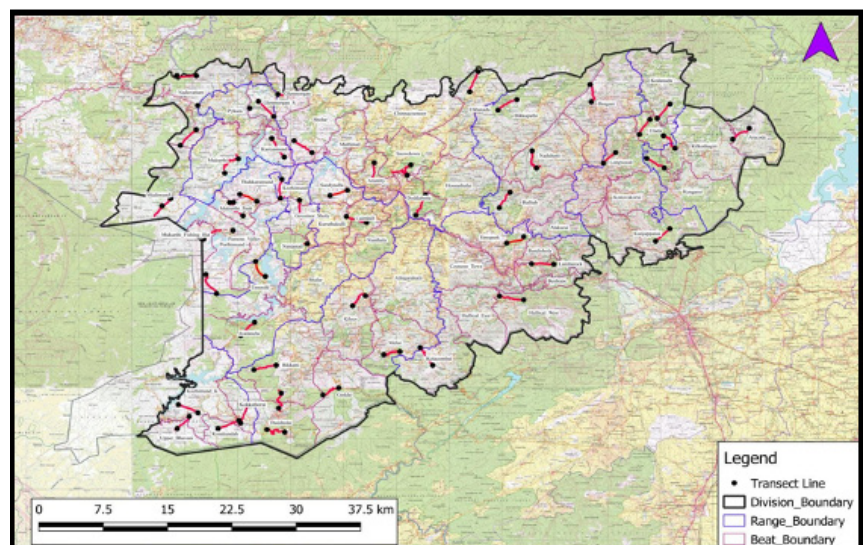
Birds are ideal bio indicators and useful models for studying a variety of environmental problems. Hence the condition of local landscape must be investigated to identify crucial determinants of the bird community structure for avian conservation (Kattan & Franco 2004).

Bird community evaluation has become an important tool in biodiversity conservation which is necessitating documentation of the current status of bird species for future monitoring and conservation (Islam & Rahmani 2004).

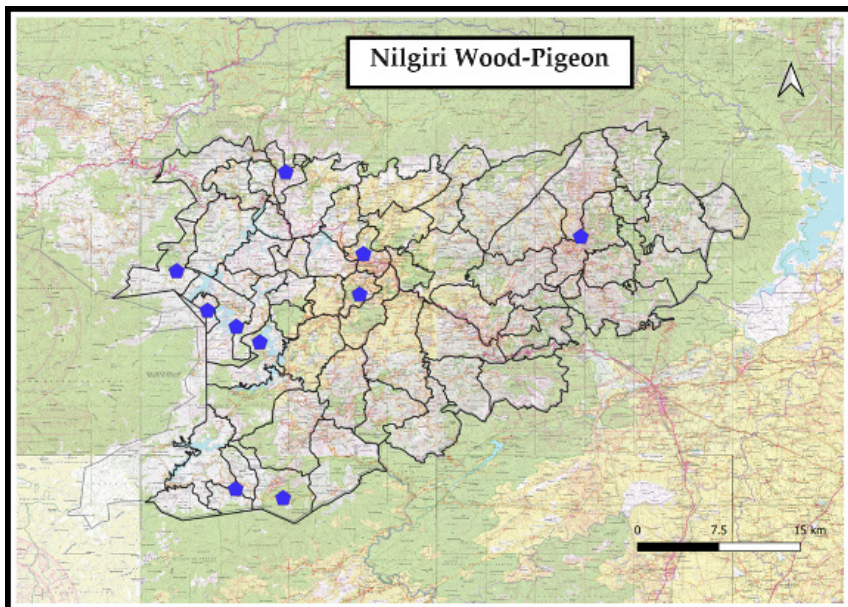
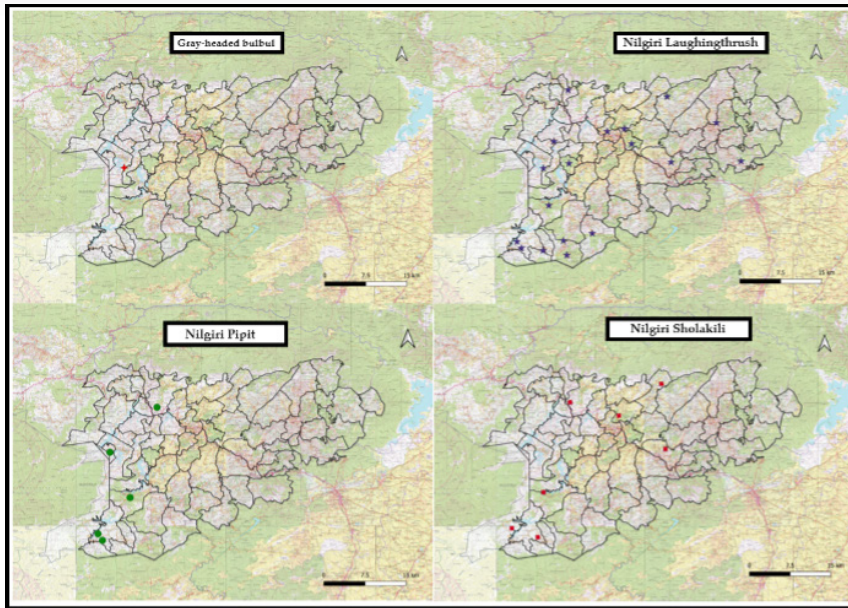
Although several studies related to the diversity of birds

have been done here and there in some parts of the Nilgiris Forest Division (NFD), but this study is a simultaneous research in entire NFD.

However, the present study aims to provide recent baseline information of the status of birds in the selected areas of the division. The present study was conducted in the NFD, Tamil Nadu. The division has 12 territorial ranges and one special range. The total forest area of this NFD is 527.466 km². It is located in the Nilgiris District, the district popularly known as the “Blue Mountains” which is a tiny district with an area of 2,565 km², forms an integral part of



Line transects laid to conduct the survey in NFD.



Map showing the five globally threatened birds recorded during the survey.

the Western Ghats and the Nilgiris Biosphere Reserve. Hence, Nilgiris is aptly called as the “Forest District of Tamil Nadu”. The forest cover in Nilgiris is 1445.940 km² (Forest Working Plan 2015–2025). Approximately, 65% of geographical area of this division lies at an altitude of

1500–2650 m. The climate is temperate to sub-tropical.

A two-day survey was conducted during the month of March 2022 for the documentation of the avian fauna of the region. Data was collected by using direct as well as indirect methods in order

to study the population status, distribution and diversity of avian fauna. The line transect method was used to collect the data from the different habitat types like shola, plantation, and mixed vegetation. A total of 32 transects were laid that covered most of the study area. The length of the transect was 2 km but the width varied according to survey area and visibility. The survey was conducted at dawn (0600–0900 h) and at dusk (1600–1900 h). Sixty-two volunteers collected the data from different regions in the division (two volunteers for every transect). The volunteers were wildlife biology students from Government Arts College, Udhamandalam. All the birds observed were identified by using the reference of Ali & Ripley (2007).

Observations from the field

During the survey, a total of 108 species belonging to 47 families were recorded (Table 1). The present study revealed that out of 108 species, two were ‘Endangered’ (Nilgiri Laughingthrush, Nilgiri Sholakili), two were ‘Vulnerable’ (Nilgiri Pipit, Nilgiri Wood-Pigeon), and one species (Gray-headed Bulbul)

Table 1. Checklist of bird species recorded during the terrestrial bird survey.

	Name of the species	Scientific name	Family	Movement pattern	No of sightings	Total individuals
1	Alpine Swift	<i>Tachymarptis melba</i>	Apodidae	FM	2	8
2	Ashy Prinia	<i>Prinia socialis</i>	Cisticolidae	R	4	5
3	Asian Brown Flycatcher	<i>Muscicapa dauurica</i>	Muscicapidae	FM	4	11
4	Asian Palm Swift	<i>Cypsiurus balasiensis</i>	Apodidae	R	2	2
5	Bar-winged Flycatcher-shrike	<i>Hemipus picatus</i>	Vangidae	R	3	5
6	Barn Swallow	<i>Hirundo rustica</i>	Hirundinidae	FM	5	7
7	Black-and-orange Flycatcher	<i>Ficedula nigrorufa</i>	Muscicapidae	R	21	42
8	Black Drongo	<i>Dicrurus macrocercus</i>	Dicruridae	FM	6	8
9	Black Eagle	<i>Ictinaetus malaiensis</i>	Accipitridae	R	3	3
10	Black-headed Bulbul	<i>Microtarsus melanocephalos</i>	Pycnonotidae	N	1	13
11	Black-rumped Flameback	<i>Dinopium benghalense</i>	Picidae	R	2	2
12	Black-winged Kite	<i>Elanus caeruleus</i>	Accipitridae	R	4	10
13	Black-naped Monarch	<i>Hypothymis azurea</i>	Monarchidae	FM	1	2
14	Blue Rock-Thrush	<i>Monticola solitarius</i>	Muscicapidae	FM	4	4
15	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	Acrocephalidae	FM	5	7
16	Booted Eagle	<i>Hieraetus pennatus</i>	Accipitridae	FM	1	1
17	Brahminy Starling	<i>Sturnia pagodarum</i>	Sturnidae	FM	3	5
18	Bronzed Drongo	<i>Dicrurus aeneus</i>	Dicruridae	R	2	2
19	Brown-capped Pygmy Woodpecker	<i>Yungipicus nanus</i>	Picidae	R	1	1
20	Chestnut-headed Bee-eater	<i>Merops leschenaulti</i>	Meropidae	FM	1	4
21	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	Vangidae	R	1	1
22	Common Flameback	<i>Dinopium javanense</i>	Picidae	R	3	4
23	Common Kingfisher	<i>Alcedo atthis</i>	Alcedinidae	FM	3	3
24	Common Myna	<i>Acridotheres tristis</i>	Sturnidae	R	2	5
25	Common Rosefinch	<i>Carpodacus erythrinus</i>	Fringillidae	FM	9	15
26	Common Tailorbird	<i>Orthotomus sutorius</i>	Cisticolidae	R	3	11
27	Coppersmith Barbet	<i>Psilopogon haemacephalus</i>	Megalaimidae	R	1	1
28	Crimson-backed Sunbird	<i>Leptocoma minima</i>	Nectariniidae	R	2	2
29	Dusky Crag-Martin	<i>Ptyonoprogne concolor</i>	Hirundinidae	R	1	2
30	Eurasian Hoopoe	<i>Upupa epops</i>	Upupidae	FM	11	13
31	Golden-fronted Leafbird	<i>Chloropsis aurifrons</i>	Chloropseidae	R	2	3
32	Great Tit	<i>Parus major</i>	Paridae	R	24	70
33	Greater Coucal	<i>Centropus sinensis</i>	Cuculidae	R	6	9
34	Greenish Warbler	<i>Phylloscopus trochiloides</i>	Phylloscopidae	FM	5	18
35	Gray-bellied Cuckoo	<i>Cacomantis passerinus</i>	Cuculidae	FM	1	1

	Name of the species	Scientific name	Family	Movement pattern	No of sightings	Total individuals
36	Gray-headed Bulbul	<i>Microtarsus priocephalus</i>	Pycnonotidae	R	1	1
37	Gray-headed Canary-Flycatcher	<i>Culicicapa ceylonensis</i>	Stenostiridae	R	12	29
38	Gray Junglefowl	<i>Gallus sonneratii</i>	Phasianidae	R	38	88
39	Gray Wagtail	<i>Motacilla cinerea</i>	Motacillidae	FM	20	40
40	House Crow	<i>Corvus splendens</i>	Corvidae	R	11	51
41	House Sparrow	<i>Passer domesticus</i>	Passeridae	R	13	176
42	Indian Blackbird	<i>Turdus simillimus</i>	Turdidae	FM	28	103
43	Indian Blue Robin	<i>Larvivora brunnea</i>	Muscicapidae	FM	2	7
44	Indian Paradise-Flycatcher	<i>Terpsiphone paradisi</i>	Monarchidae	FM	2	7
45	Indian Peafowl	<i>Pavo cristatus</i>	Phasianidae	R	5	9
46	Indian Pond-Heron	<i>Ardeola grayii</i>	Ardeidae	R	2	6
47	Indian Robin	<i>Copsychus fulicatus</i>	Muscicapidae	R	5	10
48	Indian Scimitar-Babbler	<i>Pomatorhinus horsfieldii</i>	Timaliidae	R	5	18
49	Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>	Anatidae	FM	2	6
50	Indian Swiftlet	<i>Aerodramus unicolor</i>	Apodidae	R	7	25
51	Indian White-eye	<i>Zosterops palpebrosus</i>	Zosteropidae	R	31	151
52	Jungle Babbler	<i>Argya striata</i>	Leiotrichidae	R	8	36
53	Jungle Bush-Quail	<i>Perdica asiatica</i>	Phasianidae	R	2	4
54	Jungle Myna	<i>Acridotheres fuscus</i>	Sturnidae	R	31	136
55	Jungle Nightjar	<i>Caprimulgus indicus</i>	Caprimulgidae	FM	1	4
56	Jungle Owlet	<i>Glaucidium radiatum</i>	Strigidae	R	1	1
57	Large-billed Crow	<i>Corvus macrorhynchos</i>	Corvidae	R	30	133
58	Large Cuckooshrike	<i>Coracina macei</i>	Campephagidae	R	1	2
59	Long-tailed Shrike	<i>Lanius schach</i>	Laniidae	FM	10	27
60	Loten's Sunbird	<i>Cinnyris lotenius</i>	Nectariniidae	R	1	1
61	Malabar Whistling-Thrush	<i>Myophonus horsfieldii</i>	Muscicapidae	R	3	7
62	Mottled Wood-Owl	<i>Strix ocellata</i>	Strigidae	R	1	1
63	Nilgiri Flowerpecker	<i>Dicaeum concolor</i>	Dicaeidae	R	4	14
64	Nilgiri Flycatcher	<i>Eumyias albicaudatus</i>	Muscicapidae	R	26	50
65	Nilgiri Laughingthrush	<i>Montecincla cachinnans</i>	Leiotrichidae	R	28	61
66	Nilgiri Pipit	<i>Anthus nilghiriensis</i>	Motacillidae	R	5	9
67	Nilgiri Sholakili	<i>Sholicola major</i>	Muscicapidae	AM	10	42
68	Nilgiri Wood-Pigeon	<i>Columba elphinstonii</i>	Columbidae	AM	11	24
69	Orange-headed Thrush	<i>Geokichla citrina</i>	Turdidae	FM	3	4
70	Orange Minivet	<i>Pericrocotus flammeus</i>	Campephagidae	R	3	6
71	Oriental Magpie-Robin	<i>Copsychus saularis</i>	Muscicapidae	R	9	22
72	Oriental Honey-buzzard	<i>Pernis ptilorhynchus</i>	Accipitridae	FM	3	4
73	Oriental Scops-Owl	<i>Otus sunia</i>	Strigidae	FM	2	2
74	Paddyfield Pipit	<i>Anthus rufulus</i>	Motacillidae	R	1	6
75	Painted Bush-Quail	<i>Perdica erythrorhyncha</i>	Phasianidae	R	1	2

	Name of the species	Scientific name	Family	Movement pattern	No of sightings	Total individuals
76	Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchos</i>	Dicaeidae	R	3	4
77	Pied Bushchat	<i>Saxicola caprata</i>	Muscicapidae	FM	47	129
78	Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>	Nectariniidae	R	12	33
79	Purple Sunbird	<i>Cinnyris asiaticus</i>	Nectariniidae	R	3	6
80	Red-rumped Swallow	<i>Cecropis daurica</i>	Hirundinidae	FM	5	22
81	Red-vented Bulbul	<i>Pycnonotus cafer</i>	Pycnonotidae	R	9	41
82	Red-wattled Lapwing	<i>Vanellus indicus</i>	Charadriidae	R	8	11
83	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	Pycnonotidae	R	62	375
84	Rock Pigeon	<i>Columba livia</i>	Columbidae	R	7	21
85	Rose-ringed Parakeet	<i>Psittacula krameri</i>	Psittacidae	R	3	7
86	Rufous Treepie	<i>Dendrocitta vagabunda</i>	Corvidae	R	2	2
87	Scaly-breasted Munia	<i>Lonchura punctulata</i>	Estrildidae	R	2	11
88	Scarlet Minivet	<i>Pericrocotus speciosus</i>	Campephagidae	R	1	1
89	Shikra	<i>Accipiter badius</i>	Accipitridae	FM	1	1
90	Short-toed Snake-Eagle	<i>Circaetus gallicus</i>	Accipitridae	FM	1	1
91	Spotted Dove	<i>Spilopelia chinensis</i>	Columbidae	FM	16	35
92	Spotted Owlet	<i>Athene brama</i>	Strigidae	R	1	1
93	Square-tailed Bulbul	<i>Hypsipetes ganeesa</i>	Pycnonotidae	FM	6	16
94	Streak-throated Woodpecker	<i>Picus xanthopygaeus</i>	Picidae	R	3	3
95	Tickell's Blue Flycatcher	<i>Cyornis tickelliae</i>	Muscicapidae	R	1	1
96	Tickell's Leaf Warbler	<i>Phylloscopus affinis</i>	Phylloscopidae	FM	3	4
97	Velvet-fronted Nuthatch	<i>Sitta frontalis</i>	Sittidae	R	2	8
98	Western Cattle Egret	<i>Bubulcus ibis</i>	Ardeidae	FM	1	1
99	Western Yellow Wagtail	<i>Motacilla flava</i>	Motacillidae	R	3	7
100	White-cheeked Barbet	<i>Psilopogon viridis</i>	Megalaimidae	R	11	19
101	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	Rallidae	FM	1	1
102	White-browed Bulbul	<i>Pycnonotus luteolus</i>	Pycnonotidae	R	3	6
103	White-browed Fantail	<i>Rhipidura aureola</i>	Rhipiduridae	R	6	6
104	White-browed Wagtail	<i>Motacilla maderaspatensis</i>	Motacillidae	R	1	1
105	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	Alcedinidae	R	1	1
106	Yellow-browed Bulbul	<i>Acritillas indica</i>	Pycnonotidae	R	1	1
107	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	Charadriidae	R	1	1
108	Yellow-eyed Babbler	<i>Chrysomma sinense</i>	Paradoxornithidae	R	1	3
	Total				756	2405

FM–Full Migrant | R–Resident | N–Nomadic | AM–Altitudinal Migrant.

Table 2. Threatened and Near Threatened bird species recorded during the survey.

	Name of the species	Scientific name	Family	IUCN Red List	Movement pattern	No of sightings	Total individuals sighted
1	Gray-headed Bulbul	<i>Microtarsus priocephalus</i>	Pycnonotidae	NT	R	1	1
2	Nilgiri Laughingthrush	<i>Montecincla cachinnans</i>	Leiotrichidae	EN	R	28	61
3	Nilgiri Pipit	<i>Anthus nilghiriensis</i>	Motacillidae	VU	R	5	9
4	Nilgiri Sholakili	<i>Sholicola major</i>	Muscicapidae	EN	AM	10	42
5	Nilgiri Wood-Pigeon	<i>Columba elphinstonii</i>	Columbidae	VU	AM	11	24

R-Resident | AM-Altitudinal Migrant. EN-Endangered | VU-Vulnerable | NT-Near Threatened.



Gray-headed Bulbul.



Nilgiri Laughingthrush.



Nilgiri Pipit.



Nilgiri Sholakili.



Nilgiri Wood-Pigeon.

@ Chandrasekar Das.

was 'Near Threatened' (Table 2). Important to note that, all five globally threatened species were recorded in the undisturbed shola forests of the division (Table 3).

The present study shows that NFD represents rich avian faunal diversity. It is the largest forest division in the Nilgiris

District. About 466 reserved forests are located in this division. According to the study, family Muscicapidae is recorded dominantly as in different protected areas of India (Sankar et al. 2006; Yaseen et al. 2011). In Nilgiris region, most of the avian related studies have been carried out in the lower

plateau. Hence, most of the studies focused either on a single species or bird group (Vijayan et al. 2000; Peter et al. 2015) but this survey reveals greater diversity of birds of upper Nilgiris region. The study conducted by Samson et al. (2018) at Doddabetta Hills of Nilgiris District revealed that a total of 123 species of birds belonging to 36 families and 16 orders were recorded. Hence, the entire study period was three years (2013–2016), and apart from that, the study is focused on particular region only. This study covers the entire division.

Table 3. GPS co-ordinates of locations of the five globally threatened birds observed.

	Name of the species	Scientific name	Name of the sighted locations	GPS co-ordinates of the locations	
1	Gray-headed Bulbul	<i>Microtarsus priocephalus</i>	Porthimund	11.3582 N	76.5808 E
2	Nilgiri Laughingthrush	<i>Montecincla cachinnans</i>	Simspark	11.3686 N	76.7955 E
			Bikkapathi	11.4776 N	76.7887 E
			Kunjappanai	11.3701 N	76.9129 E
			Longwood	11.4341 N	76.8717 E
			Aramby	11.4195 N	76.6882 E
			Doddabetta	11.3989 N	76.7291 E
			Glenmorgan	11.4885 N	76.6225 E
			Snowdown	11.4242 N	76.7170 E
			Nanjanad	11.3662 N	76.6238 E
			Kozhimund_K	11.2363 N	76.5365 E
			Korakundah	11.2213 N	76.5802 E
			Upper_Bhavani	11.2253 N	76.5439 E
			Geddai	11.2499 N	76.6630 E
			Thaisolai	11.2379 N	76.6144 E
			Meekeri	11.2137 N	76.6203 E
Avalanche	11.2964 N	76.5900 E			
Porthimund	11.3582 N	76.5808 E			
Thukkaramund	11.4028 N	76.5983 E			
3	Nilgiri Pipit	<i>Anthus nilghiriensis</i>	Avalanche	11.2964 N	76.5900 E
			Sholur	11.4465 N	76.6348 E
			Kozhimund_K	11.2363 N	76.5365 E
			Upper_Bhavani	11.2253 N	76.5439 E
Mukurthi_Fishing_Hut	11.3718 N	76.5564 E			
4	Nilgiri Sholakili	<i>Sholicola major</i>	Avalanche	11.2964 N	76.5900 E
			Bikkapathi	11.4778 N	76.7887 E
			Simspark	11.3686 N	76.7955 E
			Sholur	11.4465 N	76.6348 E
			Kozhimund_K	11.2363 N	76.5365 E
			Korakundah	11.2213 N	76.5802 E
Snowdown	11.4242 N	76.7170 E			
5	Nilgiri Wood-Pigeon	<i>Columba elphinstonii</i>	Emerald	11.3451 N	76.6006 E
			Aramby	11.4195 N	76.6882 E
			Longwood	11.4341 N	76.8717 E
			Mukurthi_Fishing_Hut	11.3718 N	76.5564 E
			Meekeri	11.2137 N	76.6203 E
			Mudimund	11.4051 N	76.5304 E
			Glenmorgan	11.4885 N	76.6225 E
			Porthimund	11.3582 N	76.5808 E
			Cairnhill	11.3855 N	76.6849 E
Korakundah	11.2213 N	76.5802 E			

The division covered by different types of vegetation, especially in the upper region mostly covered by montane temperate forests called as shola forests and open grasslands and the lower region moist deciduous forests and dry deciduous forest. In Nilgiris, most of the forest areas were invaded by lot of invasive and exotic plants like wattle, Blue Gum *Cestrum aurantiacum*, *Solanum mauritianum*, *Rubus* sp., and *Passiflora* sp. At the same time, the native plants bear fruits once yearly. Because of this, birds are only attracted to the exotic plants. Due to this, the forest cover may be destroyed and occupied by the invasive plants. Therefore, plantation of native fruiting plant species and gradual removal of exotic plants should be implemented (Chitheena et al. 2018) as it may increase the cover of native plant species' diversity in future. Further, proper management programmes and strategies in the hills will not only increase the number of resident bird species but will also attract migratory and vagrant species in the Nilgiris region.

References

- Ali, S. & S.D. Ripley (2007).** *Handbook of the birds of India and Pakistan*. Bombay Natural History Society Oxford University Press, New Delhi, Vol. 1–10.
- Alstrom, P., P.C. Rasmussen, C. Zhao, J. Xu, S. Dalvi, T. Cai, Y. Guan, R. Zhan, M.V. Kalyakin, F. Lei & U. Olsson (2016).** Integrative taxonomy of the plain blocked thrush (*Zoothera mollissima*) complex (Aves, Turidae) reveals cryptic species, including a new species. *Avian research*. 7 (1): 1–39.
- Chitheena, A., B. Ramakrishnan & A. Samson (2018).** Study on Fruit and Seed Eating by Birds in the Upper Nilgiris, Tamil Nadu, southern India. *Podoces* 13(1): 8–17.
- Forest Working Plan (2015–2025).** Nilgiris Forest Division, Udhagamandalam 89: 55–70.
- Islam, M.Z. & A.R. Rahmani (2004).** Important Bird Areas in India: Priority Sites for Conservation. Indian Bird Conservation Network. Bombay Natural History Society and BirdLife International (UK) 1133 pp.
- Kattan, G.H. & P. Franco (2004).** Bird diversity along elevational gradients in the Andes of Colombia: Area and mass effects. *Global Ecology and Biogeography*, 13: 451–458.
- Lepage, D. (2016).** Avibase: The world bird data base. Website URL: www.bsc-eoc.org/avibase/avibase.jsp. (Assessed on 23 February 2016).
- Peter, S.J., R. Revathi, I. Jaisankar & P.D. Rasu (2015).** Study on Avifaunal Diversity and Species Richness in Foot Hills of Nilgiris, Tamilnadu, India. *Indian Forester* 141(10): 1067–1074.
- Praveen, J., Rajah Jayapaland & Aasheesh Pittie (2016).** A checklist of the birds of India. *Indian Birds* 11: 113–172.
- Sankar, K., D. Mohan & S. Pandey (2006).** Birds of Sariska Tiger Reserve, Rajasthan, India. *Forktail* 8: 133–141.
- Samson, A., B. Ramakrishnan, S. Karthick, P.S. Kumar, M. Ilakkia, A. Chitheena, J.B. Bha & P. Ravi (2018).** Diversity and status of avifauna in Doddabetta hills and surrounding areas of Udhagamandalam, Nilgiris Plateau, Western Ghats, southern India. Bird-o-soar #13. In: *Zoo's Print* 33(3): 23–36.
- Vijayan, L., V. Gokula & S.N. Prasad (2000).** A study on the population and habitat of the Rufous-breasted Laughing Thrush *Garrulax cachinnans*. Project Report. SACON, Coimbatore, 26 pp.
- Yaseen, M., R. Saxena, V.K. Koli, S. Dubey, R. Tehsin, S.K. Sharma & A.S. Rathore (2011).** Avian diversity of Sitamata Wildlife Sanctuary, Rajasthan, India. *Geobios* 38(4): 257–264.
- Karthick Sivaraj¹, Bhosale Sachin Tukaram² & Gowtham Subramanian³**
^{1&3} Nilgiris Forest Division, Mount Stuart Hill, Udhagamandalam, Tamil Nadu 643001, India.
² Human Resource Development (HRD), Office of the Principal Chief Conservator of Forests (Head of Forest Force), Chennai, Tamil Nadu 600032, India.
Email: ¹skarthick181@gmail.com (corresponding author)
- Citation:** Sivaraj, K., B.S. Tukaram & G. Subramanian (2024). Checklist of avifaunal diversity in Nilgiris Forest Division, The Nilgiris – Conservation Prospective. Bird-o-soar #238, In: *Zoo's Print* 39(6): 24–31.