

AVIFAUNAL DIVERSITY OF THE SOUTHERN WESTERN GHATS WITH SPECIAL REFERENCE TO KAIGA-KARWAR REGION - A CHECKLIST



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Abstract: A study on avifaunal diversity was carried out in and around Kaiga-Karwar region of Karnataka for a period of two years. Survey has been done in 35 sites within 20 Km radius from Kaiga. Kali river originates in Diggi, a small village in Uttara Kannada district and flows through Karwar and Joida. Offering sustenance to as many as 5 lakh people in the process. The Kali river basin forests are popular with tourists, are rich in plant and animal life and have, thus survived eight dams that have built across the river.

A total of 214 species belonging to 51 families was recorded. Results of the present study revealed that Kaiga-Karwar region is inhabited with variety of birds that includes some of the rare and migratory species. Highest population of birds belonging to Muscicapidae family were recorded in the study area. The status of recorded birds were classified according to IUCN red list.

Key words: Kaiga, Avifaunal diversity, Western Ghats, IUCN

INTRODUCTION

Birds contribute most significantly to the diversity of terrestrial vertebrates, and they play vital role in various ways in ecosystem. Birds are one of the most threatened species due to various anthropological activities such as deforestation, pollution, urbanization, industrialization, etc. Worldwide several birds have become extinct and many are enlisted under endangered category. Of the 1,228 species of birds found in India, approximately 82 species are listed as threatened ones in the IUCN Red List (IUCN 2006). Continued reductions in bird abundance and species richness are likely to have far-reaching ecological consequences with diverse societal impacts ranging from the spread of disease and loss of agricultural pest control to plant extinctions and trophic cascades (Gaston *et al.*, 2003; Sekercioglu *et al.*, 2004; Anon, 2004).

The Western Ghats, one of the biological hotspots is a 1600 Km long chain of mountain ranges running parallel to the west coast of Indian peninsula. Certain parts of Western Ghats have been studied for avifaunal diversity in general and impact of developmental activities (Praveen

and Nameer, 2008 and 2009; Rasmussen and Anderton, 2005; Bashir and Nameer, 1993; Uthaman, 1993; Hosetti *et al.*, 2001; Shanbhag *et al.*, 2001; Bhat *et al.*, 2009). Kaiga-Karwar, as a part of Western Ghats, located between 14°51' 00" N lat and 74° 26' 00" E in Uttara Kannada district of Karnataka state is considered as one of the richest biodiversity areas comprised of diversified habitats harboring a variety of floral and faunal species (Kaveriappa and Shetty, 2001). However, no much information is available with special reference to avifaunal diversity in Kaiga-Karwar region. Considering the importance of documentation of biodiversity in Kaiga region, a study was carried out for avifaunal diversity along with their seasonal occurrences.

MATERIALS AND METHODS

The survey was carried out for a period of two years from November 2007 to October 2009. Monthly census of birds was done in order to know their seasonal occurrence. The population of birds was estimated from 6.00 am to 8.30 am by direct counting method. Birds were observed within a transect of 20m in various sites.

Table 1. A checklist of birds observed in Kaiga-Karwar region

Scientific name	Common name	Period observed	IUCN status
<i>Phalacrocorax carbo</i>	Great Cormorant	Throughout the year	LC
<i>Phalacrocorax fuscicollis</i>	Indian cormorant	-----do-----	LC
<i>Phalacrocorax niger</i>	Little cormorant	-----do-----	LC
<i>Anhinga malanogaster</i>	Darter	July – September	NT
<i>Ardea cinerea</i>	Grey Heron	August – December	LC
<i>Ardea purpurea</i>	Purple heron	-----do-----	LC
<i>Bubulcus ibis</i>	Cattle egret	September – May	LC
<i>Casmerodius albus</i>	Large egret	-----do-----	LC
<i>Mesophoyx intermedia</i>	Smaller egret	-----do-----	LC
<i>Egretta garzetta</i>	Little egret	-----do-----	LC
<i>Egretta gularis</i>	Indian reef heron	September – December	LC
<i>Nycticorax nycticorax</i>	Night heron	-----do-----	LC
<i>Ixobrychus minutus</i>	Little bittern	October- December	LC
<i>Ixobrychus sinensis</i>	Yellow bittern	-----do-----	LC
<i>Ixobrychus flavicollis</i>	Black bittern	-----do-----	LC
<i>Mycteria leucocephala</i>	Painted stork	November – February	NT
<i>Leptoptilos javanicus</i>	Lesser adjutant	February - April	VU
<i>Threskiornis melanocephalus</i>	White ibis	February – April	NT
<i>Dendrocygna javanica</i>	Tree duck	July – December	LC
<i>Dendrocygna bicolor</i>	Fulvous W whistling-duck	October – March	LC
<i>Anas crecca</i>	Common teal	October-March	LC
<i>Elanus caeruleus</i>	Black-winged kite	Throughout the year	LC
<i>Aviceda leuphotes</i>	Black-crested Baza	October-March	LC
<i>Pernis ptilorhyncus</i>	Oriental Honey-Buzzard	-----do-----	LC
<i>Milvus migrans</i>	Black kite	Throughout the year	LC
<i>Milvus migrans govinda</i>	Pariah kite	-----do-----	LC
<i>Haliastur indus</i>	Brahminy Kite	-----do-----	LC
<i>Accipiter gentiles</i>	Goshawk	October-January	LC
<i>Accipiter badius</i>	Shikra	October – January	LC
<i>Accipiter virgatus</i>	Besra	December- February	LC
<i>Spizaetus cirrhatus</i>	Crested Hawk-Eagle	October-December	LC
<i>Haliaeetus leucogaster</i>	White-bellied Fish-Eagle	Throughout the year	LC
<i>Haliaeetus leucoryphus</i>	Pallas's Fishing Eagle	January – May	LC
<i>Circaetus gallicus</i>	Short-toed Eagle	October – May	LC
<i>Spilornis cheela</i>	Crested Serpent-Eagle	Throughout the year	LC
<i>Pandion haliaetus</i>	Osprey	Throughout the year	LC
<i>Gallus sonneratii</i>	Grey junglefowl	Throughout the year	LC
<i>Pavo cristatus</i>	Indian peafowl	Throughout the year	LC
<i>Amaurornis phoenicurus</i>	White-breasted Waterhen	Throughout the year	LC
<i>Porphyrio porphyrio</i>	Purple moorhen	December – May	LC
<i>Hydrophasianus chirurgus</i>	Pheasant-tailed Jacana	October-May	LC
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	October- February	LC
<i>Recurvirostra avosetta</i>	Avoce	October – January	LC
<i>Dromas ardeola</i>	Crab Plover	September – December	LC
<i>Burhinus oedicnemus</i>	Stone Curlew	-----do-----	LC
<i>Vanellus indicus</i>	Red wattled Lapwing	Throughout the year	LC
<i>Vanellus malabaricus</i>	Yellow wattled lapwing	-----do-----	LC
<i>Charadrius dubius</i>	Little ringed Plover	August – December	LC
<i>Tringa ochropus</i>	Green sandpiper	-----do-----	LC
<i>Tringa glareola</i>	Wood Sandpiper	-----do-----	LC
<i>Tringa hypoleucos</i>	Common Sandpiper	-----do-----	LC
<i>Calidris alpina</i>	Dunlin	October – December	LC
<i>Calidris ferruginea</i>	Curlew Sandpiper	-----do-----	LC
<i>Sterna aurantia</i>	River tern	February – May	LC
<i>Sterna hirundo</i>	Common Tern	-----do-----	LC

Scientific name	Common name	Period observed	IUCN status
<i>Sterna acuticauda</i>	Black-bellied Tern	-----do-----	NT
<i>Treron pompadora</i>	Pompadour Green – Pigeon	Throughout the year	LC
<i>Treron phoenicoptera</i>	Yellowlegged Green Pigeon	-----do-----	LC
<i>Ducula aenea</i>	Green Imperial Pigeon	-----do-----	LC
<i>Ducula badia</i>	Mountain Imperial Pigeon	-----do-----	LC
<i>Columba livia</i>	Rock Pigeon	-----do-----	LC
<i>Streptopelia chinensis</i>	Spotted Dove	Throughout the year	LC
<i>Streptopelia senegalensis</i>	Laughing Dove	-----do-----	LC
<i>Chalcophaps indica</i>	Emerald Dove	-----do-----	LC
<i>Psittacula eupatria</i>	Large Indian Parakeet	September – May	LC
<i>Psittacula krameri</i>	Rose-ringed Parakeet	-----do-----	LC
<i>Psittacula alexandri</i>	Red-breasted Parakeet	-----do-----	LC
<i>Psittacula cyanocephala</i>	Plum-headed Parakeet	-----do-----	LC
<i>Psittacula columboides</i>	Malabar Parakeet	-----do-----	LC
<i>Loriculus vernalis</i>	Indian Lorikeet	-----do-----	LC
<i>Cuculus sparverioides</i>	Large Hawk-Cuckoo	October – April	LC
<i>Cuculus varius</i>	Common hawk Cuckoo	-----do-----	LC
<i>Cuculus micropterus</i>	Indian Cuckoo	-----do-----	LC
<i>Cuculus canorus</i>	Common cuckoo	-----do-----	LC
<i>Surniculus lugubris</i>	Drongo Cuckoo	-----do-----	LC
<i>Eudynamis scolopacea</i>	Asian Koel	October – May	LC
<i>Phaenicophaeus viridirostris</i>	Small greenbilled Malkoha	October – May	LC
<i>Centropus bengalensis</i>	Lesser Coucal	August – May	LC
<i>Tyto alba</i>	Barn Owl	December – May	LC
<i>Otus scops</i>	Scops Owl	-----do-----	LC
<i>Bubo zeylonensis</i>	Brown fish owl	-----do-----	LC
<i>Glaucidium radiatum</i>	Jungle Owlet	-----do-----	LC
<i>Batrachostomus moniliger</i>	Ceylon Frogmouth	February – May	LC
<i>Caprimulgus indicus</i>	Grey Nightjar	-----do-----	LC
<i>Collocalia unicolor</i>	Indian Swiftlet	Throughout the year	LC
<i>Apus affinis</i>	House Swift	-----do-----	LC
<i>Harpactes fasciatus</i>	Malabar Trogon	January – March	LC
<i>Ceryle rudis</i>	Lesser Pied Kingfisher	August – February	LC
<i>Alcedo atthis</i>	Common Kingfisher	-----do-----	LC
<i>Alcedo meninting</i>	Blue-eared Kingfisher	-----do-----	LC
<i>Ceyx erithacus</i>	Black-backed Kingfisher	-----do-----	LC
<i>Pelargopsis capensis</i>	Stork-billed Kingfisher	-----do-----	LC
<i>Halcyon smyrnensis</i>	White-breasted Kingfisher	-----do-----	LC
<i>Merops leschenaultia</i>	Chestnut-headed Bee-eater	August- March	LC
<i>Merops philippinus</i>	Blue-tailed bee-eater	-----do-----	LC
<i>Merops orientalis</i>	Green Bee-Eater	-----do-----	LC
<i>Nyctornis athertoni</i>	Blue-bearded bee-eater	-----do-----	LC
<i>Coracias benghalensis</i>	Indian Roller	November – May	LC
<i>Upupa epops</i>	Eurasian Hoopoe	November – May	LC
<i>Ocyrceros birostris</i>	Indian Grey –Hornbill	November – June	LC
<i>Ocyrceros griseus,</i>	Malabar Grey-Hornbill	-----do-----	LC
<i>Anthracoceros coronatus</i>	Malabar Pied-Hornbill	-----do-----	NT
<i>Buceros bicornis</i>	Great Hornbill	-----do-----	NT
<i>Megalaima zeylanica</i>	Brown –headed barbet	October – May	LC
<i>Megalaima viridis</i>	Small green barbet	-----do-----	LC
<i>Megalaima rubricapilla</i>	Crimson-throated barbet	-----do-----	LC
<i>Megalaima haemacephala</i>	Crimson-breasted barbet	-----do-----	LC
<i>Picumnus innominatus</i>	Speckled Piculet	November – May	LC
<i>Celeus brachyurus</i>	Rufous Woodpecker	-----do-----	LC
<i>Picus chlorolophus</i>	Lesser Yellownappe	-----do-----	LC

Scientific name	Common name	Period observed	IUCN status
<i>Dinopium benghalense</i>	Lesser Goldenbacked woodpecker	-----do-----	LC
<i>Dinopium javanense</i>	Indian three toed woodpecker	-----do-----	LC
<i>Dryocopus javensis</i>	White-bellied woodpecker	-----do-----	LC
<i>Hemicircus canente</i>	Heart-spotted woodpecker	-----do-----	LC
<i>Chrysocolaptes festivus</i>	White-naped woodpecker	-----do-----	LC
<i>Chrysocolaptes lucidus</i>	Larger goldenbacked woodpecker	-----do-----	LC
<i>Mirafra cantillans</i>	Singing Lark	December – march	LC
<i>Mirafra assamica</i>	Rufous-winged Lark	-----do-----	LC
<i>Eremopterix grisea</i>	Ashy-crowned finch lark	-----do-----	LC
<i>Galerida malabarica</i>	Malabar Lark	-----do-----	LC
<i>Riparia paludicola</i>	Plain Martin	September – January	LC
<i>Hirundo rupestris</i>	Eurasian Crag-Martin	-----do-----	LC
<i>Hirundo concolor</i>	Dusky Crag-Martin	-----do-----	LC
<i>Hirundo rustica</i>	Swallow	August – may	LC
<i>Hirundo tahitica</i>	House swallow	-----do-----	LC
<i>Hirundo smithii</i>	Wire-tailed Swallow	-----do-----	LC
<i>Hirundo fluvicola</i>	Indian cliff swallow	-----do-----	LC
<i>Hirundo daurica</i>	Striated Swallow	-----do-----	LC
<i>Lanius schach</i>	Long-tailed Shrike	September – May	LC
<i>Lanius cristatus</i>	Brown Shrike	-----do-----	LC
<i>Oriolus oriolus</i>	Golden Oriole	November – may	LC
<i>Oriolus chinensis</i>	Black-naped Oriole	-----do-----	LC
<i>Oriolus xanthornus</i>	Black-headed Oriole	-----do-----	LC
<i>Dicrurus macrocercus</i>	Black Drongo	October – May	LC
<i>Dicrurus leucophaeus</i>	Ashy Drongo	-----do-----	LC
<i>Dicrurus caerulescens</i>	White-bellied Drongo	-----do-----	LC
<i>Dicrurus aeneus</i>	Bronzed Drongo	-----do-----	LC
<i>Dicrurus hottentottus</i>	Hair-crested Drongo	-----do-----	LC
<i>Dicrurus paradiseus</i>	Greater Racket-tailed Drongo	-----do-----	LC
<i>Artamus fuscus</i>	Ashy Wood-swallow	October – May	LC
<i>Sturnus malabaricus</i>	Grey headed Myna	October – May	LC
<i>Sturnus pagodarum</i>	Brahminy Myna	-----do-----	LC
<i>Sturnus roseus</i>	Rosy Starling	-----do-----	LC
<i>Sturnus vulgaris</i>	Common Starling	-----do-----	LC
<i>Acridotheres tristis</i>	Common Myna	-----do-----	LC
<i>Acridotheres fuscus</i>	Jungle Myna	-----do-----	LC
<i>Gracula religiosa</i>	Hill Myna	-----do-----	LC
<i>Dendrocitta vagabunda</i>	Indian Treepie	Throughout the year	LC
<i>Dendrocitta leucogastra</i>	Southern Treepie	-----do-----	LC
<i>Corvus splendens</i>	House Crow	-----do-----	LC
<i>Corvus macrorhynchos</i>	Jungle Crow	-----do-----	LC
<i>Tephrodornis pondicerianus</i>	Common Woodshrike	September – February	LC
<i>Coracina macei</i>	Large Cuckoo-shrike	-----do-----	LC
<i>Coracina melaschistos</i>	Smaller Grey Cuckoo-shrike	-----do-----	LC
<i>Coracina melanoptera</i>	Black-headed Cuckoo-shrike	-----do-----	LC
<i>Pericrocotus flammeus</i>	Scarlet Minivet	October – May	LC
<i>Pericrocotus erythropygus</i>	White-bellied Minivet	-----do-----	LC
<i>Aegithina tiphia</i>	Common Iora	October – march	LC
<i>Chloropsis aurifrons</i>	Golden-fronted Leafbird	September – March	LC
<i>Chloropsis cochinchinensis</i>	Blue-winged Leafbird	-----do-----	LC
<i>Irena puella</i>	Fairy-bluebird	-----do-----	LC
<i>Pycnonotus priocephalus</i>	Grey-headed Bulbul	September – April	LC
<i>Pycnonotus melanicterus</i>	Ruby-throated Yellow Bulbul	-----do-----	LC
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	-----do-----	LC
<i>Pycnonotus cafer</i>	Red-vented Bulbul	-----do-----	LC

Scientific name	Common name	Period observed	IUCN status
<i>Pycnonotus xantholaemus</i>	Yellow-throated Bulbul	-----do-----	VU
<i>Hypsipetes leucocephalus</i>	Black Bulbul	-----do-----	LC
<i>Dumetia hyperythra</i>	Whitethroated Babbler	September – March	LC
<i>Turdoides caudatus</i>	Common Babbler	-----do-----	LC
<i>Turdoides malcolmi</i>	Large Grey Babbler	-----do-----	LC
<i>Turdoides striatus</i>	Jungle Babbler	-----do-----	LC
<i>Muscicapa dauurica</i>	Brown Flycatcher	September –February	LC
<i>Muscicapa muttui</i>	Brown-breasted Flycatcher	-----do-----	LC
<i>Muscicapa ruficauda</i>	Rusty-tailed Flycatcher	-----do-----	LC
<i>Ficedula nigrorufa</i>	Black and Orange Flycatcher	-----do-----	NT
<i>Cyornis tickellidae</i>	Tickell's Blue Flycatcher	-----do-----	LC
<i>Eumyias thalassina</i>	Verditer Flycatcher	-----do-----	LC
<i>Rhipidura albicollis</i>	White-throated Fantail Flycatcher	-----do-----	LC
<i>Terpsiphone paradise</i>	Asian Paradise-Flycatcher	-----do-----	LC
<i>Prinia hodgsonii</i>	Grey-breasted Prinia	October – May	LC
<i>Prinia subflava</i>	Plain Prinia	-----do-----	LC
<i>Prinia socialis</i>	Ashy Prinia	-----do-----	LC
<i>Prinia sylvatica</i>	Jungle Prinia	-----do-----	LC
<i>Orthotomus sutorius</i>	Common Tailorbird	October- March	LC
<i>Locustella naevia</i>	Grasshopper Warbler	October – May	LC
<i>Schoenicola platyura</i>	Broadtailed Grasswarbler	-----do-----	VU
<i>Acrocephalus aedon</i>	Thick-billed Warbler	-----do-----	LC
<i>Acrocephalus dumetorum</i>	Blyth's Reed-Warbler	-----do-----	LC
<i>Acrocephalus agricola</i>	Paddyfield Warbler	-----do-----	LC
<i>Hippolais caligata</i>	Booted Warbler	-----do-----	LC
<i>Phylloscopus affinis</i>	Tickell's Leaf-Warbler	-----do-----	LC
<i>Phylloscopus trochiloides</i>	Greenish Warbler	-----do-----	LC
<i>Brachypteryx major</i>	White-bellied Shortwing	October – February	VU
<i>Luscinia brunnea</i>	Indian Blue Robin	December – May	LC
<i>Copsychus saularis</i>	Magpie- Robin	-----do-----	LC
<i>Phoenicurus ochruros</i>	Black redstart	December – march	LC
<i>Cercomela fusca</i>	Indian Chat	-----do-----	LC
<i>Saxicola caprata</i>	Pied Bushchat	-----do-----	LC
<i>Saxicoloides fulicata</i>	Indian Robin	-----do-----	LC
<i>Zoothera Citrina</i>	Orange-headed Thrush	September – March	LC
<i>Parus major</i>	Grey Tit	October – February	LC
<i>Parus nuchalis</i>	White-winged Tit	-----do-----	VU
<i>Parus xanthogenys</i>	Black-lored Tit	-----do-----	LC
<i>Anthus hodgsoni</i>	Indian Tree Pipit	October – March	LC
<i>Dendronanthus indicus</i>	Forest wagtail	September – April	LC
<i>Motacilla flava</i>	Yellow wagtail	-----do-----	LC
<i>Motacilla cinerea</i>	Grey Wagtail	-----do-----	LC
<i>Motacilla alba</i>	White Wagtail	-----do-----	LC
<i>Motacilla madaraspatensis</i>	Large Pied Wagtail	-----do-----	LC
<i>Dicaeum agile</i>	Thick-billed Flowerpecker	October – march	LC
<i>Dicaeum erythrorhynchos</i>	Tickell's Flowerpecker	-----do-----	LC
<i>Nectarinia zeylonica</i>	Purple-rumped Sunbird	October – march	LC
<i>Nectarinia minima</i>	Crimson-backed Sunbird	-----do-----	LC
<i>Nectarinia asiatica</i>	Purple Sunbird	-----do-----	LC
<i>Aethopyga siparaja</i>	Yellowbacked Sunbird	-----do-----	LC
<i>Arachnothera longirostra</i>	Little Spiderhunter	-----do-----	LC
<i>Passer domesticus</i>	House Sparrow	Throughout the year	LC
<i>Petronia xanthocollis</i>	Yellow throated Sparrow	October – February	LC
<i>Lonchura malabarica</i>	White throated Munia	September – May	LC
<i>Lonchura striata</i>	White-backed Munia	-----do-----	LC

Scientific name	Common name	Period observed	IUCN status
<i>Lonchura kelaarti</i>	Black-throated Munia	-----do-----	LC
<i>Lonchura punctulata</i>	Spotted Munia	-----do-----	LC
<i>Lonchura Malacca</i>	Black-headed Munia	-----do-----	LC
<i>Gallus gallus</i>	Red Junglefowl	Throughout the year	LC
<i>Cacomantis merulinus</i>	Plaintive Cuckoo	October - may	LC
<i>Picus squamatus</i>	Scalybellied Green Woodpecker	October - March	LC
<i>Pycnonotus melanicterus</i>	Black-crested Bulbul	October - March	LC

Table 2. Bird population in various sites of Kaiga-Karwar

Base camps	KGS	BR	HAR	VR	KA	IR	KR	DEV
No. of species	117	87	92	57	74	57	62	71
No. of individuals	3680	2160	1800	480	641	418	690	660

Table 3. Shannon index values for bird diversity in various sites of Kaiga-Karwar

Study sites	Shannon value
KGS	4.348
BR	4.207
HAR	4.178
VR	3.472
KA	3.640
IR	3.578
KR	3.408
DEV	3.716

Binocular, digital camera and field books were used during the survey. Identification of birds was done by referring the key book, "The book of Indian Birds - Salim Ali" (Ali, 1996). Percent relative occurrence among the recorded species was determined by using the formula:

$$\% \text{ Occurrence} = \frac{\text{No. of species in each family}}{\text{Total No. of different species recorded}} \times 100$$

RESULTS

Details of the birds including their family and scientific names and IUCN status are presented in the table 1. On the basis of field observation, 214 species of birds, belonging to 51 families were recorded.

DISCUSSION

India is said to be a paradise for bird watching. Over 1,200 species of birds are found in India. Documentation/checklisting of bird diversity through field survey gains high significance as it serves as the database for future studies. From the present study, 214 birds belonging 51 families were recorded. The recorded birds were categorized into three classes as per the IUCN red list, viz, least concern, near threatened and vulnerable. Among the birds recorded endemic ones include, Malabar Parakeet, Malabar Lark and Yellowthroated Bulbul.

Bird surveys have become popular with the birding fraternity of Western Ghats. However, there is need from a central agency to channelize this effort in a more systematic manner for a greater goal, and one of these could be creating a bird atlas for the Western Ghats in Uttar Kannada district. A better alignment at the state level is required to fine-tune the different methodologies for achieving this. This shall be the main focus for the future ornithological studies of Western Ghats. A future prospect of this study lies in identifying the relative conservation value of these forest areas in protecting endemic and threatened avifauna.

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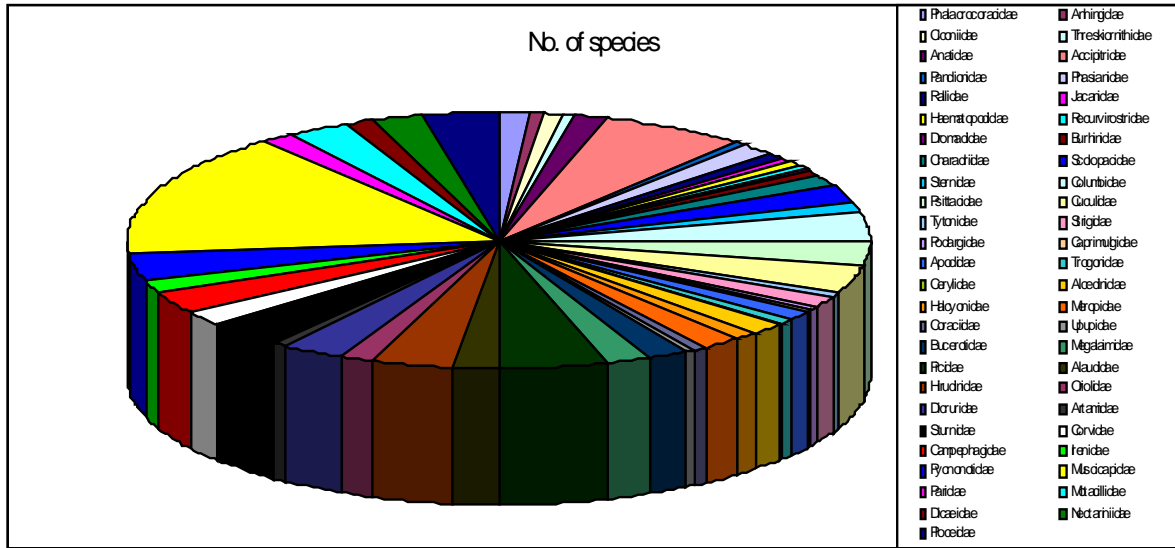


Fig. 1. Percentage Species occurrence of birds in Kaiga-Karwar region

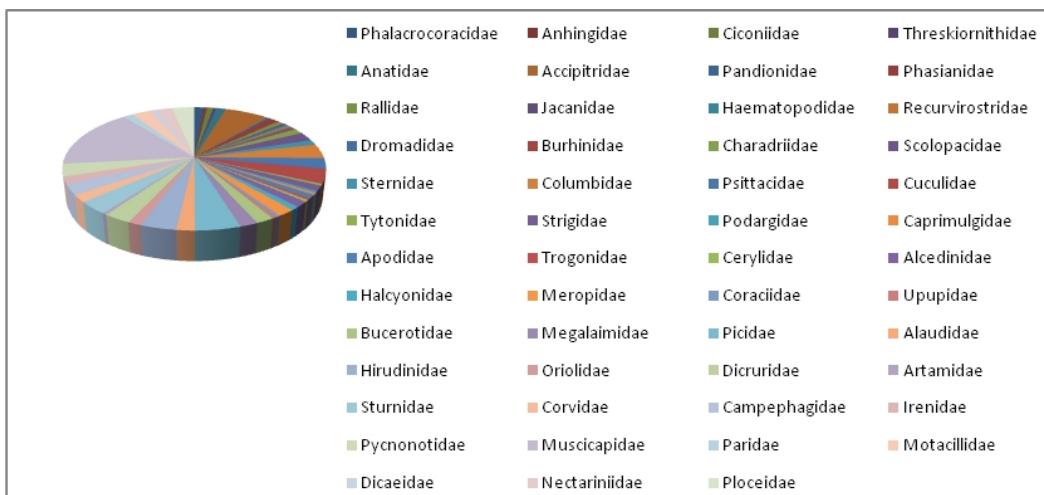


Fig. 2. Pie diagram showing the relative occurrence (%) of birds in the study area.

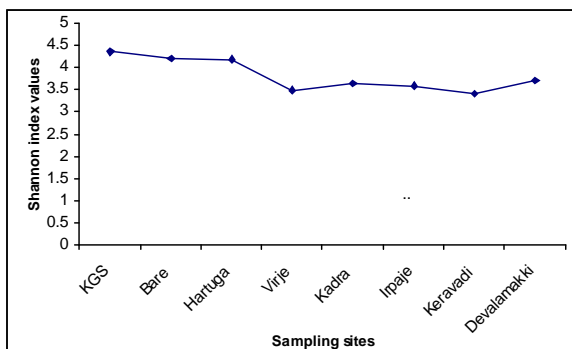


Fig. 3. Shannon diversity values for bird population in various sampling sites

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