

## An Annotated Checklist of Bird Diversity of Kevdi Eco-campsite, Chhota Udepur, Gujarat

Shruti Patel \* <sup>1,2</sup>, Pratik Desai <sup>1,2</sup>, Shalu Mesaria <sup>2</sup>, and Nishith Dharaiya <sup>1,2</sup>

<sup>1</sup>WCB Research Lab, HNG University, Department of Life Sciences, Patan-384265, Gujarat, India

<sup>2</sup>WCB Research Foundation, 9, Panchvati Society, Opp income tax office, Patan-384265, Gujarat, India

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### Abstract

Birds are considered an indicator of the changing environment. Slight change in the climate and the habitat can disturb the ecosystem and the food web. The present study done in the kevdi Eco-campsite, has 64 species of birds belonging to the 41 families Kevdi-eco campsite is the tourist destination in the Kevdi, Chhota-Udepur district. The checklist delineates the birds present in the area along with their feeding guild. The importance of studying the feeding guilds will guide us in the use of the habitat and niche of the species.

**Keywords:** Indicator, Ecosystem, Kevdi-eco campsite, Feeding guild, Niche.

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### Introduction

Birds are an important part of the food chain in every ecosystem (Singh et al., 2018) and provide ecosystem services such as seed dispersers, decomposition, pollination, and pest management (Koskimies, 1989). Globally, 10,787 bird species are recorded where India is home to more than 1300 bird species, which is about 12.5% of total avifaunal diversity of the world. (Grimmett et al. 2011; Praveen et al., 2020c). Among them, a total of 605 bird species have been recently updated from

Gujarat state (Ganpule, 2020). Birds are associated with changes in the environment and have been used as an indicator of the changing environment, so their reproduction rate and alteration in population are frequently analyzed to understand the health of a given ecosystem (Orimaye et al., 2018). Despite their numerous services towards the environment, 14% of bird varieties are probably approaching global extinction (IUCN, 2021). The major threats to bird population are habitat fragmentation and degradation, excessive farming, drainage, wetland destruction and human set-

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\*shrutipatel54545@gmail.com

tlement (Birdlife International, 2000). Many non-protected areas and urban biodiversity are ignored by researchers in comparison with the natural and protected ecosystems (Jules, 1997).

Chhota-Udepur, a tribal district located on the eastern side of Gujarat state with 75,704 hectares of forest falls in geographic zone 4B6 (Malwa Plateau) and 4B5 (Plains in Central Gujarat) (Singh, 2001). District is declared as eco-sensitive zone in 2019 by the Government of Gujarat (<https://forest.gujarat.gov.in>). Major forest type of the district is dry and semi-dry teak forests with average rainfall of 450mm in monsoon season (June to October). Despite having one of the highest forest covers in Gujarat, the district is facing heavy exploitation of resources in the form of habitat degradation and fragmentation by local people. Study is aimed to gather information about the species richness of the Kevdi eco-campsite site which was further classified according to their feeding guilds. Birds are the best indicator of habitat quality and it can be identified through feeding guilds. Also it takes less time to study as compared to other studies on birds (Reynaud and Thioulouse, 2000).

## Materials and Methods

### Study area

Kevdi eco-campsite is located in Kevdi village of Chhota-Udepur district in Gujarat state. Kevdi eco-tourism campus was established by the Gujarat forest department under the eco-tourism development scheme. It is located in the north, 26 km away from district center Chhota-Udepur ( N 22.520128, E 73.935267 ). Eco-tourism site is spread in a total area of 1.1km<sup>2</sup>, connected with forest. Tourism site has two campuses; a central campus and a plantation nursery. East side of the central campus consists of a perennial water stream, animals

like *Melursus ursinus* (Sloth bear), *Panthera pardus fusca* (Indian leopard) and *Felis chaus* (Jungle cat) regularly visit here. Kevdi is known for *Petaurista philippensis* (Indian giant flying squirrel) and it is one of the main attractions for the eco-tourists.

Study site has majority vegetation of *Madhuca indica* (Mahua). Thus, the area supports a good diversity of natural vegetation. The dominant tree species are *Diospyros melanoxylon*, *Madhuca indica*, *Tectona grandis*, *Terminalia crenulata*, *Butea monosperma*, *Morinda tomentosa* and *Anogeissus latifolia*.

### Data collection

Study was carried out in month of February, 2021 . Data was collected in alternation of six days and a total 8 point count sets were carried out. As the highest activity of birds would be recorded in low light frequency, field data was collected in morning (0700-0930) and evening (0500-0630). The observations were made by point counts as well as the opportunistic counts (Ralph and Scott, 1981) . For point counts, a total of two points were selected within campus with an average distance of 200m before starting the survey. Each point was attended for 15 minutes in each survey by two people.

Sighting was recorded by visual encounter using Olympus binoculars (10\*50) and Canon EOS 550D camera with Canon 75-300mm. Standard reference books like Birds of the Indian subcontinent (Grimmett et al., 2011) and The book of Indian birds (Salim ali, 1996) were used for the species identification and scientific nomenclature. The IUCN category of each species was recorded from electronic version 2021-2 (IUCN, 2021). The migratory status of the bird was recorded using the updated checklist of birds of Gujarat (Ganpule, 2020). The bird species were classified according to their feeding guilds such as Insectivore, Herbivore, Carnivore, Omnivore, Nectarivore, Frugivore and Graminivore (Ali, 1996).

## Results and Discussion

In the present study we recorded a total of 64 species of 60 genus belonging to 41 families in

total 28 days (Table 1). As it was the late winter, only two migratory bird species were recorded Nearby, Ratanmahal and Jambughoda Wildlife

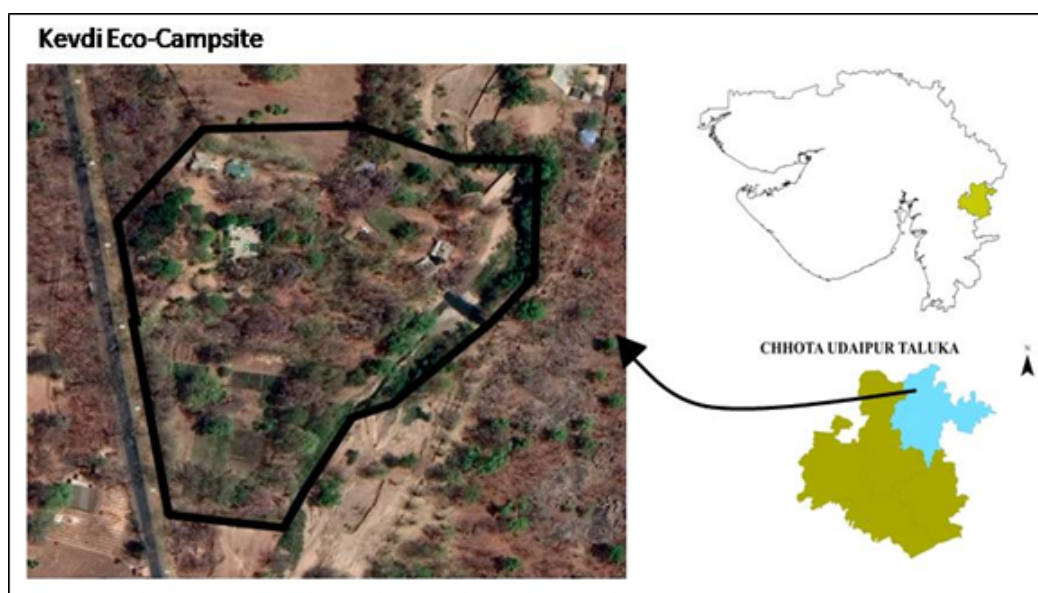


Figure 1. Map of Kevdi eco-tourism site, Kevdi, Chhota-Udepur, India.

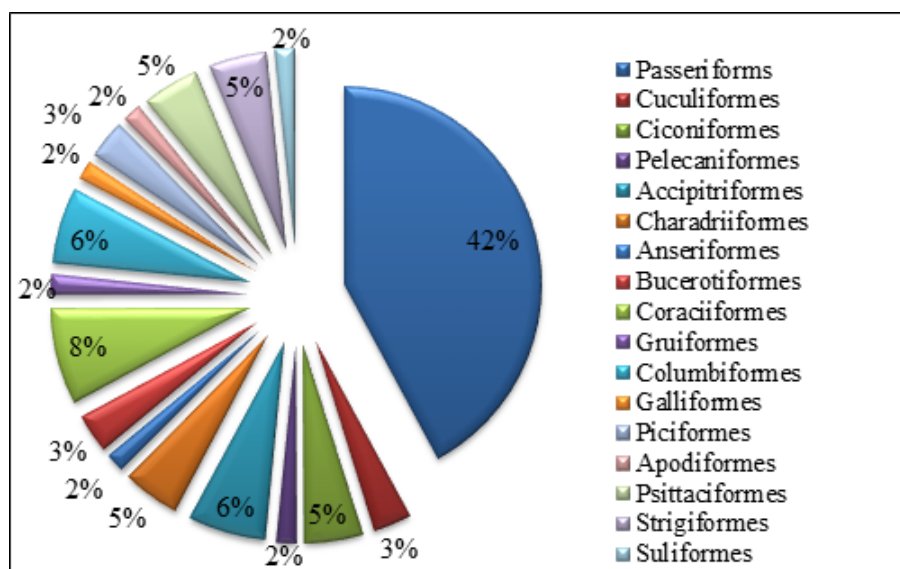


Figure 2. Order wise distribution of Bird species in Kevdi eco-tourism site, Chhota-Udepur district, India.

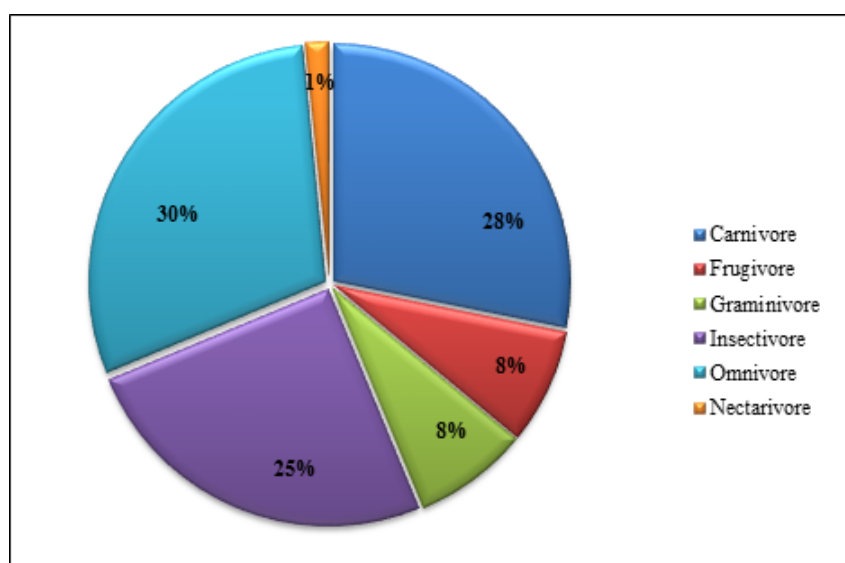


Figure 3. Feeding guilds of avifaunal species in Kevdi eco-tourism site, Chhota-Udepur district, India

Sanctuaries have 147 and 217 bird species, consequently (Trivedi and Soni, 2006; Padate et al., 2003). In the present study, the Muscicapidae family is recorded with the highest number of species, followed by Columbidae and the Accipitridae family is recorded with four species each. Other families such as the Alcedinidae, Corvidae, Ardeidae and Psittacidae families were recorded with three bird species. Nearly two third of bird families (27) were represented with only one species.

According to the IUCN status, except *Psittacula eupatria*, all the other bird species were listed as least concerned (LC) Order Passeriformes consist of 42.18% of total bird diversity observed during the study period. It may be due to more surviving ability of Passeriformes members in harsh and human dominated environments with their generalist feeding guild. There are a total 12 members from the order *Anseriformes*, *Gruiformes*, *Suliformes*, *Ciconiiformes* and *Charadriiformes* who are living near water habitat whereas others are partially dependent on water.

## Conclusion

The present investigation shows abundance of the avifauna at the Kevdi Eco-campsite. Researchers have a larger scope to explore the avian fauna of Chhota-Udepur district, which is not covered in this study. From a conservation point of view, there is a need for time to protect forest areas through proper administration and legislation.

## Acknowledgments

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## Conflicts of Interest

The authors declare that there is no conflicts of interest.

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- ciety and Oxford University Press, Mumbai, 1–309.
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Table 1. Avifaunal species richness in Kevdi eco-tourism site, Chhota Udepur district, India.

Family	Name	Scientific name	IUCN status	Migratory status	Feeding guilds
<b>Accipitridae</b>	Black wing Kite	<i>Elanus axillaris</i>	Lc	R	Carnivore
	Oriental honey	<i>Pernis ptilorhynchus</i>	Lc	R	Carnivore
	Buzzard White eyed	<i>Butastur teesa</i>	Lc	R	Carnivore
	Buzzard Shikra	<i>Accipiter badius</i>	Lc	R	Carnivore
<b>Aegithinidea</b>	Common Iora	<i>Aegithina tiphia</i>	Lc	R	Insectivore
	Common King-fisher	<i>Alcedo atthis</i>	Lc	R	Carnivore
<b>Alcedinidae</b>	Pied Kingfisher	<i>Ceryle rudis</i>	Lc	R	Carnivore
	White throated Kingfisher	<i>Halcyon smyrnensis</i>	Lc	R	Carnivore
<b>Anatidae</b>	Indian spot billed Duck	<i>Anas poecilorhyncha</i>	Lc	R	Omnivore
<b>Apodidae</b>	Little swift	<i>Apus affinis</i>	Lc	R	Insectivore
	Cattle Egret	<i>Bubulcus ibis</i>	Lc	R	Carnivore
<b>Ardeidae</b>	Little Egrat	<i>Egretta garzetta</i>	Lc	R	Carnivore
	Indian Pond Heron	<i>Ardeola grayii</i>	Lc	R	Carnivore
<b>Bucerotidae</b>	Indian Grey Horn-bill	<i>Ocyeros birostris</i>	Lc	R	Omnivore
<b>Campephagidae</b>	Small Minivet	<i>Pericrocotus cin-namomeus</i>	Lc	R	Insectivore
<b>Charadriidae</b>	Red wattled Lap-wing	<i>Vanellus indicus</i>	Lc	R	Omnivore
	Ashy Prinia	<i>Prinia socialis</i>	Lc	R	Insectivore
<b>Cisticolidae</b>	Common Tailorbird	<i>Orthotomus sutorius</i>	Lc	R	Insectivore
	Eurasian collared Dove	<i>Streptopelia decaocto</i>	Lc	R	Graminivore
<b>Columbidae</b>	Laughing dove	<i>Streptopelia sengalensis</i>	Lc	R	Graminivore
	Rock Pigeon	<i>Columba livia</i>	Lc	R	Graminivore
	Spotted Dove	<i>Spilopelia chinensis</i>	Lc	R	Graminivore
<b>Coraciidae</b>	Indian Roller	<i>Coracias benghalensis</i>	Lc	R	Carnivore
	House Crow	<i>Corvus splendens</i>	Lc	R	Omnivore
<b>Corvidae</b>	Jungle Crow	<i>Corvus macrorhyn-chos</i>	Lc	R	Omnivore
	Rufous Treepie	<i>Dendrocitta vagabunda</i>	Lc	R	Omnivore
<b>Cuculidae</b>	Greater Crowphe-sant	<i>Centropus sinensis</i>	Lc	R	Omnivore
	Asian Koel	<i>Eudynamys scolopaceus</i>	Lc	R	Omnivore
<b>Dicruridae</b>	Black Drongo	<i>Dicrurus macrocer-cus</i>	Lc	R	Insectivore
<b>Estrilididae</b>	Indian Silverbill	<i>Euodice malabarica</i>	Lc	R	Graminivore

Family	Name	Scientific name	IUCN status	Migratory status	Feeding guilds
Leiotrichidae	Jungle Babbler	<i>Turdoides Striata</i>	Lc	R	Omnivore
	Large Grey Babbler	<i>Argya malcolmi</i>	Lc	R	Omnivore
<b>Megalaimidae</b>	Coppersmith Barbet	<i>Psilopogon haemacephalus</i>	Lc	R	Frugivore
<b>Meropidae</b>	Green bee-eater	<i>Merops orientalis</i>	Lc	R	Insectivore
<b>Monarchidae</b>	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	Lc	R	Insectivore
	Black Redstart	<i>Phoenicurus ochruros</i>	Lc	M	Insectivore
	Indian Robin	<i>Saxicoloides fulicatus</i>	Lc	R	Insectivore
<b>Muscicapidae</b>	Tickell's blue flycatcher	<i>Cyornis tickelliae</i>	Lc	R	Insectivore
	Oriental magpie Robin	<i>Copsychus saularis</i>	Lc	R	Omnivore
	Red breasted Flycatcher	<i>Ficedula parva</i>	Lc	M	Insectivore
<b>Nectariniidae</b>	Purple Sunbird	<i>Cinnyris asiaticus</i>	Lc	R	Nectarivore
<b>Oriolidae</b>	Black hooded oriole	<i>Oriolus xanthornus</i>	Lc	R	Omnivore
<b>Passeridae</b>	Chestnut Shouldered Petornia	<i>Gymnoris xanthocolis</i>	Lc	R	Omnivore
	House Sparrow	<i>Passer domesticus</i>	Lc	R	Omnivore
<b>Phalacrocoracidae</b>	Little Cormorant	<i>Microcarbo niger</i>	Lc	R	Carnivore
<b>Phasianidae</b>	Indian Peafowl	<i>Pavo cristatus</i>	Lc	R	Omnivore
<b>Picidae</b>	Lesser Golden-backed Woodpecker	<i>Dinopium benghalensis</i>	Lc	R	Insectivore
<b>Alexandrine</b>	Parakeet	<i>Psittacula eupatria</i>	Nt	R	Frugivore
<b>Psittacidae</b>	Plum headed Parakeet	<i>Psittacula cyanocephala</i>	Lc	R	Frugivore
	Rose ring Parakeet	<i>Psittacula krameri</i>	Lc	R	Frugivore
<b>Pycnonotidae</b>	Red vented Bulbul	<i>Pycnonotus cafer</i>	Lc	R	Omnivore
<b>Rallidae</b>	White-breasted water hen	<i>Amaurornis phaeonice</i>	Lc	R	Omnivore
<b>Recurvirostridae</b>	Black winged stilt	<i>Himantopus himantopus</i>	Lc	R	Carnivore
Rhipiduridae	White Spotted Fantail	<i>Rhipidura albogularis</i>	Lc	R	Insectivore
<b>Scolopasidae</b>	Green sandpiper	<i>Tringa ochropus</i>	Lc	R	Carnivore
<b>Stenostridae</b>	Grey headed Canary Flycatcher	<i>Culicicapa ceyloensis</i>	Lc	R	Insectivore
<b>Strigidae</b>	Brown fish owl	<i>Bubo zeylonensis</i>	Lc	R	Carnivore
	Spotted Owlet	<i>Athene brama</i>	Lc	R	Carnivore
<b>Sturnidae</b>	Common Myna	<i>Acridotheres tristis</i>	Lc	R	Omnivore
<b>Threskiornithidae</b>	Red naped Ibis	<i>Pseudibis papillosa</i>	Lc	R	Carnivore
<b>Tytonidae</b>	Barn Owl	<i>Tyto alba</i>	Lc	R	Carnivore

Family	Name	Scientific name	IUCN status	Migratory status	Feeding guilds
<b>Upupidae</b>	Common Hoopoe	<i>Upupa epops</i>	Lc	R	Omnivore
<b>Vangidae</b>	Common Wood-shrike	<i>Tephrodornis pondicerianus</i>	Lc	R	Insectivore
<b>Zosteropidae</b>	Oriental white eye	<i>Zosterops palpebrosus</i>	Lc	R	Frugivore

LC= Least Concern, NT= Near Threatened, R= Residence, M= Migratory