



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL  
OF ADVANCED RESEARCH

## RESEARCH ARTICLE

### Terrestrial avifauna of St.John's College campus, Tirunelveli District, Tamilnadu, India.

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#### Manuscript Info

##### Manuscript History:

Received: 26 November 2015

Final Accepted: 22 December 2015

Published Online: January 2016

##### Key words:

Terrestrial avifauna, birds diversity, educational campus, SJC campus, conservation

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#### Abstract

This study was carried out to prepare proper checklist of terrestrial birds of St. John's College campus, Tirunelveli. As a result of one year (January 2014 to December 2014) observation, 28 bird species were recorded belonging to 10 orders and 18 families. 12 species of birds belonged to the order Passeriformes; 3 species each to Falconiformes, Coraciiformes and Cuculiformes; 2 species to Columbiformes and one species each to Ciconiiformes, Psittaciformes, Strigiformes, Apodiformes and Piciformes. Based on the frequency of sighting, 7 species of birds were very common, 6 species of birds each to common and very rare, 5 species of birds were occasional, and 4 species of birds were rare. The birds present in the campus have a diverse food habits, where the insectivorous birds is at maximum with 10 species, which is followed by omnivorous with 8 species, carnivorous, frugivorous and granivorous with 3 species each and 1 species to nectarivorous. Of the 28 terrestrial birds species, 15 were not-breeding and 13 were breeding in SJC campus. SJC campus are green in the urban environment, they provide food and shelter for the urban terrestrial birds community.

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## INTRODUCTION

Avifauna plays an important link of food chain in ecological unit of nature. Hence, it is very important to know their diversity, migratory status, population size, distribution pattern and conservation status (Jeevan et al., 2013). They are widely recognized as bio-indicator of the quality of the ecosystem (Gill, 1994). Studies of avian community are effective tools for monitoring urban ecosystem and for the identifying conservation actions in areas of high human pressure. Now-a-days, avifaunal diversity has been decreasing due to the destruction of natural habitats and human disturbances. Random destruction of natural habitats by cutting nesting trees and foraging plants for commercial use of woods and lands are the main factor responsible for narrow down in avian foraging habitat and their nesting sites. The preparation of a list of species is basic to the study of avifauna of a site, because a list indicates species diversity in a general sense (Bibby et al., 1992; Bibby et al., 1998). Many studies have been conducted on the terrestrial birds' diversity in India, but little information exists on the assemblage structure as a whole. Assessing the terrestrial birds' assemblage would provide information on the diversity, abundance and ecological status of birds in a particular place. This would be important for the conservation of terrestrial biodiversity and for assessing population status of terrestrial birds in urban ecosystems. The SJC campus was located in middle of the Tirunelveli city and the campus is surrounded by urban development but SJC campus has a diverse variety of habitats, garden and numerous trees, which provide sheltering for numerous fauna. This study was intended to observe the terrestrial avian diversity in SJC campus.

## Materials and Methods

### Study Area

St.John's College (SJC) is one of the oldest (Established 1878) and premier institution located in Tirunelveli main city. SJC have an area of 54 acres. The college campus is nestled with academic buildings, chapel, sports ground, beautiful garden, barren lands and lot of native trees. Climate is mild winter and hot summer and a average rainfall of 680 millimeters annually with a peak during late September to December. The neighboring area of the campus are St.Xavier's College sports ground and Christhuraaja Hr.Sec.School on east, Superintendent Police Office on west, St.John's School on north and residential area on south.

## Methodology

The study was carried out for a period of one year from January 2014 to December 2014. The birds survey was conducted every Saturday within the campus. The birds were observed most active period of the day, i.e., early morning from 06:00 to 09:00 hours and in the evening from 15:00 to 18:00 hours. However the observation was made throughout the day also. The observation of birds were made by using Olympus (8 \*40) binocular, Photographs were taken with the help of Canon digital SLR EOS 550 D with 55-250 mm zoom lens.

The birds were identified and classified on the basis of standard field guides by Ali and Ripley (1987), Ali (2002). The birds checklist was prepared using standardized common and scientific names by Manakadan and Pittie (2001). Birds were counted by using direct count methods from walking within the college campus. A special effort was made to identify the birds that breed inside the college campus. Each and every tree and building was searched individually for the nest. The behavior of birds is carefully observed to identify the breeding place. Care was taken, not to disturb the activity on nest. Based on the frequency of field observation, abundance of birds was categorized as very common (VC), common (C), occasional (O), rare (RR) and very rare (VR). The birds were also classified into 6 categories on the basis of their food habits such as carnivores (CV), omnivores (OM), insectivores (I), frugivores (F), granivores (G) and nectarivores (N).

## Results and Discussion

As a result of one year (January 2014 to December 2014) observation, 28 bird species were recorded (Table: 1), belonging to 10 orders and 18 families. Similar findings were recorded in the Institution campus by Jayapal (1995) reported 104 bird species in Annamalai University Campus, Sundar (1998) recorded 93 species of birds in Pondicherry University Campus, Nameer et al., (2000) recorded 135 species of birds in Kerala Agricultural University Campus, Balasundaram and Rathi (2004) recorded 46 species of birds in Bharathidasan University. Subramanean and Davidar (2004) recorded 92 species of birds in Pondicherry University, Reginald et al., (2005) recorded 72 species of birds in PSG Arts and Science College Campus, Kulkarni (2005) recorded 46 species of birds in Science College Campus, Jain et al., (2005) recorded 85 species of birds in Gujarat University Campus, Gupta et al.,(2009) observed 92 birds species in Kurukshetra University Campus, Asokan et al., (2010) recorded 34 species of birds in A.V.C. College Campus, Kanaujia et al., (2012) found 47 species of birds in Lucknow University, Devi et al.,(2012) identified 109 birds species in Gauhati University Campus, Dey (2013) recorded 76 species of birds in Maharaja Bir Bikram College Campus, Sidra et al., (2013) recorded 76 species of birds in new campus of Punjab University, Hiragond (2014) recorded 63 species of birds in Kakatiya University Campus, Chowdhury et al., (2014) identified 78 species of birds in Dhaka University, Anthal et al.,(2014) recorded 57 birds species in Jammu University Campus, Aggarwal et al., (2015) observed 106 species of birds in Indian Institute of Forest Management Campus, Dapke et al., (2015) find out 62 birds species in Laxminarayan Institute of Technology Campus, Tandan et al., (2015) identified 32 species of birds in Pt. Ravishankar Shukla University Campus, Sethy et al.,(2015) observed 130 birds species in north Orissa University Campus. Out of 28 bird species, 12 species of birds belonged to the order Passeriformes; 3 species each to Falconiformes, Coraciiformes and Cuculiformes; 2 species to Columbiformes and one species each to Ciconiiformes, Psittaciformes, Strigiformes, Apodiformes and Piciformes (Figure: 1).

Out of 28 species, based on the frequency of sighting, 7 species of birds were very common, 6 species of birds each to common and very rare, 5 species of birds were occasional and 4 species of birds were rare (Figure: 2). The birds present in the campus have a diverse food habits, where the insectivores birds is at maximum with 10 species, which is followed by omnivorous with 8 species, frugivores, carnivorous and granivores with 3 species each and 1 species to Nectarivores (Figure: 3). Of the 28 terrestrial birds species, 15 were not-breeding and 13 were breeding in SJC campus (Table: 1) Many birds use native tree (*Albizia odoratissima* (L.f.) Benth, *Albizia amara* (Roxb) Boivin, *Albizia lebbek* (L.)Benth, *Ficus bengalensis* L., *Ficus religiosa* L., *Morinda tinctoria* Roxb. and *Thespesia populnea* (L.) Sol. Ex Corr.Serr) for their nest abundance of these trees is decreased due to poor watering and management. Thus leads to decrease in birds population. The bird community structure is affected by changes in vegetation structure either due to natural or any human induced disturbances (Rahayuningsih et al., 2007; Aggarwal et al., 2015). The changes in vegetation composition could impact the quality and quantity of habitat for birds in

terms of food, water and shelter which can further affect the diversity, abundance and distribution of birds (Western and Grimmsdell, 1979). Birds species recorded in the SJC campus ( 28 species) are comes under least concern (IUCN 2014) category only. This study gives a present baseline data about the terrestrial birds of St.John's College Campus; this campus provide roosting and nesting for number of terrestrial bird species and also there are number of birds using this campus as a breeding ground, care should be taken if any development is taken in the college campus in future.

Table : 1 Abundance, Feeding Habit and Breeding Status of terrestrial birds observed in SJC campus.

Order	Family	Birds common name	Zoological name	Abundance	Feeding Habit	Breeding Status
Ciconiiformes	Ardeidae	Cattle Egret	<i>Bubulcus ibis</i>	RR	CV	Not Breeding
Falconiformes	Accipitridae	Black kite	<i>Milvus migrans</i>	O	OM	Not Breeding
		Brahminy Kite	<i>Haliastur indus</i>	VR	CV	Not Breeding
		Shikra	<i>Accipiter badius</i>	RR	CV	Not Breeding
Columbiformes	Columbidae	Blue rock pigeon	<i>Columba livia</i>	VC	G	Breeding
		Spotted dove	<i>Streptopelia chinensis</i>	C	G	Breeding
Psittaciformes	Psittacidae	Rose ringed Parakeet	<i>Psittacula krameri</i>	VC	F	Breeding
Cuculiformes	Cuculidae	Pied crested Cuckoo	<i>Clamator jacobinus</i>	RR	F	Not Breeding
		Asian Koel	<i>Eudynamis scolopacea</i>	C	F	Breeding
		Greater Coucal	<i>Centropus sinensis</i>	VR	I	Not Breeding
Strigiformes	Strigidae	Spotted Owlet	<i>Athene brama</i>	C	I	Breeding
Apodiformes	Apodidae	Asian palm Swift	<i>Cypsiurus balasiensis</i>	C	I	Not Breeding
Coraciiformes	Meropidae	Small bee eater	<i>Merops orientalis</i>	O	I	Not Breeding
	Coraciidae	Indian roller	<i>Coracias benghalensis</i>	VR	I	Not Breeding
	Upupidae	Common hoopoe	<i>Upupa epops</i>	VR	I	Not Breeding
Piciformes	Picidae	Leasser golden backed woodpecker	<i>Dinopium benghalense</i>	O	I	Not Breeding
Passeriformes	Dicruvidae	Black drongo	<i>Dicrurus macrocercus</i>	O	I	Not Breeding
	Sturnidae	Common myna	<i>Acridotheres tristis</i>	VC	OM	Breeding
	Corvidae	Rufous treepie	<i>Dendrocitta vagabunda</i>	VC	OM	Not Breeding
		House crow	<i>Corvus splendens</i>	VC	OM	Breeding
		Jungle crow	<i>Corvus macrorhynchos</i>	VC	OM	Breeding
	Pycnonotidae	Red vented bulbul	<i>Pycnonotus cafer</i>	VR	OM	Breeding
	Muscicapidae	White headed babbler	<i>Turdiodes affinis</i>	VC	OM	Not Breeding
		Common Tailorbird	<i>Orthotomus sutorius</i>	RR	I	Breeding
		Oriental Magpie-robin	<i>Copsychus saularis</i>	VR	OM	Not Breeding
Indian Robin		<i>Saxicoloides fulicata</i>	C	I	Breeding	

	Nectariniidae	Purple sunbird	<i>Nectarinia asiatica</i>	C	N	Breeding
	Ploceidae	House Sparrow	<i>Passer domesticus</i>	O	G	Breeding

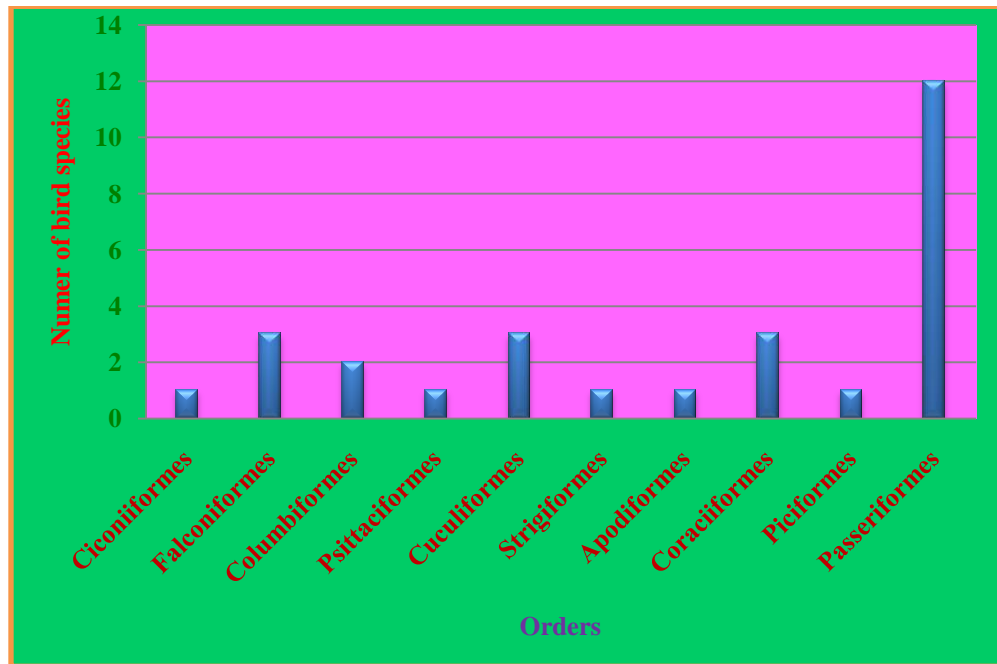


Figure: 1 Showing order-wise number of birds recorded in SJC campus.

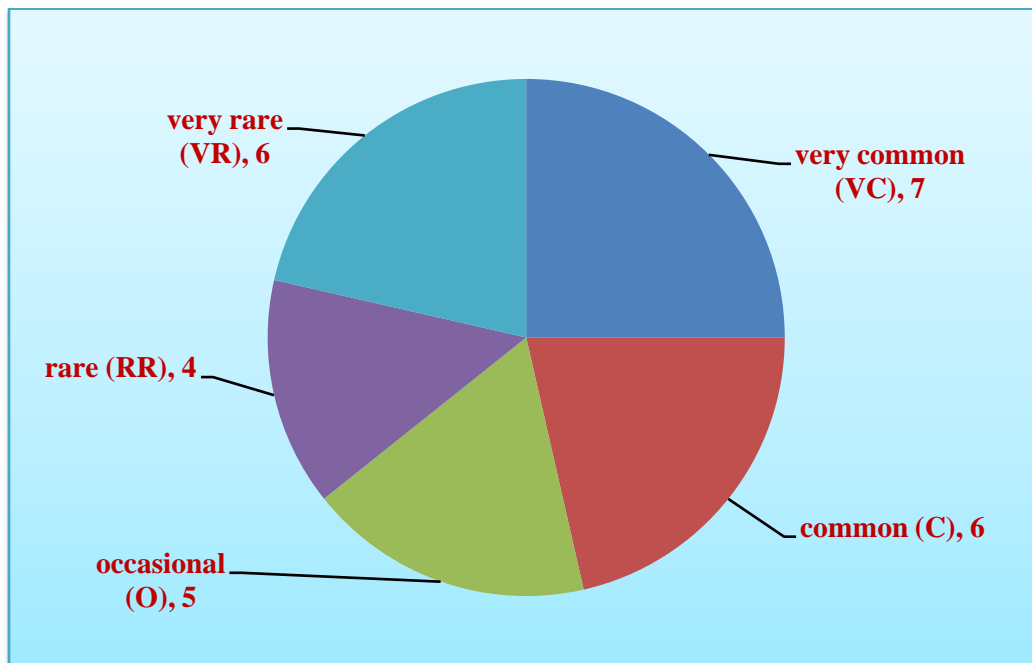


Figure: 2 Showing the abundance of terrestrial avifauna recorded in SJC campus.

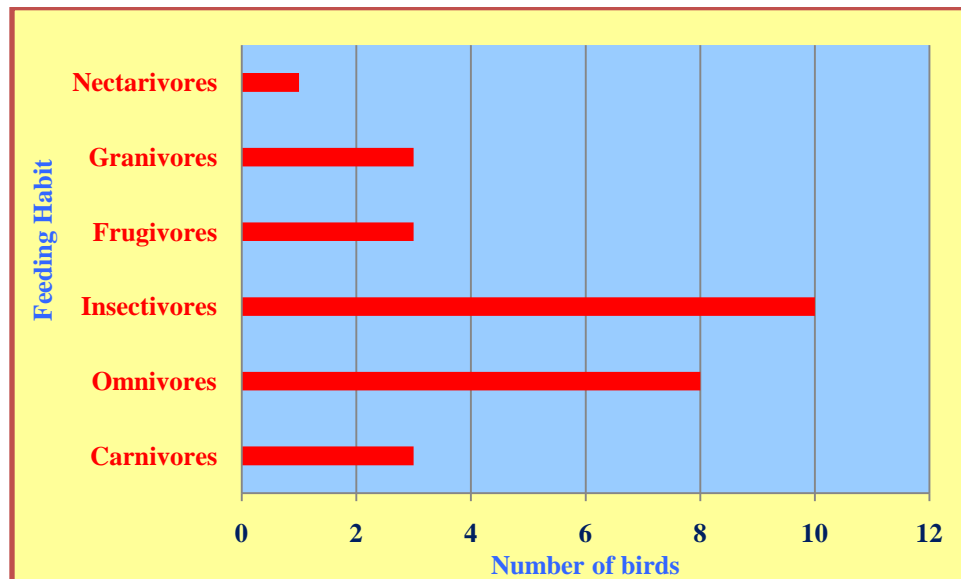


Figure: 3 Showing the Feeding Habit of terrestrial avifauna recorded in SJC campus.

### Acknowledgement

Authors wish to thank the Chairman, Secretary & Correspondent, Principal and Vice-Principal of SJC for having rendered facilities and encouragement during the period of study. The Corresponding Author wish to thank Dr. M. Rajakumari, Associate Professor of Zoology, SJC for the identification of birds during this study.

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