International Journal of Pure and Applied Zoology
Volume 10, Issue 11, pp: 151, 2022
http://www.alliedacademies.org/international-journal-of-pure-and-applied-zoology/

ISSN (Print) : 2320-9577
ISSN (Online): 2320-9585

Research Article

DIVERSITY OF BIRDS AND BUTTERFLIES IN AND AROUND FROM POND IN NARASINGAM VILLAGE, MADURAI DISTRICT, TAMIL NADU STATE, INDIA

Selvaraj Selvamurugan*

Department of Clinical Development Service Agency, Translational Health Science and Technology Institute Building (THSTI), Faridabad-121001, India

ABSTRACT

Butterflies are important bio indicators which should be protected to conserve the biodiversity. The present investigation deals with observed in birds 26 species, 12 orders and 17 families recorded from during June 2021 to June 2022. Butterflies are 32 species and five families observed. In this paper showed the richness species of pond and conservation management.

Keywords: Birds, Butterflies, Fauna of Lake, Preliminary Study, Diversity.

INTRODUCTION

Bird community evaluation has become an important tool in biodiversity conservation and for identifying conservation actions in areas of high human pressure. All types of birds are incredibly fascinating and have captured our imagination since the earliest times. The Indian subcontinent is very rich in biodiversity. According to an estimate, 1300 bird species are found in Indian subcontinent, out of the more than 9000 bird species of the world and over 13% of the world's bird fauna are found in India [1]. It is suggested that the avifauna is important for the good health of the ecosystem as these birds play various roles as scavengers, pollinators and predators of insect pests [2]. They are natural wonders of song, colour, flight and display. With so many diverse types of birds, learning about them is an exciting adventure. Birds contribute most significantly to the diversity of terrestrial habitats. Birds also have a special role in conservation as they not only help identify areas most worth saving, but also have the capacity to realize the significance of conservation [3].

Butterflies are the most beautiful, colourful and important group of insects in the world. These are very good pollinators as well as they play a role as predators, pests and weed killers Butterflies (as pollinators) contribute significantly to the growth, the maintenance, and an expansion of flora in tropical regions where these insects are abundant and diverse. Furthermore, butterflies are so sensitive to environmental changes and have been found as bio indicators, capable of indicating the environment's general health.

So far, 1501 species of butterflies have been recorded from the Indian region, with 350 species from Peninsular India, 331 species from the Western Ghats, and 313 species from South India [4]. The major forest areas in Tamil Nadu are divided into the Western and Eastern Ghats. When compared to the Western Ghats, the Eastern Ghats face intense pressure from all sides from people for fuel wood, fodder, medicinal plants, and illegal felling, causing it to lose forest cover at an unprecedented rate [5].

Many species are becoming increasingly rare, and some are on the verge of extinction, as a result of factors such as increased urbanisation, including roads and buildings, habitat destruction, fire, pesticide use, and an illegal trade. Butterflies, as one of the most studied insect groups, have been meticulously documented since the 18th century [6].

Deterioration of Pond water is also responsible for public health problems in surrounding area. Therefore, regular monitoring of pond water quality & pond ecosystem is necessary for taking appropriate environmental measures to protect & conserve pond water quality suitable for urban ecosystem.

Study site

Narasingam is a village located 8 km from Madurai on the road to Melur, in the Indian state of Tamil Nadu. It is named for the nearby cave temple dedicated to Yoga Narasimha Perumal, at the foot of the Yanaimalai hills. This temple was constructed in 770 A.D. by Madurakavi alias Marankaari who was the minister of the Madurai King Parantaka Nedunjadaiyan. Showing study area of Lotus pond and growing weeds in (Figure 1).

RESULTS AND DISCUSSION

A total 26 species and 17 families recorded from during study period (Table 1). Following families viz., Ardeidae (4 species), Cuculidae (3 species), Columbidae (2 species), Threskiornithidae (2 species), Corvidae (2 species) Nectariniidae (2species) and followed by only one species namely are Coracidae,

***Corresponding author:** Selvaraj Selvamurugan, Department of Clinical Development Service Agency, Translational Health Science and Technology Institute Building (THSTI), Faridabad-121001, India; E-mail: selva199420@yahoo.in

Received: 10-Oct-2022, Manuscript No. IJPAZ-22-76809; **Editor assigned:** 12-Oct-2022, PreQC No. IJPAZ-22-76809(PQ); **Reviewed:** 26-Oct-2022, QC No. IJPAZ-22-76809; **Revised:** 31-Oct-2022, Manuscript No. IJPAZ-22-76809(R); **Published:** 07-Nov-2022, DOI: 10.35841/2320-9585-10.11.151

Figure 1. Study area–showing of pond in narasingam village,madurai district.

Table 1. Bird species observed in pond from June 2021 – June 2022.

S.No	***Scientific Name***	**Common Name**	**Order**	**Family**
1	*Terpsiphone paradise*	Asian Paradise Flycatcher	Passeriformes	Monarchidae
2	*Dicrurus macrocercus*	Black Drongo	Passeriformes	Dicruridae
3	*Columba livia*	Blue Rock Pigeon	Columbiformes	Columbidae
4	*Corvus splendens*	Common Crow	Passeriformes	Corvidae
5	*Hierococcyx varius*	Common Hawk Cuckoo	Cuculiformes	Cuculidae
6	*Eudynamys scolopacea*	Common Koel	Cuculiformes	Cuculidae
7	*Acridotheres tirstis*	Common Myna	Passeriformes	Acrocephalida
8	*Centropus sinensis*	Greater Coucal	Cuculiformes	Cuculidae
9	*Oriolus kundoo*	Golden Oriole	Passeriformes	Oriolidae
10	*Threskiornis aethiopicus*	Ibis	Pelecaniformes	Threskiornithidae
11	*Coracias benghalensis*	Indian Roller	Coriciiformes	Coracidae
12	*Nycticorax nycticorax*	Night Heron	Pelecaniformes	Ardeidae
13	*Ardeola grayii*	Pond Heron	Pelecaniformes	Ardeidae
14	*Leptocoma zeylonica*	Purple rumped Sunbird	Passeriformes	Nectariniidae
15	*Cinnyris asiaticus*	Purple Sunbird	Passeriformes	Nectariniidae
16	*Psittacula krameri*	Rose ringed Parakeet	Psittaciformes	Psittacidae
17	*Dendrocitta vagabunda*	Rufous Tree pie	Passeriformes	Corvidae
18	*Athene brama*	Spotted Owl	Strigiformes	Stridae
19	*Halcyon smyrnensis*	White throated Kingfisher	Halcyon smyrnensis	Coraciiformes
20	*Turdoides affinis*	Yellow billed Babbler	Turdoides affinis	Leiothrichidae
21	Egretta garzetta	*Little Egret*	Pelecaniformes	Ardeidae
22	Bubulcus ibis	*Cattle egret*	Pelecaniformes	Ardeidae
23	Streptopelia chinensis	*Spotted Dove*	Columbiformes	Columbidae
24	Phalacrocorax niger	*Little Cormorant*	Suliformes	Phalacrocoracidae
25	Threskiornis melanocephalus	*Oriental White Ibis*	Pelecaniformes	Threskiornithidae
26	Anas poecilorhyncha	*Spot-bill Duck*	Anseriformes	Anatidae

Coraciiformes, Dicruridae, Leiothrichidae, Monarchidae, Oriolidae, Phalacrocoracidae, Psittacidae, Stridae, Acrocephalida, Anatidae (Figure 2). Muralikrishnan, reported Urban ponds of Thirupparankundram and Koothiyarkundu, Madurai, During the study period, 49 species of birds belonging to 29 families under 42 genera were recorded [7].

This similar pattern of study was reported on wetland birds in Anekere wetland of Karkala, Udupi District; Pallikaranai Wetlands of Chennai; Kundavada Lake of Davanagere District; Chhilchhila Wildlife Sanctuary of Haryana and wetlands of Jalpaiguri, West Bengal [8-12]. These studies also recorded the seasonal change in density and diversity of migratory avifauna of which some are globally threatened and near threatened species.

The results of the present study revealed a total 32 species butterflies belonging to five families (Table 2). Family wise diversity of butterfly was dominated by Nymphalidae (12 species), Lycaenidae (8 species), Pieridae (6 species), Papilionidae (5 species), Riodinidae one species (Figure 3). Butterfly diversity in Tamil Nadu is studied in a variety of locations, primarily from the The Nilgiri Mountains are located in the Western Ghats. In the present study 22 species were recorded. Similar study was carried out by number of workers. Gunathilagaraj, reported 174 species of butterflies from Palani Hills and 85 butterfly species from Thengumarahada in the Nilgiris [13,14]. Reported about 27 species from Maruthamalai Hills of Southern Western Ghats [15]. There are about 71 species were recorded from Pachamalai hills of the Eastern Ghats of Tamil Nadu. Selvaraj Selvamurugan reported, 45

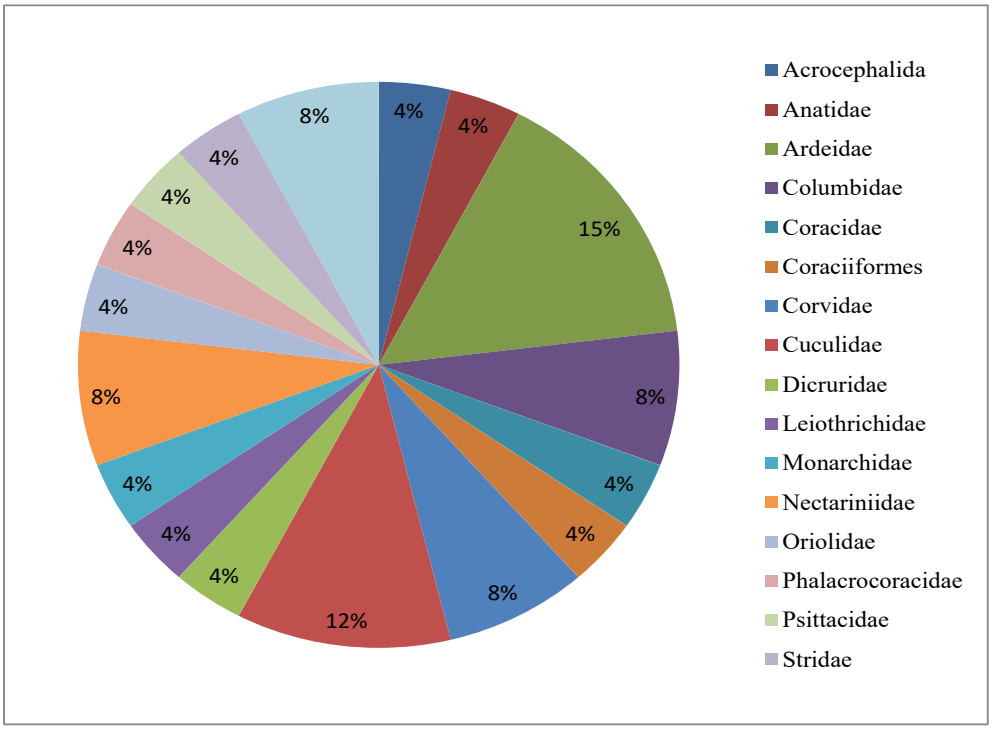

Figure 2. Percentage of bird species in different families observed during the study period.

Table 2. Diversity of butterfly species recorded in the study area.

S.No	Scientific Name	Common Name
	Nymphalidae	
1	*Tirumala limniace*	Blue tiger
2	*Acraea violae*	Tawny coster
3	*Ariadne ariadne*	Angled castor
4	*Danaus chrysippus*	Joker
5	*Euploea core*	Plain tiger
6	*Junonia hierta*	Yellow pansy
7	*Junonia lemonias*	Lemon pansy
8	*Mycalesis sp.*	Tamil bushbrown
9	*Hypolimnas misippus*	Danaid eggfly
10	*Euploea core*	Common crow
11	*Neptis hylas*	Common sailor
12	*Junonia orithiya*	Blue pansy
	Pieridae	
13	*Colotis eucharis*	Plain Orange Tip
14	*Eurema brigitta*	Small grass yellow

15	*Leptosia nina*	Psyche
16	*Catopsilia pomona*	Common emigrant
17	*Appias albina*	Common albatross
18	*Belenois aurota*	Pioneer
	Papilionidae	
19	*Papilio demoleus*	Common lime
20	*Graphium doson*	Common jay
21	*Atrophaneura aristolochiae*	Common rose
22	*Atrophaneura hector*	Crimson rose
23	*Graphium Agamemnon*	Tailed jay
	Lycaenidae	
24	*Castalius rosimon*	Common pierrot
25	*Euchrysops cnejus*	Gram blue
26	*Zizeeria karsandra*	Dark grass blue
27	*Tarucus nara*	Striped pierrot
28	*Chilades lajus*	Lime blue
29	*Curetis thetis*	Indian sunbeam
30	*Prosotas nora*	Common line blue
31	*Spalgis epius*	Ape fly
	Riodinidae	
32	*Abisara bifasicata*	Double banded judy

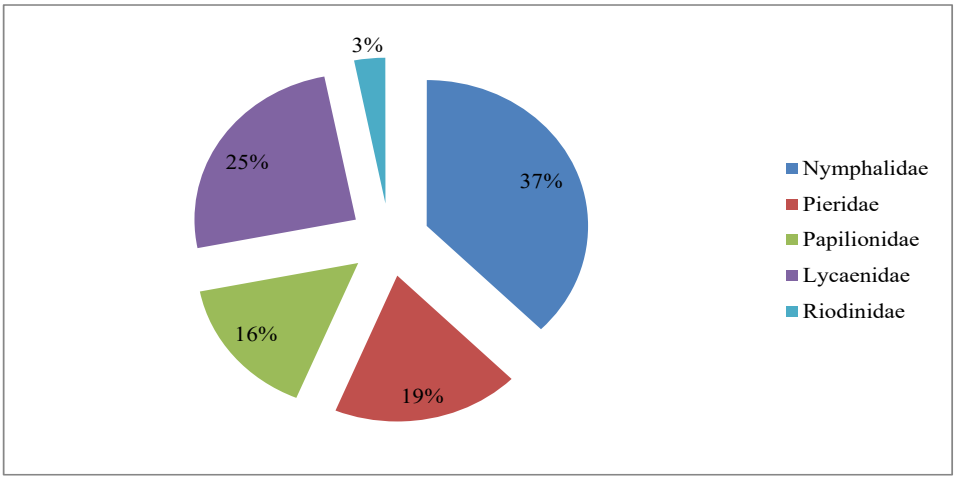

Figure 3. Percentage of butterfly species in different families observed during the study period.

species of butterflies, 31 genera belonging to 5 families at foot hills of western ghats, Coimbatore, Tamil Nadu [16].

CONCLUSION

The survival of Species is higher in urban cities which have rich vegetation and favorable habitat like the Narasingam pond. Considering the pond, with effective Implementation of the ecological conservation strategies, the species diversity, richness and community structure of the butterflies could be restored efficiently.

Environmental management aspects for restoration and conservation of pond:

Some of the important measures required are listed below:

1. The dumping of solid waste in the lake should be banned with the provision of punishment of such activity.
2. The macrophytes in lake should be regularly removed before summer season and may be property disposed off for composting purpose or for biogas preparation
3. Deepening the sha llow areas of lake would control the weed growth in lake.
4. Desludging operations during lean period of summer season would be helpful to remove the accumulated pollutants in the lake.
5. Regular physicochemical & biological monitoring of the lake water & lake ecosystem should be done.

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