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Short communicaton

Evaluation of Butterfly Fauna of Ammadam, Thrissur, Kerala

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ABSTRACT
The present investigation was carried out to study butterfly diversity in Ammadam, Thrissur, Kerala, for the period of January 2014 to December 2017. Ammadam village is an agrarian village with abundant Kole wetlands and fertile land suitable for agriculture. Results showed that 69 species of butterflies representing 5 major families were recorded. Nymphalidae was found to be most dominant group with 30 species followed by Lycaenidae 11, Papilionidae 11, Hesperidae with 10 and Pieridae 7 species. Butterflies were more common from the months of September due to high flow of nectar. Rare species like *Papilio clytia, Pachilopta hector* were sighted during the study period. The present study is first of its kind of the village and it provides baseline data on butterfly diversity.

Key words*:* Butterfly, Biodiversity, Ammadam, Kerala, Rare species, Abundance status

INTRODUCTION

The most amazing animals among all living things are butterflies. Butterflies are crucial for determining the ecosystem's viability and quality. Butterflies depend on plants (Kunte 2000) and monitoring them is essential because they are sensitive species with important roles as pollinators and ecological indicators. About 1,500 species of butterflies can be found in India and the Western Ghats have a wide variety of butterflies (Reddi et al. 2003). More than 300 different species of butterflies make Kerala their home. Butterflies require varied species specific habitats and ecological conditions for their existence. Forests, grass lands, canopies of trees and wetlands, mainly along the banks of rivers and streams are the typical butterfly habitats. So their diversity also would reflect diversity of flora and numerous coexisting organisms.

Butterflies are important flagship taxa for invertebrate conservation (New 1995). Works on forest reserves, fragments, wetlands, city and national parks (Koh and Sodhi 2004) are basic for conservation strategies. Wettstein and Schmid (1999) studied the conservation of arthropod diversity in montane wetlands. Murugesan et al. (2013) studied the butterfly community of the Oussudu Bird Sanctuary and its environs at Puducherry. Butterfly fauna of East Calcutta Wetlands was studied by Chowdhury and Soren (2011). While Sharma and Joshi (2009) evaluated diversity of Butterflies in Dholbaha dam, Thakur et al. (2006) studied butterflies of Sukhna and catchment area in Chandigarh. Ramachandra (2014) studied butterflies of three micro watersheds in Western Himalaya.

However scarce studies have been done on butterfly diversity in Kerala. Kerala is extraordinarily blessed with backwaters, estuaries, and lagoons. Although it's well-known that Thrissur possess rich piscine and avian resources, the low lands, fringes, riparian zones and uplands are home to diverse population of butterflies as well.

STUDY AREA

Ammadam, is a calm, unpolluted village with a multitude of habitats. The area is under the Parlam panchayat with abundant Kole wetland, a part of Vembanad–Kol. It is highly fertile from the silt deposited by the flood-waters. The village is luxurious with migratory birds, diverse piscine fauna and is a prime choice in Kerala for farm and village tourism. The dry lands are having coconut, arecanut, nutmeg and banana plantations. As it is an agrarian village the fertile land provides ample niche for survival of diverse fauna and flora.

MATERIAL AND METHODS

The butterflies in and around the Ammadam village was documented by direct observations, random walks and opportunistic observations during the morning and in the evening during which butterfly is most active. The diversity study was conducted from January 2014 to December 2017 for three consecutive years for the three seasons (pre-monsoon, monsoon and post-monsoon). The survey was conducted in both human-inhabited and uninhabited areas. All butterflies were observed and recorded during the study period. Species identification was confirmed with help of available literature, Butterflies were categorized into four groups based on their abundance as VC-Very common, C-Common, R- rare, VR- very rare.

RESULTS AND DISCUSSION

The present study indicates that the land has diverse butterfly fauna. During the study period 69 species of butterflies belonging to five families were recorded. Table 1 provides the list of recorded species. Figure 1 provides the family wise butterfly diversity of Ammadam. Among the five families Nymphalidae was found to be most dominant group with 30 species followed by Lycaenidae 11. Papilionidae was represented with 11 species, Hesperidae with 10 and Pieridae with 7 species. 9 species were very common, 31 species were common, 16 were rare and 13 were very rare.

According to earlier studies 331 species of butterflies were listed from Western Ghats by Gaonkar (1996). Seventy-four species were reported from East Calcutta Wetlands, West Bengal (Chowdhury and Soren, 2011), 138 species from Rupa Wetland of Nepal (Subedi et al. 2021), 53 species from Surajpur wetland (Ansari et al. 2015), fifty-eight species belonging to five families from Kole Wetlands, Kerala (Sarath et al. 2017), 79 species from Adichanalloor Village, Kollam (Priya et al. 2017), 69 species from Singur (Dey and Mandal 2017) and 76 species from Kurukani forest village (Deori and Sonowal 2022).

In the present study Nymphalidae dominated the butterfly fauna. Nymphalids were the dominating group in many earlier studies as well. 27 species nymphalid were reported from Pallassena village (Narmadha and Varunprasath 2018), 35 by Singh and Ahmed (2021). The dominating groups were the Nymphalidae in studies by Dey et al. (2017).

Figure 2 represents the abundance status of butterflies of Ammadam. The data also indicate that a good number of butterflies which are endemic and rare. The reports of rare species like Common mime, Crimson rose, Grey count, Red Helen, is signifying a need for local conservation of the butterflies as rare species can be correlated to the diversity of floral species in the area and overall biodiversity (Anbalagan 2022). Therefore, this study unravels the pristine fauna.

The rich diversity of butterflies indicates presence of larval host plants and nectar plants. However, research on butterfly fauna and continuous evaluation of butterfly species is needed as butterflies are declining due to habit destruction and country-side developments. Mass awareness programs for protecting the roadside vegetation is the need of the hour as many are butterfly host plants.

Growing of green corridors (Nagarajan and Theivaprakasham 2020), establishment of butterfly garden, management of natural areas (Taron 2015) to increase the butterfly diversity would conserve local biodiversity. However, further study is needed to know about the fluctuation in the diversity of butterflies.

CONCLUSION

Butterflies are considered to be essential species of insects that are vital for the sustainability of an ecosystem. They play a crucial role in the food chain of many different creatures. Urbanisation, increase of land use, and loss of natural environments have created a threat to biodiversity. The butterfly diversity in Ammadam village was assessed in the current study. Ammadam was found to be home to 69 butterflies, many of which were rare species indicating that the village has a wide variety of plants and is rich and pristine.

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Table I. List of butterflies recorded from Ammadam

Family/Scientific name	Common name	IUCN Status
Nymphalidae		
Ariadne ariadne	Angled Castor	C
Ariadne merione	Common castor	C
Cirrochroa thais	Tamil Yeoman	R
Cupha erymanthis	Rustic	C
Danaus genutia	Striped Tiger	VR
Euploea core	Common Indian Crow	VC
Euthalia aconthea	Common baron	C
Euthalia lubentina	Gaudy baron	VR
Elymnias hypermnestra	Common palmfly	C
Hypolimnas bolina	Great Indian egg fly	VR
Hypolimnas misippus	Danaid egg fly	R
Junonia atlites	Grey Pansy	VC
Junonia lemonias	Lemon pansy	R
Junonia iphita	Chocolate Pansy	VC
Junonia almana	Peacock pansy	VR
Lasippa viraja	Yellowjack sailer	R
Moduza procris	Commander	C
Melanitis leda	Common Evening Brown	C
Melanitis phedima	Dark Evening Brown	VR
Mycalesis perseus	Common Bushbrown	VC
Neptis columella	Short Banded Sailor	C
Neptis jumbah	Common sailor	C
Parantica aglea	Glassy tiger	R
Parthenos sylvia	Clipper	R
Tanaecia lepidea	Grey Count	R
Tirumala limniace	Blue Tiger	C
Tirumala septentrionis	Dark Blue Tiger	C
Ypthima baldus	Common five ring	C
Ypthima huebneri	Common Four-ring	C
Ypthima asterope	Common Three-ring	C
Lycaenidae		
Acytolepis puspa	Common hedge blue	C
Castalius rosimon	Common pierrot	R
Chilades lajus	Lime blue	C
Deudorix isocrates	Guava Blue	R
Jamides celeno	Common cerulean	VR
Loxura atymnus	Yam fly	VR
Neopithecops zalmora	Quaker	C
Rathinda amor	Monkey Puzzle	C
Spindasis vulcanus	Common Silver Line	VR
Tajuria cippus	Peacock Royal	VR
Talicada nyseus	Red pierrot	R
Papilionidae		
Graphium agamemnon	Tailed jay	R
Graphium doson	Common jay	VR
Pachilopta hector	Crimson rose	VR
Pachliopta aristolochiae	Common rose	C
Papilio clytia	Common mime	VC
Papilio polytes	Common mormon	VC
Papilio buddha	Buddha Peacock	VR
Papilio demoleus	Lime Butterfly	R
Papilio helenus	Red helen	VR
Troides minos	Southern bird wing	C
Papilio polymnestor	Blue Mormon	C
Hesperiidae		
Borbo cinnara	Rice Swift	R
Coladenia indrani	Tricolour pied flat	R
Iambrix salsala	Chestnut Bob	C
Matapa aria	Common Redeye	R
Notocrypta paralysos	Common Banded Demon	R
Sarangesa dasahara	Common Small Flat	C
Tagiades japetus	Common Snow Flat	C
Tagiades litigiosa	Water Snow Flat	C
Telicota ancilla	Dark Palm Dart	C
Udaspes folus	Grass Demon	C
Pieridae		
Catopsila pyranthe	Mottled emigrant	C
Catopsilia pomana	Common emigrant	C
Delias eucharis	Common jezebel	C
Eurema blanda	Three spot yellow	VC
Eurema brigitta	Small grass yellow	VC
Leptosia nina	Psyche	VC
Pareronia valeria	Common Wanderer	C

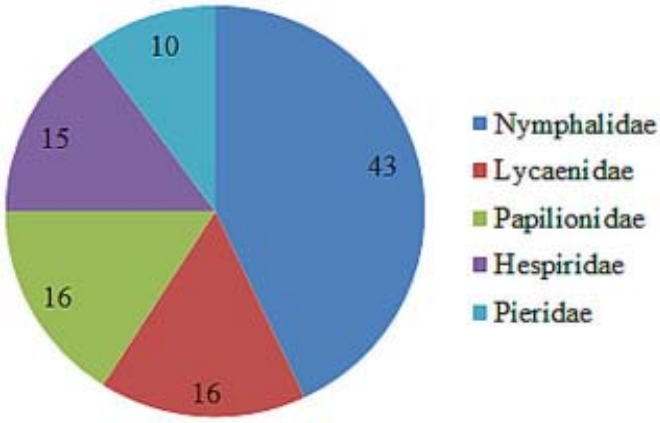

Figure 1. Fimily diversity (%) of butterflies

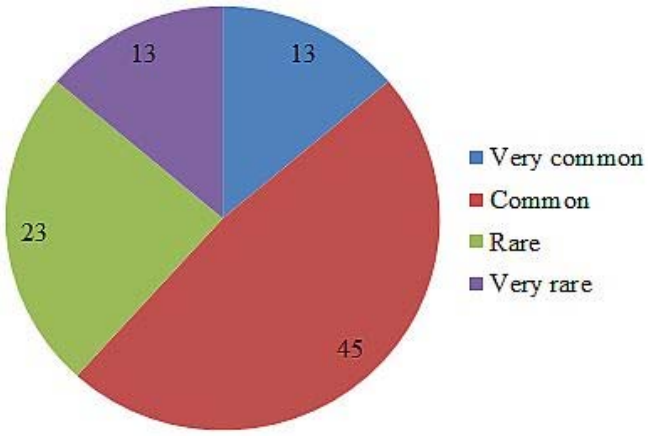

Figure 2. Abundance (%) of butterflies

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