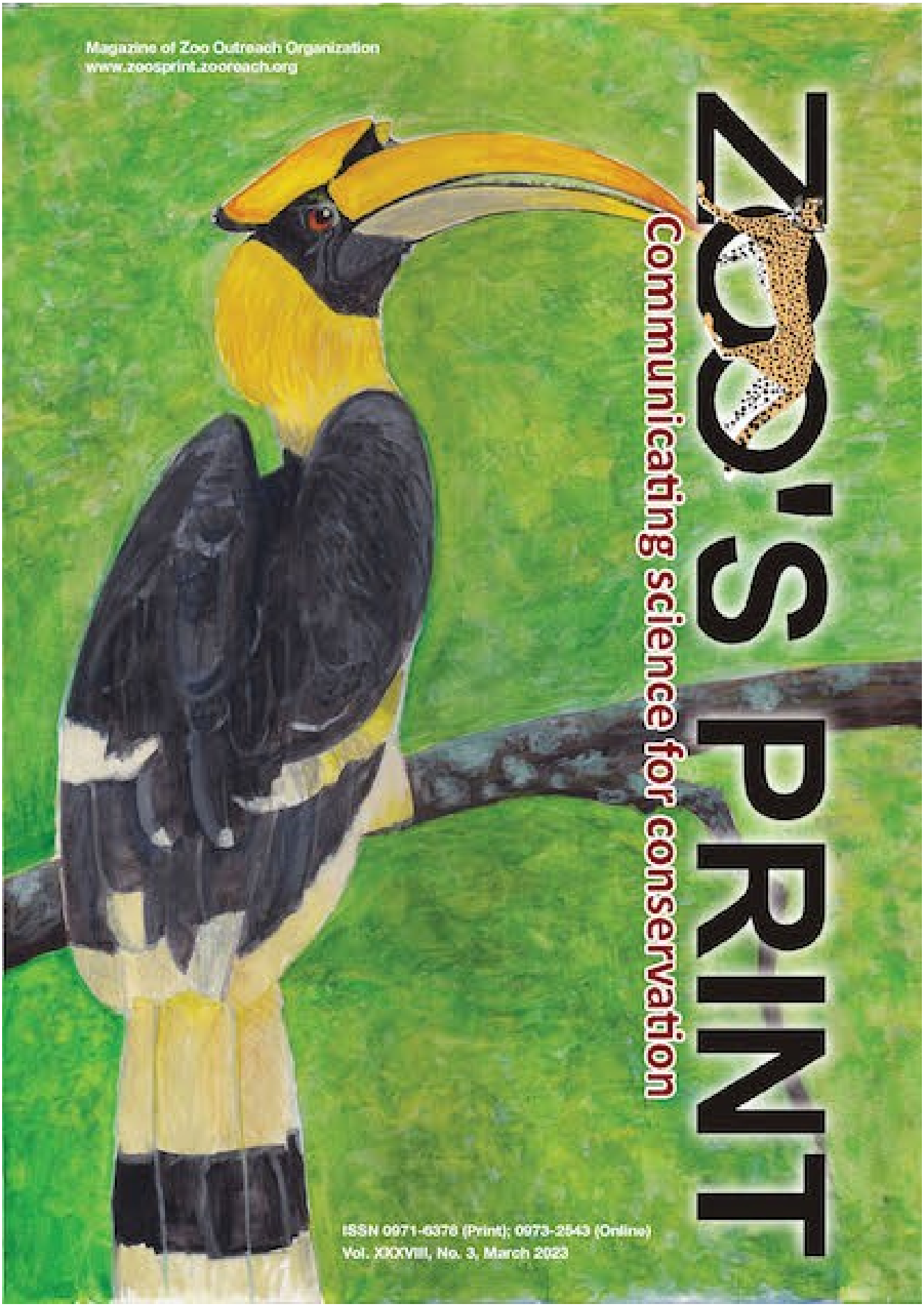
Magazine of Zoo Outreach Organization
www.zoosprint.zooreach.org

ZOO'S PRINT

Communicating science for conservation



ISSN 0971-6378 (Print); 0973-2543 (Online)
Vol. XXXVIII, No. 3, March 2023

ISSN 2230-7052

BugsEAll

#264
21 March 2023

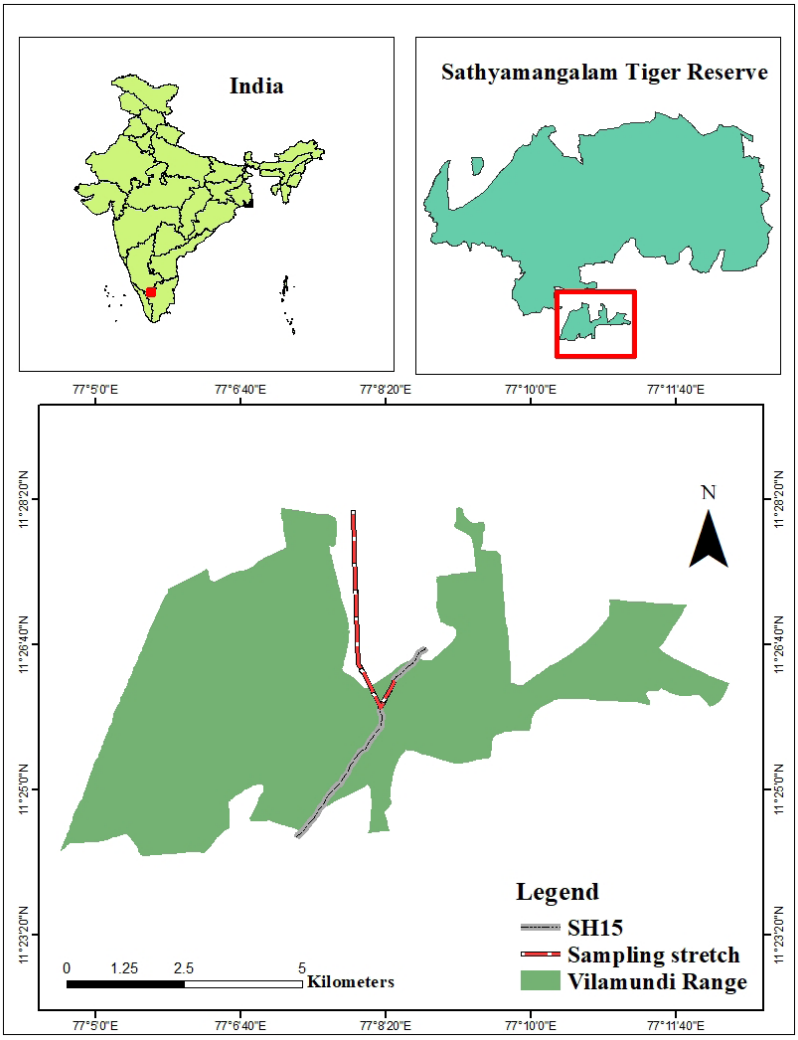
Newsletter of the
Invertebrate Conservation & Information Network of South Asia (ICINSA)

Road mortality of butterflies in the Bhavanisagar -Mettupalayam Road, Sathyamangalam Tiger Reserve, Tamil Nadu, India

The most noticeable impacts of roads are perhaps associated with vehicle collisions. Roads are the line corridors that can cause high mortality risks where traffic volume is high (Samways 1994). Butterflies are one of the most common insect groups killed on roads by vehicles; however, the effects of road traffic on butterflies have been poorly studied in India. The impact of road mortality is expected to be high in insects than in other taxa (Rao & Girish 2007).This study documents the road mortality of butterflies at Sathyamangalam Tiger Reserve over a short period of time during the summer month.

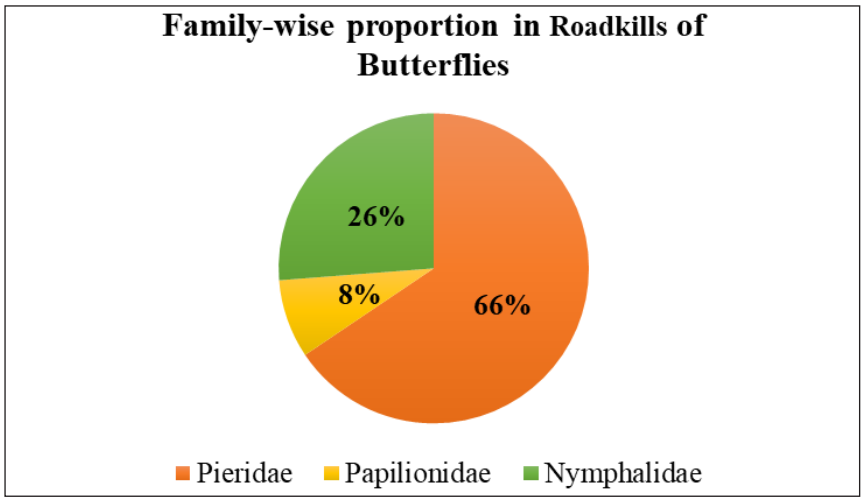
The study area is part of the Vilamundi Forest Range of the Sathyamangalam Tiger Reserve (STR), Tamil Nadu. The STR is a connective junction of Eastern and Western Ghats, which is one of the largest tiger reserves of Tamil Nadu (10.4875–11.71972°N & 76.84611–77.45611° E) established in 2013 and which covers an area of 1,400 km^2.

We selected a 5-km road stretch from Bhavanisagar to the Nalroad and a portion from SH 15 that runs from Erode to Gudalur, Tamil Nadu. The road

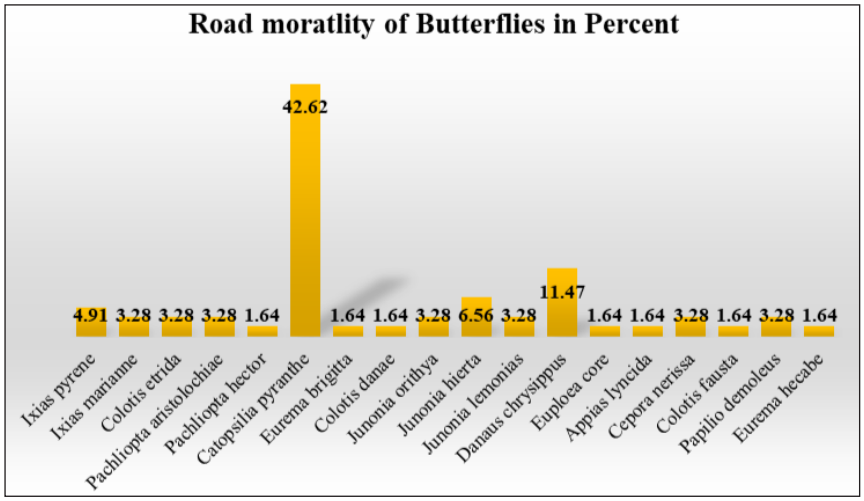


Vilamundi Forest Range of Sathyamangalam Tiger Reserve.

ISSN 2230-7052
Bugs ALL
#264
21 March 2023
Newsletter of the
Invertebrate Conservation & Information Network of South Asia (ICINSA)



Proportion of family-wise roadkills in butterflies.



Proportion of road kills in butterflies.

passes through the tropical thorn forest patch of the STR.

Field observation was made on six days in the month of June 2018. The survey was conducted between 0830 h and 1130 h. A checklist was prepared based on the study of road-killed butterflies in Bhavanisagar to Nalroad. The butterfly number was quantified through the roadside walk, and the return walk was on the opposite side of the first walk. Road kills were photographed from the spot and identified with the help of a field guide (Kasambe 2018).

We encountered roadkills of 61 individuals in six days of June 2018, which consisted of 18 species, 11 genera, and three families, respectively (Table 1). Among the roadkills, 66% belonged to the Pieridae family, followed by Nymphalidae 26%, and Papilionidae 8%. Mottled Emigrant *Catopsilia pyranthe* was the most affected species by road kills 42.62%, followed by Plain Tiger *Danaus chrysippus* 11.47%.

Mainly, road kill studies focus on bigger animals in India, such as mammals, reptiles, birds, and amphibians. Similar road kill studies on butterflies have been conducted in the Indian landscape on a small scale. Rao & Girish (2007) have observed road kill of 1,269 individuals from the Bandipur National Park; among them, 35% were butterflies. Similarly, the Wayanad District of Kerala was reported to have lost nearly 206 butterflies due to vehicle collisions over a day; all were under two families and the highest number of individuals road killed were the

ISSN 2230-7052

Bugs R ALL

#264
21 March 2023

Newsletter of the
Invertebrate Conservation & Information Network of South Asia (ICINSA)

A view of butterfly road kills at the Vilamundi Range of Sathyamangalam Tiger Reserve: 1—Common Crow | 2—Chocolate Albatross | 3—Mottled Emigrant | 4—Common Rose | 5—Lemon Pansy | 6—Common Grass Yellow | 7—Large Salmon Arab | 8—Small Grass Yellow | 9—Yellow Pansy © Vishnu, C.S.

ISSN 2230-7052

Bugs R All

#264
21 March 2023

Newsletter of the
Invertebrate Conservation & Information Network of South Asia (ICINSA)

A view of butterfly road kills at the Vilamundi Range of Sathyamangalam Tiger Reserve: 10—Crimson Tip | 11—Blue Pansy | 12—Plain Tiger | 13—White Orange-tip | 14—Crimson Rose | 15—Yellow Orange-tip | 16—Common Gull | 17—Lime Butterfly. © Vishnu, C.S.

Table1. Checklist of the road killed butterflies.

	Common Name	Family	Binomial Name	Count
1	Yellow Orange-tip	Pieridae	*Ixias pyrene*	3
2	White Orange-tip	Pieridae	*Ixias marianne*	2
3	Small Orange-tip	Pieridae	*Colotis etrida*	2
4	Crimson Tip	Pieridae	*Colotis danae*	1
5	Large Salmon Arab	Pieridae	*Colotis fausta*	1
6	Common Grass Yellow	Pieridae	*Eurema hecabe*	1
7	Small Grass Yellow	Pieridae	*Eurema brigitta*	1
8	Mottled Emigrant	Pieridae	*Catopsilia pyranthe*	26
9	Chocolate Albatross	Pieridae	*Appias lyncida*	1
10	Common Gull	Pieridae	*Cepora nerissa*	2
11	Blue Pansy	Nymphalidae	*Junonia orithya*	2
12	Yellow Pansy	Nymphalidae	*Junonia hierta*	4
13	Lemon Pansy	Nymphalidae	*Junonia lemonias*	2
14	Plain Tiger	Nymphalidae	*Danaus chrysippus*	7
15	Common Crow	Nymphalidae	*Euploea core*	1
16	Common Rose	Papilionidae	*Pachliopta aristolochiae*	2
17	Crimson Rose	Papilionidae	*Pachliopta hector*	1
18	Lime Butterfly	Papilionidae	*Papilio demoleus*	2

ISSN 2230-7052
Bugs R All
#264
21 March 2023
Newsletter of the
Invertebrate Conservation & Information Network of South Asia (ICINSA)

Blue Tigers *Tirumala septentrionis* (Roshnath & Cyriac 2013). Also, Sony & Arun (2015) have documented 135 butterfly road kills belonging to three families, nine genera, and 12 species in the Anaikkatty Hills of Tamil Nadu; among them, the proportion of nymphalid butterflies was high at 70%.

However, a total of about 61 individuals' deaths during a shorter span is a call for proper investigation in this region. Insects are essential to the ecosystem as pollinators; still, very few conservation efforts have been made to protect them. However, we suggest that butterfly populations must be protected from road deaths through meaningful conservation measures in the future.

Acknowledgements: This work was supported by the research grant of the DST-SERB project (EMR/2016/003963), the Government of India. We thank the PCCF-HoFF and chief wildlife warden, Tamil Nadu, field director, chief conservator of forest, and deputy conservator of forest of the Sathyamangalam Tiger Reserve for granting permission to survey the area as well as for timely help during fieldwork. We also thank the dean, registrar and the director of the Wildlife Institute of India, Dehradun, for their support and encouragement.

References

Kasambe, R. (2018). *Butterflies of Western Ghats.* 2nd Edition. Published by author, 372 pp.

Rao, R.S.P. & M.K.S. Girish (2007). Road kills: Assessing insect casualties using flagship taxon. *Current Science* 92(6): 830–837.

Roshnath, R. & V.P. Cyriac (2013). Way Back Home-Butterfly Roadkills. *Zoo's Print* 28(12): 18–20.

Samways, M.J. (1994). *Insect Conservation Biology*. Chapman & Hall, London, 358 pp.

Sony, R.K. & P.R. Arun (2015). A case study of butterfly road kills from Anaikatty Hills, Western Ghats, Tamil Nadu, India. *Journal of Threatened Taxa* 7(14): 8154–8158.

C.S. Vishnu[1], Chinnasamy Ramesh[2], Vedagiri Thirumurugan[3] & V.P. Uniyal[4]

[1-4] Wildlife Institute of India, Dehradun, Uttarakhand 248001, India.

Email: [2]ramesh.czoo@gmail.com (corresponding author).

Citation: Vishnu, C.S., C. Ramesh, V. Thirumurugan & V.P. Uniyal (2023). Road mortality of Butterflies in the Bhavanisagar-Mettupalayam Road, Sathyamangalam Tiger Reserve, Tamil Nadu, India. Bugs R All #264, In: Zoo's Print 38(3): 03–07.

Bugs R All is a newsletter of the Invertebrate Conservation and Information Network of South Asia (ICINSA)