

## Way Back Home - Butterfly Roadkills

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During a routine walk from our college the authors noticed many butterflies killed on the road during the months of October and November 2013, a period of peak butterfly migratory season. This was from the College of Veterinary and Animal Sciences, Pookode to Vythiri, a small village in the western border of Wayanad District, Kerala on the Calicut - Mysore highway (NH212).

The number of butterflies killed on the roads seemed to greatly increase during the last week of October, which inspired us to count the number of road-killed butterflies in order to have a preliminary assessment of the level of road mortality. The distance between Vythiri and the college is about 1.5km with patches of human habitations, coffee plantations and reed breaks on both sides of the road. The Vythiri stream also runs parallel along the road.

On 29<sup>th</sup> Oct 2013, we collected nearly 206 butterflies hit by vehicles from both sides of the road. Dead butterflies were collected in ziplock bags and a total of nine species were identified; they belong to two families viz., Nymphalidae and Papilionidae. Among the two families Nymphalidae (Crows and tigers) represent the maximum numbers. In terms of species, Blue tigers (*Tirumala septentrionis*) constituted the highest number (n=178). Many host plant *Crotalaria retusa* of blue tigers were located near roadsides, hence increased mortality rate. Other species recorded were Double Banded Crow (*Euploea sylvester*), Common Crow (*Euploea core*), Blue Bottle (*Graphium sarpedon*), Great Egg fly (*Hyplolimnas bolina*), Common Mormon (*Papilio polytes*), Blue Mormon (*Papilio polymnestor*), Common Baron (*Euthalia*



**Figure 1: Dead butterflies collected from the 1.5 km stretch of road between Pookode and Vythiri, Wayanad District, Kerala**



**Figure 2: A dead Double Banded Crow road kill**

*aconthea*) and Common Five-ring (*Ypthima baldus*) (Table.1). The observations were made during the peak butterfly migratory season. Blue tigers are known to migrate from North-east to South-west India during September-November months. Kunte (2005) reported peak butterfly activity between October to January/February at Nilgiris and Anamalai Hills of Southern Western Ghats. In south India

Blue tiger (*Tirumala limniace*), Dark blue tiger (*T. septentrionis*) and the Common Indian crow (*Euploea core*) are some of the most prevalent migrant butterflies (George, 2011). Migration is a big challenge to every creature.

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**Table1: List of Butterfly species that were found dead on the 1.5km stretch of road between Pookode and Vythiri.**

Family	Scientific name	Common name	Dead sp.
Nymphalidae	<i>Tirumala septentrionis</i>	Blue Tiger	178
	<i>Euploea sylvester</i>	Double Banded Crow	12
	<i>Euploea core</i>	Common Crow	8
	<i>Euthalia aconthea</i>	Common Baron	1
	<i>Hypolimnys bolina</i>	Great Egg Fly	1
	<i>Ypthima baldus</i>	Common Five-ring	1
Papilionidae	<i>Papilio polytes</i>	Common Mormon	1
	<i>Papilio polymnestor</i>	Blue Mormon	1
	<i>Graphium sarpedon</i>	Blue Bottle	3
<b>Total</b>			<b>206</b>

During its course many struggle, lose their life, get predated and only the fittest survive to offer next generation. In addition to natural mortality many anthropogenic effects also hinder the migration such as, forest fragmentation, construction of roads, pollution and pesticides.

Roads have pronounced ecological effect on animal movement (Forman and Alexandra, 1998). Increase in road and vehicle have determinable influence on animals that cross roads (Seshadri *et al.*, 2009). Road kills of civets, mongoose and snakes are common in the Wayanad region. During rainy season hundreds of frogs are killed on the stretch of road between Pookode and Vythiri. Road mortality studies in Western Ghats have reported that amphibians are the most affected by vehicular traffic followed by reptiles, mammals and birds (Baskaran and Boominathan, 2010).

Most studies on road kills are focused on more charismatic animals such as large mammals, reptiles, birds and amphibians. Where size does matter, larger animals get noticed easily and in the case of enigmatic animals such as the big cats, it may even raise public concerns. There are studies on road kills of large carnivores and other mammals (Kumara *et al.*, 2000; Gubbi, 2004) and few assessment of road killed herpetofauna (Gokula, 1997; Vijayakumar *et al.*, 2001; Das *et al.*, 2007; Seshadri *et al.*, 2009; Bhupathy *et al.*, 2011). But insects such as butterflies are not paid much attention. Rao and Girish (2007), in their study of road-killed insects in the Bandipur National Park, found a high mortality of dragonflies followed by butterflies and other insects and suggested that butterflies may be considered as a flagship taxon to assess the insect casualties in a much broader road-ecology perspective.

There are many less charismatic invertebrates like millipedes, centipedes, beetles, snails and many other insects which have an immense role in an ecosystem that are being killed on roads daily. However, the levels of road mortality and its impact on the insect fauna has not been sufficiently documented. Butterflies play an important role in the ecosystem; as pollinators, useful in studies of population and community ecology, indicators of healthy ecosystem, study of changes in microclimates and habitats (Pollard, 1991; Kremen, 1992). Dragonflies and some butterflies are known to be attracted to open habitats, forest clearings (Kunte 1997; Kunte *et al.*, 1999) and thus roads being an open area attracts these insects which results in higher mortality (Rao and Girish 2007). A possible method to minimize the effect of roads on migrating butterflies would be through improving tree cover on roadsides to reduce butterfly movement towards roads. However, further detailed studies on such aspects can help better manage and reduce incidences of road mortality.

Roads are an integral part of our development. However, they can have detrimental effects on our faunal diversity. The present study reveals that in only a small portion (1.5km) of the NH212 road there is high incidence of butterfly mortality. Also the samples that were collected in the evening hours might have been scavenged by birds and other animals.

Hence, this data just exemplifies the fraction of butterflies that are killed on road during the migration period and also signifies the impact of roads on small invertebrates. Further scientific studies on the subject can help assess the impact of vehicular traffic on insect populations and also help mitigate the problem.

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## Announcement CBSG Facilitation Training 2014

CBSG will be conducting a Facilitation and Communication Skills Training Course 10–13 March 2014, hosted by the St. Louis Zoo in St. Louis, Missouri. The course is being co-organized by CBSG, CBSG North America, and the St. Louis Zoo.

**Course Description:** This four-day interactive course will provide conservation program managers with an opportunity to learn and practice essential facilitation skills, including decision making, team formation and management, conflict resolution, communication skills, consensus building, and cross-cultural sensitivity. The course will include lectures, case studies, and significant time to practice facilitation skills. This course is being hosted by the St. Louis Zoo and co-organized by CBSG, CBSG North America, and the St. Louis Zoo.

**Dates:** This course will be held March 10 – 13, 2014, at the St. Louis Zoo. Participants should plan to arrive on the evening of 9 March. The course will finish at 5:00 pm on Mar. 13. Participants are asked to remain through the end of the course, and plan their travel schedules accordingly.

### More Information and Registration Forms

For more information about the course contact Elizabeth at [elizabeth@cbsg.org](mailto:elizabeth@cbsg.org). Registration forms can be found at this link: [www.cbsg.org/sites/cbsg.org/files/Facilitation%20and%20Skills%20Course%20Registration%20Form\\_March.docx](http://www.cbsg.org/sites/cbsg.org/files/Facilitation%20and%20Skills%20Course%20Registration%20Form_March.docx)

