



Documentation of Road Killed and Rescued Harpatofauna in and Around Amravati City, Maharashtra

KEYWORDS

Snakes, road killed, rescued, Amravati

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ABSTRACT *The present study deals with the documentation of road killed and rescued harpatofauna in Amravati city as well as territory including some state highways and villages. The documentation of harpatofauna was done by actively searching road killed incidences on state highways as well as rescued reports collected from few NGO's included for this study. The study was done during the month of June to December 2014. Six families were commonly found during the study period i.e. Elapidae, Pythonidae, Colubridae, Boidae, Viperidae and typhlopidae. During the study period, total 2418 snakes were documented from the study area, of which 1660 species were rescued and 758 species were found as road killed. 29 species belonging to six families were recorded with special reference to rare species i.e. Indian egg eater and smooth snake. The resulting occurrence of high road killed and rescued evidence was proved their behavior in-search of the better habitat for food and reproduction purpose.*

Introduction

Roads are an important part played in the human life as social, cultural and economical benefits to the society. In addition, roads can influence the colonization of the human civilization (Young, 1992). Ecological effects of roads have been widely studied in North American and European ecosystems (Forman et al. 2003; Beckmann et al. 2010). A million of vertebrates, invertebrates affected by road accident, for example in Bulgaria five million birds, in Australia five million frogs and reptiles die every year due to the vehicles (Hels and Buchwald, 2001).

Reptiles are one of the vertebrate groups mostly affected by roads (Andrew et al. 2008). Importantly, snakes are slow moving reptiles relative to other animals hence they are highly susceptible to road killed incidence by vehicular collision (Dodd et al. 1989).

In India no such study was came out yet to estimate road killed and rescued rate of snakes. Therefore, this information could be baseline data to implement the biodiversity and conservation plans.

Amravati city and its allied region surrounded with the dry deciduous forest which is one of the richest biodiversity areas because of it directly influenced under the great Satpuda Mountain Ranges. But from 2-3 decades, most land had undergone the development such as civilization, agriculture modification and highways construction destructs the habitation of many species directly or indirectly. Due to all these manmade factors, many species have high mortality rate and becoming major eco-bio-sensitive problems. The aim of present study was to document the records of snakes sighted alive or killed in and around Amravati city, villages and state highways.

Materials and Methods:**Selection of study area**

The area of Amravati city and territory is rich in biodiversity of various flora and fauna with well and dense forestry area. Amravati is located at Altitude 20°32'-21°46'N and Latitude 76°37'-78°27'E in Maharashtra, India. Mainly, the area of Pohra, Chirodi, Wadhona (15,097.242 sq/km), is dry

deciduous forest, covers Amravati territory.

The present work was carried out during the month of June 2014 to December 2014 by active searching of road killed snake species on major highways in and around Amravati city and keeps update record of rescued species by concerned NGO's for the proper documentation.

Road killed snakes were identified with the help of scale count and other morphological characters, snake rescue details were collected from some NGO's. Identification of snakes was done with the help of "Snakes of India" by Whitaker (2004), snakes of Maharashtra and Goa by Nilimkumar Khaire (2012).

Result:

During the study period, a total of 2418 snake species were recorded in and around Amravati city, out of these 1660 species of snake rescued and 758 species were found as road killed (Table no.1). A total of 29 species (Tab. 2) of 27 genera belonging to six families were documented in Amravati city and territory. Based on the above data, Recorded families and their species clearly indicate high richness of harpatofauna in the study area. Among these, family colubridae were recorded maximum 1,748 species, among this 1195 species were found road killed and 553 species documented as rescued. The maximum 121 species were found as road killed in the month of June and rescued 285 in the month of July and minimum in the month of December. Among all the six family, only one species of python was recorded in the month of August (tab.1).

During the study period of six months i.e. June to December, the highest number of rescued incident i.e. 418 were occurred in the month of July and orderly decreases in the months of June, August, September, October, November and December respectively. On the other hand, the highest road killed snakes i.e. 179 were found in the month of June and subsequently decreases from month of July to December. Thus, rescued incidences were higher (Tab. 1) as compared to road killed (tab. 1).

Discussion:

The road killed snake distributed in the 5 major families, i.e. Colubridae, Pythonidae, Elapidae, Viperidae, Typhlopidae and Boidae. Among these family 29 species were recorded as road killed. Bungarus (Krait), coral snake, Bungarus sindanus walli (walls sind krait), were generally found belonging to Elapidae with high density among all other poisonous snake. The species related to family Viperidae have three types viz. Russell's viper (*Daboia russellii*), Saw Scaled viper and bamboo pit viper were recorded as road-killed. Two species of family boidae i.e. red sand boa and common sand boa also recorded as road killed. These two species are rare and have endangered status. Among all these, only one road killed species was recorded from family Pythonidae i.e. Indian rock python. The highest density of road killed species from family Colubridae were recorded in this area during the study period (tab.2).

The collected road killed snake data during the period from month of June to December 2014 provides a clear conclusion of higher mortality rate in Amravati city and territory. The maximum road killed evidence occurred during month of June and August in rainy season. It is caused by the basic instinct of reproduction and searching for new habitat. From the month of September to December, the mortality rate gradually decreases by means of hibernation against the protection of cold. Thus the current study clearly showed the measuring mortality rate that influences the diversity and snake population. Study of snake mortality on road killed as well as activity played to kill these species in human residential area has clearly concluded decreasing faunal diversity.

In comparison to other vertebrates, the Amravati city and allied area has a highest density of road killed snakes in Vidarbha region. The present work provides the first road killed snake species list. Although, some snakes are intentionally killed on roads, most of them are killed accidentally (Rudolph, et al. 1999; Truci and Bernarde, 2009). In accordance, reptile mortality could be reduced by adopting some simple measures such as i) warning sign of crossing animals ii) speed bumps along roads which could reduce road kill animals (Forman and Alexander, 1998). The information of this study could be used as an initial approach for environmental management and conservation programs for the local fauna.

Tab. 1: showed month wise documentation of rescued (Res) and road killed (RK) harpatofauna in and around Amravati city.

Sr. No.	Months	June		July		Aug		Sept		Oct		Nov		Dec	
		Res	RK	Res	RK	Res	RK								
1	Typhlopidae	51	48	97	27	49	27	12	12	18	16	11	07	04	02
2	Boidae	06	01	02	—	09	01	01	01	—	—	01	—	—	—
3	Pythonidae	—	01	—	—	01	—	—	—	—	—	01	—	—	—
4	Colubridae	233	121	265	102	171	79	165	109	141	76	56	47	70	19
5	Elapidae	12	09	12	14	11	06	16	08	06	—	04	01	02	—
6	Viperidae	06	—	22	14	09	02	09	—	13	08	08	01	06	—
Total		375	179	418	157	259	115	233	139	182	100	110	56	82	21

Tab. 2: Check list of documented road killed and rescued harpatofauna from in and around Amravati city

Sr. No.	Family	Generic name	Common Name	
A.	Typhlopidae	Ramphotyphlos braminus	Braminy worm snake	
		Grypotyphlops acutus	Beaked worm snake	
		Typhlops porrectus porrectus	Slender worm snake	
		Typhlops Diardii	Diard worm snake	
B.	Elapidae	Bungarus caeruleus	Common krait	
		Bungarus sindanus walli	Wall's sind krait	
		Naja naja	Cobra	
		Calliophis melanurus	Slender coral snake	
C.	Viperidae	<i>Daboia russellii</i>	Russells viper	
		<i>Echis carinatus</i>	Saw-scaled viper	
		<i>Trimeresurus gramineus</i>	Bamboo pit viper	
D.	Pythonidae	<i>Python molurus molurus</i>	Indian rock python	
E.	Boidae	Gongylophis conicus	Common sand boa	
		Eryx johnii	Red sand boa	
F.	Colubridae	Lycodon aulicus	Common wolf snake	
		Lycodon striatus	Barred wolf snake	
		Lycodon flavomaculatus	Yellow spotted wolf snake	
		Macropisthodon plumbicolor	Green keelback	
		Xenocrophis piscator	Chekered keel-back	
		Amphiesma stolatum	Striped keelback	
		Argerogene faciolata	Banded racer	
		Oligodon arensis	Common kukri snake	
		Oligodon taeniolatus	Ressell's kukri snake	
		Boiga trigonata	Common cat snake	
		Boiga forsteni	Forsten cat snake	
		Dendrolaphis tristis	brozeback tree snake	
		Coelognathus Helena helena	Common trinket snake	
		Coelognathus Helena monticolarius	Common trinket snake	
		Psammophis longifrons	Montane Trinket snake	
		Ahaetulla nusta	Stout sand snake	
		Ptyas mucosus	Common vine snake	
		Sibynophis subpunctatus	Common rat snake	
		Coronella brachyura	Black-headed snake	
		Elachistidon westermanii	Indian smooth snake	
				Indian egg eater

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