

Diversity of Colepteran species in and around Tarubanda village, Gugamal Range, Melghat Tiger Reserve, Central India

V G Thakare and V S Zade

Department of Zoology,
Government Vidarbha Institute of Science and Humanities, Amravati.
zvarsha27@rediffmail.com

ABSTRACT

The present investigation on the coleopteran diversity in and around Tarubanda village, Gugamal Range, Melghat Tiger Reserve was conducted from October 2010 to November 2010. Melghat Tiger Reserve is located as a southern offshoot of Satpuda hill range in central India called Gawilgarh hill in the Indian State of Maharashtra. This village consists of a very diverse type of flora & fauna. A total of 16 species of beetles were collected and examined, out of which 13 species belonging to 6 different families were identified from various habitats.

Keywords: Coleoptera, Beetles, Insecta, Amravati, Tarubanda.

INTRODUCTION

The order Coleoptera (Greek, koleos-Sheath, ptera- wings) which include beetles is the most diverse order of class Insecta (Phylum: Arthropoda). This is the largest group of comparable units among all animals. This is not only the largest group of insect, but has also been a very favourite group of the collectors for a long time, due to their versatile habits, marvelous colouration and sculpture, as well as for their economic importance. India being situated in tropics, is well known for richness of Coleopterous fauna. This order probably contains the largest number of described species. Beetles are found in almost every habitat and range in size from 1-100 mm. It includes more than 3, 50000 identified species and represents about 40% of all insects and 30% of all animals (Choate 2003). The order Coleoptera includes 3,50,000 species, amongst which about 1,5088 species are known from Indian region (Kazmi, 2004). Perhaps the single most important factor in the success of coleopterans is the development of elytra which protect the folded hindwings permitting occupation of encoded spaces and hidden habitats by adult. Beetles are tiny to very large insects of variable shape and color but mostly strongly sclerotized, compact and more or less flattened. The compound eyes are normally conspicuous. Some species have reduced wings (Arnett, 1973). Beetles are exceedingly variable both ecologically and biologically. The majorities of beetle are terrestrial herbivores; many are predatory, frequently with highly specialized host ranges or life cycles (Forest Science Project (FSP) Technical Report). While the identity and activity of a

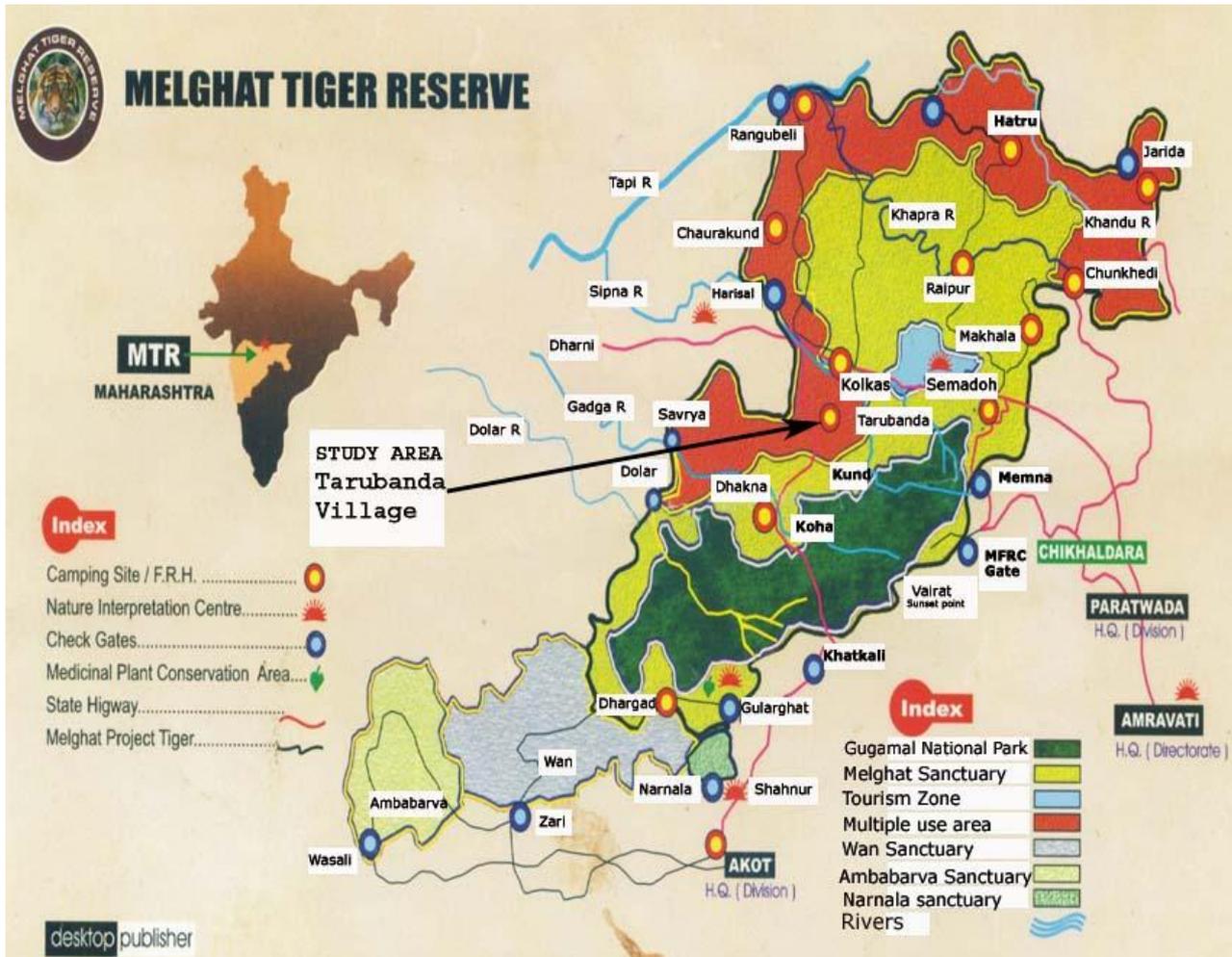
few of the forest beetles are well known, most of those, other than the major pests, have been little studied. Their complex ecosystem roles have not been determined. Although some of this deficiency is owing to a general lack of emphasis on total ecosystem function and dynamics, it is well known that lack of identification manuals has severely hindered studies of the whole beetle component of forest diversity (Project Report; Beetle Families of British Columbia, Project Number: Y051001). The diversity study of beetles of Amravati region is relatively untouched field; hence an effort was made to study the abundance and diversity of beetles in the study area.

MATERIALS AND METHODS:

I) Study area:

The Tarubanda village in the Gugamal Range of Melghat Tiger Reserve was selected as a study area. This village consists of a very diverse type of flora & fauna. Melghat Tiger Reserve is located as a southern offshoot of Satpuda hill range in central India called Gawilgarh hill in the Indian State of Maharashtra. Presently the total area of the Reserve is around 1677 sq. km. The forest is tropical dry deciduous in nature dominated by teak *Tectona grandis*. A survey of beetles was undertaken in the study area along five different transects

- Transect I** - Area containing the river.
- Transect II** - Dry area with shrubs.
- Transect III** - Area predominant with teak trees (*Tectona grandis*)
- Transect IV** - The area containing dung patches
- Transect V** - Forest Rest House Premises



II) Collection and identification of beetles:

In order to adequately sample the beetles from various habitats, a wide variety of collecting and trapping methods were used. Most beetles are harmless and were collected by hand. Butterfly nets were employed for catching flying beetles. A simple umbrella method was used for collecting beetles from trees. Some beetles were collected during night with the help of light traps with a source of white light. Dung beetles from the family Scarabaeidae were collected from the dung with the help of forceps.

RESULTS AND DISCUSSION:

Out of 16 specimens collected, 13 species of beetles were identified. The checklist of beetles, their habitat and status is given in Table I. In present study diversity of beetles of 6 different families were recorded. Out of 22 collected specimens, 12 species belonging to 6 different families were identified. A preliminary study was conducted on beetles of Kalatop-Khanjjar Wildlife Sanctuary, Himachal

Pradesh and enumerated 18 species to 16 genera over nine families (Sharma *et al.* 2004). The Coleopteran fauna from the Indian Thar Desert, Rajasthan was examined (Kazmi *et al.*, 2004) in which 102 species of 13 different families were recorded.

Aquatic coleoptera (Insecta) belonging to 40 taxa in 7 families of streams in the Nizke Beskydy Region (Slovakia) were studied (Zatovicova *et al.*, 2004). In the present study, 3 water beetles in 2 different families were recorded. 5 species of Scarab beetles were recorded in this study. The scarab beetles of Bandhavgarh National Park, Madhya Pradesh were studied (Chandra *et al.*, 2005). The Pleurostict Scarabaeidae from the great Himalayan National Park, Himachal Pradesh, India was examined (Chandra *et al.*, 2007). Biodiversity pattern of cavernicolous ground beetles and their conservation status in the Azores were studied (Borges *et al.*, 2007) in which total 10 species were studied. In the present study 2 ground beetles (Coleoptera: Carabidae) were recorded from the study area.

Table I: Checklist of beetles, their habitat and status in & around Tarubanda village, Gugamal Range, Melghat Tiger Reserve, Central India

Family/ Genus	Occurrence	Status
Hydrophilidae		
<i>Sternolophus rufipes</i>	Transect I	C
Gyrinidae		
<i>Dineutus indicus</i>	Transect I	C
Dytiscidae		
<i>Sandracottus dejeanii</i>	Transect I	C
<i>Hydaticus vittatus</i>	Transect I	R
Tenebrionidae		
<i>Opatrum</i> sp.	Transect III	C
Carabidae		
<i>Calosoma orientale</i>	Transect II	C
<i>Chaenius</i> sp. 1	Transect II	R
<i>Chaenius</i> sp. 2	Transect III	C
<i>Scarites</i> sp.(Fabricius)	Transect V	R
Scarabaeidae		
<i>Onthophagus catta</i>	Transect IV	C
<i>Onthophagus dama</i>	Transect IV	C
<i>Onitis</i> sp.	Transect IV	R
<i>Chiloloba acuta</i>	Transect I	C

C- COMMON

R- RARE

ACKNOWLEDGEMENT

We are thankful to Department of Science & Technology, Government of India for providing funding to the Ph.D. program in the form of INSPIRE Fellowship.

The authors are grateful Director & experts of Zoological Survey of India (ZSI), Central Zone Regional Centre, Jabalpur, and Madhya Pradesh,

India for their assistance and help in identification of scarab beetles. Special thanks to The Principal Chief Conservator of Forest (PCCF), Government of Maharashtra and Conservator of Forest, Melghat Tiger Reserve, Amravati for giving necessary permission to enter and resides in Melghat Tiger Reserve, Amravati for the purpose of collection of beetles for Ph.D. work.

LITERATURE CITED

- Arnett RH Jr, 1973.** Beetles of the U.S.A. manual for identification, American Entomological Institute, *Ann Arbor MI*. 1112 PP.
- Borges AV, Oromi P, Serrano RM, Amorim IR and Pereiara F, 2007.** Biodiversity patterns of cavernicolous ground beetles and their conservation status in the Azores with the description of a new species : *Trechus isabelae* n.s.p. (Coleoptera : Carabidae : Trechinae). *Zootaxa*, **1478**: 21-31.
- Chandra K and Ahirwar SC, 2005.** Scarabaeid beetles of Bandhavgarh National Park, Madhya Pradesh. *Zoos' print journal*, **20** (8): 1961-1964.
- Chandra K, 2007.** On a collection of pleurostict Scarabaeidae (Coleoptera) from the Great Himalayan National Park, Himachal Pradesh, India. *Zoos' print journal*, **22** (9): 2821-2823.
- Choate PM, 2001.** *Manual for identification of the ground beetles* (Coleoptera : carabidae) (including tiger beetles) of Florida.
- Kazmi SI and Ramamurthy VV, 2004.** Coleoptera (Insecta) fauna from the Indian Thar Desert. Rajasthan. *Zoos' print journal*, **19** (4): 1447-1448.
- Sharma RM, Mulganina M and Chakraborty P, 2004.** Beetles of Kalotop Khanjjiar Wildlife Sanctuary, Himachal Pradesh. *Zoos' print journal*, **19** (9): 1626.
- Zatovicova Z, Ciampor F and Kodada J, 2004.** Aquatic coleoptera (Insecta) of streams in the Nizke Beskydy Region (Slovakia): faunistics, ecology and comparison of sampling methods. *Biologia*. Bratislava, 59/ Suppli. **15**: 181-189.