



Fifty Six New Records of Insect Faunal Species from Teak-Sal Ecotone of Pachmarhi Biosphere Reserve (Pbr), Madhya Pradesh, India

KEYWORDS

Pachmarhi Biosphere Reserve, Orthoptera, Odonata, Hemiptera, Coleoptera, Lepidoptera, Hymenoptera, Vaspidae, Teak –Sal ecotone , Insecta, Fauna of Pachmarhi Biosphere Reserve.

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ABSTRACT A check list of 66 identified insect fauna species with 56 new record belonging to orders Orthoptera, Odonata, Hemiptera, Coleoptera, Lepidoptera, Hymenoptera and Vaspidae form Teak – Sal ecotone in PBR, M.P. is given.

INTRODUCTION-

Pachmarhi Biosphere Reserve (PBR) area is known as "Genetic Express Highway" because it joins two biological hot spots of the country viz. Eastern Himalayas and Western (Anonymous, 1996). It includes three wildlife conservation areas viz. Bori Sanctuary, Satpura National Park and Pachmarhi Sanctuary (Anonymous, 1996). The area has a typical monsoon climate with three distinct seasons of summer, rainy season with heavy rains and cloudy climate and winter (Anonymous, 2001). The mean daily maximum temperature ranges from 26°C to 250°C depending upon season 0.0 to 420°C and minimum 9.7°C. It has seven kinds of forest viz. South Indian moist, Teak forest, South Indian Slightly Moist Teak Forest, South Indian Moist Mixed Forest, Southern Tropical Dry Teak Forest, Southern Tropical Dry Mixed Deciduous Forest, Northern Dry Peninsular Sal Forest, Central Indian Sub Tropical Hill Forest (Chandra, 2009) and also occur five types of floral community organizations due to differences in topographical situation, soil and micro-climatic set-up the Sal forest dominated by *Shorea robusta* at the top of the hills, the mixed evergreen forest in the middle zones of the hills and around the Pachmarhi plateau dominated by *Mangifera indica*, *Terminalia tomentosa*, *Terminalia bellerica*, *Sygygium cumini* and *Anogeissus latifolia*, the mixed dry deciduous forest dominated by good quality of teak (*Tectona grandis*) at low region and associated with *Albizia lebbbeck*, *Chloroxylon swietenia*, *Pterocarpus marsupium*, *Terminalia tomentosa* etc, the grassland and meadow vegetations on the flat plateau dominated by perennial grasses like, *Andropogon pumatus*, *Heteropogon contortus*, *Themeda triandra*, *Cymbopogon martinii*, *Pseudosorghum helepense* etc.(Pathak, 2001). Hence it is rich spot of wild life habitat. The taxonomic profile generated by ZSI in a book published named "Fauna of Pachmarhi Biosphere Reserve" (2009) on the faunal species of group viz , Annelida, Mollusca, Solifugae, Araneae, Scopinida, Scolopendromorpha, Plant mites, Dictyoptera, Mantoda, Odonata, Demeptera, Orthoptera, Hemiptera, Thysanoptera, Lepidoptera, Coleoptera, Hymenoptera, Fishes, Amphibia, Reptilia Aves, Mammalia . Among these studied groups, 217 species are belong to class insecta. Therefore this study had been undertaken for reveling diversity pattern of insect faunal species in PBR.

MATERIAL AND METHOD

The Pachmarhi Biosphere Reserve lies in between latitude 22° 11' to 22° 56' N and 77° 47' to 78° 52' E and altitude varies from 320 to 1352 m above MSL at different locations (Anonymous, 2001). Faunastic survey (2011-14) was made in different locations Mahadev Hills, Matkuli, Dhoop Grahbarrier, and Handikho in PBR. Insects collected during surveys using various methods in PBR, insects samples were identified by following authorized institutes: Zoological Survey of India (ZSI), Jabalpur and Forest Entomology Division, Tropical Forest Research Institute, Jabalpur. Identification work is important in point of view of taxonomical record of as wild life macro and micro insect fauna and documents well as useful in biodiversity conservation.

OBSERVATION AND RESULT:

Present data (table - 2) deals with 66 species of insect fauna of Teak – Sal ecotone in PBR, M.P. Among of these 56 species is new record (Graph 2). Data (table -2) also indicates no.s. of newly recorded species (table-01) as ; 24 of Lepidoptera followed by 09 of Coleptera, 08 of Hemiptera, 07 of Odonata, 06 of Orthoptera, 03 of Hymenoptera and 02 of Vaspidae. Earlier a few species were identified of the orders viz. 14 of Odonata (Prasad. and Mishra 2009), 54 of Orthoptera (Gupta and Shishodhia, 2009), 31 of Hemiptera (Chandra 2009) 79 of Lepidoptera - Rhopalocera (Singh and Kostha, 2009) , 37 of Lepidoptera-Hetroera (Singh and Kostha, 2009), 95 of Coleoptera, 15 of Hymenoptera .Therefore present data will be use in increase new addition in insect faunal species in account of Pachmarhi Biosphere Reserve, Madhya Pradesh.

Table 1: A check list of 69 identified (2011-14) insect fauna species form Teak – Sal Ecotone in PBR.

S.N	Suborder/InfraOrder/ Super Family/ Family/ Species	No. of Ex.	Collection Localities	Date of Collection
	Order - Orthoptera Sub Order – Caelifera Family – Tettigonidae Subfamily – Phaneropterinae			
1	<i>Scudderia furcata</i> (Braner)*	01	Pachmarhi	X.IX. MMXII

	Super Family – Tetrigonidae			
	Family – Tetrigadae			
2	<i>Tetrix arenosa</i> (Hancock)*	01	Mahadev Hill	X.IX. MMXII
	Super Family – Grylloidea			
	Family – Gryllidae			
	Family –Aerididae			
3	<i>Hieroglyphus banian</i> (Fabricius)*	01	Mahadev Hill	X.IX. MMXII
4	<i>Gryllus assimilis</i> (Fabricius)*	01	Pachmarhi	X.IX. MMXII
	Family – Gryllotalpidae	01	Matkuli	X.IX. MMXII
5	<i>Gryllotalpa hexadectylla</i> (Petery)*	01	Matkuli	X.IX. MMXII
	Order – Odonata			
	Super Family – Coenagrionoidea			
	Family – Coenagrionidae			
	Sub family – Pseudagrionnie			
6	<i>Ceragrion coromandelianum</i> * (Fabricius)	01	Handi Kho	X.IX. MMXII
7	<i>Aciagrion sp.*</i>	01	Handi Kho	X.IX. MMXII
	Sub order – Anisoptera			
	Super Family – Libelluloidea			
	Family – Libellulidae			
	Sub Family – Libellulinae			
8	<i>Orthetrum sabina</i> (Drury)	01	Handi Kho	X.IX. MMXII
9	<i>Potarmarcha congener</i> (Ram) *	01	Handi Kho	X.IX. MMXII
10	<i>Crocotthemis servilia servilia</i> (Drury) *	01	Handi Kho	X.IX. MMXII
11	<i>Diplacodes trivialis</i> (Ramber)*	02	Handi Kho	X.IX. MMXII
	Sub Family – Symptetrinae			
12	<i>Neurothemis tullia tullia</i> (Drury) *	01	Handi Kho	X.IX. MMXII
13	<i>Rhyothemis variegata variegata</i> (Linnaeus) *	02	Handi Kho	X.IX. MMXII
	Sub family : Trameniae			
14	<i>Pantala flavescens</i> (Fabricius)	01	Handi Kho	X.IX. MMXII
15	<i>Tamea basilaris burmisteri</i> (Kirby)	01	Handi Kho	X.IX. MMXII
	Sub family : Urothemistinae			
16	<i>Urothemis Signata</i> (Ramber) *	01	Handi Kho	X.IX. MMXII
	Order – Hemiptera			
	Family – Reduvillae			
	Sub Family – Stenopodainae			
17	<i>Oncocephalus schioedtei</i> (Reuter) *	01	Handi Kho	X.IX. MMXII
18	<i>Riptortus linerris</i> (Fabricius)	01	Handi Kho	X.IX. MMXII
19	<i>Ectrychotes dispar</i> (Reuter)	01	Handi Kho	X.IX. MMXII
	Family –Lygaeidae			
20	<i>Metochus uniguttatus</i> (Thun) *	01	Handi Kho	X.IX. MMXII

	Family – Phyrhocoridae			
21	<i>Dysdercus koenigii</i> (Fabricius)*	01	Handi Kho	X.IX. MMXII
	Family – Cydnidae			
22	<i>Cydnus indicus</i> (Wetwood)*	01	Handi Kho	X.IX. MMXII
	Family – Fulgoridae			
23	<i>Dictyophara lineate</i> (Don.)	01	Dhoopgraha	X.IX. MMXII
	Order – Coleoptera,			
	Super Family-Scrabaeoidea			
	Family – Scarabaeidae			
	Sub Family – Scarabidae			
24	<i>Onthophagus dama</i> (Fabricius)*	02	Dhoopgraha	X.IX. MMXII
25	<i>Onitis philemon</i> (Fabricius)*	01	Dhoopgraha	X.IX. MMXII
26	<i>Onthophagus sp.*</i>	01		
	Family – Dynastide			
27	<i>Alissonotum sp.</i> (Arrow)*	01	Dhoopgraha	X.IX. MMXII
	Sub Family – Ruteline	01	Dhoopgraha	X.IX. MMXII
28	<i>Anomala sp.*</i>	01	Pachmarhi	X.IX. MMXII
	Suborder – Polyphoga			
	Infra order – Scarabeiformia			
	Super Family – Scarabaeoidea			
	Family – Scarabaeidae			
29	<i>Adoretus sp.*</i>	01	Mahadev Hill	
	Family – Melolonthidea			
30	<i>Halotrichia Scalpticalis</i> (Balchand)*	02	Dhoopgraha Barrier	X.IX. MMXII
31	<i>Hyplocerembix Spinicorni</i> *	01	Dhoopgraha Barrier	X.IX. MMXII
	Subfamily – Melolonthinae			
32	<i>Holotrichia sp</i> (Hope 1837)*	01	Dhoopgraha Barrier	X.IX. MMXII
	Family – Cerambycidae			
	Order – Lepidoptera	01	Dhoopgrah Barrier	X.IX. MMXII
	Family – Papilionidae			
33	<i>Papilio demoleus</i> (Linn.)*	01	Pachmarhi	X.IX. MMXII
	Family – Pieridae			
34	<i>Eurema briggitta</i> (cramer)	03	Parchmarhi	X.IX. MMXII
35	<i>Eurema hecabae</i> (Linn)	03	Pachmarhi	X.IX. MMXII
	Sub-Family – Caliodinae	01	Pachmarhi	X.IX. MMXII
36	<i>Catopsilia sp.*</i>	01	Pachmarhi	X.IX. MMXII

	Family – Nymphalidae			
37	<i>Danus chrysippus</i> (Linn.)*	01	Pachmarhi	X.IX. MMXII
38	<i>Melatis leda</i> (Linn.)*	01	Pachmarhi	X.IX. MMXII
39	<i>Junnonia alamana</i> (Linn.)*	01	Pachmarhi	X.IX. MMXII
40	<i>Junonia atlites</i> (Linn.)*	01	Pachmarhi	X.IX. MMXII
41	<i>Junonia lemonias</i> Linn.	01	Pachmarhi	X.IX. MMXII
42	<i>Phalanta phalantha</i> (Drury)*	01	Pachmarhi	X.IX. MMXII
	Subfamily – Satyrinae			
43	<i>Yptima</i> sp *	01	Pachmarhi	X.IX. MMXII
	Family – Hesperidae			
44	<i>Spialia galba</i> (Fabricius)	01	Pachmarhi	X.IX. MMXII
	Family – Noctuidae			
45	<i>Chrysodeixis eriosoma</i> (Doubleday)*	01	Pachmarhi	X.IX. MMXII
46	<i>Dysgonia</i> sp. *	01	Pachmarhi	X.IX. MMXII
47	<i>Mocis undata</i> (Fabricius)*	01	Pachmarhi	X.IX. MMXII
48	<i>Otheris fullonia</i> (Linn)*	02	Pachmarhi	X.IX. MMXII
49	<i>Spodoptera litura</i> (Fabricius)*	01	Pachmarhi	X.IX. MMXII
50	<i>Spirama retorta</i> (Clerk)*	01	Pachmarhi	X.IX. MMXII
51	<i>Trigonodes hyppasia</i> (Cramer)*	01	Pachmarhi	X.IX. MMXII
	Family – Arcthiidae			
52	<i>Amamta</i> sp.*	01	Pachmarhi	X.IX. MMXII
53	<i>Cretonotus gangis</i> (Linn)*	01	Pachmarhi	X.IX. MMXII
54	<i>Macrobroschis gigas</i> (Walker)*	01	Pachmarhi	X.IX. MMXII
	Family – Sphingidae			
55	<i>Agrius convolvuli</i> (Linn)*	01	Pachmarhi	X.IX. MMXII
56	<i>Theretra oldenlandiae</i> (Fab) *	01	Pachmarhi	X.IX. MMXII
	Family – Crambidae			
57	<i>Parotis</i> sp.*	01	Handikho	IV.XII. MMXI
58	<i>Eutectona Machaeralis</i> (Walker)*	01	Matkuli	IV.XII. MMXI
59	<i>Clania crameri</i> (Westwood)*	01	Matkuli	IV.XII. MMXI
	Order – Hymenoptera			
	Suborder – Apocrita			
	Family – Apoidea			
	Sub family – Apinae			
	Subfamily – Apinae			
60	<i>Apis</i> sp*	02	Mahadev Hill	X.IX. MMXII
	Family – Formicidae			
61	<i>Myrmica</i> sp (Latrelli) *	01	Dhoopgraha Barrier	X.IX. MMXII
	Subfamily-Formicinae			
62	<i>Camponotus</i> sp.*	01	Dhoopgraha Barrier	X.IX. MMXII
63	<i>Lasius niger</i> (Linn.) *	01	Dhoopgraha Barrier	X.IX. MMXII
	Family-Vespidae			
	Subfamily-Polistinae			
64	<i>Polistes</i> sp *	01	Dhoopgraha Barrier	X.IX. MMXII

65	<i>Thethredo</i> sp*	01	Dhoopgraha Barrier	X.IX. MMXII
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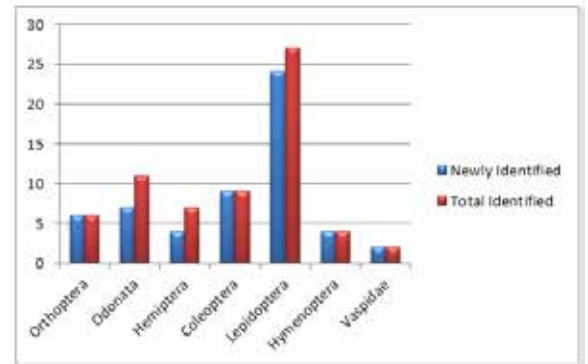
(Note - Where * for new record)

Summary :

Entomofaunal survey made for documenting insect faunal species. Fifty six new of insects fauna records are additional to Pachmarhi Biosphere Reserve, Madhya Pradesh. Thus status of documented insect faunal species reached up to 273. But still ,there is needed documentation of insect biodiversity for conservation planning, protected area justification and design, and development of management plans, the rich biodiversity of the insect species in PBR. Documentation would be use full to conserve protect and maintain the biological health PBR.

Table 2: No of species identified belonging to different order from Teak –Sal ecotone in PBR.

Order	Newly Identified	Total Identified
Orthoptera	6	06
Odonata	7	11
Hemiptera	04	07
Coleoptera	9	09
Lepidoptera	24	27
Hymenoptera	4	4
Vaspidae	2	02
Total	56	66



Graph 1: Identified species of different order from Teak –Sal ecotone in PBR

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REFERENCE

- Anonymous,(1996).Pachmarhi Biosphere Reserve, Project Document,by Environmental Planning & Coordination Organization, Bhopal. | | Anonymous,(2001).Biosphere Reserve Information Service (BRIS) Published by Environmental Planning & Coordination Organization (EPCO), Bhopal.Vol. I) :1.68. | | Chandra, K. and Ahirwar, S.C.,(2007). Insecta: Coleoptera: Scarabaeidae. In Zoological Survey of India, Fauna of Madhya Pradesh (including Chhattisgarh), State Fauna Series, 15 (Part-1): 273-300. | | Prasad, M . and Mishra S.K. (2009). Insecta: Odonata. (Editor- Director) .In. Fauna of Pachmarhi Biosphere Reserve, (Madhya Pradesh) Conservation Area Series, by Director, Zoological survey of India, Kolkata, 39, pp.203-212. | Gupta,S.K. and Shishodhia, M.S.(2009). Insecta: Orthoptera. (Editor- Director) .In. Fauna of Pachmarhi Biosphere Reserve, (Madhya Pradesh) Conservation Area Series, by Director, Zoological survey of India, Kolkata, 39, pp.213-246. | Chandra, K.(2009). Insecta: Hemiptera. (Editor- Director) .In. Fauna of Pachmarhi Biosphere Reserve, (Madhya Pradesh) Conservation Area Series, by Director, Zoological survey of India, Kolkata, 39, pp.247-257. | Singh,R.K. and Kostha, M.L.(2009). Insecta: Lapidopter : Rhopalocera .(Editor- Director) .In. Fauna of Pachmarhi Biosphere Reserve, (Madhya Pradesh), Conservation, Area Series, by Director, Zoological survey of India, Kolkata, 39, pp.247-257. | Pathak S.(2001).Pteridophyta flora of Pachmarhi Hills .M.P. Ph.D.Thesis, Vikram University Ujjain.M.P. | Singh B.P. Upadhyay R. (2010). Observation on some fern of Pachmarhi Biosphere Reserve in traditional veterinary uses .Indian fern J.27: 94 - 100. | Chandra, K. (2009). Insecta: Lapidopter : Heteropcera. (Editor- Director) .In. Fauna of Pachmarhi Biosphere Reserve, (Madhya Pradesh) Conservation Area Series, by Director, Zoological survey of India, Kolkata, 39, pp.247-25. | Chandra, K.(2009). (Editor- Director) In. Fauna of Pachmarhi Biosphere Reserve, (Madhya Pradesh) Conservation Area Series, by Director, Zoological survey of India, Kolkata, 39, pp.247-25.