



## 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 insect fauna species belonging to orders Orthoptera, Odonata, Hemiptera, Coleoptera, Lepidoptera, Hymenoptera and Vaspidae with 56 new record form Teak – Sal ecotone of 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). 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 and Central Indian Sub Tropical Hill Forest (Chandra, 2009). It 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 lebbek*, *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). PBR has unique transition zone of teak and sal forest ecosystems called as Teak – Sal ecotone. 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.

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). Identification work is important in point of view of taxonomical record of macro and micro insect faunas. Documents is also useful in biodiversity conservation. Therefore faunastic survey (2011- 14) was made in different locations viz Mahadev Hills, Matkuli, Dhoop Grahbarrier, and Handikho in PBR. Insects samples were collected during surveys using various methods, and identified by following authorized institutes: Zoological Survey of India (ZSI), Jabalpur and Forest Entomology Division, Tropical Forest Research Institute, Jabalpur.

### 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 numbers of newly recorded species (table-01) as ; 24 of Lepidoptera followed by 09 of Coleoptera, 08 of Hemiptera, 07 of Odonata, 06 of Orthoptera, 03 of Hymenoptera and 02 of Vaspidae. Earlier a few species were reported 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 additional to number of documented species in account of PBR, M.P.

**Table 1: A check list of 66 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

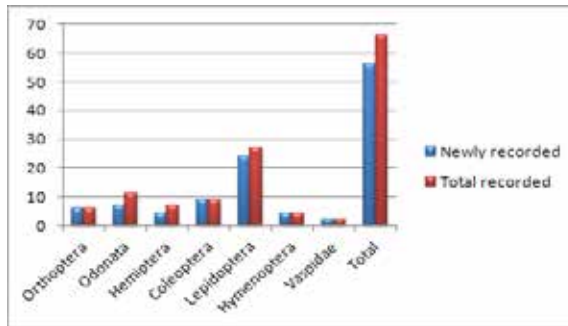
	Super Family – Tetrigonidae Family – Tetrigadae			
2	<i>Tetrix arenosa</i> (Hancock)*	01	Mahadev Hill	X.IX.MMXII
	Super Family – Grylloidea Family – Gryllidae Family -Aerididae			
3	<i>Hieroglyphus banian</i> *	01	Mahadev Hill	X.IX.MMXII
4	<i>Gryllus assimilis</i> (Fabricius)*	01	Pachmarhi	X.IX.MMXII
	Family – Gryllotalpidae	01	Matkuli	X.IX.MMXII
5	<i>Gryllotalpa hexadectylla</i> (Petery)*	01	Matkuli	X.IX.MMXII
	Order – Odanata Super Family – Coenagrionoidea Family – Coenagrionidae Sub family – Pseudagrionnie			
6	<i>Ceriagrion coromandelianum</i> * (Fabricius)	01	Handi Kho	X.IX.MMXII
7	<i>Aciaqrion sp.*</i>	01	Handi Kho	X.IX.MMXII
	Sub order – Anisoptera Super Family – Libelluloidea Family – Libelludidae 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>Crocothemis servilia servilia</i> (Drury) *	01	Handi Kho	X.IX.MMXII
11	<i>Diplacodes trivialis</i> (Ramber)*	02	Handi Kho	X.IX.MMXII
	Sub Family – Sympetrinae			
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 flavencens</i> (Fabricius)	01	Handi Kho	X.IX.MMXII
15	<i>Tramea 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 – Stenapodainae			
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 uniguttattus</i> (Thun) *	01	Handi Kho	X.IX.MMXII
	Family – Phyrhcoridae			
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-Scarabaeoidea Family – Scarabaeidae Sub Family – Scarabidae			
24	<i>Onthophaqus dama</i> (Fabricius)*	02	Dhoopgraha	X.IX.MMXII
25	<i>Onitis philemon</i> (Fabricius)*	01	Dhoopgraha	X.IX.MMXII
26	<i>Onthophaqus 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	Halotrichia scalpticalis (Balchard)*	02	Dhoopgraha Barrier	X.IX.MMXII
31	Hoplocermyx spinicornis (Newn)*	01	Dhoopgraha Barrier	X.IX.MMXII
	Subfamily – Melolonthinae			
32	Holotrichia sp (Hope 1837)*	01	Dhoopgraha Barrier	X.IX.MMXII
	Family – Cerambycidae			
	Order – Lepidoptera	01	Dhoopgraha Barrier	X.IX.MMXII
	Family – Papilionidae			
33	Papilio demoleus (Linn.)*	01	Pachmarhi	X.IX.MMXII
	Family – Pieridae			
34	Eurema briggitta (cramer)	03	Pachmarhi	X.IX.MMXII
35	Eurema hecabrae (Linn)	03	Pachmarhi	X.IX.MMXII
	Sub-Family – Caliodinae	01	Pachmarhi	X.IX.MMXII
36	Catopsilia sp.*	01	Pachmarhi	X.IX.MMXII
	Family – Nymphalidae			
37	Danus chrysippus (Linn.)*	01	Pachmarhi	X.IX.MMXII
38	Melatis leda (Linn.)*	01	Pachmarhi	X.IX.MMXII
39	Junonia almana (Linn.)*	01	Pachmarhi	X.IX.MMXII
40	Junonia atlites (Linn.)*	01	Pachmarhi	X.IX.MMXII
41	Junonia lemonias Linn.	01	Pachmarhi	X.IX.MMXII
42	Phalanta phalantha (Drury)*	01	Pachmarhi	X.IX.MMXII
	Subfamily – Satyrinae			
43	Yptima sp *	01	Pachmarhi	X.IX.MMXII
	Family – Hesperidae			
44	Spialia galba (Fabricius)	01	Pachmarhi	X.IX.MMXII
	Family – Noctuidae			
45	Chrysodeixis eriosoma (Doubleday)*	01	Pachmarhi	X.IX.MMXII
46	Dysgonia sp. *	01	Pachmarhi	X.IX.MMXII
47	Mocis undata (Fabricius)*	01	Pachmarhi	X.IX.MMXII
48	Otheris fullonia (Linn)*	02	Pachmarhi	X.IX.MMXII
49	Spodoptera litura (Fabricius)*	01	Pachmarhi	X.IX.MMXII
50	Spirama retorta (Clerk)*	01	Pachmarhi	X.IX.MMXII
51	Trigonodes hyppasia (Cramer)*	01	Pachmarhi	X.IX.MMXII
	Family – Arctiidae			
52	Amamta sp.*	01	Pachmarhi	X.IX.MMXII
53	Cretonotus gangis (Linn)*	01	Pachmarhi	X.IX.MMXII
54	Macrobrochis gigas (Walker)*	01	Pachmarhi	X.IX.MMXII
	Family – Sphingidae			
55	Agrus convolvuli (Linn)*	01	Pachmarhi	X.IX.MMXII
56	Theretra oldenlandiae (Fab) *	01	Pachmarhi	X.IX.MMXII
	Family – Crambidae			
57	Parotis sp.*	01	Handikho	IV.XII.MMXI
58	Eutectona Machaeralis (Walker)*	01	Matkuli	IV.XII.MMXI
	Family: Psychidae			
59	Clania crameri (Westwood)*	01	Matkuli	IV.XII.MMXI
	Family – Hyblaeidae			
60	Hyblaea puera (Cram.)	01	Dhoopgraha Barrier	X.IX.MMXII
	Order – Hymenoptera			
	Suborder – Apocrita			
	Family – Apoidea			
	Sub family – Apinae			
	Subfamily – Apinae			
61	Apis sp*	02	Mahadev Hill	X.IX.MMXII
	Family – Formicidae			
62	Myrmica sp (Latrelli) *	01	Dhoopgraha Barrier	X.IX.MMXII
	Subfamily-Formicinae			
63	Camponotus sp.*	01	Dhoopgraha Barrier	X.IX.MMXII
64	Lasius niger (Linn.) *	01	Dhoopgraha Barrier	X.IX.MMXII
	Family-Vespidae			
	Subfamily-Polistinae			
65	Polistes sp *	01	Dhoopgraha Barrier	X.IX.MMXII
66	Thethredo sp*	01	Dhoopgraha Barrier	X.IX.MMXII

**Summary :**

Entomofaunal survey made for documenting insect faunal species. Fifty six new of insects fauna records are additional to PBR M.P.. 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 and maintain the biological health of PBR

Order	Newly re-corded	Total recorded
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: Recorded insect 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. |