SOME OBSERVATIONS ON BUTTERFLIES OF SIMBALBARA WILDLIFE SANCTUARY, HIMACHAL PRADESH

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Introduction

The sheer beauty and diversity of butterflies have attracted both collectors and naturalists alike. Besides having an aesthetic appeal butterflies form an important component of the food chain of birds, reptiles, spiders, and predatory insects. Their role as pollinators is a major one (Balasubramanian, 1992). They are also sensitive to changes in temperature, weather conditions and habitat disturbance and thus serve as good indicators of environmental change. (Sparrow *et al.*, 1994 and Haribal, 1992). The butterfly fauna of India is rich with over 1500 species which is close to 9% of the total butterfly species of the world (Kunthe, 2000). Out of these about 417 species are reported from the Western Himalayan region (Singh, 1999).

The Shivalik landscape (29°57′ to 31°20′ N Lat. and 77°35′ to 79°20′ E), which is also called the Sub-Himalaya, is aligned more or less parallel to Himalayas. They are separated from the lesser Himalayas by flat valley areas called duns and they are formed by debris brought down during the formation of Himalayas. The climate of this region is tropical and subtropical in nature. There were few studies on butterflies in this unique landscape (Singh, 1999), however, there was no study on the butterflies from the western part of the Shivaliks. Hence, a study aimed to document the butterfly species composition and richness in the Western Shivaliks was carried out in the Sibalbara Wildlife Sanctuary, Himachal Pradesh (Sirmaur District).

Study Area - Simbalbara Wildlife Sanctuary (SWLS)

1. Topography : The SWLS (30° 24′ 21″ N; 77° 27′ 18″ E to 30° 28′ 13″ N; 77° 31′ 26″) is located in the Poanta valley (Sirmaur District), which is considered the western limit of Sal (*Shorea robusta*), in India. This is one of the few sanctuaries without human population, however, it has about 35 villages bordering it along its south and south - western periphery. It covers an area of 19.03 km^2 (Fig.1). This area is a representative of the lower Shivalik region and lies in the boundary of the peninsular plains and the main Shivalik system. The flora, fauna and physical features show affinities to Western Himalaya, Punjab Plains and Upper Gangetic plains. It is present in the biogeographic province 4A (Rodgers and Panwar, 1988).

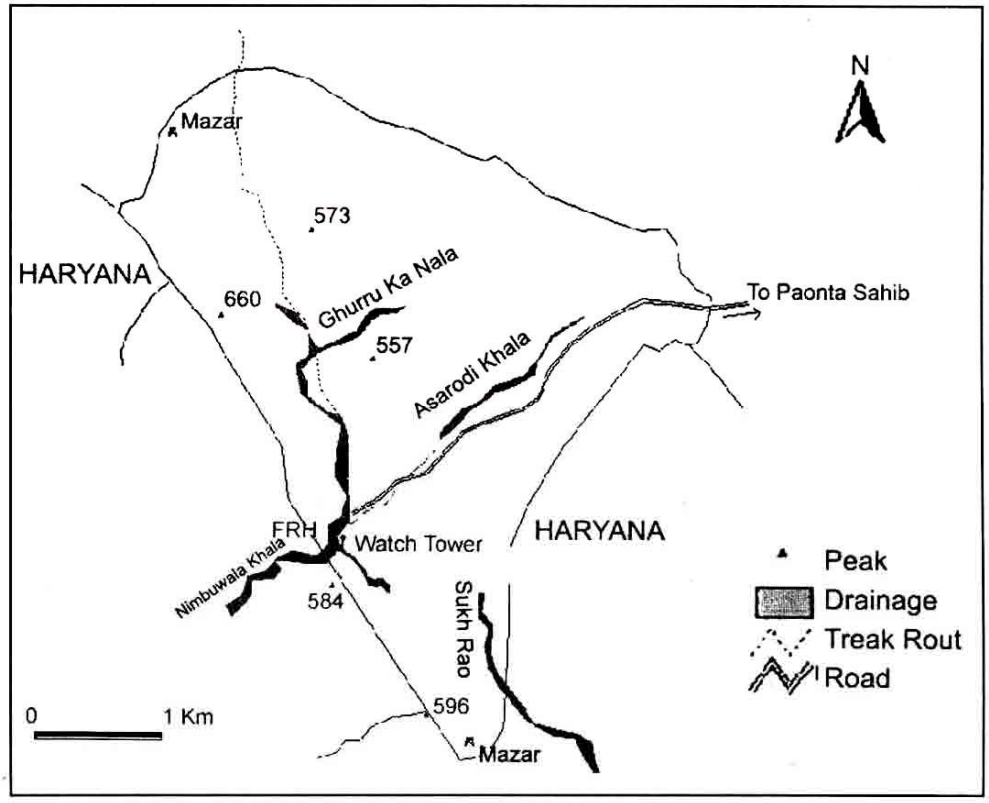
2. Climate : The altitudinal range is about 350 m to 700 m above msl. Temperature ranges from 10°C to 46°C with a mean annual rainfall of 1260 mm. The relative humidity varies from

100% during monsoon to 26% in summer (Singh *et al.*, 1990). The hills are composed of unconsolidated sandstone and conglomerate that are extremely prone to erosion. The soil is extremely porous and thereby highly drained. In many low lying areas springs emerge and create moist cool patches (Pendharkar, 1993) which form and ideal microhabitat for butterflies.

3. *Vegetation :* The vegetation of the Shivalik hills is characterized by Sal, mixed deciduous forests, grassy slopes, riverine khair sissoo (*Acacia catechu, Dalbergia sissoo*), degraded scrub, pine forests, and subtropical dry evergreen forests. The forests of SWLS may be described as moist Sal-bearing forests (3C/C2) and Northern dry mixed deciduous forests (5B/C2), (Champion and Seth 1968).

4. *Biotic Interferences :* The sanctuary is subjected to grazing and other interference like lopping, grass cutting and fire to a certain extent. A road passing through is used by local and migratory graziers. Prior to its notification in 1958, Simbalbara sanctuary was a hunting

Fig. 1



Simbalbara Wildlife Sanctuary, Sirmaur District, Himachal Pradesh

preserve of the former Maharajah of Sirmaur (Singh *et al.*, 1990).

Methods

The study was carried out from January to August 2005. Pollard walk on fixed transects (Pollard and Yates, 1993) was used to enumerate the butterfly species. Thirteen transects, 300-500 m in length were laid in three different habitat types, namely Eucalyptus plantations, Eucalyptus – Sal mixed forests and Sal dominant forests. The distance between two individual transects was minimum 1 km to maintain spatial independence. Butterflies (flying at 2 m) was recorded on these transects. Transects were monitored between 9:00 hrs and 10:00 hrs. All the transects were walked for four times in a day. By this method we aimed to sample a wide range of diurnal butterflies. A reference collection was maintained and butterflies that could not be identified were collected using nets, and spread for identification at a later stage. Specimens were identified with the help of reference books (Wynter - Blyth, 1957; Haribal, 1992 and Kunthe, 2000).

Observations

Seventy species representing 54 genera of five families were recorded during the sampling period. Detailed list of species along with genera and family is given in the Table 1 and 2. The family Nymphalidae was dominated in this region followed by Lycaenidae; Papilionidae and Hesperidae were poorly represented with five species each (Table 1).

Riverine patches were most favoured habitat by the butterflies in the Simbalbara Wildlife Sanctuary. Comparatively high number of species of butterflies were seen in Eucalyptus patches could be due to the fact that most of the patches were near streams. Species like Angled sunbeam (*Curetis dentata)*, Gaudy baron (*Euthalia lubentina)*, Grey count (*Tanaecia lepidea)* and Striped blue crow (*Euploea mulcibar)* were seen only along streams. Species like the Common emigrant (*Catopsila pomana)*, Common mormon (*Princepes polytes)*, Large oak blue (*Arhopala amantes)* and Lemon pansy (*Precis lemonias)* were seen during the pre-monsoon.

Table 1.

Number of Genera and species belonging to each family

Family	No. of Genera	No. of Species	% of total Species	D Dun New Forest (%)*	Western Himalaya (%)*
Papilionidae	2	5	7.1	7.4	7.4
Pieridae	9	12	17.1	12.8	10.1
Lycaenidae	15	15	21.42	8.4	30.9
Nymphalidae	23	33	47.13	6.5	36.5
Hesperidae	5	5	7.1	14.9	15.1
Total	54	70		148	417

* Source (Singh and Pandey, 2004)

Plate 1 : Common Map (*Cyrestis thyodamas* Boisdubal)

Plate 2 : Mud Puddling by Lime Buttrefly (*Papilio demoleus* L.)

Table 2

Butterflies Recorded in Simbalbara Wildlife Sanctuary (January to August 2005)

S.No.	Scientific Name	Common Name	Habitat			
			Eucalyptus	Eu-Sal mix	Sal	Sal mixed
	Family - Papilionidae					
1	*Papilio clytia clytia*	Common Mime				★
2	*Papilio clytia dissimilis*	Common Mime		★	★	★
3	*Papilio demoleus*	Lime Butterfly	★	★		★
4	*Papilio polytes*	Common Mormon	★	★	★	★
5	*Pathysa nomius*	Spot Swordtail			★	★
	Family - Pieridae					
6	*Anaphaeis aurota*	Pioneer		★		
7	*Catopsilia pomona*	Common Emigrant	★	★	★	★
8	*Catopsiila pyranthe*	Mottled Emigrant	★	★	★	★
9	*Cepora nerissa*	Common Gull	★	★	★	★
10	*Colotis etrida*	Small Orange Tip			★	
11	*Delias eucharis*	Common Jezebel	★	★	★	
12	*Eurema blanda*	Three Spot Grass Yellow	★	★	★	
13	*Eurema brigitta*	Small Grass Yellow	★	★		
14	*Eurema hecabe*	Common Grass Yellow	★	★	★	★
15	*Eurema laeta*	Spotless Grass Yellow	★	★	★	
16	*Leptosia nina*	Psyche	★	★		
17	*Pieris canidia*	Indian Cabbage White		★		
	Family - Lyacaenidae					
18	*Abisara echerius*	Plum Judy		★	★	
19	*Actolepis puspa*	Common Hedge blue	★			★
20	*Arhopala amantes*	Large Oak Blue	★	★	★	★
21	*Camena cleobis*	Broad Tail Royal		★		
22	*Castalius rosimon*	Common Pierrot	★	★	★	
23	*Curetis dentata*	Angled Sunbeam				★
24	*Chilades pandava*	Plains Cupid		★		
25	*Euchrysops cnejus*	Gram Blue	★	★	★	
26	*Freyeria trochylus*	Grass Jewel		★	★	
27	*Lampides boeticus*	Pea Blue	★	★		
28	*Larathura sp.*	Oak Blue species	★	★	★	★
29	*Pseudozizeeria maha*	Pale Grass Blue	★	★	★	
30	*Rapala irabus*	Indian Red Flash		★		

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S.No.	Scientific Name	Common Name	Habitat			
			Eucalyptus	Eu-Sal mix	Sal	Sal mixed
31	*Spindasis vulcans*	Common Silverline	★			★
32	*Zizeeria karsandra*	Dark Grass Blue	★	★		
	Family - Nymphalidae					
33	*Cupha erymanthis*	Rustic	★	★	★	
34	*Cynthia cardui*	Painted Lady	★	★		
35	*Cyrestis thyodamas*	Common Map			★	★
36	*Danaus genutia*	Common Tiger	★	★	★	★
37	*Danaus chrysippus*	Plain Tiger	★	★	★	★
38	*Elymnias hypermnestra*	Common Palmfly			★	
39	*Euploea core*	Common Crow	★	★	★	★
40	*Euploea mulciber*	Striped Blue Crow				★
41	*Euthalia aconthea*	Common Baron			★	
42	*Euthalia lubentina*	Gaudy Baron				★
43	*Euthalia nais*	Baronet	★	★	★	★
44	*Hypolimnas bolina*	Great Eggfly				★
45	*Hypolimnas misippus*	Danaid Egg Fly			★	
46	*Junonia almana*	Peacock Pansy	★	★		
47	*Junonia hierta*	Yellow Pansy	★	★		★
48	*Junonia iphita*	Chocolate Soldier	★			
49	*Junonia lemonias*	Lemon Pansy	★	★	★	★
50	*Junonia orithya*	Blue Pansy	★	★	★	★
51	*Kallima inachus*	Orange Oak Leaf	★		★	★
52	*Kaniska canace*	Blue Admiral			★	★
53	*Limenitis procris*	Commander				★
54	*Melanitis leda*	Common Evening Brown	★	★	★	
55	*Mycalesis perseus*	Common Bush Brown	★	★	★	
56	*Neptis hylas*	Common Sailer	★	★	★	★
57	*Pantoporia hordonia*	Common Lascar				★
58	*Parantica aglea*	Glassy Tiger	★	★	★	★
59	*Phalanta alcippe*	Small Leopard				★
60	*Phalanta phalantha*	Common Leopard	★	★	★	★
61	*Polyura athamas*	Common Nawab				★
62	*Tanaecia lepidea*	Grey Count				★
63	*Tirumala linniace*	Blue Tiger	★	★		
64	*Ypthima asterope*	Common Three Ring	★			
65	*Ypthima baldus*	Common Five Ring	★	★		

Contd.....

S.No.	Scientific Name	Common Name	Habitat			
			Eucalyptus	Eu-Sal mix	Sal	Sal mixed
	Family - Hesperidae					
66	*Hyarotis adrastus*	Tree Flitter			★	
67	*Matapa aria*	Common Redeye	★			
68	*Notocrypta feisthamelii*	Spotted Demon	★	★		
69	*Sarangesa dasahara*	Common Small Flat			★	
70	*Taractrocera maevius*	Common Grass dart		★		

★ Species Recorded

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SUMMARY

Butterflies have aesthetic appeal, are important components of food chain of birds etc. Butterfly fauna of India is rich with 1500 species, representing about 9% of total world species of butterfiles. The sanctury is situated in the western part of the area bounded by Shivaliks and consists of mixed sal deciduous forests, and reverine patches. Seventy species belonging to 15 generas of five families are recorded. Nymphalidae has the most species (33) and Papilionidae the least (2) species in this region. Most favoured habitats are reverine patches and the Eucalyptus areas.

सिबंलबाड़ा वन्यप्राणि अभयारण्य, हिमाचल प्रदेश की तितलियों से सम्बन्धित कुछ पर्यवेक्षण

स्वाति कित्तूर, आर० पद्मावती, वी०पी० उनियाल व के० शिवकुमार

सारांश

तितलियों का सौन्दर्यात्मक आकर्षण है, पक्षियों आदि की भोजन श्रंखला का वे महत्वपूर्ण घटक हैं। भारतवर्ष तितलीजातों की दृष्टि से बहुत सम्पन्न है, यहां उनकी 1500 जातियां मिलती हैं जो समूचे विश्व की तितलियों की लगभग 9%जातियां होती है। यह अभयारण्य उस क्षेत्र के पश्चिमी भाग में अवस्थित है जिसके एक ओर शिवालिक हैं और इसमें शाल मिश्र पर्णपाती वन तथा नदीय भूभाग भी हैं। यहां तितलियों की पांच वंशों की 15 प्रजातियों की 70 जातियां आलेखित की गई है। इन तितलियों में निम्फैलिडी वंश की जातियां सबसे अधिक (33) तथा प्रजापति वंश की सबसे कम (2) जातियां इस क्षेत्र में मिली। सर्वाधिक पसंद वाले क्षेत्र नदीय भूभाग और युकेलिप्टस वन वाले टुकड़े रहे।

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