

Butterflies of Northern Western Ghats: A Compilation of Checklists

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ABSTRACT:

Inventories were made at 30 localities in Northern Western Ghats, between 15°N to 20°N latitudes, to compile checklists of butterfly species diversity. The checklist includes 191 species of butterflies belonging to 117 genera and six families. Nymphalidae was the most speciose family with 60 species followed by Lycaenidae (59), Hesperidae (34), Pieridae (22), Papilionidae (15) and Riodinidae (1). The purpose of this paper is to bring the recent inventory data into a primary publication that would be available in public domain.

Key words: Butterflies; Northern Western Ghats.

INTRODUCTION:

Western Ghats is one of the 34 biodiversity hotspots of the world (Mittermeier et al. 2005). While searching the literature on butterflies of Western Ghats during our recent study (Padhye et al. 2012a); we realized that there are very few recent scientific records on butterflies of Northern Western Ghats, viz. Bhalodia et al. (2002) - Vandsa National Park; Rane & Ranade (2004) - Tamhini; Borkar & Komarpant (2004)- Bondla WLS Goa; Padhye et al. (2006)- Tamhini; Sharma & Chaturvedi (2006)- Sanjay Gandhi National Park; Gaikwad et al. (2009)- Amba Reserved Forest, Sharma & Borkar (2008)- Goa; Rangnekar & Dharwadkar (2009)- Goa; Sharma (2009)- Bhimashankar; Raut & Pendharkar (2010)- Maharashtra Nature Park, Mumbai; Nimbalkar et al. (2011)- Bhor Tahsil, Pune District, Kharat et al. (2012)- Nashik and Dhule districts, Padhye et al. (2012b)- Tata Power Hydro Lakes, Pune district and Jadhav & Sharma (2013)- Bhimashankar are some of the recent studies on the butterflies of this region.

To fill up this lacuna, we surveyed the Northern

Western Ghats engaging the students of M.Sc. Biodiversity class to collect the inventory data from a few localities in the Northern Western Ghats. The efforts taken for checklist preparation are not equal, at all study sites. Studies at places such as Amboli and Phansad, appear to be more rigorous and complete, as compared to the other localities. The purpose of this paper is to bring the recent inventory data into a primary publication that is available in public domain. Further studies at all these localities may lead to preparation of enhanced version of these checklists.

To further strengthen the studies and enlarge the scope of this study we have personally contacted people who have collected inventory data for the butterfly species diversity. We could therefore collect the data from 30 localities along the Northern Western Ghats ranging from 25 m ASL to 1100 m ASL altitudes that lay between 15°N and 20°N latitudes. Locality wise contribution of authors to the inventories is given in the Appendix.

METHODOLOGY:

Thirty localities from Northern Western Ghats were visited by different field workers to collect the inventory data for the butterfly species diversity. Field data was collected through random surveys by all out search method, when butterflies were most active, i.e. in the morning 0900h to 1100h and evening 1530h to 1730h for the preparation of checklists. Butterflies were identified with the help of field guides (Gunathilagaraj *et al.* 1998; Kunte 2000 and Kehimkar 2011). Specimen collection was strictly avoided. The checklists were validated using (Kehimkar 2008). The localities where surveys were conducted are shown in Figure 1, while the list of these localities with their zone, latitude, longitude, altitude, period of survey and the

landscape elements is given as Table 1.

STUDY AREA:

1. Dandeli National Park is the southern most point monitored during this study. It is a semi evergreen and moist deciduous forest with small evergreen pockets.
2. Sarambala Irrigation Project is a medium irrigation project under construction. It is present amidst the foot hills of Western Ghats. The nearby village is Dabhil, taluka Sawantwadi, District Sindhudurg. It has paddy fields surrounded by evergreen, semi-evergreen and moist deciduous forest patches on the mountain slopes.
3. Amboli is a hill station with a mosaic landscape containing laterite plateaus, scrub, grasslands, semi-evergreen and evergreen forests.
4. Belne and Nadhavde are the villages in Sindhudurg District, Konkan, with mango and cashew orchards on small hillocks intermingled with paddy fields and human settlements.
5. Watul is a small village with dispersed human settlements. The landscape chiefly comprises of mango and cashew orchards on small hillocks intermingled with semi-evergreen and evergreen forest patches. Low lying areas show paddy fields.
6. Amba Ghat is a road way traversing through the hills along the western slopes of the Western Ghats. It starts from an up-ghat village, Amba (631 m ASL) and ends at a down-ghat village, Sakharpa (114 m ASL). Amba is a small village on the crest-line of Western Ghats with paddy fields surrounded by hills with semi-evergreen and evergreen forests. While the landscape of village, Sakharpa chiefly consists of the paddy fields and small human settlements with cattle sheds. There are semi-evergreen and evergreen forest patches with intermittent torrential streams with waterfalls all along the road.
7. Bhambarvadi and Gudhe-Pachgani are the villages near the eastern boundaries of Chandoli National Park. These are situated on plateaus with wind-farms. They show presence of scrub and grasslands with little paddy fields.
8. Chandoli is a National Park in Sangli District of Maharashtra state. It is located near the Chandoli Dam built on river Warna. It has many perennial water channels, water holes and the Vasant Sagar Reservoir. The park spreads over 317.67 km² along the crest of the Sahyadri Range of the northern Western Ghats, between 73°40' and 73°53' E longitudes and 17°03' and 17°20'N latitudes. Elevation of the park ranges from 589 to 1,044 m ASL. It forms the southern part of Sahyadri Tiger Reserve. It has a core zone having thick evergreen, semi evergreen and moist deciduous forests, along with intermittent scrublands and grasslands on slopes as well as lateritic plateaus in the buffer zone. There is no human intervention in core as well as buffer zones. The sampling sites for this study are in the core area of the park.
9. Zolambi is a displaced village in the buffer zone of Chandoli National Park. It is a place on plateau free from human habitation. There are no wind-farms. The place shows presence of scrub and grasslands with intermittent patches of evergreen forests.
10. Koyna-nagar is a dam colony on the banks of river Koyna, surrounded by high altitude mountains with evergreen forests and torrential streams.
11. Pophali is a small Panchayat town in Chiplun Taluka of Ratnagiri District in Maharashtra. It is known for its power plant, which is a part of the Koyna Hydro-electric Project. The town is

situated on the hill slope of the Kumbharli Ghat towards the western side amidst the foothills of Western Ghats. The landscape chiefly consists of the paddy fields and small human settlements with cattle-sheds. This small village is surrounded by moist deciduous reserve forest from one side.

12. Chalkewadi is a village on a plateau with wind-farms. It shows presence of scrub and grasslands with little paddy fields.
13. Vasota is a fort in the Koyna Wildlife Sanctuary. It is surrounded by high altitude mountains with evergreen forests and torrential streams. It is on the banks of the back-waters of Koyna dam called as Shivasagar Lake.
14. Harihareshwar is a pilgrim village on the sea coast. It is surrounded by paddy fields as well as coconut and mango orchards.
15. Ghisar is a small human settlement with cattle-sheds and paddy fields surrounded by hills with semi-evergreen and evergreen forests on the crest-line of Western Ghats. There is a sacred grove near this village.
16. Velha is a village surrounded by paddy-fields and high altitude mountains with scrub and moist deciduous forest.
17. Sinhagad is a fort near Pune city and a valley towards its north east is rich in floral diversity. The landscape chiefly consists of the paddy fields and small human settlements with cattle-sheds. The slopes of mountain show presence of moist deciduous forest patches with intermittent grasslands. It also shows many ephemeral streams with riparian vegetation.
18. Vile is a small village in Raigad District and is situated on the hill slope of the Tamhini Ghat towards the western side amidst the foothills of Western Ghats. The landscape chiefly consists of paddy fields and small human settlements with cattle-sheds. This small village is surrounded by moist deciduous reserve forest from one side.
19. Phansad is a Wildlife Sanctuary near the sea coast in Raigad District of Maharashtra State. It is a coastal woodland ecosystem of the Western Ghats. It consists of 6979 hectares of forest, grasslands and wetlands and shows evergreen forest with perennial streams. Pockets of open grassland occur throughout the sanctuary.
20. Dongarwadi is a small village on the crest-line of Western Ghats. It shows high altitude mountains with evergreen and semi evergreen forests. In some patches the hill slopes and smaller table lands show grasslands with short shrubby vegetation. There are several torrential streams with riparian vegetation and waterfalls.
21. ARAI (Automotive Research association of India) hills are amidst Pune city with *Gliricidia* plantation. This is a huge plateau with scrub and grassland patches with intermittent ephemeral water-bodies that accumulate the rain water.
22. Nandiwali is a small village on the crest-line of Western Ghats. It is present on the bank of backwater of Mulshi Dam. It shows high altitude mountains with evergreen and semi evergreen forest patches. There is a small sacred grove near the village. The village is surrounded by paddy fields, and grasslands with scrub and short shrubby vegetation.
23. Shilimb is a small village on the crest-line of Western Ghats. It shows high altitude mountains with evergreen and semi evergreen forest patches and is surrounded by paddy fields, and grasslands with scrub and short shrubby

vegetation.

24. Lonavla is a hill station on Mumbai-Pune highway. It is situated on the crest-line of Western Ghats. It is surrounded by high altitude mountains with evergreen and semi-evergreen forests and torrential streams. The town has many small man-made lakes in surrounding areas. In the past few decades it has undergone a lot of urbanization.
25. Kambre is a small village with cattle-sheds, on the crest-line of Western Ghats, surrounded by paddy-fields and scrub.
26. The Karnala Bird Sanctuary is located in Raigad District of Maharashtra State. The sanctuary is quite small with an area of 12.11 square kilometers. The landscape consists of semi-evergreen, moist deciduous and scrub forests with intermittent patches of grasslands.
27. Matheran is a hill station. It is situated on top of a hill of an elevation of around 800 m, separated from the main crest-line of Western Ghats. The hill is surrounded by low lying areas on all sides. There are cliffs separating the hill slopes from the hill top creating an island ecosystem on the top of the hill. The hill top shows thick evergreen and semi-evergreen forest with 2 man-made lakes. The slopes are dotted with moist deciduous and scrub forest patches. The human interference is minimized by restricting the vehicular traffic only up to the entry point.
28. Bhimashankar is a pilgrim place amidst the Wildlife Sanctuary. It is a small human settlement with cattle-sheds. It is surrounded by high altitude mountains, semi-evergreen and evergreen forests with intermingling grassland and scrubs.
29. Aarey Milk Colony is situated in Goregaon East, which is a suburb of Mumbai. It is one of the most modern milk colonies in the world.

This area is a grass and scrub environ with a few hillocks, possessing two perennial and one seasonal pond as well as many seasonal streams in the area. The area harbours a number of milk dairies and cattle sheds. The vast pastures of the Mauritian Para grass are maintained and harvested as fodder for cattle. Film City, better known as Mumbai's Film Hub, is dominated by dense mixed moist deciduous forest. Aarey Milk Colony and Film City are located on the southern border of the Sanjay Gandhi National Park (SGNP). The floral and faunal composition of this area is similar to that of the SGNP, but is largely degraded and highly disturbed due to human activities. The habitat is thus highly varied consisting of scrub forest, seasonal freshwater marshes, hillocks, rocky outcrops, grass and scrub interrupted by human settlements.

30. Ghatghar is a small human settlement on the crest-line of the Western Ghats. The village shows paddy fields surrounded by high altitude mountain ranges with semi-evergreen and evergreen forest patches.

RESULTS AND DISCUSSION:

Out of the 30 localities visited, 3 are situated amidst the cities (ct); 3 are situated a little away from crest-line towards eastern side (a); 2 are the plateaus with wind mills (pw); 12 are located on the crest-line of the Western Ghats (cr); 1 is a road way traversing through the western slopes of the Western Ghats (gr); 8 are located in Konkan (k) and 1 on the sea coast (co).

Minimum landscape elements (2) are present in 8 localities while Sarambala irrigation project shows maximum (9) landscape elements. Number of landscape elements in each locality is shown in

Figure 2. Scrub was the component of maximum (20) localities followed by grassland (17), moist deciduous forest (15), paddy fields surrounded by forest and mountains (13), human settlements with cattle sheds (13), semi-evergreen forest (11) and evergreen forest (10). Wind farms were the components of minimum (2) localities while only one locality had the sea coast (Table 1). Percent contribution of all 12 landscape elements toward habitats in Northern Western Ghats is shown in Figure 3.

Out of 334 species belonging to 164 genera and 6 families, found in the entire Western Ghats (Padhye et al. 2012a), we could report 191 species (57%) belonging to 117 genera (71%) and six families of butterflies. Nymphalidae was the most predominant family with 60 species followed by Lycaenidae (59), Hesperidae (34), Pieridae (22), Papilionidae (15) and Riodinidae (1) (Table 2). However, Lycaenidae showed more generic diversity with 40 genera as compared to the 34 genera in the Nymphalidae. Comparative butterfly generic representation for entire Western Ghats and northern Western Ghats is shown in Figure 4, while comparative butterfly family predominance for entire Western Ghats and northern Western Ghats, in terms of species diversity, is shown in Figure 5.

Maximum (143) species were reported from Karnala followed by Amboli (101), Phansad (91), Aarey Milk Colony and Film City (90), ARAI hills (71) and Vasota (67), while minimum (26) species were reported from Pophali and Dongarwadi. A detailed account of butterfly species diversity in the Western Ghats is given by Kunte (2008) while distribution and composition of butterfly species along the latitudinal and habitat gradients of the Western Ghats of India are discussed by Padhye et

al. (2012a).

Despite the fortnightly monitoring for 2 years, the species count could not increase beyond 33 at Bhambarwadi - Gudhe Pachgani locality. As compared to this, 30 species were reported in just one visit for two days at Chalkewadi which is a similar locality. Both of these are plateaus with wind-farms. However, on a similar plateau without wind-farm, in the nearby areas at Zolambi in Chandoli Wildlife Sanctuary, a situation is different. We could report 42 species in just 4 hrs effort. This kind of difference in the butterfly diversity of the plateaus with and without wind-farms can be a result of the large scale destruction of the vegetation during the erection of wind-farms. Similar species displacement effects on avifauna of Bhambarwadi - Gudhe Pachgani plateau are discussed in detail by Pande et al. (2013).

This study also reveals a substantial range extension of *Papilio paris* (Paris Peacock) up to Phansad Wildlife Sanctuary (18.420° N latitude & 72.933° E longitude). According to Padhye et al. (2012a), this species was known to occur up to 16°N latitude. Thus intensive surveys of protected areas from Northern Western Ghats may extend the range of a few more butterfly species. Recently, Jadhav & Sharma (2013) have reported the occurrence of *Idea malabarica* (Malabar Tree Nymph) from Bhimashankar (19°-20° N latitude zone), which was previously known upto 17°-18° N latitude zone. According to Ghosh et al. (1990), this species was reported from Poladpur, Dist. Raigad, Maharashtra (17.985278° N latitude). These records indicate the need of intensive surveys of protected areas of Northern Western Ghats to reveal the correct status of the distribution of various butterfly species.

The compilation still lacks the studies in Nasik District of Maharashtra State and the Dang District of Gujarat State. The only published reports of butterfly diversity of Nasik area is by Nayak et al. 2004 and Kharat et al. 2012. Therefore the efforts should be made to prepare the inventories for monitoring the butterflies of this part of the Northern Western Ghats also.

Though scanty, this data may prove useful for the policy makers, for conserving the diversity of Northern Western Ghats; especially on the background of large scale habitat destruction taking place in the Northern Western Ghats (Jha et al. 2000).

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Figure 1:

Butterfly diversity inventory localities in Northern Western Ghats. **Habitat Types:-** **gr:** a road way traversing through the western slopes of the WG; **cr:** on the crest-line of the Western Ghats; **a:** a little away from crest-line towards eastern side; **pw:** plateaus with wind mills; **k:** Konkan; **ct:** city and **co:** sea coast.

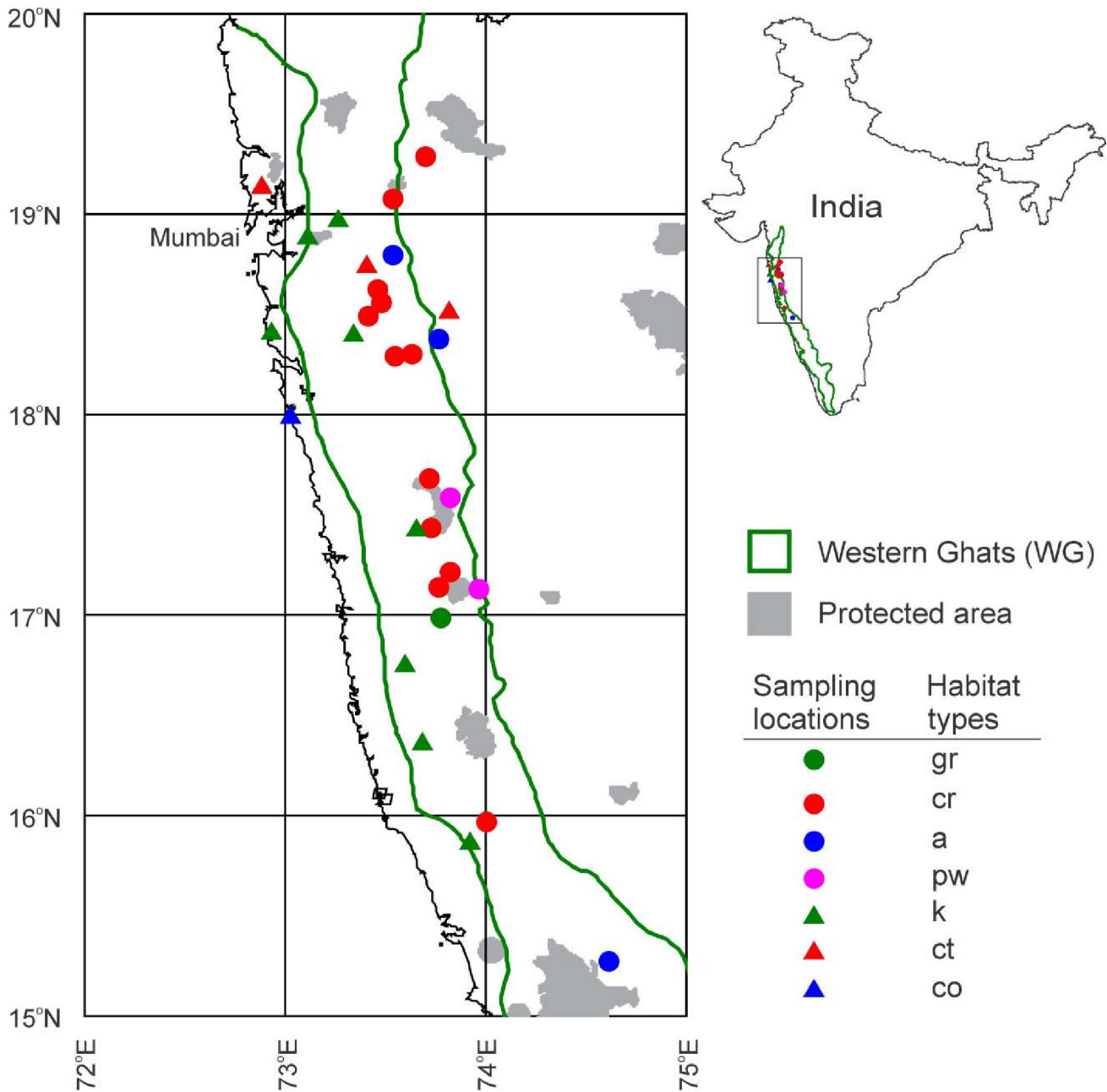


Figure 2:
Number of landscape elements (LSE's) present in each of the 30 localities of Northern Western Ghats

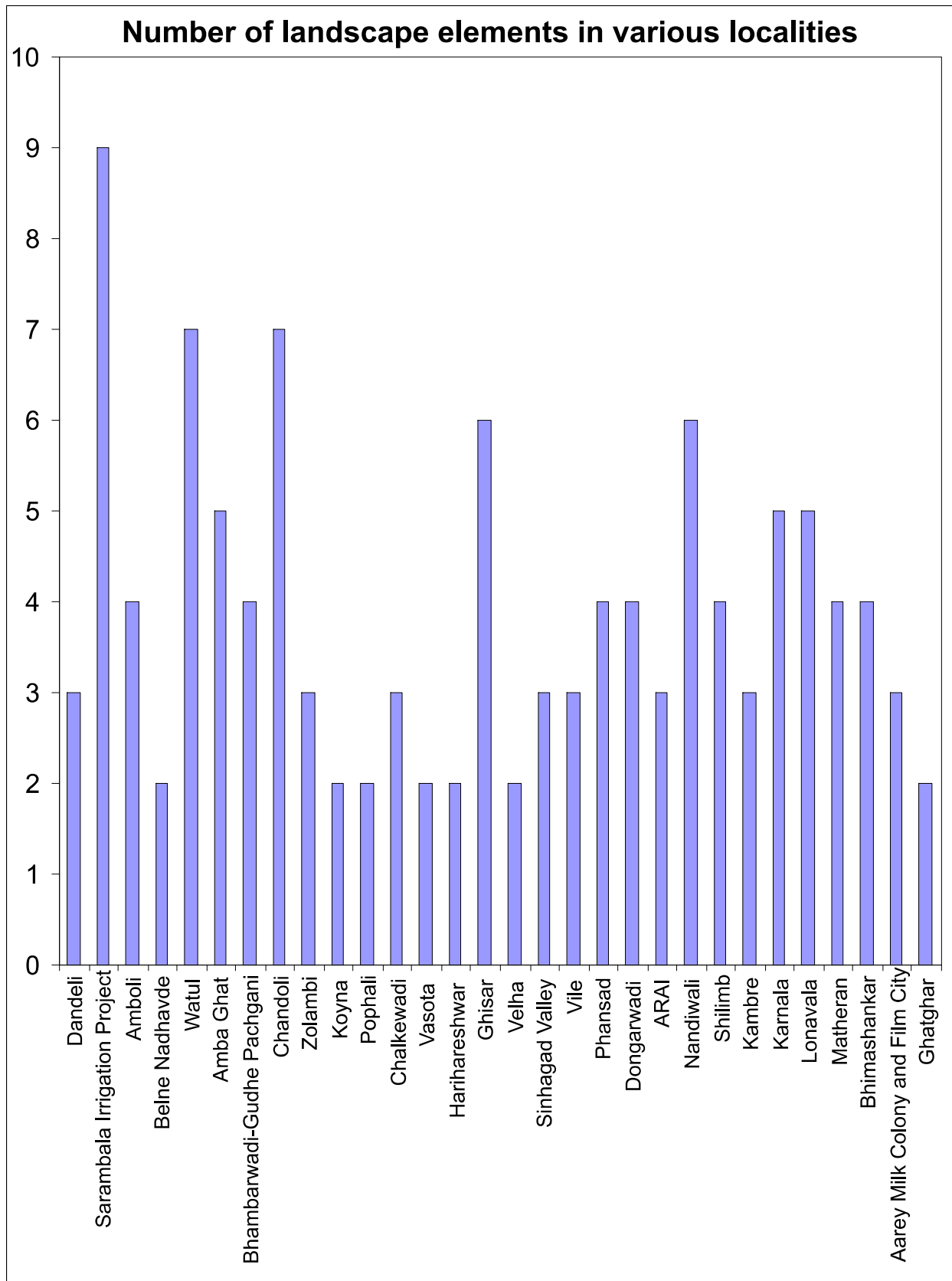


Figure 3: Percent contribution of 12 different landscape elements to the habitats of 30 localities in Northern Western Ghats.

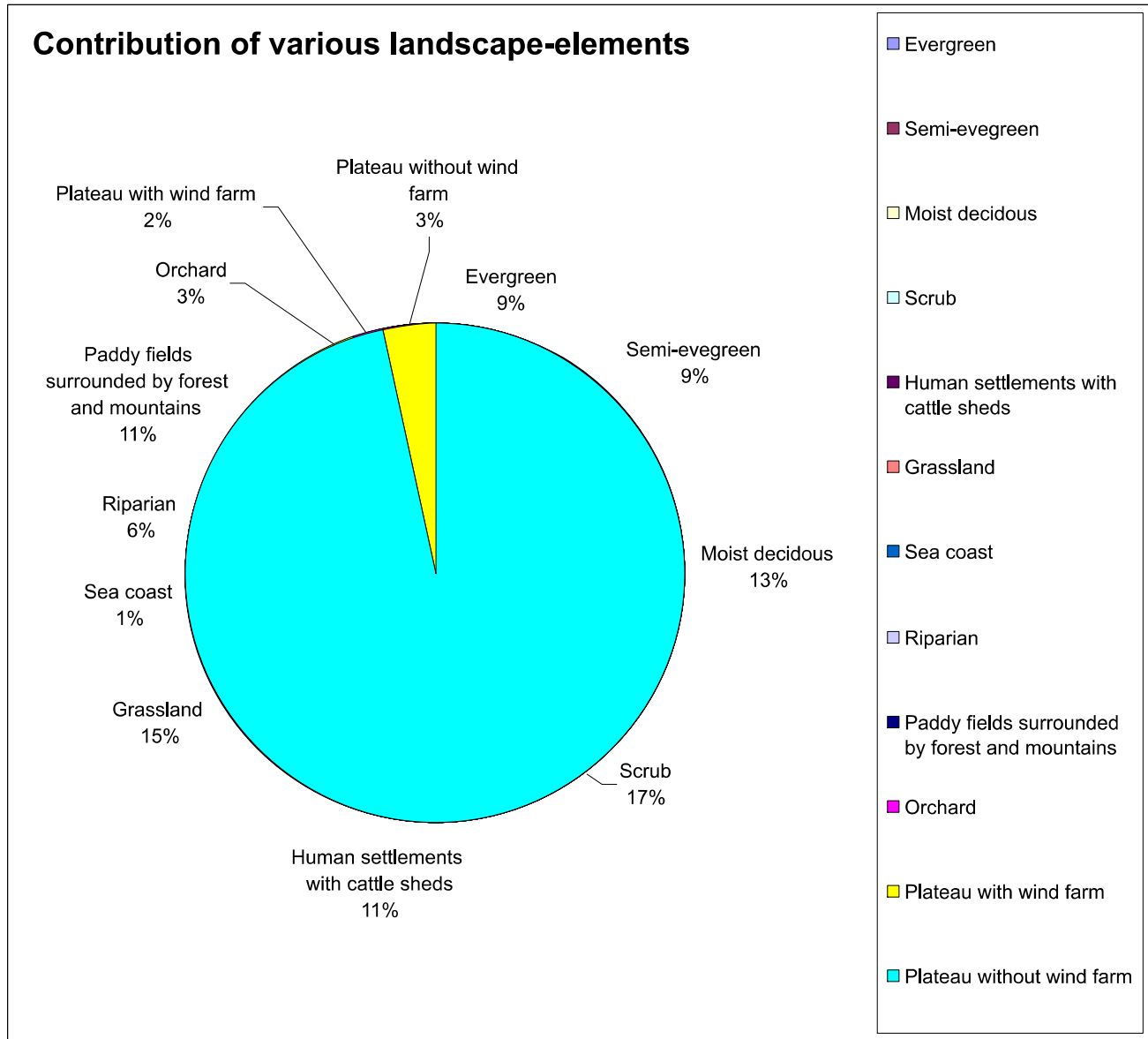


Figure 4: Comparative account of butterfly family predominance in terms of the number of genera encountered in 30 localities from Northern Western Ghats.

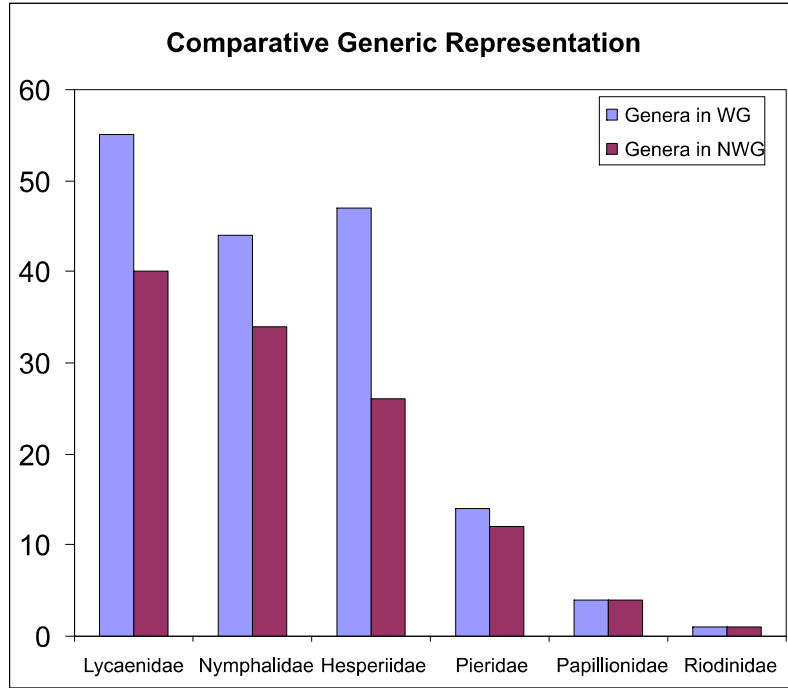
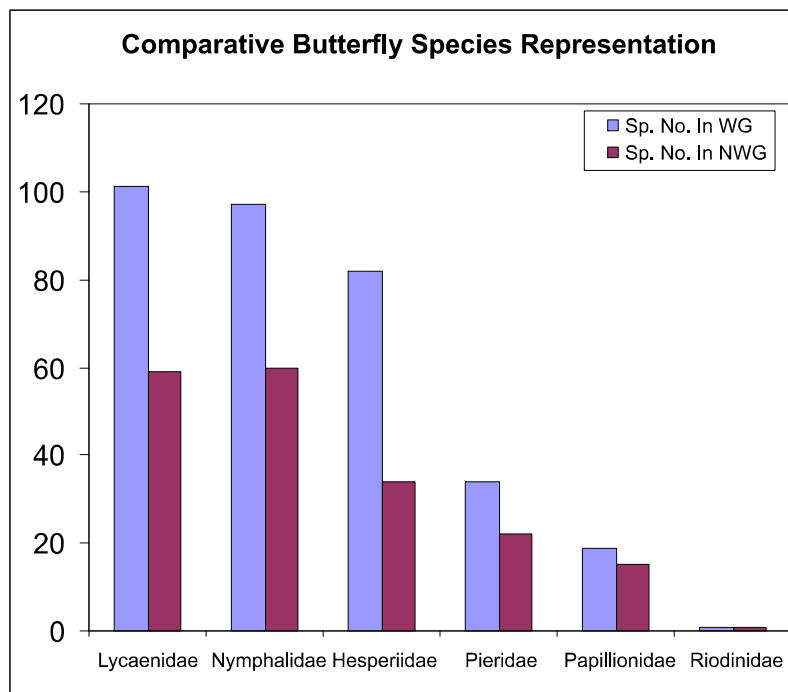


Figure 5: Comparative account of butterfly family predominance in terms of the number of species encountered in 30 localities from Northern Western Ghats.



APPENDIX:

Locality wise contribution of authors to the inventories.

Locality Code	Locality Name and Zone	Checklist prepared by
1	Dandeli	Sheetal Shelke and Anushree Jadhav
2	Sarambala Irrigation Project	Nikhil Modak, Sandesh Jagdale
3	Amboli	Hemant Ogale, Sheetal Shelke, Ketaki Patil
4	Belne Nadhavde	Anand Padhye, Sheetal Shelke and Anushree Jadhav
5	Watul	Anand Padhye
6	Amba Ghat	Anand Padhye
7	Bhambarwadi-Gudhe Pachgani	Anand Padhye, Satish Pande and Sheetal Shelke
8	Chandoli	Ankur Patwardhan, Prachi Mhaske, Pankaj Koparde, Rakesh Deulkar, Apoorva Sahasrabuddhe, Preeti Bangal, Abhishek Narvekar
9	Zolambi	Anand Padhye, Satish Pande, Rajgopal Patil, Sanjay Khataavkar, Rohan Bhate, Hemant Kenjale
10	Koyna	Anand Padhye
11	Pophali	Sheetal Shelke
12	Chalkewadi	Neelesh Dahanukar and Mandar Paingankar
13	Vasota	Anand Padhye, Sheetal Shelke, Anushree Jadhav, Rutuja Dhamale and Sushil Chikane
14	Harihareshwar	Sheetal Shelke and Anushree Jadhav
15	Ghisar	Ankur Patwardhan, Rishikesh Patil
16	Velha	Sheetal Shelke and Anushree Jadhav
17	Sinhagad Valley	Prachi Mhaske, Neha Mujumdar, Kruti Chhaya, Ankur Patwardhan
18	Vile	Prachi Mhaske, Neha Mujumdar, Kruti Chhaya
19	Phansad	Harishchandra Naik and Sheetal Shelke
20	Dongarwadi	Anand Padhye and Anushree Jadhav
21	ARAI	Prachi Mhaske, Neha Mujumdar, Kruti Chhaya, Ankur Patwardhan,
22	Nandiwali	Anand Padhye, Anushree Jadhav, Sheetal Shelke, Swapnil Gaikwad
23	Shilimb	Prachi Mhaske, Neha Mujumdar, Kruti Chhaya, Ankur Patwardhan

Table 1:

Details of localities with landscape elements (LSE), P indicates presence of Landscape element in that locality. LSE Code:- E: Evergreen, SE: Semi-evergreen, MD: Moist deciduous, S: Scrub, HS^CS: Human settlements with cattle sheds, G: Grassland, SC: Sea coast, R: Riparian, PF^FM: Paddy fields surrounded by forest and mountains, O: Orchard, P^WF: Plateau with wind farm, P: Plateau without wind farm.

Sr. No.	Locality	Latitude °N	Longitude °E	Altitude (m) ASL	Period of Survey	E	SE	MD	S	HS CS	G	SC	R	PF FM	O	P	P
1	Dandeli (a)	15.261	74.616	500	2/3/2010 to 4/3/2010	P	P	P									
2	Sarambala Irrigation Project (k)	15.873	73.918	30	18/10/2010 to 21/10/2010	P	P	P	P	P	P		P	P	P		
3	Amboli (cr)	15.965	74.004	696	Jan 2009 to Oct. 2011	P		P	P								
4	Belne Nadhavde (k)	16.372	73.681	100	19/07/2009									P	P		
5	Watul (k)	16.764	73.597	107	6/11/2012 to 23/11/2012		P	P	P	P	P			P	P		
6	Amba Ghat (gr)	16.978	73.782	114 to 631	5/11/2012 to 25/11/12		P	P	P	P	P		P				
7	Bhamburwadi-Gudhe Pachgani (pw)	17.123	73.972	900	July 2008 to June 2010.				P	P	P					P	
8	Chandoli (cr)	17.132	73.765	890	May 2012	P	P	P	P	P	P		P			P	
9	Zolambi (cr)	17.209	73.828	949	20/11/2011				P	P	P					P	
10	Koyna (cr)	17.428	73.728	660	15/5/2011	P							P				
11	Pophali (k)	17.435	73.658	139	27/01/2010 to 31/01/2010					P				P			
12	Chalkewadi (pw)	17.581	73.824	1155	Oct-08				P		P					P	
13	Vasota (cr)	17.672	73.722	1101	21/04/2008 and 22/04/2008		P	P									
14	Hariharshwar (co)	17.998	73.021	25	2/10/2008 and 3/10/2008							P		P			
15	Ghisar (cr)	18.285	73.547	856	Jan. to Sept. 2010 & May to Sept. 2012	P		P	P	P	P			P			
16	Velha (cr)	18.296	73.637	703	16/10/2009 and 17/10/2009					P				P			
17	Sinhagad Valley (a)	18.376	73.770	720	Feb. 2010 to July 2010			P		P				P			
18	Vile (k)	18.414	73.344	128	20/12/2010 and 22/03/2011				P	P				P			
19	Phansad (k)	18.420	72.933	188	22/03/2010 and 23/03/2010	P	P				P		P				
20	Dongarwadi (cr)	18.482	73.414	585	27/10/2012	P	P				P						
21	ARAI (ct)	18.524	73.818	660	Feb. 2010 to January 2011					P	P						P
22	Nandiwali (cr)	18.551	73.479	673	22/09/2010		P	P	P	P	P				P		
23	Shilimb (cr)	18.619	73.464	641	Feb. 2010 to July 2010			P	P	P				P			
24	Lonavala (ct)	18.748	73.403	627	June 2011 to Jan 2012			P	P	P	P		P				
25	Kambre (a)	18.793	73.538	610	Jan. 2010 to April 2011					P				P			
26	Karnala (k)	18.891	73.112	50 to 375	Jan. 2010 to Nov. 2012		P	P	P		P		P				
27	Matheran (k)	18.983	73.267	745	Aug. 2012 to Nov. 2012	P	P			P							P
28	Bhimashankar (cr)	19.077	73.538	970	4/09/2009 and 5/09/2009	P		P	P		P						
29	Aarey Milk Colony and Film City (ct)	19.149	72.882	81	June 2007 to Dec. 2009			P	P		P						
30	Ghatghar (cr)	19.283	73.700	747	15/9/2008 and 28/7/2009				P					P			

Letters in parenthesis after locality name indicate habitat types as per the code given in Figure 1.

Table 2:

Distribution of butterfly species in 30 localities of Northern Western Ghats. (Taxonomic status: as per Kunte (2008); *** Western Ghats endemic species; Species names written in bold are reported from only one locality; Locality Code: as per Table 1).

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						
	Scientific Name	Common Name																																			
	PAPILIONIDAE																																				
1	<i>Graphium agamemnon</i>		P	P	P	P	P	P				P					P			P		P	P	P	P	P	P	P									
2	<i>Graphium doson</i>											P										P											P				
3	<i>Graphium nomius</i>																	P								P							P				
4	<i>Graphium sarpedon</i>										P																						P	P			
5	<i>Pachliopta aristolochiae</i>		P	P	P							P					P																	P	P		
6	<i>Pachliopta pandiyana</i> ***																																				
7	<i>Pachliopta hector</i>		P	P	P							P																							P		
8	<i>Papilio clytia</i>		P	P	P	P																													P		
9	<i>Papilio demoleus</i>		P	P	P	P	P	P	P	P	P	P					P																		P		
10	<i>Papilio dravidarum</i> ***																																				
11	<i>Papilio helenus</i>											P																								P	
12	<i>Papilio paris</i>																																				
13	<i>Papilio polythemor</i>																																				
14	<i>Papilio polytes</i>		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P																		P	
15	<i>Troides minos</i> ***																																				
	PIERIDAE																																				
16	<i>Appias albina</i>																																				P
17	<i>Appias indra</i>																																				
18	<i>Appias itythea</i>																																				
19	<i>Appias lyncida</i>																																				
20	<i>Belenois aurota</i>																																				
21	<i>Catopsilia pomona</i>		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P																			P
22	<i>Catopsilia pyranthe</i>																																				
23	<i>Cepora nadina</i>																																				
24	<i>Cepora nerissa</i>																																				
25	<i>Colotis danae</i>																																				
26	<i>Colotis erida</i>																																				
27	<i>Deltis eucharis</i>		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P																			
28	<i>Eurema blanda</i>																																				
29	<i>Eurema brigitta</i>																																				
30	<i>Eurema hecabe</i>		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P																			

Scientific Name	Common Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
<i>Eurema laeta</i>	Spotless Grass Yellow						P	P						P	P	P		P	P			P		P	P				P	P					
<i>Hebomoia glaucippe</i>	Great Orange Tip			P			P	P						P	P					P			P			P									
<i>Ixias marianne</i>	White Orange Tip		P	P									P	P						P					P										
<i>Ixias pyrene</i>	Yellow Orange Tip		P										P							P					P										
<i>Leptostia nina</i>	Psyche			P			P	P						P						P				P											
<i>Pareronia valeria</i>	Common Wanderer			P	P	P	P	P						P						P			P		P										
<i>Pteris canidia</i>	Indian Cabbage White					P								P	P					P															
NYMPHALIDAE																																			
<i>Acræa violae</i>	Tawny Coster												P	P						P															
<i>Ariadne ariadne</i>	Angled Castor														P												P								
<i>Ariadne merione</i>	Common Castor	P	P	P	P	P	P			P	P	P		P	P	P	P	P								P	P	P	P	P	P	P			
<i>Athyma nefte</i>	Color Sergeant																																		
<i>Athyma perius</i>	Common Sergeant													P																					
<i>Boblia ilithyia</i>	Joker																																		
<i>Cethosia nietneri</i>	Tamil Lacewing																																		
<i>Charaxes bernardus</i>	Tawny Rajah														P																				
<i>Charaxes solon</i>	Black Rajah														P																				
<i>Cirrochroa thais</i>	Tamil Yeoman	P																																	
<i>Cupha erymanthis</i>	Rustic					P	P	P																											
<i>Cyrestis thyodamas</i>	Common Map														P																				
<i>Danaus chrysipus</i>	Plain Tiger	P	P	P					P	P	P	P	P	P	P	P	P	P	P																
<i>Danaus genutia</i>	Striped Or Common Tiger	P	P	P	P	P	P	P	P	P	P	P																							
<i>Dophla evelina</i>	Redspot Duke																																		
<i>Elymnias hypermestra</i>	Common Palmfly																																		
<i>Euploea core</i>	Common Indian Crow	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P																
<i>Euploea klugii</i>	Brown King Crow																																		
<i>Euthalia aconthea</i>	Common Baron		P	P																															
<i>Euthalia lubentina</i>	Gaudy Baron																																		
<i>Euthalia nais</i>	Baronet Or Red Baron																																		
<i>Hypolimnas bolina</i>	Great Egffly	P	P	P					P	P	P	P	P	P	P	P	P	P	P																
<i>Hypolimnas misippus</i>	Danaid Egffly	P	P	P	P																														
<i>Junonia almana</i>	Peacock Pansy	P	P	P																															
<i>Junonia atlites</i>	Grey Pansy		P	P																															

Scientific Name	Common Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
63 <i>Junonia hierta</i>	Yellow Pansy			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P			
64 <i>Junonia lemonias</i>	Lemon Pansy	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P			
65 <i>Junonia orithya</i>	Blue Pansy			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P			
66 <i>Junonia(Precis) iphita</i>	Chocolate Pansy	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P			
67 <i>Kallima horsfieldi</i> ***	South Indian Blue Oakleaf			P					P			P																						
68 <i>Lethe europa</i>	Bamboo Treebrown	P		P																														
69 <i>Lethe rohria</i>	Common Treebrown			P					P																									
70 <i>Libythea lepita</i>	Common Beak													P																				
71 <i>Melanitis leda</i>	Common Evening Brown	P	P	P	P			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		
72 <i>Melanitis phedima</i>	Dark Evening Brown								P																									
73 <i>Moduza procris</i>	Commander			P										P																				
74 <i>Mycalopsis adolphe</i> ***	Redeye Bushbrown																																	
75 <i>Mycalopsis mineus</i>	Dark Branded Bushbrown														P																			
76 <i>Mycalopsis oculus</i> ***	Red-Disc Bushbrown													P																				
77 <i>Mycalopsis persesus</i>	Common Bushbrown			P	P			P						P	P																			
78 <i>Mycalopsis visala</i>	Long Brand Bush brown																																	
79 <i>Neptis columella</i>	Shortbanded Sailer													P																				
80 <i>Neptis hylas</i>	Common Sailer	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
81 <i>Neptis jumbah</i>	Chestnut-Streaked Sailer																																	
82 <i>Orsotriaena medus</i>	Nigger			P																														
83 <i>Pantoporia hordonia</i>	Common Lascar			P							P																							
84 <i>Parantica aglea</i>	Glassy Tiger	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
85 <i>Phalanta phalantha</i>	Common Leopard			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
86 <i>Polyura agraria</i>	Anomalous Nawab																																	
87 <i>Polyura athamas</i>	Common Nawab																																	
88 <i>Rohana parisatis</i>	Black Prince																																	
89 <i>Tanaecia lepidea</i>	Grey Count			P										P																				
90 <i>Tirumala limniace</i>	Blue Tiger			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
91 <i>Tirumala septentrionis</i>	Dark Blue Tiger			P																														
92 <i>Vanessa cardui</i>	Painted Lady			P																														
93 <i>Vanessa indica</i>	Indian Red Admiral																																	
94 <i>Vindula erota</i>	Cruiser																																	
95 <i>Ypthima asterope</i>	Common Threering										P																							

Scientific Name	Common Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
96 <i>Ypthima baldus</i>	Common Fivering			P			P		P	P				P		P					P			P		P		P	P	P					
97 <i>Ypthima huebneri</i>	Common Fourring			P		P			P			P		P	P								P			P		P	P	P					
LYCAENIDAE																																			
98 <i>Acyrolepis puspa</i>	Common Hedge Blue	P														P															P				
99 <i>Amblypodia anita</i>	Leaf Blue			P														P													P				
100 <i>Anthene emolus</i>	Ciliate Blue																																		
101 <i>Anthene lycanina</i>	Pointed Ciliate Blue			P																															
102 <i>Arhopala amantes</i>	Large Oak blue																																		
103 <i>Arhopala pseudocentaurus</i>	Centaur Oak blue																																		
104 <i>Azanus jesous</i>	African Babul Blue																		P																
105 <i>Azanus ubaldus</i>	Bright Babul Blue																																		
106 <i>Azanus uranus</i>	Dull Babul Blue																																		
107 <i>Caleta caleta</i>	Angled Pierrot			P					P	P				P																					
108 <i>Castalius rosomon</i>	Common Pierrot			P					P	P				P																					
109 <i>Catapaecilma elegans</i>	Common Tinsel																																		
110 <i>Catochrypsis strabo</i>	Forget-Me-Not			P										P																					
111 <i>Cheritra freja</i>	Common Imperial			P																															
112 <i>Chilades latus</i>	Lime Blue			P																															
113 <i>Chilades pandava</i>	Plains Cupid			P																															
114 <i>Chilades parthastus</i>	Small Cupid			P																															
115 <i>Chilades trochylus</i>	Western Grass Jewel																																		
116 <i>Chiria othona</i>	Orchid Tit																																		
117 <i>Curetis acuta</i>	Angled Sunbeam																																		
118 <i>Curetis thetis</i>	Indian Sunbeam			P																															
119 <i>Deudorix epijarbas</i>	Cornelian																																		
120 <i>Deudorix isocrates</i>	Guava blue																																		
121 <i>Deudorix perse</i>	Large Guava Blue																																		
122 <i>Discolampa ethion</i>	Banded Blue Pierrot																																		
123 <i>Euchrypsops cnejus</i>	Gram Blue	P		P																															
124 <i>Everes lacturnus</i>	Indian Cupid	P		P																															
125 <i>Iraota timoleon</i>	Silverstreak Blue																																		
126 <i>Jamides alecto</i>	Metallic Cerulean																																		
127 <i>Jamides bochus</i>	Dark Cerulean																																		

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
Scientific Name	Common Name																																		
128	<i>Jamides celeno</i>			P	P			P	P		P				P	P				P	P	P				P	P		P	P					
129	<i>Lampides boeticus</i>		P					P									P	P																	
130	<i>Leptotes plinius</i>		P														P																		
131	<i>Loxura atymnus</i>		P																P																
132	<i>Megisba malaya</i>		P																																
133	<i>Neopithecopis zalmora</i>		P								P																								
134	<i>Petrela dana</i>																			P															
135	<i>Prosotas dubiosa</i>																P				P														
136	<i>Prosotas nora</i>																P			P	P														
137	<i>Prosotas noreia</i>																																		
138	<i>Pseudozeeria maha</i>									P					P	P			P	P	P	P													
139	<i>Rachana jalindra</i>																																		
140	<i>Rapala iarbus</i>																																		
141	<i>Rapala manea</i>																																		
142	<i>Rapala varuna</i>																																		
143	<i>Rathinda amor</i>																																		
144	<i>Spalgis epius</i>																																		
145	<i>Spindasis icitis</i>																																		
146	<i>Spindasis lobita</i>																																		
147	<i>Spindasis vulcanus</i>																																		
148	<i>Surendra quercetorum</i>																																		
149	<i>Tajuria cippus</i>																																		
150	<i>Tallicada nyseus</i>																																		
151	<i>Tarucus anada</i>																																		
152	<i>Tarucus nara</i>																																		
153	<i>Thaduka multicaudata</i>																																		
154	<i>Zizeeria karsandra</i>																																		
155	<i>Zizina otis</i>																																		
156	<i>Zizula hylax</i>																																		
	<i>HESPERIIDAE</i>																																		
157	<i>Ampittia dioscorides</i>																																		
158	<i>Arnetta vindhana</i>																																		
159	<i>Badamia exclamatoris</i>																																		

