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Inventory of moth fauna (Lepidoptera) of Western Ghats region of Karnataka (Chikamangalur and Shivamogga districts)

BM RavindrakumarDOI: <https://doi.org/10.22271/j.ento.2021.v9.i3c.8692>**Abstract**

In this paper an attempt is made to study the diversity of Moths in the Central part of Western Ghats, i.e., in Chikamangalur and Shivamogga Districts of Karnataka. This part of the Western Ghats is rich in biodiversity with extreme endemism. The survey is aimed at recording the diversity of Moth fauna of this region. The moth survey was done from June 2019 to December 2020. This attempt has led to the identification of 407 moths out of 610 moth taxa photographically recorded from six study sites. The moths identified belongs to 23 families of which Erebididae stood first with 136 species (33.41%), Geometridae with 94 members stood second (23.10%), crambidae with 70 moth species stood third (17.20%), Noctuidae, occupy fourth place with 29 moth taxa (7.12%). Of the different study sites, Krishna Rajendra hill station a high elevation site was richest with respect to Moth fauna, where 296 moth taxa were recorded. This documentation of moth fauna of the central part of Western Ghats in Karnataka will serve as base data. Krishna Rajhendra hill station and Hulikal are potential hot spots for Moth diversity. Thorough survey efforts in these two sites is need to compile the moth's diversity of the region.

Keywords: inventory, moths, western ghats, biodiversity, Krishna Rajendra hill station**Introduction**

Western Ghats region of south India (Karnataka) is one of the 34 global biodiversity hotspots ^[1]. The forests of Western Ghats are the abode of many endemic flora and fauna. Extensive studies in this area may contribute many more new species to the world of taxonomy. The Forests of Western Ghats are affected by exploitation and expanding human habitations, have lead to fragmentation of Habitat and change in the habitat conditions. Anthropogenic actions have disturbed the niche of many species. As a result, some species face adverse conditions and their population size is decreasing. This may lead to extinction of some species. Lepidopteran members are more vulnerable to relatively minor disturbances and hence moths and butterflies can be considered as indicators of environmental quality ^[2]. They are primary herbivores ^[3], and they are eaten by insectivores or carnivores ^[4]. Thus, moths play an important role in Food chain of the ecosystem. Some moths also act as pollinators. Hence the study and conservation of Moths and their economic or ecological importance should be studied by ecologists. In the absence of diversity assessment, many species will remain unnoticed and may be lost forever before anyone notices their benefits.

Insects make up 90% of tropical forest biome ^[5]. In this order lepidoptera, moths are the major contributors. Recent estimates reveal that over 127000 species of moths may be present in the world ^[6], of which over 12000 species are recorded from India ^[7]. Caterpillars of Moths are phytophagous preferring tender shoots of forest crop, grasses and agro-horticulture crops. Generally moths are nocturnal compared to butterflies which are diurnal, as an exception some moths are also diurnal and crepuscular. These insects are often considered as bio - indicators in biological studies because they are sensitive to habitat change, whose function, population, or status can reveal the qualitative status of the environment ^[8]. Mega diverse groups like the insects form a major component of the biodiversity of any area and thus scientific surveying and documentation of them can give a picture of value of a site for ecological conservation ^[9]. The present study carried out to assess the status and diversity of moths with reference to different habitats in the Western Ghats of Chikamangalur and Shivamogga region is the first of

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its kind in central Western Ghats, which was aimed to create a base data with regards to moth population. This data shall be

useful for future studies and conservation efforts. The six study areas are shown in figure 1 & 2.



Fig 1: Google Map of Karnataka showing

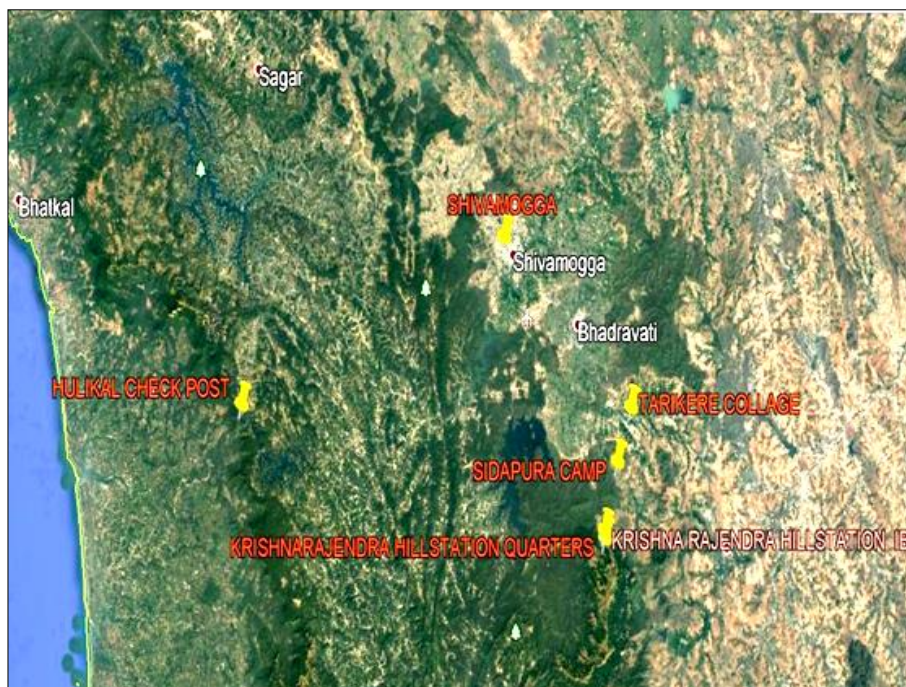


Fig 2: Google Map of Western Ghats with study sites study areas.

Materials and Methods

Materials used for the study are Light traps, Canon and Nikon Cameras, LED Torches, and standard reference books. The study was carried out in Central Western Ghats regions of Karnataka. The 1st to 4th sites belong to Chikamangalur district but 5th and 6th sites belong to Shivamogga district. Each one of them have different habitat conditions. The GPS location and altitudinal details of sites are given in Table:1. Krishna Rajendra hill station IB (KRH-IB) is surrounded by coffee plantations on the east and south sides. To its west and north is the Badhra wildlife sanctuary. Krishna Rajendra hills

quarters (KRH-Q) is located in Badhra wild life sanctuary. The Sidhapura camp is established adjacent to Dry deciduous Forest (Thyagadabagi satate forest). Tarikere college site is inside Govt Timber Depot, Tarikere, which has some Bamboo clumps, *Ficus* species, *Tectona grandis* *Mangifera indica*, *Casuarina equisetifolia*, *Butea monosperma*, *Pongamia pinnata*, *Eugenia* sps and *Lantana camara* as vegetation. In Shivamogga city, from where The Western Ghats begin, randomly encountered moths were photographed. The Hulikal check post is in Warahi State Forest is an evergreen site. Oposit to this check post is the Mukambike wildlife sanctuary.

Table 1: The GPS location and altitudinal details of sites are given

Sl. No	Study area	GPS Reading	Altitude
1.	Krishna rajendrahillstation IB, (KRH IB) chikamagalur districts	N13 33'10.8 E075 45'0.00	1396 mtrs
2.	KrishnaRajendrahillstation quarters.(KRH Q) Chikamanglur districts	N13 32'26.4 E075 45'3.6	1482 mtrs
3.	Tarikere college (T C) Chikamanglur districts	N13 42'46.5 E075 48'21.8	738 mtrs
4.	Siddapura camp Chikamanglur districts	N13 38'35.6 E075 46'38.9	676 mtrs
5.	Hulikal check post Nagara.(Hulikal)	N13 42'57.1 E07500'01.01	644mtrs
6.	Shivamogga.	N13 55' 55'' E075 32'35''	683 mtrs

In this study Moths were surveyed by direct encounter method at nights between 8:00 PM to 6:00 AM from June 2019 to October 2020. The moths congregated at the light Traps (Walls) were photographed. Moths sighted in the day around the study sites were also photographed and added to the data to have inclusivity of any species that is diurnal. Tarikere College was the most frequently surveyed site i.e.2 to 3 times a week. KRH-IB was surveyed once or twice a month. In Shivamogga randomly encountered moths were photographed. The remaining site were surveyed for moths only for four nights during the survey period. The photographed moths were identified using available literature [11, 12, 13, 14] on moth diversity and Web resources dedicated to lepidopteran diversity. Some Moths could only be identified up to genus level, which have been indicated by genus name followed by SP.

Results and Discussion

In this study 407 moth taxa from 23 families and 63 subfamilies have been recorded. The family Erebidae dominated with 33.41% of the total moths species recorded. The second dominant family is Geometridae with 23.10%, the third dominant family is Crambidae with 17.20% and Noctuidae with 7.12% occupied fourth place. These four families accounted for 80.83% of the identified moth fauna of this study. The remaining 19 families together contribute 19.17% of Moths diversity of the area. Available literature

about earlier studies of Moth fauna in India has showed a wide variation in species richness. The study of Moths by Ghosh in 2003 showed that there was an increase in the number of species from the family Larentenae with an increase in altitude in the tropics (Holloway 1993, 1997). The study of diversity of Moth fauna in Kodagu district of Karnataka, Coorg showed that the Families Erebidae, crambidae and Geometridae together accounted for 70% of the diversity. The diversity of species with respect to other families in the same area was very less [2]. In 2013 Kailash and Sambboth reported that the dominance of moth families in Tawang district in Arunachal Pradesh was Erebidae (26%), Drepanidae (8%), Crambidae (7%) and Geometridae (48%). Similarly, Geometridae dominated the list in Sikkim (Ghosh 2003). In the present study we could photograph 610 Moth fauna but we could identify 407 Moths. The remaining 203 Moths were not identified due to the lack of adequate literature and expertise. In this study Moths diversity in Western Ghats region of Shivamogga and Chikamanglur showed that, Erebidae, Crambidae and Geometridae are the dominant families accounting for 73.71% of total moth taxa identified during the study. The remaining 20 families put together contributed 26.29% to moth's diversity of the region. The differences may be due to variations in habitat, climatic conditions and changes in flora, altitude, latitude and other ecological factors.

Table 2: Number and percentage of Moths Related to different Families.

Sl. No.	Family	Species	
		Numbers	Percentage
1	Crambidae	70	17.20
2	Erebidae	136	33.41
3	Geometridae	94	23.10
4	Nolidae	8	1.97
5	Noctuidae	29	7.12
6	Pyralidae	11	2.70
7	Sphingidae	11	2.70
8	Uraniidae	8	1.97
9	Notodontidae	4	0.982
10	Thyrididae	5	1.228
11	Tortricidae.	3	0.737
12	Psychidae	1	0.246
13	Tineidae.	1	0.246
14	Bombycidae.	3	0.747
15	Lacithoceridae	1	0.246
16	Pterophoridae	2	0.491
17	Drepanoidea	3	0.737
18	Ereocotidae	1	0.246
19	Eupterotidae	7	1.72
20	Lasiocampidae	1	0.246
21	Saturnidae	2	0.491
22	Limacodidae	4	0.982
23	Euteliidae	2	0.491
	Total=	407	

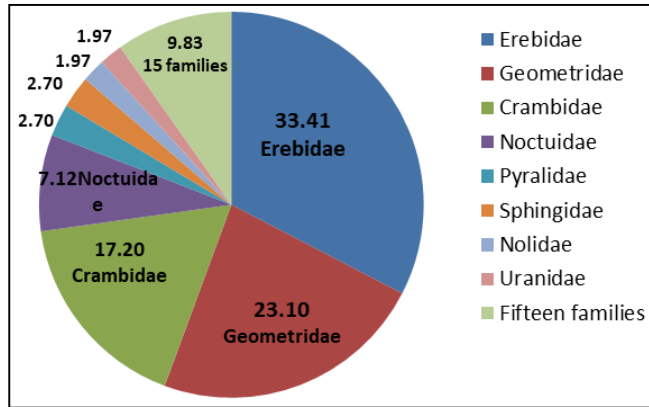


Fig 3: Chart showing Family wise percentage of Moths identified.

Among different sites, the Diversity in Moth fauna of KRH-IB is highest with 296 species but in this site not even a single hooktip moth was recorded. This may be due to the fact that it is a disturbed habitat with a history of iron ore mining to supply iron ore to VISNL, Bhadravathi. In this site large number of moths of sub families Arctiinae (51) and Erebiniae (28) of family Erebidae were recorded indicating disturbed habitat (Field guide to Indian Moths by Dr.Shubhalaxmi, page no.31, p no.89). As per local information in the past 5 years

moth congregation at the KRH-IB decreased drastically probably due to the use of weedicides spray in coffee plantations which were not used by them earlier. Even during this study in 2019 a denser congregation was noticed in comparison to 2020. Tharikere collage was most frequently covered i.e, for 100 days where 109 moth fauna were recorded. This is a man dominated and disturbed habitat, where 32 moth taxa of spilomelinae of crambidae is the most dominate group, Erebiniae of Erebidae is the second dominant group with 14 species and Geometrinae of Geometridae stands third with 11 species. Shivamogga, Sidapura and Hulikal check post were covered only for few nights. They need to be studied further for recording a more exact data on moth taxa. The Hulikal site covered for 4 nights recorded 24 species of moths. Out of these 24 species, 3 are hook tip moths (Family: Drepanidae), 4 moths belong to Macroglosinae of Family Spingidae and 7 moths were from Family Erebidae. In the field we could see that Hulikal is a less disturbed habitat when compared to others. In the previous two studies [15, 16] 150 taxa were recorded out of which only 65 moth taxa are again sighted during this study .The remaining 342 out of 407 were not observed in previous two studies in western Ghats of Karnataka.

Table 3: List of moths present in the study area.

S. No.	Scientific name.	Place of sight.	S. No.	Scientific name.	Place of sight.
1. Family: Crambidae. i. Sub family: Acentropinae.			35	<i>Pycnarmon cribrata.</i>	Tarikere collage.
1	<i>Parapoynx stagnalis.</i>	All the 6 places	36	<i>Herpetogramma bipunctalis</i>	Tarikere collage, KRH IB
2	<i>Parapoynx diminutalis.</i>	Tarikere collage, KRH IB	37	<i>Maruka vitrata</i>	Tarikere collage, KRH IB
3	<i>Parapoynx bilinealis.</i>	.KRH IB	38	<i>palpita vitrealis</i>	Tarikere collage, KRH IB
4	<i>Elophila.sp.</i>	Krshna. Rajendra. Hill. Station. IB.	39	<i>Palpita anulifera .</i>	KRH IB.
5	<i>Paracymoriza. sp</i>	Krshna. Rajendra. Hill. Station. IB.	40	<i>Hodebertia testalis</i>	Tarikere collage.
ii. Sub family: Pyrastinae.			41	<i>Pygospilla sp.</i>	Hulikal, Nagara.
6.	<i>Paliga ochrealis.</i>	KRH IB.	42	<i>Palpita sp.</i>	KRH IB.
7	<i>Euresipita Ornithopteralis.</i>	Tarikere collage.	43	<i>Nausinoe pueritia.</i>	KRH IB.
8	<i>Paliga machoeralis.</i>	Tarikere collage.	44	<i>Synclera traducalis.</i>	Tarikere collage
iii. Subfamily: Crambinae.			45	<i>Cnaphlocrocis medinalis.</i>	Tarikere collage ,KRH IB.
9	<i>Ancylolomia sp</i>	KRH. IB.	46	<i>Lamprosema commixta</i>	Tarikere collage.
10	<i>Ancylolomia sp</i>	KRH. IB.	47	<i>Thalassodes quadraria.</i>	Tarikere collage.
11	<i>Glaucocharis tripunctata</i>	KRH. IB.	48	<i>Conogethes punctiferalis</i>	KRH IB.
iv. Subfamily: Schoenobiinae.			49.	<i>Leucinode orbonalis.</i>	Tarikere collage
12	<i>Donacaula melinellus.</i>	KRH. IB.	50	<i>Metoeca foedalis.</i>	KRH IB.
v. Subfamily: Spilomelinae.			51	<i>Cnaphlocrocis trapezalis.</i>	Tarikere collage, KRH IB.
13	<i>Glyphodes actorionalis.</i>	KRH.IB.	52	<i>Omeodes indicata.</i>	Tarikere collage, KRH IB.
14	<i>Glyphodes bicolor.</i>	Tarikere collage.	53	<i>Lamprosema sp.</i>	Siddapura.
15	<i>Dysallacta negatalis.</i>	Tarikere collage.	54	<i>Nacoleia sp</i>	KRH IB.
16	<i>Glyphodes onychinalis.</i>	Tarikere collage, KRH IB.	55	<i>Pyраста sp.</i>	KRH IB.
17	<i>Agathodes ostantalis.</i>	Tarikere collage, KRH IB.	56	<i>Diastmiopsis ramburialis</i>	KRH IB.
18	<i>Agrotera magnificalis.</i>	KRH IB.	57.	<i>Filodes fulvidorsalis .</i>	KRH IB.
19	<i>Lamprosema tampiusalis.</i>	Sidapura, T C, KRH IB.	58	<i>Pachynoa sabelialis.</i>	KRH IB.
20	<i>Herpetogramma sp</i>	Tarikere collage, KRH IB.	59	<i>Clupeosoma sp.</i>	KRH IB.
21	<i>Spoladea recurvalis.</i>	Tarikere collage, KRH IB.	60	<i>Notarcha aurolinealis.</i>	KRH IB.
22	<i>Sameodes cancellalis.</i>	Tarikere collage, KRH IB.	61	<i>Orthospila orissusalis .</i>	KRH IB.
23	<i>Agrotera basinotata.</i>	Tarikere collage, KRH IB.	62	<i>Bradina sp .</i>	Tarikere collage
24	<i>Palpita cf asiaticalis.</i>	Tarikere collage.	63	<i>Protonocera sp</i>	KRH IB.
25	<i>Synclera tibialis.</i>	KRH IB.	64	<i>Agrioglypta itysalis.</i>	Hulikal.
26	<i>Omphisa anastomosalis.</i>	Tarikere collage, KRH IB.	65	<i>Niphopyralis.sp</i>	KRH IB.
27	<i>Sylepte balteata.</i>	Tarikere collage.	66	<i>Chabula acamasalis.</i>	KRH IB.
28	<i>Rhimphaliodes macrostigma</i>	Tarikere collage.	67	<i>Omiodes barcalis.</i>	KRH IB.
29	<i>Cirrhochrista brizoalis.</i>	Tarikere collage.	68	<i>Piletocera sordalis.</i>	KRH IB.
30	<i>Eurrhyarodes bracteolalis</i>	Tarikere collage, KRH IB.	vi. Subfamily : Lathrotelinae.		
31	<i>Orphanostigma argastale. 27.Fig grass moth</i>	Tarikere collage, KRH IB.			

32	<i>Talanga sexpunctalis</i> .	KRH IB.	69	<i>Sufetula sp.</i>	Tarikere collage ,KRH IB.
33	<i>Diaphania indica.</i>	Tarikere collage.	vii.Subfamily: Odontiinae .		
34	<i>Botyodes asialis</i>	Tarikere collage.	70	<i>Hemiscopsis sp.</i>	KRH IB.
2. Family : Erebidae. i. Sub Family: Aganainae (Snout Tiger Moths)					
1	<i>Sommeria marchalii.</i>	KRH IB	80	<i>Thyas coronate.</i>	KRH IB.
2	<i>Asota caricae</i>	KRH IB	81	<i>Entamogramma sp .</i>	Tarikere collage, KRH IB.
3	<i>Asota sericea</i>	KRH IB	82	<i>Ericcia pertendens</i>	Tarikere collage,
4	<i>Asota ficus</i>	Tarikere collage	83	<i>Ericcia sp.</i>	Tarikere collage,
5.	<i>Asota plana</i>	Hulikal, Nagara.	84	<i>Mosis frugalis.</i>	Tarikere collage, KRH IB.
6	<i>Sommeria hearseyana.</i>	KRH IB	85	<i>Ophiusa disjungens .</i>	KRH IB.
ii. Sub Family: Anobinae.			86	<i>Bastilla algira .</i>	Tarikere collage
7.	<i>Plecoptera quaesit.</i>	KRH IB	87	<i>Bastilla joviana.</i>	KRH IB.
iii. Sub Family: Arctiinae. (Tiger moths)			88	<i>Pericyma mendax.</i>	Tarikere collage
8	<i>Stigmatophora palmate.</i>	KRH IB	89	<i>Cerrodes campana</i>	KRH IB
9	<i>Olepa ricini.</i>	Hulikal, Nagara.	90	<i>Artena dotata</i>	KRH IB
10	<i>Eugoa sp</i>	Tarikere collage ,KRH IB.	91	<i>Lacera noctilo.</i>	KRH IB
11	<i>Cyana perigrina</i>	Tarikere collage	92	<i>Sphingomorpha chlorea</i>	Sidapura.
12	<i>Cyana puella.</i>	KRH IB.	93	<i>Acantholipes circumdata</i>	Tarikere collage
13	<i>Rajendra pirotetti.</i>	Tarikere collage, KRH IB	94	<i>Rhesala sp.</i>	KRH IB
14	<i>Lemyra sp</i>	KRH IB, KRH quarters	95	<i>Gesonina obeditalis</i>	KRH IB
15	<i>Eutethesia sp</i>	KRH IB, Tarikere collage	96	<i>Lined shades moth.</i>	KRH IB
16	<i>Teulisna karena</i>	KRH IB,	97	<i>Avitta quadrilenea</i>	
17	<i>Barsine rufumdefecta.</i>	KRH IB, Tarikere collage	98	<i>Matigramma.sp</i>	Tarikere collage
18	<i>Barsine cunionotatus</i>	KRH IB	vii. Sub Family: Hermininae. (Litter moths)		
19	<i>Barsine.sp</i>	KRH quarters	99	<i>Herminia.sp</i>	KRH IB
20	<i>Tulisna unicornuta.</i>	KRH IB ,KRH quarters	100	<i>Gampola fasciata.</i>	KRH IB
21	<i>Tulisna sp.</i>	KRH IB ,KRH quarters	101	<i>Hydrillodes lentalis.</i>	KRH IB, Tarikere collage
22	<i>Lyclean cf obsolete.</i>	KRH IB, Tarikere collage	102	<i>Naarda. Sp</i>	KRH IB, Tarikere collage
23	<i>Lyclene.sp</i>	KRH IB	103	<i>Hydrilodes sp.</i>	KRH IB.
24	<i>Mangina argus</i>	KRH IB ,KRH quarters	104	<i>Bertula sp.nr.abjudicalis</i>	KRH IB.
25	<i>Lyclene obsoleta.</i>	KRH IB	105	<i>Sympis rufibasis</i>	KRH IB.
26	<i>Lyclene uncalis.</i>	KRH IB	106	<i>Hydrillodes gravatalia</i>	KRH IB.
27	<i>Lyclene hollowai.</i>	KRH IB	107	<i>Bocana manifestalis.</i>	KRH IB.
28	<i>Miltochrista strigiventa</i>	KRH IB	108	<i>Simplicia sp.</i>	Tarikere collage
29	<i>Amata extensa.</i>	KRH IB	viii. Sub Family: Hypeninae (Snout Erebids)		
30	<i>Eressa confinis</i>	KRH IB	109	<i>Hypena.sp</i>	Hulikal
31	<i>Syntomoides imaoon</i>	KRH IB	110	<i>Hypena lacertalis</i>	KRH IB.
32	<i>Amata sp.</i>	KRH IB	111	<i>Dichromia .sp</i>	KRH IB.
33	<i>Amata passalis</i>	KRH IB, Shivamogga	112	<i>Dichromia sps.</i>	KRH IB.
34	<i>Euchromia polymena</i>	Shivamogga.	113	<i>Britha biguttata</i>	KRH IB.
35	<i>Aemene taprobanis</i>	KRH IB	114	<i>Dichromia pullata</i>	KRH IB.
36	<i>Pandonia sp.</i>	KRH IB	ix. Sub Family: Lymantriinae.		
37	<i>Hemonia orbiferana</i>	Tarikere collage	115	<i>Lymantria inserta</i>	KRH IB.
38	<i>Brunia antica.</i>	Tarikere collage KRH IB,	116	<i>Lymantria todara</i>	KRH IB, Tarikere collage.
39	<i>Nyctemera lacticinia.</i>	KRH IB	117	<i>Lymantria fulginosa</i>	KRH IB, Tarikere collage.
40	<i>Nyctemera adversarsata</i>	Tarikerecollage, Shivamogga.	118	<i>Arctornis submarginata</i>	TC,Shivamogga.
41	<i>Amenilla astreus.</i>	Tarikere collage.	119	<i>Artaxa inconcia</i>	KRH IB, Tarikere collage.
42	<i>Cretonotus gangis.</i>	Tarikere collage	120	<i>Artaxa.sp.</i>	KRH IB, Tarikere collage.
43	<i>Cretonotos transiens.</i>	KRH IB ,KRH quarters	121	<i>Aroa clara.</i>	KRH IB,
44	<i>Macotasa nubecula.</i>	KRH IB .	122	<i>Euproctis leithian.</i>	Tarikere collage
45	<i>Macotasa tortricoides.</i>	KRH IB .	123	<i>Euproctis bicolor.</i>	Tarikere collage
46	<i>Nepita conferta.</i>	KRH IB .	124	<i>Euproctis.sp.</i>	Tarikere collage ,KRH IB.
47	<i>Nepita sp</i>	Tarikere collage	125	<i>Euproctis.sp.</i>	Tarikere collage
48	<i>Gompola fasciata.</i>	KRH IB .	126	<i>Euproctis magna.</i>	Tarikere collage ,KRH IB.
49	<i>Paraona sp.</i>	KRH IB .	127	<i>Calliteara grotei .</i>	KRH IB.
50	<i>Schistopheips sp.</i>	KRH IB, Tarikere collage.	128	<i>Aroa plana.</i>	Tarikere collage.
51	<i>Eilema obliterans.</i>	KRH IB,	129	<i>Perina nuda.</i>	Tarikere collage ,KRH IB.
52	<i>Pied footmen moth</i>	KRH IB,	x. Sub Family: Scoliopteryginae.		
53	<i>Microlithosia.</i>	KRH IB,	130	<i>Orgeya postica.</i>	
54	<i>Micraloa lineola.</i>	Tarikere collage.	131	<i>Olene mendosa.</i>	Tarikere collage, KRH IB.
55	<i>Spilarctia.sp</i>	KRH IB.	132	<i>Cispia punctifascia.</i>	Hulikal
56	<i>Spilarctia.sp.</i>	KRH IB.	133	<i>Russicada fulvida.</i>	KRH IB.
57	<i>Spilarctia.sp.</i>	KRH IB.	xi. Sub Family: Pangraptinae.		
58	<i>spilarctia mona.</i>	KRH IB.	134	<i>Egnasia ephyrodalis</i>	KRH IB.
iv Sub Family: Bolitobiinae.			xii. SubFamily: Txocampinae		
59	<i>Enispa elataria</i>	KRH IB,	135	<i>Tathorhynchus sp.</i>	Tarikere collage.
60	<i>Ataboruza divisa. 50 Laspeyria ruficeps</i>	KRH IB,	xiii. Sub Family: Hypenodinae.		

61	<i>Laspeyria ruficeps.</i>	KRH IB,	136	<i>Micronoctuini moth.</i>	Sidapura.
62	<i>Maguda pilipes.</i>	KRH IB,		3. Family : Eupterotidae. (Monkeymoths) i. Sub Family: Eupterotinae.	
63	<i>Homeodes crocera.</i>	Hulikal.			
v. Sub Family: Calpinae.					
64	<i>Eudocima maternal</i>	Tarikere collage.	1	<i>Apona monkey moth.</i>	KR Hills
65	<i>Eudocima homaena</i>	KRH IB.	2	<i>Eupterote mollifera</i>	Tarikere collage.
66	<i>Eudocima phalonia</i>	KRH IB.			
67	<i>Eudocima salaminia .</i>	Hulikal	3	<i>Eupterote undata.</i>	KR Hills
68	<i>Achaea janata.</i>	KRH IB.			
69	<i>Phyllodes consobrina.</i>	Hulikal			
vi. Sub Family: Erebiniae (Owl moths).			4	<i>Sangatissa subcurvifera</i>	KR Hills
70	<i>Mocis undata.</i>	Tarikere collage, KRH IB.			
71	<i>Spirama retorta</i>	KRH IB.	5.	<i>Eupterote undans.</i>	KR Hills
72	<i>Spirama helicina.</i>	Hulikal			
73	<i>Erabus macropus</i>	Tarikere collage	6.	<i>Eupterote.sp</i>	KR Hills
74	<i>Erabus ephesperis.</i>				
75	<i>Erabus hieroglyphica</i>	KRH IB.			
76	<i>Hypopyra vespertilio</i>	KRH IB.			
77	<i>Trigonodes hyppesia</i>	Tarikere collage			
78	<i>Grammodes geometric.</i>	Tarikere collage			
79	<i>Fodina stola.</i>	Tarikere collage			
4. Family : Geometridae. (Buttfly Geometer moths)					
i. Sub Family: Desmobaethinae.					
1.	<i>Eumelea ludovicata</i>	KRH IB.	50	<i>Microloxia indecreat</i>	Tarikere collage
ii. Sub Family: Ennominae (Thorn moths)			51	<i>Pingasa clora</i>	KRH IB, Tarikere collage
2	<i>Zeheba aureata</i>	Hulikal	52	<i>Pingasa ruginria</i>	Hulikal
3	<i>Luxiaria sp</i>	KRH IB.	iv Sub Family: Larentinae. (Carpet moths)		
4	<i>Abraxas sylvata.</i>	KRH IB.	53	<i>Ecliptopera umbrosari.</i>	KRH IB.
5	<i>Abraxas ditritaria.</i>	KRH IB.	54	<i>Sauris sphirudinata</i>	KRH IB.
6	<i>Biston suppressaria.</i>	KRH IB.	55	<i>Gymnoscellis sp</i>	KRH IB.
7	<i>Lassaba albideria.</i>	KRH IB.	56.	<i>Gymnosalis sp</i>	KRH IB.
8	<i>Chiasmia eleonora</i>	KRH IB.	57	<i>Gymnosalis.sp</i>	KRH IB.
9	<i>Chiasmia eleonora</i>	KRH IB.	58	<i>Eupithecia sp</i>	KRH IB.
10	<i>Chiasmia emersaria</i>	KRH IB.	59	<i>Eupithecia sp</i>	KRH IB.
11	<i>Chiasmia fidoniata.</i>	Tarikere collage	60	<i>Eupithecia sp</i>	KRH IB.
12	<i>Chiasmia cymatodes</i>	KRH IB.	61	<i>Chloroclystis .sp.</i>	KRH IB.
13	<i>Petalia medarfaria</i>	KRH IB.	62	<i>Pasiphila rectangulata</i>	KRH IB.
14	<i>Petalia immaculate</i>	KRH IB.	63	<i>Eupithecia sp</i>	KRH IB.
15	<i>Petalia sp.</i>	KRH IB.	64	<i>Dysphania percota</i>	Shivamogga.
16	<i>Isturgia sp.</i>		iv Sub Family: Sterrhinae (Wavy moths)		
17	<i>Fascellina plagiata.</i>	KRH IB.	65	<i>Crysocrospeda sp</i>	KRH IB.
18	<i>Red banded geometer</i>	KRH IB.	66	<i>Crysocrospeda faganeriya.</i>	KRH IB.
19	<i>Heterosteganae subtessellata</i>	Tarikere collage	67	<i>Idaea gemmaria.</i>	KRH IB.
20	<i>Heterostigane sp</i>	KRH IB.	68	<i>Idea violacea.</i>	KRH IB.
21	<i>Heteroloacha sp</i>	KRH IB.	69	<i>Thimandra correspondens.</i>	KRH IB.
22	<i>Hypochrosia hyadaria .</i>	KRH IB.	70	<i>Traminda mundissima.</i>	KRH IB.
23	<i>Omiza sp.</i>	KRH IB.	71	<i>Problepsis vulgaris.</i>	KRH IB.
24	<i>Hypomecis sp.</i>	KRH IB.	72	<i>Problepsis.ocellaria.</i>	KRH IB.
25	<i>Ectropis sp.</i>	KRH IB.	73	<i>Scopula.sp.</i>	KRH IB.
26	<i>Achrosis sp</i>	Tarikere collage	74	<i>Scopula emissaria</i>	K R Hills, Tarikere collage.
27	<i>Psilalcis sp</i>	KRH IB.	75	<i>Scopula.sp.</i>	KRH IB.
28	<i>Borbacha sp</i>	KRH IB.	76	<i>Scopula.sp.</i>	KRH IB.
29	<i>Rutellerona cessaria</i>	KRH IB.	77	<i>Scopula pulchellata.</i>	KRH IB.
30	<i>Hyposidra talaka.</i>	KRH IB.	78	<i>Scopula sp.</i>	KRH IB.
31	<i>Aplochloa vililaca</i>	Tarikere collage	79	<i>Scopula sp.</i>	KRH IB.
32	<i>Parapholodes fuliginea.</i>	KRH IB.	80	<i>Scopula sp</i>	KRH IB.
33	<i>Ourapteryx sambucaria</i>	KRH IB.	81	<i>Scopula.sp</i>	KRH IB.
34	<i>Oxymacaria palliate.</i>	KRH IB.	82	<i>Scopula.sp</i>	KRH IB.
35.	<i>Racotis sp.</i>	KRH IB.	83	<i>Scopula.sp.</i>	KRH IB.
36	<i>Racotis boarmiaria.</i>	KRH IB.	84.	<i>Scopula insolata.</i>	KRH IB.
iii. Sub Family: Geometrinae. (Emerald moths)			85.	<i>Idea inversata.</i>	KRH IB.
37	<i>Agathia gemma.</i>	KRH IB.	86.	<i>Somatina rosacea.</i>	KRH IB.
38	<i>Agathia laetata.</i>	KRH IB. Tarikere collage.	87.	<i>Somatina sp.</i>	KRH IB.
39	<i>Eucyclodes sp.</i>	KRH IB.	88.	<i>Scopula.sp</i>	KRH IB.
40	<i>Protulioenemis castaleria</i>	KRH IB.	89.	<i>Anisephyra ocularia.</i>	KRH IB.
41	<i>Comibaena cassidara.</i>	Tarikere collage.	90	<i>Perixera sp.</i>	KRH IB.
42	<i>Comibaena integranola.</i>	Tarikere collage.	91.	<i>Lophophlepuspurplea.</i>	KRH IB.
43	<i>Comostola meritaria</i>	KRH IB.	92.	<i>Scopula divisaria.</i>	KRH IB.

44	<i>Comostola sp</i>	Tarikere collage.	93.	<i>Organopoda carnearia.</i>	KRH IB.
45	<i>Hemithia tritonaria</i>	Tarikere collage.	94.	<i>Scopula opicata.</i>	KRH IB.
46	<i>Jodis inumbrata</i>	Tarikere collage.			
47	<i>Thalassodes quadraria.</i>	Tarikere collage.			
48	<i>Onithospilla avicularia</i>	Tarikere collage.			
49	<i>Maxatus sp.</i>	Tarikere collage.			
5. Family: Lasiocampidae. Sub Family: Lasiocampinae. (Lappet moths)			6. Family : Saturnidae . Sub Family: Saturniinae. (Emperor moth)		
1	<i>Radhica sp.</i>	KR Hills.	1.	<i>Actia selene</i>	Sidapura camp
			2	<i>Loepa sp</i>	KRH IB.
7. Family : Nolidae .			8. Family : Limacodidae.		
I Sub family: Westermanniinae.			1.	<i>Cania sericea.</i>	KRH IB.
1.	<i>Westermania superb.</i>	KRH IB.	2.	<i>Miresaspcfargenifera.</i>	KRH IB.
2.	<i>Negeta contrariata.</i>	KRH IB.	3.	<i>Parasafumosa.</i>	KRH IB.
ii Sub family: Nolinae (Nolas)			4	<i>Narosa conspersa.</i>	KRH IB.
3.	<i>Nola.sp(Nola minna)</i>	KRH IB.	9. Family : Euteliidae.		
4.	<i>Threespotted nola.</i>	KRH IB.	1.	<i>Lophoptera hemithyris.</i>	KRH IB.
5	<i>Nola.sp</i>	KRH IB.	2.	<i>Marathyssa sp</i>	KRH IB.
6	<i>Nolathripa sp</i>	KRH IB.	11. Family: Notodontidae .		
iii. Sub family: Ariolicini			i. Sub family: Phalarinae.		
7	<i>Tathothripa sp.</i>	KRH IB.	1	<i>Antheua servula</i>	KRH IB.
8	<i>Aiteta sp</i>	KRH IB.	ii. Sub family: incertae sedis		
10. Family: Noctuidae . i. Sub family: Noctuinae.			2.	<i>Bireta longivitta</i>	KRH IB.
1.	<i>Conservula indica.</i>	KRH IB.	iii. Sub family: Ceirinae.		
2.	<i>Conservula sp.</i>	KRH IB.	3	<i>Turnaca Ernestinae</i>	KRH IB, Tarikere collage.
3.	<i>Spodoptera letura.</i>	KRH IB.	iv. Sub family: Dudusinae.		
4	<i>Callyna monoleuca.</i>	KRH IB.	4	<i>Dudusa synopla</i>	Hulikal
5	<i>Mythimna. sp</i>	KRH IB.	12 . Family: Pyralidae .		
6	<i>Mythimna sp.</i>	K R Hill, Tarikere	i. Sub family: Pyralinae.		
7	<i>Mythimna sp.</i>	KRH IB.	1	<i>Zithat actilis .</i>	KRH IB.
8	<i>Mythimna unipuncta</i>	KRH IB.	2	<i>Arippara indicator</i>	KRH IB.
9	<i>Agrotis sp</i>	KRH IB.	3	<i>Kongtailed pyralid.</i>	KRH IB.
10	<i>Athetis.sp</i>	KRH IB.	4	<i>Hypsopygia nostralis</i>	KRH IB.
ii. Sub family: Plusinae.			5	<i>Pyralis manihotalis</i>	KRH IB.
11.	<i>Chrysodexis acuta</i>	Tarikere	6.	<i>Hypsopygia postdlava</i>	KRH IB.
12	<i>Thysanoplusia orichalsia</i>	KRH IB.	7.	<i>Endotricha mesenterialis</i>	KRH IB.
13	<i>Chrysodexis sp</i>	KRH IB.	8.	<i>Trichauchenia dharmasala</i>	KRH IB.
14	<i>Chytonix sp</i>	KRH IB.	9.	<i>Synaphe sp(punctalis)</i>	KRH IB.
iii. Sub family: Condicinae.			10	<i>Hypsipyla sp</i>	KRH IB.
15	<i>Condica dolorosa.</i>	KRH IB.	ii. Sub family: Gallerinae.		
16	<i>Condica sp(Viscosa).</i>	K R Hill, Tarikere collage.	11.	<i>Lamoria sp</i>	KRH IB.
iv. Sub family: Catocalinae.			13. Family : Sphingidae.		
17	<i>Pangrapta sp.</i>	KRH IB.	i. Sub family: Smerinthinae.		
18	<i>Hyospila bolinoides.</i>	KRH IB.	1.	<i>Dhafnis nerri</i>	Tarikere collage
v. Sub family: Eustrotiinae.			2.	<i>Marumba nympa</i>	KR hills 'Tarikere
19	<i>Maliatha separata.</i>	KRH IB.	3.	<i>Ambulyx substrigilis</i>	Hulikal
20	<i>Maliattha .sp</i>	KRH IB.	4.	<i>Ambulyx ochracea</i>	Hulikal
21	<i>Maliatha.sp</i>	KRH IB.	5	<i>Amplypterus panupus.</i>	Hulikal
22	<i>Maliatha .sp</i>	KRH IB.	ii. Sub family: MacroGLOSSINAE.		
23	<i>Ozarba punctigera.</i>	KRH IB.	6	<i>Hippotion boerhavia.</i>	KR hills
24	<i>Progonia sp</i>	Tarikere.	7	<i>Macroglossum gyrans</i>	KR hills
vi. Sub family: Agarstinae.			8	<i>Pergesa acteus</i>	Hulikal
25	<i>Episteme sp</i>	Shivamogga	iii. Sub family: Spinginae.		
vii. Sub family: Acontiinae.			9	<i>Achirontia lachesis</i>	Tarikere
26	<i>Acontia marmoralis.</i>	Tarikere collage.	10	<i>Agrius convolvuli</i>	KR hills
viii. Sub family: Cucullinae.			11	<i>Psilogramma sp</i>	Shivamogga
27	<i>Psectraglaea carnosa</i>	KRH IB.	14. Family: Tineidae.		
ix. Sub family: Hadeninae.			i Sub Family: Perissomasticinae.		
28	<i>Xenotrachea sp</i>	Shivamogga	1.	<i>Edosa varians</i>	K.R.Hills
29	<i>Luperina sp</i>	Shivamogga	15. Family : Tortricidae .		
17. Family : Bombycidae .			i Sub Family: Tortricinae.		
1.	<i>Trilocha varince .</i>	Tarikere collage.	1.	<i>Archips micaceana</i>	TC, Shivamogga, KRH IB
2.	<i>Penicilidera apicalis.</i>	K.R.Hills.	2	<i>Aclaris</i>	Tarikere collage, KRH IB
3	<i>Silk Moth (Gunda sp)</i>	Tarikere collage.	3	<i>Meridemis sp.</i>	TC, Shivamogga, KRH IB
18. Family : Lacithoceridae			16 . Family : Psychidae Family		
1.	<i>Common longhorn moth</i>	TC, Shivamogga, KRH IB.			

19. Family: Uraniida .i. Sub family: Epipleminae.			1.	<i>Psyche castacase.</i>	TC, Shivamogga.
1.	<i>Epiplema sp</i>	KRH IB, Tarikere collage.KRH Q	20. Family : Pterophoridae .		
2.	<i>Phazaka lucocera.</i>	KRH IB, KRH Quarters			
3.	<i>Phazaca sps.</i>	KRH IB ,KRH Quarters	1	<i>Sphenarches anisodactyla.</i>	TC, Shivamogga, KRH IB.
ii. Sub family: Uraniinae.			2	<i>Emmelinea monodactyla</i>	TC, Shivamogga,KRH IB.
4	<i>Uropteroides astheniata</i>	Hulikal	22. Family: Eriocotidae. .		
iii. Sub family: Microniinae			1.	<i>Campsoctena sp.</i>	KRH IB.
5	<i>Micronia aculeate</i>	KRH IB,KRH Quarters	23. Family: Thyrididae.		
6	<i>Pseudomicronia advocaria.</i>	Hulikal.	i. Sub family: Siculodinae.		
iv. Sub family: Epipleminae.			1.	<i>Hypolamprus sp.</i>	KRH IB,Hulikal.webber
7	<i>Rhombophylla rectimarginata.</i>	KRH IB KRH Quarters,	ii. Sub family: Striglininae.		
8	<i>Epiplema sp.</i>	KRH IB, KRH Quarters	2	<i>Banisia myrsusalis</i>	KRH IB
21. Family : Drepanidae.			3	<i>Sonagara strigipennis</i>	KRH IB
Sub Family: Drepanidae.(Hook Tip Moths.)			4.	<i>Banisia sp</i>	KRH IB
1	<i>Chanucha specularis.</i>	Hulikal	5.	<i>Hexaris sp</i>	Sidapura.
2	<i>Oreta vatama.</i>	Hulikal	-----0-----		
3	<i>Tridrepana pulvata.</i>	Hulikal			

Family :Crambidae



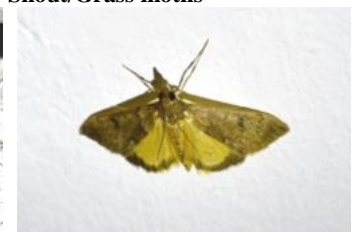
1.Parapoynx diminutalis.



2. Parapoynx bilinealis



3. Paracymoriza sp



4. Euresiphita-ornithopteralis



5. Ancylolema .sp



6. Ancylolema.sp



7. Glaucocharis tripunctata



8. Donacaula melinellus



9. Glyphodes bicolor



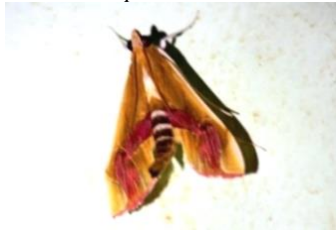
10. Dysallacta negatalis



11. Glyphodes onychinalis.



12. Synclera tibialis



13. Agathodes ostantalis



14. Agroteta magnificentalis



15. Herpetogramma .sp



16. Rhimphaliodes macrostigma



17. Agroteta basinotata



18. Palpita asiaticalis



19. Cirrhochrista brizoalis



20. Orphanostigma argastale



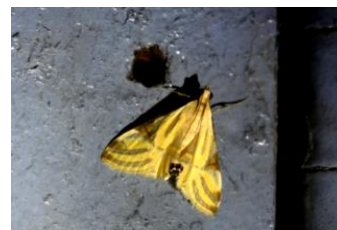
21. *Diaphania indica*



22. *Botyodes asialis*



23. *Pycnarmon cribrata*



24. *Talanga sexpunctalis*



25. *Palpita vitrealis*



26. *Palpita anulifera*



27. *Hodebertia testalis*



28. *Haritalodes* sp



29. *Leucinodes orbonalis*.



Leucinodes (Female)

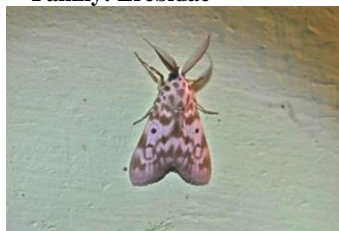


30. *Metoeca foedalis*.



31. *Pyrausta* sp.

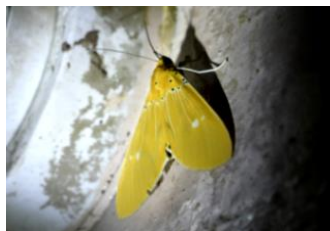
Family: Erebidae



1. *Sommeria marchalii*



2. *Asota caricae*



3. *Asota sericea*



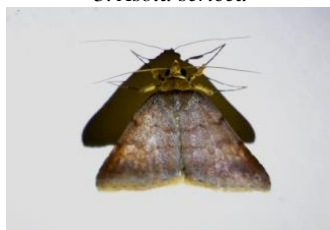
4. *Asota ficus*



5. *Asota plana*



6. *Sommeria hearseyana*



7. *Plecoptera quaesita*



8. *Stigmatophora palmata*



9. *Olepa ricini*



10. *Eugoa* sp.



11. *Maguda pilipes*



12. *Homeodes crocera*



13. *Rajendra pirotetti*.



14. *Lemyra* sp.



15. *Utetheisa* sp



16. *Teulisna karena*.

Erebid Moths



17. *Barsine rufumdefecta*



18. *Barsine cunionotatus*



19. *Barsine.sp*



20. *Tulisna unicornuta*



21. *Tulisna sp.*



22. *Lyclean cf obsolete*



23. *Lyclene .sp*



24. *Mangina argus*



25. *Schistopheips sp.*



26. *Eilema oblitterans*



27. *Thysonoptyx sordid*



28. *Microlithosia.sp*



29. *Micraloa lineola.*



30. *Aemene taprobanis*



31. *Crimson enispa*



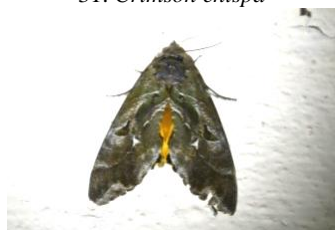
32. *Ataboruza divisa*



33. *Eudocima maternal.*



34. *Eudocima homaena.*



35. *Eudocima phalonia.*



36. *Eudocima salaminia.*



37. *Phyllodes consobrina*



38. *Spirama retorta.*



39. *Spirama helicina.*



40. *Cispia punctifascia..*



41. *Erabus macropus.*



42. *Erebus ephesperis.*



43. *Erabus hieroglyphica*



44. *Hypopyra vespertilio*



45. *Trigonodes hyppesia*



46. *Grammodes geometric*



47. *Fodina stola*



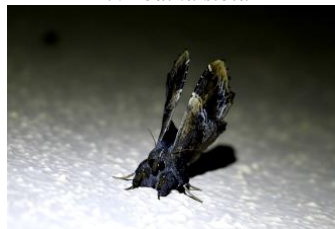
48. *Thyas coronate*



49. *Cerrodes campana*



50. *Achaea sp.*



51. *Lacera noctilo*



52. *Spingomorpha chlorea*



53. *Avitta quadrilenea*



54. *Gampola fasciata*



55. *Hydriodes sp.*



56. *Bertula abjudicalis*

Family: Eupterotidae



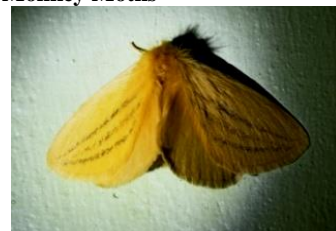
1. *Eupterote sp.*



2. *Eupterote mollifera*.(Male)



3. *Eupterote undata*



4. *Sangatissa subcurvifera*



5. *Eupterote sp.*



6. *Eupterote sp.*



7. *Eupterote sp.*

Monkey Moths

Family :Geometridae



1. *Abraxas sylvata*



2. *Abraxas ditritaria*



3. *Biston suppressaria*



4. *Lassaba albideria*



5. *Fascellina plagiata*



6. *Omiza sp.*



7. *Hypomecis sp.*



8. *Scopula sp*



9. *Ourapteryx sambucaria*



10. *Oxymacaria palliate*



11. *Racotis sp.*



12. *Racotis boarmiaria*



13. *Agathia laetata*.



14. *Eucyclodes sp.*



15. *Achrosis sp.*



16. *Pingasa clora*.



17. *Pingasa nobilis*



18. *Dysphania percota*



19. *Ecliptopera umbrosari*



20. *Sauris spherudinata*



21. *Gymnoscellis sp.*



22. *Gymnosalis sp.*



23. *Eupithecia sp*



24. *Eupithecia sp*



25. *Eupithecia sp.*



26. *Epiethecia sp*



27. *Chloroclystis sp.*



28. *Pasiphila rectangulata*

Family: Lasiocampidae



1. *Radhica. sp (Lappet Moth)*

Family: Saturniidae



1. *Actia selene.*



2. *Loepa. sp*

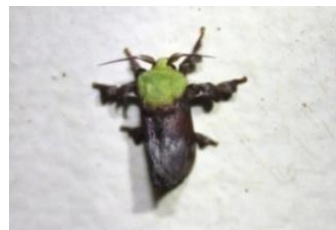
Family: Limacodidae



1. *Cania sericea*



2. *Miresa argenifera*



3. *Parasa fumosa*



4. *Narosa conspersa*

Family :Nolidae



1. *Nola sp*



2. *Nolathripa sp.*



3. *Tathothripa sp*



4. *Aiteta sp.*

Family :Noctuidae



1. *Thysanoplusia orichalsia*



2. *Chrysodeixis sp.*



3. *Chytonix sp .*



4. *Xenotrachea sp.*

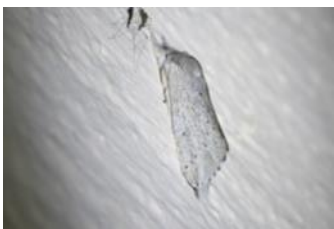
Family : Notodontidae



1. *Antheua servula*



2. *Bireta longivitta*

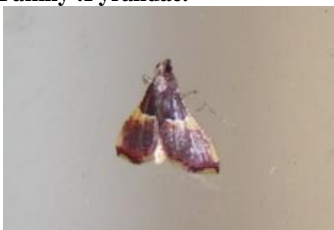


3. *Turnaca ernestina*



4. *Dudusa synopla*

Family :Pyralidae.



1. *Endotricha mesenterialis*



2. *Synaphe sp (punctalis)*



3. *Pyralis. Manihotalis*



4. *Carea sp*

Family: Sphingidae



1. *Dhafnis nerri*



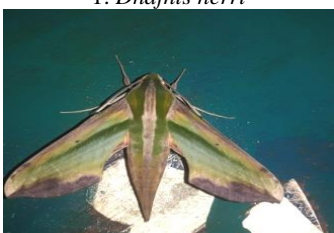
2. *Marumba nympha*



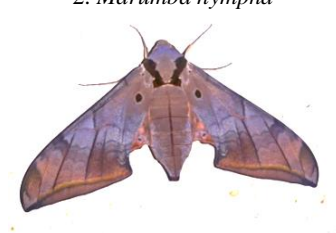
3. *Hippotion boerhavia*



4. *Macroglossum gyrans*



5. *Pergesa acteus*



6. *Ambulyx substrigilis*



7. *Ambulyx ochracea*



8. *Amplypterus panupus*

Family: Uraniidae



1. *Phazaca sps.*



2. *Phazaka lucocera.*



3. *Phazaca sps.*



4. *Stropidia caudate*



5. *Micronia aculeate.*



6. *Pseudomicronia advocaria*



7. *Rhombophylla rectimarginata*



8. *Epiplema sp.*

Family: Thyrididae



1. *Curlywinged leafwebber*



2. *Sapota leaf folder*



3. *Striglina sp.*



4. *Banisia sp.*

Family :Tortricidae



5. *Hexaris sp*



1. *Archips micaceana*



2. *Aclaris sp*



3. *Meridemis sp*

Family: Tineidae



1. *Edosa varians*



1. *Trilocha variance*



2. *Penicilifera apicalis*



3. *Silk Moth(Gunda Female)*

Family :Drepanidae.



1. *Canucha specularis*



2. *Oreta vatama*



3. *Tridrepana pulvata*



1. *Campsoctena sp.*

Family :Ereocotidae.

Plate 1: Moth Species recorded in the study areas.

Conclusion

In this study we could recorded 610 Moths fauna but this check list comprises of only 407 moths which were identified up to genus or species level. The major families which contributed to the moth taxa in the study sites are Erebidae 33.41%, Geomeridae 23.10%, and Carmbidae 17.20%. These three families accounted for about 73.71% of total moth taxa of the study areas. The rest of the 20 families together contribute 26.29% to moth diversity of the area. Krishna Rahendra hill station a high elevation site was the most species rich area, where 296 moth taxa were recorded. There may be many new records for Karnataka, but this cannot be ascertained in the absence of previous records on moths diversity. There may be numerous range extenders that have recently occupied this region as a response to climate change or other disturbances but in the absence of previous moth lists of the area it is difficult to identify any of them. This study helped to document the diversity of moth fauna of the central part of western ghats and has created a base data of moth diversity that can attract and support future extensive studies in the area.

Abrioviations: KRH-IB=Krishna Rajendra Hillstation IB, KRH-Q=Krishna Rajendra Hillstation Quarters, TC=Tarikere collage, VISNL=Vishwesh waraiah Iron and Steel Limited.

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