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## Supplementary checklist of moth fauna of Darjeeling Hills, West Bengal, India

Prayash Chettri

Department of Zoology, Kurseong College, Kurseong, Darjeeling, West Bengal, India

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### Abstract

Chettri and Yonle (2021) recorded and identified 407 species of moths from Darjeeling Hills and to add to this inventory of moth, further study was conducted. The moth fauna of Darjeeling hills was studied within a period of 12 months to create an add-on checklist. In this study 281 species of moths were recorded and identified belonging to 21 families, 62 subfamilies and 220 genera from the selected habitats. It was found that moths belonging to the family Geometridae covered 32.4% of the total moth species followed by Erebidae with 24.9% and other families with 42.7%.

**Keywords:** checklist, moths, new record, Darjeeling Hills

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### Introduction

India is one of the mega diverse countries with the Himalayas as its biodiversity hotspot (Rose, 2002) [26]. And Darjeeling belonging to Eastern Himalayas has rich biodiversity (Mallick, 2012) [22]. In the past, moths, unlike their butterfly cousin have lost their popularity in the area of conservation status and needs (Uniyal *et al.*, 2016) [33]. Due to its nocturnal behaviour and dull appearance moths are considered to be drab and unattractive and very few pay attention to this creature (Shubhalaxmi, 2018) [31].

The works on moths of this region include “Fauna of British India” by Hampson (1892, 1894, 1895, 1896) [11-14] and Bell & Scott (1937) [4], “A Catalogue of the Moths of India” by Cotes & Swinhoe (1886) [8], “The Hawk-moths of Darjeeling and Sikkim” by Scott (1941) [28], Shah & Mitra (2015) [29] documented 39 species of moths as tea pest, Shah *et al.* reported 52 species of moths from Neora Valley National Park in the year 2017 while Bhattacharyya, Kumar & Chandra (2019) [5] documented 279 species.

However Chettri & Yonle (2021) [6] documented 407 species of moths and the aim of the present study is to add more moth species to this inventory.

### Materials and Methods

#### Sampling Site

The moths were documented using both systematic and opportunistic surveys. There were selected study sites including Lodhoma (27°6'50''N & 88°8'15''E), Bijanbari (27°6'0''N & 88°9'3''E), Takdah (27°2'32''N & 88°21'55''E) and Third Mile Busty (26°53'49''N & 88°17'37''E). The altitude of these locations ranged between 900m to 1900m. All the study sites involved open spaces away from tea plantation but closer to forest areas. The study sites covered the vegetation type between sub-tropical to temperate.

#### Sampling period

The sampling time was usually from dusk till midnight and sometimes in the dawn (6pm-1am). There were times when moth specimens were also collected during the day time when they were either diurnal or dead. The moths were collected within a period of 12 months covering most of the seasons in the year 2020.

#### Sampling Techniques

A light trap was used to attract moths which consisted of a large white cloth sheet (1.5x3m) and a tungsten bulb (90-120W) and sometimes fruit baits were used. The moths that came to the light source were then photographed using a mobile phone camera (13MP) and a DSLR camera (18MP).

#### Data Analysis

The photographed moths were then identified looking at the morphological characters and to compare their morphology different literatures were used including Haruta (1992-2000) [15-20], Shubhalaxmi (2018) [31], Chettri *et al.* (2021) [6,7], Kirti & Singh (2015) [21] and Uniyal *et al.* (2016) and online portals like iNaturalist, Indian Biodiversity Portal (Vattakaven *et al.* 2016) [34] and LepIndex (Beccaloni *et al.* 2003) [3]. Van Nieuwerkerken *et al.* (2011) [23] and Nuss *et al.* (2003-2021) [24] mode of classification was followed. To determine their diversity indices PAST3 computer software was used. Contribution of species to the diversity was calculated using the formula, dominance index= $ni \times 100/N$  ( $ni$ = no. of species of particular family and  $N$ = total no. of species).

## Results and Discussions

In this study, 263 species of moths were identified up to the genus level while the 18 species were identified till the genera. In the previous study by Chettri and Yonle, 2021, it was found that moths belonging to family Geometridae had the highest dominance followed by Erebidae, Crambidae and other families respectively, similarly it was also found in this study that Geometridae dominated rest of the families with 32.4% followed by Erebidae and Crambidae with 24.9% and 9.6% respectively while the other 18 families together accounted for 32.4% of the total species. Diversity indices showed the following results, Fisher's alpha= 5.252; Shannon index= 2.138; Evenness= 0.4041 and Chao-1= 22.2 (PAST3 computer software was used to calculate the diversity indices). This result concluded that the diversity of the species were high.

The species that are new record to the region and the state includes *Chiasmia cf. azataria* (Swinhoe, 1893)<sup>[8]</sup> which was stated as new record in the Western Himalya by Zoological Survey of India, 2005, *Corymica arnearia* (Walker, 1860)<sup>[35]</sup> which has also been recorded in the Western Himalya by Peter Smetacek, 2008, Sanyal *et al.*, 2017 and from Khasis by Hampson, 1895, *Perisseretma endotrichalis* (Warren, 1895) from family Pyralidae was recorded in Nepal and China by Kendrick and Ades, 2004 and from Mussoorie by Hampson, 1986 and *Epiplima fuscifrons* (Warren, 1896)<sup>[2]</sup> from family Uranidae recorded from Assam by Sondhi, 2022 in the Moths of India website. While *Dysstroma brunneoviridata* (Yazaki, 1995) from family Geometridae was recorded in Nepal by Haruta, 1995 *Myrioblephara harutai* (Sato, 1994) from family Geometridae was recorded from Nepal by Haruta, 1994 and *Mustilia lobata* (Zolotuhin, 2007)<sup>[35]</sup> from family Endromidae which was recorded from Thailand, Myanmar, Vietnam and China by Zolothuhin, 2007 seems to be new record in India. This study has covered elevation between 900 to 2000m of the Darjeeling Hills. Since this study aims to add species to the previous checklist of moths by Chettri and Yonle, 2021, the 407 species of moths is now supplemented with more 281 species of moths from Darjeeling Hills.

The data collected is for the establishment of baseline checklist of moths of Drajeeling Hills. The recorded and identified data could be later used for detailed study on moths.

**Table 1:** number of moth species representing different families

Family	No. of Species
Geometridae	91
Erebidae	70
Crambidae	27
Noctuidae	19
Limacodidae	14
Sphingidae	9
Nolidae	8
Notodontidae	7
Drepanidae	6
Pyralidae	6
Euteliidae	4
Saturnidae	4
Uranidae	4
Zygaenidae	2
Thyrididae	2
Eupterotidae	2
Endromidae	2
Sesiidae	1
Choreutidae	1
Bombycidae	1
Alucitidae	1
Total	281

**Table 2:** Checklist of Identified Moths

Sl. No.	Family	Sub-family	Scientific name	Author and year of description	Location
1.	Geometridae	Desmobaethrinae	<i>Celerena divisa</i>	Walker, 1862	TM
2.	Geometridae	Desmobaethrinae	<i>Eumelea cf. biflavata</i>	Warren, 1896	TM, BB
3.	Geometridae	Desmobaethrinae	<i>Ozola sinuicosta</i>	Prout, 1910	TM
4.	Geometridae	Ennominae	<i>Agaraeus discolor</i>	Warren, 1893	TM, BB
5.	Geometridae	Ennominae	<i>Amblychia sp.</i>		TM, BB
6.	Geometridae	Ennominae	<i>Calichodes cf. ochrifasciatus</i>	Moore, 1888	TM
7.	Geometridae	Ennominae	<i>Chiasmia cf. azataria</i> *	Swinhoe, 1893	TM, TD

8.	Geometridae	Ennominae	<i>Chiasmia emersaria</i>	Walker, 1861	TM, LD, TD
9.	Geometridae	Ennominae	<i>Chiasmia nora</i>	Walker, 1862	LD
10.	Geometridae	Ennominae	<i>Chiasmia ozararia</i>	Walker, 1860	TM
11.	Geometridae	Ennominae	<i>Chiasmia</i> sp.		TM, LD, TD
12.	Geometridae	Ennominae	<i>Chorodna</i> cf. <i>ochreimacula</i>	Prout, 1914	TM
13.	Geometridae	Ennominae	<i>Ophthalmitis pertusaria</i>	Felder & Rogenhofer, 1875	TM, BB, LD
14.	Geometridae	Ennominae	<i>Cleora</i> sp.		TM, TD
15.	Geometridae	Ennominae	<i>Coremecis nigrovittata</i>	Moore, 1868	TM
16.	Geometridae	Ennominae	<i>Corymica arnearia</i> *	Walker, 1860	TM
17.	Geometridae	Ennominae	<i>Corymica immaculata</i>	Warren, 1897	TM, TD
18.	Geometridae	Ennominae	<i>Corymica pryeri</i>	Butler, 1878	TM, TD
19.	Geometridae	Ennominae	<i>Dasyboarmia subpilosa</i>	Warren, 1894	TM
20.	Geometridae	Ennominae	<i>Eilicrinia flava</i>	Moore, 1888	TM
21.	Geometridae	Ennominae	<i>Garaeus apicata</i>	Moore, 1868	TM
22.	Geometridae	Ennominae	<i>Gasterocome pannosaria</i>	Moore, 1868	TM
23.	Geometridae	Ennominae	<i>Harutalcis</i> sp.		TM,TD
24.	Geometridae	Ennominae	<i>Harutalcis vialis</i>	Moore, 1888	TM, TD
25.	Geometridae	Ennominae	<i>Hypochrosis abstractaria</i>	Walker, 1863	TM, TD
26.	Geometridae	Ennominae	<i>Hypochrosis hyadaria</i>	Guenée, 1857	TM
27.	Geometridae	Ennominae	<i>Hyposidra talaca</i>	Walker, 1860	BB
28.	Geometridae	Ennominae	<i>Hyposidra violescens</i>	Hampson, 1895	TM, BB
29.	Geometridae	Ennominae	<i>Krananda lucidaria</i>	Leech, 1897	TM, BB
30.	Geometridae	Ennominae	<i>Leptomiza calcearia</i>	Walker, 1860	TM, BB
31.	Geometridae	Ennominae	<i>Lomographa margarita</i>	Moore, 1868	TM
32.	Geometridae	Ennominae	<i>Lomographa</i> sp.		TM
33.	Geometridae	Ennominae	<i>Luxiaria</i> cf. <i>mitorrhaphes</i>	Prout, 1925	TM, BB, LD
34.	Geometridae	Ennominae	<i>Luxiaria obliquata</i>	Moore, 1888	TM, LD, TD, BB
35.	Geometridae	Ennominae	<i>Darisa firmilinea</i>	Prout, 1926	TM
36.	Geometridae	Ennominae	<i>Darisa mucidaria</i>	Walker, 1866	TM
37.	Geometridae	Ennominae	<i>Menophra</i> sp.		TM, TD
38.	Geometridae	Ennominae	<i>Monocerotesa connexa</i>	Warren, 1901	TM
39.	Geometridae	Ennominae	<i>Myrioblephara duplexa</i>	Moore, 1888	BB
40.	Geometridae	Ennominae	<i>Myrioblephara duplexodes</i>	Sato, 1994	TM
41.	Geometridae	Ennominae	<i>Myrioblephara harutai</i> **	Sato, 1994	TM
42.	Geometridae	Ennominae	<i>Myrioblephara idaeoides</i>	Moore, 1888	TM
43.	Geometridae	Ennominae	<i>Xerodes ypsaria</i>	Guenée, 1857	TM
44.	Geometridae	Ennominae	<i>Myrioblephara planaria</i>	Swinhoe, 1894	TM
45.	Geometridae	Ennominae	<i>Nothomiza grata</i>	Butler 1880	TD
46.	Geometridae	Ennominae	<i>Odontopera bilinearia</i>	Swinhoe, 1890	TM
47.	Geometridae	Ennominae	<i>Ophthalmitis</i> cf. <i>herbidaria</i>	Guenée, 1858	TM
48.	Geometridae	Ennominae	<i>Ourapteryx</i> cf. <i>leucopteron</i>	Inoue 1995	TM
49.	Geometridae	Ennominae	<i>Ourapteryx sciticaudaria</i>	Walker, 1863	TM, TD, BB
50.	Geometridae	Ennominae	<i>Parasyngia lidderdalii</i>	Butler, 1880	LD
51.	Geometridae	Ennominae	<i>Pareclipsis umbrata</i>	Warren 1893	LD
52.	Geometridae	Ennominae	<i>Petelia riobearia</i>	Walker 1860	TM
53.	Geometridae	Ennominae	<i>Plutodes subcaudata</i>	Butler, 1880	TM, TD
54.	Geometridae	Ennominae	<i>Pseudomiza leucogonia</i>	Hampson, 1895	TM
55.	Geometridae	Ennominae	<i>Psyra cuneata</i>	Walker, 1860	TM
56.	Geometridae	Ennominae	<i>Psyra gracilis</i>	Yazaki, 1992	TM
57.	Geometridae	Ennominae	<i>Psyra spurcataria</i>	Walker, 1863	TM

58.	Geometridae	Ennominae	<i>Sabaria lithosiaria</i>	Walker, 1862	TM
59.	Geometridae	Ennominae	<i>Semiothisa</i> cf. <i>Cinerearia</i>	Bremer & Grey, 1853	TM
60.	Geometridae	Ennominae	<i>Systema semicirculata</i>	Moore, 1868	LD, TM
61.	Geometridae	Geometrinae	<i>Agathia codina</i>	Swinhoe, 1892	TM
62.	Geometridae	Geometrinae	<i>Berta chrysolineata</i>	Walker, 1863	TM, BB
63.	Geometridae	Geometrinae	<i>Borbacha pardaria</i>	Guenée, 1857	TM, BB, LD
64.	Geometridae	Geometrinae	<i>Chlorodontopera discospilata</i>	Moore, 1868	BB
65.	Geometridae	Geometrinae	<i>Comibaena integranota</i>	Hampson, 1893	TM, BB
66.	Geometridae	Geometrinae	<i>Comostola meritaria</i>	Walker, 1861	TM, BB
67.	Geometridae	Geometrinae	<i>Dindicodes crocina</i>	Butler, 1880	TM
68.	Geometridae	Geometrinae	<i>Eucyclodes gavissima</i>	Walker, 1861	BB
69.	Geometridae	Geometrinae	<i>Eucyclodes sanguilineata</i>	Moore, 1868	TM
70.	Geometridae	Geometrinae	<i>Herochroma</i> cf. <i>baba</i>	Swinhoe, 1893	TM
71.	Geometridae	Geometrinae	<i>Herochroma orientalis</i>	Holloway, 1982	TM
72.	Geometridae	Geometrinae	<i>Herochroma</i> sp.		TM
73.	Geometridae	Geometrinae	<i>Pachyodes ornataria</i>	Moore, 1888	TM
74.	Geometridae	Geometrinae	<i>Paramaxates</i> cf. <i>taiwana</i>	Yazaki, 1988	TM, BB
75.	Geometridae	Larentiinae	<i>Brabira artemidora</i>	Oberthür, 1884	TM, TD, BB
76.	Geometridae	Larentiinae	<i>Dysstroma brunneoviridata</i> **	Yazaki, 1995	TM
77.	Geometridae	Larentiinae	<i>Dysstroma cinereata</i>	Moore, 1867	TM
78.	Geometridae	Larentiinae	<i>Ecliptopera furva</i>	Swinhoe, 1891	TM
79.	Geometridae	Larentiinae	<i>Electrophaes</i> cf. <i>alieana</i>	Butler, 1880	TM
80.	Geometridae	Larentiinae	<i>Eois</i> sp.		BB
81.	Geometridae	Larentiinae	<i>Naxidia irrorata</i>	Moore, 1888	TM, BB
82.	Geometridae	Larentiinae	<i>Orthonama obstipata</i>	Fabricius, 1794	TM, BB, TD
83.	Geometridae	Larentiinae	<i>Perizoma minuta latifasciata</i>	Warren, 1893	TD
84.	Geometridae	Larentiinae	<i>Polynesia sunandava</i>	Walker, 1861	TM, TD
85.	Geometridae	Larentiinae	<i>Triphosa rubrodotata</i>	Walker, 1862	TD
86.	Geometridae	Larentiinae	<i>Xenortholitha falcata</i>	Yazaki, 1993	TM
87.	Geometridae	Oenochrominae	<i>Sarcinodes aequilinearis</i>	Walker, 1860	TM
88.	Geometridae	Oenochrominae	<i>Sarcinodes restitutaria</i>	Walker, 1862	TM
89.	Geometridae	Sterrhinae	<i>Organopoda annulifera</i>	Butler 1889	TM, BB, TD
90.	Geometridae	Sterrhinae	<i>Scopula ferrilineata</i>	Moore, 1888	TM
91.	Geometridae	Sterrhinae	<i>Scopula insolata</i>	Butler, 1889	TM
92.	Erebidae	Aganainae	<i>Asota tortuosa</i>	Moore, 1872	TM
93.	Erebidae	Anobinae	<i>Plecoptera bilinealis</i>	Leech, 1889	LD
94.	Erebidae	Anobinae	<i>Plecoptera oculata</i>	Moore, 1882	TM
95.	Erebidae	Arctiinae	<i>Adites frigida</i>	Walker, 1854	TM, LD, BB
96.	Erebidae	Arctiinae	<i>Alphaea imbuta</i>	Walker, 1855	TM, BB
97.	Erebidae	Arctiinae	<i>Alphaea impleta</i>	Walker, 1865	TM, BB
98.	Erebidae	Arctiinae	<i>Churinga rufifrons</i>	Moore, 1878	TM
99.	Erebidae	Arctiinae	<i>Cyana gazella</i>	Moore, 1872	TM
100.	Erebidae	Arctiinae	<i>Cyana gelida</i>	Walker, 1854	TM, BB
101.	Erebidae	Arctiinae	<i>Garudinia latana</i>	Walker, 1863	BB
102.	Erebidae	Arctiinae	<i>Katha</i> cf. <i>montana</i>	Bucsek, 2012	TM, BB, TD
103.	Erebidae	Arctiinae	<i>Katha conformis</i>	Walker, 1854	TM, BB
104.	Erebidae	Arctiinae	<i>Lobobasis niveimaculata</i>	Hampson, 1896	TM
105.	Erebidae	Arctiinae	<i>Macrobrochis prasena</i>	Walker, 1855	TM, BB
106.	Erebidae	Arctiinae	<i>Miltochrista linga</i>	Moore, 1860	TM
107.	Erebidae	Arctiinae	<i>Miltochrista terminospota</i>	Singh, Kirti & Joshi, 2015	TM, BB, TD, LD
108.	Erebidae	Arctiinae	<i>Nyctemera arctata</i>	Walker, 1856	TM
109.	Erebidae	Arctiinae	<i>Spilarctia</i> cf. <i>obliqua</i>	Walker, 1855	TM
110.	Erebidae	Arctiinae	<i>Vamuna maculata</i>	Moore, 1878	TM, TD

111.	Erebidae	Arctiinae	<i>Vamuna virilis</i>	Rothschild, 1913	TM, BB
112.	Erebidae	Boletobiinae	<i>Eublemma brachygonia</i>	Hampson, 1910	TM
113.	Erebidae	Boletobiinae	<i>Eublemma roseonivea</i>	Walker, 1863	TM
114.	Erebidae	Boletobiinae	<i>Eublemma versicolor</i>	Walker, 1864	TM
115.	Erebidae	Calpinae	<i>Oraesia emarginata</i>	Fabricius, 1794	TM, BB
116.	Erebidae	Calpinae	<i>Pleurona falcata</i>	Walker, 1866	TM
117.	Erebidae	Catocalinae	<i>Artena dotata</i>	Fabricius, 1794	TM, LD, TD
118.	Erebidae	Catocalinae	<i>Rhesala imparata</i>	Walker, 1858	TM
119.	Erebidae	Erebinae	<i>Achaea janata</i>	Linnaeus, 1758	TM, TD
120.	Erebidae	Erebinae	<i>Bastilla joviana</i>	Stoll, 1782	TM
121.	Erebidae	Erebinae	<i>Bastilla maturata</i>	Walker, 1858	TM
122.	Erebidae	Erebinae	<i>Daddala brevicauda</i>	Wileman & South, 1921	TM
123.	Erebidae	Erebinae	<i>Daddala lucilla</i>	Butler, 1881	TM
124.	Erebidae	Erebinae	<i>Entomogramma faurix</i>	Guenée, 1852	LD
125.	Erebidae	Erebinae	<i>Erebus hieroglyphica</i>	Drury, 1773	LD
126.	Erebidae	Erebinae	<i>Ericeia inangulata</i>	Guenée, 1852	LD
127.	Erebidae	Erebinae	<i>Grammodes geometrica</i>	Fabricius, 1775	TM
128.	Erebidae	Erebinae	<i>Hulodes donata</i>	Schultze, 1907	TM
129.	Erebidae	Erebinae	<i>Hypersynoides</i> sp.		TM, BB
130.	Erebidae	Erebinae	<i>Hypersynoides umbrosa</i>	Butler, 1881	TM, BB
131.	Erebidae	Erebinae	<i>Hypopyra vespertilio</i>	Fabricius, 1787	TM
132.	Erebidae	Erebinae	<i>Mecodina cineracea</i>	Butler, 1879	TM
133.	Erebidae	Erebinae	<i>Mecodina diastriga</i>	Hampson, 1926	BB
134.	Erebidae	Erebinae	<i>Mecodina tigris</i>	Berio, 1977	BB
135.	Erebidae	Erebinae	<i>Pericyma umbrina</i>	Guenée, 1852	BB, TM
136.	Erebidae	Erebinae	<i>Pseudosphetta moorei</i>	Cotes & Swinhoe, 1887	TM
137.	Erebidae	Erebinae	<i>Sphingomorpha chlorea</i>	Cramer, 1777	TM
138.	Erebidae	Erebinae	<i>Spirama retorta</i>	Clerck, 1764	LD
139.	Erebidae	Erebinae	<i>Sympis rufibasis</i>	Guenée, 1852	TM
140.	Erebidae	Erebinae	<i>Trigonodes hyppasia</i>	Cramer, 1779	TM
141.	Erebidae	Hermiinae	<i>Adrapsa quadrilinealis</i>	Wileman, 1914	BB
142.	Erebidae	Hermiinae	<i>Bocana manifestalis</i>	Walker, 1859	TM
143.	Erebidae	Hermiinae	<i>Sinarella discisigna</i>	Moore, 1883	TM
144.	Erebidae	Hypeninae	<i>Anoratha costalis</i>	Moore, 1867	BB
145.	Erebidae	Hypeninae	<i>Coarica fasciata</i>	Moore, 1882	TM
146.	Erebidae	Hypeninae	<i>Lophomilia albistria</i>	Yoshimoto, 1993	TM
147.	Erebidae	Hypocalinae	<i>Hypocala subsatura</i>	Guenée, 1852	TM, BB
148.	Erebidae	Lymantriinae	<i>Cifuna locuples</i>	Walker, 1855	TM
149.	Erebidae	Lymantriinae	<i>Cispia punctifascia</i>	Walker, 1855	TM, BB, TD
150.	Erebidae	Lymantriinae	<i>Himala argentea</i>	Walker, 1855	TM
151.	Erebidae	Lymantriinae	<i>Ilema chloroptera</i>	Hampson, 1893	TM, BB, TD, LD
152.	Erebidae	Lymantriinae	<i>Ilema kosemponica</i>	Kishida, 2000	TM, BB, TD
153.	Erebidae	Lymantriinae	<i>Numenes siletti</i>	Walker, 1855	TM, BB
154.	Erebidae	Lymantriinae	<i>Nygmia uniformis</i>	Moore, 1879	TM, BB
155.	Erebidae	Lymantriinae	<i>Pantana luteiceps</i>	Swinhoe, 1896	TM
156.	Erebidae	Lymantriinae	<i>Pantana visum</i>	Hubner, 1825	TM
157.	Erebidae	Pangraptinae	<i>Episparis tortuosalis</i>	Moore, 1867	TM
158.	Erebidae	Pangraptinae	<i>Thyrostipa sphaeriophora</i>	Moore, 1867	TM
159.	Erebidae	Rivulinae	<i>Bocula marginata</i>	Moore, 1882	TM, BB, TD
160.	Erebidae	Scoliopteryginae	<i>Anomis cf. figlina</i>	Butler, 1889	TM, BB, LD
161.	Erebidae	Tinoliinae	<i>Calesia dasypterus</i>	Kollar, 1844	TM, BB, TD
162.	Crambidae	Acentropinae	<i>Paraponyx stagnalis</i>	Zeller, 1852	TM
163.	Crambidae	Glaphyriinae	<i>Crocidolomia pavonana</i>	Fabricius, 1794	TM
164.	Crambidae	Odontiinae	<i>Heortia vitessoides</i>	Moore, 1885	TM
165.	Crambidae	Pyraustinae	<i>Crocidophora aurimargo</i>	Warren, 1896	TM
166.	Crambidae	Pyraustinae	<i>Nevrina procopia</i>	Stoll, 1781	TM, TD
167.	Crambidae	Spilomelinae	<i>Agrotora basinotata</i>	Hampson, 1891	TM

168.	Crambidae	Spilomelinae	<i>Cnaphalocrocis exigua</i>	Butler, 1879	TM
169.	Crambidae	Spilomelinae	<i>Cnaphalocrocis poeyalis</i>	Boisduval, 1833	TM
170.	Crambidae	Spilomelinae	<i>Conogethes punctiferalis</i>	Guenée, 1854	TM, BB
171.	Crambidae	Spilomelinae	<i>Diasemiopsis ramburialis</i>	Duponchel, 1834	TM
172.	Crambidae	Spilomelinae	<i>Dichocrocis rigidalis</i>	Snellen, 1890	TM, BB
173.	Crambidae	Spilomelinae	<i>Discothyris sp.</i>		TM
174.	Crambidae	Spilomelinae	<i>Glyphodes bicolor</i>	Swainson, 1821	TM, TD
175.	Crambidae	Spilomelinae	<i>Glyphodes bivitalis</i>	Guenée, 1854	TM
176.	Crambidae	Spilomelinae	<i>Glyphodes onychinalis</i>	Guenée, 1854	TM, LD
177.	Crambidae	Spilomelinae	<i>Haritalodes derogata</i>	Fabricius, 1775	TM
178.	Crambidae	Spilomelinae	<i>Patania obfuscalis</i>	Yamanaka, 1998	TM
179.	Crambidae	Spilomelinae	<i>Perisyntrocha ossealis</i>	Hampson, 1896	TM, BB
180.	Crambidae	Spilomelinae	<i>Pileocera aegimiusalis</i>	Walker, 1859	TM
181.	Crambidae	Spilomelinae	<i>Prophantis adusta</i>	Inoue, 1986	TM
182.	Crambidae	Spilomelinae	<i>Rehimena phrynealis</i>	Walker, 1859	TM, BB
183.	Crambidae	Spilomelinae	<i>Rhagoba octomaculalis</i>	Moore, 1867	TM
184.	Crambidae	Spilomelinae	<i>Sameodes cancellalis</i>	Zeller, 1852	TM
185.	Crambidae	Spilomelinae	<i>Syllepte nigriflava</i>	Swinhoe, 1894	TM
186.	Crambidae	Spilomelinae	<i>Talanga sexpunctalis</i>	Moore, 1877	TM, BB
187.	Crambidae	Spilomelinae	<i>Terastia egialealis</i>	Walker, 1859	TM
188.	Crambidae	Spilomelinae	<i>Udea ferrugalis</i>	Hübner, 1796	TM
189.	Noctuidae	Agaristinae	<i>Exsula victrix</i>	Westwood, 1848	TM, TD
190.	Noctuidae	Agaristinae	<i>Sarbanissa bala</i>	Moore, 1865	TM
191.	Noctuidae	Agaristinae	<i>Sarbanissa transiens</i>	Walker, 1856	TM
192.	Noctuidae	Bagisarinae	<i>Dyrzela plagiata</i>	Walker, 1858	TM
193.	Noctuidae	Condicinae	<i>Dysmilichia calamistrata</i>	Moore, 1881	BB
194.	Noctuidae	Dyopsinae	<i>Arcte coerulea</i>	Guenée, 1852	TD
195.	Noctuidae	Eustrotiinae	<i>Maliattha lativitta</i>	Moore, 1881	TM
196.	Noctuidae	Eustrotiinae	<i>Maliattha picata</i>	Butler, 1889	TM
197.	Noctuidae	Eustrotiinae	<i>Maliattha quadripartita</i>	Walker, 1865	BB
198.	Noctuidae	Eustrotiinae	<i>Ozarba sp.</i>		TM
199.	Noctuidae	Noctuinae	<i>Actinotia intermediata</i>	Bremer, 1861	TM
200.	Noctuidae	Noctuinae	<i>Axylia putris</i>	Linnaeus, 1761	TM
201.	Noctuidae	Noctuinae	<i>Mythimna sinuosa</i>	Moore, 1882	TM, BB, TD
202.	Noctuidae	Noctuinae	<i>Phlogophora albovittata</i>	Moore, 1867	TM
203.	Noctuidae	Noctuinae	<i>Xenotrachea albidisca</i>	Moore, 1867	TM
204.	Noctuidae	Plusiinae	<i>Ctenoplusia furcifera</i>	Walker, 1858	TM
205.	Noctuidae	Plusiinae	<i>Macdunnoughia tetragona</i>	Walker, 1857	TM
206.	Noctuidae	Plusiinae	<i>Scriptoplusia nigriluna</i>	Walker, 1858	TM
207.	Noctuidae	Spataliinae	<i>Baradesa lithosoides</i>	Moore, 1883	TM
208.	Limacodidae	Limacodinae	<i>Aphendala cana</i>	Walker, 1865	BB
209.	Limacodidae	Limacodinae	<i>Belippa horrida</i>	Walker, 1865	TM
210.	Limacodidae	Limacodinae	<i>Cania bilinea</i>	Walker, 1855	BB
211.	Limacodidae	Limacodinae	<i>Miresa bracteata</i>	Walker, 1880	BB
212.	Limacodidae	Limacodinae	<i>Nephelimorpha argentilinea</i>	Hampson, 1892	BB
213.	Limacodidae	Limacodinae	<i>Parasa himalepida</i>	Holloway, 1987	BB
214.	Limacodidae	Limacodinae	<i>Parasa pastoralis</i>	Butler, 1885	LD
215.	Limacodidae	Limacodinae	<i>Phocoderma velutina</i>	Kollar, 1844	LD
216.	Limacodidae	Limacodinae	<i>Praesetora divergens</i>	Moore, 1879	TM
217.	Limacodidae	Limacodinae	<i>Scopelodes venosa</i>	Walker, 1855	TM, TD
218.	Limacodidae	Limacodinae	<i>Setora cf. postornata</i>	Hampson, 1900	TM
219.	Limacodidae	Limacodinae	<i>Susica himalayana</i>	Holloway, 1982	TM
220.	Limacodidae	Limacodinae	<i>Thosea sinensis</i>	Walker, 1855	TM
221.	Limacodidae	Limacodinae	<i>Trichogyia rufibasale</i>	Hampson, 1896	TM, TD
222.	Sphingidae	Macroglossinae	<i>Acosmeryx omissa</i>	Rothschild & Jordan, 1903	TM

223.	Sphingidae	Macroglossinae	<i>Cechetra lineosa</i>	Walker, 1856	TM
224.	Sphingidae	Macroglossinae	<i>Eupanacra perfecta</i>	Butler, 1875	TM
225.	Sphingidae	Macroglossinae	<i>Hippotion celerio</i>	Linnaeus, 1758	TM
226.	Sphingidae	Macroglossinae	<i>Macroglossum belis</i>	Linnaeus, 1758	TM
227.	Sphingidae	Macroglossinae	<i>Rhagastis confusa</i>	Rothschild & Jordan, 1903	TM
228.	Sphingidae	Macroglossinae	<i>Rhagastis olivacea</i>	Moore 1872	TM
229.	Sphingidae	Smerinthinae	<i>Ambulyx substrigilis</i>	Westwood, 1848	TM
230.	Sphingidae	Sphinginae	<i>Acherontia styx</i>	Westwood, 1844	TM
231.	Nolidae	Chloephorinae	<i>Ariolica pulchella</i>	Elwes, 1890	BB
232.	Nolidae	Chloephorinae	<i>Kerala</i> sp.		BB
233.	Nolidae	Chloephorinae	<i>Tortriciforma</i> cf. <i>viridipuncta</i>	Hampson, 1894	TM
234.	Nolidae	Chloephorinae	<i>Tympanistes testacea</i>	Moore, 1867	TM
235.	Nolidae	Risobinae	<i>Risoba</i> cf. <i>hiemischi</i>	Kobes, 2006	TD
236.	Nolidae	Risobinae	<i>Risoba</i> cf. <i>obscurivialis</i>	Holloway, 2003	TM
237.	Nolidae	Risobinae	<i>Risoba obstructa</i>	Moore, 1881	TM
238.	Nolidae	Westermanniinae	<i>Westermannia superba</i>	Hübner, 1823	TM,TD,LD,BB
239.	Notodontidae	Dudusinae	<i>Dudusa sphingiformis</i>	Moore, 1872	BB
240.	Notodontidae	Notodontinae	<i>Disparia obliquiplaga</i>	Moore, 1879	TM
241.	Notodontidae	Notodontinae	<i>Disparia maculata</i>	Moore, 1879	TM
242.	Notodontidae	Phalerinae	<i>Euhampsonia niveiceps</i>	Schintlmeister, 2013	TM
243.	Notodontidae	Phalerinae	<i>Gangarides dharmia</i>	Moore, 1866	BB
244.	Notodontidae	Spataliinae	<i>Baradesa ultima</i>	Sugi, 1992	TM
245.	Notodontidae	Thaumetopoeinae	<i>Gazalina</i> cf. <i>purificata</i>	Sugi, 1993	TM
246.	Pyralidae	Epipaschiinae	<i>Teliphasa</i> cf. <i>hamata</i>	Li, 2016	TM, LD
247.	Pyralidae	Phycitinae	<i>Pseudodavara haemaphoralis</i>	Hampson, 1908	TM
248.	Pyralidae	Pyralinae	<i>Arctioleptis rubida</i>	Felder & Felder, 1862	BB
249.*	Pyralidae	Pyralinae	<i>Perisseretma endotrichalis</i> *	Warren, 1895	TM
250.	Pyralidae	Pyralinae	<i>Sacada</i> cf. <i>approximans</i>	Leech, 1888	TM, BB
251.	Pyralidae	Pyralinae	<i>Sacada sikkima</i>	Moore, 1879	TM, TD
252.	Drepanidae	Drepaninae	<i>Drapetodes mitaria</i>	Guenée, 1857	TM
253.	Drepanidae	Drepaninae	<i>Microleptis leucosticta</i>	Hampson, 1895	TM
254.	Drepanidae	Drepaninae	<i>Nordstromia argenteiceps</i>	Warren, 1922	TM, TD
255.	Drepanidae	Drepaninae	<i>Nordstromia bicostata</i>	Hampson, 1912	TM
256.	Drepanidae	Drepaninae	<i>Nordstromia vira</i>	Moore, 1865	TD
257.	Drepanidae	Drepaninae	<i>Phalacra</i> sp.		TM,TD, BB
258.	Uranidae	Auzeinae	<i>Auzea arenosa</i>	Butler, 1880	BB
259.	Uranidae	Auzeinae	<i>Auzea ruffifrontata</i>	Walker, 1862	TM
260.	Uranidae	Epipleminae	<i>Epiplema fuscifrons</i> *	Warren, 1896	BB
261.	Uranidae	Uraniinae	<i>Lyssa zampa</i>	Butler, 1869	TM
262.	Saturnidae	Saturniinae	<i>Actias selene</i>	Hübner, 1807	LD
263.	Saturnidae	Saturniinae	<i>Archaeoattacus edwardsii</i>	White, 1859	BB
264.	Saturnidae	Saturniinae	<i>Cricula andrei</i>	Jordan, 1909	TM
265.	Saturnidae	Saturniinae	<i>Cricula trifenestrata</i>	Helfer, 1837	TM, TD
266.	Euteliidae	Euteliinae	<i>Eutelia adulatricoides</i>	Mell, 1943	TM
267.	Euteliidae	Euteliinae	<i>Mimanuga lunulata</i>	Moore, 1868	TM
268.	Euteliidae	Stictopterinae	<i>Lophoptera illucida</i>	Walker, 1865	TM, TD
269.	Euteliidae	Stictopterinae	<i>Lophoptera squammigera</i>	Guenée, 1852	TM, BB, TD
270.	Endromidae		<i>Mustilizans hepatica</i>	Moore, 1879	TM
271.	Endromidae		<i>Mustilia lobata</i> **	Zolotuhin, 2007	TM
272.	Eupterotidae	Eupterotinae	<i>Ganisa plana</i>	Walker, 1855	TM, TD
273.	Eupterotidae	Eupterotinae	<i>Palirisa cervina</i>	Moore, 1866	TM, LD, BB
274.	Thyrididae	Siculodinae	<i>Mellea taeniata</i>	Warren, 1908	BB
275.	Thyrididae	Siculodinae	<i>Rhodoneura</i> sp.		TM
276.	Zygaenidae	Chalcosiinae	<i>Campylotes histrionicus</i>	Westwood 1839	BB
277.	Zygaenidae	Procridinae	<i>Clelea</i> sp.		BB

278.	Alucitidae		<i>Alucita</i> sp.		TM, TD
279.	Bombycidae		<i>Bivinculata kalikotei</i>	Dierl, 1978	TM
280.	Choreutidae	Choreutinae	<i>Choreutis</i> sp.		TM
281.	Sesiidae	Sesiinae	<i>Melittia</i> sp.		TM

Note: \* represents new species to the state and \*\* represents new species to the country

1. sp. represents species level identification
2. cf. represents provisional identification (near, former for close matches and the latter for poor matches)
3. Survey sites: Lodhoma- LD; Bijanbari- BB; Takdah- TD and Third Mile Busty- TM

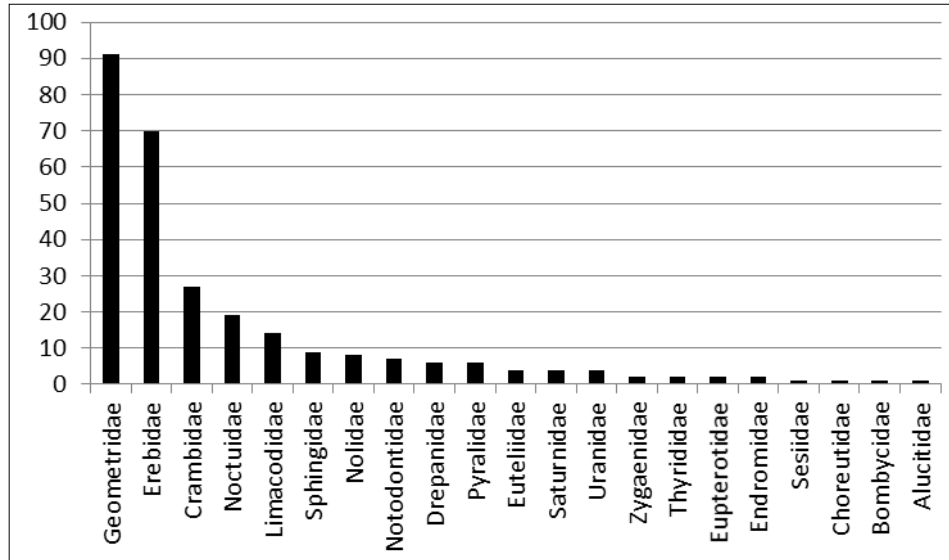


Fig 1: graph representing number of species of different families

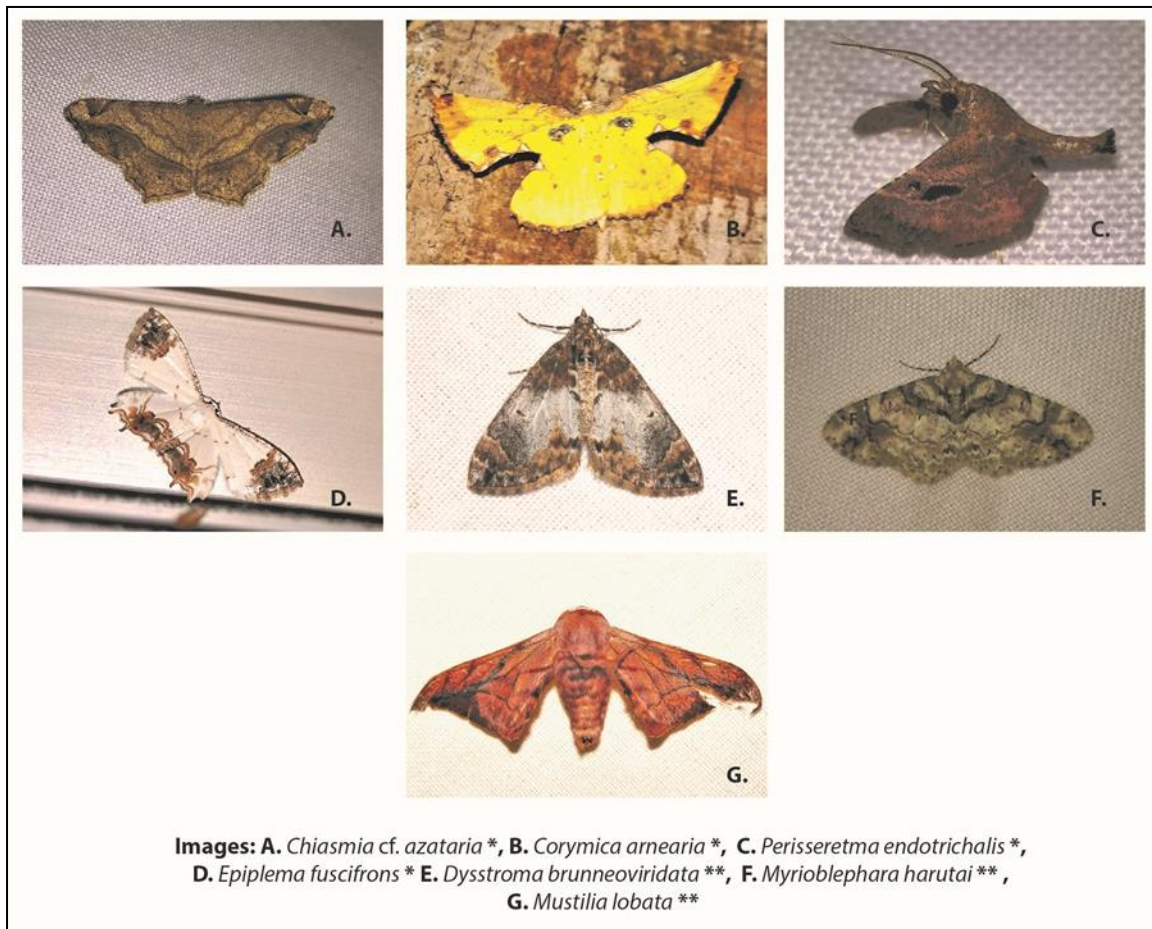


Fig 2: moth species\*representing species new to the state and\*\*representing species new to india

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