Checklist of moths (Heterocera) of Tadong, Sikkim, India

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Abstract: This study attempts to create a checklist of moths recorded from two different parts of Tadong in Sikkim, located in the northeastern Himalaya of India. Out of 160 photographed specimens of moths, 133 species were identified and classified. Sixteen families of moths were recorded out of which Erebidae (30.83%) had the highest number of species followed by Geometridae (24.81%), and Crambidae (18.05%) while the other families comprised of 26.30% of the total species.

Keywords: Biodiversity, Eastern Himalaya, Erebidae, Geometridae.

Sikkim, a northeastern Himalayan state, is known for its biodiversity and strategic location surrounded by Nepal, Bhutan, and China. Several new species of butterflies, insects, and birds have been identified in the region (Kalawate 2018), but there are few reports on the sighting or identification of moth species. They play important roles in ecosystems as pollinators for many plants, and they are food for many predators, including bats and birds (Scoble 1992).

During 19th–20th Century, Hampson (1892, 1894, 1895, 1896) and Bell & Scott (1973) documented moths of this region. Dudgeon (1898–1901) documented moths from Sikkim and Bhutan. Kirti & Sodhi (2002) recorded 30 species of footman moths from Sikkim. The State Fauna Series holds records of moths from Ctenuchidae and Limacodidae, with 24 species and 40 species, respectively (Chaudhury 2003), Saturniidae with 26 species (Gupta 2003), Zygaenidae with 66 species (Bhattacharya 2003), Arctiidae with 182 species (Chaudhury 2003), and Geometridae with 265 species (Ghosh 2003). Kirti & Sodhi (2003) recoded 24 species belonging to subfamily Arctiinae from Sikkim. Sanyal et al. (2018) recorded 4,107 species with Sikkim having the greatest moth diversity. Chandra et al. (2019) also recorded 1,274 species of moths in ‘Assemblages of Lepidoptera in Indian Himalaya through Long Term Monitoring Plots,’ where many of the species of moths were recorded from the state of Sikkim.

The aim of the present study is to create a baseline checklist of moths from Tadong region in Sikkim for further update and addition to the inventory of moths of Sikkim.

Materials and Methods

An opportunistic survey was conducted where moths were photographed as they came towards light sources (LED, incandescent or compact fluorescent bulbs) illuminating residential premises. They were

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photographed in two different localities in Tadong (Figure 1a-c) viz., Gairi Gaon (27.314N & 88.601E) and 6th Mile area (27.3127N & 88.593E) within the period of 2017–2019. The altitude of the sites ranged from 1,099–1,356 m (Table 1). Study sites are located between two watercourses, Rani Khola and Rorochu. The region has taken on urban characteristics as land resources have been encroached continuously due rapid unplanned development (Figure 1d) (Chettri & Lama 2014). There is a gradual change in vegetation from alpine to subtropical and temperate deciduous forest in the region (Tamang et al. 2005). The temperature has been increasing in recent decades and precipitation fluctuates each year (Kumar et al. 2020).

The survey included photographing moths near the light sources using a smartphone camera (12MP).

Morphological characters were considered for the identification. Different sources were used including Walker (1866), Haruta (1992–2000), Irungbam et al. (2016), Shubhalaxmi (2018), Kirti & Singh (2015), Sondhi & Sondhi (2016), and Uniyal et al. (2016). Online portals such as Indian Biodiversity Portal (Vattakaven et al. 2016), iNaturalist, LeplIndex (Beccaloni et al. 2003), and BOLDSYSTEMS (Ratnasingham & Hebert 2007) were also utilised for the identification. Classification has been

Table 1. Geographical location of survey sites at Tadong, Sikkim, India.

| Survey Sites | GPS Coordinates         | Altitude (m) |
|--------------|-------------------------|--------------|
| Gairi Gaon   | 27.314N & 88.601E       | 1,099        |
| 6th Mile     | 27.3127N & 88.593E      | 1,356        |

Figure 1. Location of survey site: a—Border region where the survey sites were located with respect to the map | b—Magnified scale indicating topography within the geographical boundary | c—GPS beacon showing approximate location of survey sites (Gairi Gaon and 6th Mile), Tadong, Sikkim | d—Close-up view of the study sites showing human settlement encroached landscape.
followed according to van Nieukerken et al. (2011) and Nuss et al. (2003–2021). PAST3 (Computer Software) was used to calculate diversity indices. Species contribution to diversity of each family was determined by calculating the dominance index=$n_i \times 100/N$ where ($n_i$) is individuals of particular species and ($N$) is the total no. of species (Mishra et al. 2016).

**Results and Discussion**

During the study a total of 160 individual moths were photographed, from which 133 species were identified from the region. Of the identified specimens 112 were identified to species level, and 21 to the genus level (Images 1–133). Looking at species contribution to the diversity it was found that family Erebidae had the highest number of moths with 41 species, followed by Geometridae with 33 species and Crambidae with 24 species. Other families including Noctuidae, Notodontidae, Pyralidae, Drepanidae, Eupterotidae, Nolidae, Zygaenidae, Bombycidae, Limacodidae, Lasiocampidae, and Thyrididae accounted for 26% of total species (Table 2, Figure 2). All the identified species are listed in Table 3. Diversity indices were calculated using Past3 software, which showed Fisher’s alpha, Shannon index, evenness, and Chao-1 to be 4.752, 1.975, 0.4504, and 21, respectively. Hence, the species diversity seems quite high. These values could be later used to collate species diversity (abundance, richness, evenness) of moths of this region.

**Conclusion**

In this study, we have attempted to create a baseline checklist of moths from Tadong, Sikkim region. This work adds to the inventory of moths of this region which could be utilised for future studies.

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| Table 2. Number of moth species belonging to different families. |
|-----------------|-----------------|
| Family          | No. of species  |
| 1 Erebidae      | 41              |
| 2 Geometridae   | 33              |
| 3 Crambidae     | 24              |
| 4 Noctuidae     | 7               |
| 5 Nolidae       | 5               |
| 6 Notodontidae  | 5               |
| 7 Pyralidae     | 5               |
| 8 Drepanidae    | 3               |
| 9 Eupterotidae  | 2               |
| 10 Zygaenida    | 2               |
| 11 Bombycidae   | 1               |
| 12 Euteliidae   | 1               |
| 13 Limacodidae  | 1               |
| 14 Lasiocampida | 1               |
| 15 Thyrididae   | 1               |
| 16 Tortricidae  | 1               |
| **Total**       | **133**         |
Table 3. Checklist of moths recorded during this survey.

| Family      | Subfamily    | Scientific name                  | Author and Year of description | Months observed (2017–2019) | Location |
|-------------|--------------|----------------------------------|--------------------------------|-----------------------------|----------|
| Bombycidae  | Bombycinae   | Penicillfera apicalis            | Walker, 1862                   | September                   | GG       |
| Crambidae   | Acentropinae | Eristata sp.                      |                                 | June                         | SM       |
| Crambidae   | Acentropinae | Parapoynx fluctuosalis           | Meyrick, 1899                   | August, June                 | SM       |
| Crambidae   | Odontinae    | Heartia vitessoides              | Moore, 1885                     | May                          | SM       |
| Crambidae   | Pyraustinae  | Hyalobathra coenostolalis        | Snellen, 1890                   | October                      | SM       |
| Crambidae   | Pyraustinae  | Pagya auroralis                  | Moore, 1888                     | September                    | GG       |
| Crambidae   | Pyraustinae  | Sclerocona sp.                   |                                 | October                      | SM       |
| Crambidae   | Spilomelinae | Agrotera basinotata             | Hampson, 1891                   | June                         | SM       |
| Crambidae   | Spilomelinae | Arthrochista hilarsalis          | Walker, 1859                    | August                       | SM       |
| Crambidae   | Spilomelinae | Bradina diagonalis               | Guenée, 1854                    | November                     | GG       |
| Crambidae   | Spilomelinae | Cnaphalocrocis medinalis         | Guenée, 1854                    | October                      | GG       |
| Crambidae   | Spilomelinae | Diaphania indica                 | Saunders, 1851                  | June                         | SM       |
| Crambidae   | Spilomelinae | Glyphades crithela           | Walker, 1859                    | May                          | GG       |
| Crambidae   | Spilomelinae | Leucinodes arbonalis             | Guenée, 1854                    | July                         | SM       |
| Crambidae   | Spilomelinae | Cnaphalocrocis trispalalis       | Guenée, 1854                    | November                     | SM       |
| Crambidae   | Spilomelinae | Maruca vitrata                  | Fabricius, 1787                 | October                      | GG       |
| Crambidae   | Spilomelinae | Metaoeca faedalis               | Guenée, 1854                    | November                     | GG       |
| Crambidae   | Spilomelinae | Patania scinisalis               | Walker, 1859                    | September                    | GG       |
| Crambidae   | Spilomelinae | Penisiotrecha ossea             | Hampson, 1896                   | October                      | GG       |
| Crambidae   | Spilomelinae | Pycnarnon aeriferalis            | Moore, 1877                     | November                     | SM       |
| Crambidae   | Spilomelinae | Pygospila tyres                  | Cramer, 1780                    | March, August                 | GG       |
| Crambidae   | Spilomelinae | Rhimphalea trupaulalis           | Walker, 1859                    | July                         | SM,GG    |
| Crambidae   | Spilomelinae | Spoladae recurvata              | Fabricius, 1775                 | August                       | GG       |
| Crambidae   | Spilomelinae | Synclera cf. univocalis          | Walker, 1859                    | August                       | SM       |
| Crambidae   | Spilomelinae | Tolanga sp.                      |                                 | August                       | GG       |
| Drepanidae  | Drepaninae   | Callidrepana sp.                 |                                 | September                    | SM       |
| Drepanidae  | Drepaninae   | Drepana pallida                  | Warren, 1922                    | November, October            | GG       |
| Drepanidae  | Drepaninae   | Macrocilix maia                  | Leech, 1888                     | October                      | GG       |
| Erebidae    | Againae     | Asota canicae                    | Fabricius, 1775                 | May                          | SM       |
| Erebidae    | Againae     | Asota plana                      | Walker, 1854                    | April                        | GG,SM    |
| Erebidae    | Againae     | Mecodina cineraucea              | Butler, 1879                    | September                    | SM       |
| Erebidae    | Arctinae    | Adites frigida                   | Walker, 1854                    | July                         | SM       |
| Erebidae    | Arctinae    | Aemene taprobantis               | Walker, 1854                    | October                      | GG       |
| Erebidae    | Arctinae    | Aglaomorpha plagiata             | Walker, 1855                    | March                        | GG       |
| Erebidae    | Arctinae    | Barsine cf. cuneonotata          | Walker, 1855                    | July                         | GG       |
| Erebidae    | Arctinae    | Indiana eczentropis              | Meyrick, 1894                   | May                          | GG       |
| Erebidae    | Arctinae    | Camptoloma binotatum             | Butler, 1881                    | June                         | SM       |
| Erebidae    | Arctinae    | Crehantonotus transiens          | Walker, 1855                    | June                         | SM       |
| Erebidae    | Arctinae    | Cynanea cf. coccinea             | Moore, 1878                     | October                      | SM       |
| Erebidae    | Arctinae    | Cyana cf. neopuber               | Singh et al. 2019               | August                       | GG       |
| Erebidae    | Arctinae    | Cyana cf. weerawoethi            | Lourens, 2017                   | October                      | SM       |
| Erebidae    | Arctinae    | Lycenae cf. clamaria             | Moore, 1888                     | October                      | SM       |
| Erebidae    | Arctinae    | Lycene conjunctana               | Walker, 1866                    | July                         | GG       |
| Erebidae    | Arctinae    | Lycene dasara                    | Moore, 1859                     | October                      | SM       |
| Erebidae    | Arctinae    | Barsine phaedonta                | Hampson, 1911                   | October                      | GG       |
| Family         | Subfamily   | Scientific name               | Author and Year of description | Months observed (2017–2019) | Location |
|---------------|-------------|-------------------------------|-------------------------------|-------------------------------|----------|
| 46 Erebidae   | Arctiinae   | Nyctemera adversata          | Schaller, 1788                | May                           | SM       |
| 47 Erebidae   | Arctiinae   | Padenia duplicana             | Walker, 1863                  | August                        | SM       |
| 48 Erebidae   | Arctiinae   | Zardara distorta             | Moore, 1894                   | June                          | SM       |
| 49 Erebidae   | Arctiinae   | Pseudolabes oaphora           | Zeller, 1853                  | October                       | GG       |
| 50 Erebidae   | Arctiinae   | Schistophleps bipuncta        | Hampson, 1891                 | October                       | GG       |
| 51 Erebidae   | Arctiinae   | Juxtarxia multiguttata        | Walker, 1855                  | May, August                    | SM       |
| 52 Erebidae   | Arctiinae   | Spatula sp.                  |                                | September                     | SM       |
| 53 Erebidae   | Arctiinae   | Stictana sp.                 |                                | April                         | GG       |
| 54 Erebidae   | Arctiinae   | Syntamoises imoone           | Cramer, 1780                  | October                       | GG       |
| 55 Erebidae   | Boletobinae  | Singara diversalis           | Walker, 1865                  | August                        | GG       |
| 56 Erebidae   | Calpinae    | Euocicima sp.                |                                | July                          | SM       |
| 57 Erebidae   | Erebinia    | Anomis flava                 | Anomis flava                  | April                         | GG       |
| 58 Erebidae   | Erebinia    | Artena dotata                | Fabricius, 1794               | October                       | GG       |
| 59 Erebidae   | Erebinia    | Erebus gemmans               | Guenée, 1852                  | September                     | GG       |
| 60 Erebidae   | Hypeninae   | Dichromia quadrals           | Walker, 1858                  | November                      | GG       |
| 61 Erebidae   | Lymantriinae| Cifuna locuples              | Walker, 1855                  | May                           | GG       |
| 62 Erebidae   | Lymantriinae| Eupractis bipunctapex        | Hampson, 1891                 | May                           | GG       |
| 63 Erebidae   | Lymantriinae| Eupractis cf. postica        | Walker 1865                   | May                           | GG       |
| 64 Erebidae   | Lymantriinae| Eupractis sp.                |                                | November                      | SM       |
| 65 Erebidae   | Lymantriinae| Ilema sp.                    |                                | July                          | GG       |
| 66 Erebidae   | Lymantriinae| Pida apicalis                | Walker, 1865                  | December                      | GG       |
| 67 Erebidae   | Lymantriinae| Samena scintillans           | Walker, 1856                  | May                           | SM       |
| 68 Erebidae   | Lymantriinae| Samena similis               | Moore, 1860                   | October                       | GG       |
| 69 Erebidae   | Pangraptinae| Pangrapta pseudobistigma      | Yoshimoto, 1993               | October                       | GG       |
| 70 Eupterotidae| Eupterotinae| Apha sp.                     |                                | October                       | GG       |
| 71 Eupterotidae| Eupterotinae| Eupterate geminata           | Walker, 1855                  | September                     | GG       |
| 72 Euteliidae| Stictopterinae| Laphoptera squamimiga       | Guenée, 1852                  | August                        | SM       |
| 73 Geometridae| Desmobathrinae| Eumelea cf. atomata        |                                | November                      | SM       |
| 74 Geometridae| Ennominae  | Abraxas neomartaria          | Inoue, 1970                   | November                      | GG       |
| 75 Geometridae| Ennominae  | Ariachna transfasciata       | Warren, 1893                  | May                           | SM       |
| 76 Geometridae| Ennominae  | Biston contectaria           | Walker, 1863                  | September                     | SM       |
| 77 Geometridae| Ennominae  | Cassyma cf. delataria        | Moore, 1888                   | September                     | SM       |
| 78 Geometridae| Ennominae  | Celenna festivaria           | Fabricius, 1794               | June                          | GG       |
| 79 Geometridae| Ennominae  | Chorodna mauraria            | Guenée, 1858                  | May                           | GG       |
| 80 Geometridae| Ennominae  | Cleora fraterna              | Moore, 1888                   | August, November              | GG       |
| 81 Geometridae| Ennominae  | Cleora sp.                   |                                | August                        | GG       |
| 82 Geometridae| Ennominae  | Corymica immaculata          | Warren, 1897                  | October                       | GG       |
| 83 Geometridae| Ennominae  | Darisa fratercula            | Moore, 1888                   | March                         | GG       |
| 84 Geometridae| Ennominae  | Ectropis dentilineata        | Moore, 1867                   | May, June                     | SM       |
| 85 Geometridae| Ennominae  | Gonocontis aethocyptra       | Prout, 1962                   | November                      | SM       |
| 86 Geometridae| Ennominae  | Ereboromorpha fulgurita      | Walker, 1860                  | September                     | GG       |
| 87 Geometridae| Ennominae  | Parasyneira pluristriaria    | Walker, 1863                  | September                     | GG       |
| 88 Geometridae| Ennominae  | Heterostegana subesseliata   | Walker, 1862                  | November                      | GG       |
| 89 Geometridae| Ennominae  | Ourapteryx clara             | Butler, 1880                  | October                       | SM       |
| 90 Geometridae| Ennominae  | Hypomecis sp.                |                                | October                       | GG       |
| 91 Geometridae| Ennominae  | Thinapteryx crocaptera       | Kollar, 1844                  | April                         | GG       |
| Family                  | Subfamily | Scientific name                          | Author and Year of description | Months observed (2017–2019) | Location |
|------------------------|-----------|------------------------------------------|--------------------------------|------------------------------|----------|
| 92 Geometridae         | Ennominae | Thinapertys nebulosa                     | Butler, 1883                    | October                      | SM       |
| 93 Geometridae         | Geometrinae | Comibaena integranota                   | Hampson, 1893                   | September                    | SM       |
| 94 Geometridae         | Geometrinae | Cosmostolodes albicanteria              | Warren, 1895                    | March                        | GG       |
| 95 Geometridae         | Geometrinae | Maxates cf. prostrata                   | Butler, 1878                    | May                          | SM       |
| 96 Geometridae         | Geometrinae | Thalassodes quadrandria                 | Guenée, 1895                    | November                     | SM       |
| 97 Geometridae         | Larentiinae | Acrolutha pictaria                      | Moore, 1888                     | December                     | SM       |
| 98 Geometridae         | Larentiinae | Harutatis cf. vialis                    | Moore, 1888                     | November                     | SM       |
| 99 Geometridae         | Larentiinae | Syzeuxis sp.                            |                                |                              | SM       |
| 100 Geometridae        | Larentiinae | Polynesia truncapex                     | Swinhoe, 1892                   | July                         | GG       |
| 101 Geometridae        | Denochrominae | Sarcinodes restitutaria               | Walker, 1863                    | August                       | GG       |
| 102 Geometridae        | Sterrhiinae | Perixena absconditaria                  | Walker, 1862                    | December                     | GG       |
| 103 Geometridae        | Sterrhiinae | Scopula cf. femlineata                  | Moore, 1888                     | November                     | GG       |
| 104 Geometridae        | Sterrhiinae | Synegiodes histrionaria                 | Swinhoe, 1892                   | March                        | SM       |
| 105 Geometridae        | Sterrhiinae | Timandra correnspondens                 | Hampson, 1895                   | June                         | GG       |
| 106 Lasiocampidae      | Lasiocampinae | Trabala vishnou                           | Lefèbvre, 1827                  | May, November                 | SM       |
| 107 Limacodidae        | Limacodinae | Chalcoscelides castaneipars             | Moore, 1865                     | August                       | SM       |
| 108 Noctuidae          | Againaeinae | Cymatophoropsis sinusuta                | Moore, 179                     | May                          | SM       |
| 109 Noctuidae          | Catocalinae | Arcte modesta                           | Hoeven, 1840                    | August                       | GG       |
| 110 Noctuidae          | Heliothinae | Heliothis petigera                       | Denis & Schiffermüller, 1775   | April                        | SM       |
| 111 Noctuidae          | Noctuinae | Mythymia intertexta                     | Chang, 1991                     | June                         | SM       |
| 112 Noctuidae          | Noctuinae | Mythymia seperata                       | Walker, 1865                    | April                        | GG       |
| 113 Noctuidae          | Noctuinae | Trachea auriplena                       | Walker, 1857                    | April                        | GG       |
| 114 Noctuidae          | Plusiinae | Chrenopis agnata                        | Staudinger, 1895                | April                        | GG       |
| 115 Nolidae            | Chlorophorinae | Gabala polyspilalis                     | Walker, 1865                    | May                          | GG       |
| 116 Nolidae            | Chlorophorinae | Kerala sp.                          |                                | May, October                  | GG       |
| 117 Nolidae            | Chlorophorinae | Nyctoala sp.                          |                                | October                       | GG       |
| 118 Nolidae            | Chlorophorinae | Tyana cf. chloraleuca                   | Walker, 1866                    | July                         | SM       |
| 119 Nolidae            | Risbiniae | Risoba sp.                              |                                | November                      | GG       |
| 120 Notodontidae       | Cerurinae | Syntypsis pallidifascia                 | Hampson, 1892                   | October                       | SM       |
| 121 Notodontidae       | Dudusinae | Netria multispinata                    | Schintlmeyer, 2006               | July                         | GG       |
| 122 Notodontidae       | Phalerinae | Phaler sp.                              | Moore, 1859                     | July                         | SM       |
| 123 Notodontidae       | Thaumetopoecinae | Gazzrna chrysophora                  | Kollar, 1844                    | September                     | SM       |
| 124 Notodontidae       | Thaumetopoecinae | Gazzrna transversa                    | Moore, 1879                     | April                        | SM       |
| 125 Pyralidae          | Epipaschiinae | Orthoap sp.                            |                                | October                       | GG       |
| 126 Pyralidae          | Epipaschiinae | Salma sp.                             |                                | September                     | GG       |
| 127 Pyralidae          | Epipaschiinae | Teliphasa sp.                         |                                | September                     | GG       |
| 128 Pyralidae          | Pyralinae | Endotricha sp.                          |                                | April                         | GG       |
| 129 Pyralidae          | Pyralinae | Pyralis pictalis                       | Curtis, 1834                    | September                     | GG       |
| 130 Thyrididae         | Strigilinae | Telchines vialis                       | Moore, 1883                     | May                          | GG       |
| 131 Tortricidae        | Tortricinae | Archip sp.                            |                                | July                         | GG       |
| 132 Zygaenidae         | Chalosinae | Agalope bifassciota                    | Hope, 1840                      | August                        | GG       |
| 133 Zygaenidae         | Chalosinae | Piduris glaucops                       | Drury, 1773                     | August                        | SM       |

**Note:** 1) Survey sites: Gairi Gaon (GG) and 6th Mile (SM); 2) Months observed: Includes months on which the species were sited which might indicate flying duration or seasonal presence; 3) Scientific name: Genus level identifications are represented as sp. Provisional identifications as cf. or near, the former for close matches and the latter for poor matches.
Image 1—Penicillifera apicalis | 2—Eristena sp. | 3—Parapoyx fluctuosalis | 4—Heortia vitessoides | 5—Hyalobathra coenostolalis | 6—Pagysa auroralis | 7—Sclerocona sp. | 8—Agratera basinotata | 9—Arthroschista hilaralis | 10—Bradina diagonalis | 11—Cnaphalocrocis medinalis | 12—Diaphania indica | 13—Glyphodes crithealis | 14—Leucinodes arbonalis | 15—Cnaphalocrocis trapizalis | 16—Maruca vitrata | 17—Metoea foedalis | 18—Patania scinisalis | 19—Perisyntrocha assealis | 20—Pycnarmon aeriferalis | 21—Pygospila tyres | 22—Rhimphalea trogusalis | 23—Spoladae recurvalis | 24—Synclera cf. univocalis | 25—Tolanga sp. | 26—Callidrepana sp. | 27—Drepana pallida | 28—Macrocilix maia | 29—Asota caricae | 30—Asota plana | 31—Mecodina cineracea | 32—Adites frigida | 33—Aemene taprobanis.
Image 34—Aglaomorpha plagiata | 35—Barsine cf. cuneonotata | 36—Indiania eccentrica | 37—Camptoloma binotatum | 38—Creatonotos transiens | 39—Cyana cf. coccinea | 40—Cyana cf. neapuer | 41—Cyana cf. weera woothi | 42—Lyclene cf. clamaria | 43—Lyclene conjunctana | 44—Lyclene dasara | 45—Barsine phaeodonta | 46—Nyctemera adversata | 47—Padenia duplicana | 48—Zadadora distorta | 49—Pseudoblages oophora | 50—Schistophleps bipuncta | 51—Juxtarxia multiguttata | 52—Spilarcia sp. | 53—Stictane sp. | 54—Syntomoides imaon | 55—Singara diversalis | 56—Eudocima sp. | 57—Anomis flavia | 58—Artena dotata | 59—Erebus gemmans | 60—Dichromia quadrallis | 61—Cifuna locuples | 62—Euproctis bipunctapex | 63—Euproctis cf. postica | 64—Euproctis sp. | 65—Ilema sp.
Images 66–97: 66—Pida apicalis | 67—Somena scintillans | 68—Somena similis | 69—Pangrapta pseudalbistigma | 70—Apha sp. | 71—Eupterote cf. geminate | 72—Lophoptera squamigera | 73—Eumelea cf. atomata | 74—Abraxas neomartaria | 75—Arichanna transfasciata | 76—Biston conectaria | 77—Cassyma cf. deletaria | 78—Celemon festivaria | 79—Chorodna mauraria | 80—Cleora fraternal | 81—Cleora sp. | 82—Corymica immaculata | 83—Darisa fratercula | 84—Ectropis dentilineata | 85—Gonodontis aethocrypta | 86—Erebomorpha fulgurita | 87—Parasyne sia pluristrriaria | 88—Heterostegane subtessellata | 89—Ourapteryx clara | 90—Hypomecis sp. | 91—Thinopteryx crooptera | 92—Thinopteryx nebulosa | 93—Comibaena integrana | 94—Cosmostolodes albicantena | 95—Maxates cf. protrusa | 96—Thalassodes quadraria | 97—Acolutha pictaria.
Image 98—Harutalcis cf. vialis | 99—Syzeuxis sp. | 100—Polynesia truncapex | 101—Sarcinodes restitutaria | 102—Perixera absconditaria | 103—Scopula cf. ferrilineata | 104—Syngiodes histriomaria | 105—Timandra correspondens | 106—Trabula vishnou | 107—Chalcocelides castaneipars | 108—Cymatophoropsis sinuata | 109—Arcte modesta | 110—Heliothis petigera | 111—Mythimna intertexta | 112—Mythimna separata | 113—Trachea auriplena | 114—Ctenopliais aegnata | 115—Gabala polyspilalis | 116—Keralo sp. | 117—Nycteola sp. | 118—Tyana cf. chloroleuca | 119—Risoba sp. | 120—Syntypistis palidifascia | 121—Netria multispinae | 122—Phaleria grotei | 123—Gazalina chrysolopha | 124—Gazalina transversa | 125—Orthago sp. | 126—Salsma sp. | 127—Teliphasa sp. | 128—Endotricha sp. | 129—Pyralis pictalis.
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