

## INVENTORY OF TIGER MOTHS OF SIKKIM (ARCTIINAE: ARCTIIDAE: LEPIDOPTERA)

Jagbir Singh Kirti and Jagpreet Singh Sodhi

*Department of Zoology, Punjabi University, Patiala, Punjab 147002, India.*

### Abstract

A total number of 24 species of Tiger moths belonging to subfamily Arctiinae of family Acrtiidae have been collected from nine localities i.e., Gangtok, Mangan, Ranipul, Chungthang, Lachen, Lachung, Namchi, Singtam, Phodong in the Sikkim state. A list of these species including their first reference, synonymy, material examined and distribution have been given in this manuscript. *Spilarctia coma* (Walker) has been reported for the first time from this state.

### Keywords

Arctiidae, *distribution, inventory, moths, Sikkim, survey*

### Introduction

The insects belonging to the subfamily Arctiinae of the family Arctiidae are commonly known as 'Tiger Moths'. These insects can be easily recognised by the presence of a tymbal organ on the meta-episternum and a prespiracular counter tympanal hood (Holloway, 1988). The larvae of these moths are usually hairy, sometimes so much so that they are called as Woolly Bear Caterpillars. Another taxonomic attribute for recognizing these moths is that the vein Sc+R<sub>1</sub> of the hindwing always anastomoses with cell, near or beyond its middle part and separate from vein Rs. The vein Sc is swollen at base.

A collection-cum-survey tour was conducted in Sikkim in 1995 and 2000 to study the tiger moths of the state. The altitude of the various nine localities covered during this survey was between 4000-6000ft (2300-6200m). As many as 139 adult representatives belonging to 24 species referable to 12 genera of the subfamily Arctiinae were collected and identified. The identification was done from relevant literature (Hampson, 1894, 1919; Arora & Chaudhary, 1982; Arora, 1983) and by comparison in the museum of Forest Research Institute, Dehradun and

Zoological Survey of India, Kolkata. The identification of the doubtful species i.e. *Nyctemera varians* Walker, *Spilaectia coma* (Walker) and *Arctata carissima* (Swinhoe) has been verified from the Natural History Museum, London for authenticity and latest nomenclature. A list of 24 species along with their first reference, synonymy, material examined and distribution has been included in this manuscript. The first reference of different genera alongwith their type species has also been included in the observations.

### Material and Methods

The tiger moths were collected from different localities of Sikkim with the help of portable light traps fitted at different places i.e., Botanical Survey of India in Gangtok, PWD Rest House in Mangan, PWD Rest House in Chungthang, Forest Rest House in Namchi and different private guest houses during night time between 2000 and 0100hr. The adult representatives of different species were also captured from fluorescent tube lights fitted on petrol pump stations, forest rest houses and dak bungalows. The collected moths were killed with ethyl acetate vapours in the killing jars. The freshly killed specimens were pinned, stretched, dried and preserved in air tight wooden boxes fitted in insect cabinets (Beirne, 1955).

### Observations

#### Genus *Trypheromera* Butler

*Trypheromera* Butler, 1881, Ill. Lepd. Heterocera, 5: 45  
Type species: *Trypheromera plagifera* Walker

#### *Trypheromera adversata* (Schaller)

Butler, 1881, Ill. Lepd. Heterocera, 5: 45.

Material examined: One female, two males, 5.v.1995, one female, 6.v.1995, Gangtok, Sikkim; one female, 13.v.1995, Lachen, Sikkim; two males, 7.v.1995, Mangan, one male, 8.v.1995; two male, 2.v.1995, Namchi; one male, 4.v.1995, Singtam; two females, three males, 28.vi.2000, Gangtok.

Distribution: India: throughout; outside: China

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**Genus *Arctata* Roepke**

1949. *Arctata* Roepke, 1949, *Trans. R. Ent. Soc. Lond.*, 100: 50  
Type species: *Nyctemera arctata* Walker

***Arctata arctata* (Walker)**

1856. *Nyctemera arctata* Walker, *Cat. Lepd. Heterocera Br. Mus.*, 7: 1664

1894. *Dilemera* Hampson, *Fauna Br. India, Moths*, 2: 45.

Material examined: One male, 12.v.1995, Lachung, Sikkim; one male, one female, 26.ix.2000, Gangtok.

Distribution: India: Assam, Meghalaya, Sikkim, West Bengal.

***Arctata carissima* (Swinhoe)**

Swinhoe 1891. *Trans. Ent. Soc. Lond.*, 1891: 477;

*Dilemera carissima* Hampson, *Fauna Br. India, Moths*, 2: 46.

Material examined: One male, 26.ix.2000, Gangtok, Sikkim.

Distribution: India: Assam and Sikkim.

**Genus *Nyctemera* Hübner**

1818. *Nyctemera* Hübner, *Verz. bekannter Schmett.*: 178.

Type species: *Phalaena (Geometra) lactinina* Cramer

***Nyctemera varians* Walker**

1854. *Nyctemera varians* Walker, *Cat. Lepd. Heterocera*, 2: 400.

1894. *Nyctemera varians* Hampson, *Fauna Br. India, Moths*, 2: 48.

1878. *Pitasila moolaica* Moore, *Proc. Zool. Soc. Lond.*, : 847.

1881. *Pitasila varians* Butler, III. *Lepd. Heterocera*, 5: 46.

Material examined: Two females, three males, 26.vi.2000, Gangtok, Sikkim.

Distribution: India: Assam, Bihar, Meghalaya, Nagaland and Sikkim; outside: Myanmar

**Genus *Argina* Hübner**

1818. *Argina* Hübner. *Verz. bekannter Schmett.*: 167.

Type species: *Phalaena astrea* Drury

***Argina astrea* (Drury)**

1773. *Phalaena astrea* Drury, III. *Exot. Ins.*, 2: 11.

1887. *Argina astrea* Cotes & Swinhoe, *Cat. Moths India*, 2: 117.

1894. *Argina cribraria* Clerck, Hampson, *Fauna Br. India, Moths*, 2: 51. (*astraea* as synonym)

1859. *Argina guttata* Rambur, *Lepd. And.*, 2: 229.

Material examined: One female, 2.vi.2000, Mangan, Sikkim.

Distribution: India: throughout; outside: China, Mauritius, Myanmar, New Guinea, Sri Lanka.

**Genus *Callimorpha* Latreille**

1809. *Callimorpha* Latreille *Gen. Crust. Ins.*, 4: 220.

Type species: *Phalaena dominula* Linnaeus

***Callimorpha principalis* (Kollar)**

1844. *Euprepia principalis* Kollar, In Hügél's Kaschmir und das Reich der Seik, 4: 465.

1889. *Euprepia principalis* Butler, III. *Lepd. Heterocera*, 7: 38.

1879. *Hypercompa flavicolor* Moore, *Proc. Zool. Soc. Lond.*, : 307.

1894. *Callimorpha principalis* Hampson, *Fauna Br. India, Moths*, 2: 35.

Material examined: Two females, one male, 29.vi.2000, Gangtok, Sikkim, .

Distribution: India: Himachal Pradesh and Sikkim; outside: Myanmar.

***Callimorpha equitalis* (Kollar)**

1844. *Euprepia equitalis* Kollar, Hügél's Kaschmir und das Reich der Siek, 4: 465.

1894. *Callimorpha equitalis* Hampson, *Fauna Br. India, Moths*, 2: 36.

Material examined: One female, one male, 7.v.1995, two females, 1.vi.2000, Mangan, Sikkim.

Distribution: India: Assam, Himachal Pradesh, Meghalaya and Sikkim.

***Callimorpha nyctemerata* (Moore)**

1879. *Hypercompa nyctemerata* Moore, *Descr. Indian Lepd. Atkinson*, 38.

1894. *Callimorpha nyctemerata* Hampson, *Fauna Br. India, Moths*, 2: 36.

Material examined: One female, 12.v.1995, Lachung, Sikkim; one male, 7.v.1995, Mangan; one female, 8.v.1995, three females, two males, 30.v.2000, Ranipul.

Distribution: India: Sikkim and West Bengal.

**Genus *Aglaomorpha* Koda**

1987. *Aglaomorpha* Koda, *Tyo to Ga*, 39(1): 187.

Type species: *Hypercompa histrio* Walker.

***Aglaomorpha plagiata* Walker**

1855. *Hypercompa plagiata* Walker, *Cat. Lepd. Heterocera Br. Mus.*, 3: 655; Butler, 1881, III. *Heterocera*, 5: 85.

1894. *Callimorpha plagiata* Hampson, *Fauna Br. India, Moths*, 2: 36.

Material examined: One female, 7.v.1995, Phodong, Sikkim; six females, 29.vi.2000, Gangtok.

Distribution: India: Assam, Bihar, eastern Himalaya and north-western Himalaya, Sikkim.

**Genus *Cretonotos* Hübner**

1818. *Cretonotos* Hübner, *Verz. bekannter Schmett.*, 170.

Type species: *Phalaena interrupta* Linnaeus

***Cretonotus interruptus* (Linnaeus)**

1767. *Noctua interrupta* Linn., Syst. Nat., 1: 2553, 116. Moore, 1857, Lepd.  
 1859. *Cretonotus interrupta* Moore, Lepd. E. India Co., 2: 362, pl.  
 1894. *Cretonotus interruptus* Hampson, Fauna Br. India, Moths, 2: 26.  
 1901. *Cretonotus interruptus* Hampson, Lepd. Cat. Phalanae., 3: 333.  
 1892. *Cretonotus interruptus* Kirby, 1892, Cat. Heterocera, 1: 241; *Phalaena gangis* Linn. 1764, Amoen Aead, 6: 410.

Material examined: One male, 4.v.1995, Singtam, Sikkim; one male, 29.vi.2000, Gangtok.

Distribution: India: throughout; outside: Myanmar and Sri Lanka.

***Cretonotus transiens* (Walker)**

1855. *Spilosoma transiens* Walker, Cat. Lepd. Heterocera, 3: 675.  
 1882. Lepd. E. Ind. Co., Moore, 16.  
 1894. *Phissama transiens* Hampson, Fauna Br. India, Moths, 2: 29.  
 1901. *Cretonotus transiens* Hampson, Lepd. Cat. Phal., 3: 334.  
 1892. Kirby, 1892, Cat. Heterocera, 1: 243.  
 1855. *Amphissa vacillans* Walker, 1855, Cat. Lepd. Heterocera, 3: 685.

Material examined: Two males, 5.v.1995, Gangtok, Sikkim; one male, 7.v.1995; one male, 14.v.1995, Mangan; one male, 2.v.1995, Namchi; one female, three males, 4.v.1995, two females, 1.vi.2000, Singtam.

Distribution: India: throughout

**Genus *Alphaea* Walker**

1855. *Alphaea* Walker, 1855. *List specimens Lepid. Insects Colln. Br. Mus.*, 3: 683.

Type species: *Alphaea fulvohirta* Walker

***Alphaea impleta* (Walker)**

1864. *Hypercompa impleta* Walker, Cat. Lepd. Heterocera Br. Mus., 31: 286.  
 1894. *Alphaea impleta* Hampson, *Fauna Br. India*, Moths, 2: 24.  
 1901. *Diacrisia impleta* Hampson, Cat. Lepd. Phalanae, 3: 313.  
 1892. *Hypercompa impleta* Kirby, Cat. Lepd. Heterocera, 1: 240.  
 1867. *Alphaea abdominalis* Moore, *Proc. Zool. Soc. Lond.*: 682.

Material examined: One male, 8.v.1995, Mangan, Sikkim; one female, one male, 14.v.1995, nine females, three males, 29.vi.2000, Gangtok.

Distribution: India: Assam and Sikkim.

**Genus *Spilarctia* Butler**

- Butler, 1875, *Cistula* ent. 2: 39  
Type species: *Phalaena lutea* Hufnagel

***Spilarctia multiguttata* (Walker)**

- Hypercompa multiguttata* Walker, 1855, *Cat. Lepd. Heterocera Br. Mus.*, 3: 657; Hmps., 1894, *Fauna Moths, Ind.*, 2: 33; id., 1901; Cat. Lepd. Phalanae, 3: 1901, Kirby, 1892, Cat. Heterocera 1: 239.

Material examined: One male, 7.v.1995, Sikkim: Mangan; one female, 1.vi.2000.

Distribution: India: Himachal Pradesh, Jammu & Kashmir and Sikkim; outside: Cambodia, Myanmar, Nepal.

***Spilarctia irregularis* (Rothschild)**

- Diacrisia irregularis* Rothschild, 1910, *Novit, Zool.*, 17: 125.

Material examined: Two males, 13.ix.1995, Lachen, Sikkim; two males, two females, 1.vi.2000, Mangan.

Distribution: India: Sikkim and Meghalaya; outside: Myanmar.

***Spilarctia rubilinea* (Moore)**

1865. *Spilosoma rubilinea* Moore, *Proc. Zool. Soc.*, 1865: 810; 1894. Hmps., *Fauna Moths, Ind.*, 2: 8; Kirby, 1892, Cat. Heterocera, 1: 231. *Spilosoma discinigra* Moore, 1865, *Proc. Zool. Soc.*, 1865: 810; Kirby, 1892, Cat. Heterocera, 1: 232.

Material examined: Three males, 13.v.1995, Lachen, Sikkim; one male, 7.v.1995, Mangan; two males, 15.ix.2000, Gangtok.

Distribution: India: Assam, Meghalaya and Sikkim; outside: China, Myanmar.

***Spilarctia casignata* (Kollar)**

- Euprepia casignata* Koll, 1844, Hügel's Kashmir, 4: 469; Hampson., 1894, *Fauna Moths, Ind.*, 2: 9; id., 1901, Cat. Lepd. Phalanae, 3: 281; Kirby, 1892, Cat. Heterocera, 1: 231.

Material examined: One male, 7.v.1995, three males, 8.v.1995, one female, 14.v.1995, Mangan, Sikkim; one male, three females, 16.ix.2000, Gangtok.

Distribution: India: northwestern Himalaya and Sikkim.

***Spilarctia coma* (Walker)**

- Aloa coma* Walker, 1856, Cat. Lepd. Heterocera, 7: 1703; Hampson., 1894, *Fauna Moths, Ind.*, 2: 10; id., 1901, Cat. Lepd. Phalanae, 3: 285; Kirby, 1892, Cat. Heterocera, 1: 242.

Material examined: One female, 16.ix.2000, Gangtok, Sikkim.

Distribution: India: northwestern Himalaya, Himachal Pradesh and Sikkim.

Remarks: This species has been reported for the first time from Sikkim.

***Spilarctia niceta* (Stoll)**

*Bombyx niceta* Stoll, 1782, Pap. Exot., 4: 368; Hampson., 1901, Cat. Lepd. Phalanae, 3: 317; Kirby, 1892, Cat. Heterocera, 1: 912.

Material examined: Three females, two male, 16.ix.2000, Gangtok, Sikkim.

Distribution: India: Assam and Sikkim; outside: China, Ireland, Phillipines.

**Genus *Cladarctia* Koda**

Koda, 1988, *Tyo to Ga*, 2: 45

Type species: *Euprepria quadriramosa* Kollar

***Cladarctia quadriramosa* (Kollar)**

*Euprepria quadriramosa* Kollar, 1844, Hügél's Kashmir, 4: 468; Hampson., 1894, Fauna Moths, Ind., 2: 21; id., 1901, Cat. Lepd. Phalanae, 3: 342; Kirby, 1892, Cat. Heterocera, 1: 243; Koda, 1988, *Tyo to Ga*, 2: 45-47.

Material examined: One male, 1.vi.2000, Mangan, Sikkim.

Distribution: India: Jammu & Kashmir, northwestern Himalaya, Himachal Pradesh and Sikkim.

**Genus *Areas* Walker**

Walker, 1855, *Cat. Lepd. Heterocera*, 3: 658

Type species: *Areas galactina* Vander Hoefer

***Areas imperialis* Kollar**

Kollar, 1844, Hügél's Kashmir, 4: 466; Hampson., 1894, Fauna Moths, Ind., 2: 25.

Material examined: Four females, two males, 1.vi.2000, Mangan, Sikkim,

Distribution: India: northwestern Himalaya and Sikkim.

***Areas trigonalis* Voll.**

Voll. 1863, *Tijdsch., Ent.*, 5: 140.

Material examined: Three females, five males, 7.vii.2000, Gangtok, Sikkim.

Distribution: India: Assam and Sikkim.

***Areas galactina* Hoefer**

Van Der Hoefer., 1840, *Tijdsch. Nat. Gesh.*, 1840: 280; Hampson., 1894, Fauna Moths, Ind., 2: 25; id., 1901, Cat. Lepd. Phalanae, 3: 356.

Material examined: One females, three males, 7.v.1995, one male, 8.v.1995, two females, 1.vi.2000, Mangan, Sikkim.

Distribution: India: northwestern Himalaya and Sikkim.

***Areas orientalis* (Walker)**

Walker, *Cat. Lepd. Heterocera*, 3: 658; Hampson., 1894, Fauna Moths, Ind., 2: 25; id., 1901, Cat. Lepd. Phalanae, 3: 356.

Material examined: One male, 5.v.1995, Gangtok, Sikkim; one

male, 7.v.1995; Mangan; one male, 10.v.1995, one female, five males, 1.vi.2000, Lachung.

Distribution: India: northwestern Himalaya and Sikkim.

**Genus *Thanatarctia* Butler**

Butler, 1877, *Ann. Mag. Nat. Hist.*, 20: 395

Type species: *Thanatarctia infernalis* Butler

***Thanatarctia flavens* Moore**

Moore, 1879, Lepd. Atkinson, 1879: 119; Hampson., 1894; Fauna Moths, Ind., 2: 13; id., 1901, Cat. Lepd. Phalanae., 3: 282; Kirby, 1892, Cat. Heterocera, 1: 239.

Material examined: Three males, 19.ix.2000, Chungthang, Sikkim.

Distribution: India: Assam, Sikkim and Meghalaya.

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