



## Taxonomic Assessment and Distributional Records of Sphingidae Moths (Lepidoptera: Heterocera) from Nagaland

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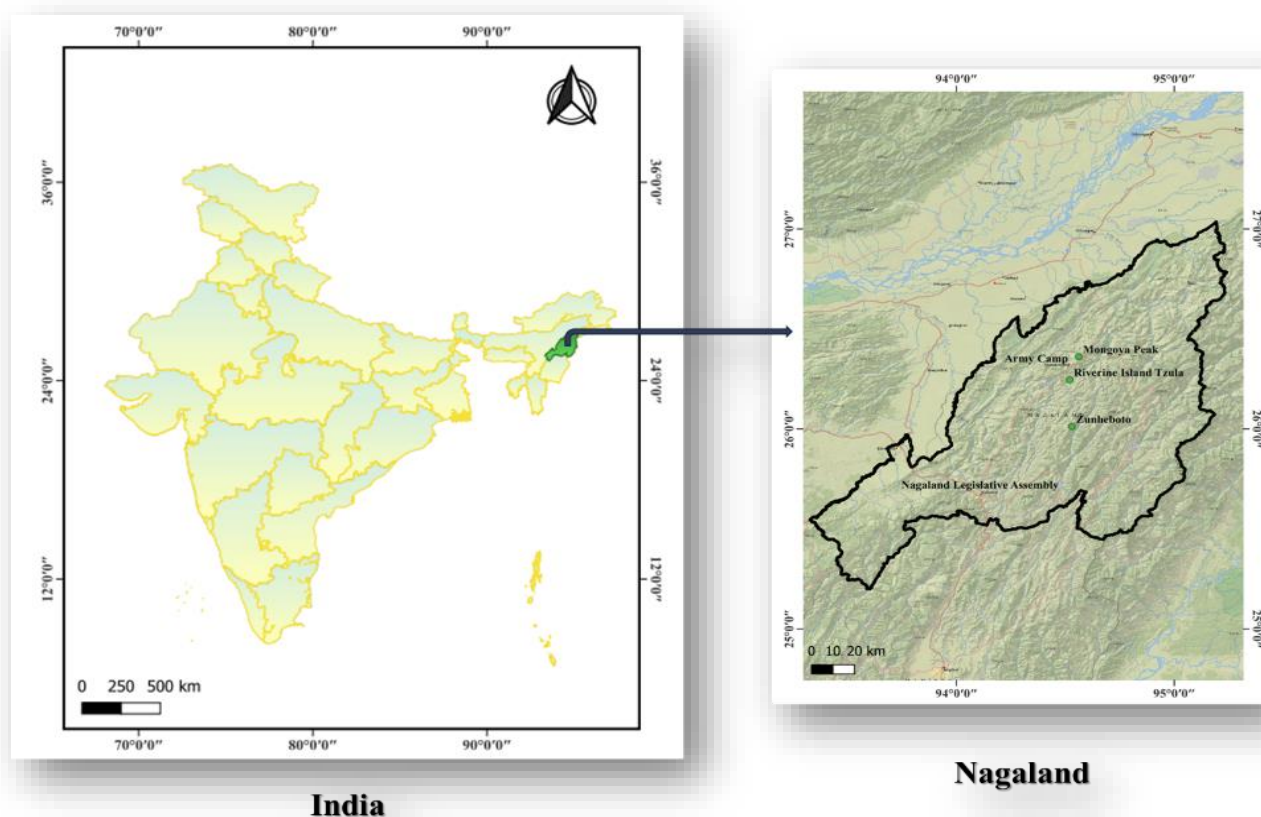
<p>CC License CC-BY-NC-SA 4.0</p>	<p style="text-align: center;"><i>Abstract</i></p> <p>An updated checklist of 22 moth species under 14 genera belonging to Sphingidae has been catalogued with an aim to follow the current state of knowledge in moth diversity from the north-eastern state of Nagaland. Although, richly endowed with an array of biodiversity, the state seriously lacks attention regarding faunal status and distributions; ergo, the present work to ascertain the diversity of hawk moths of the state based on records from available literature to fill the void on the path of systematic research.</p> <p><b>Keywords:</b> <i>checklist, distribution, moths, Sphingidae, synonyms</i></p>
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### Introduction

Sphingidae, one of the most conspicuous Heteroceran families of Lepidoptera, includes 1,450 described species worldwide (Nieukerken et al., 2011) bearing a wide range of physical characteristics and ecological adaptations (Pittaway, 1993). The species within the family are distinguished by their large size, quick flight and lengthy proboscis which makes them an efficient pollinator of numerous plants (Kitching, 2018). The considerable size of hawkmoths has rendered them invaluable as model organisms in investigations concerning genetics, physiology and development (Wannenmacher & Wasserthal, 2003; Roe et al., 2009). Additionally, these moths have been instrumental in studies of functional morphology (Eaton, 1988), interactions between plants and herbivores (Kessler & Baldwin, 2002; Agosta & Janzen, 2005), pollination biology (Raguso & Willis, 2002) and biogeography (Beck et al., 2006).

However, the updated knowledge about their taxonomic composition stands scanty. Post independence, limited comprehensive works on Sphingidae has been carried out from the state of Nagaland. Moreover, a lack of distributional data poses major barriers to conservation status assessment and biodiversity management (Amano & Sutherland, 2013). Hence, the present review attempts to compile the documented Sphingidae moths from the state including notes on their updated synonymy and distribution with a view to support further systematic studies.

Nagaland, positioned in the extreme north-eastern part of India, is home to an array of floral and faunal diversity with one-sixth of the state under the cover of tropical and sub-tropical evergreen forests. The mountainous state, bounded by the Indian states of Arunachal Pradesh to the northeast, Manipur to the south, Assam to the west and northwest and Myanmar (Burma) to the east, bears a monsoonal climate with average rainfall between 70 and 100 inches. A geographic map of the concerned site was generated using QGIS (Version 3.30.3 's-Hertogenbosch).



**Fig.** Geographical map of Nagaland, India.

### Methodology

The compilation of checklist is based on available literature (Cotes & Swinhoe, 1887; Bell & Scott, 1937; Hampson, 1892; Singh et al., 2021; Shubhalaxmi et al., 2011; Sethi et al., 2017, Irungbam & Fric, 2021; Irungbam & Irungbam, 2019) which serves as the first consolidated documentation of Sphingidae moths from Nagaland. Synonymy information was sourced from Catalogue of the family-group, genus-group and species-group names of the Sphingidae of the world (Bridges, 1993) and the online database named Catalogue of Life (Roskov et al., 2019).

### Taxonomic accounts

The current taxonomic framework suggests the existence of three subfamilies: Macroglossinae, Smerinthinae and Sphinginae under Sphingidae. The subfamily Macroglossinae consists of the tribes Dilophonotini (25 genera), Macroglossini (55 genera) and Philampelini (2 genera), Smerinthinae includes Ambulycini (10 genera) and Smerinthini (60 genera) and Sphinginae encompasses Acherontiini (5 genera), Sphingini (38 genera) and Sphingulini (9 genera). Two genera of sphingids are still not assigned to any of the existing subfamilies (Beccaloni, 2023). The taxonomic checklist has been prepared in accordance with the present nomenclatural changes (Beccaloni, 2019).

#### Order Lepidoptera Linnaeus, 1758

##### Superfamily Bombycoidea Latreille, 1802

##### Family Sphingidae Latreille, 1802

##### Subfamily Smerinthinae Grote and Robinson, 1865

##### Genus *Callambulyx* Rothschild & Jordan, 1903

#### 1. *Callambulyx junonia* Butler, 1881

##### Synonyms:

*Ambulyx junonia* Butler, 1881. *Ambulyx* OD: II. Lepid. Het. B. M. 5:9, pl 80, CG: *Callambulyx* [Type: BMNHht) [TypeL - Bhutan, N. India.]

*Callambulyx orbita* Chu & Wang, 1980. *Callambulyx* OD: Acta zootaxon. sinica (5)441, SS: chinensis Clark,

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1938; *Callambulya* [Type L- Yunnan, China.]

**Distribution in India:** Arunachal Pradesh, Nagaland, Sikkim, Manipur.

**Elsewhere:** Bhutan, Vietnam, China (Irungbam & Fric, 2021).

## 2. *Callambulyx rubricosa* Walker, 1856

### Synonyms:

*Ambulyx rubricosa* Walker, 1856. *Callambulyx* Rothschild & Jordan, 1903 OD: Novit. zool. 9(Suppl.):173,307. TS: *Ambulyx rubricosa* Walker, 1856. OD: List Spec. Lep. Ins. Brit. Mus. (8):122 . TM: by original designation.

*Ambulyx amanda* Rothschild & Jordan, 1903; *Callambulyx* OD: Novit. zool. 9(Suppl.):309, SS: *rubricosa* (Walker), 1856; *Callambulyx* [Type: BMNH-ht] [TypeL- Kina Balu, N. Borneo.]

*Ambulyx indochinensis* Clark, 1936; *Callambulyx* OD: Proc. New Engl zool. Club 15:84, SS: *rubricosa* (Walker), 1856; *Callambulyx* [TypeL - French Indo-China.]

*Ambulyx piepersi* (Snellen), 1880; *Metagastes* OD: Tijdschr. Ent. 23: xxii\_ [b1266] SS: *rubricosa* (Walker), 1856; *Callambulyx* [Type: pce; collection of Snellen.] [TypeL - Vietnam] [Check - Type locality and spelling.]

*Ambulyx rubricosa* (Walker), 1856; *Ambulyx* OD: List Spec. Lep. Ins. Brit. Mus. 8:122, CG: *Callambulyx* [Type: UMO] [TypeL - Hindostan, India.]

*Basiana superba* (Moore), 1866; *Basiana* OD: Proc. zool. Soc. Lond. 1865:793, SS: *mubricosa* (Walker), 1856; *Callambulyx* [Type: BMNH] [TypeL - Not stated.]

**Distribution in India:** (Northeastern India), Nagaland (Sethi et al., 2017).

**Elsewhere:** Bhutan- Mendrelgang, Dagona and Paro, Nepal, Thailand, Vietnam (Irungbam & Irungbam, 2019).

### Genus *Marumba* Moore, 1882

## 3. *Marumba dyras* Walker, 1856

### Synonyms:

*Marumba andamana* Moore, 1877. OD: Proc. zool. Soc. Lond. 1877:595, SS: *dyras* (Walker), 1856, *Marumba* [Type: BMNH] [TypeL- Andaman \_Islands.]

*Marumba ceylanica* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:255, SS: *dyras* (Walker), 1856; *Marumba* [Type: BMNH] [TypeL - Ceylon.]

*Marumba ceylonica* Kernbach, 1960. Moore, 1882, 1882-1883, (ISS); *Marumba* OD: Lep. Ceylon 2:9, pl 79, SS: *ceylanica* (Butler), 1875; *Marumba*

*Marumba fuscescens* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:256, SS: *dyras* (Walker), 1856; *Marumba* [Type: BMNH] [TypeL - Darjling, N. India.]

*Marumba handelioides* Mell, 1937. *handelioides* Mell, 1937; *Marumba* OD: Deut. ent. Zeit. 1937:5, SS: *dyras* (Walker), 1856, *Marumba* [TypeL - Hunan, China.]

*Marumba massurensis* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:256, SS: *dyras* (Walker), 1856; *Marumba* [Type: BMNH] [TypeL - Massuri.]

*Marumba oriens* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:255, SS: *dyras* (Walker), 1856; *Marumba* [Type: BMNH] [TypeL - N. E. India.]

*Marumba plana* Clark, 1923. OD: Proc. New Engl. zool. Club 8:54, SS: *dyras* (Walker), 1856; *Marumba* [TypeL - S. E. China.]

*Marumba silhetensis* Butler, 1875. *Chaerocampa* OD: List Spec. Lep. Ins. Brit. Mus. 8:143, CG: *Theretra* [Type: BMNH]

*Marumba sinensis* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:254, SS: *dyras* (Walker), 1856; *Marumba* [Type: BMNH] [TypeL - Hongkong.]

*Marumba tonkinensis* Clark, 1936. D: Proc. New Engl. zool. Club 15:81, SS: *dyras* (Walker), 1856; *Marumba* [TypeL - Tonkin].

**Distribution in India:** Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Karnataka, Gujarat, Maharashtra, Andaman & Nicobar Islands.

**Elsewhere:** Sri Lanka, Nepal, Bhutan, Bangladesh, Myanmar, Thailand, S. China, Philippines, Indonesia, Malaysia (Borneo), Taiwan (Subhalaxmi et al., 2011).

## 4. *Marumba irata* Joicey & Kaye, 1917

### Synonyms:

*Marumba irata* Joicey & Kaye, 1917. Joicey & Kaye, 1917; *Marumba* OD: Ann. Mag. nat. Hist. (8)20:305 [TypeL - Tibet.]

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*Marumba fortis* Jordan, 1929. OD: Novit. zool. 35:85, SS: gaschkewitschi (Bremer & Grey), [1852]; *Marumba* [TypeL - Yunnan.]

**Distribution in India:** Manipur, Nagaland, Sikkim.

**Elsewhere:** Northern Vietnam, Myanmar, China (Iringbam & Fric, 2021).

**Genus *Clanis* Hübner, 1819**

**5. *Clanis phalaris* Cramer, 1777**

**Synonyms:**

*Clanis cervina* Walker, 1856. OD: List Spec. Lep. Ins. Brit. Mus. 8:237, SS: phalaris (Cramer), [1777]; *Clanis* [TypeL - N. India.]

*Clanis gigantea* Rothschild, 1894. OD: Novit. zool. 1:96, SS: undulosa Moore, 1879; *Clanis* [TypeL - Khasia Hills.]

*Clanis nicobarensis* Esper, 1794. OD: Cat. Lep. Het. Mus. Ox. 1:29, SS: nicobarensis (Schwarz), 1810. TypeL: Not known.

*Clanis pagana* Fabricius, 1781. OD: Spec. Ins. 2:146, SS: phalans (Cramer), [1777]; *Clanis* [TypeL - Ind. or.]

*Clanis phalaris* Butler, 1877. phalaris (Cramer), [1777], 1775-1790; Sphinx OD: Ui. Kapellen 2:83, pl 149, CG: *Clanis* [TypeL - Coromandel.]

**Distribution in India:** (Sikkim, Assam, Arunachal Pradesh, Nagaland, Manipur, Meghalaya, Mizoram, Maharashtra, Karnataka, Uttarakhand, Madhya Pradesh, Tamil Nadu, Andhra Pradesh, Pondicherry, Andaman & Nicobar Is.).

**Elsewhere:** Sri Lanka, Myanmar. (Subhalaxmi et al., 2011).

**Subfamily Sphinginae Latreille, 1802**

**Genus *Psilogramma* Rothschild & Jordan, 1903**

**6. *Psilogramma menephron* Cramer, 1780**

**Synonyms:**

*Psilogramma ahrendti* Pagenstecher, 1888. OD: Jb. nass. Ver. Nat. 41.104, SS: menephron (Cramer), [1780]; *Psilogramma* [TypeL - Amboina.]

**Distribution in India:** (Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Gujarat, Andaman Is.).

**Elsewhere:** Sri Lanka, Nepal, China, Myanmar, Thailand, Vietnam, Indonesia, Philippines, Australia (Subhalaxmi et al., 2011).

**7. *Psilogramma discistriga* (Walker, 1865)**

**Synonym:**

*Psilogramma darius* Ménétriés, 1857 (unavailable);

*Psilogramma emarginata* Moore (unavailable);

*Psilogramma melanomera* Butler, 1877 (unavailable);

**Distribution:** India (Andaman and Nicobar Islands, Arunachal Pradesh, Assam, Gujarat, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Sikkim, Uttarakhand, West Bengal, Delhi, Punjab, Himachal Pradesh, Karnataka, Tamil Nadu, Uttarakhand, West Bengal (Singh et al., 2021).

**Genus *Agrius* Hübner, 1819**

**8. *Agrius convolvuli* Linnaeus, 1758**

**Synonyms:**

*Agrius aksuensis* Bang-Haas, 1927. OD: Horae Macrolep. 1:78, SS: convolvuli (Linnaeus), 1758; *Agrius* [TypeL - Tian Shan, China.]

*Agrius alicea* Neuburger, 1899 (unavailable). OD: Illte Z. Ent. 4:297, SS: convolvuli (Linnaeus), 1758; *Agrius*

*Agrius batatae* Christ, 1882. OD: Mitt. schweiz. ent. Ges. 6:346, SS: convolvuli (Linnaeus), 1758; *Agrius* [TypeL - Teneriffe.]

*Agrius distans* Butler, 1874. OD: Voy. Erebus & Terror 2:30, pl 9, SS: convolvuli (Linnaeus), 1758; *Agrius* [TypeL - New Zealand.]

*Agrius grisea* Tutt, 1904 (unavailable). OD: Fauna Bm. India (Moths) 1:104, CG: Dolbinopsis [TypeL - Kulu, N. W. India.] [Type of - Dolbinopsis]



- Agrius indica* Skell, 1913. OD: Mitt. munchn. ent. Ges. 4:56-61, SS: convolvuli (Linnaeus), 1758; *Agrius* [TypeL - Sumatra.]
- Agrius intermedia* Tutt, 1904. OD: In Richardson, Fauna Bor.-Amer. 4:302, SS: gallii (Rottemburg), 1775; Hyles [TypeL - North America.]
- Agrius major* Tutt, 1904. OD: Proc. zool. Soc. Lond. 1875:249, SS: lineosa (Walker), 1856; *Cechenena* [Type: BMNH-st] [TypeL - Darjiling; Silhet.]
- Agrius marshallensis* Clark, 1922. OD: Proc. New Engl. zool. Club 8:3 ,SS: convolvuli (Linnaeus), 1758; *Agnus* [TypeL - Turkestan.]
- Agrius minor* Tutt, 1904. OD: Proc. zool. Soc. Lond. 1875:249, CG: *Cechenena* [Type: BMNH] (TypeL - Masuri.)
- Agrius nigricans* Cannaviello, 1900. OD: Boll. Soc. ent. ital 32:295, SS: convolvuli (Linnaeus), 1758. [TypeL - Madagascar.]
- Agrius obscura* Tutt, 1904. OD: Syst. Ent. :538, CG: *Erinnyis* [TypeL - America.]
- Agrius orientalis* Butler, 1876. OD: In Reise Novara 2(Abt. 2):pl 77, SS: helops (Walker), 1856; *Cechenena* [Type: BMNH] [TypeL - Java.]
- Agrius patatas* Ménétrés, 1857. OD: Enum. Corp. Anim. :90, SS: convolvuli (Linnaeus), 1758; *Agnus* [TypeL - Taiti.]
- Agrius peitaihoensis* Clark, 1922. OD: Proc. New Engl. zool. Club 8:2, SS: convolvuli (Linnaeus), 1758; *Agrius* [TypeL - N. China.]
- Agrius pseudoconvolvuli* Schaufuss, 1870. OD: Nunquam ouiosus 1:15, SS: convolvuli (Linnaeus), 1758; *Agnus* [TypeL - Natal.]
- Agrius suffusa* Tutt, 1904. OD: List Spec. Lep. Ins. Brit Mus. 8:146, CG: *Theretra* [Type: BMNH] [TypeL - Hongkong.]
- Distribution:** India (Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Maharashtra, Gujarat, Andaman Is.).

**Elsewhere:** Pakistan, Sri Lanka, Myanmar, China, Malaysia, Indonesia, Mongolia, Siberia, Japan, Africa, Australia, the Pacific and Southern Europe (Subhalaxmi et al., 2011).

### Genus *Acherontia* Laspeyres, 1809

#### 9. *Acherontia lachesis* Fabricius, 1798

##### Synonyms:

- Acherontia atra* Huwe, 1895. OD: Berl. ent Z 40:368, SS: lachesis (Fabricius), 1798; *Acherontia* [TypeL - Java.]
- Acherontia lethe* Westwood, 1847. OD: Cabinet orient. Ent. :87, pl 42, SS: lachesis (Fabricius), 1798. [TypeL- Unkown]
- Acherontia morta* Hübner 1819. OD: Verz bekannt. Schmett. :140, SS: lachesis (Fabricius), 1798. [TypeL- Unkown]
- Acherontia satanas* Boisduval, 1836. OD: Spec. gén. Lépid. l:pl 16, SS: lachesis (Fabricius), 1798; *Acherontia*. [TypeL- Unkown]

**Distribution:** India (Andaman and Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Goa, Gujarat, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Sikkim, Tamil Nadu, Uttarakhand, West Bengal) (Singh et al., 2021).

**Elsewhere:** Sri Lanka, Pakistan, Nepal, Myanmar, Malaysia, Indonesia, China, Japan, Philippines, Hawaii Is., Russia (Subhalaxmi et al., 2011).

#### 10. *Acherontia styx* Westwood, 1847

##### Synonyms:

- Acherontia ariel* Boisduval, 1875. OD: In Hist. nat. insectes 1:6, SS: styx (Westwood), 1847; *Acherontia*. [TypeL- Unkown]
- Acherontia interrupta* Closs, 1911. OD: List Spec. Lep. Ins. Bnt. Mus. 31:29, SS: lusca (Fabricius), 1777; *Pengonia* [TypeL - Mexico; Guatemala; Haiti.]
- Acherontia obsoleta* Schmidt, 1914. OD: In Cat. Lep. Palae. Faun. (3rd ed) :100, SS: kindermanni Lederer, 1852; *Smerinthus* [Type: pc; collection of Staudinger.] [TypeL - Korla.]

**Distribution in India:** Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Maharashtra, Gujarat, Andaman Is.

**Elsewhere:** Sri Lanka, Pakistan, China, Nepal, Myanmar, Bangladesh, Indonesia, Saudi Arabia, Iraq, Iran. (Subhalaxmi et al., 2011).

**Subfamily Macroglossinae Harris, 1839**  
**Genus *Ampelophaga* Bremer & Grey, 1853**

**11. *Ampelophaga rubiginosa* Bremer & Grey, 1852**

**Synonyms:**

*Ampelophaga romanovi* Staudinger, 1887. OD: In Romanoff, Mém. Lép. 3:pl 9, SS: *rmubiginosa* Bremer & Grey, [1852]; *Ampelophaga* [Type: pc; collection of Staudinger.] [TypeL - Amurland.]

*Ampelophaga fasciosa* Moore, 1888. OD: Proc. zool. Soc. Lond. 1888:391, SS: *rubiginosa* Bremer & Grey, [1852]; *Ampelophaga* [Type: BMNH] [TypeL - Dhamrmsala, N. India.].

*Ampelophaga alticola* Mell, 1922. OD: Proc. New Engl. zool. Club 8:8, SS: *planus* Walker, 1856; *Smerinthus* [TypeL - China.].

*Ampelophaga marginalis* Matsumura, 1927. OD: Bull. Buffalo Soc. nat. Sci. 1:6; 18, pl 1, SS: *diffinis* (Boisduval), 1836; *Hemaris* [TypeL- Michigan.].

*Ampelophaga submarginalis* Matsumura, 1927. OD: List Spec. Lep. Ins. Bnt. Mus. 31:37, SS: *contraria* Walker, 1856; *Andnasa* [Type: BMNH-ht] [TypeL - Sierra Leone.]

**Distribution:** Dhamrmsala, N. India, Nagaland.

**Elsewhere:** Michigan, Sierra Leone, China and Amurland.

**Genus *Deilephila* Laspeyres, 1809**

**12. *Deilephila elpenor* Linnaeus, 1758**

**Synonym:**

*Elpenor vitis* Oken, 1815. OD: Lehrbuch Nawrgesch. 3(1):760. [R+J HC-Sem: Phi: Nephelicae] SS: *Deilephila* [Laspeyres], 1809. [TypeL- Unkown]

**Distribution:** Nagaland.

**Elsewhere:** Not Known.

**Genus *Gurelca* Kirby, 1880**

**13. *Gurelca hyas* Walker, 1856**

**Synonyms:**

*Neogurelca hyas* Walker, 1856. OD: List Spec. Lep. Ins. Bnt. Mus. 8:107, CG: *Gurelca* [Type: BMNH-st] [TypeL - Silhet; Hongkong; Java; N. India.].

*Neogurelca conspicua* Mell, 1922. OD: Deut. ent. Zeit. 1922:119, SS: *hyas* (Walker), 1856; *Gurelca* [TypeL - S. China.].

*Neogurelca geometricum* Moore, 1857. OD: In Cat. Lep. Ins. E. India Co. 1:265. SS: *hyas* (Walker), 1856; *Gurelca*. [TypeL - Unknown].

*Neogurelca macroglossoides* Walker, 1866. OD: List Spec. Lep. Ins. Bnt. Mus. 35:1851, SS: *hyas* (Walker), 1856; *Gurelca* [Type: pc; collection of Staudinger.] [TypeL - Darjiling, India.)

**Distribution:** N. India, Darjiling, Nagaland.

**Elsewhere:** Silhet; Hongkong; Java, S. China.

**Genus *Nephele* Hübner 1819**

**14. *Nephele hespera* Fabricius, 1775**

**Synonyms:**

*Nephele chiron* Cramer, 1777. OD: Uiu. Kapellen 2:62, pl 137, SS: *didyma* (Fabricius), 1775; *Nephele* [TypeL - Coromandel.]

*Nephele obliterans* Walker, 1865. OD: List Spec. Lep. Ins. Brit. Mus. 8:28, SS: *didyma* (Fabricius), 1775; *Nephele* [TypeL - N. Hindostan.]

*Nephele quaterna* Esper, 1794. OD: In Sep., Ausland. Schm. :pl 1, SS: *didyma* (Fabricius), 1775, *Nephele*. [TypeL - Unkonwn].

**Distribution in India:** Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Madhya Pradesh, Tamil Nadu, Andhra Pradesh, Pondicherry, Karnataka, Gujarat, Maharashtra, Andaman & Nicobar Is.

**Elsewhere:** Sri Lanka, Pakistan, Bhutan, Nepal, China, Thailand, Vietnam, Malaysia, Indonesia) (Subhalaxmi et al., 2011).

#### **Genus *Daphnis* Hübner, 1819**

##### **15. *Daphnis nerii* Linnaeus, 1758**

###### **Synonyms:**

*Daphnis bipartita* Gehlen, 1934. OD: Ann. Mag. nat. Hist. (S)2:455, CG: Nephela [Type: BMNH] [TypeL - Old Calabar.]

*Daphnis confluens* Closs, 1912. OD: Novit. zool. 13:407, SS: hirundo (Boisduval), 1832; Macroglossum. [TypeL – Unkonwn].

*Daphnis infernelutea* Saalmüller, 1884. OD: Lepid. Madagascar :123, SS: neni (Linnaeus), 1758; *Daphnis* [TypeL - Madagascar]

*Daphnis nigra* Schmidt, 1914. OD: Naturaliste (2)6:280 , SS: stellatarum (Linnaeus), 1758; Macroglossum. [TypeL – Unkonwn].

**Distribution in India:** Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Maharashtra, Gujarat.

**Elsewhere:** (Sri Lanka, Pakistan, Bhutan, Myanmar, Thailand, China, Taiwan, Japan, Malaysia, Europe, Yemen, Africa, Mauritius, Saudi Arabia, Afghanistan) (Subhalaxmi et al., 2011).

#### **Genus *Macroglossum* Scopoli, 1777**

##### **16. *Macroglossum gyrans* Walker, 1856**

###### **Synonyms:**

*Macroglossum bombus* Mabilie, 1879. OD: Annls Soc. ent. Fr. (5)9:347, SS: gyrans (Walker), 1856; Macroglossum [TypeL- Madagascar (in error).] .

*Macroglossum burmanica* Rothschild, 1894. OD: Nowit. zool. 1:68, pl 5, SS: gyrans (Walker), 1856; Macroglossum [TypeL - Burma.]

*Macroglossum zena* Boisduval, 1875. ns (Walker), 1856; Macroglossum [Type: pc; collection of Oberthir.] [TypeL - Simla.]

*Macroglossum fervens* Pagenstecher, 1896. OD: Proc. zool. Soc. Lond. 1875:4, pl 1, SS: regulus Boisduval, [1875]; Macroglossum [Type: BMNH] [TypeL - Canara.]

**Distribution in India:** Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Madhya Pradesh, Karnataka, Tamil Nadu, Gujarat, Maharashtra.

**Elsewhere:** Sri Lanka, Pakistan, Bhutan, Myanmar, Thailand (Subhalaxmi et al., 2011).

#### **Genus *Pergesa* Walker, 1856**

##### **17. *Pergesa acteus* Cramer, 1779**

###### **Synonyms:**

*Pergesa butleri* Rothschild, 1894. OD: Novit. zool. 1:69, pl 6, CG: Hypaedalea [Type: BMNH] [TypeL - Aburi, W. Africa.]

**Distribution in India:** Andaman Islands, Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, South India, Uttarakhand, West Bengal, Western & Eastern Himalayas, Nicobar Island (Singh et al., 2021),

**Elsewhere :** Sri Lanka, Nepal, China, Myanmar, Thailand, China, Taiwan, Japan, Malaysia, Singapore, Indonesia, Philippines (Subhalaxmi et al., 2011).

#### **Genus *Theretra* Hübner, 1819**

##### **18. *Theretra nessus* Drury, 1773**

###### **Synonyms:**

*Theretra equestris* Fabricius, 1793. OD: Ent. syst. 3(1):365 [b0475] SS: nessus (Drury), [1773]; *Theretra* [TypeL - Ind. or.] [Type of - *Theretra*].

*Theretra rubicundus* Schaufuss, 1870. OD: Nunquam ouiosus 1:18, SS: nessus (Drury), [1773]; *Theretra* (TypeL - Java.)

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**Distribution in India:** Andaman & Nicobar Islands, Gujarat, Himanchal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Sikkim, Tamil Nadu, Tripura, Uttrakhand, Andhra Pradesh, Arunachal Pradesh, Assam, Eastern Himalaya, Goa, Jammu & Kashmir, Jharkhand, Karnataka, Mizoram, Nagaland, Southern India and West Bengal (Singh et al., 2021).

**Elsewhere:** Sri Lanka, Nepal, China, Bhutan, Myanmar, Thailand. (Subhalaxmi et al., 2011).

### 19. *Theretra clotho* Drury, 1773

#### Synonyms:

*Theretra aspersata* Kirby, 1877. OD: Trans. ent. Soc. Lond. 1877:241, SS: clotho (Dmnury), [1773]; *Theretra* [Type: Dublin.] [TypeL - Andamans.]

*Theretra bistrigata* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:249, SS: clotho (Drury), [1773]; *Theretra* [Type: BMNH] [TypeL - Java.]

*Theretra butus* Hampson, 1892. OD: Utitl. Kapellen 2:88, pl 152, SS: gnoma (Fabricius), 1775; *Theretra* [TypeL - Coromandel.]

*Theretra cyrene* Westwood, 1847. OD: Cabinet orient. Ent :13, pl 6, SS: clotho (Drury), [1773]; *Theretra* [Type: UMO] [TypeL - C. India; Ceylon.]

**Distribution in India:** Andaman and Nicobar Islands, Arunachal Pradesh, Assam, Gujarat, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Sikkim, Tamil Nadu, Uttrakhand, West Bengal (Singh et al., 2021).

**Elsewhere:** Sri Lanka, Nepal, China, Myanmar, Indonesia (Subhalaxmi et al., 2011).

### 20. *Theretra alecto* Linnaeus, 1758

#### Synonyms:

*Theretra intermissa* Gehlen, 1941. OD: Ent Zeit. 55(24):186, SS: alecto (Linnaeus), 1758; *Theretra* [Type: pc-ht; collection of Gehlen] [TypeL - Turkestan.]

*Theretra transcaspica* Bang-Haas, 1927. OD: Horae Macrolep. 1:80, SS: alecto (Linnaeus), 1758; *Theretra* [TypeL - Transcaspia.]

*Theretra cretica* Boisduval, 1827. OD: Annl. Soc. linn. Paris 6:118, pl 6, SS: alecto (Linnaeus), 1758; *Theretra* [Type: pc; collection of Oberthur.] [Note - Based on a mixed series. The female was later named boisduvali.]

**Distribution in India:** India (Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram).

**Elsewhere:** Pakistan, Iraq, Iran, Afghanistan, Uzbekistan, Kyrgyzstan, Greece, Bulgaria, Egypt, Lebanon, Israel, Turkey, Turkmenistan. (Subhalaxmi et al., 2011).

### 21. *Theretra lycetus* Cramer, 1775

#### Synonyms:

*Theretra prunosa* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:622, SS: lycetus (Cramer), [1775]; *Theretra* [Type: BMNH] [TypeL - Ceylon.]

*Theretra rosina* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:248, pl 37, SS: lycetus (Cramer), [1775]; *Theretra* [Type: BMNH] [TypeL - Masuri.]

*Theretra japonica* Piepers, 1897. OD: In Léop. Jap. grande Exposn int. :36, CG: *Theretra* [Type: pc; collection of Oberthur.] [TypeL - Japan.] [Type of - Florina.]

**Distribution in India:** Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, West Bengal, KWS Gujarat, Maharashtra, Karnataka.

**Elsewhere:** Sri Lanka, Bhutan, Myanmar, Indonesia. (Subhalaxmi et al., 2011).

### 22. *Theretra oldenlandiae* Fabricius, 1775

#### Synonyms:

*Theretra argentata* Stephens, 1828. OD: Proc. zool. Soc. Lond. 1875:8, pl 2, SS: firmata (Walker), 1856; *Theretra* [Type: BMNH] [TypeL - Moreton Bay; Sydney; N. Australia.]

*Theretra drancus* Cramer, 1777. OD: Utitl. Kapellen 2:56, pl 132, SS: oldenlandiae (Fabricius), 1775; *Theretra* [TypeL - E. Ind.]

*Theretra fuscata* Gehlen, 1941. OD: Berl. ent. Z. 40:358, pl 3, SS: glaucoptera (Butler), 1875; *Macroglossum* [TypeL - Java.]

*Theretra olivacens* Inoue, 1973. OD: Biol. Syst. stidchin. Sphingiden 1922(2):309, SS: oldenlandiae (Fabricius), 1775; *Theretra* [TypeL - S. China.]



*Theretra proxima* Austaut, 1892. OD: Proc. zool. Soc. Lond. 1875:4, pl 1, SS: corythus (Walker), 1856; Macroglossum [Type: BMNH-st] [TypeL - Canara; Ceylon.] [Note - Based on a mixed series.].

*Theretra puellaris* Butler, 1875. OD: Proc. zool. Soc. Lond. 1875:623, SS: oldenlandiae (Fabricius), 1775; Theretra [Type: BMNH] [TypeL - Rawul Pindi.]

*Theretra sobria* Walker, 1856. OD: List Spec. Lep. Ins. Brit. Mus. 8:148, SS: oldenlandiae (Fabricius), 1775; Theretra [Type: BMNH]

*Theretra gortys* Hübner, 1825. OD: Zutr. Samml. exot. Schmett. 3:28, SS: oldenlandiae (Fabricius), 1775; Theretra [TypeL - Batavia.]

**Distribution in India:** Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Madhya Pradesh, KWS Gujarat, Maharashtra, Karnataka. **Elsewhere:** Sri Lanka, Nepal, China, Bhutan, Myanmar, Malaysia, Indonesia, Philippines. (Subhalaxmi et al., 2011).

### Acronyms for World Museum Collections of Insects, with an Emphasis on Oriental Lepidoptera

BMNH: British Museum of Natural History

UMO: University Museum Oxford

ZSI: Zoological Survey of India

#### Abbreviations

FG: Family group

Ref: References

OD: Original Description

SS: Subjective synonym

TypeL: Type Locality

Type: Specimen Housed in

CG: current genera

ht Holotype

### Discussion

The compilation not only addresses a knowledge gap in the documentation of the Sphingids from Nagaland but also provides vital insights into distribution and diversity of these moths. *Psilogramma discistriga* (Walker, 1865) seems to be data deficient in distribution aspects of taxonomic assessment. *Deilephila elpenor* Linnaeus, 1758, seems to be exclusively found in Nagaland. The checklist may serve as a platform for deciphering out evolutionary trajectories as well as future ecological investigations, assisting in the evaluation of population dynamics, habitat preferences and potential conservation measures for Sphingidae moths in Nagaland. Furthermore, this checklist gives an important archive for all concerned stakeholders from local farmers to researchers, conservationists and policymakers synergistically working towards biodiversity conservation and management.

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