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Additional Records of Macro-Lepidoptera to the Andaman and Nicobar Islands

C. Sivaperuman[1] and B. Sumit Kumar Rao[1*]
[1]Zoological Survey of India- Andaman Nicobar Regional Center, Port Blair – 744101
***Corresponding author's E-mail:** sumitkumarb3850@gmail.com*

Abstract

Seven species of moths belonging to the families Erebidae, Geometridae, Uraniidae, Drepanidae, Noctuidae were recorded for the first time from Andaman and Nicobar Islands. The information, including material examined, distributions and other details of all identified species are provided.

Key words: Andaman, Nicobar, Moths, Lepidoptera, Islands, New record

Introduction

Tropical marine Islands are home to rich and highly endemic biodiversity because of their geographical seclusion. The geographical isolation supports the biodiversity against anthropogenic activities despite being vulnerable to natural disasters (Kiruba-Sankar, 2019). The Andaman–Nicobar group of islands is considered as a veritable storehouse of floral and faunal biodiversity. Situated between two major biodiversity hotspots, namely the Indian subcontinent and the Malaysian–Indonesian region, it is hardly surprising that the Islands manifest biodiversity of extraordinary range within a limited geographical area (Sondhi and Sondhi, 2016). Geographically, the islands are part of the long Island Arch extending from the Arakan Yoma hill range of Myanmar to the Sumatran range of Indonesia (Balakrishnan et al., 2008). The insects are considerably estimated to comprise about 75% of the known species of the animals, and approximately one million species have been described throughout the world (Zhang, 2013). Moths belonging to the order Lepidoptera are probably the largest group of phytophagous insects (Scoble, 1992). They are one of the most-studied groups of organisms, naturalists for convenience categorised moths into two informal groups, the macro moths having a larger physical size and recency in evolution and micro moths that are smaller in size and primitive in origin (Kristensen et al., 2007).

Moths play vital roles for the maintenance of healthy ecosystems. Multiple species hold immense aesthetic value, act as important ecological indicators, play huge roles in pollination and are key components of different types of food chains and food webs (Singh et al., 2019). The larval stage of many moth species acquires the status of notorious pest of different crops, forest trees and ornamental plants, causing significant economic loss. The order Lepidoptera includes moths and butterflies, and comprises about 1,58,423 species globally, and India is represented by approximately 12,506 species distributed in all the biogeographic zones of the country, with 796 species of Moths (Chandra et al., 2018). Many of the species occurring in the Andaman and Nicobar Islands, particularly those belonging to obscure taxa, are yet to be documented.

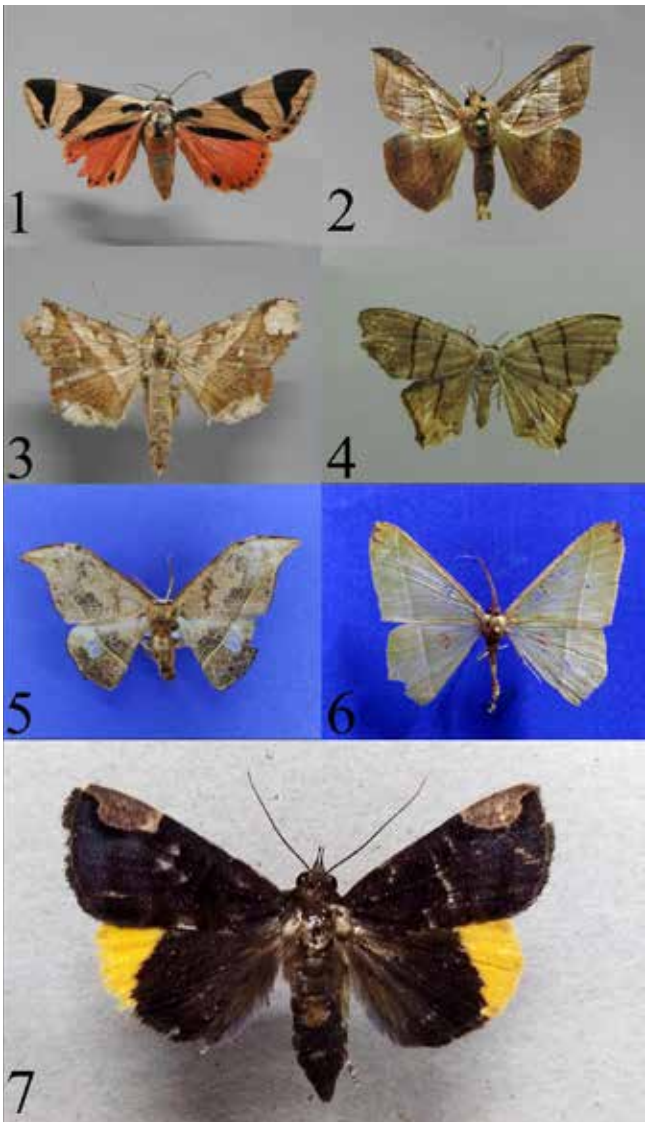
Methods

Adult moths were collected using a light trap consisting of 5×4 ft. vertical white cotton screen which was hung between two vertical wooden poles and the two 160 W mercury lamps, (light source) were illuminated in front of the vertical screen with the help of a portable Generator (Honda EP1000). Before collection, moths were photographed. The collected specimens were killed with the help of ethyl acetate vaporsin killing jars. After sorting, specimens were transferred to a Butter paper envelops to prevent the de-scaling of wings and then these envelops were tagged with collection detailed labels. After subsequent relaxation, the specimens were spread and pinned with the help of spreading boards and Entomological pins and then dried for about 2–3 weeks. Dry Preservation is done in fumigated Entomological

display boxes. All the Identified species were deposited in the National Zoological Collection of Zoological survey of India, Andaman and Nicobar Regional Centre.

Results

Systematic Classification



Figs.1–7 (Adults). 1. *Attatha regalis* **(Moore, 1872), 2.** *Tiruvaca subcostalis* **(Walker, 1865), 3.** *Tropidtamba lepraota* **(Hampson, 1898), 4.** *Orudiza protheclaria* **(Walker, 1865).** *Canuchas pecularis* **(Moore, 1879), 6.** *Ornithospilaes meralda* **(Hampson, 1895), 7.** *Chrysopera combinans* **(Walker, 1857)**

Phylum: Arthropoda von Siebold, 1848

Class: Insecta Linnaeus, 1758

Order: Lepidoptera Linnaeus, 1758

Family: Erebidae (Leach, 1815)

***Attatha regalis* Moore, 1872 (Fig. 1)**

Hypercompa regalis Moore, 1872; *Proc. Zool. Soc. Lond.*, 1872(2): 575. TL: North India.

Attatha regalis Moore, 1872; *Proc. Zool. Soc. Lond.*,1878:848.

Material examined: India, Andaman & Nicobar Islands: Red Skin Island, Mahatma Gandhi Marine National Park, 3 Ex, 11.V.2019, Coll. B. Sumit Kumar Rao, 11°34.249' N 92°35.659' E, Reg. No. ZSI/ANRC/T-8490, T-8491,T-8492; India, Andaman & Nicobar Islands, Kalpong Dam, Diglipur, 1 Ex, 21.IV.2021, Coll. B. Sumit Kumar Rao, 13°09.292'N92°57.991'E, Reg. No. ZSI/ANRC/T-13841; India, Andaman & Nicobar Islands, Jal Tikrey, Diglipur, 1 Ex, 16.IV.2021, Coll. B. Sumit Kumar Rao, 13°24.891'N92°53.678'E, Reg. No. ZSI/ANRC/T-13842.

Distribution: China, India (Arunachal Pradesh, Maharashtra, Delhi, Andaman Islands-Present Study), Nepal, Philippines, Sri Lanka, Thailand, Vietnam (Kononenko and Pinratana, 2005; 2013; Komal et al., 2021;Shubhalaxmi et al., 2011).

Remarks: Representative samples were collected from the light traps operated in the primary forest; two individuals were also observed on the forest floor in Narcondam Islands.

***Tiruvaca subcostalis* Walker, 1865 (Fig. 2)**

Thermesia subcostalis Walker, 1865; *List Specimens lepid. Insects Colln. Br. Mus.*, 33: 1059.TL: Hindostan.

Thermesia falcate Pagenstecher, 1886; *Jb. nassau. Ver. Naturk.*, 39: 141.

Tiruvaca subcostalis Walker; Holloway, 1976: 38.

Material examined: India, Andaman & Nicobar Islands, Narcondam Island, 2 Males, 16.XI.2020, Coll. Dr. Naveen Kumar Nigam and Apurba Kumar Das, 13°27.265'N94°16.438'E, Reg. No. ZSI/ANRC/T-13724, T-13725; India, Andaman & Nicobar Islands, Narcondam Island, 6 Males, 22.IX.2020, Coll. Dr. Naveen Kumar Nigam and Apurba Kumar Das, 13°27.265'N94°16.438'E, Reg. No. ZSI/ANRC/T-13862, T-13863, T-13864, T-13865, T-13866, T-13867; India, Andaman & Nicobar Islands, Narcondam Island, 1 Male, 18.X.2020, Coll. Dr. Naveen Kumar Nigam and Apurba Kumar Das, 13°27.265'N94°16.438'E, Reg. No. ZSI/ANRC/T-13868.

Distribution: China, India (Arunachal Pradesh, Assam, Meghalaya, Andaman Islands—Present Study), Indonesia, Papua New Guinea, Peninsular Malaysia, Philippines, Solomon Islands, Taiwan, Thailand (Walker, 1865; Holloway, 2005; Chandra et al., 2019).

Remarks: Recorded from the lowland primary forest of Narcondam Islands.

***Tropidtamba lepraota* (Hampson, 1898) (Fig. 3)**

Lethes lepraota Hampson, 1898; *J. Bombay Nat. Hist. Soc*.,11(3): 458. TL: Assam.

Tamba grandis Turner, 1933; 168; TL: N.Queensland, Kuranda.

Tropitamba [sic.] *lepraota* Hampson; Holloway, 1976: 39.

Material examined: India, Andaman & Nicobar Islands, Jarawa Reserve Area 9km, Jirkatang, 1 Ex, 18.V.2019, Coll. B. Sumit Kumar Rao, 11°54.363' N92°39.952' E, Reg. No. ZSI/ANRC/T-12494; India, Andaman & Nicobar Islands, Birdwatching Point, Great Nicobar Biosphere Reserve, Great Nicobar Island, 1 Ex, 26.XII.2019, Coll. B. Sumit Kumar Rao, 06°59.948'N93°52.773'E, Reg. No. ZSI/ANRC/T-14132.

Distribution: Australia (North Queensland), Borneo, India (Meghalaya-Khasi Hills, Arunachal Pradesh-Tale Wildlife sanctuary, Assam, Andaman and Nicobar Islands—Present Study), Indonesia (Sumatra, Sulawesi, Seram Island), Peninsular Malaysia, Sri Lanka, and Thailand (Hampson, 1898; Holloway, 2005; Kononenko and Pinratana, 2005; Sondhi et al., 2021).

Remarks: While previous studies had only found this species in the north-eastern regions of India. The Present study is the first documentation of its existence in the Lowland primary forest of the Andaman and Nicobar Islands.

Family: Uraniidae Blanchard, 1845

***Orudiza protheclaria* Walker, 1861(Fig. 4)**

Orudiza protheclaria Walker, 1861; *List Specimens lepid. Insects Colln. Br. Mus*., 23: 858. TL: Hindostan (India).

Nedusia luctiferata Snellen, 1880; *Midden-Sumatra*, Lepidoptera: 55.

Material examined: India, Andaman & Nicobar Islands, Chainpur, Mayabunder, 1 Ex, 17.X.2019, Coll. B. Sumit Kumar Rao, 12°47.189' N92°47.860' E, Reg. No. ZSI/ANRC/T-12498; India, Andaman & Nicobar Islands, Narcondam Island, 3 Male, 16.XI.2020, Coll. Dr. Naveen Kumar Nigam and Apurba Kumar Das, 13°27.265'N94°16.438'E, Reg. No. ZSI/ANRC/T-13754, T-13755, T-13756; India, Andaman & Nicobar Islands, Narcondam Island, 1 Male, 30.IX.2020, Coll. Dr. Naveen Kumar Nigam and Apurba Kumar Das, 13°27.265'N94°16.438'E, Reg. No. ZSI/ANRC/T-13757; India, Andaman & Nicobar Islands, Near Dera Basti, Chidiyatapu, 1 Ex, 22.VI.2022, Coll. B. Sumit Kumar Rao, 11°30.713'N 92°42.233'E, Reg. No. ZSI/ANRC/T-17366; India, Andaman & Nicobar Islands, Shoalbay-19, 1 Ex, 23.VI.2022, Coll. B. Sumit Kumar Rao, 11°53.429'N 92°46.593'E, Reg. No. ZSI/ANRC/T-17365.

Distribution: Bhutan, Borneo, China, Hong Kong, India (Arunachal Pradesh, Assam, Meghalaya, Tripura, Jharkhand, Maharashtra, Uttarakhand, West Bengal, Karnataka, Kerela, Andaman group of Islands—Present Study), Thailand, Oriental tropics to Sulawesi (Holloway, 1998; Arandhara et al., 2017; Arandhara and Tariang, 2018; Alex et al., 2021; Sondhi et al., 2022).

Remarks: Recorded from the Lowland Primary Forest.

Family: DrepanidaeMeyrick, 1895

***Canuchas pecularis* (Moore, 1879) (Fig. 5)**

Drepanas pecularis Moore, 1879;*Proc*. *Zool*. *Soc*. *Lond*., 1879: 4077. TL: Ceylon (Srilanka).

Platypteryxob truncata Warren, 1900;*Novit*. *Zool*., 7:117.

Canuchas pecularis Moore; Watson, 1968: 99; Holloway, 1976: 93.

Material examined: India, Andaman & Nicobar Islands, Jarawa Reserve Area 9km, Jirkatang, 1 Ex, 18.V.2019, Coll. B. Sumit Kumar Rao, 11°54.363' N 92°39.952' E, Reg. No. ZSI/ANRC/T-8503.

Distribution: India (Arunachal, Assam, Karnataka, Tripura), South China, Sri Lanka, Sulawesi, Sundaland (Holloway, 1998).

Remarks: Recorded from the Primary Forest.

Family: Geometridae Leach, 1815

***Ornithospilaes meralda* (Hampson, 1895) (Fig. 6)**

Afrenaes meralda Hampson, 1895; *Trans*. *ent*. *Soc*. *Lond*., 1895(2): 314. TL: Tenasserim Hills.

Material examined: India, Andaman & Nicobar Islands, Pilobah, Great Nicobar Island, 1 Ex, 20.XII.2019, Coll. B. Sumit Kumar Rao, 06°49.098'N 092°49.124'E, Reg. No. ZSI/ANRC/T-10865.

Distribution: India (Arunachal Pradesh, Nagaland, Andaman and Nicobar Islands—Present Study), Northeast Himalayas, Philippines, Sundaland (Holloway, 1996).

Remarks: One more individual was also observed from primary forest of Middle Andaman.

Family *Noctuidae* Latreille, 1809

***Chrysopera combinans* (Walker, 1857) (Fig. 7)**

Achaea combinans Walker, 1857; *List Specimens lepid*. *Insects Colln*. *Br*. *Mus*., 14: 1399. TL:Ceylon. *Achaeaqua drilunata* Pagenstecher, 1890;*Jb*. *nassau*. *Ver*. *Naturk*., 43: 159.

Material examined: India, Andaman & Nicobar Islands, Chakkargaon, Port Blair, 1 Ex, 23.VI.2020, Coll. B. Sumit Kumar Rao, 11°38.671'N92°48.520'E, Reg. No. ZSI/ANRC/T-11605; India, Andaman & Nicobar Islands, Dairy farm, Port Blair, 1 Ex, 23.VII.2020, Coll. Dr. Naveen Kumar Nigam, 11°38.967' N 92°43.182' E, Reg. No. ZSI/ANRC/T-11606.

Distribution: Australia**,** China, India (Goa, Kerala, Maharashtra, Meghalaya, Tamil Nadu, Tripura, West Bengal, Andaman Islands—Present Study),Nepal, Sri Lanka, Burma, Hong Kong, Indonesia (Java), Malaysia, Vientam, Fiji (Sondhi et al., 2022;Sivasankaran et al., 2017; Holloway, 2005; Shubhalaxmi, et al., 2011).

Remarks: Recorded in Secondary Forest.

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