

Report on the rediscovery of *Thacona ferreopicta* (Hampson, 1900) (Lepidoptera, Scranciidae) with the first description of female genitalia from India

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ABSTRACT: Scranciidae Miller, 1991 comprises of three genera from India including *Phycidopsis* Hampson, 1893, *Gargetta* Walker, 1865 and *Thacona* Walker, 1865. Out of the three species, *Thacona ingens* (Walker, 1866), *T. punctifascia* (Hampson, 1897) and *T. ferreopicta* (Hampson, 1900), only *T. ferreopicta* is known from south India. Though reported previously, very little is known about its distribution status. The present study puts forth the report of the moth, *T. ferreopicta* from India, from Alakkad, Kannur District, Kerala for the first time. The description of female genitalia with image is provided for the first time. The first live habitus photograph of the species along with details of the specimens of *T. ferreopicta* in the holdings of the Natural History Museum, London (NHMUK) has been incorporated. In addition to the type specimen from Sri Lanka, there are specimens from Meghalaya and south India in NHMUK. However, our present understanding of the distribution of *T. ferreopicta* is from these museum specimens alone. This study provides information based on the female specimen and its genitalia collected from Kerala. The male genitalia of the species remain unknown and requires further investigation. This study highlights the significance of extensive field surveys needed throughout the region for a better understanding of the diversity and distribution of moths. In addition, this paper provides a brief account of Scranciidae Miller, 1991 along with the checklist of the Scranciid moths from India.

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KEY WORDS: New record, Noctuoidea, Notodontidae, Alakkad, checklist

The genus *Thacona* was described by Walker in 1865, with *T. costivitta* Walker, 1865 as its type species and was then a monotypic genus. The genus was formerly included in the family Notodontidae. Scranciidae Miller, 1991, which was until recently considered a subfamily of Notodontidae, has been attributed family status by St Laurent *et al.* (2023) based on phylogenomic

evidence. The adults of the family are characterized by narrow forewings with the margins either straight or convex. The hindwings are almost triangular. The coffee-bean-shaped signum in the corpus bursae of females is a characteristic feature of Scranciidae (St Laurent *et al.*, 2023). Scranciidae shows a wide distribution from Africa to Australasia (Holloway, 1983; Kiriakoff, 1964; Schintlmeister,

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2008, 2020; Schintlmeister and Witt, 2015). In India, eight species in three different genera are recognised in the Scranciidae; four species in genus *Gargetta* Walker, 1865, three species in *Thacona* and a single species in genus *Phycidopsis* Hampson, 1893.

Adults of *Thacona* are medium-sized (wingspan ~ 40-50mm). Males have bipectinated antennae whereas females have filiform antennae. The forewings are elongated and narrow in both cases. A well-defined discal spot with a pale border, a black costal patch, and a row of black dots identifying the marginal fascia usually make up the forewing maculation. Furthermore, fuscous dorsal spots near the base and fuscous tornal spots distally are also present. The submarginal region of the pale brown hindwing is fuscous. With the exception of *Thacona benderi* (Schintlmeister, 1981), *Thacona* male genitalia have a rather tiny and slender uncus (Schintlmeister, 2022). Socii are absent. Valvae are elongated and the costa is heavily sclerotized. Both valva arms have asymmetric harpes, which are either bifurcate or trifurcate. The phallus is fairly short and straight. The anterior margin of the eighth abdominal tergum is bilobed. In the female genitalia apophyses are short, antrum is relatively large and the ductus bursae is elongated, corpus bursae is pyriform and has a highly sclerotized reniform signum (Schintlmeister, 2022).

The present paper describes the female genitalia of *T. ferreopicta* Hampson, 1900 for the first time, as well as documentation of recent collecting localities for this otherwise rarely reported species. This is a new record of the above said species from Kerala. However, information on the male genitalia of this species remains unknown and should be targeted in future sampling efforts, as should photographic documentation of the poorly known life history of this species. The present study also provides the first complete checklist of Scranciidae from India due to previous omissions. Due to the lack of robust locality information for many of these species in India, extensive field surveys are necessary to provide a better understanding regarding the diversity and distribution of the group in the region.

Individuals for the present study were observed on two occasions near an agricultural environment from Alakkad (12°14'44"N; 75° 24' 10"E), a lush green village neighbouring Payyanur municipality in Kannur district, of North Kerala. The first sighting was on the 20th of August 2021 and the individual was photographed but not collected (Fig. 1). A second individual was observed on the 5th of the same month, a year later. This specimen was collected and was kept for further studies (Fig. 2).

The identification of the specimen was determined based on the original description (Hampson, 1900). *Thacona ferreopicta* was distinguished from *T. ingens* in being darker without the pale brown suffusion in the forewing and *T. punctifascia* in the presence of purplish blotches and being paler. The identified specimen was duly registered and deposited in the insect collection Lab of The Department of Zoology, Payyanur College, Kannur, Kerala. The genitalia dissection procedure of the same individual followed Robinson (1976). The dissected genitalia are preserved in vials containing a mixture of alcohol and glycerol in 3:1 ratio. The photograph was taken under a compound microscope (Fig. 4).

Systematic accounts: Family Scranciidae Miller, 1991; Genus *Thacona* Walker, 1865

Thacona ferreopicta (Hampson, 1900): 40 (*Gargetta ferreopicta*).

Type Locality: Ceylon [Sri Lanka]

Distribution: Sri Lanka, India; Meghalaya, Karnataka, Kerala.

Material examined: 1 ♀, India, Kerala, Kannur District, Alakkad (12°14'44"N; 75°24'10"E), 05. VIII. 2022. Coll. M.P. Unnikrishnan.

Female description: Antenna filiform. Head and thorax reddish brown, abdomen pale brown; covered in darker scales terminally. Forewing length: 23mm. Forewing pale brown, suffused with reddish brown scales. Forewing pale brown, suffused with reddish brown scales. Costa and inner margin characterized by dark patches in antemedial and postmedial region. A dark spot present in the

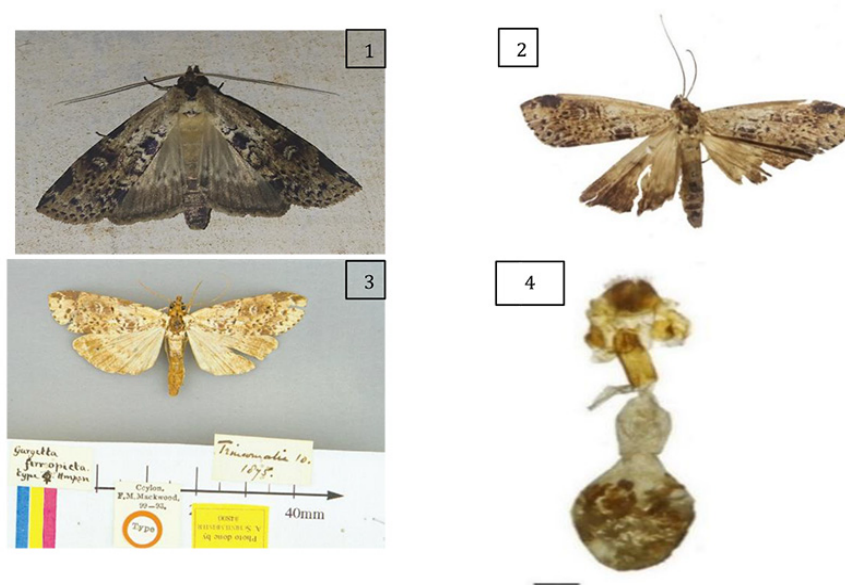


Fig.1 *Thaona ferreopicta* live habitus photograph. Fig. 2 *T. ferreopicta* female specimen in the present study. Fig. 3 *T. ferreopicta*, holotype ♀ from NHMUK. Fig. 4 *T. ferreopicta* Female genitalia (Scale bar = 1mm).

sub-basal region. Antemedial line present, angled below costa. Medial area characterized by two vertical specks along median nervure followed by a curved medial line. The discocellular region is suffused with reddish brown and a characteristic reniform spot. Traces of a dark postmedial line present on either side reniform spot. Black specks present along a diffuse submarginal band submarginally. Wing margin with further brown specks between vein termini. Hindwing pale brown with dark brown postmedial band extending towards margin. Female genitalia (Fig. 3) with setae covered papillae anales, apophyses posteriores shorter than VIII segment length and longer than apophyses anteriores; proximal half of ductus sclerotized, cylindrical, corpus bursae contain a signum.

Thaona ferreopicta was described by Hampson in 1900 from Sri Lanka. There are specimens of *T. ferreopicta* in the holdings of NHMUK from Khasi Hills (Meghalaya, India) and north Kanara (south India). However, this species was not listed in the subfamily Scranciinae in the catalogue of Indian Notodontidae (Chandra *et al.*, 2018).

Checklist of Scranciidae Miller, 1991 from India

1. *Phycidopsis albovittata* Hampson, 1893: 91.

Type locality: Ceylon [Sri Lanka]

Distribution: Cambodia, China (Taiwan), Indonesia (Java, Sulawesi), Japan, Philippines, Sri Lanka, Thailand, India; Assam, Arunachal Pradesh, Meghalaya, Karnataka (Chandra *et al.*, 2018).

2. *Gargetta costigera* Walker, 1865: 455.

Type locality: Darjeeling [West Bengal, India]

Distribution: Bhutan, China, Nepal, Thailand, India; Himachal Pradesh, Uttarakhand, West Bengal, Sikkim, Assam, Meghalaya, Chhattisgarh, Andaman Islands (Chandra *et al.*, 2018).

3. *Gargetta curvaria* Hampson, 1892: 136.

Type locality: Darjeeling [West Bengal, India]

Distribution: China (Taiwan), Indonesia (Borneo, Sulawesi, Sumatra), Myanmar, Philippines, Thailand, Vietnam, India; West Bengal, Sikkim, NE India (Chandra *et al.*, 2018).

4. *Gargetta divisa* Gaede, 1930: 615.

Type locality: Malang [Java, Indonesia]

Distribution: China, Indonesia (Java, Sumatra),

Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam, India; Sikkim, Assam, Arunachal Pradesh, Andaman Islands (Chandra *et al.*, 2018).

5. *Gargetta nagaensis* Hampson, 1892: 135.

Type locality: Naga Hills [Nagaland, India]

Distribution: China, Myanmar, Thailand, India; Assam, Nagaland (Chandra *et al.*, 2018).

6. *Thaona ingens* (Walker, 1866): 1823 (*Porsica ingens*)

Type locality: Sylhet [Bangladesh]

Distribution: Bangladesh, China, Indonesia, Myanmar, Thailand, Vietnam, India: Sikkim, Assam (Chandra *et al.*, 2018).

7. *Thaona punctifascia* (Hampson, 1897): 281 (*Gargetta punctifascia*)

Type locality: Khasis [Meghalaya, India]

Distribution: China, Indonesia (Borneo, Java, Sumatra), Laos, Malaysia, Philippines, Thailand, Vietnam, India: Assam, Meghalaya (Chandra *et al.*, 2018).

8. *Thaona ferreopicta* (Hampson, 1900): 40 (*Gargetta ferreopicta*)

Type locality: Ceylon [Sri Lanka]

Distribution: Sri Lanka, India; Meghalaya, Karnataka and Kerala.

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