



A taxonomic study of *Epipristis* Meyrick, 1888 from China, with descriptions of two new species (Lepidoptera: Geometridae, Geometrinae)

HONGXIANG, HAN¹, ANDRÉS, EXPÓSITO HERMOSA² & DAYONG, XUE³

^{1,3}Key Laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, Beijing 100101 China.
Email: hanhx@ioz.ac.cn; xuedy@ioz.ac.cn

²Gardenia, 25, E-28933 Móstoles (Madrid), ESPAÑA. Email: aexposih@telefonica.net

³Corresponding author

Abstract

The genus *Epipristis* Meyrick, 1888 from China is reviewed, and two new species are described: *E. roseus* sp. nov., from North China and *E. pullusa* sp. nov., from Central China. The three previously known species from China are redescribed. A key to all species from China is provided. Illustrations of adults and genitalia are presented.

Key words: *Epipristis*, taxonomy, new species, China, Geometridae, Lepidoptera

Introduction

The genus *Epipristis* was erected by Meyrick, 1888 based on *Epipristis oxycyma* Meyrick, 1888. Two generic synonyms of *Epipristis*, *Terpnidia* Butler, 1892 (type species *Hypochroma nelearia* Guenée, 1858) and *Pingarmia* Sterneck, 1927 (type species *P. transiens* Sterneck, 1927) were established by Swinhoe (1894) and Prout (1934) respectively. Additionally, three species have been transferred from other genera by Swinhoe (1894) and Prout (1932): *E. minimaria* Guenée, 1858 from *Hypochroma* (= *Hypobapta* Prout), *E. truncataria* Walker, 1861 from *Acidalia* (= *Scopula* Schrank), and *E. rufilunata* Warren, 1903 from *Pingasa* Moore. Prout (1927–1937) gave descriptions of two species, *E. storthophora* Prout and *E. oxyodonta* Prout, as well as another two subspecies *E. rufilunata antelucana* Prout and *E. nelearia accessa* Prout.

Holloway (1996) gave the diagnostic characters of *Epipristis*, recorded *E. truncataria* Walker and *E. nelearia* Guenée from Borneo, and included this genus in Pseudoterpniti (=Pseudoterpnini). Pitkin *et al.* (2007) listed eight species: *E. minimaria*, *E. nelearia*, *E. oxycyma*, *E. oxyodonta*, *E. rufilunata*, *E. storthophora*, *E. transiens*, *E. truncataria*, following Scoble (1999). Pitkin *et al.* (2007) also included *Epipristis* in the Pseudoterpnini, described the external features and provided a detailed diagnosis of the genus. On the basis of wing pattern, *Epipristis* can usually be recognized by a lacy band of whitish-edged spots between the postmedial and submarginal lines. The geographical distribution of all known species is restricted to an area from East Asia to Australia.

Herein, two new species of *Epipristis* are described. The purpose of this paper is to describe the two new species and redescribe all the known species from China, and to provide illustrations of external features and genitalia.

Materials and Methods

Specimens of *Epipristis* were obtained from the following institutions: Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZCAS); Expósito Hermosa, Andrés collection, Spain; The Natural

History Museum, London, U.K. (BMNH); Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany (ZFMK). Terminology for wing venation follows the Comstock-Needham System (Comstock 1918) as adopted for Geometridae by Scoble (1992) and Hausmann (2001), and that of the genitalia is based on Pierce (1914), Klots (1970) and Nichols (1989). Photographs of adult moths and their genitalia were taken with digital cameras, and the plates compiled using Adobe Photoshop software.

***Epipristis* Meyrick, 1888**

Epipristis Meyrick, 1888, *Proc. Linn. Soc. N.S. Wales*, (2) 2: 836 (key), 916. Type species: *Epipristis oxycyma* Meyrick, 1888.

Terpnidia Butler, 1892, *Proc. zool. Soc. Lond.*, 1892: 131. Type species: *Hypochroma nelearia* Guenée, 1858, by monotypy.

Pingarmia Sterneck, 1927, *Dt. ent. Z. Iris*, 41: 147. Type species: *Pingarmia transiens* Sterneck, 1927, by monotypy. INDIA: north.

Description.

Head: Antenna simple filiform in both sexes, or shortly bipectinate in male. Frons slightly protruding, smooth-scaled. Labial palpus with third segment slightly elongate in female.

Thorax: Hind tibia with two pairs of spurs in both sexes, usually not dilated and without hair-pencil except in males of *E. nelearia*. Wing pattern: Outer margin of both wings crenulate; hind wing rounded, with costa fairly short and anal margin fairly elongate. Wings dull olive green, pale brown or grey, or straw-coloured. Forewing with dentate or wavy antemedial line, dentate postmedial line angled or curved, and white submarginal line; area outside postmedial line usually forming a band of diffuse reddish brown or dull greyish green and whitish-edged spots, mingling with submarginal line, especially in female; discal spot present on fore and hind wings as a dash, particularly on forewing, but sometimes as a small spot. Underside: fore and hind wings with base whitish or greyish, terminal part with broad or occasionally narrow black-brown band, discal spot distinct and often forming a short dash or drip-like.

Venation: Frenulum developed or absent. Forewing: R_1 anastomosing with Sc for a short distance, then anastomosing with or close to R_2 ; R_2 diverging before R_5 ; M_1 and $R_{2,5}$ separate; M_2 close to M_1 ; M_3 and CuA_1 separate. Hind wing: $Sc+R_1$ close to cell less than 1/2 length of cell; R_s and M_1 separate; M_3 and CuA_1 separate; 3A present.

Abdomen: Small distinct dorsal crests usually present. Sternite 3 of male abdomen usually without a pair of setal patches, but weakly present in *E. nelearia*. Segment 8 usually unmodified.

Male genitalia: Sclerotized bifid socii/uncus complex with basal half to two-thirds fused. Gnathos with median process tongue-like and broad, wrinkled. Valva narrow; harpe is a longitudinal median ridge if present, bearing long slender spines and usually also short dense setae; costa occasionally with sclerotized process; sacculus smooth or wrinkled, sometimes overlapping on valva. Transtilla with pair of arms projecting strongly posteriorly but often weakly sclerotized. Juxta slightly sclerotized. Saccus often semicircular. Coremata present. Aedeagus usually weakly sclerotized posteriorly, coecum penis very short to moderately long; vesica with dense fine wrinkles, cornutus absent.

Female genitalia: Apophyses anteriores much shorter than apophyses posteriores. Lamella postvaginalis slightly sclerotized and wrinkled, or absent. Lamella antevaginalis present or absent. Ductus bursae very short, with or without colliculum, or occasionally ductus bursae entirely sclerotized. Corpus bursae usually fairly small or quite long, sometimes with narrower anterior caecum, membranous; signum absent, but scobinate region sometimes present.

Diagnosis. The genus *Epipristis* resembles *Mimandria* Warren (an Afrotropical genus) in the wing pattern, usually having a lacy band of whitish-edged spots between the postmedial and submarginal lines. *Epipristis* differs from *Mimandria* in that: the proboscis is developed but it is reduced in *Mimandria*; in the male genitalia, *Epipristis* has a fairly simple valva, while the valva is divided in *Mimandria*.

Distribution. China, India, Bhutan, Myanmar, N.E. Himalayas, Sri Lanka, Philippines, Malaysia, Singapore, Brunei, Indonesia, Papua New Guinea, Australia.

Remarks. The species *E. transiens* and the two new species are different from other species in wing pattern (e.g., *E. nelearia*, *E. minimaria*) and male genitalia (e.g., *E. nelearia*, *E. minimaria*, *E. truncataria*, *E. storthophora*, *E. oxycyma*), for example: the frenulum is absent, the terminal band on the underside is absent, the sacculus is folded over, the harpe is absent. On the basis of these differences, the genus *Epipristis* might be separated, and the genus *Pingarmia* Sterneck might be restored. But because the present work only treats the species that are distributed in China, and some species outside were not available for examination, all these species are retained in *Epipristis* for the moment.

Key to *Epipristis* species

1. Frenulum developed; underside of wings with distinct broad black terminal band 2
Frenulum absent; underside of wings without terminal band 3
2. Wings grey-green; valva with central sclerotized area orange segment-like *E. nelearia*
Wings grey-white, almost without green; valva without structure as above *E. minimaria*
3. Postmedial line on forewing slightly dentate, almost linear under CuA₁; transtilla of male genitalia without pair of strongly sclerotized pointed processes *E. roseus* sp. nov.
Postmedial line on forewing strongly dentate; transtilla of male genitalia with pair of strongly sclerotized pointed processes 4
4. Wings and streaks much paler; costa with a small spinulose triangular process *E. transiens*
Wings and streaks much denser; costa a large strongly sclerotized area, spinose, with pointed tip, appearing as a petal *E. pullusa* sp. nov.

Epipristis transiens (Sterneck, 1927)

Figs. 1–2

Pingarmia transiens Sterneck, 1927, *Dt. ent. Z. Iris*, 41: 148. Holotype ♂, [China]: Pekin.

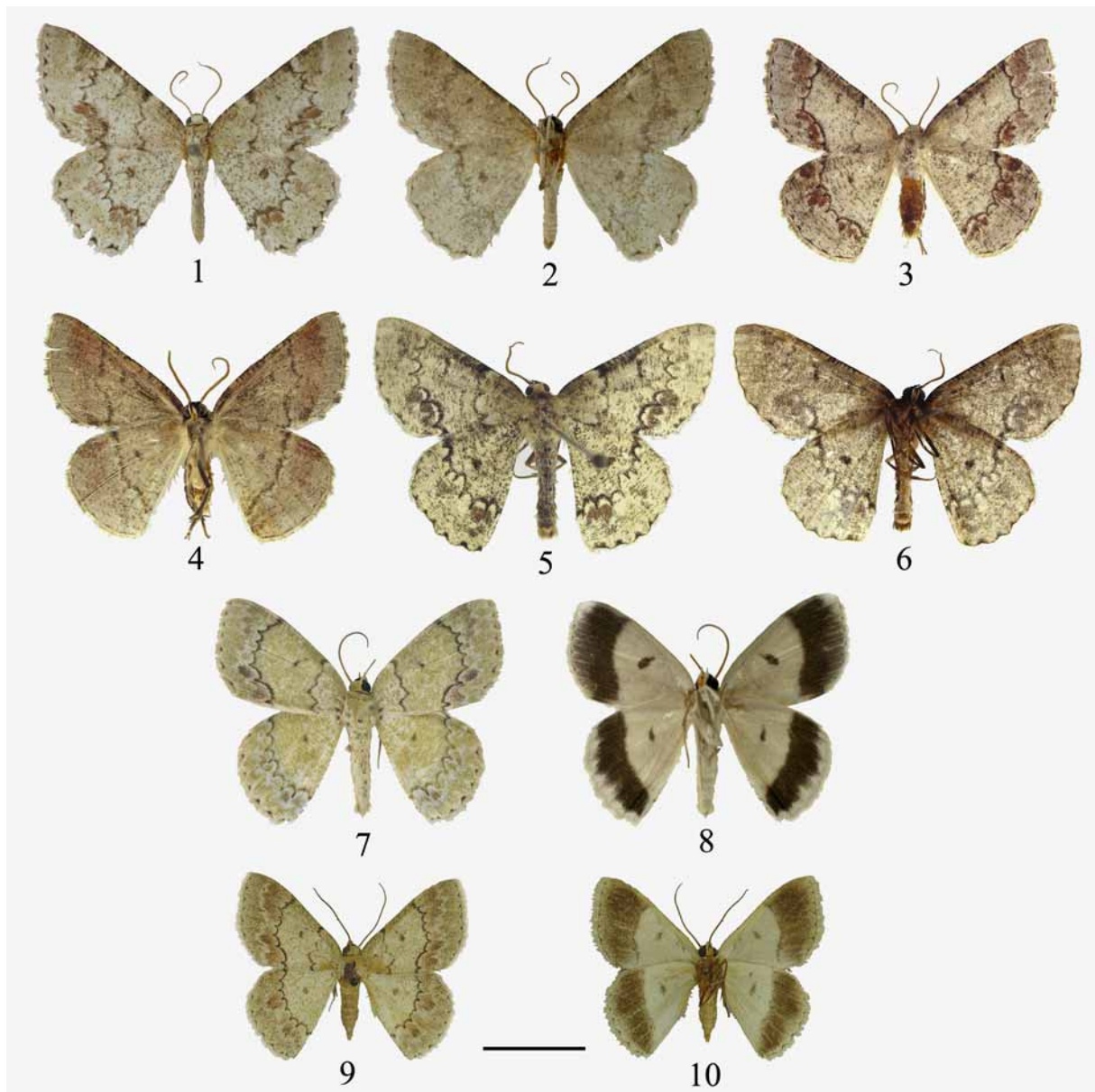
Epipristis transiens Prout, 1934, in Seitz, *Macrolepid. World*, 4 (Suppl.): 6, pl. 1: f.

Description.

Head: Antenna of male very shortly bipectinate, rami shorter than diameter of antennal shaft, filiform in female. Frons black, smooth-scaled. Labial palpus with dorsal surface black, ventral surface of segment 1 and 2 white, segment 3 black. Vertex greyish white.

Thorax: Dorsal side pale brown suffused with sparse black scales. Hind tibia in male without hair-pencil; with two pairs of spurs in both sexes. Forewing length: ♂ 15–16 mm; ♀ 16–18 mm. Frenulum absent. Wings greyish white, suffused with blackish scales. Forewing with costa densely diffused with blackish scales; antemedial line blackish brown, wavy; postmedial line serrate, blackish brown; both antemedial and postmedial lines forming blackish brown patch on costa; a reddish brown patch outside postmedial line, faint at middle; submarginal line white, wavy; terminal line a series of small triangular patches between veins; fringes greyish white mixed with brown, much denser on vein ends; discal spot blackish brown. Hind wing similar to forewing, but discal spot larger than that of forewing. Underside greyish brown, discal spot indistinct, postmedial line on upperside discernible.

Abdomen: Dorsal side with blackish brown crests. Sternite 3 of male abdomen without setal patch. Male genitalia (Figs. 11, 16): Sclerotized socii/uncus complex with fused basal half, tapering. Gnathos with median process broad tongue-like. Valva with blunt terminal part; costa protruding and with a triangular process, spinulose. Sacculus sclerotized, broadly folded over. Saccus broad and elongate. Coremata present. Aedeagus long and narrow, posterior part slightly sclerotized, with a small finger-like process; coecum penis quite short.



FIGURES 1–10. Adults of *Epipristis*. 1–2. *E. transiens*. 1, upperside; 2, underside; 3–4. *E. roseus* **sp. nov.**, holotype. 3, upperside; 4, underside; 5–6. *E. pullusa* **sp. nov.**, holotype. 5, upperside; 6, underside; 7–8. *E. nelearia*. 7, upperside; 8, underside; 9–10. *E. minimaria*. 9, upperside; 10, underside. Scale bar = 1.5 cm.

Female genitalia (Fig. 21): Apophyses posteriores about twice length of apophyses anteriores. Lamella postvaginalis weakly sclerotized, indistinct. Lamella antevaginalis strongly sclerotized, band-like. Ductus bursae short and narrow. Corpus bursae very long; signum absent.

Material examined. CHINA: Beijing Badaling, 24.VI.1957, 1♂6♀ (IZCAS); Beijing Baihuashan, 7.VI.1973, coll. Han Yinheng, 1♀ (IZCAS); Henan Songxian Baiyunshan, 1400 m, 15–17.VI.2003, coll. Lu Yanan, 1♂1♀ (IZCAS); ibidem, 28.VI.2003, coll. Qiu Qi, 1♂ (IZCAS); ibidem, 27.VI.2003, coll. Zhang Dandan, 1♀ (IZCAS); Henan Jiyuan Wangwushan, 700 m, coll. Shen Xiaocheng and Ren Yingdang, 1♂ (IZCAS); ibidem, 1700 m, 2♂ (IZCAS); Henan Huanglianshu, 600–1600 m, coll. Shen Xiaocheng and Ren Yingdang, 1♂1♀ (IZCAS); Tapaishan im Tsinling, Sued-Shensi (China), 3.VII.1935, H. Höne, 1♂ (BMNH); Tapaishan im Tsinling, Sued-Shensi (China), 20.VI.1935, H. Höne, 1♀ (ZFMK); Ningxia Jingyuan Hongxialinchang, 1998 m, 35°27'N, 106°18'E, 9–10.VII.2008, coll. Song Wenhui, 10♂1♀ (IZCAS); Ningxia Jingyuan Xixialinchang, 2295 m, 35°31'N, 106°14' E, 7–8.VII.2008, coll. Song Wenhui, 1♀ (IZCAS);

Ningxia Jingyuan Heshangpulinchang, 2084 m, 35°41'N, 106°14' E, 1.VII.2008, coll. Song Wenhui, 1♀ (IZCAS); Mien-shan (Prov. Shansi), Obere Höhe ca. 2000 m, 10.VII.1937, H. Höne, 1♂ (IZCAS ex. ZFMK); Mien-shan (Prov. Shansi), Obere Höhe ca. 2000 m, 1.VII.1937, H. Höne, 1♂ (ZFMK); Mien-shan (Prov. Shansi), Obere Höhe ca. 2000 m, 9.VII.1937, H. Höne, 1♀ (ZFMK).

Distribution. China (Beijing, Shanxi, Henan, Shaanxi, Ningxia).

Epipristis roseus Expósito & Han sp. nov.

Figs. 3–4

Description.

Head: Antenna bipectinate with very short rami in male, rami shorter than diameter of antennal shaft; filiform in female. Frons slightly protruding, black, smooth-scaled. Labial palpus with dorsal and lateral surfaces black, ventral surface of segment 1 and 2 white; segment 3 black. Vertex dull white.

Thorax: Dorsal side pale brown. Tegula grey. Hind tibia in male without hair-pencil; with two pairs of spurs in both sexes. Forewing length: ♂ 13.5–14.5 mm, ♀ 15–16 mm. Frenulum absent. Outer margin of forewing almost smooth, that of hind wing wavy. Wings pale brown to greyish brown, diffused with blackish and pinkish scales. Forewing with costa densely diffused with black; antemedial line black, wavy; postmedial line with upper half slightly dentate and extending on veins, protruding outwards at middle, lower half concave, almost linear and only with tiny elongation onto veins; area outside accompanied by a pinkish patch, absent from above M_2 to CuA_1 ; both lines broader on costa; submarginal line white, appearing as border of pinkish patch; terminal line black, interrupted on vein ends; discal spot a black dash; fringes grey, darker on vein ends. Hind wing with postmedial line elongate on veins; submarginal, terminal lines and fringes similar to those of forewing; discal spot a black dot. Underside: pinkish brown diffused with black scales; both wings with distinct black postmedial line, or indistinct lines; black discal spot present or indistinct; terminal area pale brown, not diffused with reddish scales.

Abdomen: Dorsal side dull white, diffused with black scales, with distinct dorsal crests. Sternite 3 of male abdomen without setal patch.

Male genitalia (Figs. 12, 17). Sclerotized socii/uncus complex with fused basal half, prongs very close together. Gnathos with broad medial process. Valva with tapering terminal part, appearing as a small blunt process; costa curved. Sacculus folded over, with a rounded and spinulose terminal process. Transtilla with a pair of weakly sclerotized arms projecting posteriorly. Juxta slightly sclerotized, horseshoe-like. Saccus protruding. Coremata present. Aedeagus sclerotized posteriorly, posterior end quite narrow; cornutus absent.

Female genitalia (Fig. 22). Apophyses posteriores much longer than apophyses anteriores. Lamella postvaginalis scantily sclerotized. Ductus bursae very short and narrow; antrum absent. Corpus bursae large, membranous; signum absent.

Diagnosis. The new species *E. roseus* is close to *E. transiens* in lacking a terminal band on the underside of the wings, but can be distinguished by the following differences: postmedial lines on upperside only slightly dentate and almost linear under CuA_1 on forewing but strongly dentate in *E. transiens*. The most distinct difference is in the male genitalia: the costa of *E. roseus* has no process but a pointed process is present in *E. transiens*; the sacculus of *E. roseus* bears a terminal process which is absent in *E. transiens*; the transtilla in *E. transiens* is strongly sclerotized and with two pointed processes but the sclerotized pointed processes are absent in *E. roseus*; in addition, the apex of the valva is much narrower in *E. roseus* than in *E. transiens*.

Material examined. Holotype ♂, CHINA: Inner Mongolia, 700 m, 100 km, W. from Ulanhot, Mingshui vill., 10.VII.2008, Floriani & Saldaitis leg., (IZCAS, ex. Expósito Hermosa, Andrés coll.)

Paratypes: 1♂, Inner Mongolia, 10.VI.1990 (IZCAS); 5♂, Inner Mongolia, 700 m, 100 km, W. from Ulanhot, Mingshui, 10.VII.2008, Floriani & Saldaitis leg., (IZCAS, ex. Expósito Hermosa, Andrés coll.); 2♂, Inner Mongolia, 100 km, W. from Ulanhot, Mingshui vill., 700 m, 10.VII.2008, Floriani & Saldaitis leg.,

(IZCAS, ex. Expósito Hermosa, Andrés coll.); 33♂1♀, Inner Mongolia, 100 km, W. from Ulanhot, Mingshui vill., 700 m, 10.VII.2008, Floriani & Saldaitis leg., (Expósito Hermosa, Andrés coll.); 3♀, Inner Mongolia, 100 km, W. from Ulanhot, Mingshui vill., 700 m, 29.VI.2008, Floriani & Saldaitis leg., (Expósito Hermosa, Andrés coll.); 2♂, Inner Mongolia, 100 km, W. from Ulanhot, Mingshui vill., 700 m, 10.VII.2008, Floriani & Saldaitis leg., (MNCN, ex. Expósito Hermosa, Andrés coll.).

Etymology. The specific name is from the Latin *roseus*, which means pink.

Distribution. China (Inner Mongolia).

Epipristis pullusa Han & Xue sp. nov.

Figs. 5–6

Description.

Head: Antenna bipectinate with very short rami in male, rami shorter than diameter of antennal shaft; filiform in female. Frons barely protruding, black, smooth-scaled, upper margin white. Labial palpus with dorsal and lateral surfaces black, ventral surface of segment 1 and 2 white; segment 3 black. Vertex grey greenish white.

Thorax: Thorax with dorsal side brown. Hind tibia in male not dilated, without hair-pencil, with two pairs of spurs in both sexes. Forewing length: ♂17.5–18 mm, ♀19.5–20 mm. Frenulum absent. Outer margin of both wings crenulate. Wings pale greenish brown, diffused with blackish scales. Forewing with costa densely diffused with black; antemedial line black, wavy; postmedial line dentate, protruding outwards at middle; area outside accompanied by a dark reddish brown and whitish-edged patch, absent from above M_2 to CuA_1 in male, patch much denser and broader in female and traceable between M_2 and CuA_1 ; both lines broader on costa; submarginal line white, mingling with patches; terminal line black, interrupted on vein ends, broadened between veins; discal spot a black dash; fringes pale grey, darker on vein ends. Hind wing with postmedial line dentate, elongate on veins; area outside accompanied by a dark reddish brown and whitish-edged patch, patch absent near costa and from M_3 to CuA_1 ; submarginal, terminal lines and fringes similar to those of forewing; discal spot a black dot. Underside: dark brown; both wings with postmedial line similar but not as distinct as that on upperside; discal spot distinct, same as that on upperside.

Abdomen: Abdomen dull white to brown, diffused with black and yellowish brown scales; segments 2 to 5 with small dorsal crests, laterally black and whitish at middle; ventral side brown. Sternite 3 of male abdomen without setal patch.

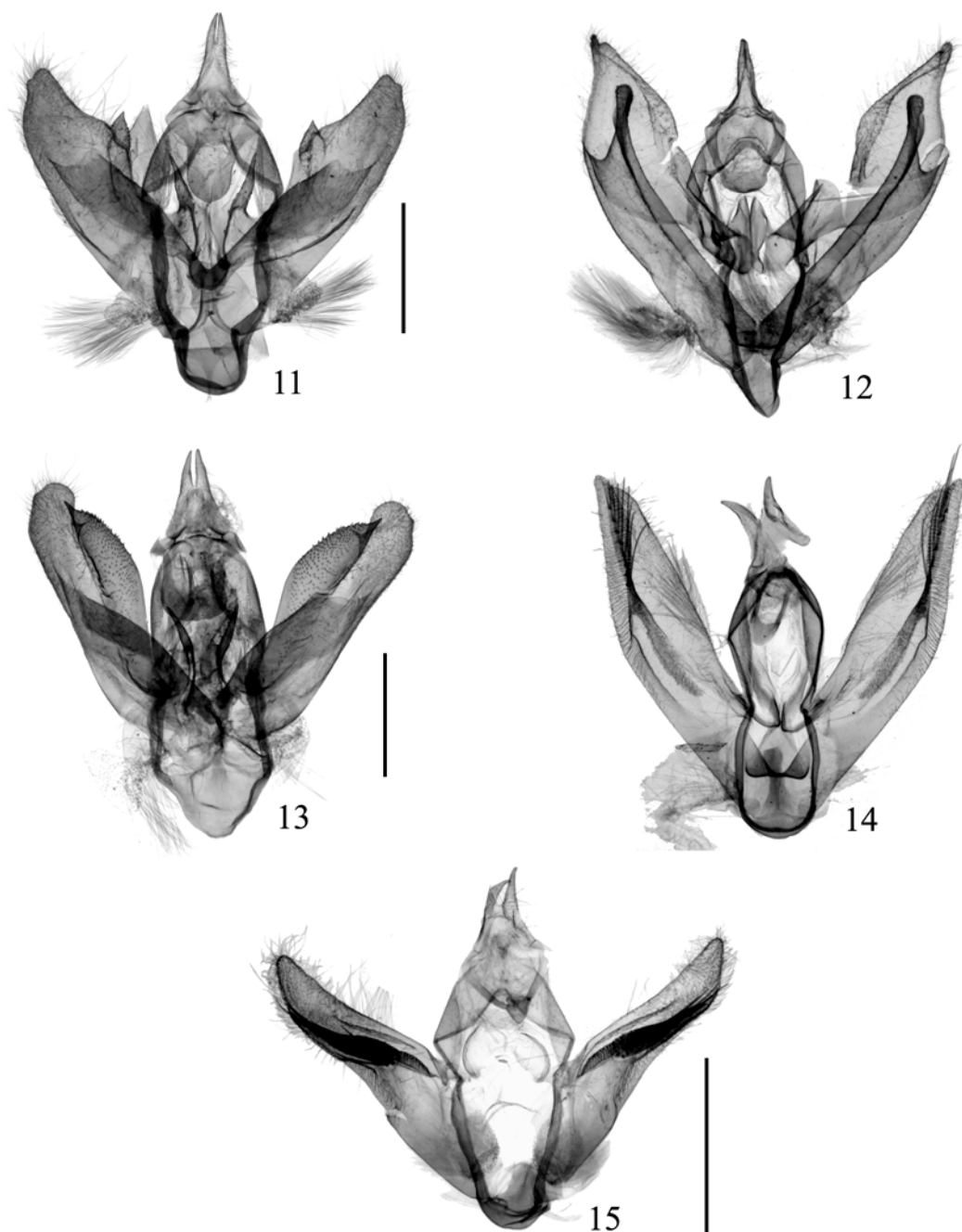
Male genitalia (Figs. 13, 18). Sclerotized socii/uncus complex with basal half fused, prongs very close together. Gnathos with medial process quite broad, quadrate, wrinkled. Valva long, terminal part blunt; costa a large strongly sclerotized area, spinose, with pointed tip, appearing as a petal. Saccus broadly folded over, sclerotized. Transtilla with a pair of strongly sclerotized pointed arms projecting posteriorly. Saccus broad, protruding. Coremata present. Aedeagus sclerotized posteriorly, quite narrow at tip, without cornutus. Female genitalia (Fig. 23). Lamella postvaginalis rounded, slightly sclerotized, wrinkled anteriorly. Lamella antevaginalis resembling a pair of leaves. Ductus bursae very short and narrow. Corpus bursae quite long and narrow; signum absent.

Diagnosis. The new species *E. pullusa* is close to *E. transiens* on wing pattern except that the patches outside the postmedial line are much darker. The characteristic features of *E. pullusa* lie in the male genitalia: the costa of *E. pullusa* bears a large, strongly sclerotized, spinose sclerite, whereas it only bears a small, triangular process in *E. transiens*; the median process of the gnathos is much broader than that of *E. transiens*.

Material examined. Holotype, ♂, Henan Songxian Baiyunshan, 1400 m, 17.VII.2003, coll. Lu Yanan (IZCAS). Paratypes, 1♂(IZCAS), Henan Songxian Baiyunshan, 1400 m, 28.VII.2003, coll. Qiu Reng; 1♀(IZCAS), Henan Songxian Baiyunshan, 1400 m, 15.VII.2003, coll. Lu Yanan; 1♀(IZCAS), Henan Songxian Baiyunshan, 1400 m, 27.VII.2003, coll. Zhang Dandan.

Etymology. The species name is from the Latin *pullus*, which means means dark-colored or blackish.

Distribution. China (Henan).



FIGURES 11–15. Male genitalia of *Epipristis*. 11, *E. transiens*; 12, *E. roseus* **sp. nov.**; 13, *E. pullusa* **sp. nov.**; 14, *E. nelearia*; 15, *E. minimaria*. Scale bar = 1 mm.

***Epipristis nelearia* (Guenée, 1858)**

Figs. 7–8

Hypochroma nelearia Guenée, 1858, in Boisduval & Guenée, *Hist. nat. Insectes*, (Spec. gén. Lépid.) 9: 279. Holotype ♂, Borneo. (BMNH)

Epipristis nelearia: Meyrick, 1897, *Trans. ent. Soc. Lond.*, 1897: 73.

Description.

Head: Antenna of both sexes filiform. Frons black. Labial palpus greyish white. Vertex greyish green.

Thorax: Thorax with dorsal side greyish green. Hind tibia of male dilated with hair-pencil; with two pairs of spurs in both sexes.

Forewing length: ♂♀12–15 mm. Frenulum developed. Wings greyish green. Forewing with antemedial line black, wavy at upper half and serrate at lower half; postmedial line black, serrate, curved, accompanied outside by reddish brown patches between veins M and under CuA₁; submarginal line greyish white, wavy; terminal line appearing as a series of small triangular patches between veins; fringes greenish white. Hind wing with reddish brown patches between veins M and under CuA₂, paler than that on forewing; submarginal, terminal lines and fringes same as those of forewing. Discal spot on both wings blackish brown. Underside greyish white, both wings with broad black terminal bands; inner margin of which shallowly curved on forewing and nearly straight on hind wing, mostly reaching outer margin on forewing and not reaching outer margin on hind wing. Discal spots larger than those on upperside, drop-like.

Abdomen: Abdomen with dorsal crests on segment 3 to 5, that on segment 3 mostly developed. Sternite 3 of male with a pair of setal patches, joined by sparse setae.

Male genitalia (Figs. 14, 19): Sclerotized socii/uncus complex with fused basal half, prongs tapering. Gnathos with median process tongue-like. Valva long and narrow, central area with a long area appearing as orange segment, extending to tip of valva, bearing several long spines; saccular margin with posterior half wrinkled. Saccus moderately protruding. Transtilla possesses a pair of slightly sclerotized processes protruding posteriorly, not joined. Coremata present. Aedeagus with posterior half sclerotized.

Female genitalia (Fig. 24): Apophyses posteriores more than twice length of apophyses anteriores. Region around ostium sclerotized. Ductus bursae short, with distinct antrum. Corpus bursae bag-like, with round posterior half and much narrower anterior half; signum absent.

Material examined. CHINA: Hainan Dongfangnongchang, 11.VIII.1984, coll. Liu Yuanfu, 1♂ (IZCAS); Guangxi Longzhou Nonggang, 330 m, 15.VI.2000, coll. Yao Jian, 7♂ (IZCAS); Guangxi Napodefu, 1350 m, 19.VI.2002, coll. Li Wenzhu, 2♂; ibidem, coll. Yao Jian, 1♂ (IZCAS); **MALAYSIA:** holotype, Bornéo, Ex. Musaeo Ach. Guenée, Ex. Oberthür Coll. Brit. Mus. 1927-3 (Typicum Specimen; *Hypochroma nelearia* Guenée sp. G. no 444; red type label; a figure label), 1♂ (BMNH); Nord Borneo, Mont Kina Balu, 5-8. 1903, John Waterstradt, Ex. Oberthür Coll. Brit. Mus. 1927-3, 1♂ (BMNH); **INDIA:** Khasia Hills, Assam, Rothschild Bequest, B.M.1939-1, 1♂ (BMNH); Donaut H. Tenasserina, 95-37, 1♂ (BMNH); Khasis, VI.1895, Nat. Coll., Rothschild Bequest. 1939-1, 1♂ (BMNH); Digboi Assam, (L.B. Prout), Rothschild Bequest, 1♂ (BMNH); **INDONESIA:** Lebong Sandai, Benkoelen, S. W. Sumatra, Joicey Bequest, Brit. Mus. 1934-120, 1♀ (BMNH).

Distribution. China (Hainan, Guangxi), India, N.E. Himalayas, Philippines, Malaysia, Indonesia, Australia.

Epipristis minimaria (Guenée, 1858)

Figs. 9–10

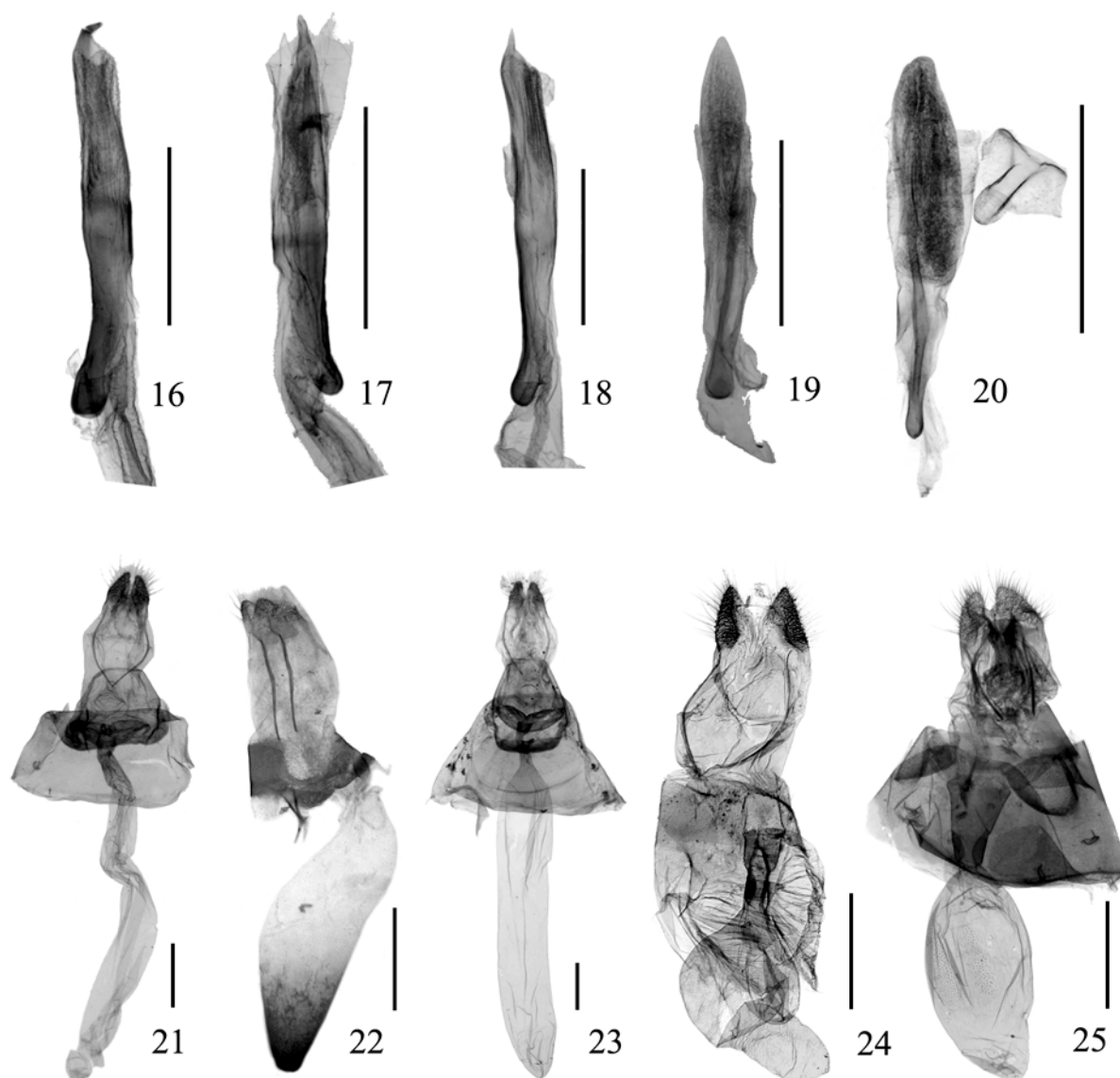
Hypochroma minimaria Guenée, 1858, in Boisduval & Guenée, *Hist. nat. Insectes*, (Spec. gén. Lépid.) 9: 279. Syntypes 1♂1♀, Ceylon [Sri Lanka]. (BMNH)

Hypochroma parvula Walker, 1860, *List Specimens lepid. Insects Colln Br. Mus.*, 21: 435. Syntypes 5♂♀, Hindostan [India]. (BMNH)

Epipristis minimaria: Swinhoe, 1894. *Trans. Ent. Soc. Lond.* 1894: 171.

Description.

Head: Antenna of both sexes filiform. Frons black. Labial palpus with white ventral surface, dorsal surface tinged with yellowish brown. Vertex greyish white.



FIGURES 16–20. Aedeagus of *Epipristis*. 16, *E. transiens*; 17, *E. roseus* **sp. nov.**; 18, *E. pullusa* **sp. nov.**; 19, *E. nelearia*; 20, *E. minimaria*. Scale bar = 1 mm. **FIGURES 21–25.** Female genitalia of *Epipristis*. 21, *E. transiens*; 22, *E. roseus* **sp. nov.**; 23, *E. pullusa* **sp. nov.**; 24, *E. nelearia*; 25, *E. minimaria*. Scale bar = 1 mm.

Thorax: Thorax with grey dorsal side. Hind tibia of male without hair pencil; with two pairs of spurs in both sexes.

Forewing length: ♂11–12 mm, ♀13 mm. Frenulum developed. Wings greyish white, diffused with red-brown, grey-brown and black-brown scales. Outer margin of both wing wavy. Forewing with costa reddish brown mixed with blackish brown; antemedial line blackish brown, wavy, with four rounded teeth; postmedial line blackish brown, serrate; antemedial and postmedial lines forming a black patch on costa; submarginal line white, wavy; area between postmedial and submarginal lines diffused with reddish brown scales or patches, paler at middle; terminal line black, expanding between veins; fringes pale grey-brown. Discal spot blackish brown, paler on hind wing. Hind wing with streaks similar to those of forewing. Underside with broad blackish brown terminal band, inner margin of which deeply curved on forewing, straight or shallowly curved on hind wing; discal spot more elongate than that of upperside.

Abdomen: Abdomen with dorsal side dull white with blackish brown spots. Sternite 3 of male abdomen without setal patch. Segment 8 of male with sternite concave at posterior margin, slightly sclerotized.

Male genitalia (Figs. 15, 20): Sclerotized socii/uncus complex with fused basal half, prongs tapering. Gnathos with median process tongue-like. Valva long and narrow, broader at base; a long wrinkled sclerotized band present at middle, with dense and stout setae; sacculus concave at middle. Saccus protruding and appearing semicircular. Transtilla a pair of sclerotized processes protruding posteriorly. Saccus present. Aedeagus with posterior half broad, sclerotized.

Female genitalia (Fig. 25): Apophyses anteriores quite short. Sterigma absent. Ductus bursae broad, sclerotized, posterior half broader, anterior half narrower with distinct antrum. Corpus bursae small, oval, with two large scobinate patches.

Material examined. CHINA: Hainan Jianfengling, 29.IV.1982, coll. Gu Maobin, 1♀ (IZCAS); ibidem, 22.IX.1983, coll. Wang Chunling, 1♂ (IZCAS); Hainan Jianfeng, 14.IV.1978, coll. Zhang Baolin, 1♀ (IZCAS); Hainan Jianfengling, 12.VI.1973, coll. Chen Yixin, 1♀ (IZCAS); Yunnan Cangyuan, 750 m, 20.V.1980, coll. Gao Ping, 1♂ (IZCAS); Yunnan Dongfeng Famuchang, 25.IV.1978, 1♂ (IZCAS); SRI LANKA: syntype, Ceylon, Ex. Musaeo Ach. Guenée, Ex. Typicalibus Speciminibus, Ex. Oberthür Coll. Brit. Mus. 1927-3 (*Hypochroma minimaria* Guenée sp. G. no 443; red type label; a figure label), 1♀ (BMNH); syntype, Ceylon, Dohrn, 54, Zell. Coll. 1884 (*Hypochroma minimaria* Guenée ♂ allotype; red Allotype label; BMNH slide NO: 11941), 1♂ (BMNH); Kandy, 11.09, Mackwood Coll. B.M. 1927-341, 1♂1♀ (BMNH); Gampola, 19.VII.98, Mackwood Coll. B.M. 1927-341 (BMNH slide NO.: 17178), 1♂ (BMNH); INDIA: syntype of *Hypochroma parvula*, India, 1♂ (BMNH); Khasia Hills, Assam, Rothschild Bequest B.M.1939-1, 2♂ (BMNH); Sikkim, Knyvett, Collectio H.J. Elwes, Rothschild Bequest, B.M. 1939-1, 4♂ (BMNH); BHUTAN: Bhutan, Rothschild Bequest, B.M.1939-1, 1♂ (BMNH); MYANMAR: Lower Burma, Rothschild Bequest, B.M.1939-1, 1♂1♀ (BMNH).

Distribution. China (Hainan, Yunnan), India, Bhutan, Myanmar, Sri Lanka, Indonesia.

Acknowledgements

We thank the staff in the Lepidoptera Section at the Natural History Museum, London and Dieter Stünig, Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany for providing the opportunity to examine specimens in their museums. We also thank Shen Xiaocheng, Institute of Plant Protection, Henan Academy of Agricultural Science, Zhengzhou, for his generous gift of specimens of *Epipristis pullusa*. This study was supported by the National Natural Science Foundation of China (30670238) and the Innovation Program of the Chinese Academy of Sciences (KSCX3-IOZ-0810).

References

- Butler, A.G. (1892) On a collection of Lepidoptera from Sandakan, N. E. Borneo. *Proceedings of the Zoological Society of London*, 1892, 120–133, pl. 6.
- Comstock, J.H. (1918) *The wings of insects*. Comstock Publishing Company, Ithaca, New York, 430 pp.
- Guenée, A. (1858) Uranides et Phalénites. In: Boisduval J. B. A. D. & Guenée, A. (Eds.), *Histoire Naturelle des Insectes (Lepidoptera)*, Species Général des Lépidoptères. Librairie Encyclopédique de Roret, Paris, 9: 1–514, pls 1–56; 10: 1–584, pls 1–22.
- Hausmann, A. (2001) Introduction. Archiearinae, Orthostixinae, Desmobathrinae, Alsophilinae, Geometrinae. In: Hausmann, A. (Ed.): *The Geometrid Moths of Europe*. Apollo Books, Stenstrup, 1, 282 pp.
- Holloway, J.D. (1996) The Moths of Borneo: Family Geometridae, Subfamilies Oenochrominae, Desmobathrinae and Geometrinae. *The Malayan Nature Journal*, 49 (3/4), 147–326, 427 figures, 12 colour plates.
- Klots, A.B. (1970) Lepidoptera. In: Tuxen, S. L. (Ed.), *Taxonomist's Glossary of Genitalia in Insects*. Munksgaard, Copenhagen, pp. 115–130.
- Meyrick, E. (1888) Descriptions of Australian Micro-lepidoptera. *Proceedings of the Linnean Society of New South Wales*, (2) 2, 827–966.
- Meyrick, E. (1897) On Lepidoptera from the Malay Archipelago. *Transactions of the Royal Entomological Society of*

London, 1897, 69–92.

- Nichols, S.W. Ed. (1989) *The Torre-Bueno Glossary of Entomology*. New York Entomological Society in cooperation with the American Museum of Natural History, New York, 840 pp.
- Pierce, N. (1914 [reprint 1967]) *The Genitalia of the Group Geometridae of the British Islands*. E. W. Classey Ltd, Middlesex, xxix + 88 pp., 48 pls.
- Pitkin, L.M., Han, H-X. & James, S. (2007) Moths of the tribe Pseudoterpnini (Geometridae: Geometrinae): a review of the genera. *Zoological Journal of the Linnean Society*, 150, 343–412.
- Prout, L.B. (1912) Lepidoptera Heterocera, Fam. Geometridae, subfam. Hemitheinae. In: Wytzman, P. (Ed.), *Genera Insectorum* 129, Verteneuil & Desmet, Bruxelles, 1–274, pls 1–5.
- Prout, L.B. (1927 (1920–1941)) The Indoaustralian Geometridae. In: Seitz, A. (Ed.), *The Macrolepidoptera of the World*. 12, Verlag A. Kernen, Stuttgart, pp. 1–356, pls. 1–41, 50.
- Prout, L.B. (1934 (1934–1939)) The Palaearctic Geometrae. 3. Subfam. Hemitheinae. In: Seitz, A. (Ed.), *The Macrolepidoptera of the World*. 4 (Suppl.), Verlag A. Kernen, Stuttgart, 1–253. pls. 1–18.
- Prout, L.B. (1937) New and little-known Bali Geometridae in the Tring Museum. *Novitates Zoologicae*, 40, 177–189.
- Scoble, M.J. (1992) *The Lepidoptera, Form, Function and diversity*. Oxford University Press, Oxford, 404 pp.
- Scoble, M.J. (Ed.) (1999) *Geometrid Moths of the World: A Catalogue (Lepidoptera, Geometridae)*. CSIRO, Colingwood, Vols. 1–2, 1016 pp.
- Sterneck, J. (1927) Die Schmetterlinge der Stötznerschen Ausbeute. Geometridae, Spanner. *Deutsche Entomologische Zeitschrift, Iris*, 41, 9–32, 147–171.
- Swinhoe, C.C. (1894) A list of the Lepidoptera of the Khasia Hills. Part II. *Transactions of the Royal Entomological Society of London*, 1894, 145–223.