

Three new species of the genus *Erotis* Meyrick (Lepidoptera: Oecophoridae) from Hainan Island

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Abstract: Three new species of the genus *Erotis* Meyrick, 1910 are described based on specimens collected from Hainan Island, China, namely, *E. mediconcava* Wang sp. nov., *E. yinggelingensis* Wang sp. nov. and *E. apicobtusata* Wang sp. nov. Photographs of adults and genitalia are provided.

Key words: Microlepidoptera; Gelechioidea; taxonomy; China

中国绣织蛾属 *Erotis* Meyrick 三新种记述 (鳞翅目: 织蛾科)

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摘要: 记述中国绣织蛾属 *Erotis* 3 新种: 凹爪绣织蛾 *E. mediconcava* Wang sp. nov., 鹦哥绣织蛾 *E. yinggelingensis* Wang sp. nov. 和钝圆绣织蛾 *E. apicobtusata* Wang sp. nov.。提供了成虫和外生殖器特征图。

关键词: 小蛾类; 麦蛾总科; 分类学; 中国

Introduction

The genus *Erotis* was erected by Meyrick in 1910. It is characterized by the antenna with strong pecten, the labial palpus widely apart distally, the swollen thorax and the elongate forewing; in the male genitalia by having a large, extremely expanded uncus, a slender, curved gnathos pointed at apex, a narrowly elongate valva with dense hairs distally, a juxta with lateral processes setose distally, and a weakly sclerotized, curved aedeagus; in the female genitalia by the long ductus bursae with loose coils and the corpus bursae with two large signa. *Erotis* consists of three described species to date. *Erotis phosphora* Meyrick, 1910, the type species, was described from Sri Lanka; *E. expansa* Wang, 2004 and *E. punctalosa* Wang, 2004 were described from China.

In this paper, we describe three new species based on specimens collected by using light traps in Hainan Island, China. Dissection and slide mounting of genitalia followed the methods introduced by Li (2002). Adult photographs were taken with a Leica M205A stereomicroscope. Genitalia were prepared using a Leica DM750 microscope and refined with Photoshop® CS6 software.

The type specimens are deposited in the Insect Collection of Nankai University (NKU), Tianjin, China.

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Taxonomy

Erotis Meyrick, 1910

Erotis Meyrick, 1910: 145.

Type species: *Erotis phosphora* Meyrick, 1910.

1. *Erotis apicobtusa* Wang sp. nov. (Figs. 1, 4)

Description. Adult (Fig. 1) wingspan 16.5–19.0 mm. Head yellow, tinged with pale brownish yellow. Antenna with scape yellow, mottled brownish yellow scales on dorsal surface; flagellum greyish yellow. Labial palpus yellow; second segment covered with brown scales on basal half of outer surface, slightly thickened distally by elongate rough scales; third segment tinged with brown scales on ventral surface, about 3/5 length of second segment, slender, acute at apex. Papagium orange yellow, mixed with brown scales; thorax and tegula rose pink, with blackish brown and dark red scales. Forewing elongate sub-rectangular, slightly narrowing from distal 1/6 to obtusely rounded apex; ground color rose pink, with brownish yellow and black scales, scattered with ill-defined black dots or patches formed by black scales; costal margin with dense blackish brown and pale brownish yellow scales running from near base to about distal 1/6, with a small yellow mottled rose pink patch at about distal 1/6; cell with a large black spot at middle and a curved stripe at outer margin extending from lower corner; cilia orange yellow basally, shining rose colored distally, with a blackish brown basal line and a sub-median line, cilia along distal part of dorsum pale reddish yellow. Hindwing and cilia greyish brown. Legs orange yellow on inner surface, black on outer surface except tarsi yellow at apex of each tarsomere.

Male genitalia (Fig. 4). Uncus sub-rectangular, narrowed and obtuse apically, setose laterally and apically, with a heavily sclerotized longitudinal median carina. Gnathos slender, strongly curved at base, distally narrowed to pointed apex, slightly longer than uncus; lateral arms uniformly slender, about 1/3 length of gnathos. Valva narrowly elongate, wide at base, slightly narrowed to rounded apex, densely setose distally; ventral margin produced basally and medially, concave inward at about basal 1/3. Juxta irregularly shaped, with large racket-like lateral process, its basal half narrow and naked, distal half ovately enlarged, with dense long setae; lateral lobe digitate, with long setae, set anterior to base of lateral process. Aedeagus with granules on inner wall, rounded at apex.

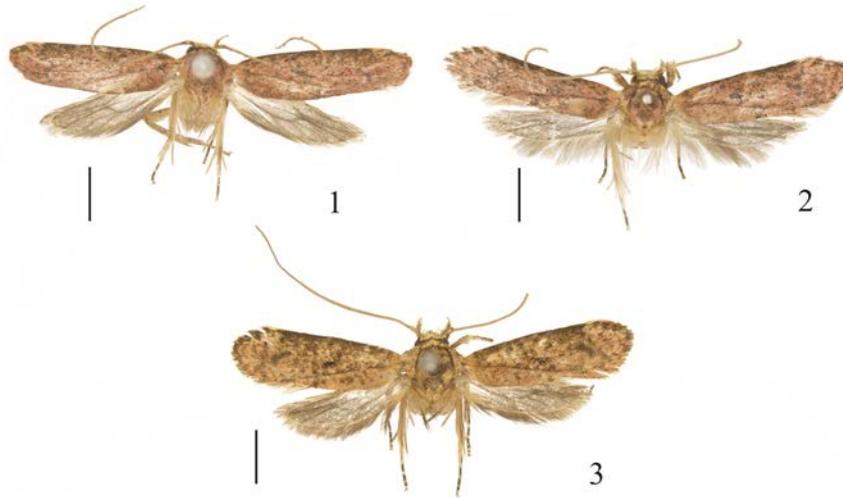
Female unknown.

Holotype. ♂, China, Bawangling, 19.12°N, 109.09°E, 1000 m, 09-IV-2008, Hainan Province, coll. Bingbing HU & Haiyan BAI, slide No. LJ17409. **Paratypes.** 1♂, same data as holotype, slide No. LJ17460; 1♂, Mt. Wuzhi, 740 m, 14-IV-2009, coll. Qing JIN & Bingbing HU, slide No. LJ17454.

Diagnosis. This new species is similar to *E. yinggelingensis* Wang sp. nov. in the forewing having the same ground color and a similar forewing pattern, but it can be distinguished from the latter by the cell of the forewing with a large curved stripe at outer margin extending from beyond the lower corner, and the male genitalia with uncus straight at apex medially. In *E. yinggelingensis* Wang sp. nov., the cell of the forewing has a large sub-quadrangle spot at outer margin medially, and the male genitalia has the uncus rounded at apex medially.

Etymology. The specific epithet is derived from the Latin prefix *apic-* and the word

obtusus, referring to the obtusely rounded apex of the uncus.



Figures 1–3. Adults of *Erotis* species. 1. *E. apicobtusa* Wang sp. nov., holotype; 2. *E. yinggelingensis* Wang sp. nov., holotype; 3. *E. mediconcava* Wang sp. nov., holotype. Scale bars = 2.0 mm.

2. *Erotis yinggelingensis* Wang sp. nov. (Figs. 2, 5)

Description. Adult (Fig. 2) wingspan 13.5 mm. Head creamy yellow, with yellow mottled brown tufts on neck. Antenna yellow, scape mottled brownish yellow scales on dorsal surface. Labial palpus creamy yellow on inner surface, yellow on outer surface; second segment covered with brown scales on basal half of outer surface, thickened distally by elongate rough scales; third segment about $2/3$ length of second segment, slender, acute at apex. Papagium orange yellow, mixed with brown scales; thorax and tegula rose pink, with black scales. Forewing elongate sub-rectangular, slightly narrowing from distal $1/5$ to rounded apex; ground color rose pink, with pale brownish yellow and black scales, scattered with ill-defined black dots or patches formed by black scales; costal margin with dense blackish brown and pale brownish yellow scales from near base to before distal $1/5$, with a yellow patch at distal $1/5$, mottled rose pink scales; cell with a large sub-ovate black spot at middle and a large sub-quadrangle black spot at outer margin; cilia orange yellow basally, shining rose colored with grey tip distally, with a blackish brown basal line and a sub-median line, cilia along distal part of dorsum pale rose pink mixed with grey. Hindwing and cilia greyish brown. Legs whitish yellow on inner surface, femora blackish brown on outer surface, tibiae yellowish brown with yellow scales at apices on outer surface, tarsi blackish brown except yellowish white at apex of each tarsomere.

Male genitalia (Fig. 5). Uncus relatively short and broad, rounded apically and laterally, with a fine sclerotized longitudinal median carina. Gnathos relatively strong, distinctly narrowed to pointed apex distally, curved at base, about same length as uncus; lateral arms uniformly slender, about $2/5$ length of gnathos. Valva wide at base, slightly narrowed to basal $1/3$, then slightly widened, and again narrowed to rounded apex, densely setose distally; costal margin gently concave beyond middle; ventral margin produced medially. Juxta sub-quadrangle, with large racket-like lateral process, its basal half narrow and naked, distal half

ovately enlarged, with dense long setae; lateral lobe digitate, with long setae, set anterior to base of lateral process. Aedeagus relatively strong, with granules on inner wall, rounded at apex.

Female unknown.

Holotype. ♂, **China**, Yinggezui, Yinggeling, 19.05°N, 109.56°E, Hainan Province, 599 m, 27–29-VII-2017, coll. Xia BAI, Ping LIU & Shuai YU, slide No. LJ17410. **Paratype.** 1♂, same data as holotype.

Diagnosis. This new species is similar to *E. apicobtusa* Wang sp. nov. in both the forewing pattern and the male genitalia, and the differences between them are stated in the diagnosis of the preceding species.

Etymology. The specific epithet indicates the type locality.

3. *Erotis mediconcava* Wang sp. nov. (Figs. 3, 6)

Description. Adult (Fig. 3) wingspan 18.0 mm. Head whitish yellow, tinged with pale brownish yellow scales. Antenna whitish yellow, scape mixed with brownish yellow scales on dorsal surface. Labial palpus yellow; second segment covered with brown scales on basal half of outer surface, thickened distally by elongate rough scales; third segment tinged with brown scales on ventral surface, about 3/5 length of second segment, slender, acute at apex. Papagium, thorax and tegula orange yellow, with yellowish brown scales. Forewing elongate sub-rectangular, narrowed from distal 1/5 to rounded apex; ground color creamy yellow, with blackish brown and yellowish brown scales, with rose pink scales on distal half; costal margin with denser blackish brown and yellowish brown scales, with a large orange yellow patch mottled blackish brown scales at distal 1/5; cell with a black stripe at basal 3/5 and an irregular greyish black spot on outer margin extending from lower corner; irregularly shaped blackish brown dots lined between fold and dorsum, interrupted by rose pink scales; yellow line interrupted by blackish brown scales running from distal part of costal margin to middle of apex, then becoming rose pink to tornus; cilia rose colored along distal part of costal margin, greyish yellow around apex, then rose pink to tornus, with a rough interrupted black basal line and a greyish brown apical line, cilia along distal part of dorsum pale rose pink mixed with greyish yellow and sparse blackish brown scales. Hindwing and cilia grey. Legs whitish yellow, mixed with brown scales on outer surface, tarsi brown except whitish yellow at apex of each tarsomere.

Male genitalia (Fig. 6). Uncus with basal half narrow, parallel laterally, distal half widened to rounded apex, hairy; apex concave triangularly at middle; median portion with a heavily sclerotized longitudinal carina. Gnathos slender, strongly curved basally, pointed at apex, nearly as long as uncus; lateral arms uniformly slender, about 1/3 length of gnathos. Valva narrowly elongate, wide at base, sub-parallel from near base to basal 2/3, distal 1/3 distinctly narrowing to narrowly rounded apex, densely setose; ventral margin slightly produced at base, weakly concave inward at about basal 1/4. Juxta irregularly shaped; lateral process large racket-like, its basal half narrow, naked, distal half ovately enlarged, with dense long setae; lateral lobe papillary, with long setae, set anterior to base of lateral process. Aedeagus with granules on inner wall.

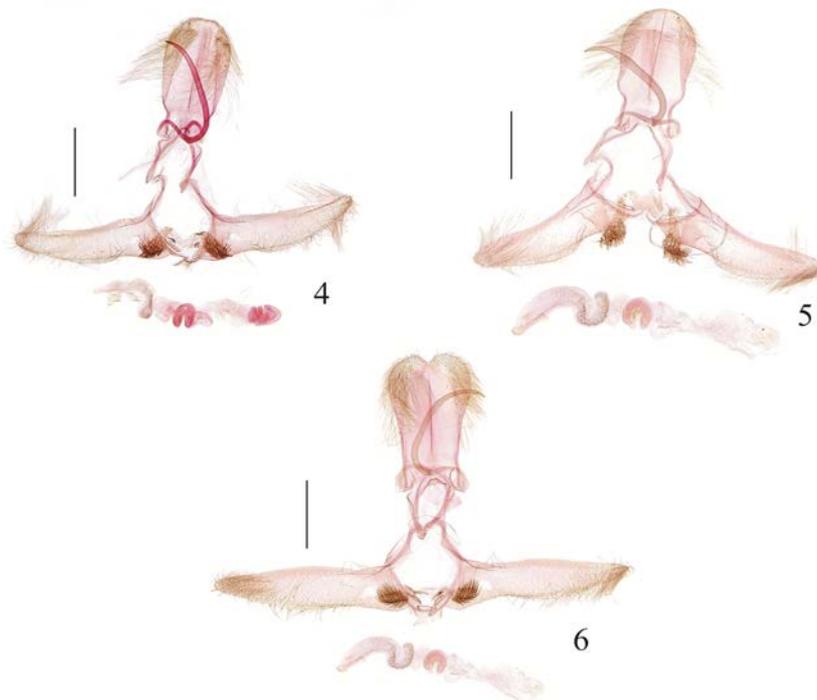
Female unknown.

Holotype. ♂, **China**, Bawangling, 19.12°N, 109.09°E, Changjiang County, Hainan Province, 193 m, 11-VI-2018, coll. Ping LIU, Xia BAI & Shuai YU, slide No. LJ17411.

Paratype. 1♂, same data as holotype.

Diagnosis. This species can be distinguished from its congeners in the male genitalia by the uncus with distal half widened to rounded apex and the apex concave in triangle at middle, and the valva distinctly narrowing to narrowly rounded apex.

Etymology. The new specific epithet is derived from the Latin prefix *medi-* and *concausus*, in reference to the uncus distinctly concave at middle of apex.



Figures 4–6. Male genitalia of *Erotis* species. 4. *E. apicobtusata* Wang sp. nov., holotype, slide No. LJ17409; 5. *E. yinggelingensis* Wang sp. nov., holotype, slide No. LJ17410; 6. *E. mediconcava* Wang sp. nov., holotype, slide No. LJ17411. Scale bars = 0.4 mm.

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