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Three new species of the genus *Parapammene* Obraztsov, 1960 from Hainan Island, China (Lepidoptera: Tortricidae)

S. H. Lu & H. H. Li

Abstract

Three new species of *Parapammene* Obraztsov, 1960 are described based on the specimens collected in Hainan, China. They are *P. equilata* Lu & Li, sp. n., *P. ventextensa* Lu & Li, sp. n., and *P. hainana* Lu & Li, sp. n. Diagnostic characters of each new species are given, and photos of adults and male genitalia are provided.

KEY WORDS: Lepidoptera, Tortricidae, *Parapammene*, new species, China.

Tres nuevas especies del género *Parapammene* Obraztsov, 1960 de la isla de Hainan, China (Lepidoptera: Tortricidae)

Resumen

Se describen tres nuevas especies de *Parapammene* Obraztsov, 1960 basado sobre los especímenes colectados en Hainan, China. Ellas son *P. equilata* Lu & Li, sp. n., *P. ventextensa* Lu & Li, sp. n. y *P. hainana* Lu & Li, sp. n. Se dan diagnosis de cada nueva especie y se suministran fotos de los adultos y de la genitalia del macho.

PALABRAS CLAVE: Lepidoptera, Tortricidae, *Parapammene*, nuevas especies, China.

Introduction

The genus *Parapammene* was erected by Obraztsov in 1960 with *Phthoroblastis selectana* Christoph, 1881 as the type species. It belongs to the *Grapholita* genus-group of the subtribe Grapholitina in the tribe Grapholitini. The monophyly of *Parapammene* is supported by the ductus bursae with a narrow, band-like sclerite; the seventh sternite in the female being a convex (not flat) plate; and S2 without anterolateral process (KOMAI, 1999). Currently, *Parapammene* consists of 17 species, divided into two species-groups: the *petulantana*-group and the *selectana*-group, distributed in the Palaearctic, Oriental and Australian regions (KOMAI, 1999; BROWN, 2005).

Four species were recorded in China prior to this study: *P. dichroramphana* (Kennel, 1900), *P. hexaphora* (Meyrick, 1935), *P. reversa* Komai, 1999 and *P. selectana* (Christoph, 1881). We herein add three new species to *Parapammene* based on the specimens collected in Hainan Island, China, which belong to the *selectana*-group.

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

Descriptions of new species

Parapammene hainana Lu & Li, sp. n. (Figs. 1, 4, 7)

Type material. CHINA: Holotype ♂, Jianfengling (18.44°N, 108.52°E), Ledong County, Hainan, 770 m,

5-VI-2015, coll. Peixin Cong, Wei Guan and Sha Hu, slide No. LSH15531. Paratypes: 2 ♂♂, 3-VI~29-V-2015, other same data as holotype, slide Nos. LSH15513, LSH15525.

Diagnosis: This new species is similar to *P. aurifascia* Kuznetsov, 1981 in the male genitalia by the cucullus being more or less rectangular and the costa almost straight. It can be distinguished by the neck about 1/2 width of the valva at base, and the aedeagus abruptly narrowed at distal 1/3; in *P. aurifascia*, the neck is more than 2/3 the width of the valva at base, and the aedeagus is not abruptly narrowed at distal 1/3 (KUZNETSOV, 2005: pl. 48, fig. 4).

Description: Adult (Fig. 1) wingspan 8.0-8.5 mm. Head dark brown, with scales tipped earthy yellow. Antenna blackish brown. Labial palpus ascending, exceeding upper margin of eye, greyish yellow. Thorax and tegula dark brown, scales earthy yellow tipped. Legs yellow except tarsi blackish brown basally and yellow apically. Forewing slightly widening toward bluntly rounded apex, length slightly longer than two times of the maximum width; costa arched; termen obtuse, with an indistinct notch below apex; dark brown, with scales yellow tipped; costa with nine pairs of yellowish strigulae; dark brown band from costa between second and third pair strigulae oblique to middle of discal cell on anterior margin, then extending obliquely inward to basal 1/3 of dorsum; median fascia leaden, from below third and fourth pair strigulae widening to about middle of outer edge of discal cell, then extending to middle of dorsum; dark brown band from costa between fourth and fifth pair strigulae oblique to beyond upper corner of discal cell, then extending straightly to before tornus; leaden streak from below fifth and eighth pair strigulae respectively, streak below fifth pair strigulae extending to basal 1/3 of R_s, almost touching inner edge of ocelloid patch, streak below eighth pair strigulae oblique to notch of termen; ocelloid patch containing three black dashes, inner edge leaden, rather wide and vertical above tornus, but ill-defined, outer edge absent; several black dashes between two leaden streaks from below eighth pair strigulae to before notch of termen, connected with ocelloid patch; fringe grey, blackish grey tipped, basal line blackish brown. Hindwing dark brown, greyish on costal area overlapped by forewing; fringe greyish brown, dark brown tipped, basal line dark brown.

Male genitalia (Fig. 4): Tegumen emarginate at top in lateral view, about 2/3 length of valva. Gnathos a pair of narrow sclerotized bands joined by membrane on inner margin distally. Valva sub-ovate before neck; costa almost straight, with 5-6 long fine setae below middle, basal process small; basal cavity well defined, ovate; neck distinct, approximately 1/2 width of valva at base; sacculus with a bunch of fine setae at base, with long hairs extending from ventro-distal corner to before neck; cucullus more or less rectangular, twice as long as wide, shorter than 1/2 length of valva, right angled at ventro-basal corner, covered with dense fine setae from ventro-basal corner along termen and apex to distal part of costa, with hair-like scales along ventral margin. Aedeagus with basal 2/3 slightly narrower, distal 1/3 uniform; cornuti consisting of a row of fine spines (deciduous).

Female unknown.

In male, T4 with a narrow transverse band of granules along anterior edge, and T5 with a broad transverse patch sclerotized along its anterior and posterior margins (Fig. 7).

Distribution: China (Hainan).

Etymology: The specific name is from the type locality.

***Parapammene ventextensa* Lu & Li, sp. n.** (Figs. 2, 5, 8)

Type material. CHINA: Holotype ♂, Jianfengling (18.44°N, 108.52°E), Ledong County, Hainan, 770 m, 4-VI-2015, coll. Peixin Cong, Wei Guan and Sha Hu, genitalia slide No. LSH15532. Paratype: 1 ♂, same data as holotype, slide No. LSH15527.

Diagnosis: This new species is similar to *P. dichroramphana* (Kennel, 1900), *P. reversa* Komai, 1999 and *P. komaiana* Trematerra, 2009 in the male genitalia by having a triangular cucullus (KUZNETSOV, 2005: pl. 47, fig. 5; KOMAI, 1999: fig. 318; TREMATERRA, 2009: fig. 3), but it can be separated from its allies by having the cucullus extending ventrally and forming a narrow band bearing two lines of scale-like setae.

Description: Adult (Fig. 2) wingspan 8.5 mm. Head earthy yellow. Antenna blackish brown basally

and yellow apically on dorsal surface, dark brown on ventral surface. Labial palpus ascending, exceeding upper margin of eye, earthy yellow. Thorax and tegula dark brown, scales earthy yellow tipped. Legs dominantly yellow, mid- and hindlegs with tibiae brown on outer surface, all tarsi blackish brown basally and yellow apically. Forewing slightly widening toward bluntly rounded apex, length slightly longer than two times of maximum width; costa arched towards apex; termen obtuse, with an indistinct notch below apex; dark brown; costa with nine pairs of yellowish strigulae; dark brown band from costa between second and third pair strigulae oblique to middle of discal cell on anterior margin, then slightly extending obliquely inward to basal 1/3 of dorsum, located before median fascia; median fascia indistinct, dark brown, from below third and fourth pair strigulae extending archly to about middle of dorsum; blackish brown band from costa between fourth and fifth pair strigulae oblique to a little beyond upper corner of discal cell, then extending straight to before tornus, located beyond median fascia; leaden streak from below fifth and seventh pair of strigulae respectively, streak below fifth pair strigulae extending to basal 1/3 of M_1 , touching inner edge of ocelloid patch, streak below seventh pair strigulae oblique to notch of termen; ocelloid patch containing 5-6 black dashes, inner edge leaden, vertical above tornus, outer edge absent; several black dashes between two leaden streaks from below seventh pair strigulae to notch of termen, then along termen extending to above tornus; fringe yellowish, blackish grey tipped, basal line blackish brown. Hindwing dark brown, greyish on costal area overlapped by forewing; fringe greyish brown, with blackish brown tips, basal line blackish brown. In male, T4 and T5 with a narrow transverse patch along anterior edge (Fig. 8).

Male genitalia (Fig. 5): Tegumen emarginate at top in lateral view, about 2/3 length of valva. Gnathos a pair of narrow sclerotized bands. Valva with costa almost straight except slightly arched in middle, basal process indistinct; basal cavity well defined, sub-ovate, with long hairs beyond outer margin; neck distinct, approximately 1/2 width of valva at base; cucullus triangular, about 2/5 length of valva, nearly right angled at ventro-basal corner, covered with rows of long fine setae before ventral margin, ventral margin extended, forming a narrow band bearing two lines of scale-like setae. Aedeagus slightly less than 2 times length of cucullus, basal half uniformly thick, thinned from 1/2 to distal 1/3, distal 1/3 uniform; cornuti consisting of a bunch of fine spines (deciduous).

Female unknown.

Distribution: China (Hainan).

Etymology: The specific name is derived from the Latin *vent-* and *extensus*, referring to cucullus with the ventral margin extended and forming a narrow band.

***Parapammene equilata* Lu & Li, sp. n. (Figs. 3, 6, 9)**

Type material. CHINA: Holotype ♂, Jianfengling (18.44°N, 108.52°E), Ledong County, Hainan Province, 770 m, 3-VI-2015, coll. Peixin Cong, Wei Guan and Sha Hu, genitalia slide No. LSH15534.

Diagnosis: This new is similar to *P. selectana* (Christoph, 1881) in the male genitalia by having a sub-rectangular cucullus twice as long as wide. It can be distinguished by the cucullus with ventral 1/4 covered with dense fine setae, which occupies about half width of cucullus in *P. selectana* (KOMAI, 1999: fig. 315), and by the forewing being dark brown, while it is earthy yellow in *P. selectana* (Christoph, 1881) (NASU, 2013: 51, figs. 4-36-38).

Description: Adult (Fig. 3) wingspan 12.0 mm. Head dark brown, scales earthy yellow tipped. Antenna blackish brown. Thorax and tegula dark brown, scales earthy yellow tipped. Legs dark yellow, mid- and hindlegs with tibiae brown on outer surface, all tarsi blackish brown basally and yellow apically. Forewing slightly widening toward bluntly rounded apex, approximately two times of maximum width; costa arched; termen obtuse, with an indistinct notch below apex; dark brown, with leaden streaks; costa with nine pairs of yellowish strigulae, basal two pairs not well-defined; dark brown streak from costa between second and third pair strigulae extending obliquely to middle of discal cell, then extending nearly vertically to basal 1/3 of dorsum, located before median fascia; median fascia leaden, from below third and fourth pair strigulae extending archly to middle of dorsum; dark brown band from costa between fourth and fifth pair strigulae widening to upper corner of discal cell, then slightly narrowed to before tornus, its inner

margin straight, outer margin arched outward medially; leaden streak with light blue gloss from below fifth and seventh pair strigulae respectively, streak below fifth pair strigulae extending to basal 1/3 of R_5 , almost touching inner edge of ocelloid patch, streak below seventh pair strigulae oblique to before notch of termen; between two light blue leaden streaks set a interrupted black streak oblique to below notch of termen; ocelloid patch containing four black dashes, inner edge leaden with light blue gloss, rather wide and vertical above tornus, outer edge thinner, almost parallel to inner one, interrupted in posterior 1/3; fringe grey, blackish grey tipped, basal line blackish grey. Hindwing dark brown, greyish yellow on costal area overlapped by forewing; fringe greyish brown, with dark brown tips, basal line blackish brown. In male, T5 with a transverse patch of blackish scales along its anterior edge (Fig. 9).

Male genitalia (Fig. 6): Tegumen emarginate at top in lateral view, about 2/3 length of valva. Gnathos a pair of narrow sclerotized bands. Valva sub-ovate before neck; costa gently curved, with an indistinct basal process; basal cavity well defined, ovate; neck distinct, more than 1/2 width of valva at base; cucullus sub-rectangular, about twice as long as wide, longer than 1/2 length of valva, obtusely angled at ventro-basal corner, covered with dense fine setae from ventro-basal corner along termen and apex to distal part of costa, with hair-like scales along ventral margin. Aedeagus slightly longer than cucullus, basal 2/3 conspicuously thicker, distal 1/3 uniform; cornuti consisting of a row of fine spines (deciduous).

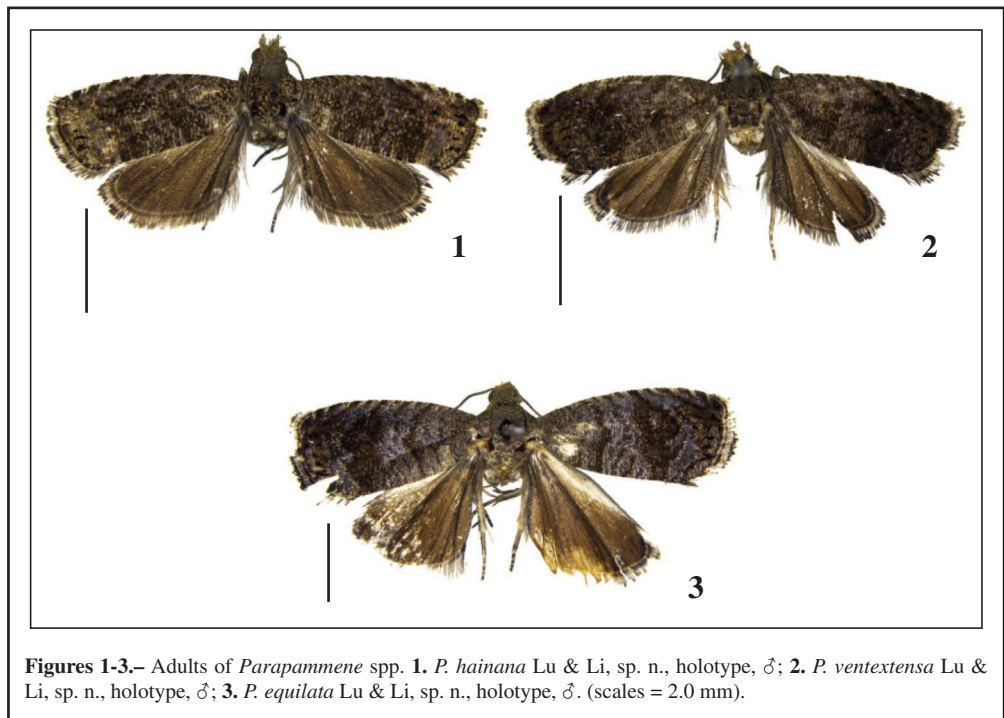
Female unknown.

Distribution: China (Hainan).

Etymology: The specific name is derived from the Latin *equi-* and *latus*, referring to the sub-rectangular cucullus with same width basally and distally.

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Figures 1-3.— Adults of *Parapammene* spp. **1.** *P. hainana* Lu & Li, sp. n., holotype, ♂; **2.** *P. ventextensa* Lu & Li, sp. n., holotype, ♂; **3.** *P. equilata* Lu & Li, sp. n., holotype, ♂. (scales = 2.0 mm).

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