LECITHOCERIDAE (LEPIDOPTERA, GELECHIOIDEA) OF NEW GUINEA,
PART VII: CROCANTHES PANCALA SPECIES COMPLEX

KYU-TEK PARK
The Korean Academy of Science and Technology, #7-1 Gumi-dong, Seongnam, 463-808 Korea

McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History,
University of Florida, Gainesville, FL 32611 USA

ABSTRACT

This is the seventh part in a series on the family Lecithoceridae (Lepidoptera, Gelechioidea) of New Guinea. The Crocanthes pancala species complex in New Guinea and Australia is discussed with descriptions of 4 new species: C. poliozona sp. nov., C. gatoralis sp. nov., C. warmarensis sp. nov., and C. cyclopsana sp. nov., from Papua of Indonesia and Papua New Guinea. These 4 are sibling species to the previously known species, C. pancala Turner from Australia, and they are superficially very similar each other. Adults, labial palpi, spiny zones on the abdominal segments VI-VII, and the male genitalia are illustrated. A key to species is given.

Key Words: Australia, Crocanthes, description, new species, Papua, Papua New Guinea, taxonomy

RESUMEN

Esta es la séptima parte de una serie de trabajos sobre la familia Lecithoceridae (Lepidoptera, Gelechioidea) de Nueva Guinea. Se discute el complejo de especies de Crocanthes pancala en Nueva Guinea y Australia y se describen cuatro nuevas especies: C. poliozona sp. nov., C. gatoralis sp. nov., C. warmarensis sp. nov., y C. cyclopsana sp. nov., de Papua en Indonesia y Papua Nueva Guinea. Estas cuatro son especies hermanas de las especies previamente conocidas, C. pancala Turner de Australia, y son superficialmente muy similares entre sí. Se ilustran los adultos, palpos labiales, las zonas espinosas en los segmentos abdominales VI-VII, y los órganos genitales de los machos. Se provee una clave de las especies.

Crocanthes Meyrick (Gelechioidea, Lecithoceridae) is a tropical genus, comprising 58 described species (Meyrick 1925; Diakonoff 1954; Common 1996), and occurs mainly in northern and eastern Australia, New Guinea (Papua of Indonesia and Papua New Guinea), and its adjacent islands of Indonesia. Adults are small to medium, with wingspans of 11 to 25 mm, and their forewings are brightly colored with yellow, orange or sometimes rosy. One of them, Crocanthes pancala (Turner), known to Australia as an endemic species, has a more typical wing pattern with the similarly variegated maculation on both wings (Figs. 1-5), and is easily separated from congeners. Because of this characteristic variegated wing pattern (Fig. 6), Turner (1919) described a genus, Aprosoesta Turner for pancala Turner, separating it from Crocanthes, but it was later synonymized with Crocanthes (Meyrick, 1925).

In this study, 4 new species are described from material collected from New Guinea (Papua of Indonesia and Papua New Guinea). Externally these new species are very similar to C. pancala but can be distinguished by their male genitalia. All 5 are sibling species and 4 are probably derived from 1 of them. They are morphologically characterized by the following characters: second segment of labial palpus longer than third segment, recurved, smooth-scaled; third segment strongly angled, ending in triangularly dilated shaft, more or less clavate in male but longer than the second in female; both wings have similar maculations with well-developed, yellowish-brown fascia.

MATERIALS AND METHODS

Specimens were examined from the following museums: the U.S. National Museum of Natural History (USNM), Washington, DC, USA (collected in Papua New Guinea by G. F. Hevel & R. E. Dietz IV in 1976, Scott E. & Pamela Miller in 1983, and V. O. Becker in 1992); the Zoological Museum (ZMAN), Amsterdam, The Netherlands (collected in Papua (a present valid name of Irian Jaya) and its neighboring islands of Indonesia in 1993 and 1996). The color standard for the description of adults follows Kornerup and Wanscher (1978), and the morphological terminology follows Gozmány (1978) and Park (2011a, b, and c). Slide numbering follows the numbering system from my work with the Center for Insect Systematics.
Figs. 1-5. Adults, labial palpus, and wing venation of the *Crocanthes pancala* species complex; 1, *C. pancala* (Turner); 1a, ditto, lateral view of labial palpus; 1b, ditto, different view of labial palpus; 2, *C. poliozona* sp. nov., holotype; 2a, ditto, lateral view of labial palpus; 3, *C. warmarenisis* sp. nov., holotype; 4, *C. gatoralis* sp. nov., holotype; 4a, ditto, lateral view of labial palpus; 4b, ditto, different view of labial palpus; 5, *C. cyclopsana* sp. nov., holotype; 5a, ditto, lateral view of labial palpus.
Lecithoceridae of New Guinea - Crocanthes pancala Species Complex

Crocanthes pancala (Turner, 1919) (Figs. 1, 1a, 1b, 6, 7, 7a, 7b, 8, 8a, 8b, and 8c)

Aprosetia pancala Turner, 1919: 151.

Crocanthes pancala; Meyrick, 1925: 231; Common, 1996: 116.

Diagnosis. This species is externally very similar to the following 4 new species, and it can be differentiated from them by the male genitalia: valva moderately elongate, with round outer margin, juxta more or less quadrato, concave on caudal margin; aedeagus stout, slightly shorter than valva, with a single spine of cornutus.

Redescription. Male (Figs. 1, 1a, and 1b). Wingspan, 12-14 mm. Head shiny, orange-white dorsally, posterior part of crown with dark-brown scales. Antenna about 1.2 times longer than forewing length; basal joint slender, dark brown dorsally; flagellum dark brown in basal 1 or 2 segments and in apical 3 and 4 segments, then orange white throughout, with orange-white apex. Second segment of labial palpus gently upturned, dark brown in basal 1/3, with orange-white outer surface and white, shiny inner surface; third segment about 2/5 length of second segment, strongly angled basally, with narrow basal shaft and then dilated into oval-shape with brush-like rough scales apically, dark brown ventrally, orange white dorsally. Tegula orange white anteriorly and posteriorly, with transverse, broad, dark-brown band medially. Thorax orange white, with dark-brown median band connected to that of tegula. Fore- and mid tibia pale orange with brownish rough scales at distal 2/5. Hind tibia orange white with rough, dark-brown scales before middle and at apex; tarsi pale grayish or-
ange. Forewing elongate; ground color orange white to light orange, with several dark-brown fascies: basal line black, disconnected medially; subbasal fascia broad, band-like, running from 1/5 of costa to base of inner margin; a dark-brown discal stigma at middle; a vertical short line between discal spot and postmedian fascia, arising from 2/5 of costa and reaching middle of antemedian fascia, V-shaped; antemedian fascia dark brown, oblique, broad, with a large yellowish-orange spot surrounded brownish circle internally near base and 2 similar sized, round, yellowish spots in upper part of antemedian fascia; postmedian fascia broad, with irregularly convex margin, narrowest at costa; marginal fascia narrow, along termen from apex to tornus, strongly convex medially on inner margin; costa nearly straight; apex sharply produced; termen oblique, concave medially; fringe dark brown on apex and near tornus, light orange along termen, sometimes with dark-brown scales; venation (Fig. 6) with R₁ arising beyond half of cell; R₂ stalked with R₂, absence; M₁ stalked with R₁; M₁ absent; M₃ straightly extends from lower margin of cell; CuA₁ and CuA₂ stalked for basal 1/5; cell open. Hindwing whitish, partly suffused with yellow; basal pair dark brown; median fascia H-shaped, dark brown, with 4 yellowish patches internally; subterminal fascia broad; terminal fascia narrow, along termen; venation with Rs and M₁, separated from half length; M₂ absent; M₃ stalked with CuA₁. Abdominal tergite with dense spinous zones; spinous zones on tergites VI-VII as in Fig. 8c.

Male genitalia (Figs. 7, 7a, 7b, 8, 8a, and 8b): Uncus slender, slightly dilated caudally, concave on caudal margin with lateral lobes produced (some infraspecific variations are found in the apical part of uncus). Tegumen about 2/3 length of valva. Valva moderately elongate; dorsal margin slightly concave medially; ventral margin gently emarginate at basal 1/3; cecullus more or less quadrate with rounded outer margin, with dense, strong setae along near margin. Juxta rectangular; slightly concave on caudal margin (with also some infraspecific variations), with slightly expanded membranous process on lateral margin preapically. Aedeagus slender, slightly shorter than valva; a row of fine dentications obliquely surrounded preapically, about 1/4 length of aedegus; cornutus with a short, strong spine.


 Remarks. This species was described from Kuranda, near Cairns, North Queensland, based on a male and a female specimen, as the type species of the genus *Aprosoesta* Turner (a synonym of *Crocanthes*). Considerable morphological variation is found in the male genitalia, as with comparison in Figs. 7, 7a-b (specimen from Australia, gen. slide no. CIS-5919) and in Figs. 8, 8a-b (specimen from Papua, gen. slide no. CIS-6009), especially the apex of uncus deeply concave or less on caudal margin, valva more elongate or less, and the caudal margin of juxta deeply concave or less. These variable differences can be defined with a further study by molecular analysis when additional specimens become available.

*Crocanthes poliozona* Park, sp. nov. (Figs. 2, 2a, 9, 9a, 9b, and 9c)

Diagnosis. Like the species described above, superficially this species is very close to *C. panca* (Turner), but can be distinguished by the third segment of labial palpus: slender, dark brown entirely, gently arched, with more or less acute apically as in Fig. 2a; and the male genitalia with uncus much shorter, more deeply concave on caudal margin; tegumen shorter than half length of valva; cecullus elongate, more or less triangurally produced; juxta short, deeply emarginate, V-shaped on caudal margin; aedeagus small, shorter than half length of valva, without spine-like cornutus. Female unknown.

Description. Male (2 and 2a). Wingspan, 13-15 mm. Head shiny, orange white on frons and dorsal surface, posterior part of crown dark brown. Antenna about 1.3 times longer than forewing; basal joint slender, dark brown dorsally; flagellum with dark-brown first segment, then orange white, brownish in preapical segments 3 and 4, orange white apically. Second segment of labial palpus gently upturned, dark brown in basal 1/3, then orange white speckled with blackish scales on outer surface; third segment slender, about 2/5 length of second segment, gently upturned, dark brown entirely, with acute apex (without brush-like rough scales apically). Tegula orange white, with yellowish-brown transverse band medially. Thorax orange white to light orange dorsally, transverse median band connected to that of tegula. Fore- and mid tibia pale orange with dark-brown rough scales at apical 1/4. Hind tibia orange white, with rough,
dark-brown or brownish-yellow scales before midian spur and terminally. Forewing markings and venation of both wings similar to those of *C. pancala*. Hindwing also similar to those of the preceding species; fringe dark brown near apex, at end of M₁ and M₂, and near tornus, remains light orange. Abdomen orange white, with dark-brown bands on each segment; with well-developed dark-brown scale-tuft terminally; abdominal tergites with moderate spinous zones, with more than 50 spines on tergites VI-VII respectively (Fig. 9c).

Male genitalia (Figs. 9, 9a, and 9b): Uncus short, strongly emarginate medially on caudal margin. Tegumen shorter than half length of valva. Valva elongate; dorsal margin gently concave medially, then gently arched; cucullus produced trianicularly, with dense, strong setae along near margin. Juxta shield-shaped, strongly emarginate, V-shaped on caudal margin, with membranous lateral expansions medially. Aedeagus small, shorter than half length of valva, without spine-like cornutus.

Holotype: Male, Papua New Guinea, Madang, Brahman Mission 200m, 11-15 x 1992, V. O. Becker Col.; Col. Becker PNG 2973, gen. slide No. CIS-5641/Park. Paratypes: 1♀, same locality as the holotype, CIS-5917/Park (deposited in USNM).


Remarks. The distribution of this species overlaps that of *C. pancala*.

Etymology. The species name is derived from Greek, *polios* (= gray) and *zone* (= belt).

*Crocanthes warmarensis* Park, **sp. nov.** (Figs. 3, 10, 10a, 10b, and 10c)

Diagnosis. This species is distinguished from the preceding species, *C. pancala* (Turner) and *C. poliozona sp. nov.*, by its smaller size. The maculation on both wings are slightly variable within species and cannot serve as a good diagnostic character for identification. The male genitalia are more similar to those of *C. poliozona sp. nov.*, but can be distinguished by the broader, less elongate valva and more or less pentagon-like juxta. Female unknown.

Description. Male (Fig. 3). Wingspan, 11.0 mm. Antenna and labial palpus removed, not available to be described. Forewing more elongate, narrower; apex more sharpenly produced and termen more oblique than that of the latter; ground color orange white; maculation variable. Hindwing with 4 orange-white spots more distinctly developed between submarginal and marginal fascia; fringe with well-developed, brownish subbasal band. Spinous zones on abdominal tergites VI-VII as in Fig. 10c.

Male Genitalia (Figs. 10, 10a and 10b): Uncus short, more deeply emarginate on caudal margin than that of *C. poliozona sp. nov.* Tegumen about 1/2 length of valva. Valva relatively broad, emarginate at basa edially, then slightly arched; cucullus not so produced posteriorly, with dense, strong setae along near margin. Juxta more or less pentagon in caudal half, deeply emarginate, V-shaped on caudal margin, triangularly expanded medially. Vinculum narrow, band-like. Aedeagus small, about 1/2 length of valva, without spine-like cornutus.

Holotype: Male, Indonesia, Papua, Birdshead Peninsula, ZMA-Exp. 1996; Artac Mts. 300 m, Warmare Dua 0°58’S, 133°53’E, 27 ii 1996, at light, Primary Forest Cult. Area, gen. slide. No. CIS-5969 (deposited in RMNH).

Distribution. Indonesia (Papua).

Etymology. The species name is derived from the type locality.

*Crocanthes gatoralis* Park, **sp. nov.** (Figs 4, 4a, 4b, 11, 11a, 11b, and 11c)

Diagnosis. This species is externally similar to *C. warmarensis sp. nov.*, and is hardly distinguishable from it, but the forewing ground color is pale orange and the hindwing has a distinct zigzag, orange-white line between submarginal and marginal fascia. This new species can be distinguished from the preceding 3 species by the male genitalia, especially the more slender, elongate valva with apical spine at apex of the cucullus, and distinctly bifurcate uncus. The male genitalia of this new species are similar to those of *C. cyclopsana sp. nov.*, but can be distinguished as noted in the following new species. Female unknown.

Description. Male (Figs. 4, 4a, and 4b). Wingspan, 10.0-12.0 mm. Head brownish on frons and dorsal surface. Antenna with dark-brown basal segment; flagellum orange white throughout, except dark-brown basal segment. Second segment of labial palpus brownish in basal 1/3 and silvery white beyond; third segment as long as sally and brush-like scales apically. Forewing ground color pale orange; maculation slightly variable; postmedian fascia forms distinctly 8-shaped. Hindwing with well-defined, orange white, zigzag line between submarginal fascia and marginal fascia. Spinous zones on abdominal tergites VI-VII as in Fig. 11c.

Male genitalia (Figs. 11, 11a, and 11b): Uncus bifurcate, U-shaped on caudal margin; lateral arms slender, as long as uncus. Tegumen moderately long, about ng, elongate; dorsal margin gently concave beyond middle, then gently arched, forming nearly sigmoid; ventral margin nearly straight before middle, then curved; cucullus elongate, sharply produced apically, with spine-like apical process, with dense, strong setae along near margin. Juxta quadrate, with long concavity medially, with tongue-shaped median flap and tri-
Figs. 10-12. Male genitalia of Crocanthes (a: aedeagus; b: close-up of juxta; c: spinous zones on abdominal segments VI-VII). 10, C. warmaresis sp. nov., gen. slide no. CIS-5969 (holotype); 11, C. gatoralis sp. nov., gen. slide no. CIS-5970, holotype; 12, C. cyclopsana sp. nov., gen. slide no. CIS-5972, holotype.
angular membranous lateral lobes medially, slightly concave on caudal margin. Vinculum narrow, band-like. Aedeagus stout, tapered to apex, about 3/4 length of valva; cornuti consist of a row of 17-20 short spines.

Holotype: Male, Indonesia, Papua, Birdshead Peninsula, ZMA-Exp., 1996; Depapre, 560 m, at light, 11 ters

Crocanchys cyclopsana

Park, sp. nov. (Figs. 5, 5a, 12, 12a, 12b, and 12c)

Diagnosis. This species is similar to C. gatoralis sp. nov. in external and male genital characters. It can be distinguished by the male genitalia in that the uncus has a narrower basal stalk and less slender lateral arms, shorter than d aedeagus more stout than that of the latter, cornuti consist of 12 - 13 spines. Female unknown.

Description. Male (Figs. 5 and 5a). Wingspan, 11.0 mm. Head silvery white on frons, brownish dorsally. Antenna and labial palpus similar to those of C. gatoralis sp. nov. Second segment of labial palpus more slender and basal part darker than that of C. gatoralis. Forewing ground color orange white, with more distinct 8-shaped postmedian fascia. Hindwing with also similar orange-white, zigzag line between submarginal and marginal fascia. Hindwing nearly straight before middle, then curved; ventral margin nearly straight before middle, then curved; cucullus elongate, with spine-like apical process, with dense, strong setae along near margin. Juxta quadrate, long, concave medially, tongue-shaped median flap and triangular membranous lateral lobes, slightly concave on caudal margin. Vinculum band-like. Aedeagus stout, about 2/3 length of valva; cornuti consist of a row of 11-12 short spines.


Distribution. Indonesia (Papua).

Etymology. The species name is derived from the type locality, Cyclops Mts.

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