

# LECITHOCERIDAE (GELECHIOIDEA, LEPIDOPTERA) OF NEW GUINEA PART X: REVIEW OF THE GENUS *SARISOPHORA*, WITH DESCRIPTIONS OF SEVEN NEW SPECIES

Kyu-Tek Park<sup>1,2</sup>

<sup>1</sup>The Korean Academy of Science and Technology, Korea; <sup>2</sup>McGuire Center for Lepidoptera and Biodiversity, University of Florida, Gainesville, FL 32611 USA.  
E-mail: keitpark22@gmail.com

**Abstract** - The genus *Sarisophora* Meyrick in New Guinea is reviewed, including descriptions of seven new species from Papua New Guinea: *S. pyrrhotata*, *S. beckerina*, *S. hadroides*, *S. melanotata*, *S. notornis*, *S. designata*, and *S. cyanostigmatis*. There are no known species in the Indonesian part of New Guinea. Adults and genitalia of all known species, except two previously known species whose types are unknown, are illustrated. A tentative check list of the genus from New Guinea is provided.

**Key words:** New species, Papua New Guinea, Indonesia, *Sarisophora*, taxonomy,

## INTRODUCTION

The genus *Sarisophora* Meyrick, 1904 was described based on *S. leptoglypta* Meyrick, 1904, separating from *Lecithocera* Herrich-Schäffer by the absence of the vein  $M_2$  in the hindwing. The genus comprises 25 species worldwide; nine species known from Australia, nine species from New Guinea, three species from the Mediterranean, and four species from the Palaearctic Region. However, the generic status of *Sarisophora* Meyrick has been uncertain, due to some misreading for  $M_2$  as  $M_3$  on the hindwing, and it is sometimes treated as a synonym of *Lecithocera*. The main issue for the confusion is whether the vein  $M_2$  of the hindwing can be a key character separating these genera. It is well known that the hindwing venation is a very important taxonomic character to define the generic status in the family Lecithoceridae. Gozmány (1978) and Wu (1997) followed Meyrick (1925), treating *Sarisophora* as a valid genus, on the other hand, Diakonoff (1954) placed all related species in a single genus, *Lecithocera*. Park (1999) also treated it as a synonym of *Lecithocera*, giving examples of the variation of the vein  $M_2$  and  $M_3$  in the hindwing and emphasizing the importance of the combination of other morphological characters for the genus-level taxonomy in the family.

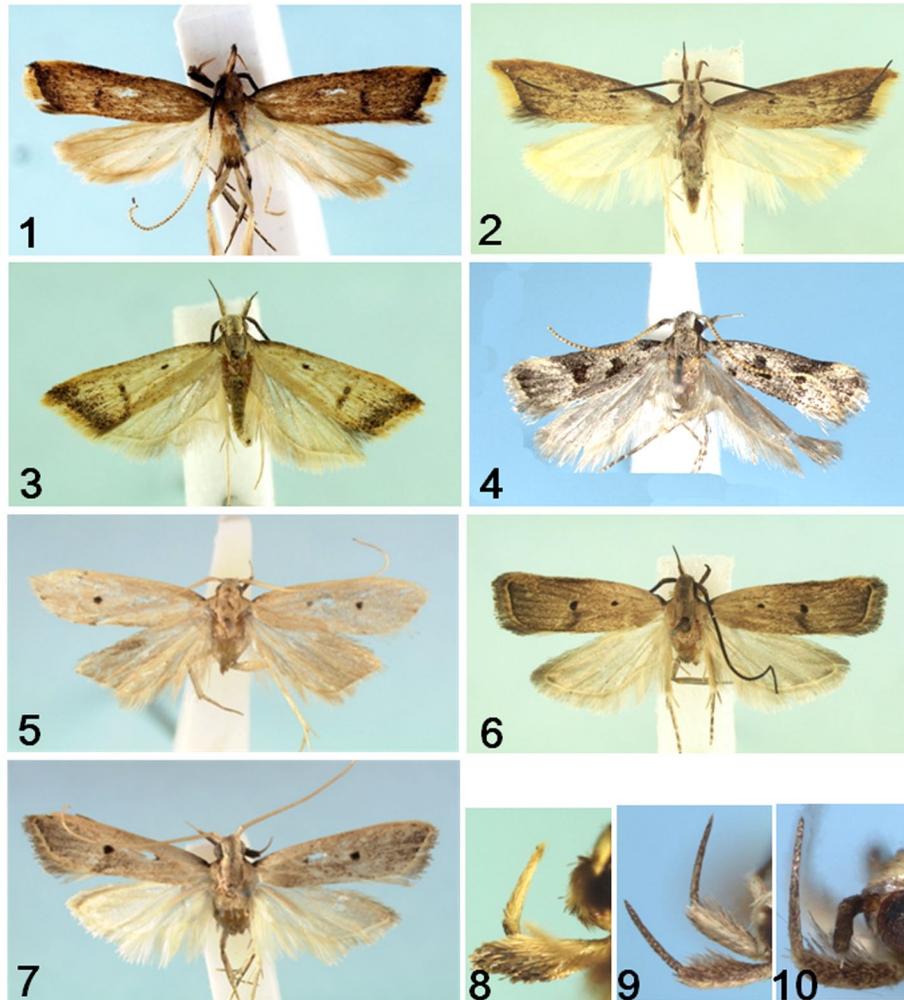
Through studies on the series of Lecithoceridae in New Guinea, the author realized that the absence of  $M_2$  on the hindwing in *Sarisophora* is a very stable character, distinguishing from *Lecithocera*, and the genus *Sarisophora* is resurrected as a valid genus in this paper. The current series identifies undetermined material that was collected in New Guinea and is preserved in the US National Museum of Natural History, USA. In New Guinea, only two species of *Sarisophora*, *S. tamiodes* and *S. praecentrix*, were described by Meyrick (1910, 1931), but the types have not been found and are probably lost. For the species whose types could not be found, interpretation of the species was based solely on the original descriptions, including their size, the labial palpus, and wing venation. There are no known species in the Indonesian part of New Guinea. A check list for all known species from New Guinea with their type localities, depositories of types, and distributions, is provided.

## MATERIALS AND METHODS

Specimens examined are from the US National Museum of Natural History (USNM), Washington, D.C., USA, which were collected by Scott E. and Pamela Miller in 1983 and Vitor O. Becker in 1992 in Papua New Guinea. The wingspan is measured from the left wing apex to the right wing apex, including fringe. Images of adults, genitalia and wings were captured with the Automontage Microscopic System at the Florida State of Collection of Arthropods, Division of Plant Industry, Gainesville, Florida, USA. The color standard for the description of adults follows Kornerup and Wanscher (1978), and the morphological terminology follows Gozmány (1978) and Park (2011). Types of the new species are deposited in the USNM, on indefinite loan from Papua New Guinea.

## CHECKLIST OF *SARISOPHORA* IN PAPUA NEW GUINEA

1. *S. beckerina* Park, **sp. nov.**  
TL: Biaro Rd., Morobe. Type in USNM.
2. *S. cyanostigmatis* Park, **sp. nov.**  
TL: Wau, Morobe. Type in USNM.
3. *S. designata* Park, **sp. nov.**  
TL: Wau, Morobe. Type in USNM.
4. *S. hadroides* Park, **sp. nov.**  
TL: Wau, Morobe. Type in USNM.
5. *S. melanotata* Park, **sp. nov.**  
TL: Wau, Morobe. Type in USNM.
6. *S. notornis* Park, **sp. nov.**  
TL: Wau, Morobe. Type in USNM.
7. *S. praecentrix* Meyrick, 1931: 78.  
TL: Hydrographer Mts. Type unknown.
8. *S. pyrrhotata* Park, **sp. nov.**  
TL: Wau, Morobe. Type in USNM.
9. *S. tamiodes* Meyrick, 1910: 445.  
TL: Sudest Is., St. Aignan Is. Type unknown.



Figs. 1-12. Adults and variable shapes of the labial palpi. Adults: 1, *S. pyrrhotata* Park, **sp. nov.**; 2, *S. beckerina* Park, **sp. nov.**; 3, *S. haroides* Park, **sp. nov.**; 4, *S. melanotata* Park, **sp. nov.**; 5, *S. notornis* Park, **sp. nov.**; 6, *S. designata* Park, **sp. nov.**; 7, *S. cyanostigmatis* Park, **sp. nov.**; Variable shapes of the labial palpi: 8, *S. pyrrhotata* Park, **sp. nov.**; 9, *S. beckerina* Park, **sp. nov.**; 10, *S. notornis* Park, **sp. nov.**

SYSTEMATICS

**Genus *Sarisophora* Meyrick, 1904, rev. stat.**

Proc. Linn. Soc. N.S.W. 29: 256. Type-species: *Sarisophora leptoglypta* Meyrick, 1904: 404. TL: Queensland, Australia.

**Key to species of *Sarisophora* Meyrick in New Guinea, based on external characters (except *S. praecentrix* Meyrick and *S. tamiodes* Meyrick)**

- 1. Forewing with dark-brown terminal fascia; apex more or less acute; fringe golden yellow to pale orange; antenna dark brown in the basal part and in the apical part ----- 2
  - Forewing with terminal fascia not developed; apex moderate; fringe various color, not golden yellow or pale orange; antenna same color throughout ----- 4
- 2. Forewing ground color reddish orange; 2nd segment of labial palpus with rough scales ventrally ----- ***S. pyrrhotata* sp. nov.**
  - Forewing ground color pale orange to orange white; 2nd segment of labial palpus with rough scales dorsally ----- 3
- 3. Wingspan more than 16 mm; forewing with weakly developed brownish terminal fascia; hindwing silvery white ----- ***S. beckerina* sp. nov.**
  - Wingspan less than 14 mm; forewing with well-developed, dark-brown terminal fascia; hindwing orange white ----- ***S. haroides* sp. nov.**
- 4. Forewing with various large blackish markings; wingspan less than 12 mm ----- ***S. melanotata* sp. nov.**
  - Forewing without distinct markings; Wingspan more than 13 mm ----- 5
- 5. Antenna dark fuscous throughout; forewing ground color brownish ----- ***S. designata* sp. nov.**
  - Antenna orange white or pale orange; forewing ground color pale orange to orange gray ----- 6
- 6. Hindwing with uniquely specialized venation:  $R_s$  and  $M_1$  stalked before half length of wing,  $M_1$  unusually terminated beyond half of termen; with a row of adherent scale-tuft along  $M_3+C$  uA<sub>1</sub> ----- ***S. cyanostigmatis* sp. nov.**
  - Hindwing with normal venation of the genus:  $R_s$  and  $M_1$  stalked beyond cell,  $M_1$  usually terminated before half of termen; without such scales ----- ***S. notornis* sp. nov.**

***Sarisophora pyrrhotata* Park, sp. nov.**

(Figs. 1, 8, 11, 11a-b, 18, 18a)

**Diagnosis:** This new species is distinguished from congeners by the antenna dark brown in the basal 1/5 length and in the apical 1/5 length, and the male genitalia with a characteristic semiovalate projection on the ventral margin of the valva.

**Description:** Male and female. Wingspan, 16-17 mm. Head orange white to grayish orange. Antenna with slender, brownish basal segment; flagellum dark brown in basal 1/5 length and also dark brown in apical 1/5 length, pale brownish orange between them; apex orange white. Second segment of labial palpus thickened, with rough, projected scales ventrally, dark brown on outer surface, paler on inner surface; 3<sup>rd</sup> segment shorter, about 3/5 length of 2<sup>nd</sup> segment, orange white dorsally, dark brown ventrally (Fig. 8). Forewing elongate; ground color orange white, uniformly speckled with brownish or dark-brown scales, more dense distally; costa with short, blackish streak basally and short, reddish-orange streak beyond 3/5 length; a dark-brown round stigma at end of cell, weakly suffused with brownish scales extending to inner margin; dark-brown terminal fascia well developed; apex obtuse; termen oblique, sinuate; fringe more or less reddish, dark brown near apex; venation similar to those of other *Lecithocera*: R<sub>1</sub> arising from about middle of cell; distance between R<sub>1</sub> and R<sub>2</sub> about 1.5 times length of R<sub>2</sub> and R<sub>3</sub>; R<sub>3</sub> free; R<sub>4</sub> and R<sub>5</sub> stalked beyond middle; R<sub>5</sub> reaching termen; M<sub>1</sub> remote; M<sub>2</sub> and M<sub>3</sub> free; CuA<sub>1</sub> and CuA<sub>2</sub> stalked for basal 1/5 length. Hindwing orange white; venation with M<sub>2</sub> absent; M<sub>3</sub> connate with CuA<sub>1</sub> at base. Hind tibia thickened, pale grayish orange, with rough scales ventrally.

Male genitalia (Fig. 11, 11a-b). Basal lobes of uncus semiovalate, directed outwardly. Median process of gnathos strongly bent medially. Costal bar angled medially. Cucullus narrowed towards apex, with semiovalate projection and plate of comb-like bristles near lower corner, followed by 2-3 rows of short bristles along ventral margin; sacculus extended to median semiovalate projection. Juxta with triangular, acute projection anteriorly. Vinculum with round apex. Aedeagus very stout, nearly straight, about 2/3 length of valva, broader towards base, triangularly pointed apically, with two bundles of brush-like hairs near apex. Abdomen without spinous zones on terga.

Female genitalia (Figs 18, 18a). Abdominal sternite VIII sclerotized, slightly concave on caudal margin, dense setae along margin and sparsely on surface. Apophyses anteriores thick, longer than 2/3 length of apophyses posteriores. Antrum short, quadrate, sclerotized. Ductus bursae narrowed posteriorly, then about half length weakly sclerotized with 4-6 different length of leaf-shaped sclerites, and anterior half membranous. Corpus bursae elongate, about 1.5 times length of ductus bursae, posterior half elongate and anterior half ovate; signum consists of two plates: larger one irregularly shaped, located in middle, with about 10 short cone-shaped spines, and smaller one diamond-shaped anteriorly, with four similar spines.

**Holotype:** ♂, Papua New Guinea- Morobe, Wau, Wau Ecol. Inst., 1-10 viii 1983, S.E. & P.M. Miller, 1200m, UV light, Montane Forest., gen. slide no. CIS-5787/Park. Paratypes: 1♀, same locality, 25-31 vii 1983, gen. slide no. CIS-5791/Park; 1♂, Papua New Guinea, Morobe, Wau 1000 m, 17-30ix 1992, V.O. Becker coll; Col. Becker 842, gen. slide no. CIS-5789/Park

**Distribution:** Papua New Guinea (Morobe).

**Etymology:** The species name is derived from the Greek "pyrrho" (= reddish orange), with Greek superlative ending, -tatos.

***Sarisophora beckerina* Park, sp. nov.**

(Figs. 2, 9, 12, 12a-b)

**Diagnosis:** This species is distinguished from *S. pyrrhotata* sp. nov. by the sharply produced apex of the forewing, the antenna dark brown in the basal 1/3 length and beyond 2/3 length, the hindwing whitish, and the different wing venations: the forewing with R<sub>3</sub> stalked with R<sub>4</sub>, and the hindwing with M<sub>3</sub> free. The male genitalia have more easily distinguishable characters.

**Description:** Male. Wingspan, 16-17 mm. Head orange white to grayish orange. Antenna with slender grayish-orange basal segment; flagellum dark brown in basal 1/5 length, then orange white medially, and dark brown in apical 1/3 length, with blackish apex. Second segment of labial palpus thickened, with rough, hair-like scales dorsally, grayish orange speckled with dark-brown scales on outer surface, orange white on inner surface; 3<sup>rd</sup> segment as long as 2<sup>nd</sup> segment or shorter, brownish all around, with acute apex (Fig. 9). Forewing elongate; ground color orange white, speckled with dark-brown scales; dark-brown terminal fascia weakly developed; costa dark brown in basal 2/5 length, then

reddish orange beyond on anterior edge; two discal stigmata present, first one elongate, and 2<sup>nd</sup> one larger, rounded, at end of cell; apex sharply produced; termen more or less falcate; fringe pale orange, yellowish brown near apex and brownish near tornus; venation differs from that of *pyrrhotata* sp. nov. by R<sub>1</sub> and R<sub>4</sub> stalked; R<sub>3</sub> stalked with R<sub>4</sub> near middle; R<sub>4</sub> and R<sub>5</sub> stalked beyond 3/4 length; R<sub>5</sub> reaching termen; M<sub>1</sub> remote; M<sub>2</sub> and M<sub>3</sub> free; CuA<sub>1</sub> and CuA<sub>2</sub> stalked for basal 1/5 length. Hindwing silvery white; venation with M<sub>2</sub> absent; M<sub>3</sub> free from CuA<sub>1</sub> at base. Hind tibia normally slender, orange white, with rough scales dorsally. Female unknown.

Male genitalia (Figs. 12, 12a-b). Similar to the following new species, *S. hadroides* sp. nov. Costal bar slightly angled medially. Cucullus elongate, shorter than basal part of valva, narrowed towards apex, with strong bristles near lower base of cucullus. Juxta concave on caudal margin. Aedeagus very stout, as long as valva, with a pair of short spine apically; cornuti consists of a large sac containing numerous spinules and a narrow, slightly arched, sclerotized rod with a triangular projection medially. Abdomen without spinous zones on terga.

**Holotype:** ♂, Papua New Guinea- Col. Becker PNG 2215, Morobe, Biaro Rd., 2000 m, 25 ix 1992, VO Becker Col., gen. Side no. CIS-5775/Park. Paratype: 1♂, same data as the holotype.

**Distribution:** Papua New Guinea (Morobe).

**Etymology:** The species name is named in honor of the Dr. Vitor O. Becker who is a Brazilian lepidopterist and collected type material.

***Sarisophora hadroides* Park, sp. nov.**

(Figs. 3, 11, 13, 13a-b)

**Diagnosis:** This species is distinguished from *L. pyrrhotata* sp. nov. and *L. beckerina* sp. nov. by the smaller size with distinct, broad yellowish-brown terminal fascia along the termen. The male genitalia of all three species are very similar to one another.

**Description:** Male. Wingspan, 13.0-14.0 mm. Head orange white to pale orange. Antenna with slender basal segment, dark brown dorsally; flagellum stout, blackish in basal 1/4 length and also blackish in apical 1/6 length, with whitish apex. Second segment of labial palpus thickened, rather long, nearly straight, with hair-like rough scales dorsally, dark brown on outer surface, orange white on inner surface; 3<sup>rd</sup> segment as long as 2<sup>nd</sup> segment, strongly angled, dark brown (Fig. 11). Tegula dark brown in anterior half, orange white in posterior half. Thorax orange white. Forewing ground color pale orange, uniformly speckled with brownish scales and dark-brown scales along costa in basal half; a broad, dark-brown terminal fascia well-developed; two dark-brown discal stigmata present, first one elongate, at middle, and 2<sup>nd</sup> one smaller, at end of cell, weakly suffused with brownish scales extending to inner margin; apex obtuse; termen oblique, sinuate; fringe pale orange speckled brownish scales, more brownish near apex and near tornus; venation with R<sub>1</sub> arising from about middle of cell; distance between R<sub>1</sub> and R<sub>2</sub> about 2 times length of R<sub>2</sub> and R<sub>3</sub>; R<sub>3</sub> stalked with R<sub>4</sub> near middle; R<sub>4</sub> and R<sub>5</sub> stalked beyond 3/4; R<sub>5</sub> reaching termen; M<sub>1</sub> nearly parallel with M<sub>2</sub>; CuA<sub>1</sub> and CuA<sub>2</sub> stalked for basal 1/5 length. Hindwing orange white; venation with Rs and M<sub>1</sub> short-stalked; M<sub>2</sub> absent; M<sub>3</sub> connate with CuA<sub>1</sub> at base. Hind tibia orange white, with rough scales dorsally.

Male genitalia (Figs 13, 13a-b). Similar to those of *S. beckerina* sp. nov. Median process of gnathos relatively narrow, small. Costal bar gently arched, not strongly angled medially. Cucullus elongate, with dense hairs on surface; costa concave basally; ventral margin with a long row of bristles along margin; apex slightly produced; sacculus broadly developed, extending to 2/5 length of ventral margin. Juxta shield-shaped, slightly concave on caudal margin, with triangular projection anteriorly. Aedeagus very stout, slightly shorter than valva, broadened at base; cornutus heavily sclerotized, as long as 2/3 of aedeagus, with small triangular projection near base dorsally. Abdominal segment VII well-modified as in Fig. 13b, with a coremata of long hair-pencils. Abdomen without spinous zones on terga.

**Holotype:** ♂, Papua New Guinea- Col. Becker PNG 846, Morobe, Wau, 1000 m, 17-30 ix 1992, V.O. Becker Col., gen. slide no. CIS-5800/Park. Paratypes: 6♂, same data as the holotype; 1♂, Morobe Pr., Wau, Wau Ecol. Inst., 23-31 viii 1983, S.E. & P.M. Miller, 1200m, Second Montane Forest., gen. slide no. CIS-5799/Park; 1♂, same locality as the preceding specimen, 1-10 viii 1983; 1♂ Morobe, near Bulolo, Mt. Susunat. Res. 975 m, 27-28 viii 1983, S. Miller, *Araucaria* For.

**Distribution:** Papua New Guinea (Morobe).

**Etymology:** The species name is derived from the Greek, *hadro* (= thick, stout), with Greek suffix, -odes, referring the antenna with stout basal part in the flagellum.

**Remarks:** This species seems allied to *S. tamiodes* Meyrick, 1919, according to its original description, by having the antenna blackish in the basal 3<sup>rd</sup> and in the apical part, the forewing with similar ground color and distinct discal stigmata, and the hindwing venation with  $M_2$  absent. However, it is much smaller; the blackish part of the antenna is shorter than that of *tamiodes* Meyrick, and the labial palpus is more slender.

***Sarisophora melanotata* Park, sp. nov.**

(Figs 4, 14, 14a-b, 19, 19a)

**Diagnosis:** This species is one of the smallest species of the genus and characterized by the forewing pattern with large black patches, instead of discal stigmata. The male genitalia are distinguished from congeners by having club-shaped processes posteriorly.

**Description:** Wingspan, 11.5-12.0 mm. Head covered with grayish-orange scales dorsally, with erected orange-white scales laterally. Antenna with slender, orange-white basal segment; flagellum orange white with dark-brown annulations throughout. Second segment of labial palpus thickened, with rough scales, dark brown on outer surface, paler on inner surface; 3<sup>rd</sup> segment slightly arched, as long as 2<sup>nd</sup> segment, orange white dorsally, dark brown ventrally. Tegula orange gray, speckled with blackish scales. Thorax orange gray. Forewing elongate, slightly dilated posteriorly; ground color orange gray, uniformly speckled with dark-brown scales; costa nearly straight, with blackish streak near base, elongate blackish costal patch beyond 2/3 length; two large blackish patches well-developed: first one L-shaped, at 1/3 length of wing centrally; 2<sup>nd</sup> one trapezoid, smaller, at end of cell; postmedian fascia indistinctly marked, concave on outer margin, followed by paler colored zone; apex obtuse; termen oblique, slightly sinuate; fringe with narrow orange-white basal line and brownish-gray median band; venation with  $R_1$  arising before middle; distance between  $R_1$  and  $R_2$  nearly equal to that of  $R_2$  and  $R_3$ ;  $R_3$  approximate to  $R_{4+5}$  at base;  $R_4$  and  $R_5$  stalked beyond middle;  $R_5$  reaching termen;  $M_1$  nearly parallel with  $M_2$ ;  $M_2$  nearer  $M_3$  than  $M_1$  at base;  $CuA_1$  and  $CuA_2$  short-stalked. Hindwing grayish white; apex acute; termen oblique, slightly sinuate; fringe concolorous; venation with Rs and  $M_1$  short-stalked;  $M_2$  absent;  $M_3$  and  $CuA_1$  nearly connate;  $CuA_2$  arising from beyond 2/3 length of cell.

Male genitalia (Figs. 14, 14a-b). Uncus with ovate basal lobes. Median process of gnathos strongly bent beyond 2/3 length. Tegumen characterized by having club-shaped processes posteriorly. Costal bar gently arched, slightly angled medially. Valva elongate, with concave costa; cucullus elongate, arched upward, with long bristles irregularly scattered in conjunction near base; apex sharply produced; ventral margin gently arched, with less than 10 minute bristles along margin, followed by hair-like setae along outer margin; sacculus sclerotized, extending to lower corner of cucullus. Juxta concave on caudal margin, with semioval lateral lobes and a sharp projection anteriorly. Aedeagus very slender, as long as valva; cornutus absent. Abdominal segments VII-VIII well-modified as in Fig. 14b, without coremata. Abdomen without spinous zones on terga.

Female genitalia (Figs. 19, 19a). Caudal margin of abdominal sternite VIII emarginated medially with crescent lateral lobes. Apophyses anterior longer than half of apophyses posteriors. Antrum cup-shaped, with acute apices laterally. Ductus bursae narrow. Corpus bursae elongate, longer than ductus bursae; signum absent.

**Holotype:** ♂, Papua New Guinea- Morobe Prov., Wau, Wau Ecol. Inst., 1200 m, 12-24 vii 1983, S.E. & P. M. Miller, UV light, Montane For., gen. slide no. CIS-6034/Park. Paratypes: 1 ♂, same locality, 1-10 viii 1983, gen. slide no. CIS-6031, wing slide no. CIS-6036/Park/Park; 1 ♀, W. Hhl Prov., nr. Mt. Hagen, Kuk Agr. Res. Stn., 1600 m, UV light, 19-20 viii 1983, Scott E. & Pamela Miller, gen. slide no. CIS-6035/Park

**Distribution:** Papua New Guinea (Morobe).

**Etymology:** The species name is derived from the Greek, *melan* (= black), with Greek superlative ending, *-tatos*, referring to the blackish marks on the forewing.

***Sarisophora notornis* Park, sp. nov.**

(Figs 5, 10, 15, 15a-b)

**Diagnosis:** This species is externally similar to *S. cyanostigmatis* sp. nov., but the size is smaller. The hindwing has a unique character with  $M_3$  and  $CuA_1$  coincident, differentiating from congeners.

**Description:** Wingspan, 13 mm. Head orange white to pale grayish orange dorsally. Antenna orange white throughout. Second segment of labial palpus thickened, with appressed scales dorsally and rough scales ventrally, brownish on outer surface; 3<sup>rd</sup> segment shorter than 2<sup>nd</sup> segment, strongly angled and recurved (Fig. 10). Forewing slightly dilated posteriorly; pale grayish orange, with distinct, blackish, round discal stigmata, first one before middle and the other larger one at end of cell; costa with short, blackish streak basally, strongly arched beyond 2/3 length; apex obtuse; termen oblique; venation with  $R_1$  arising from before middle;  $R_2$  arising from middle between  $R_1$  and  $R_3$ ;  $R_3$  free,  $R_4$  and  $R_5$  stalked for basal 2/3 length;  $R_5$  reaching termen;  $M_1$  remote from  $R_{4+5}$ ,  $M_2$  nearer  $M_3$  than  $M_1$  at base;  $CuA_1$  and  $CuA_2$  stalked for basal 1/6 length, arising from near lower corner of cell. Hindwing quadrate, slightly broader than forewing, pale grayish orange, covered with dense setae-like scales throughout; brownish longitudinal fascia above Rs vein beyond middle of wing; costa nearly straight; apex acute; termen oblique, slightly sinuate; fringe concolorous; venation with Rs and  $M_1$  connate;  $M_2$  absent;  $M_3$  and  $CuA_1$  coincident;  $CuP$  arising from base, running nearly parallel to  $CuA_2$ . Female unknown.

Male genitalia (Figs 15, 15a-b). Generally similar to those of the following two new species. Basal lobes of uncus triangular, caudal edge sclerotized, nearly straight. Median process of gnathos relatively small. Valva broad at base; cucullus elongate with nearly straight costa, with short bristles along ventral and outer margin; ventral margin strongly arched outwardly at basal 1/5 length, with median broad expansion bearing dense setae; apex rounded. Juxta deeply concave on caudal margin, with digitate caudal lobes. Vinculum with round apex. Aedeagus slightly shorter than valva, slightly bent medially, bifurcate apically; cornuti consist of a sclerotized plate, edging with a sac containing numerous spinules. Abdomen without spinous zones on terga.

**Holotype:** ♂, Papua New Guinea- Morobe Prov., Wau, Wau Ecol. Inst., 1200 m, 1-10 viii 1983, S.E. & P. M. Miller, UV light, Montane For., gen. slide no. CIS-5782/Park.

**Distribution:** Papua New Guinea (Morobe).

**Etymology:** The species name is derived from the Latin, *notios* (= southern).

**Remarks:** This species has somewhat unusual hindwing venation, with  $M_3$  and  $CuA_1$  coincident, but it belongs to the genus *Sarisophora*, due to no remarkable different characters from the genus.

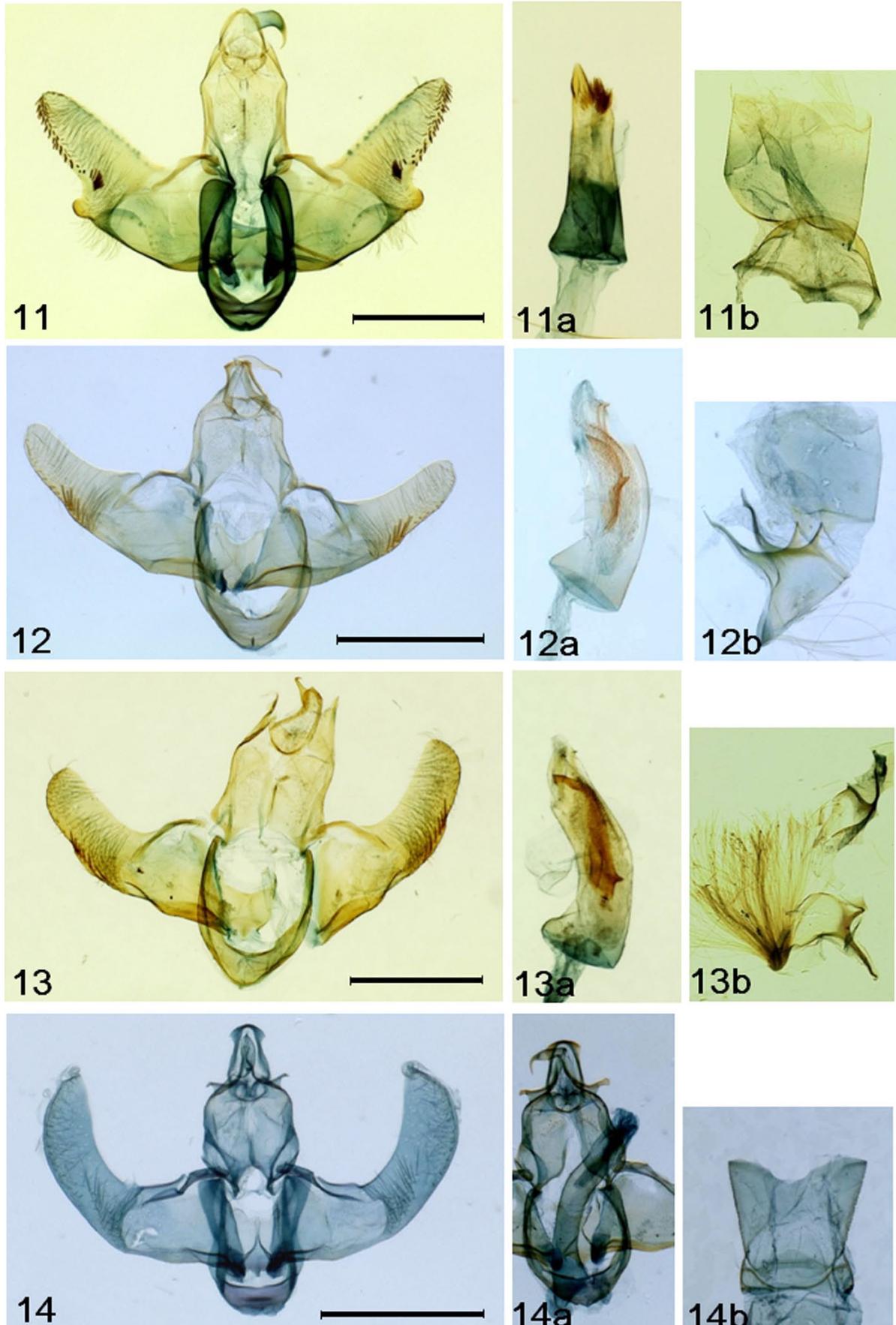
***Sarisophora designata* Park, sp. nov.**

(Figs 6, 16, 16a-b)

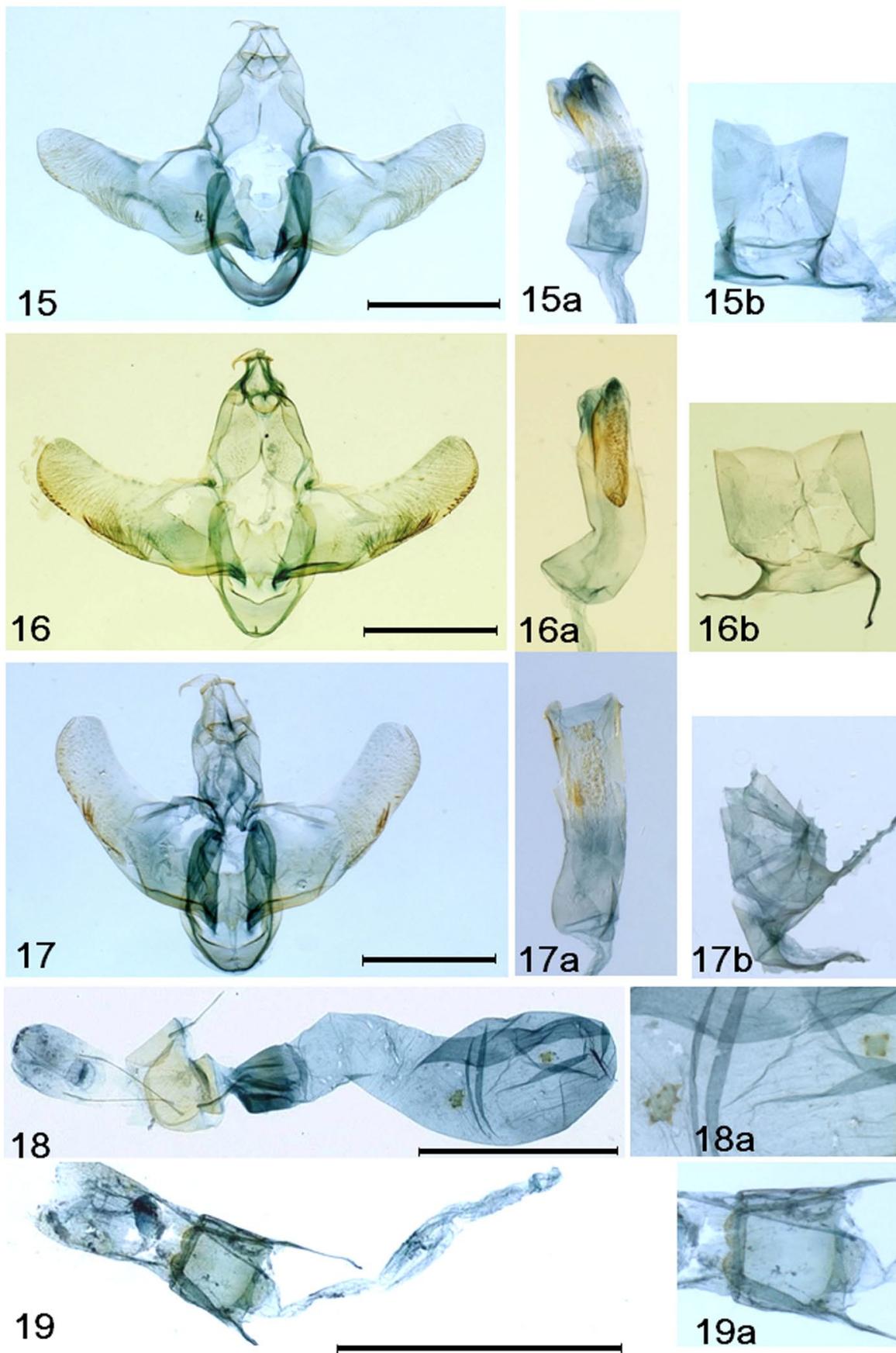
**Diagnosis:** This species is superficially differentiated from congeners by the thick, dark-brown antenna. The hindwing also has a unique, somewhat specialized venation as in the following description. The male genitalia are very similar to those of the following new species *L. cyanostigmatis*.

**Description:** Male. Wingspan, 13 mm. Head pale grayish orange. Antenna thickened, dark brown throughout. Second segment of labial palpus thickened, yellowish brown on outer surface, orange white on inner surface; 3<sup>rd</sup> segment slender, recurved, shorter than 2<sup>nd</sup>, yellowish brown all around. Tegula pale grayish orange dorsally, with dark-brown scales anteriorly. Thorax pale grayish orange. Forewing elongate; ground color orange gray to brownish with brownish scales sparsely scattered, more dens in posterior portion; two blackish large discal stigmata present, one before middle and the other at end of cell; brownish suffusion extending from the second stigma to inner margin; costa gently arched in basal 1/3 length, then nearly straight; apex obtuse; termen slightly oblique, with dark-brown scales along margin; fringe brownish orange with pale orange line; venation with  $R_1$  arising from near middle; distance between  $R_1$  and  $R_2$  almost twice length of  $R_2$  and  $R_3$ ;  $R_3$  stalked with  $R_4$  beyond middle;  $R_4$  and  $R_5$  stalked for basal 3/5 length;  $R_5$  reaching termen;  $M_1$  arising from middle between  $M_2$  and  $CuA_1$  at base;  $CuA_1$  and  $CuA_2$  stalked for basal 1/5 length. Hindwing pale orange gray, broader than forewing; apex less acute; termen oblique, slightly sinuate; fringe concolorous with paler basal line; venation with Rs approximate to  $M_1$  at base, not stalked; a oblique cross vein from base of  $M_1$  towards base;  $M_2$  absent;  $M_3$  nearly parallel with  $M_1$ ;  $M_3$  and  $CuA_1$  coincident;  $M_3$  and  $CuA_2$  running closely together from near base. Female unknown.

Male genitalia (Figs 16, 16a-b). Basal lobes of uncus small, rounded. Median process of gnathos relatively short, bent preapically. Tegumen rather broad. Costal bar connecting tegumen and valva gently angulate at middle. Cucullus elongate; costa slightly concave medially; ventral margin with narrow expansion near base, bearing a row of setae and bristles, followed by more than 20 short bristles along margin; apex obtuse. Vinculum broadly developed.



Figs. 11-14. Male genitalia (a: Aedeagus, b: Abdominal segments VII-VIII): 11, *S. pyrrotata* Park, **sp. nov.**, holotype; 12, *S. beckerina* Park, **sp. nov.**, holotype; 13, *S. haroides* Park, **sp. nov.**, holotype; 14, *S. melanotata* Park, **sp. nov.**, male, holotype. Scale bar: 0.5 mm.



Figs. 15-19. Male and female genitalia. Male genitalia (15-17; a: Aedeagus, b: Abdominal segments VII-VIII): 15, *S. notornis* Park, **sp. nov.**, male, holotype; 16, *S. designata* Park, **sp. nov.**, holotype; 17, *S. cyanostigmatis* Park, **sp. nov.**, holotype. Scale bar: 0.5 mm. Female genitalia (18-19; a: Close-up of signum): 18, *S. pyrrhotata* Park, **sp. nov.**, paratype; 19, *S. melanotata* Park, **sp. nov.** paratype. Scale bar: 1 mm.

Juxta deeply concave on caudal margin, with short digitate caudal lobes; with triangular projection anteriorly. Aedeagus stout, as long as valva, bent at basal 1/3; cornuti consist of numerous spinules in a long sac, about 3/5 length of aedeagus, its ventral margin heavily sclerotized. Abdominal segment VII with long lateral processes anteriorly; sternite VIII slightly concave medially as in Fig. 16b. Abdomen without spinous zones on terga.

**Holotype:** ♂, Papua New Guinea- Col. Becker PNG 859, Morobe, Wau, 1000 m, 17-30 ix 1992, V.O. Becker Col., gen. slide no. CIS-5786/Park.

**Distribution:** Papua New Guinea (Morobe).

**Etymology:** The species name is derived from Latin, *designat* (= marked), referring to the distinct marked of discal stigmata on the forewing.

**Remarks:** Even though the hindwing venation differ from congeners, this new species is tentatively placed in *Sarisophora*, due to the combination of other morphological characters, including the forewing venation and the male genitalia.

### *Sarisophora cyanostigmatis* Park, sp. nov.

(Figs 7, 17, 17a-b)

**Diagnosis:** The hindwing venation of this new species is similar to that of *S. designata* sp. nov., with a uniquely specialized venation as noted in the diagnosis of the preceding species. The hindwing has a long row of androconial scales in the cell, extending from near base to 3/4 length of CuA<sub>1</sub>.

**Description:** Male. Wingspan, 15.5 mm. Head pale orange gray, with brownish longitudinal band centrally. Antenna with slender basal joint, pale orange gray; flagellum pale orange gray throughout. Second segment of labial palpus thickened, dark fuscous on outer surface, orange white on inner surface; 3<sup>rd</sup> segment slender, recurved, shorter than 2<sup>nd</sup>, pale orange gray. Tegula pale orange gray dorsally. Thorax pale orange gray, with brownish longitudinal band centrally. Forewing ground color pale orange to orange gray, brownish scales and dark brown scales scattered irregularly, but more dens in posterior and lower portion of wing; basal blackish fascia present at upper base; two blackish discal spots well-developed: middle one smaller and terminal one much larger; costa nearly straight, then slightly arched beyond 3/4 length; apex obtuse; termen oblique, with dark-fuscous scales along margin; fringe pale orange basally, then brownish yellow beyond; venation with R<sub>1</sub> arising from near middle; R<sub>2</sub> nearer R<sub>3</sub> than R<sub>1</sub> at base; R<sub>3</sub> and R<sub>4</sub> stalked beyond middle; R<sub>4</sub> and R<sub>5</sub> stalked for 3/4 length; R<sub>5</sub> reaching termen; CuA<sub>1</sub> and CuA<sub>2</sub> stalked for basal 1/3 length. Hindwing silvery white, slightly broader than forewing, with a row of pale brownish androconial scales along lower margin of discal cell, extending from near base to 3/4 length of CuA<sub>1</sub>; costa slightly arched beyond 3/4 length; apex sharply produced, acute; termen very oblique, slightly sinuate; fringe concolorous with paler basal line; venation somewhat differs from the members of the genus as followings: Rs and M<sub>1</sub> stalked at before half length of wing, M<sub>1</sub> unusually terminated beyond half of termen, whereas most of congeners reaching before half; M<sub>2</sub> absent; M<sub>3</sub> coincident CuA<sub>1</sub>; a row of adherent scale-tuft along M<sub>3</sub>+CuA<sub>1</sub>; CuA<sub>1</sub> and CuA<sub>2</sub> running closely together, nearly fused for about half length. Hind tibia roughly scaled dorsally. Female unknown.

Male genitalia (Figs 17, 17a-b). Very similar to those of the preceding species, *L. designata* sp. nov.: Basal lobes of uncus larger, triangular; gnathos with broader median process, bent preapically; costal bar connecting tegumen and valva triangularly angulate at middle; valva with broader base; cucullus more elongate, with similar bristles as along ventral margin; juxta more widely concave on caudal margin; aedeagus bifurcated apically, with two small projections near apex ventrally and dorsally. Abdomen without spinous zones on terga; abdominal segments VII-VIII also similar to those of *L. designata* sp. nov.

**Holotype:** ♂, Papua New Guinea- Morobe, Wau, Wau Ecol. Inst., 12-24 vii 1983, S. E. & M. Miller, 1200 m, Second montane Forest, gen. slide no. CIS-5933/Park.

**Distribution:** Papua New Guinea (Morobe).

**Etymology:** The specific name is derived from Greek, *cyano* (= black) and *stigma* (= a spot), referring to the blackish stigma on the forewing.

**Remarks:** As same as the preceding species, *S. designata*, this new species is also tentatively placed in the genus *Sarisophora*, even though the hindwing has a uniquely specialized venation. A further study is needed to clarify the generic status of this new species.

### SPECIES WITH TYPE SPECIMENS MISSING

Types of the following two species, *S. praecentrix* Meyrick and *S. tamiodes* Meyrick, are not known and probably lost. All newly described species were compared with following species, using their original descriptions, specifically the data on size and color pattern of wings, antenna, and labial palpus.

#### *Sarisophora praecentrix* Meyrick, 1931.

*Sarisophora praecentrix* Meyrick, 1931, Exot. Microlep. 4: 78. TL: Hydrographer Mts., 2500 ft

**Diagnosis:** Wingspan, 13 mm. Meyrick(1931) noted that this species is allied to *tamiodes* Meyrick in the description. The main morphological characters by the description are as follows: Forewing orange yellow, with a short streak of dark fuscous irroration from costa at 3/4 to dorsum at 3/4.

**Distribution:** Papua New Guinea.

**Remarks:** The species was described based on two males. Their types have not been found and are probably lost.

#### *Sarisophora tamiodes* Meyrick, 1910

*Sarisophora tamiodes* Meyrick, 1910, *Trans. Ent. Soc. Lond.* 58: 445. TL: Sudest Is. and Saint Aignan Is.

**Diagnosis.** Wingspan, 20 mm. The main characters by its original description are as follows: Head and thorax yellow-ochreous; antenna pale yellowish, basal third and an apical band blackish; forewing deep ochreous-yellow, dark-fuscous line runs from second discal stigma towards dorsum, but not reached.

**Distribution.** Papua New Guinea.

**Remark.** The species was described, based on four specimens. Their types have not been found and are probably lost. The type species were collected in two islands, Sudest and Saint Aignan, which are located in the East extremity of Papua New Guinea.

### DISCUSSION

In the taxonomy of Lecithoceridae, the wing venation has been treated as the most important character distinguishing genera, and the vein M<sub>2</sub> on the hindwing has been often used as a key character for the genus-level taxonomy in the family. Park (1999, 2011a, b) insisted that the combination of other morphological characters, including the antenna, the labial palpus, and the male genitalia, should be considered, and treated the genus *Sarisophora* Meyrick as a synonym of *Lecithocera* Herrich-Schäffer. However, in a previous separate paper on a review of *Lecithocera* of New Guinea (Park 2012), it has been suggested that the presence or the absence of M<sub>2</sub> on the hindwing is a stable character and can be a distinct key character for distinguishing these two genera, from the result based on examinations of many specimens from New Guinea. Hence, the genus *Sarisophora* Meyrick is resurrected as a valid genus, separating from *Lecithocera*, and all species described herein with M<sub>2</sub> absent in the hindwing belong to *Sarisophora* Meyrick. However, *S. designata* and *S. cyanostigmatis* have some different and unique venations, with CuA<sub>1</sub> and CuA<sub>2</sub> running closely together, nearly fused for the basal 3/5 length, the discal cell unusually short and less than 2/5 length of wing.

Even though the venation of these species varies, they are tentatively placed in *Sarisophora*, because of the similarities of the male genital and the other related characters, and no known genera are accorded with them at the moment. A further molecular phylogenetic study is strongly suggested to clarify their generic status.

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