

***Scoliacma suzannae* and *S. adriani*, two new species from Papua, Indonesia, and *S. flava* synonymized with *S. heringi* (Lepidoptera: Arctiidae, Lithosiinae)**

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Suara Serangga Papua 3(1): 1-9

Abstract: Two new species of the genus *Scoliacma* Meyrick, 1886 are described from Papua, Indonesia: *Scoliacma suzannae* **spec. nov.** and *S. adriani* **spec. nov.** The recently new described species *Scoliacma flava* De Vos & Van Mastrigt, 2007 **syn. nov.** is synonymized with *S. heringi* Gaede, 1925. Of all new taxa male and female adults, genitalia and a distribution map are depicted. The lectotype (now designated from syntypes) of *Scoliacma heringi* and the holotype of *S. flava* **syn. nov.** are figured. *Ikhisar:* Dua spesies baru genus *Scoliacma* Meyrick, 1886 dideskripsi dari Papua, Indonesia: *Scoliacma suzannae* **spec. nov.** dan *S. adriani* **spec. nov.** Spesies yang baru dideskripsi *Scoliacma flava* De Vos & Van Mastrigt, 2007 **syn. nov.** dinyatakan sinonim dengan *S. heringi* Gaede, 1925. Dari semua taxa baru gambar jantan dan betina dewasa dan gambar-gambar genitalia disediakan, di samping itu juga da peta distribusi. Foto-foto dari lectotype (yang sekarang ditunjuk dari antara syntypes) *Scoliacma heringi* dan dari holotype *S. flava* **syn. nov.** disediakan.

Introduction

The genus *Scoliacma* Meyrick, 1886 as presently known, with to date 24 Indo-Australian species, probably is not a homogenous group of species. This is indicated by the great variety of genital structures in several species and the maybe even more varied wing shapes in the males. The type species of the genus is *Lithosia bicolora* Boisduval, 1832 (Watson et al., 1980), resident in Australia, which has quite normal shaped wings in the males. It is clear that a thorough revision of *Scoliacma* is needed. Most species which are presently included in the genus are distributed in the Australian region. When all species have been more thoroughly studied by genitalia and other characters, a revision of the genus can be made which probably will lead to a replacement of many species into several other already known and new genera.

Nevertheless two new species will be designated to this unrevised genus since it seems to be the best position for the time being. They fit together with some other already known species with the same features in genitalia and wing shape, like *Scoliacma brunnea*

Druce, 1899, *S. fuscofasciata* (Rothschild, 1913) and *S. hamptoni* Bethune-Baker, 1904. In a recent overview of new Lithosiinae from Papua, Indonesia (De Vos & Van Mastrigt, 2007), a conspicuous species of *Scoliacma* was described as new to science, *S. flava*. However, the authors overlooked that this species was already described earlier by Gaede (1925) as *S. heringi*. The lectotype of *S. heringi* is in the Museum für Naturkunde der Humboldt Universität in Berlin (ZMHB) and the holotype of *S. flava* **syn. nov.** is in the Zoologisch Museum in Amsterdam (ZMAN).

Abbreviations used in this paper

- CMWM - Museum Witt, München (Munich), Germany (assigned to ZSMC in the future)
 Fwl - Forewing length
 KSP - Koleksi Serangga Papua (private collection of Henk van Mastrigt, Jayapura, Papua, Indonesia)
 MZB - Museum Zoologicum Bogoriense, Cibinong, Java, Indonesia
 PNG - Papua New Guinea
 ZMAN - Zoologisch Museum, Amsterdam, The Netherlands
 ZMHB - Museum für Naturkunde der Humboldt Universität, Berlin, Germany
 ZSMC - Zoologische Staatssammlung, München, (Munich) Germany

Scoliacma suzannae spec. nov.

holotype: ♂, Indonesia, Papua, Kecamatan Nipsan, Walmak, 1710 m, 4°07'S – 138°38'E, 31.i – 16.ii.2005, at light; disturbed montane forest, UNCEN-ZMA Expedition, Papua Indonesia 2005, [ZMAN].

paratypes: 3 ♀♀, same as holotype, [ZMAN]; 1 ♀, Indonesia, Irian Jaya, Cyclop Mountains, Sentani, 300 m, 12.x.1993, A.J. de Boer, A.L.M. Rutten & R. de Vos, [ZMAN]; 1 ♀ (KSP24011), Indonesia, Papua, Kab. Jayapura, Taja Rifi 200 m, 2-3.i.2000, Henk van Mastrigt, [KSP]; 1 ♀ (KSP24010), Indonesia, Irian Jaya, Kab. Jayapura, Taja SP1, 21.vi.1997, Henk van Mastrigt, [KSP]; 1 ♀ (KSP24012), Indonesia, Irian Jaya, Kab. Keerom, Ubrub, 3°40' S – 140°52' E, 300 m, 24-30.xi.2003, Henk van Mastrigt, [KSP]; 11 ♂♂, 17 ♀♀, Indonesia, Irian Jaya, Kab. Pegunungan Bintang, Borme, 900 m, 17-24.ix.1998, Henk van Mastrigt & Edy Rosariyanto, [KSP]; 8 ♂♂, 12 ♀♀, Indonesia, Papua, Kab. Pegunungan Bintang, Borme, 900 m, 26-31.vii.2006, Henk van Mastrigt, Evie Warikar & Ika Ramandey, [KSP]; 1 ♀ (KSP42053), Indonesia, Papua, Sarmi, Kwerba, Hortice Camp 250 m, 2°34.15'S – 138°39.10'E, 25.ix – 4.xii.2005, CI-RAP, [KSP]; 1 ♀ (KSP42054), Sarmi, Kwerba 70 m, 2°38.63'S 138°24.54'E, 15-23.xi.2005, CI-RAP, [KSP]; 3 ♂♂, 4 ♀♀, Indonesia, Irian Jaya, Taja, 90 km SW Sentani, 400 m, 7.xii.1997, K. Cerny, [CMWM].

Diagnosis: Differs from the similar species *adriani* spec.nov. by the pale yellow dorsum in the forewing in both sexes and the transverse band in the female which runs obliquely

inwards from dorsum to costa, while in *adriani* it runs obliquely outwards. In male genitalia the uncus longer and slender than in *adriani*. Valve narrower at the apex, right clasper broader and with short and thick thorn (in *adriani* longer with sharp thorn). Aedeagus with thorn-like cornutum much smaller than in *adriani*, pustulated cornutum shorter and curved, distal third curved down. Female genitalia with cervix bursae large, stretched and with almost smooth surface (surpressed and with wrinkled surface in *adriani*). Signum consisting of numerous tiny chitinous drops (in *adriani* signum smaller with distinctly less and coarse chitinous drops).

External characters male: Fwl. 12.5 mm. Head, with short palpaе, pale yellow. Antennae filiform with scarce and short cilia, yellow with dark suffusion distally. Patagia yellow, tegulae yellow with purple-brown centre, thorax grey to purple-brown. Ventral side of thorax and abdomen pale yellow, legs dorsally grey-yellow, ventrally pale grey. Abdomen dorsally dark greyish brown with pale yellow hairs, laterally yellow. Forewing stretched triangular shaped with rather oblique termen. Basal half of forewing pale yellow, outer half greyish brown, both parts bordered by a purple-brown "Z"-shaped transverse band. Dorsum in basal half pale yellow, costa narrow purple-brown. Underside of forewing same pattern but much paler, almost faded.

Hindwing broad with the apex pronounced. Entire hindwing pale yellow coloured at both sides.

External characters female: Fwl. 11.0 – 13.7 mm. In general the same as in male but with the following differences. Antennae without cilia, dark purple. Forewing normal shaped, twice as long than broad. Pattern similar as in male, but with purple-brown transverse band not "Z"-shaped but running slightly oblique from dorsum to costa inwards. Costa broadly purple-brown.

Hindwing normal shaped, without pronounced apex.

Male genitalia: Uncus finger-shaped, long and slender. Top of tegumen with long hairs. Cucullus of valve broad and gradually narrowing to a round apex, at right valve with a slightly hooked apex. Left clasper curved inwards with a sharp apex. Right clasper shorter, only curved inwards at the distal part, with a short and thick thorn at apex. Saccus large, broad and forked with two blunt "legs". Aedeagus long and slender, distal third of aedeagus flattened and slightly curved down. Vesica with two cornuti: one sharp slender thorn, and one short and curved pustulated cornutum.

Female genitalia: Genital plate with a small "U"-shaped incision. Ductus bursae unsclerotized, the last two-third forming the stretched and swollen cervix bursae with almost smooth surface. Ductus seminalis originating at top of cervix bursae, near bursa copulatrix at left side with a lobe. Bursa copulatrix with one small oval-shaped signum, consisting of numerous tiny chitinous drops.

Distribution: The species seems restricted to the eastern part of Papua Indonesia in mountainous areas. It is not yet known from Papua New Guinea, but it is to be expected that it occurs in the PNG western mountainous provinces too.

Etymology: The species is named in honour of my dear mother, Suzanna Janse.

Scoliacma adriani spec. nov.

holotype: ♂, Indonesia, Irian Jaya, Wandammen Peninsula, Tandia, 2°52'S – 134°32'E, 21.ii.1996, at light, cultivated area, ZMA-exp. 1996, [ZMAN].

paratypes: 1 ♂, 1 ♀, same as holotype, [ZMAN]; 1 ♀, Indonesia, Irian Jaya, Nabire, KSP24009, 21.vi.1975, Henk van Mastriht, [KSP]; 3 ♂♂, 2 ♀♀, Indonesia, Irian Jaya, Nabire, 12 km E Samabusa, Lagari, 50 m, 6-8.xii.1993, R. Brechlin & K. Cerny, [CMWM].

Diagnosis: This species has a dark dorsum in the pale basal field in which it differs from the similar *S. suzannae* which has the dorsum pale yellow. The female has the transverse band running obliquely outward from dorsum to costa. Male genital with uncus shorter and thicker than in *suzannae*. Valvae broader at apex, right clasper longer and straighter than in *suzannae*, with longer and slender thorn. Aedeagus with cornuti longer than in *suzannae* (pustulated cornutum straight), and distal quarter of aedeagus curved upwards.

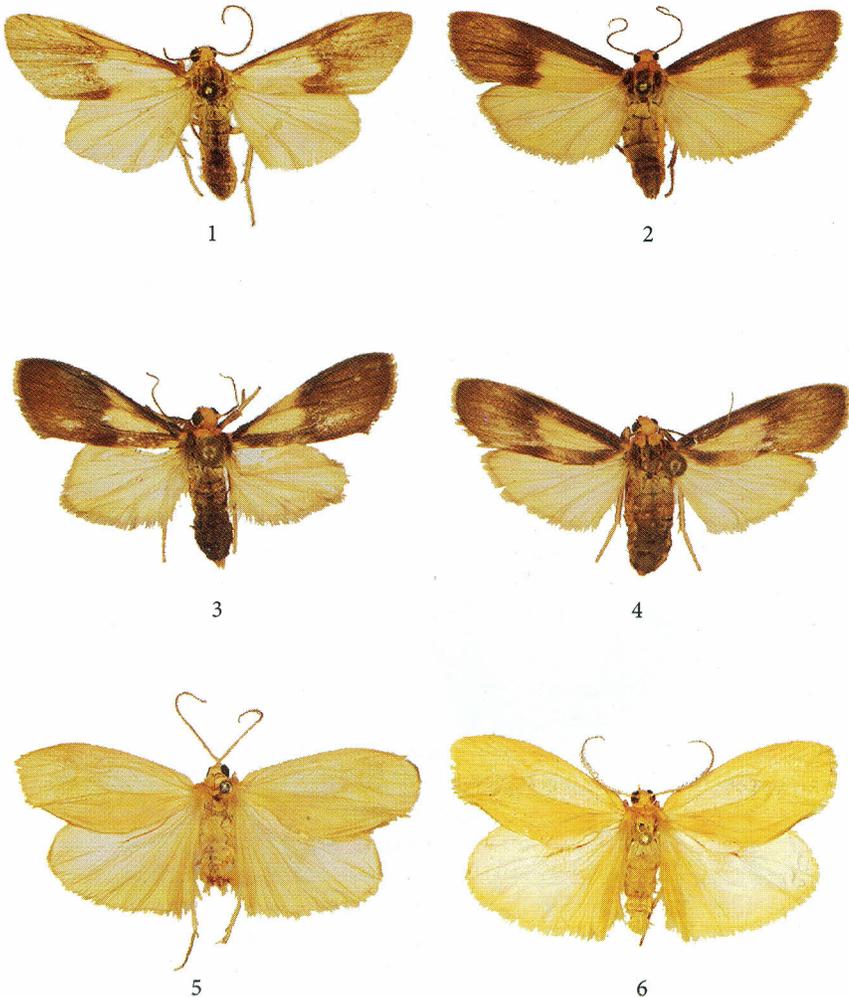
External characters male: Fwl. 10.0 – 11.3 mm. Head, with short palpa, yellow. Antennae filiform with scarce and short cilia, yellow with dark suffusion distally. Patagia yellow, tegulae yellow with extended purple-brown centre compared to *suzannae*, thorax purple-brown. Ventral side of thorax and abdomen yellow with some greyish suffusion, legs pale grey. Abdomen dorsally dark greyish brown with grey hairs, laterally yellow.

Forewing stretched triangular shaped with less oblique termen compared with *suzannae*. Basal half of forewing pale yellow, outer half greyish brown, both parts bordered by a purple-brown "Z"-shaped transverse band. Dorsum in basal half purple-brown, costa sometimes narrow purple-brown. Underside of forewing same pattern but much paler.

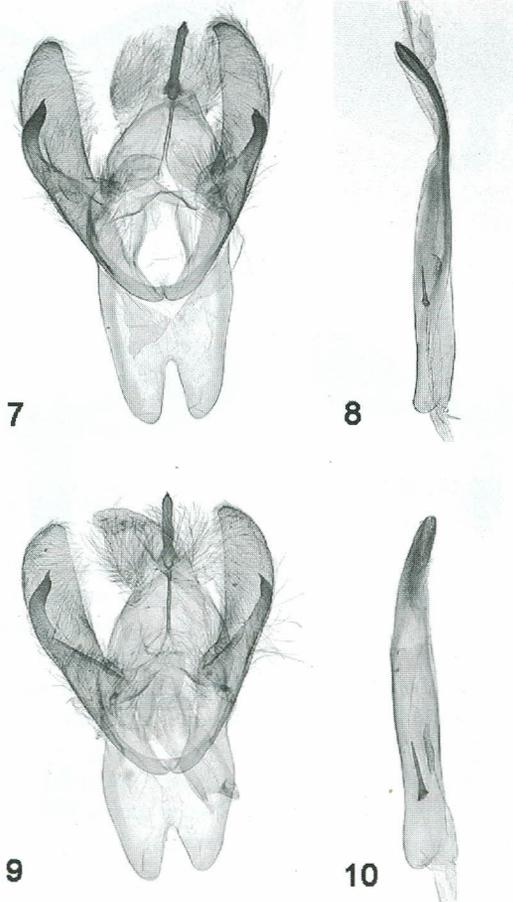
Hindwing broad with the apex even more pronounced than in *suzannae*. Entire hindwing pale yellow coloured at both sides.

External characters female: Fwl. 12.2 mm. In general the same as in male but with the following differences. Antennae without cilia, dark purple.

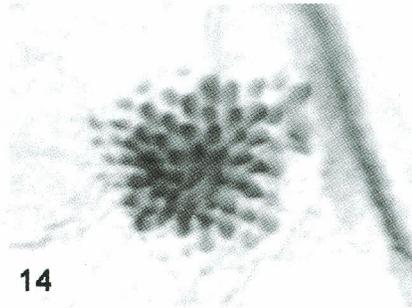
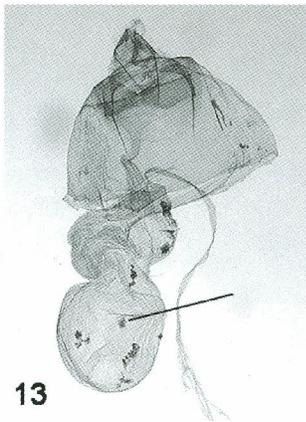
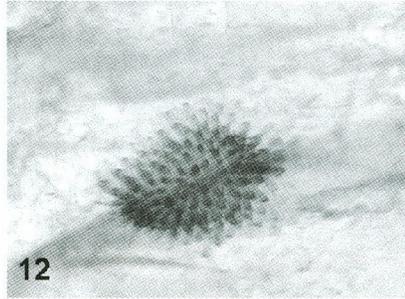
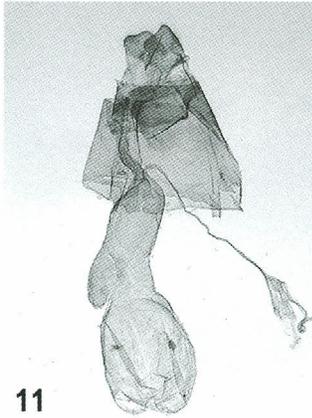
Forewing normal shaped, twice as long than broad. Pattern similar as in male, but with purple-brown transverse band not "Z"-shaped but running oblique from dorsum to costa outwards. Costa and dorsum broadly purple-brown in the basal half. Hindwing normal shaped, without pronounced apex.



Figs. 1-6. Adults of *Scoliacma* species. 1. *Scoliacma suzanna* **spec. nov.** ♂, holotype; 2. *S. suzanna* **spec. nov.** ♀, paratype (Walmak, coll. ZMAN); 3. *S. adriani* **spec. nov.** ♂, holotype; 4. *S. adriani* **spec. nov.** ♀, paratype (Tandia, coll. ZMAN); 5. *S. heringi* Gaede, 1925, lectotype; 6. *S. heringi*, holotype *flava* De Vos & Van Mastrigt, 2007.



Figs. 7-10. Male genitalia of *Scoliacma suzannae* and *S. adriani*. 7. *Scoliacma suzannae*, male genital armature; 8. *S. suzannae*, aedeagus; 9. *S. adriani*, male genital armature; 10. *S. adriani*, aedeagus.



Figs. 11-14. Female genitalia of *Scoliacma suzannae* and *S. adriani*. 11. *Scoliacma suzannae*, female genitalia; 12. *S. suzannae*, signum; 13. *S. adriani*, female genitalia (arrow shows the signum between dark artefact spots); 14. *S. adriani*, signum.

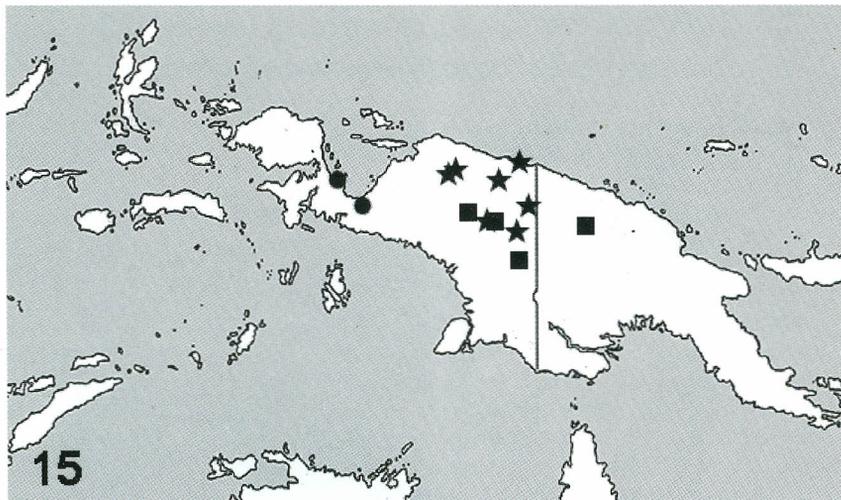


Fig. 15. Distribution map of the three species, dots: *Scoliacma adriani* spec. nov.; stars: *S. suzanae* spec. nov.; squares: *S. heringi* Gaede, 1925.

Male genitalia: Uncus finger-shaped, shorter and thicker than in *suzanae*. Top of tegumen with long hairs. Cucullus of valve broad, at apex broad, at right valve somewhat narrower. Left clasper curved inwards with a sharp apex. Right clasper about as long as left one, only curved inwards at the distal part, with a long thorn at apex (compared with *suzanae*). Saccus large, broad and forked with two blunt "legs". Aedeagus long and slender, distal quarter of aedeagus flattened and slightly curved upwards. Vesica with two cornuti: one long and sharp slender thorn (longer than in *suzanae*), and one long and straight pustulated cornutum (in *suzanae* short and curved).

Female genitalia: Genital plate with a small "U"-shaped incision. Ductus bursae unsclerotized, the cervix bursae broadly swollen and wrinkled, almost as large as bursa copulatrix. Ductus seminalis originating at top right of cervix bursae. Bursa copulatrix with one small oval-shaped signum, consisting of coarse chitinous drops, distinctly less than in *suzanae*.

Distribution: The species is known from the Wandammen Peninsula and the Nabire region, probably in lowland or moderately elevated areas.

Etymology: The species is named in honour of my dear father, Adrianus de Vos, who recently deceased and who in fact initiated my career at young age by collecting Lepidoptera.

***Scoliacma heringi* Gaede, 1925**

Scoliacma heringi Gaede (1925: 236)

Scoliacma flava De Vos & Van Mastrigt (2007: 227) **syn. nov.**

Lectotype *heringi* (hereby designated from syntypes): ♂, "Type" [red label]; "D.N.Guinea 1913, Hunsteinspitze III.13, Kais.Augustafl.Exp., Bürgers S.G.", [ZMHB].

Paralectotype *heringi* (hereby designated from syntypes): 1 ♀, "D.N.Guinea 1913, Hunsteinspitze III.13, Kais.Augustafl.Exp., Bürgers S.G.", [ZMHB]. [note: Although the female paralectotype bears no original type label, it can be considered as being syntype because Gaede (1925) mentioned this specimen in his type series in the original description]

Holotype *flava*: ♂, "Indonesia, Papua, Kecamatan Nipsan, Walmak, 1710 m, 4°07'S - 139°38'E, 31.i-9.ii.2005, at light; cultivated area, UNCEN-ZMA Expedition, Papua, Indonesia 2005", [ZMAN].

Paratypes *flava*: 2 ♂♂, 11 ♀♀; 2 ♂♂, 7 ♀♀, same data as holotype, (1 ♂, 6 ♀♀) [ZMAN], (1 ♂, 1 ♀) [KSP], (1 ♂, 1 ♀) [MZB]; 1 ♀, "Indonesia, Papua, Kecamatan Abenaho, Pass Valley, 1950 m, 3°51'S - 139°05'E, 11-17.ii.2005, at light; disturbed montane forest, UNCEN-ZMA Expedition, Papua Indonesia 2005", [ZMAN]; 3 ♀♀, "Indonesia, Papua, Kecamatan Oksibil, Mabilabol, 1340 m, 4°54'S - 140°37'E, 21-25.ii.2005, at light; disturbed montane forest, UNCEN-ZMA Expedition, Papua Indonesia 2005", [ZMAN].

Distribution: The species seems to be restricted to the mountainous central part of New Guinea. Its distribution area reaches from the Jayawijaya Mountains in Papua Indonesia to the higher elevations of the Sepik River area (Hunsteinspitze) in Papua New Guinea.

Acknowledgements

The author likes to thank the following persons and institutions for making this publication possible: Willem Hogenes (ZMAN, Amsterdam, The Netherlands), Br. Henk van Mastrigt (KSP, Jayapura, Indonesia), Dr. Wolfram Mey (ZMHB, Berlin, Germany), Dr. Thomas J. Witt (CMWM, München, Germany) for giving me access in the mentioned collections and finally Dr. Willem N. Ellis (Amsterdam, The Netherlands) for making the digital genitalia photographs. The Uyttenboogaart-Eliassen Foundation financed the trips to the mentioned collections for which I am truly thankful.

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