Two new species of the genus *Syntherata* Maassen, 1873 (Lepidoptera: Saturniidae) from Australia and Indonesia, and some general notes on the genus with actual checklist

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Abstract: Two species of the genus *Syntherata* are described as new to science: *S.* ***torresiana*** **sp. n.** is described from Torres Strait, Queensland, Australia, including its complete life history. *S.* ***buruana*** **sp. n.** is described from the Island of Buru, South Moluccas, Indonesia. For both new taxa the affinity to their nearest known relatives in Australia, New Guinea and the Moluccas is discussed. A complete checklist of the genus *Syntherata* is presented wherein nine taxa are moved newly into synonymy: *S. cernyi* Brechlin, 2010, **syn. n.** as synonym of *S. erici* Naumann, Lane & Löffler, 2009; *S. hoffmanni* Naumann, Lane & Löffler, 2009, **syn. n.,** S. *parvoantennata* Brechlin, 2010, **syn. n.,** and *S. engaiana* Brechlin, 2010, **syn. n.** as synonyms of *S. marlenae* Naumann, Lane & Löffler, 2009; *S. minoris* Brechlin, 2010, **syn. n.** as synonym of *S. gracilis* Naumann, Lane & Löffler, 2009; *S. arfakiana* Brechlin, 2010, **syn. n.** as synonym of *S. bettinae* Naumann, Lane & Löffler, 2009; *S. papuensis* Brechlin, 2010, **syn. n.** and *S. okapiana* Brechlin 2009, **syn. n.** as synonym of *S. pierrei* Naumann, Lane & Löffler, 2009; and *S. rudloffi* Brechlin, 2010, **syn. n.** as synonym of *S. labriquei* Naumann, Lane & Löffler, 2009. Further, *S. michaschaarschmidti* Brechlin, 2010, **stat. n.,** from New Hanover and New Ireland Islands is raised to species rank.

Key words: *Syntherata,* new species, new synonymies, pre-imaginal instars.

Zwei neue Arten der Gattung *Syntherata* Maassen, 1873 (Lepidoptera, Saturniidae) aus Australien und Indonesien, sowie generelle Anmerkungen zur Gattung *Syntherata* mit aktualisierter Checkliste

Zusammenfassung: Zwei Arten der Gattung *Syntherata* werden als neu beschrieben: *S.* ***torresiana*** **sp. n.** aus der Torres-Straße, Queensland, Australien, inklusive der kompletten Darstellung der Präimaginalien; sowie *S.* ***buruana*** **sp. n.** von der Insel Buru in den südlichen Molukken, Indonesien. Für beide Arten wird die Verbindung zu ihren nächsten Verwandten in Australien, Neuguinea und den Inseln der Molukken diskutiert. Für die Gattung *Syntherata* wird eine komplette Checkliste präsentiert, hierbei werden neun beschriebene Taxa in Synonymie gesetzt: *S. cernyi* Brechlin, 2010, **syn. n.** als Synonym von *S. erici* Naumann, Lane & Löffler, 2009; *S. hoffmanni* Naumann, Lane & Löffler, 2009, **syn. n.,** S. *parvoantennata* Brechlin, 2010, **syn. n.** und *S. engaiana* Brechlin, 2010, **syn. n.** als Synonyme von *S. marlenae* Naumann, Lane & Löffler, 2009; *S. minoris* Brechlin, 2010, **syn. n.** als Synonym von *S. gracilis* Naumann, Lane & Löffler, 2009; *S. arfakiana* Brechlin, 2010, **syn. n.** als Synonym von *S. bettinae* Naumann, Lane & Löffler, 2009; *S. papuensis* Brechlin, 2010, **syn. n.** und *S. okapiana* Brechlin 2009, **syn. n.** als Synonyme von *S. pierrei* Naumann, Lane & Löffler, 2009; und *S. rudloffi* Brechlin, 2010, **syn. n.** als Synonym von *S. labriquei* Naumann, Lane & Löffler, 2009. Weiter wird *S. michaschaarschmidti* Brechlin, 2010, **stat. n.,** beschrieben von den Inseln Neu-Hannover und Neu-Irland im Bismarckarchipel, auf Artrang erhoben.

Introduction

Until recently, the genus *Syntherata* Maassen, 1873 was thought to consist only of relatively few, quite variable species, occurring in Australia, New Guinea, and several islands in the Moluccan Sea in Indonesia. For the Moluccas, all valid species were described only since 2001 (Naumann & Brechlin 2001, Paukstadt & Paukstadt 2004, 2005, Paukstadt et al. 2017). In combination with the recent collection of many specimens of *Syntherata* from the island of New Guinea, a review of all then known species of *Syntherata* from New Guinea (Naumann et al. 2009) confirmed the presence of 16 species on the main island and surrounding smaller ones, inclusive of the description of 14 new species. Only little later, Brechlin (2010) published descriptions of 10 further taxa which are shown herein to be almost all synonyms of the prior described ones. Until around 20 years ago, the genus had been treated as representing a single, though highly variable species in Australia — *S. janetta* (White, 1843) (see e.g. Common 1990, Edwards 1996, d'Abrera 1998, Zborowski & Edwards 2007). Lane (2003) described a new species from Queensland, and only in 2010, Lane et al. published a review of the Australian fauna and confirmed the presence of 6 Australian species of *Syntherata,* each recognised by distinct morphological differences in combination with individual life histories and biologies. The historic treatment of Australian *Syntherata* was therein discussed, and the synonymy of all Australian species presented. Through the studies of both publications (Naumann et al. 2009 and Lane et al. 2010) the fauna of New Guinea and of Australia was found to be uniquely separate with no overlapping or shared species.

The receipt of three specimens of *Syntherata* collected by A. I. Knight in 2004 and 2006 from Dauan Island, Torres Strait, Queensland, Australia (donated by the late Murdoch De Baar), gave cause for further investigation into the fauna of Torres Strait. In combination, the discovery of a uniquely different *Syntherata* larva on Horn Island, Torres Strait, by Mark Hopkinson in 2012 gave further impetus for that investigation.

Since then collecting by the author D.A.L. on Horn and Hammond Islands, Torres Strait, revealed further specimens, and the life history and biology of this *Syntherata* species was observed and is described herein. In consideration of the larval differences to all other

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known Australian species, and in combination with its distinctive wing shape compared to all other known New Guinean and Australian species, its distinct species status is herein described as *S. torresiana* sp. n. During these field visits to Hammond Island, a number of wild caught *Syntherata* specimens were also collected, which have been identified as *S. escarlata* Lane, Edwards & Naumann, 2010, confirming that at least two *Syntherata* species occur on Hammond Island (Figs. 22, 23).

A second species is described as new from the remote Indonesian Island of Buru. The description is based both on morphological characters and results within the barcoding campaign in Guelph, Canada. Its nearest relatives are probably *S. innescens* Naumann & Brechlin, 2001 from Ambon and Ceram islands, and *S. doboensis* Paukstadt & Paukstadt, 2004 from Aru island, all Moluccas, Indonesia. The type series of *S. innescens* contained some material mentioned to originate from Buru island (see notes in the descriptional part), but today we interpret *S. innescens* to be restricted to Ambon, Ceram and smaller islands around those two (e. g. Boano Island, off the western coast of Ceram, recent record in CSNB). Most material cited in the description of *S. innescens* for Buru island was only traders' material, of which we believe now that it was mislabelled and of Ambon or Ceram origin in reality.

From **Buru** some more Saturniidae species were recorded earlier, so including the herein described taxon 6 species are recorded now from this island: *Attacus siriae* Brechlin & van Schayck, 2016, *Antheraea* (*Antheraea*) *rumphii* Felder, 1861 (described as *A.* (*A.*) *paphia buruensis* Bouvier, 1928), *Cricula trifenestrata serama* Nässig, 1989, *Neodiphthera ceramensis* (Bouvier, 1928) (lateron described again as *Neodiphthera buruensis* Brechlin, 2005), *Samia naessigi* Naumann & Peigler, 2001 (with synonym *Samia burica* Brechlin, 2007); and the now described *Syntherata buruana* sp. n. Most of those species are recorded as well from the Moluccan islands of Ceram and Ambon, *Samia naessigi,* which was described from Halmahera, meanwhile also from Obi and Bacan, but the here described *Syntherata buruana* sp. n. seems to be endemic.

Attacus crameri Felder, 1861, which was described from Ambon, was noted by Peigler (1989) to occur also on Buru. Brechlin & van Schayck (2016) later described this population as a new species *A. siriae* due to barcode differences on Bold (BIN Code ACY9770 versus AAE4469 for *A. crameri* from Ambon and Ceram). There is one specimen with reliable data from Buru in the senior author's collection, apparently with the same barcode as the HT of *A. sirae,* and this specimen cannot be separated by any of the morphological characters mentioned in the original description from Ambon and Ceram specimens; perhaps the postmedian area is a little more suffused with yellow scales in this specimen. Judging from a single specimen the "diagnostic" characters are not existing. Similar to other cases (see e.g. under notes on *S. buruana* sp. n. below) there exists also a barcoded record in the cluster of *A. crameri* on Bold, mentioned to originate from Buru (BC-RBP-0571), which obviously is based on a mislabelled specimen, purchased from Indonesian dealers.

Material of ***Neodiphthera ceramensis*** collected in recent years on Ceram and Ambon islands (series of 5 ♂♂ from Ceram, 1 ♂ from Ambon in CSNB, plus type material of Bouvier in MNHN, and material in NHMUK) shows the same variation in size, colour or wing shape as mentioned by Brechlin (2007: 23, figs. 8, 9) in his description of *N. buruensis* to be diagnostic, therefore a description of that taxon from morphological aspects had been most unnecessary. Also within the barcoding campaign of the University of Guelph absolutely no differences were found for both populations (all specimens with BIN Code ACF1214), a reason why Brechlin & van Schayck (2019) already synonymized *N. buruensis* again shortly after the description.

A somewhat different situation is found within the genus ***Samia*** Hübner, 1819: The species *Samia ceramensis* (Bouvier, 1927) was found so far only by two older and little worn singletons in the central highlands of Ceram Island; no further material with recent collecting data exists to our knowledge (Peigler & Naumann 2003: 155). During preparations for the revision of the genus another species, *Samia naessigi,* was described from Halmahera Island which differs by its larger size, intensive colouration, and the black inner portion of the postmedian line. The same species was found meanwhile in series on both Bacan and Obi Islands, and by a singleton on Buru (records in CSNB). All those specimens share the same pattern elements as described for *Samia naessigi,* and form inside the barcoding campaign of the University of Guelph a cluster with no differences at all (BIN Code ABZ5855). Therefore the later described *Samia burica* was already synonymized by Naumann et al. (2014) with *Samia naessigi* which by this has a distribution from Halmahera in the north via Bacan and Obi down to Buru. The relationship and possibly taxonomic status of *Samia ceramensis* versus *Samia naessigi* can be proved only with fresh material from Ceram or Ambon, whenever this should be available to science. Currently we still keep the status of *Samia naessigi* as valid species, due to the differences described.

Abbreviations used

Collections

ANIC	Australia National Insect Collection, Canberra, Australia.
CBH	Collection Ulrich Brosch, Hille, Germany.
CDAL	Collection David A. Lane, Atherton, Queensland, Australia.
CSLL	Collection Swen Löffler, Lichtenstein, Germany. Now part of CSNB.
CSNB	Collection Stefan Naumann, Berlin, Germany. Dedicated to the Rainer Seegers Stiftung, to be deposited in MfN.
CWAN	Collection Wolfgang A. Nässig, in SMFL.

MfN Museum für Naturkunde, Berlin, Germany (formerly MNHU = Museum für Naturkunde der Humboldt-Universität, Berlin).

NHMUK The Natural History Museum, London, Great Britain.

MNHN Musée national d'Histoire naturelle, Paris, France.

SMFL Senckenbergmuseum, Lepidoptera collection, Frankfurt am Main, Germany.

Other abbreviations

"AT" "Allotype" (ICZN 1999: Recommendation 72A: "an 'allotype' has no name-bearing function".)

BC [no.] Barcode [with number].

Fw Forewing.

GP Genitalia dissection.

HT Holotype.

Hw Hindwing.

Lfw Length of the forewing, measured in a straight line from the base of the wing to the most distant point of the apex, without the width of the thorax.

PT Paratype.

Systematic part

Syntherata torresiana Lane & Naumann, sp. n.

(Col. Figs. 1–17, B/W-Figs. I, II.)

Holotype ♂ (Figs. 1a & b): Australia, Queensland, Horn Island, Torres Strait, bred/ex larva, 23. xii. 2012. M. Hopkinson (in ANIC). A red holotype label will be fixed accordingly.

Paratypes (in total 10 ♂♂, 12 ♀♀), all **Australia,** Queensland (Figs. 2–5 ♂♂, 6–9 ♀♀):

1 ♂, **Horn Island,** Torres Strait, bred/larva, 19. i. 2013, M. Hopkinson. 7 ♀♀, Horn Island, Torres Strait, bred/larva, 25. xii. 2012, 19. i. 2013, 23. i. 2013 (2×), 24. i. 2013, 27. i. 2013, 4. iv. 2014, M. Hopkinson (all in CDAL). — 1 ♂, Horn Island, Torres Strait, bred/larva, 30. xii. 2012, leg. D. A. Lane. 1 ♂, 2 ♀♀, Horn Island (Ngurupai Island), Torres Strait, ex larva 20. xii. 2012 (♂), 10. xii. 2012 (♀), 25. xii. 2012 (♀), leg. M. Hopkinson, cult. D. A. Lane, ♂ GP 2598/19 Naumann, BC SNB 5097 (♂), 5098 (♀). 1 ♂, Torres Strait, Horn Island, ex ovo 26. vi. 2014, cult. David Lane (all in CSNB).

1 ♂, 1 ♀, **Dauan Island,** northern Torres Strait, 27. ii. 2004 (♂) & 29. ii. 2004 (♀), A. I. Knight, BC SNB 2006 (♂), 2007 (♀) (CDAL). 1 ♂, Dauan Island, Torres Strait, 3. ii. 2006, A. I. Knight, GP 2597/19 Naumann, BC SNB 2085 (CSNB).

2 ♂♂, 2 ♀♀, **Hammond Island,** Torres Strait, bred/larva 2. iii. 2016 (♀), 4. iii. 2016 (♂), 5. iii. 2016 (♂♀), D. A. Lane & M. S. Moulds (CDAL). 1 ♂, Hammond Island, Torres Strait, 30. iii. 2014, D. A. Lane & M. S. Moulds (CDAL).

Etymology: The name refers to the currently known distribution within Torres Strait, north of the Australian mainland of Queensland.

Description

Male (Figs. 1–5): Forewing length 52–60 mm.

Antennae broadly pectinate, length 12–14 mm, rami maximum length about 2.8 mm.

Forewing with costa straight for basal half, then broadly bowed to apex, apex sharply acute, termen concave for upper half then straight to near tornus, tornus rounded, inner margin straight. Hindwing with costa bowed, apex rounded, termen convex, tornus sharply rounded, inner margin straight. A wavy dark brown line runs from approximate midpoint of inner margin in a broad concave arc towards apex for almost full length of forewing, then bending basally to meet costa at a broad angle. A second wavy dark brown line, consisting of a series of dashes, often obscure, runs roughly parallel to inner line, and meets apex in a broad patch of dark brown scales. Clear eyespot at end of cell, 1–2 mm diameter, ringed by a dark brown line and a narrow grey concentric ring. Basal half of costa grey, with inner brown edging, also extending across upper thorax. A wavy brown line runs from base of costa to inner margin, a second wavy brown line runs across cell, both lines often obscure.

Hindwing with costa bowed, apex rounded, termen convex, tornus rounded, inner margin straight. A wavy brown line runs parallel to termen from inner margin to costa. Two roughly parallel wavy brown lines run adjacent, one closer to termen and usually consisting of a series of dashes, often obscure, the second line slightly above eyespot. Clear eyespot small, 0.5–1.5 mm diameter, usually broadly edged brown with faint grey concentric ring, all sometimes obscure. The very outer edge margin of both forewing and hindwing termen edged with a narrow faint brown line, usually 0.5 mm width but occasionally 2 mm width.

Underside similar to upperside but markings more obscure.

Adults occur in yellow, orange and red colour morphs, often with a brown or pinkish suffusion overlay.

Male genitalia (B/W-Figs. I & II, dissections SNB 2597 & 2598/19): Uncus long, slender and acute. Valvae with apical tip. Labides with three tips, a stronger slender and acute dorsal one, a short rounded, less sclerotized lateral one, and a bigger and longer ventral one with small indention. Juxta with two long lateral processes, saccus acute, phallus with sclerotized portion on ventral side, vesica emerging to the dorsal side.

For comparision we figure here genitalia structures of *S. escarlata* (GP 1819/08 SNB; B/W-Fig. III), *S. mirata* Lane et al. (2010) (GP 917/03 SNB; B/W-Fig. IV), and *S. melvilla* (Westwood, 1853) (GP 1816/08 SNB; B/W-Fig. V). The structures of *S. torresiana* resemble mostly those of *S. mirata,* with a two-ended concave inner labide, but the genitalia of *S. mirata* are smaller in general; the labide process of the genitalia of *S. escarlata* have a short third process on that scoop-like portion of the labides. *S. melvilla* has again similar labides, but a fused tip of the uncus. Generally, differences between the genitalia structures are minor in *Syntherata*.

Female (Figs. 6–9): Forewing length 60–70 mm.

Antenna much less pectinate, length 12–14 mm, pectinations about four times width of shaft, rami maximum length about 1–1.2 mm.

Forewing much broader than male, apex not acute, termen straight. Clear eyespot 3.5–5.5 mm diameter, ringed as in male. Markings as in male.

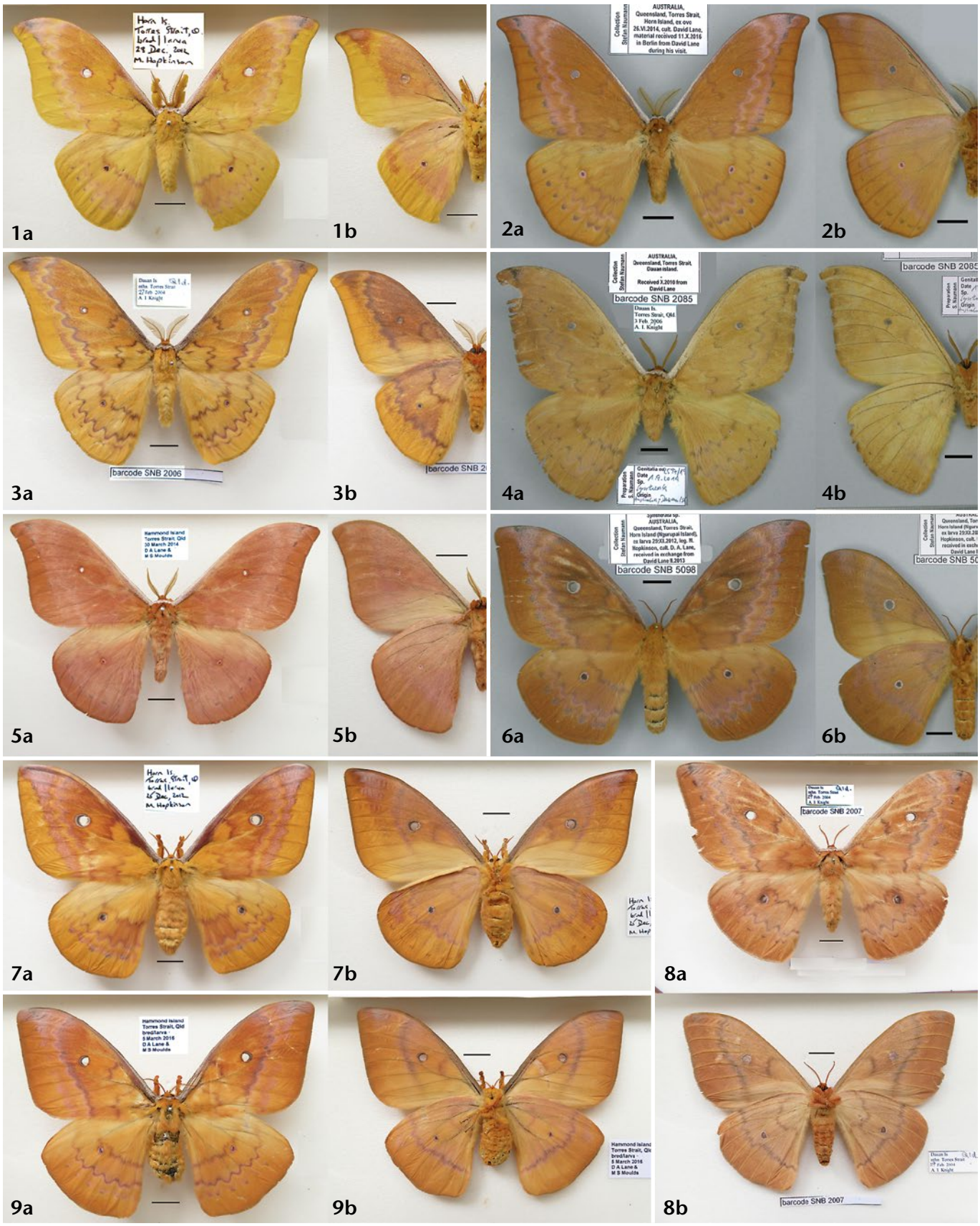


Plate 1, Figs. 1–9: Specimens of *Syntherata* ***torresiana*** **sp. n.**, Fig. a = dorsal, b = ventral view of same specimen. — **Fig. 1:** ♂ **HT**, Horn Island, yellow morph (ANIC). **Fig. 2:** ♂ PT, Horn Island, orange-violet morph (CSNB). **Fig. 3:** ♂ PT, Dauan Island, yellow morph (CDAL). **Fig. 4:** ♂ PT, Dauan Island, ochreous morph (CSNB). **Fig. 5:** ♂ PT, Hammond Island, reddish morph (CDAL). **Fig. 6:** ♀ PT, Horn Island, brown morph (CSNB). **Fig. 7:** ♀ PT, Horn Island, yellow morph (CDAL). **Fig. 8:** ♀ PT, Dauan Island, reddish brown morph (CDAL). **Fig. 9:** ♀ PT, Hammond Island, orange morph (CDAL). — Specimens not to the same scale (smaller than natural size); scale bars 1 cm. — All photos of specimens in CDAL and holotype *torresiana:* D. A. Lane; of specimens in CSNB: S. Naumann.

Hindwing more elongated than in male, otherwise similar in markings. Clear eyespot 2–2.5 mm diameter, ringed as in male. Outer edge of termen of both forewing and hindwing edged brown as in male. Markings as in male.

Adults occur in both yellow, red or dark pinkish brown colour morphs, also often with a brown or pinkish suffusion overlay.

Life history

Fourth and fifth instar larvae were first found feeding on *Dodonaea viscosa* Jacq. subsp. *viscosa* (Sapindaceae) on Horn Island during 2012 by Mark Hopkinson, whilst conducting butterfly research within vine scrub patches near the Horn Island Airport. Eggs, larvae and pupae were subsequently found again by D.A.L. on Horn Island and Hammond Island utilising *Dodonaea viscosa* Jacq. subsp. *viscosa* (Sapindaceae) as a hostplant, and also feeding on *Planchonia careya* (F. Muell.) Knuth (Lecythidaceae) on Hammond Island. Adults came to light from 9–10 p.m. on both islands.

Egg (Fig. 10): Flat type, dull white, oval in shape, 1.5× 1.7 mm, approximately 1 mm high. Laid singly or in a gently curved row of three to seven, usually on the undersides of mature leaves of the foodplant, sometimes on the upper surface. Duration about 7–8 days.

First instar larva (Fig. 11): Length 4–6 mm [from begin to end of the instar]. Head light greenish brown, body yellow with light brown longitudinal stripes becoming progressively darker nearing the second instar. Small raised scoli light brown with small light brown setae. Duration about 2–3 days.

Second instar larva (Fig. 12): Length 7–13 mm. Head light greenish brown, body light yellow with light green lateral and dorsal stripes. Scoli light yellow with fine setae. Duration about 4–5 days.

Third instar larva (Figs. 13, 14): Length 14–40 mm. Head light brown with body light green, a faint yellow lateral line immediately below spiracles. Scoli lemon yellow with long erect dark brown setae. Anal claspers light green as in body but with light brown triangular shaped patches. Duration about 6–7 days.

Fourth instar larva (Fig. 15): Length 41–70 mm. Similar in colour and shape to third instar but stouter, yellow lateral line more distinct. Triangular shaped patches on anal claspers dark brown. Scoli bright light blue, bearing long pale brown setae, spiracles orange. Duration about 7–10 days.

Fifth instar larva (Figs. 16, 17): Length 71–100 mm. Similar to fourth instar but much larger and stouter, yellow lateral line distinct. Scoli bright light blue bearing long pale brown setae, spiracles orange. Duration about 9–15 days.

Mature larvae appear to move around their hostplant trees, often selecting different areas to begin feeding. This strategy may aid larval concealment by providing well leafed areas in which to rest, as larval feeding in a small area usually results in noticeable foliage stripping.

Pupal cocoon: Stout silken cocoon structure typical of *Syntherata* species, golden brown to light brown. Wild cocoons were found on *Planchonia careya* trees usually located on a stout twig with one or more leaves wrapped around, which aided concealment. On *Dodonaea* plants mature larvae appear to usually leave the foodplant tree and wander onto adjacent vegetation on which to pupate, usually on a stout twig with one or two leaves wrapped around, or rarely on the host tree trunk.

Pupal duration was observed to range from 3 weeks to about 5 months. Pupae may diapause through the dry season, and thus may have a diapause period of up to 12 months or longer, depending upon wet season rainfalls.

Distribution

S. torresiana sp. n. is currently known only from Horn Island and Hammond Island in the southern part of Torres Strait, and from Dauan Island in the extreme northern part of Torres Strait. Further collecting is required to investigate the potential occurrence on Saibai Island (there is anecdotal evidence to suggest that *S. torresiana* sp. n. occurs on Saibai Island, as evidenced by local residents description of "large yellow moths" coming into their house lights), and Boigu Island, also outer islands within eastern Torres Strait, northern parts of Cape York Peninsula, and southern coastal areas of Papua New Guinea (see notes below and discussion).

Notes

The description of *Syntherata torresiana* sp. n. brings the number of Australian *Syntherata* species to 7, with 6 species currently being known only from mainland locations. Of those 6 species (see Lane et al. 2010), each can be readily separated by its unique life history and biology alone, however recognisable adult morphological differences also assist species separation. The life history of *S. torresiana* sp. n. displays unique larval characters of bright blue larval scoli present on fourth and fifth instar larvae, and yellow scoli present on the third instar. First and second instars also display differences to the other Australian species.

In overall size, markings and wingshape, *Syntherata torresiana* sp. n. adults appear closest to *S. melvilla* (Fig. 25) which is currently known from Cape York Peninsula, Northern Territory, and north Western Australia. *S. melvilla* shares a close relationship with *S. mirata* (Fig. 28) with similarities of life history and biology but differs in size being a much larger species. *S. mirata* is the smallest species in the genus and is currently known from the Normanton and Karumba areas adjacent the southern Gulf of Carpentaria in northwestern Queensland. The male forewing shape of *S. torresiana* sp. n. is more narrow than in all other Australian *Syntherata* species, and is a guide to separation.

The known distribution of *Syntherata torresiana* sp. n. gives cause for discussion about its possible occurrence in southern Papua New Guinea, and also on Cape York Peninsula and more easterly Torres Strait islands, Queensland. Interestingly, the automatically created BIN Code number on the Bold website (Barcode of Life 2020) is identical with that of *S. malukuensis* (Paukstadt & Paukstadt,

2005) (Figs. 18, 19), described from Aru island, and *S. lilianae* Naumann et al., 2009 (Figs. 20, 21), described from the southern coastal line of West Papua, Indonesia. This cluster contains species with a distribution around the Arafura Sea occurring in lowlands which are all to be separated very well by their biogeography and morphology of imagines; preimaginal instars of *S. malukuensis* and *S. lilianae* are unknown, as for all *Syntherata* species from outside Australia.

- *Syntherata malukuensis* is the largest of those three species, with a lfw of 60–72 mm in males and 67–81 mm in females (series of 20 ♂♂, 2 ♀♀ in CSNB, 5 ♂♂ in CDAL, plus measurements in original description), of dark creamy to orange yellow or rarely also reddish brown ground colour, in many times with very reduced markings, very small fw and hw ocelli, and a tiny darker outer wing margin.
- *Syntherata lilianae* in general is smaller, with a lfw of 52–61 mm in males and 58–69 mm in females (see type series in Naumann et al. 2009), of darker yellowish orange ground colour (plus two reddish brown males in CSNB), typical broad, pinkish and dark orange outer wing margin, and with a little more acute fw apex.
- *Syntherata torresiana* sp. n. is of little larger size (in wild collected specimens) than *S. lilianae,* but smaller than *S. malukuensis,* and by its colour the most variable species in this group. In males there exist yellow, orange and reddish brown variations, females are of yellow, red or dark brown colour. Similar to *S. malukuensis,* markings are often very reduced, but specimens are of much darker colours and almost all have a distinct pinkish overlay.

As mentioned already by Paukstadt & Paukstadt (2005: 42), the typical specific characteristics in *Syntherata* often can be seen much easier in larger series of one species than by figuring and describing a single specimen. We decided to describe the new species despite of the fact with the similar BIN Code numbers because, aside from the morphological differences, the different habitats are well-isolated since last glacial period more than 8000 years ago from each other where no natural genetic exchange is possible.

Similar situations with identical BIN Code numbers exist also for some other clusters in *Syntherata* (e.g. the Australian taxa around *S. escarlata* or the West Papuan *S. bettinae* Naumann et al. 2009, see discussion below), but also within other genera (e.g. *Neodiphthera* Fletcher, 1982, compare Lane & Naumann 2013: 29) for taxa around the Arafura Sea or e.g. the North American genus *Hyalophora* Duncan, 1841 where the Bold system generates only a single BIN Code number for the whole genus. Nobody would doubt that here are more than one species included.

Syntherata buruana Naumann & Lane, sp. n.

(Figs. 26–27, B/W-Figs. VIa–VIc.)

Holotype ♂ (Figs. 26a & b): Indonesia, Maluku Prov. [South Moluccas], Buru Island (SEE), Remajah Mts., Ilat village env., 300 m, 3.–20. i. 2013, leg. S. Jakl; BC SNB 6488 (CSNB). The holotype will be deposited within the Rainer Seegers Foundation in the collections of MfN Berlin. A red holotype label will be fixed accordingly.

Paratypes (in total 4 ♂♂; Figs. 27a & b): All from **Indonesia,** Maluku Prov. [South Moluccas], Buru Island: 2 ♂♂, same locality as holotype, ♂ GP 2617/19 SNB; BC SNB 5086 & 6489 (CSNB). 1 ♂, same data, ex CSNB (CDAL). 1 ♂, Ilat village env., 200–300 m, iii. 2013, leg. local collector, GP 2625/20 SNB (B/W-Figs. VIa–VIc), BC SNB 6490 (CSNB).

Etymology: The new species is named after its origin, the Moluccan island of Buru in Indonesia.

Description

Male (Figs. 26, 27): Forewing length, from basis to apex, 53–55 mm (HT 53 mm), the apex little rounded, more rectangular.

Antennae broadly quadripectinate, of 11.5–12 mm length (HT 11.5 mm), with longest rami of 2.2 mm, of dark ochreous colour.

All known specimens are of pale creamy yellow ground colour with greyish brown markings in the median area and posterior to that.

Fw antemedian field yellow, costa from basis to apex of greyish brown colour, the median field more or less suffused with greyish brown scales, to both ante- and postmedian area ending with zigzag line. The fw ocellus is rounded, with central transparent portion and dark grey and bluish ring, of 3.5–4.2 mm maximum diameter (HT 3.5 mm). The median field is followed by completely uninterrupted zigzag line from basal margin up to the subapical area, again in the greyish brown colour. Postmedian area again in yellow, with a more or less intensely indicated dark submarginal line and a dark outer margin. The fw apical area with a pinkish violet field. The fw margin of *S. buruana* sp. n. is almost straight up to the apical area and forms there an almost rectangular end with the apical costa.

Hw pattern very similar to fw, ante- and postmedian field again in yellow ground colour, median area bordered by two zigzag lines, the inner part more or less darkened with creamy orange to violet scales, the central ocellus with very small inner transparent portion, a huge black and tiny brown ring, of 2.5–3.2 mm maximum diameter (HT 3.0 mm). The postmedian line consists of a row of dark triangles. Submarginal line as on fw.

Underside similar to upperside but markings more obscure; the antemedian field is missing, and the postmedian line is only slightly indicated as a row of dark patches on both fw and hw.

Male genitalia (B/W-Figs. VIa–VIc, dissection no. 2625/20 SNB): Uncus broad-based, bent to ventral side, ending with sclerotized tip with two short lateral processi. Valve apices with one almost rectangular tip, inner labides scoop-like, with three tips, ventral, inner part rounded. Vesica round, with a right and left lateral long slender process, saccus triangular. Phallus relatively short and broad, vesica emerging to dorsal side.

Male genitalia of the related *S. innescens* differ a little in the form of the inner labides, with a more straight ventral margin of the scoop-like process, the lateral processes of the juxta are shorter and less developed.

A male paratype of *S. innescens* in CBH, mentioned in the original description to originate as well from Buru, was dissected (GP 333/99 SNB; B/W-Fig. VII); its structures resemble very much those of specimens from Ambon (e.g. GP 239/97 SNB, B/W-Fig. VIII). This paratype specimen from Buru came from a series of specimens

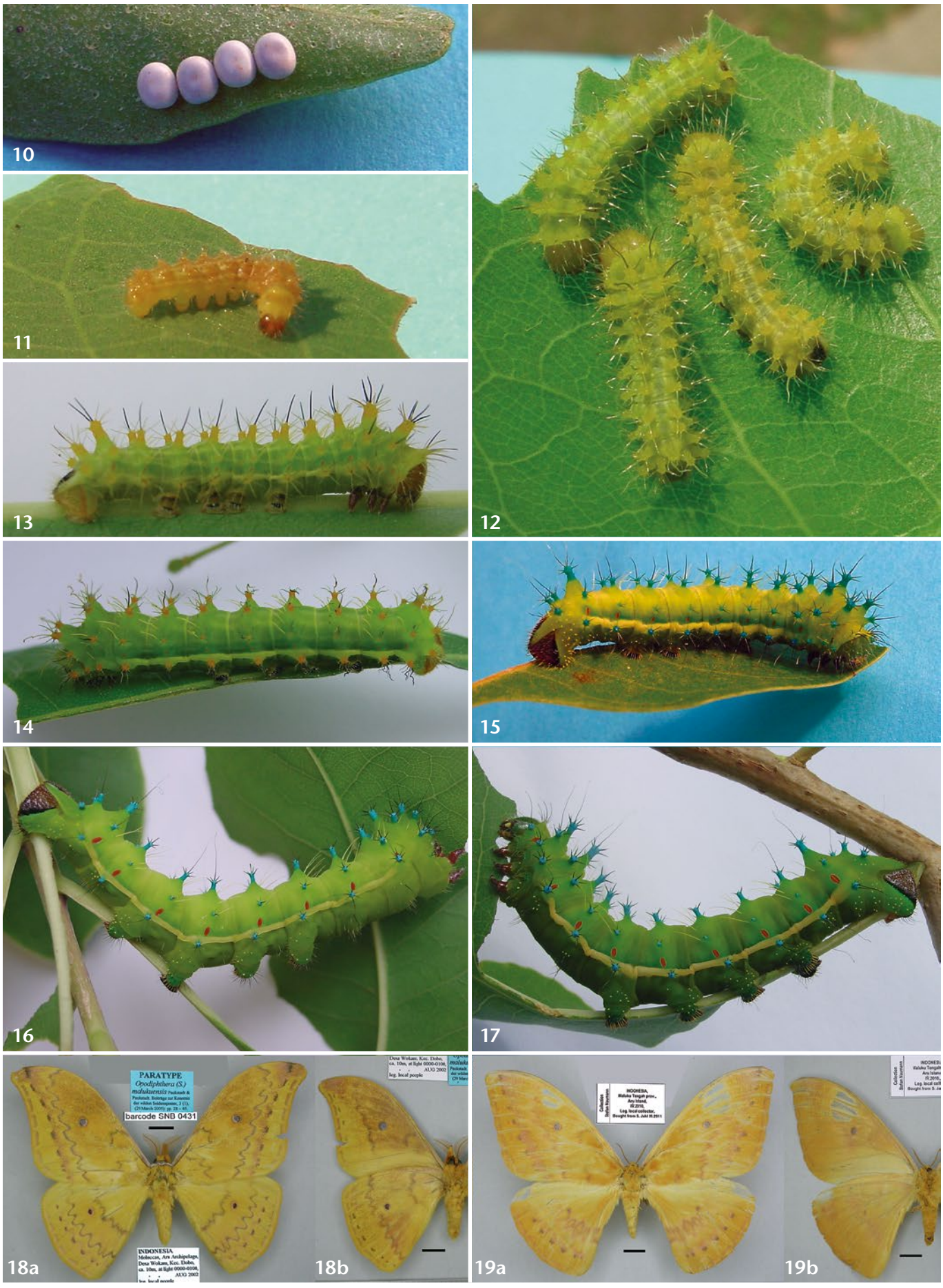


Plate 2, Figs. 10–17: Early instars of *Syntherata* ***torresiana*** **sp. n.**, from Horn and Hammond Islands. — **Fig. 10:** eggs. **Fig. 11:** 1st instar larva. **Fig. 12:** 2nd instar larva. **Fig. 13:** early 3rd instar larva. **Fig. 14:** 3rd instar larva. **Fig. 15:** 4th instar larva. **Fig. 16:** 5th instar larva. **Fig. 17:** 5th instar larva.— All photos of preimaginals: D. A. Lane. — **Figs. 18–19:** *Syntherata malukuensis,* Indonesia, Aru Islands. — **Fig. 18:** ♂ PT, (CSNB). **Fig. 19:** ♀, (CSNB). — Specimens not to the same scale; scale bars 1 cm; photos of specimens: S. Naumann..

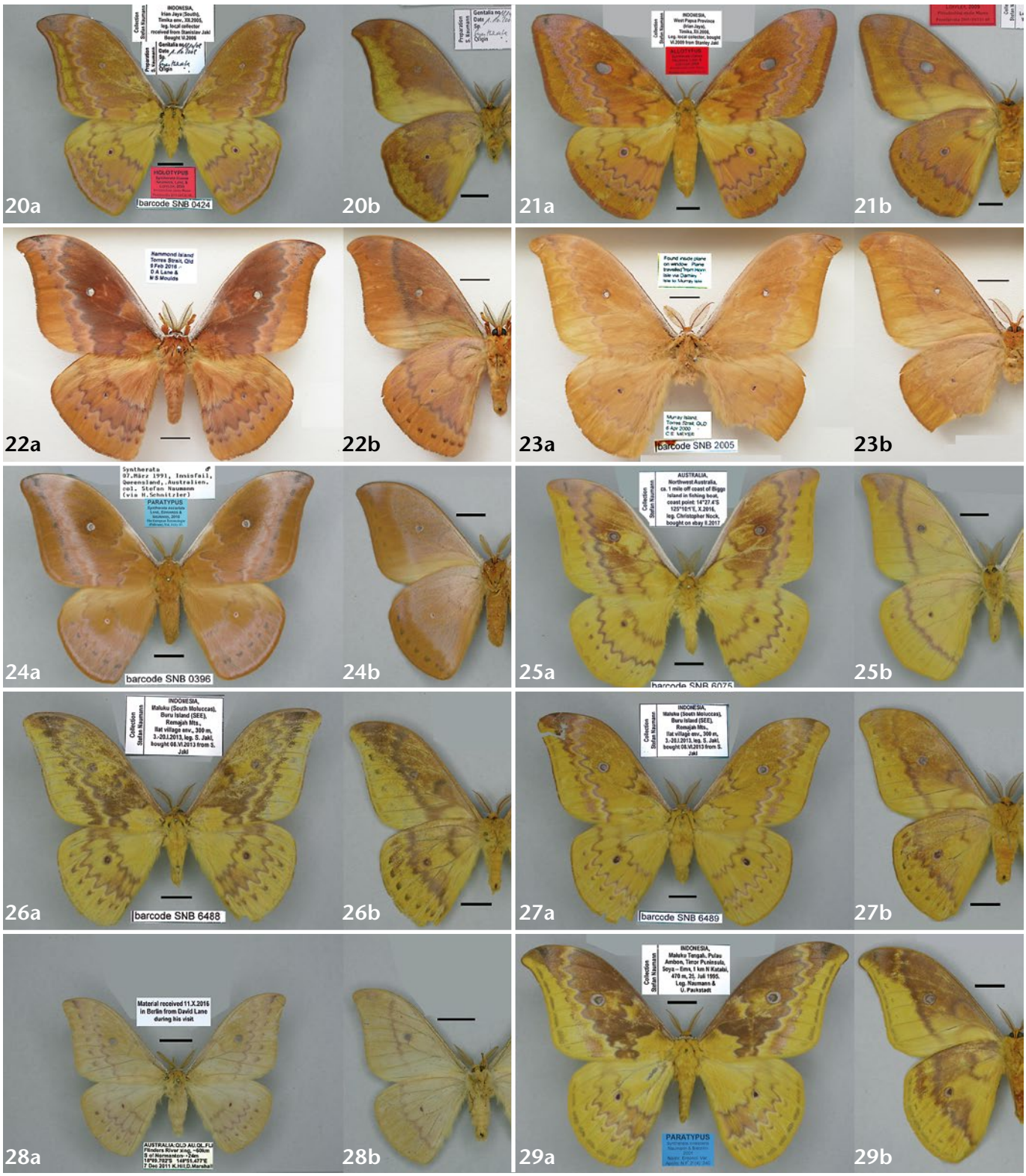
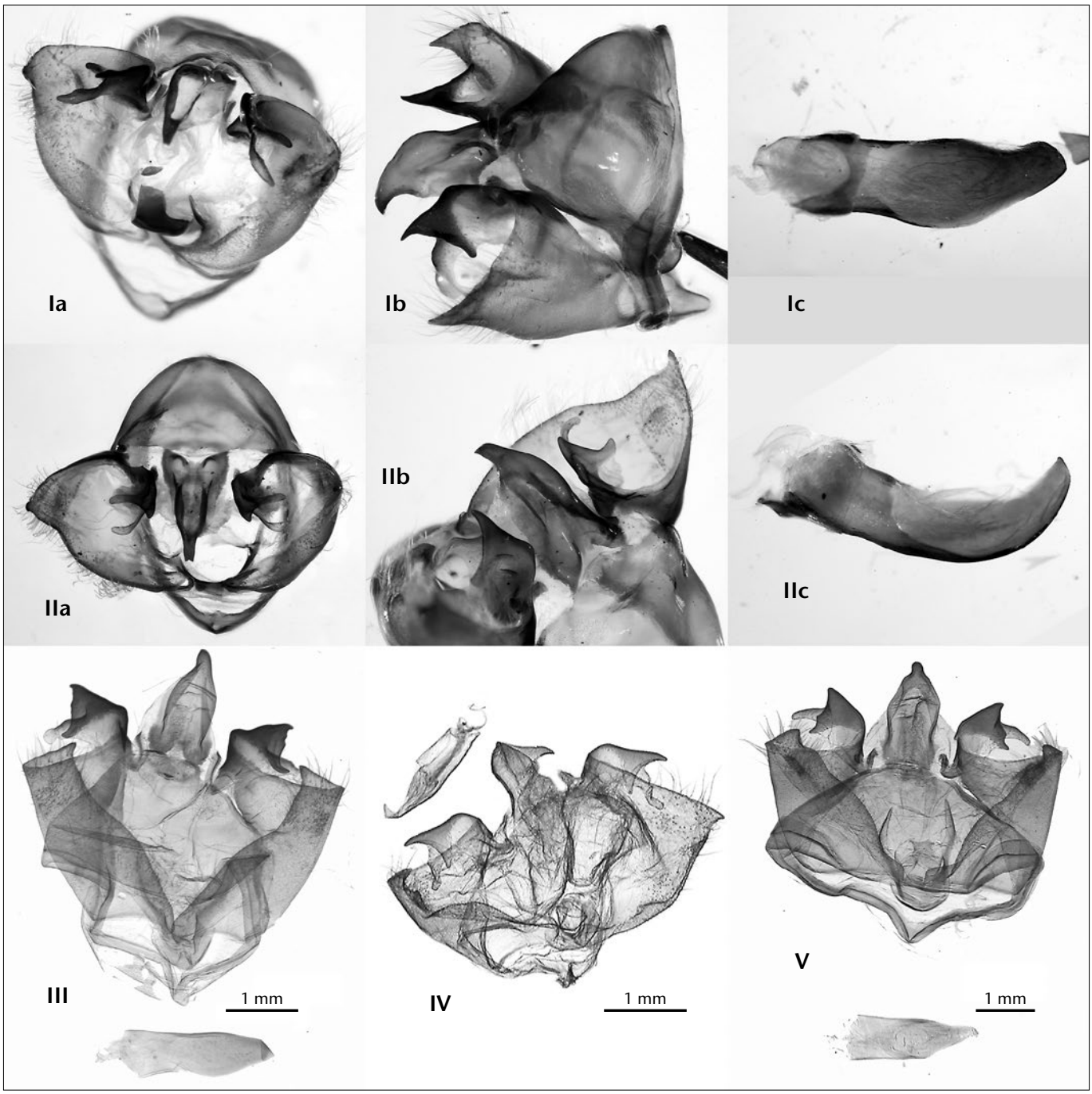


Plate 3, Figs. 20–21: *Syntherata lilianae,* Indonesia, Papua Prov. **Fig. 20:** ♂ **HT**, (CSNB > MfN). **Fig. 21:** ♀ "AT", (CSNB). — **Figs. 22–24:** *S. escarlata*, Australia, Queensland. **Fig. 22:** ♂, Hammond Island, (CDAL). **Fig. 23:** ♂, Murray Island, (CDAL). **Fig. 24:** ♂ PT, Innisfail, (CSNB). — **Fig. 25:** *S. melvilla*, ♂, Australia, Western Australia, Bigge Island, (CSNB). — **Figs. 26–27:** *Syntherata* ***buruana*** **sp. n.**, Indonesia, Molukkas, Buru Island. **Fig. 26:** ♂ **HT**, (CSNB > MfN). **Fig. 27:** ♂ PT, (CSNB). — **Fig. 28:** *S. mirata*, ♂, Australia, Queensland, S Normanton (CSNB) [see scale: small species!]. — **Fig. 29:** *S. innescens*, ♂ PT, Indonesia, Molukkas, Ambon Island (CSNB). — Specimens not to the same scale; scale bars 1 cm; photos of specimens: S. Naumann..



B/W-Plate, Figs. I–II: ♂ genitalia of *Syntherata* ***torresiana*** **sp. n., PTs, B/W-Fig. I:** Horn Island, genitalia, GP 2598/19 SNB; a: posterior; b: laterodorsally; c: phallus. **B/W-Fig. II:** Dauan Island, genitalia, GP 2597/19 SNB; a: posterior; b: dorsally; c: phallus. — **B/W-Fig. III:** *Synth. escarlata,* GP 1819/08 SNB. — **B/W-Fig. IV:** *Synth. mirata,* GP 917/03 SNB. — **B/W-Fig. V:** *Synth. melvilla,* GP 1816/08 SNB. — Not to identical scale; scale bar (where present) = 1 mm. — Genitalia photos: R. Rougerie (*S. torresiana*); S. Naumann.

imported by the late M. Beeke, and there were three specimens with similar data and origin mentioned for coll. Beeke, CBH, and CWAN *in* SMFL, which we all interprete as mislabelled dealer's material which most probably originated from Ambon or Ceram Islands. We hesitate to designate those again as paratypes of the here described *S. buruana*.

For comparision we also figure the genitalia structures of *S. sinjaevi* Naumann & Brechlin, 2001 from Halmahera (GP 240/97 SNB; B/W-Fig. IX); those show more differences to both *S. innescens* and *S. buruana* in the form of the valves and labides.

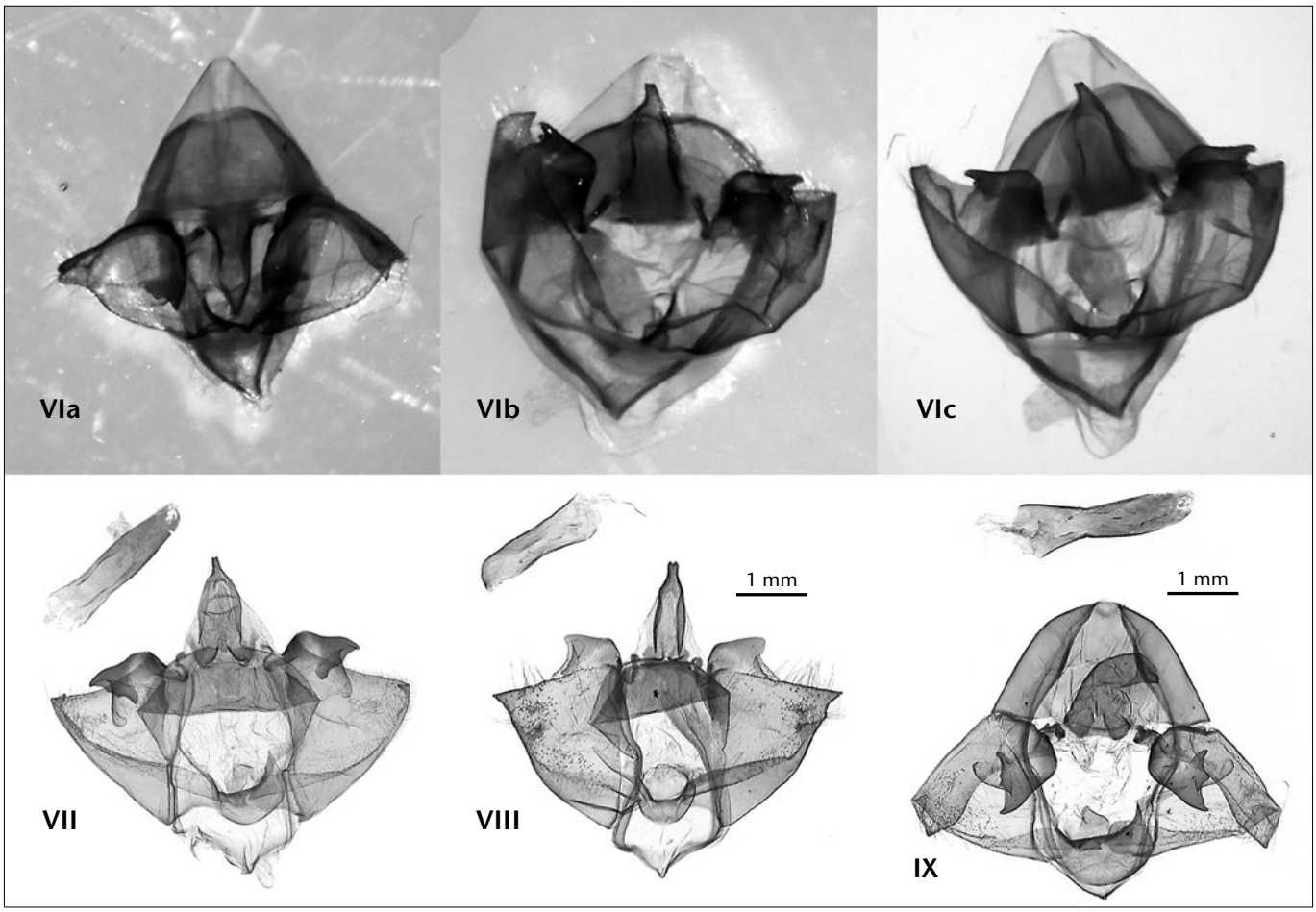
Female and preimaginal instars. Unknown.

Distribution

S. buruana sp. n. is currently known only from the Indonesian island of Buru, located quite well separated from other islands of the Moluccas in the Moluccan Sea.

Notes

Syntherata buruana sp. n. differs from *S. innescens* (Fig. 29) by the more faint pattern; all markings look somewhat unsharp and less indicated; the fw postmedian line is always broad and completely uninterrupted from basal margin up to the subapical area while it consists in *S. innescens* of a row of dark triangles. While the outer fw margin of *S. innescens* is somewhat bent outward in the apical region and the wingshape forms a rounded tip, the fw margin of *S. buruana* sp. n. is almost straight up to the apical area and forms there a more rectangular angle with the apical costa, the



B/W-Plate, Figs. VIa–VIc: ♂ genitalia of *Syntherata* ***buruana*** **sp. n., PT,** Buru Island, GP 2625/20 SNB, three slightly different views in fluid (ethanol). — **B/W-Fig. VII:** *Synth. innescens,* GP 333/99 SNB, stated in the original description to come from Buru. **B/W-Fig. VIII:** *Synth. innescens,* GP 239/97 SNB, Ambon. — **B/W-Fig. V:** *Synth. sinjaevi,* GP 240/97 SNB, Halmahera. — Not to identical scale; scale bar (where present) = 1 mm. — Genitalia photos: U. Brosch (older numbers ex CSNB); S. Naumann.

bent apical tip is missing in all known specimens. For reasons of comparison we figure also a ♂ specimen of *S. sinjaevi* from nearby Halmahera island (Fig. 30).

Specimens of *Syntherata innescens* mentioned in the description to originate from Buru island are most probably mislabelled traders' material; we do not believe that there occur two different, but closely related *Syntherata* species on that island. We had only access to Buru paratype specimens of *S. innescens* in CBH and CWAN in SMFL, to prove their identity. Access to material in colls. M. Beeke and R. Brechlin was impossible for us; the disposition of coll. M. Beeke after his death some years ago is unclear, and type material ex coll. Brechlin, which is always mentioned by him to be placed "via Museum Witt in Zoologische Staatssammlung München, Germany," never ended there so far (see e.g. recent comment in Naumann & Nässig 2020: 141), which is also the case for e.g. all the *Syntherata* species described by him.

Another ♂ specimen in CSLL with data label "no further data, xi. 2003, leg. H. Agusyanto, BC SNB 1566" is identical with material of true *S. innescens* from Ambon and Ceram islands on Bold. See above: this is most probably as well mislabelled traders' material as it seems unlikely that two *Syntherata* species — *innescens* and *buruana* sp. n. — exist syntopic on Buru island.

Discussion

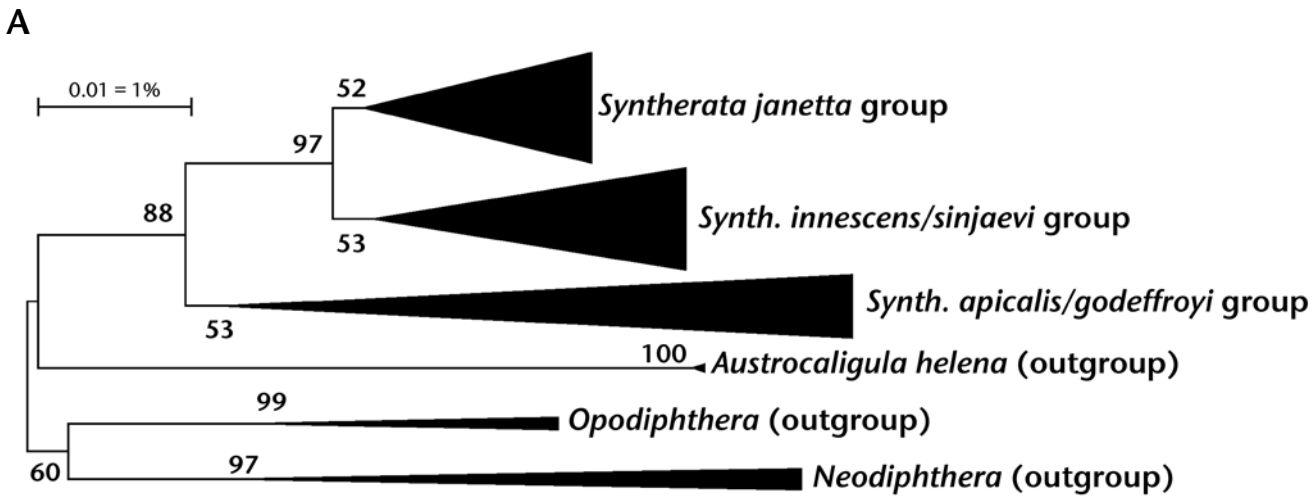
Generally there are only minor differences found in the genitalia structures within *Syntherata* (Naumann & Brechlin 2001, Naumann et al. 2009), and in general species of *Syntherata* can much better be determined if a series of specimens is available, to get an idea about variability of external morphology. The *Syntherata* fauna of New Guinea is very poorly known, particularly with reference to the biologies and life histories of the currently known 19 species. No records of any early instars for the complete island of New Guinea plus all Moluccan taxa exist so far. In general, the distribution areas of the Australian and New Guinean species of *Syntherata* do not overlap — further collecting is required from the south coast of Papua New Guinea to confirm if *S. torresiana* sp. n. may occur there. Likewise further collecting is required from other northern and eastern islands of Torres Strait, as well as northern Cape York Peninsula, for search of its presence there. Horn, Hammond and Dauan Islands are geologically part of mainland Australia, being granite outcrop islands and northern part of the Great Dividing Range, and all three islands contain patches of vine scrub areas with close botanical relationship to similar areas on Cape York Peninsula, Australia.

As mentioned above in the description of *Syntherata torresiana* sp. n., we interpret here the three taxa *S. malukuensis, S. lilianae* and *S. torresiana* sp. n. as different species due to their biogeographical distribution and morphological characters, despite that fact that Bold (2020) automatically created the same BIN Code numbers. The same happened with the Australian taxa *S.*

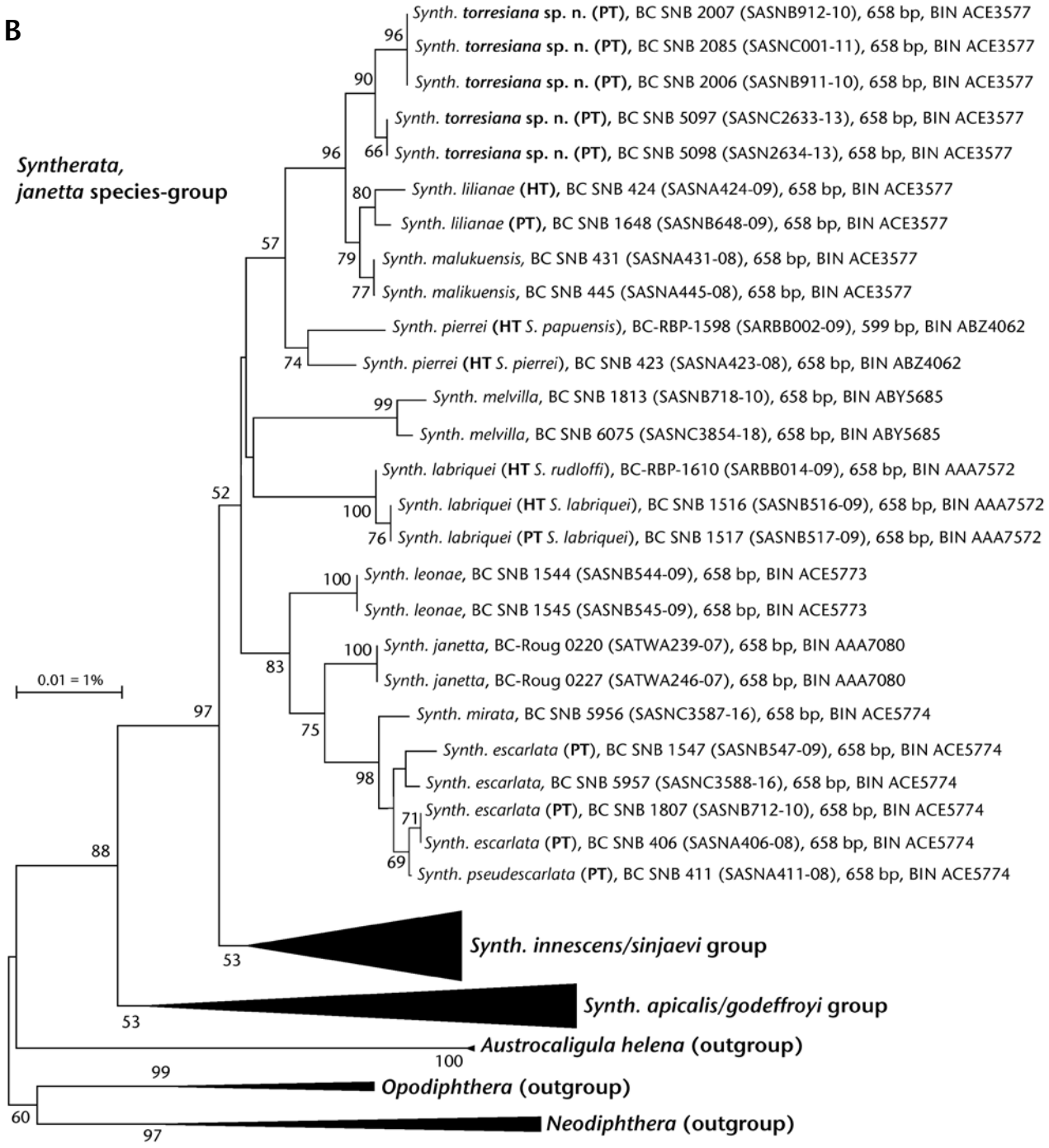
Table 1: Data of the 75 specimens (68 of which showing 658 bp, 5 with 609–650 bp, and 2 other which have only 582 and 599 bp) of ***Syntherata* species and outgroups** used for the mtDNA barcode analyses with MEGA5. Specimens arranged from top to bottom in the order of the NJ-tree graph (Text-Figs. A–D), based on data extracted from the BOLD website on 27. V. 2020. — There are clusters of species in *Syntherata* with identical, automatically created BIN-Code numbers, for which we accept different species due to larval and imaginal morphology and zoogeography (e.g., the complex of *S. escarlata* in Australia, the complex of *S. malukuensis* on the islands around Arafura Sea plus lowlands of the southern coast of New Guinea, or the complex of *S. pristina* for West Papua plus separated islands around); see notes in the discussion. Here accepted species alternatively in white and light grey fields. The three informal species-groups of *Syntherata* (as illustrated in **Text-Figs. B–D**) are separated by intermediate headlines. — Additional abbreviations: AT = Australia; BOLD BIN-Code = Barcode Index Number; an automatically assigned identifier for genetic clusters within BOLD, see RATNASINGHAM & HEBERT (2013); HT = holotype; PNG = Papua New Guinea; PT = paratype; SL = Sequence Length (bp-data from BOLD); WP = West Papua. — **Notes:** Deposition (Depos.) is given as in the original descriptions; parts of specimens in CSNB and CDAL are stored meanwhile in the originally mentioned institutions, CSLL is meanwhile a part of CSNB, and CRBP specimens mentioned to be deposited via Museum Witt in ZSM are not available to the public and probably still in CRBP.

Sample ID	Process ID	Species — BOLD BIN-Code	Depos.	SL	Sex	Origin
***S. janetta* species-group**						
BC SNB 2007	SASNB912-10	*S.* ***torresiana* sp. n.** – ACE3577	CDAL	658 bp	♀	AT, Queensland, Torres Strait, Dauan Island, **PT** *S. torresiana*
BC SNB 2085	SASNC001-11	*S.* ***torresiana* sp. n.** – ACE3577	CSNB	658 bp	♂	AT, Queensland, Torres Strait, Dauan Island, **PT** *S. torresiana*
BC SNB 2006	SASNB911-10	*S.* ***torresiana* sp. n.** – ACE3577	CDAL	658 bp	♂	AT, Queensland, Torres Strait, Dauan Island, **PT** *S. torresiana*
BC SNB 5097	SASNC2633-13	*S.* ***torresiana* sp. n.** – ACE3577	CSNB	658 bp	♂	AT, Queensland, Torres Strait, Horn Island, **PT** *S. torresiana*
BC SNB 5098	SASNC2634-13	*S.* ***torresiana* sp. n.** – ACE3577	CSNB	658 bp	♀	AT, Queensland, Torres Strait, Horn Island, **PT** *S. torresiana*
BC SNB 424	SASNA424-08	*S. lilianae* – ACE3577	CSNB	658 bp	♂	Indonesia, WP, Timika env., **HT *S. lilianae***
BC SNB 1648	SASNB648-09	*S. lilianae* – ACE3577	CSNB	658 bp	♂	Indonesia, WP, Yahukimo, **PT** *S. lilianae*
BC SNB 431	SASNA431-08	*S. malukuensis* – ACE3577	CSNB	658 bp	♂	Indonesia, Maluku, Aru Island
BC SNB 445	SASNA445-08	*S. malukuensis* – ACE3577	CSNB	658 bp	♂	Indonesia, Maluku, Aru Island
BC-RBP-1598	SARBB002-09	*S. pierrei* – ABZ4062	CRBP	599 bp	♂	PNG, Morobe Pr., Kuper Range, **HT *S. papuensis***
BC SNB 423	SASNA423-08	*S. pierrei* – ABZ4062	CSNB	658 bp	♂	PNG, Morobe, Wau Distr., 1300 m, **HT *S. pierrei***
BC SNB 1813	SASNB718-10	*S. melvilla* – ABY5685	CSNB	658 bp	♂	AT, Northern Territory, Kakadu N.P.
BC SNB 6075	SASNC3854-18	*S. melvilla* – ABY5685	CSNB	658 bp	♂	AT, Western AT, Bigge Island
BC-RBP-1610	SARBB014-09	*S. labriquei* – AAA7572	CRBP	658 bp	♂	PNG, Ferguson Island, **HT *S. rudloffi***
BC SNB 1516	SASNB516-09	*S. labriquei* – AAA7572	MHNL	658 bp	♂	PNG, Central, Girinumu, **HT *S. labriquei***
BC SNB 1517	SASNB517-09	*S. labriquei* – AAA7572	MHNL	658 bp	♂	PNG, Central, Kokoda Trail, **PT** *S. labriquei*
BC SNB 1544	SASNB544-09	*S. leonae* – ACE5773	CDAL	658 bp	♂	AT, Queensland, Cairns
BC SNB 1545	SASNB545-09	*S. leonae* – ACE5773	CDAL	658 bp	♂	AT, Queensland, Atherton
BC-Roug 0220	SATWA239-07	*S. janetta* – AAA7080	MNHN	658 bp	♂	AT, North Queensland, 20 km S Bowen
BC-Roug 0227	SATWA246-07	*S. janetta* – AAA7080	MNHN	658 bp	♂	AT, North Queensland, 20 km S Bowen
BC SNB 5956	SASNC3587-16	*S. mirata* – ACE5774	CSNB	658 bp	♂	AT, Queensland, Normanton, Flynders River
BC SNB 1547	SASNB547-09	*S. escarlata* – ACE5774	CDAL	658 bp	♂	AT, Queensland, Cooktown, CDAL, **PT** *S. escarlata*
BC SNB 5957	SASNC3588-16	*S. escarlata* – ACE5774	CSNB	658 bp	♂	AT, Queensland, Torres Strait, Hammond Island
BC SNB 1807	SASNB712-10	*S. escarlata* – ACE5774	CSNB	658 bp	♂	AT, Queensland, S Cairns, **PT** *S. escarlata*
BC SNB 406	SASNA406-08	*S. escarlata* – ACE5774	CSNB	658 bp	♂	AT, Queensland, Palmerston Hwy., **PT** *S. escarlata*
BC SNB 411	SASNA411-08	*S. pseudescarlata* – ACE5774	CSNB	658 bp	♂	AT, Queensland, S Kuranda, **PT** *S. pseudescarlata*
***S. innescens/sinjaevi* species-group**						
BC SNB 566	SASNB566-09	*S. innescens* – AAC8961	CSLL	658 bp	♂	Indonesia, Maluku, Buru Isl. [mislabelled trader's material?]
BC SNB 6258	SASNC4100-18	*S. innescens* – AAC8961	CSNB	658 bp	♀	Indonesia, Maluku, Ceram Island
BC SNB 426	SASNA426-08	*S. innescens* – AAC8961	CSNB	623 bp	♂	Indonesia, Maluku, Ceram, Kamarian, **PT** *S. innescens*
BC SNB 429	SASNA429-08	*S. doboensis* – ABZ5329	CSNB	582 bp	♂	Indonesia, Maluku, Aru Island
BC SNB 430	SASNA430-08	*S. doboensis* – ABZ5329	CSNB	658 bp	♂	Indonesia, Maluku, Aru Island
BC SNB 5086	SASNC2622-13	*S.* ***buruana* sp. n.** – ACI5522	CSNB	658 bp	♂	Indonesia, Maluku, Buru Island, **PT** *S. buruana*
BC SNB 414	SASNA414-08	*S. haiaensis* – AAD2753	CDAL	658 bp	♂	PNG, Crater Mt., Haia, **HT *S. haiaensis***
BC SNB 1558	SASNB558-09	*S. haiaensis* – AAD2753	CDAL	658 bp	♂	PNG, Crater Mt., Haia, **PT** *S. haiaensis*
BC SNB 6076	SASNC3855-18	*S. degroofi* – AAA7568	CSNB	658 bp	♀	Indonesia, WP, Rajah Ampat, Misool Island
BC SNB 6078	SASNC3857-18	*S. degroofi* – AAA7568	CSNB	658 bp	♂	Indonesia, WP, Rajah Ampat, Misool Island
BC SNB 1570	SASNB570-09	*S. bettinae* – AAA7568	CSNB	658 bp	♀	Indon., WP, Manokwari env., Arfak Mts., 400 m, **PT** *S. bettinae*
BC SNB 2879	SASNC795-11	*S. bettinae* – AAA7568	CSNB	658 bp	♂	Indonesia, WP, Arfak Mts., 1200 m
BC SNB 446	SASNA446-08	*S. bettinae* – AAA7568	CSNB	658 bp	♂	Indonesia, WP, Arfak Mts., 1200 m, **HT *S. bettinae***
BC-RBP-1605	SARBB009-09	*S. bettinae* – AAA7568	CRBP	658 bp	♂	Indonesia, WP, Arfak Mts., 850 m, **HT *S. arfakiana***
BC-RBP-1544	SARBA876-09	*S. sinjaevi* – AAD7837	CRBP	658 bp	♂	Indonesia, Maluku, Halmahera, **PT** *S. sinjaevi* [wrongly indicated as "AT" on BOLD]
BC-RBP-1545	SARBA877-09	*S. sinjaevi* – AAD7837	CRBP	658 bp	♂	Indonesia, Maluku, Halmahera, **HT *S. sinjaevi***

Sample ID	Process ID	Species — BOLD BIN-Code	Depos.	SL	Sex	Origin
***S. innescens/sinjaevi* species-group**						
BC SNB 5120	SASNC2656-13	*S. pristina* – AAA7567	CSLL	658 bp	♀	Indonesia, WP, Yapen Island
BC SNB 5518	SASNC3149-15	*S. pristina* – AAA7567	CSLL	658 bp	♀	Indonesia, WP, Mamberano Distr.
BC SNB 1569	SASNB569-09	*S. pristina* – AAA7567	CSLL	658 bp	♂	Indonesia, WP, Manokwari Distr., 1490 m
BC SNB 1520	SASNB520-09	*S. pristina* – AAA7567	CSNB	658 bp	♀	Indonesia, WP, Arfak Mts., 1200 m
BC SNB 438	SASNA438-08	*S. pristina* – AAA7567	CSNB	658 bp	♂	Indonesia, WP, Arfak Mts., 1190 m
BC SNB 439	SASNA439-08	*S. marlenae* – AAA7567	CSNB	658 bp	♂	Indonesia, WP, S Nabire, 400 m, **HT *S. marlenae***
BC SNB 5122	SASNC2658-13	*S. marlenae* – AAA7567	CSLL	658 bp	♂	Indonesia, WP, Yapen Island
BC-RBP-1564	SARBA896-09	*S. marlenae* – AAA7567	CRBP	621 bp	♂	Indonesia, WP, Nabire, 50 m, **HT *S. parvoantennata***
***S. apicalis/godeffroyi* species-group**						
BC-RBP-1624	SARBB028-09	*S. michaschaarschmidti* – AAD2254	CRBP	658 bp	♂	PNG, New Ireland, **PT** *S. michaschaarschmidti*
BC-RBP-1625	SARBB029-09	*S. michaschaarschmidti* – AAD2254	CRBP	658 bp	♂	PNG, New Ireland, **PT** *S. michaschaarschmidti*
BC SNB 432	SASNA432-08	*S. godeffroyi* – AAD2253	CSNB	658 bp	♂	PNG, New Britain, Warangoi
BC SNB 433	SASNA433-08	*S. godeffroyi* – *AAD2253*	CSNB	658 bp	♂	PNG, New Britain, Warangoi
BC SNB 412	SASNA412-08	*S. apicalis* – AAE1381	CSNB	658 bp	♂	Indonesia, WP, S Nabire
BC SNB 1643	SASNB643-09	*S. apicalis* – AAE1381	CSNB	658 bp	♂	Indonesia, WP, N Kaimana
BC-RBP-1600	SARBB004-09	*S. erici* – AAA7566	CRBP	658 bp	♂	Indonesia, WP, Enarotali, 1700 m, **HT *S. cernyi***
BC SNB 437	SASNA437-08	*S. erici* – AAA7566	CSNB	658 bp	♂	Indonesia, WP, Mapia, 1700 m, **HT *S. erici***
BC-RBP-1603	SARBB007-09	*S. lagariana* – ACE4720	CRBP	658 bp	♂	Indonesia, WP, Nabire, **HT *S. lagariana***
BC-RBP-1604	SARBB008-09	*S. lagariana* – ACE4720	CRBP	658 bp	♂	Indonesia, WP, Nabire, **PT** *S. lagariana*
BC SNB 1574	SASNB574-09	*S. brunnea* – ACE7520	CSLL	650 bp	♂	PNG, Madang, Maibang
BC SNB 458	SASNA458-08	*S. bretschneideri* – ACF1628	CSLL	658 bp	♂	Indonesia, WP, Kobanu, 2779 m, **HT *S. bretschneideri***
BC SNB 459	SASNA459-08	*S. bretschneideri* – ACF1628	CSLL	658 bp	♂	Indonesia, WP, Kobanu, 2779 m, **PT** *S. bretschneideri*
BC SNB 460	SASNA460-08	*S. anettae* – ACE7519	CSLL	609 bp	♂	Indonesia, WP, TransIrianHwy., 400 m, **HT *S. anettae***
BC SNB 5124	SASNC2660-13	*S. anettae* – ACE7519	CSLL	658 bp	♂	Indonesia, WP, Yapen Island
Outgroups						
BC SNB 1603	SASNB603-09	*Austrocaligula helena* – AAC1451	CSNB	658 bp	♂	AT, South AT, Kangaroo Island
BC SNB 1637	SASNB637-09	*Austrocaligula helena* – AAC1451	CSNB	658 bp	♀	AT, Australian Capital Territory, Canberra env.
BC SNB 481	SASNA481-08	*Opodiphthera jurriaansei* – ACE9133	CSNB	658 bp	♂	Indonesia, Maluku, Tanimbar, Yamdena
BC SNB 1542	SASNB542-09	*Opodiphthera astrophela* – AAD3757	CDAL	658 bp	♀	AT, Queensland, W Injune
BC SNB 2102	SASNC018-11	*Opodiphthera fervida* – AAC8209	CSNB	658 bp	♂	AT, Queensland, Injune
BC SNB 471	SASNA471-08	*Neodiphthera sulphurea* – AAE5043	CSNB	658 bp	♂	AT, Queensland, Iron Range, **PT** *N. sulphurea*
BC SNB 4964	SASNC2500-13	*Neodiphthera sahulensis* – AAE5029	CSNB	658 bp	♂	Indonesia, Maluku, Aru, Wokam Island
BC SNB 1590	SASNB590-09	*Neodiphthera habemana* – AAI3018	CSLL	658 bp	♂	Indonesia, West Papua
BC-RBP-1706	SARBB110-09	*Neodiphthera ceramensis* – ACF1214	CRBP	619 bp	♂	Indonesia, Maluku, Buru Island, **HT *N. buruensis***
BC SNB 6080	SASNC3859-18	*Neodiphthera ceramensis* – ACF1214	CSNB	658 bp	♂	Indonesia, Maluku, Ambon Island



Text-Fig. A: Neighbor Joining (= NJ; cf. SAITOU & NEI 1987) mtDNA COI barcode tree of the genus *Syntherata,* overview. The figure is based on a total of 75 data sets (extracted from the BOLD website on 27. v. 2020) and computed by MEGA5 software (TAMURA et al. 2007, 2011). Details and some notes on the specimens see in **Table 1.** Outgroups and the three informal species-groups of *Syntherata* are collapsed here in this figure. The optimal tree with the sum of branch length = 0.68240829 is shown. The tree is drawn to scale, with branch lengths in the same units as those of the evolutionary distances used to infer the phylogenetic tree. The percentage of replicate trees in which the associated taxa clustered together in the bootstrap test (2000 replicates) are shown (only if >50%) next to the branches (FELSENSTEIN 1985). The evolutionary distances were computed using the Maximum Composite Likelihood method (TAMURA et al. 2004) and are in the units of the number of base substitutions per site. The rate variation among sites was modeled with a gamma distribution (shape parameter = 3). The differences in the composition bias among sequences were considered in evolutionary comparisons (TAMURA & KUMAR 2002).

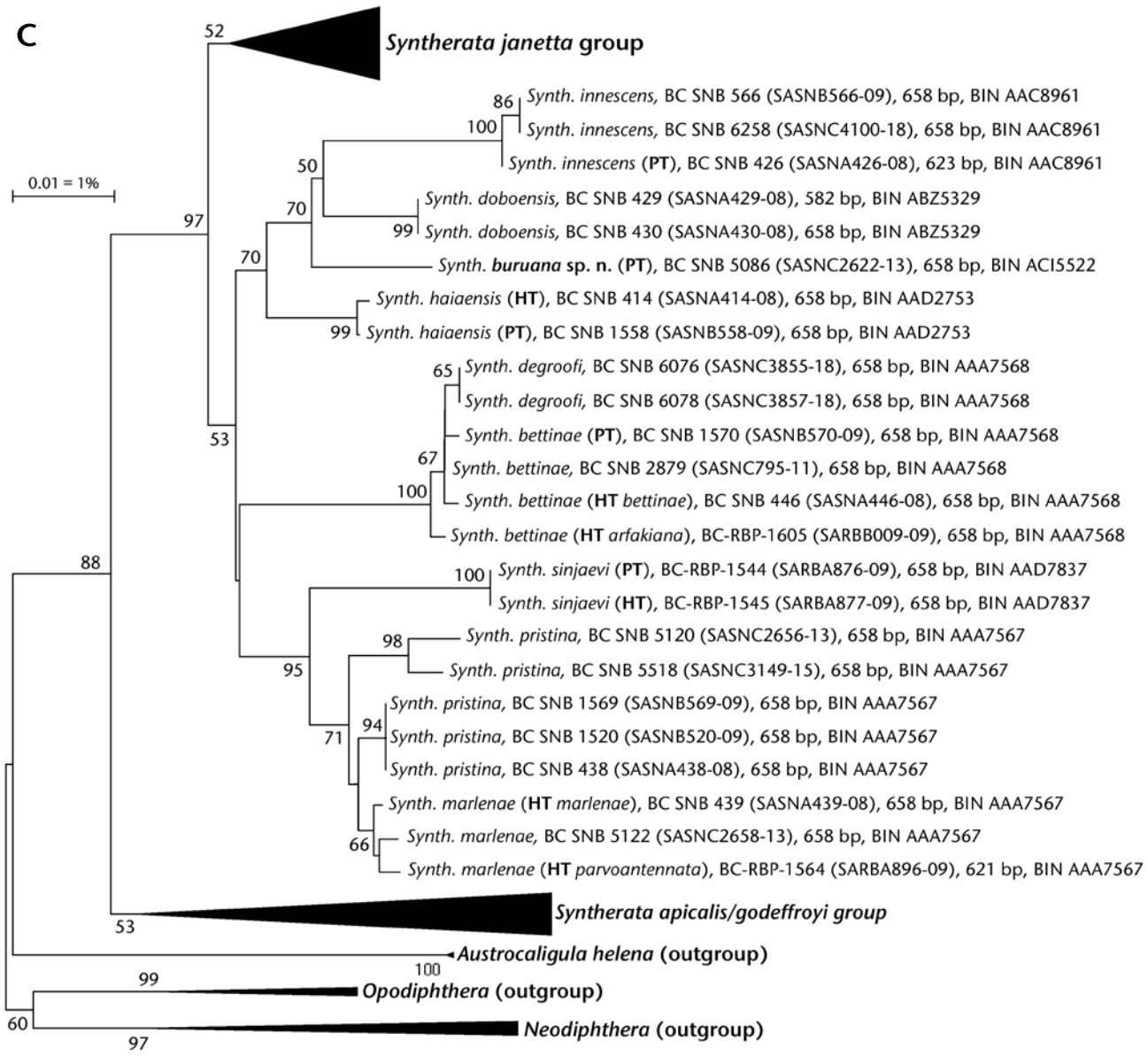


Text-Fig. B: NJ COI barcode tree of the genus *Syntherata,* **species-group of *S. janetta*.** The figure is based on a total of 75 data sets (extracted from the BOLD website on 27. V. 2020) and computed by MEGA5 software; details see in Text-Fig. A. Details and some notes on the specimens see in Table 1. Outgroups and the other two of the three species-groups of *Syntherata* are collapsed here. Bootstrap values shown only if >50%.

escarlata (Figs. 22–24), *S. pseudescarlata* LANE et al., 2010, and *S. mirata* (Fig. 28); as shown in their description, the morphological characters both of the moths and the preimaginal instars are good characters to handle those as well on species level.

Recent collecting on Hammond Island in the southern Torres Strait resulted in records of another *Syntherata* population which we determined as *S. escarlata*. Also for this the same BIN Code number (ACE5774) was created. A male singleton was found inside a plane travelling from Horn Island via Darnley Island to Murray Island on 6. IV. 2000 by C. E. MEYER (Fig. 23). As the origin of this specimen is somewhat uncertain due to the route of the plane, we tried to barcode this specimen (BC SNB 2005), and the identity turned out to be *S. escarlata* as well.

Another situation with an identical BIN Code number (AAA7567) exists for the two taxa *S. pristina* (WALKER, 1865) and *S. marlenae* NAUMANN et al., 2009 (plus its synonyms *S. hoffmanni* NAUMANN et al., 2009, **syn. n.**, *S. parvoantennata* BRECHLIN, 2010, **syn. n.**, and *S. engaiana* BRECHLIN, 2010, **syn. n.**; see below under new synonymies). Both are entirely yellow species with dark

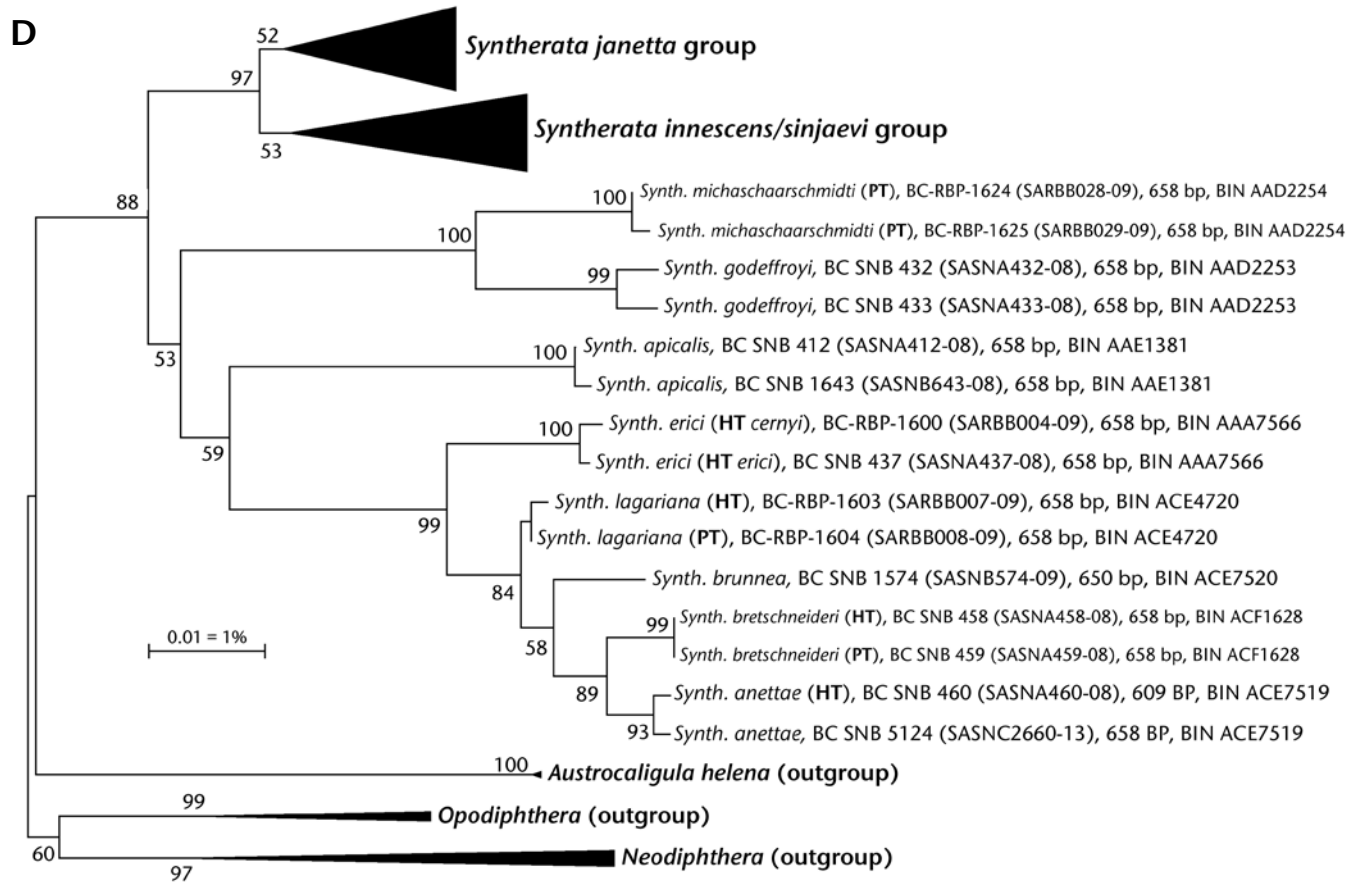


Text-Fig. C: NJ COI barcode tree of the genus *Syntherata,* **species-group of *S. innescens/sinjaevi*.** The figure is based on a total of 75 data sets (extracted from the BOLD website on 27. V. 2020) and computed by MEGA5 software; details see in Text-Fig. A. Details and some notes on the specimens see in Table 1. Outgroups and the other two of the three species-groups of *Syntherata* are collapsed here. Bootstrap values shown only if >50%.

brown, dark orange and violet markings. *S. pristina* (the holotype ♀ was figured by NAUMANN & BRECHLIN 2001: fig. 14) is much smaller (Lfw. 40–45 mm in ♂♂, 45–51 mm in ♀♀; series of 12 ♂♂, 5 ♀♀ in CSNB) and has even shorter antennae in both sexes than *S. marlenae* (Lfw. 51–61 mm in ♂♂, 54–67 mm in ♀♀; series of 16 ♂♂, 3 ♀♀ in CSNB; plus other material mentioned in the original description), although antennae are short in both taxa compared to other species. In addition, ♂♂ of *S. pristina* are of more dull than pale yellow colour, have more intense dark greyish brown markings, and the hw ocellus is always more prominent. ♀♀ of *S. pristina* are much smaller than those of *S. marlenae,* and the median area is less wide on both fw and hw. While *S. pristina* is known mainly from Arfak Mts. in West Papua, Indonesia, plus with recent records also from Yapen island on the northern coast of Papua, Indonesia, most records of *S. marlenae* are from areas south of Nabire and the southern coast line of West Papua and Papua provinces, Indonesia (see type list in original description).

Currently the last sample with overlapping BIN Code numbers (AAA7568) is the situation with *S. bettinae* NAUMANN et al., 2009 (plus its junior synonym *S. arfakiana* BRECHLIN, 2010, **syn. n.**) and S. *degroofi* PAUKSTADT et al., 2017. *S. bettinae* was described from Indonesia, West Papua Province, Arfak Mts., from an altitude of 1200 m (HT), further records in Arfak Mts. came from 400–1700 m altitudes, from mountains north of Kaimana (all West Papua Province), plus from Enarotali District and Oksibil (both Papua Province) (see type list in original description; Figs. 31 & 32).

PAUKSTADT et al. (2017) described *S. degroofi* from Indonesia, West Papua, Raja Ampat Archipelago, Misool Island,



Text-Fig. D: NJ COI barcode tree of the genus *Syntherata,* **species-group of *S. apicalis/godeffroyi*.** The figure is based on a total of 75 data sets (extracted from the BOLD website on 27. V. 2020) and computed by MEGA5 software; details see in Text-Fig. A. Details and some notes on the specimens see in Table 1. Outgroups and the other two of the three species-groups of *Syntherata* are collapsed here. Bootstrap values shown only if >50%.

after a female singleton. There is a small series of 2 ♂♂ and 2 ♀♀ in CSNB from that island with data "N Erwang, VI. 2016" (♂♂) and "IX. 2016" (♀♀) which was completely and successfully barcoded (BC SNB 6076–6079). In this area the island reaches its highest peaks of around 445 m altitude. Both taxa, *S. bettinae* and *S. degroofi*, are very variable species, with colour morphs of bright yellow, orange, yellow with brown markings or reddish brown morphs and look almost identical. Despite that fact and the joint BIN Code number we currently accept *S. degroofi* on species rank due to the zoogeographical isolation of Misool Island. To complete knowledge on *S. degroofi*, we figure here the first two known ♂♂ plus a reddish brown ♀ (Figs. 33–35); the second ♀ in CSNB looks rather similar to the holotype figured in the original description. One ♂ is of yellow ground colour with greyish-violet pattern, the second ♂ of dark reddish brown colour and again with violet pattern, very similar to the HT of *S. bettinae* (Fig. 31). Both have a lfw. of 56 mm, the almost round fw ocellus has a maximum diameter of 2 mm, that of the hw as well. The antenna has a length of 11.5 mm, the fw has a small bent apical tip. The reddish female in CSNB has a fwl. of 66 mm, the antenna a length of 10.5 mm. The ocelli are relatively large for the genus, with prominent black portion on the hw, and have a maximum diameter of 4.2 (fw) and 3.6 (hw) mm.

An extensive overlook about published literature on the whole genus *Syntherata* was provided by PAUKSTADT & PAUKSTADT (2012a–d). Every described taxon was handled in detail, including its misspellings, but the included checklist did not contain notes on the synonymies of the more recently described species. In a very recent publication just received before print (PAUKSTADT & PAUKSTADT 2020) the authors again present an updated checklist for the genus members excluding the Australian fauna, plus distributional map, but again no notes on synonymies are given.

New synonymies in *Syntherata*

As mentioned already in the discussion part there exist clusters of species with identical BIN Code numbers, and some "subclusters" of them are accepted by us as full species due to morphology or zoogeographic differences. There also exist several taxa which obviously were described not only one time, they have the same BIN Code numbers, look similar overall, and originate from the same or nearby localities. For these we introduce new synonymies, to give a plausible complete overlook about the genus *Syntherata*.

Syntherata ***erici*** NAUMANN et al., 2009 and *S. cernyi* BRECHLIN, 2010 were both described from the Indonesian

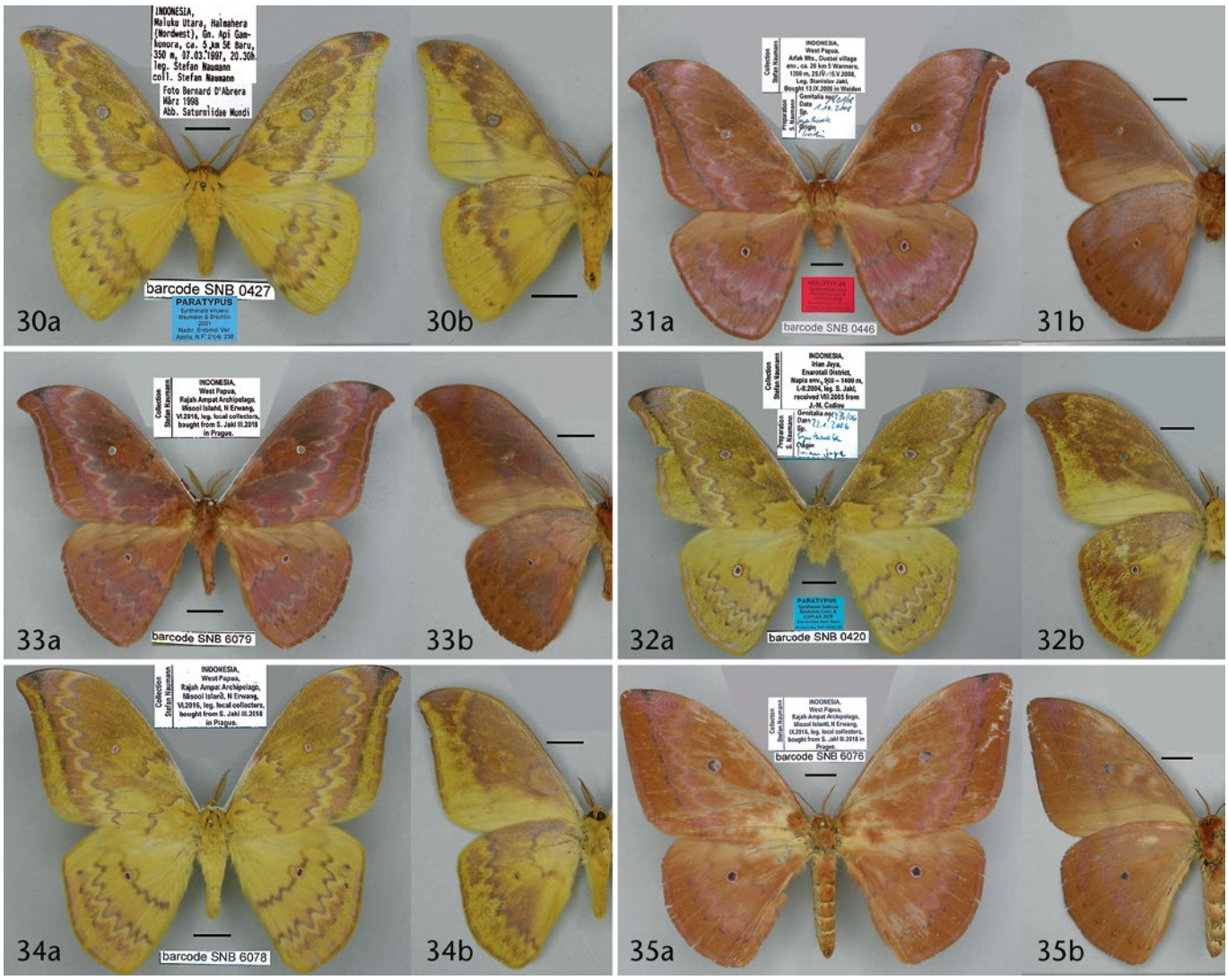


Plate 4, Fig. 30: *Syntherata sinjaevi*, ♂ PT, Indonesia, Molukkas, Halmahera Island (CSNB). — **Fig. 31–32:** *S. bettinae*, Indonesia. **Fig. 31:** ♂ **HT**, West Papua Prov., reddish morph (CSNB > MfN). **Fig. 32:** ♂ PT, Papua Prov., yellow morph (CSNB). — **Fig. 33–35:** *S. degroofi*, Indonesia, Misool Island. **Fig. 33:** ♂, reddish morph (CSNB). **Fig. 34:** ♂, yellow morph (CSNB). **Fig. 35:** ♀, reddish morph (CSNB). — Specimens not to the same scale; scale bars 1 cm; photos of specimens: S. Naumann..

Papua province, *S. erici* from Mapia environments in Enarotali District, *S. cernyi* from Enarotali. Both taxa are recorded in altitudes from 700–1800 m, are of relatively large size for the genus and very variable in their colour morphs, from yellow, orange-brown to dark reddish violet plus combinations of those colours in both sexes (see also in Naumann et al. 2009, Brechlin 2010). The figured holotype of *S. cernyi* matches exactly with two barcoded paratype specimens of *S. erici* in CSNB. Thereby *S. cernyi,* **syn. n.,** becomes a new junior synonym of *S. erici.*

As mentioned above in the discussion already, there exists another complex of species with the same BIN Code number (AAA7567) on Bold (where known), related to the much smaller *Syntherata* ***pristina***. There are four taxa involved, which all are of pale yellowish ground colour and have a range of their Lfw of 51–61 mm in ♂♂.

Syntherata ***marlenae*** Naumann et al., 2009, described from south of Nabire in Papua Province, Indonesia, is available in a larger series which gives an overlook about its variability of pattern with dark brown, dark orange and violet markings. All specimens have the typical, relatively large forewing ocellus with bluish ring on both FW and HW and the wing margin with black or dark brown interrupted line of triangles and an outer dark marginal line.

We suppose the following species, all described from the central highland chain either in Papua Province, Indonesia, or from western and central parts of Papua New Guinea, to be synonyms of *S. marlenae: S. hoffmanni* Naumann et al., 2009, **syn. n.,** *S. parvoantennata* Brechlin, 2010, **syn. n.,** and *S. engaiana* Brechlin, 2010, **syn. n.**

Syntherata hoffmanni and *S. engaiana* were both described only after HT singletons, so nothing can be said about variation of those populations, but both HTs fall completely within the morphological variability known from the widely barcoded type series (plus later received specimens) of *S. marlenae*. The smaller lower range of size mentioned for *S. parvoantennata* in its description (42–58 mm) may be caused by the fact that it is a mixed type series and specimens may partly belong to *S. marlenae* and partly to *S. pristina*. Exactly those two specimens with barcodes BC-RBP-1569 and 1570 (in the

description erroneously mentioned as BC-RBP-1669 and 1670) cluster with typical *S. pristina* morphs in CSNB and originate from Arfak Mountains in West Papua Province, Indonesia, similar to other specimens of *S. pristina*. Unfortunately, the size of the HT is not given in the description of *S. parvoantennata,* but from its figure it should be the bigger *S. marlenae* and not *S. pristina*.

The obviously smallest species of the New Guinean *Syntherata* was described as *S.* ***gracilis*** Naumann et al., 2009 from Biane, Morobe Province, Papua New Guinea. Shortly later the taxon *S. minoris* Brechlin, 2010 was described from almost the same locality in Wau valley, Morobe Province, a place mentioned also in the paratype list of the older taxon. We hereby declare *S. minoris,* **syn. n.,** to be a junior synonym of *S. gracilis*. A full barcode sequence does not exist on Bold yet, therefore it is not found in our Text-Figures. A small anecdote is the choosing of the Latin name "minoris" which was used to describe the small size but in direct translation means subordinate.

Two other taxa were described from Arfak Mts. in West Papua, Indonesia, from almost identical localities: *Syntherata* ***bettinae*** Naumann et al., 2009 with its younger synonym *S. arfakiana* Brechlin, 2010. Both taxa have a wide colour range from of bright yellow, orange, yellow with brown markings or reddish-brown morphs, but are similar in size and shape and bear the same BIN Code number (see also discussion). Although HTs of both taxa are of different colour (*S. bettinae* dark reddish-brown, *S. arfakiana* creamy yellow), the species are the same, and we place *S. arfakiana,* **syn. n.,** into new synonymy.

S. ***pierrei*** Naumann et al., 2009 was described from Papua New Guinea, Wau, Morobe Province after an orange-brown male singleton; meanwhile another male of bright yellow colour was found at the type locality (in CSNB), and aside from its colour it fits in all pattern elements with the smaller HT, its conspecific identity is proven also by a barcode (BC SNB 2891). The HT of the later described *S. papuensis* Brechlin, 2010, **syn. n.,** fits very well in colour with the second known male of *S. pierrei,* which is with 59 mm Lfw of same size as the mentioned size variance of *S. papuensis* has similar genitalic structures, originates from an almost identical type locality around Wau, and has the same BIN Code number on Bold. Another taxon, *S. okapiana* Brechlin, 2010, **syn. n.,** was described from nearby Papua New Guinea, Eastern Highlands Prov., Okapa District, after a male singleton. Its genitalia were not figured in the description, and a barcode does not exist for it, but the size fits within the range of *S. pierrei*, the pattern and form of wings as well, and the little larger HW ocellus is more similar to that of *S. pierrei* than to the mentioned size of that of *S. papuensis*. We place both *S. papuensis* and *S. okapiana* into new synonymy of *S. pierrei.*

S. ***labriquei*** Naumann et al., 2009 was described from Girinumu, Central Province (HT) and Kokoda Trail, Oro Province, both in southern Papua New Guinea. In males exist orange brown (HT) and faint yellow colour morphs, combined with more or less violet pattern. The female allotype is of the same colour as the HT. One year later Brechlin described *S. rudloffi* Brechlin, 2010, **syn. n.,** also from SE Papua New Guinea, but Ferguson Island. His figured HT is of the same colour morph as one of the paratypes of *S. labriquei*. Both taxa are of same pattern and wing shape, and Bold created the same BIN Code number, therefore we interprete *S. rudloffi*, **syn. n.,** as new synonym of *S. labriquei*.

We currently keep *S.* ***vincenti*** Naumann et al., 2009 from little further south Normanby Island, Papua New Guinea, on separate species rank. The HT, single specimen known so far, looks quite distinct with his markings to the figured type of *S. rudloffi* or the type series of S. *labriquei*. Barcoding of the HT of *S. vincenti* brought no results, therefore no BIN Code number for this taxon is available on Bold. Further collecting efforts would be necessary to bring here some results, so it may be possible that also *S. vincenti* may sink into synonymy of *S. labriquei* in future.

S. ***michaschaarschmidti*** Brechlin, 2010, **stat. n.,** from New Hanover Island, Papua New Guinea, described as a subspecies of S. *godeffroyii* Butler, 1882, is raised to full species rank due to zoogeographical separation from New Britain Island (type locality of *S. godeffroyii*) and the available different BIN Code numbers on Bold. There are not many morphological differences found between both taxa.

Checklist of the genus *Syntherata* Maassen, 1873

Including the species described here as new, 33 species of the genus *Syntherata* are presently known, listed here in order of their publication, with locus typicus and Bold BIN code where available. (In brackets the number of the used symbol, see **Map** and legend.)

(01) *Syntherata janetta* (White, 1843) [*Saturnia*] [L.T.: Australia, Queensland, Moreton Bay] – Bold BIN AAA7080.
= *Syntherata disjuncta* (Walker, 1865) [*Antheraea*] [L.T.: Australia, Queensland, Moreton Bay].
= *Syntherata insignis* (Walker, 1869) [*Antheraea*] [L.T.: Australia, Queensland, Moreton Bay].
= *Syntherata weymeri* (Maassen, 1873) [*Antheraea*] [L.T.: Australia].
= *Syntherata weymeri* forma ‡*Sonthonnaxi* Schüssler, 1934 [infrasubspecific, unavailable].

(02) *Syntherata melvilla* (Westwood, 1853) [*Saturnia*] [L.T.: Australia, Northern Territory, Melville Island] – Bold BIN ABY5685.
= *Syntherata purpurascens* (Walker, 1865) [*Antheraea*] [L.T.: "North Australia"].

(03) *Syntherata pristina* (Walker, 1865) [*Antheraea*] [L.T.: New Guinea] – Bold BIN AAA7567.

(04) *Syntherata godeffroyii* Butler, 1882 [L.T.: New Britain] – Bold BIN AAD2253.
= (04a) *Syntherata dahli* (Weymer, 1898) [L.T.: Neu-Pommern, Gazellen-Halbinsel, Ralum].

(06) *Syntherata apicalis* Bouvier, 1928 [L.T.: Nouvelle Guinée hollandaise, Namnagihe, 25 miles S Wangaar, 2000 ft.] – Bold BIN AAE1381.

(07) *Syntherata brunnea* (Eckerlein, 1935) [*Synthera* (*sic*)] [L.T.: Neuguinea, Wareo] – Bold BIN ACE7520.

= *Syntherata godeffroyi* ab. ‡*aliena* Niepelt, 1934 [infrasubspecific, unavailable].

= *Syntherata godeffroyi* ab. ‡*olivacea* Niepelt, 1934 [infrasubspecific, unavailable].

(05) *Syntherata naessigi* Peigler, 1992 [L.T.: Trobriand Islands] – No Bold BIN code available.

(08) *Syntherata sinjaevi* Naumann & Brechlin, 2001 [L.T.: Indonesia, N. Moluccas, Halmahera, Mt. Talagarama] – Bold BIN AAD7837.

(09) *Syntherata innescens* Naumann & Brechlin, 2001 [L.T.: Indonesia, C. Moluccas, Ambon, E Gunung Sirimau] – Bold BIN AAC8961.

(10) *Syntherata leonae* Lane, 2003 [L.T.: Australia, Queensland, Atherton] – Bold BIN ACE5773.

(11) *Syntherata doboensis* (Paukstadt & Paukstadt, 2004) [*Opodiphthera*] [L.T.: Indonesia, SE. Moluccas, Aru Archipelago, Dobo Island] – Bold BIN ABZ5329.

(12) *Syntherata malukuensis* (Paukstadt & Paukstadt, 2005) [*Opodiphthera*] [L.T.: Indonesia, SE. Moluccas, Aru Archipelago, Wokam Island] – Bold BIN ACE3577.

(13) *Syntherata erici* Naumann, Lane & Löffler, 2009 [L.T.: Indonesia, Irian Jaya (C), Mapia env.] – Bold BIN AAA7566.

= (13a) *Syntherata cernyi* Brechlin, 2010, **syn. n.** [L.T.: Indonesia, Irian Jaya, 160 km O Nabire, Enarotali].

(14) *Syntherata anettae* Naumann, Lane & Löffler, 2009 [L.T.: Indonesia, Irian Jaya, Trans Irian Hwy., S 3.79157°, E 139.46024°] – Bold BIN ACE7519.

(15) *Syntherata bretschneideri* Naumann, Lane & Löffler, 2009 [L.T.: Indonesia, Irian Jaya, Kobanu, S 4.01829°, E 138.15292°] – Bold BIN ACF1628.

(16) *Syntherata marlenae* Naumann, Lane & Löffler, 2009 [L.T.: Indonesia, Irian Jaya (NC), 20 km S Nabire] – Bold BIN AAA7567.

= (16a) *Syntherata hoffmanni* Naumann, Lane & Löffler, 2009, **syn. n.** [L.T.: Papua New Guinea, Western Highland Prov., Kol missionary station, 61 km from Mt. Hagen].

= (16b) *Syntherata parvoantennata* Brechlin, 2010, **syn. n.** [L.T.: Indonesia, Irian Jaya, Nabire, 12 km O Samabusa, Lagari].

= (16c) *Syntherata engaiana* Brechlin, 2010, **syn. n.** [L.T.: Papua New Guinea, Enga Prov., W. Wabag].

(17) *Syntherata gracilis* Naumann, Lane & Löffler, 2009 [L.T.: Papua New Guinea, Morobe Province, Biane] – No Bold BIN code available.

= (17a) *Syntherata minoris* Brechlin, 2010, **syn. n.** [L.T.: Papua New Guinea, Morobe Prov., Wau].

(18) *Syntherata groenendaeli* Naumann, Lane & Löffler, 2009 [L.T.: Ned. NW Guinea, Jafi District, AFFI] – No Bold BIN code available.

(19) *Syntherata bettinae* Naumann, Lane & Löffler, 2009 [L.T.: Indonesia, West Papua, Arfak Mts., Duebei village env.] – Bold BIN AAA7568.

= (19a) *Syntherata arfakiana* Brechlin, 2010, **syn. n.** [L.T.: Indonesia, West Papua, 30 km S. Manokwari, Arfak Mts.].

(20) *Syntherata haiaensis* Naumann, Lane & Löffler, 2009 [L.T.: Papua New Guinea, Eastern Papua, Haia, S 6°41′, E 145°4′] – Bold BIN AAD2753.

(21) *Syntherata pierrei* Naumann, Lane & Löffler, 2009 [L.T.: Papua New Guinea, Wau, Morobe Prov., Kunai K.] – Bold BIN ABZ4062.

= (21a) *Syntherata papuensis* Brechlin, 2010, **syn. n.** [L.T.: Papua New Guinea, Morobe Prov., Kuper Range, rd. Wau–Biaru].

= (21b) *Syntherata okapiana* Brechlin, 2010, **syn. n.** [L.T.: Papua New Guinea, Eastern Highlands Prov., Okapa Dist.].

(22) *Syntherata devosi* Naumann, Lane & Löffler, 2009 [L.T.: Indonesia, Papua, Kecamatan Oksibil, Mabilabol, S 4°54′, E 140°37′] – No Bold BIN code available.

(23) *Syntherata lilianae* Naumann, Lane & Löffler, 2009 [L.T: Indonesia, Irian Jaya (S), Timika env.] – Bold BIN ACE3577.

(24) *Syntherata labriquei* Naumann, Lane & Löffler, 2009 [L.T: Papua New Guinea, Central Prov., Girinumu] – Bold BIN AAA7572.

= (24a) *Syntherata rudloffi* Brechlin, 2010, **syn. n.** [L.T: Papua New Guinea (SE), Ferguson Island, 2 km W Gamada].

(25) *Syntherata vincenti* Naumann, Lane & Löffler, 2009 [L.T: Papua New Guinea, Normanby Island, vic. of Gule Guleu] – No Bold BIN code available.

(26) *Syntherata lagariana* Brechlin, 2010 [L.T: Indonesia, Irian Jaya, Nabire, 6 km O Samabusa, Lagari] – Bold BIN ACE4720.

(27) *Syntherata michaschaarschmidti* Brechlin, 2010, **stat. n.** [L.T: Papua New Guinea, New Hanover, Bismarck-Archipel, New Ireland Prov., Nurimlava [Narimlaua?]] – Bold BIN AAD2254.

(28) *Syntherata mirata* Lane, Edwards & Naumann, 2010 [L.T.: Australia, Queensland, Normanton] – Bold BIN ACE5774.

(29) *Syntherata escarlata* Lane, Edwards & Naumann, 2010 [L.T.: Australia, Queensland, East Palmerston] – Bold BIN ACE5774.

(30) *Syntherata pseudescarlata* Lane, Edwards & Naumann, 2010 [L.T.: Australia, Queensland, Dimbulah] – Bold BIN ACE5774.

(31) *Syntherata degroofi* Paukstadt, Paukstadt & Večerik, 2017 [L.T.: Indonesia, West Papua, Raja Ampat, Misool] – Bold BIN AAA7568.

(32) *Syntherata torresiana* Lane & Naumann *in* Naumann & Lane, 2020, **sp. n.** [L.T: Australia, Queensland, Torres Strait, Horn Island] – Bold BIN ACE3577.

(33) *Syntherata buruana* Naumann & Lane, 2020, **sp. n.** [L.T: Indonesia, Maluku, Buru Island, Remajah Mts.] – Bold BIN ACI5522.

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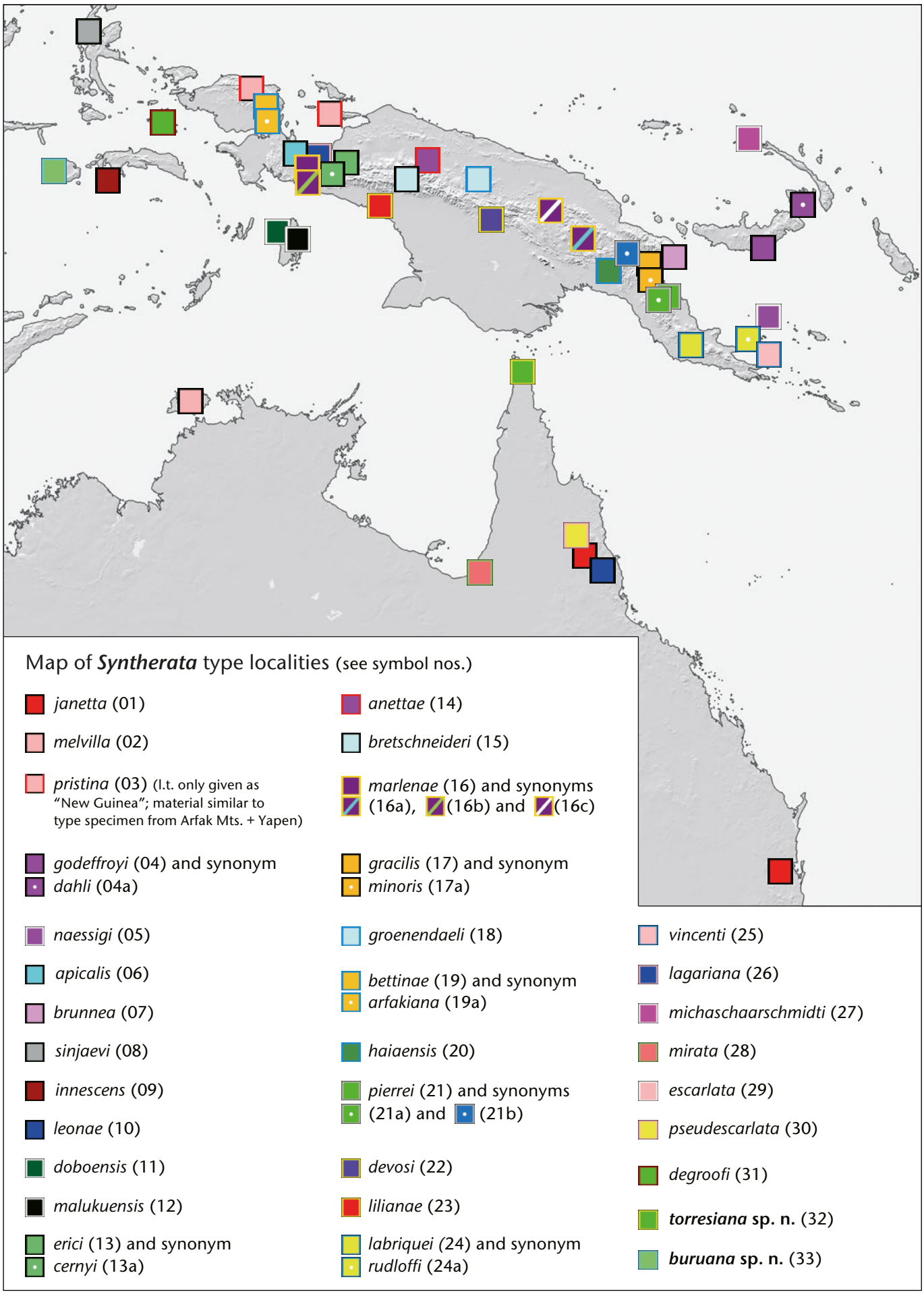

Map: Type localities (where known) and some other localities of the *Syntherata* species dealt with. Numbers in brackets (= symbol numbers) see also in Check List and legend. — Basic map by MapCreator 2 (Primap.com), modified and localities added.

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