

Tingidae (Insecta, Heteroptera) of New Guinea: three new species and eleven new host-plant records

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Abstract

On the basis of samples made at Baiteta, Madang province in New Guinea, by pyrethrin fogging, three species new to science, namely *Larotingis pericarti*, *Nesocypsela sarocepari* and *Orotingis maniltoae* are described, and eleven species are recorded here from new host-plants. A modification of a key to New Guinean species is made to include these species. Considerations about the geographic distribution of the species mentioned are made.

Keywords: fogging sample, Baiteta, Madang province.

Introduction

New Guinean Tingidae were mostly described by DRAKE (1960), and DRAKE & RUHOFF (1965) on the basis of classic collecting methods. At that time the fauna grouped 19 genera and 59 species. Fogging samples (from 1993 and 1996) allowed to add two genera and five species (PÉRICART, 2000). LIS (1997, 2001) added three new species, and nine new species were recently added (GUILBERT, 2006) on the basis of classical methods. The known fauna of New Guinea groups today 93 species. Here are reported eleven new records and three new species are described from samples made by fogging by O. MISSA (Royal Belgian Institute of Natural Sciences, RBINS) in New Guinea, at Baiteta, Madang province. This paper is the continuation of the work done by PÉRICART (2000) on a part of the material sampled. Types and paratypes are deposited at the RBINS, unless specified otherwise. The fogging number is given for each specimen when no correspondence to the sampled tree was known. All measurements are in millimetres.

Description of new species***Larotingis pericarti* sp. n. (Fig. 1)**

Type material: 1F + 2M, 24.V.1995, on *Buchanania heterophylla* (Anacardiaceae); 1F, 1995, on *Celtis latifolia* (Ulmaceae) and/or *Planchonella* sp. (Sapotaceae).

Description: body dark brown; head and pronotum darker; costal area opposite to posterior extremity of discoidal area and posterior areolae of sutural area paler; antennae and legs yellowish. Body long and narrow; length, 2.56; width, 0.30. Antennal segment measurements, I, 0.03; II, 0.06; III, 0.56; IV, 0.33.

Head short, declivent, armed with two pairs of tubercles and a tiny median protuberance; tubercles short, straight and directed forward; antennal process short and spiny; bucculae joined anteriorly, buccular plate short and four areolae wide; rostrum reaching metasternum, but not extending far from meso-metasternal suture; antennae long and slender.

Pronotum narrow and gibbose, deeply punctate, tricarinate, carinae slightly

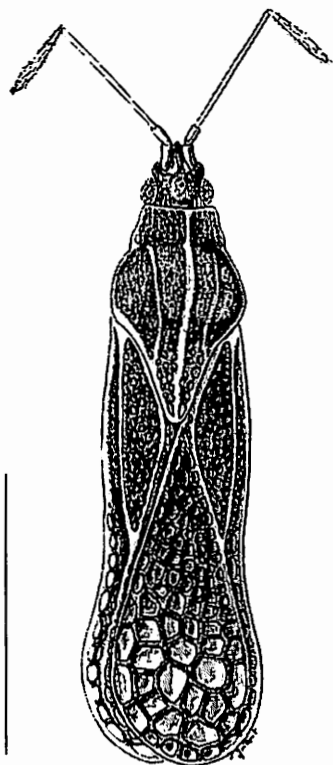


Fig.1. *Larotingis pericarti*, habitus (scale 1 mm).

elevated, not areolate, lateral carinae extending from apex of posterior process to calli, median carina extending forward to collar; collar four areolae wide, not elevated, its areolae small; posterior process long, angular and areolate; paranota very narrow, reduced to a ridge posterior to calli, with one row of five tiny areolae opposite calli and collar; rostral sulcus opened in its posterior part, prosternal laminae narrow, with small areolae, meso- and metasternal laminae wide and with areolae larger than those on the prosternal laminae. Legs long and slender, tarsi twice as long as wide and densely pilose.

Hemelytra long and narrow, much narrower than abdomen, slightly constricted opposite to apex of discoidal area, posterior part wider than anterior part; costal area narrow, ridge-like and not separated from subcostal area in the anterior part, with one row of moderately large areolae opposite the apex of discoidal area; subcostal area directed vertically bearing two rows of small round areolae; discoidal area narrow, longer than half the length of hemelytra, four areolae wide at widest part; sutural area five areolae wide at apex, the areolae large.

Derivation nominis: this species is dedicated to J. PÉRICART who gave the author the opportunity to work on the presented material.

Comments: this species, can be the one mentioned by PÉRICART (2000) as *Larotingis* sp1, which was not described due to the bad conservation of the specimens. Similar to *L. soror* PÉRICART, 2000, and *L. etes* DRAKE & RUHOFF 1961, this species differs from both by the narrower discoidal area (one areola less), the costal area distinguishable from the subcostal area and absent on the anterior half of the hemelytra. *Larotingis aporia* and *L. etes* have much wider sutural area than *L. soror* and *L. pericarti* (eight-nine areolae and five-six areolae, respectively). As mentioned by PÉRICART (2000) this species was collected on *Pometia pinnata* (Sapindaceae).

Nesocypselas sarocepari sp. n. (Fig. 2)

Type material: 1F, 1.VI.1995, on *Saroceparus* sp. (Rubiaceae).

Description: body, legs and antennae yellowish, pronotum and hemelytra whitish and translucent. Body wide; length, 2.83; width, 2.33 between apex of hemelytra at rest, 1.13 between paranota. Antennal segment measurements, I, 0.25; II, 0.1; III, 0.87; IV, 0.60.

Head small, armed with a pair of frontal tubercles, and a median tubercle, tubercles short and thin; eyes small; bucculae short and narrow, two areolae wide, open in front; rostrum long, reaching base of abdomen.

Pronotum wide and short, slightly gibbose, neither punctate nor areolate, tricarinate; median carina foliate, not areolate, raised, extending from base of posterior process to apex of collar; lateral carinae short, foliate and raised, restricted between posterior third of pronotum and posterior process; collar raised, foliate, wider than median carina; paranota greatly enlarged, raised, and reflexed as to form a vesicle over the pronotum, the outer margins not in contact, sinuate when seen from above, covering part of pronotum but not the centre, and not resting onto it, areolate, eleven areolae wide at widest part, the

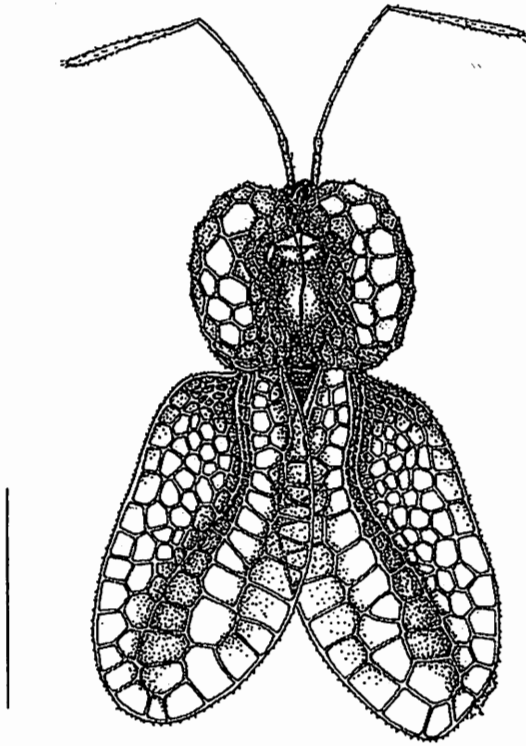


Fig. 2. *Nesocypsela sarocepari*, habitus (scale 1 mm).

areolae large and subquadrate, the veinlets serrate, with a small seta at apex of teeth; rostral sulcus wide, prosternal and mesosternal laminae reduced to a ridge; metasternal laminae narrow, widely open, heart-shaped and closed in its posterior part; tarsi as wide as half their length, underside densely pilose.

Hemelytra wide, abruptly widened and raised at base, diverging and sutural areas not covering when at rest, areolae larger at apex than at base; costal area five areolae wide at widest part, areolae wide and subquadrate, ScA vein sinuate; subcostal area narrow, biseriate and areolae small opposite to discoidal area, then uniseriate and areolae large, basal areolae of inner row long, areolae of outer row smaller and more numerous than these of inner row; discoidal area short, with eight areolae arranged in two rows, areolae large and subquadrate; sutural area narrower than costal area, but wider than subcostal area, with a single long areola opposite to discoidal area, then biseriate with areolae large and subquadrate.

Derivation nominis: *sarocepari* refers to the host-plant on which this species was collected.

Comments: *Nesocypselas sarocepari* is the only species of the genus having a collar raised and that large, and lateral carinae that short.

Orotingis maniltoae sp. n. (Fig. 3)

Type material: 1M, 7.VII.1995, on *Maniltoa psylogyni* (Fabaceae).

Description: head, pronotum and anterior part of discoidal and subcostal areas black, costal, sutural areas and posterior part of subcostal and discoidal areas brown, the areolae completely or partly hyaline; a spot on anterior part of costal area, and costal area at widest part clear brown to whitish; antennae and legs yellowish, except tarsi and apex of fourth antennal segment darker. Body wide; length, 2.77; width, 1.73; antennal segment measurements, I, 0.77; II, 0.13; III, 0.63; IV, 0.75.

Head short, declivent, glabrous, without tubercles, antenniferous process spiny, post-ocular plate present, bucculae short, narrow, open in front, with a row of areolae, curved downwards posteriorly; rostrum short reaching middle of mesosternum; antennae long and slender.

Pronotum large, gibbose, deeply punctate, almost areolate, unicarinate, median carina ridge-like, not areolate; collar wide, three areolae wide,

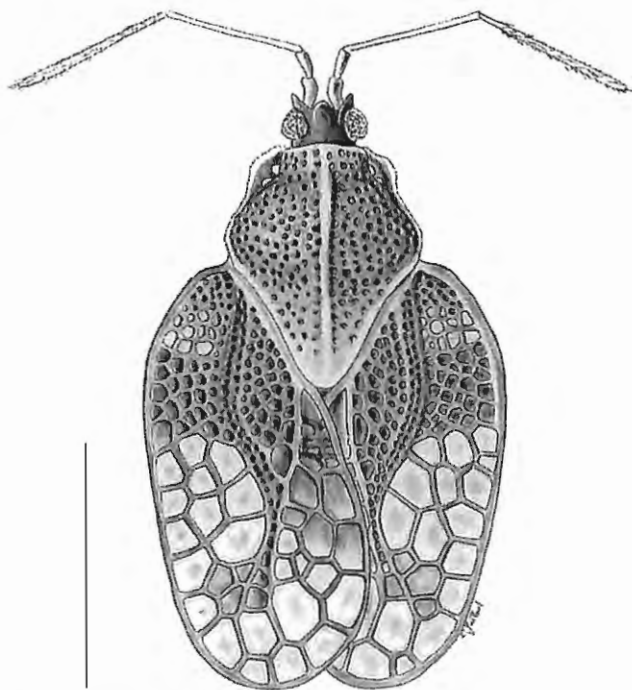


Fig. 3. *Orotingis maniltoae*, habitus (scale 1 mm).

paranota narrow, ridge-like, slightly dentate, enlarged opposite to calli, there with two areolae, the margin enlarged as well; posterior process short and angulate; sulcus narrow on prosternum, then wide and open behind, laminae narrow, not raised, with tiny areolae.

Hemelytra large, sharply widened at base, major veins slightly raised; costal area large, four to five areolae wide, at anterior part, the areolae small; three areolae wide at widest part and posterior part, the areolae much larger; subcostal area narrow, with two rows of small, round areolae along discoidal area, then uniseriate, the areolae larger; discoidal area half the length of hemelytra, four areolae wide at widest part, areolae as large as on anterior part of costal area; sutural area three areolae wide, areolae as large as areolae on posterior part of costal area.

Derivation nominis: the name refers to the plant on which the species was found.

Comments: this species is easily distinguishable from *O. muiroi* DRAKE & POOR, 1941 by the enlarged part of the paranota opposite to calli. It has almost the same length than *O. muiroi* (2.6 mm) and is then smaller than *O. intermedius* (3.2 mm). It is however very similar to *O. intermedius* LIS, 1997 by having the same paranota structure. However, the hemelytra is different. The costal area is triseriate at base in *O. intermedius*, it is quadriseriate and almost pentaseriate at base in *O. maniltoae*. It is four to five areolae wide in fuscous transverse band in *O. maniltoae*, and four areolae wide in *O. intermedius*. The costal area is slightly wider in *O. maniltoae* with three areolae at widest part, while it is two to three areolae wide at widest part in *O. intermedius*. *Orotungis* included formerly three species, two of them were put into synonymy, namely *O. eueides* DRAKE 1960 and *O. muiroi* (GUILBERT, 2006). Thus, the genus groups now three species.

Description of fifth instar larvae

Eritungis recens (DRAKE & POOR 1937) (Fig. 4)

Material examined: 1 fifth instar, 1.V.1996, fog AR48.

Description: body uniformly clear brown, covered with small, short setiform protuberances, antennae and tarsi brown, darker than body. Body length, 1.83; width, 0.9. Antennal segment measurement, I, 0.06; II, 0.06; III, 0.33; IV, 0.27.

Head small, armed with five tubercles, tubercles short, spiniform, curved forwards, bifurcate at the apex and with small protuberances on the sides, with a short seta at apex and protuberances; bucculae short and open in front; antenniferous processes spiny.

Pronotum diamond-shaped, the median part regularly elevated from back to front as to form a crest, with two pairs of tubercles, one in front close to anterior margin, the other in the middle, tubercles small, spiny, curved, with a seta at the apex; margins armed with small spiny tubercles, curved backwards, with a seta at the apex, the tubercles at opposite humeri larger; posterior process angulate.

Mesonotum with a pair of tubercles in the middle of posterior margin, tubercles short, small and spiny, ended with a short seta; margins of hemelytral pads armed with tubercles of the same shape as those on pronotum margins.

Metanotum with a pair of tubercles in the middle of posterior margin as on mesonotum.

Abdominal segment with a tubercle on each lateral margin, tubercle short but larger than that on thorax, spiny, curved, directed backwards, with a short seta at the apex; first tergite with a pair of short tubercles in its median part; second, fifth, sixth, seventh and eighth tergite with a single tubercle in the mid-line, tubercles as on the lateral margins, but smaller.

Comments: the larva are usually, if not always, difficult to identify at species level. Therefore to assign a larva to a species, it is necessary to collect it together with the adult. The larvae were collected together with the adults recorded below. Thus, it could be assigned to the species. This is the first *Eritingis* larva described. It is quite similar to the known *Tingis* larvae in distribution and shape of tubercles. However, few *Tingis* as well as *Eritingis* larvae are known from the region.

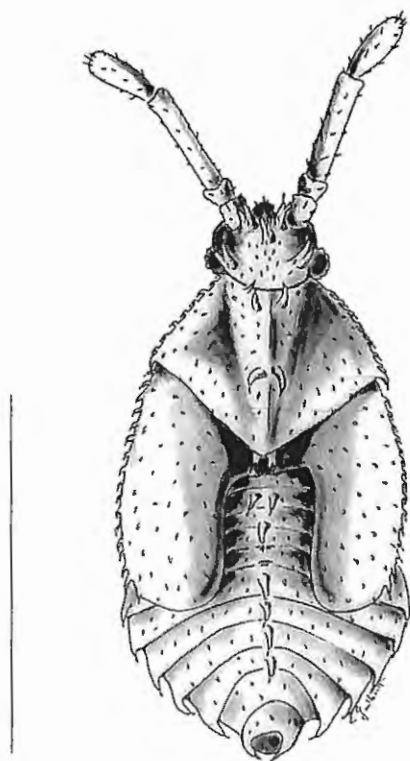


Fig. 4. *Eritingis recens*, fifth instar habitus (scale 1 mm).

Phatnoma uichancoi DRAKE 1950 (Fig. 5)

Material examined: 1 fifth instar, 26.V.1995, fog AR9-3.

Description: body uniformly yellowish; all the dorsum covered with tiny star-like processes, bearing five branches, pedunculate. Body length, 2.23; width, 1.33. Antennal segment measurements, I, 0.06; II, 0.06; III, 0.67; fourth segment missing.

Head long and narrow, armed with seven tubercles, an occipital pair, a frontal pair, a jugal pair and a single clypeal tubercle; all tubercles long, stout, directed forwards, wider at base than at apex; bucculae long and narrow, not joined anteriorly; eyes small; antenniferous processes short and spiny; antennae long and slender.

Pronotum wide and short; posterior part truncate, with a short tubercle in the middle of margin; collar rounded and raised, with a short tubercle in the middle of margin; lateral margins divided in two concave parts, with a short tubercle directed upwards at the three angles made by concave parts.

Mesonotum wide; posterior margin with a median small bulge; hemelytral pads wide, rounded, with two short tubercles on the outer margins.

Metanotum visible only in middle of posterior part, without any tubercle.



Fig. 5. *Phatnoma uichancoi*, fifth instar habitus (scale 1 mm).

Abdominal tergites wide; lateral margins of fourth to ninth tergites with a short tubercle directed upwards in posterior angle; first, second, sixth and eighth tergites with a short tubercle medially, tubercles longer than those on margins, but shorter than cephalic ones; lips of dorsal gland on fourth tergite erected as to form a short tubercle longitudinally truncate on each side.

Comments: as for *E. recens*, the larva was collected together with the adult, and, thereby, assigned to the species *P. uichancoi*. Fifth instars of three species of *Phatnoma* FIEBER, 1844 are known, *P. maynei* SCHOUTEDEN, 1916 (LIS 2002), *P. marmorata* CHAMPION 1897 (GUILBERT 2004), and *P. uichancoi*. *P. maynei* lacks a tubercle on each hemelytral pad margin. However, each tergum has a median tubercle. Median tubercle lacks on the first tergite in *P. marmorata*, and lacks also on fifth and seventh tergites in *P. uichancoi*. The tubercles in *P. marmorata* are curved and directed backwards, while they are straight in *P. uichancoi*.

New host-plant records

Asperotingis tristis PÉRICART 2000

Material examined: 1M + 1F, 14.VI.1995, on *Chisocheton ceramicus* (Meliaceae); 1F, 27 IV.1995, on *Spondias* sp. (Anacardiaceae).

Comments: this genus and species were described on the basis of a single male collected on *Celtis latifolia* (Ulmaceae). It has apparently various host-plant species.

Cottothucha oceanae DRAKE & POOR 1941

Material examined: 1F, 1.VI.1995, on *Sarcoceparus* sp. (Rubiaceae); 1F, 8.VI.1995, on *Hapholobus* sp. (Burceraceae); 1M + 1F, 27.IV.1995, on *Spondias* sp. (Anacardiaceae); 2M, 25.V.1995, on *Planchonella thysoidis* (Sapotaceae) and/or *Dysoxylum arnoldianum* (Meliaceae).

Comments: this species is already known from the same locality on various host-plant such as *Pometia pinnata* (Sapindaceae), *Dracontomelum dao* (Anacardiaceae), *Ficus* sp. (Moraceae), as quoted by PÉRICART (2000).

Cromerus invarius (WALKER 1873)

Material examined: 6 specimens, 27.IV.1995, on *Spondias* sp. (Anacardiaceae); 8 specimens, 25.IV.1996, Fog AR45; 2 specimens, 14.VI.1995, on *Chisocheton ceramicus* (Meliaceae).

Comments: this species is already known in New Guinea from the holotype, and other specimens collected at Kiunga (Fly River). This is the first record of a host-plant for this species.

Eritingis recens (DRAKE & POOR 1937)

Material examined: 9 specimens, 1.V.1996, fog AR48; 2 specimens, 1995, on *Celtis latifolia* (Ulmaceae) and *Planchonella* sp. (Sapotaceae); 2 specimens, 9.IV.1996, fog AR41; 1 specimen, 5.V.1955, on *Tristilopsis acutangura* (Sapindaceae); 1 specimen, 7.VII.1995, on *Maniltoa psylogyni* (Faba-

ceae); 1 specimen, 20.V.1993, Light T2 (on *Pometia pinnata*, Sapindaceae?).

Comments: the other specimens collected by fogging of various tree species from the same locality (PÉRICART, 2000) were not strictly identified as *E. recens* since all *Eritingis* species are very similar (PÉRICART, 2000). Despite the fact that the genus needs a revision, these specimens are identified as *E. recens* to our best present knowledge.

***Furcilliger orestes* DRAKE & RUHOFF 1962**

Material examined: 22 specimens, 8.VI.1995, on *Hapholobus* sp. (Burceraceae).

Comments: this species is already known from the South West slope of Mt. Missim (1100 m) on *Picturus* (Urticaceae), and from Baiteta on *Dracontomelum dao* (Anacardiaceae).

***Leptopharsa aporia* DRAKE & RUHOFF 1965**

Material examined: 1M, 14.VI.1995, on *Chisocheton ceramicus* (Meliaceae).

Comments: this species is already known from New Guinea, from Karubaka, Swart valley. This is the first record of a host-plant for this species.

***Madangocoris interruptus* PÉRICART 2000**

Material examined: 1 M, 8.VI.1995, on *Hapholobus* sp. (Burceraceae).

Comments: this species was described on the basis of two females from the same locality, on *Dracontomelum dao* (Anacardiaceae).

***Perissonemia torquata* DRAKE & POOR 1937**

Material examined: 1F, 30.VI.1995, on *Ficus* sp. (Moraceae); 2M + 2F, 24.V.1995, on *Buchanania heterophylla* (Anacardiaceae); 2M + 1F, 27.IV.1995, on *Spondias* sp. (Anacardiaceae); 1M, 11.VII.1995, fog AR27-6.

Comments: this species is already known from New Guinea, Solomon Islands, Sabah and Sarawak. This is the first record of a host-plant for this species.

***Phatnoma uichancoi* DRAKE 1950**

Material examined: 2F, 26.V.1995, fog AR9-3; 2F, 30.V.1995, *Ficus* sp. (Moraceae). 1F, 25.V.1995, on *Planchonella thysoidis* (Sapotaceae) and/or *Dysoxylum arnoldianum* (Meliaceae).

Comments: this species is known from Philippines Islands and Papua-New Guinea. It is the first record of host-plants for this species. These three specimens are very similar to *P. veridicum* DRAKE & MAA 1955, a common species in New Guinea. The paranota exhibit three or four areolae at widest part, while *P. veridicum* is supposed to exhibit four areolae and *P. uichancoi* three ones. However, they have a costal area of six areolae wide at widest part, while *P. veridicum* has eight. They are also similar to *P. ornatum* LIS 2001, but differ from it by the colouration and a clypeal tubercle longer than occipital tubercles (while it is shorter than occipital tubercles in *P. ornatum*).

The paranota and costal areas are much wider in *P. dilatatum* LIS 2001. The pronotum of *P. ainatum* DRAKE & RUHOFF 1965 is unicarinate, while it is tricarinate in *P. uichancoi*. A key to New Guinean species is provided in LIS (2001).

***Trachypeplus guinaicus* DRAKE 1906**

Material examined: 1M + 2F, 09.IV.1996, fog AR41.

Comments: this species is already known from New Guinea (S-E of Madang), and mentioned by PÉRICART (2000) from Baiteta on *Pometia pinnata* (Sapindaceae).

***Xenotingis papuana* DRAKE 1954**

Material examined: 4 specimens, sex undeterminate, on *Ficus* sp. (Moraceae), 30.VI.1995; 1 specimen on *Terminalia sepikana* (Combretaceae), 15.VI.1995; 2 specimens, 09.IV.1996, fog AR41; 3 specimens on *Spondias* sp. (Anacardiaceae), 27.IV.1995; 19 specimens on *Buchanania heterophylla* (Anacardiaceae), 24.V.1995; 1 specimen on *Planchonella thysoidis* (Sapotaceae), 25.V.1995; 1 specimen on *Chisocheton ceramicus* (Meliaceae), 1995.

Comments: this species is already known from New Guinea, and mentioned by PÉRICART (2000) from Baiteta on *Pometia pinnata* (Sapindaceae).

Discussion

All the species recorded here were included in the key to New Guinea Tingidae provided by GUILBERT (2006) (except *Phatnoma* species, see LIS, 2001). Here are added modifications to include the new species described. The modifications start at the identification of the genus in the key.

Genus *Orotingis*

1. Paranota reduced to a tiny spiny process at humeral angles, areolae of costal area moderately larger than in the other areas, fourth antennal segment shorter than third *Eteoneus*
- Paranota not reduced to a spiny process, but present all along the pronotum *Orotingis* 2
2. Paranota ridge-like all along the pronotum *Orotingis muiri* DRAKE & POOR, 1941
- Paranota enlarged with two areolae opposite to calli 3
3. Base of costal area three areolae wide *Orotingis intermedius* LIS, 1997
- Base of costal area four areolae wide *Orotingis maniltoae*

Genus *Larotingis*

1. Costal and subcostal areas not completely separated by a boundary vein, paranota ridge-like *Larotingis*

- Costal and subcostal areas clearly delimited, paranota usually not ridge-like other
- 2. Costal are separated from subcostal area opposite to apex of discoidal area *Larotingis pericarti*
- Costal area not separated from subcostal area 3
- 3. Discoidal area five areolae wide at widest part *Larotingis soror*
- Discoidal are six to seven areolae wide at widest part
..... *Larotingis aporia* DRAKE 1960

Genus *Nesocypselas*

- 1. Posterior pronotal process acutely produced behind and paranota thimble shaped, with small areolae *Gyalotingis*
- Posterior pronotal process not or slightly produced behind and paranota not thimble shaped, with large areolae *Nesocypselas*
- 2. Collar wide and raised *Nesocypselas sarocepari*
- Collar narrow, not raised 3
- 3. Outer margins of paranota parallel and almost joined
..... *Nesocypselas bellatula* DRAKE 1960
- Outer margins of paranota semi circular joined anteriorly but separated posteriorly 4
- 4. Posterior projection of pronotum semicircular
..... *Nesocypselas ecpalga* DRAKE & RUHOFF 1965
- Posterior projection of pronotum angulate
..... *Nesocypselas piperica* DRAKE 1957

The New Guinean fauna groups 105 species, and is 72% endemic. The three new species described here belong to genera restricted to small areas. *Orotatingis* is restricted to Papua-New Guinea and Amboina Island. *Larotingis* groups three species restricted to Papua-New Guinea, and one restricted to Mindanao (Philippines Islands). *Nesocypselas* groups eleven species restricted to New Guinea (two species), and neighbouring islands (one species in New Britain, one species in New Ireland), Vanuatu (one species) and Fiji Islands (seven species). This distribution suggests a high endemicity and a complex biogeographic history. Some of the species recorded here belong to genera which show also a restricted distribution. As an example, *Xenotingis* groups seven species distributed along a latitudinal gradient from Taiwan to New Guinea, going through Philippines Islands. *Furcilliger* groups three species restricted to Queensland, and Papua-New Guinea; *Cottothucha*, *Madangocoris* and *Asperotingis* are monotypic genera. *Cottothucha* is known from Eastern New Guinea, Amboina and Luzon, but *Madangocoris* and *Asperotingis* are known only from Madang province (New Guinea). However, few samples were made in this region and a biogeographic study would be incomplete.

The species recorded here are not new to New Guinea, because there were recorded by DRAKE (1960), DRAKE & RUHOFF (1965) and PÉRICART (2000). However, host-plants are recorded here for the first time as it was the case for

other New Guinean species in PÉRICART (2000). This information is provided by indirect sampling method (fogging). In addition, epiphytes and vines were also present on some tree sampled. Thus, the host-plants have to be confirmed. Considering the publication of PÉRICART (2000) and this work, the fogging samples made at Baiteta on at least 40 different tree species allowed to collect 26 species. Eight species are new to science and one is new to New Guinea. Such a result is quite important for a single site, as this part of the region was already quite well sampled. This means that a lot of new species remain to be discovered in the rest of New Guinea, which has not been prospected that much.

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