Tingidae (Hemiptera) of Vanuatu (New Hebrides): New species and new records

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Abstract. Four species new to science are described from Vanuatu, namely Holophygdon nishidae sp. n., Idiocysta vanuatuensis sp. n., Nesocypselas minicysta sp. n., and Tingis parvoroce sp. n. New records are provided for six species, five of them being new to Vanuatu: Cystoechila idonea Drake, Stephanitis subfasciata Horváth, Teleonemia scrupulosa Stål, Tingis chaezaui Guilbert, and Tingis irregularis (Montrouzier). A key to genera and species of Vanuatu is added.

INTRODUCTION

Only two species of Tingidae have been known from Vanuatu (formerly New Hebrides), both belonging to Tinginae: Tingini: Nesocypselas inannana Drake, 1953 and Paracopium summervillei (Hacker, 1927). N. inannana is restricted to Vanuatu but P. summervillei is not. Since then, no new species have been added to this fauna. Nine species are added here to the fauna of Vanuatu, from material in the Bishop Museum collection. Four of these species are new to science and five are new to Vanuatu. The fauna of Vanuatu now comprises 11 species, five being endemic (45%). All measurements are in mm.


DESCRIPTIONS OF NEW SPECIES

Holophygdon nishidae sp. n.

Description (Figs 1, 2). Entire body brown to yellowish, except tarsi. Body length: 4.09; body width: 1.54; cyst length: 2.34; cyst width: 1.78; cyst height: 1.20.

Head small and spineless. Antennae long and slender, first antennal segment longer than head. Antennal segments measurements: I: 0.55; II: 0.15; III: 0.95; IV: 0.88. Rostrum short, extending onto prosternum. Rostral sulcus almost indistinct and laminae present only on metasternum. Bucculae short and wide, with 4 rows of small areolae. Legs long and slender, second tarsi greatly swollen.

Pronotum not gibbose, punctate, truncated at apex, uncinarinate, the median carina slightly elevated, without collar or hood. Paramera reflexed and forming a large subglobular cyst, as large as the body beneath, with many small areolae at base, the areolae larger on the top, the outer margins of the paranota not completely meeting dorsally, with a small medial dehiscence, and then, covering most of pronotum and part of hemelytra.

Hemelytra hyaline, as wide as pronotum. Discoidal area covered by paranota. Subcostal area triseriate, with small areolae. Costal area four to five areolae broad at widest part, areolae large.

Etyonomy. This species is dedicated to G. Nishida from the Bishop Museum, who kindly provided me the material studied here.


Differential diagnosis. H. nishidae sp. n. differs from H. melanesica Kirkaldy, 1908, type species of the genus, by the size (body length: 3.54; body width: 1.78; cyst length: 1.84; cyst width: 1.42; cyst height: 1.02; antennal segments measurements: I: 0.46; II: 0.11; III: 6.00; IV: 5.00). H. nishidae sp. n. is larger but narrowed. The bucculae of H. melanesica have 3 rows of areolae, the areolae larger. The pronotum shows a nearly indistinct median carina, a small collar, short, three areolae broad, while H. nishidae sp. n. lacks these. The paranota of H. melanesica completely join dorsally. The costal area is four areolae broad at its widest part. Holophygdon melanesica var. fusca Drake & Poor, 1943 described from Fiji Islands, is similar to H. melanesica but has longer antennae, higher cyst and longer hemelytra. The paranota entirely cover the discoidal and part of the subcostal areas as in H. nishidae sp. n.

Comments. Contrary to the illustration in Drake & Davis (1960, Fig. 58 on p. 64), and as shown in the illustration accompanying Kirkaldy’s (1908, plate IV, Fig 10) original description, the first antennal segment of H. melanesica is longer than the head and the paranota meet dorsally for their full length, which was confirmed by measurements of the type material and other specimens.

The genus Holophygdon Kirkaldy, 1908 was included in the tribe Litadeini (Drake & Ruhoff, 1965), like the genus Litadea China, 1924 due to the swollen second tarsal segment whose concavity beneath is covered with short, bristly hairs, and the greatly abbreviated hind margin of the pronotum. The genus Aeopelys Drake & Ruhoff, 1965 was included in the Litadeini, although the abbreviated hind margin could not be observed.

Holophygdon is known only from H. melanesica from Fiji Islands and H. nishidae sp. n. from Vanuatu.
Holophygdon nishidae sp. n., habitus. Scale: 1 mm.

Idiocysta vanuatuensis sp. n.

Description (Figs 3–6). Head, pronotum, and abdomen dark brown to black. Hemelytra brown with yellowish spots at junction of subcostal, discoidal, and sutural areas. Paranota yellowish to clear brown basally and brown dorsally. Legs and antennae yellowish, except last antennal segment and tarsi slightly darker. Body length ♀: 2.95; ♂: 2.59; body width ♀: 0.92; ♂: 0.83.

Head small, spineless. Bucculae small, triseriate, closed in front. Rostrum extending to middle of mesosternum. Rostral channel short, wide, widened onto metasternum, closed behind. Antennae long and slender, fourth segment slightly pilose (antennal segments measurements: ♀I: 0.14; II: 0.09; III: 0.69; IV: 0.49; ♂I: 0.15; II: 0.09; III: 0.80; IV: 0.55). Legs long and slender.

Pronotum punctate, areolate on hind process, tricarinate. The three carinae elevated, with one row of large subquadrate areolae, densely pilose, lateral carinae slightly higher than median carina, latter extending to collar and raised as to form a small tectiform hood.

Hemelytra large and narrow, extending far behind abdomen, divided in the usual areas separated by elevated nervures. Costal area uniseriate, areolae moderately large, subquadrate, bent upwards. Subcostal area uni- to biseri-
ate, areolae small, sharply curved downwards and perpendicular to rest of hemelytra. Discoidal area longer than half the length of hemelytra, four to five areolae broad at widest part, areolae small. Sutural area with large areolae at apex.

**Etymology.** This species is named for the country from which it is described.


**Differential diagnosis.** *I. vanuatuensis* sp. n. differs from *I. hackeri* (China, 1930, type species of the genus, in the hemelytral areas. The costal area is uniseriate, it is biseriate in *I. hackeri*. The subcostal area is biseriate, the outer row represented by small tiny areolae, the inner row by larger areolae. However, their pronota are very similar. The paranota of *I. vanuatuensis* sp. n. are open above whereas those of *I. bicolor* Drake & Poor, 1943 are closed. The rostrum of *I. vanuatuensis* sp. n. does not extend beyond the mesosternum, whereas in *I. bicolor* it attains the middle of the metasternum. The other characters are very similar (color, hemelytral areas). The rostrum of *I. fijiana* Drake & Poor, 1943 extends to near the base of the mesosternum but its paranota meet above the median carinae of the pronotum. It has the same hemelytral structure as *I. vanuatuensis* sp. n. and *I. dryadis* Drake & Poor, 1943. In *I. floris* Drake & Poor, 1943 the anterior parts of the paranota join dorsally on the pronotum; but the posterior parts of the paranota do not join. In addition, the *I. floris*’ costal area is biseriate, whereas in *I. vanuatuensis* sp. n. it is uniseriate. *I. vanuatuensis* sp. n. resembles *I. dryadis* more closely but the rostrum of *I. vanuatuensis* sp. n. is shorter than that of *I. dryadis*. The rest of the body is very similar.

**Comments.** The female is larger than the male although the male’s antennae are larger than the female’s. However, these measurements are from only one specimen of each sex. Four species of *Idiocysta* were previously known from Fiji (*I. bicolor, I. dryadis, I. fijiana* and *I. floris*, all described by Drake & Poor) and one species from Samoa (*I. hackeri* China).

**Nesocypselas minicysta** sp. n.

**Description** (Figs 7–10). Head and pronotum brown. Hemelytra and paranota hyaline, some veinlets on paranota brown and a brown spot on basal third of hemelytra. Legs and antennae clear, except tarsi dark brown. Body beneath dark brown. Body length: 3.63, body width: 2.52, hood length: 1.62, hood width: 1.40.

Head small, spineless, without pubescence. Bucculae small, short, open in front. Rostrum short, reaching middle of mesosternum. Rostral channel lacking, ostiolar canal small. Antennae long and slender, all four segments pubescent; antennal segments measurements: I: 0.40; II: 0.16; III: 1.05; IV: 0.85. Legs long and slender.

Pronotum short, wide, tricarinate, not punctate but with a transverse row of large areolae at middle of posterior margin, this is rounded and not extending like a triangular process. Carinae moderately narrow, raised, foliated, without areolae, extending from calli to posterior margin. Collar very short, without hood. Paranota hyaline, large, raised, reflected, not meeting in front and below, but curved downwards and almost resting on pronotum, partly covering head and lateral carinae, but not covering center of pronotum, made of large areolae, two to three areolae wide at the outer side, the first row made of larger areolae, and one to two areolae wide at inner side, outer margins slightly serrate.

Hemelytra hyaline, much larger than abdomen, sharply widened at base. Costal area bent upwards, wide, six areolae broad at widest part, areolae large. Subcostal area subulate, bent downwards, biseriate, areolae of inner row large, those of outer row small, some of these divided into very small indistinct areolae. Discoidal area tumid, small, biseriate, inner row with three large areolae, outer row with four smaller areolae. Sutural area biseriate, first areola (at base) largest of entire hemelytron.

**Etymology.** This species is named for the fact its paranota are less globose than are those of most other *Nesocypselas* species.

**Type material.** Holotype ♂ (BPBM), Vanuatu: Santo Isl.: 15 km N of Luganville, 100 m, 12.ix.1979; W.C. Gagné lgt., BPBM Acc. No 1979.002.003.
Figs 3–6: *Idiocysta vanuatuensis* sp. n. 3 – habitus; 4 – profile; 5 – profile without the paranota to show the median carina; 6 – ventral face. Scale: 1 mm.


**Differential diagnosis.** *Nesocypselas minicysta* sp. n. differs from *N. dicysta* Kirkaldy, 1908, type species of the genus, by its paranota being less globose. *N. piperica* Drake, 1957, *N. bellatula* Drake, 1960 and *N. ecpalga* Drake & Ruhoff, 1965 also have larger paranota. *N. vicinalis* Drake & Poor, 1943 has a costal area five to six areolae broad like *N. minicysta* sp. n., but a subcostal area uniseriate whereas that of *N. minicysta* sp. n. is mostly biseriate. *N. simulis* Drake & Poor, 1943 has paranota reflexed inwards but their outer margins do not reach the pronotum as to almost rest on it. Its discoidal area is also different, being short and narrow and having at most 4 areolae whereas *N. minicysta* sp. n. has 7 areolae (an outer row of 5 areolae and an inner row of 2 long areolae). In *N. muiri* Drake & Poor, 1943, the rostrum reaches the middle of the metasternum, whereas in *N. minicysta* sp. n. it does not reach the meso-metasternal suture. *N. evansi* Drake, 1953 differs from *N. minicysta* sp. n. in having much larger paranota and wider discoidal area (3 areolae broad); the costal and subcostal areas of these two species are similar. *N. minicysta* sp. n. differs from *N. inannana* Drake, 1953 in the structure and number of areolae of the paranota and the hemelytra. The paranota of *N. minicysta* sp. n. have fewer areolae, which are larger than in *N. inannana*.

**Comments.** The genus *Nesocypselas* Kirkaldy, 1908 comprises presently 9 species, all from the Oceania region. They are known from Fiji Islands, Bismarck Archipelago, New Britain, New Guinea, and Vanuatu Islands.

**Tingis (Tropidocheila) parvoroe** sp. n.

**Description** (Figs 11–13). Head brown. Pronotum and hemelytra yellowish to ochraceous with some dark brown spots. Antennae and legs ochraceous, except apical two-thirds of last antennal segment and hind tarsus brown. Body beneath brown. Length: ♀ 2.46; ♂ 2.83; width: ♀ 0.80; ♂ 1.05.

Head small, armed with five erected spines. Bucculae long and narrow, triseriate, areolae tiny. Rostrum reaching hind coxae. Rostral channel straight and narrow, open behind, widened and curved between hind coxae. Antennae long and slender, first segment stout, fourth fusiform, finely pilose. Antennal segments measurements: ♀ I: 0.12; II: 0.11; III: 0.66; IV: 0.25; ♂ I: 0.14; II: 0.14; III: 0.69; IV: 0.29. Legs long and slender.

Pronotum strongly gibbose, punctate, carinate on hind process, tricarinate. Carinae straight, elevated, uniseriate,
areolae tiny. Collar narrow, two to three areolae broad, not raised, calli small. Paranota reflexed upwards, narrow, uniseriate, areolae small and smaller behind.

Hemelytra narrow, extending far behind abdomen, principal veins distinct, slightly elevated. Costal area bent upwards, narrow, biseriate, areolae very small. Subcostal area bent downwards, narrow, biseriate, areolae small but slightly larger than those of costal area. Discoidal longer than two-thirds length of hemelytra, six areolae broad at widest part, areolae larger than those of costal and subcostal areas. Sutural area ten to eleven areolae broad, areolae large at apex.

**Etymology.** This species is named *parvoroe* because of its narrow (parvus: small) costal area (oroe: borders).


**Differential diagnosis.** *Tingis parvoroe* sp. n. is very similar to *Tingis teretis* Drake, 1947, *T. muiri* Drake, 1947, and *T. irregularis* (Montrouzier, 1861). Their paranota resemble those of *Eritingis* Drake & Ruhoff, 1962 (i.e., narrow and at most uniseriate). However, they have a narrower costal area than does *T. parvoroe* sp. n. *T. teretis* and *T. irregularis* have a uniseriate costal area and *T. muiri* has a uni- and biseriate costal area.

**Comments.** There may be a sexual dimorphism of size. However, the measurements were of only one single specimen of each sex.

Ten species of this cosmopolitan genus have been known from the Austral-Oceanian region. Eight of them belong to the subgenus *Tingis*, two to the subgenus *Tropidocheila*. Nine species are known from Australia (Tasmania included) and one from New Guinea. The two *Tingis* (*Tropidocheila*) species are known only from Queensland.
NEW RECORDS

Cysteochila idonea Drake, 1956


Comments. *P. summervillei* is also known from Australia and New Caledonia.

Stephanitis subfaciata Horváth, 1912


Comments. *S. subfaciata* is known from China, Taiwan, Burma, India, Palau Islands, Java, and Caroline Islands. A specimen was also collected in New Caledonia. New record for Vanuatu.

Teleonemia scrupulosa Stål, 1873


Comments. Teleonemia scrupulosa, the lantana bug, is native to tropical and subtropical America. It was introduced partly for control of Lantana in many Pacific and Indian islands as well as in Australia and India. In the Pacific islands it occurs in the Caroline (Ponape), the Solomon Islands, Hawaii, Vanuatu (present record), New Caledonia, Fiji, Tonga, Society Islands, otherwise in South America, USA, southeast Asia, Philippines (Palaawan Islands), and Australia.

Tingis chazeaui Guilbert, 1997


Comments. Described and previously known only from New Caledonia, this is the first report of this species in Vanuatu.

Tingis irregularis (Montrouzier, 1861)


Comments. As was true for T. chazeaui, this species was described and known only from New Caledonia. This is the first report of this species in Vanuatu.

KEY TO SPECIES OF TINGIDAE OF VANUATU

1 Paranota narrow, at most uniseriate
— Paranota wide, at least biseriate
2 Antennae stout and densely pilose
— Antennae long and slender
3 Paranota covering part of the pronotum
— Paranota not covering the pronotum

Stephanitis subfaciata Horváth
4 Pronotal carinae slightly raised, head armed with four spines  

— Pronotal carinae strongly raised, head armed with five spines  


Teleonemia scrupulosa Stål

5 Costal area uniseriate  

— Costal area biseriate  


Teleonemia scrupulosa

6 Median cephalic spine present  

— Median cephalic spine absent  


Tingis irregularis (Montrouzier)

7 Paranota reflexed but not resting on the pronotum  

— Paranota reflexed as to rest on the pronotum  


Cystechila idoea Drake

8 Paranota narrower than pronotum when seen from above  

— Paranota wider than pronotum when seen from above  


Holophydgon nishidae

9 Hemelytra not abruptly widened at base  

— Hemelytra abruptly widened at base  


Holophydgon nishidae sp. n.

10 Inner face of paranota two to three areolae broad  

— Inner face of paranota five to six areolae broad  


Nesocypselas inanana Drake

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