

THE WORLD RHYPAROCHROMINAE (Hemiptera:
Lygaeidae). VII. NEW SPECIES OF
KANIGARA DISTANT

By G. G. E. Scudder

DEPARTMENT OF ZOOLOGY, UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER

Abstract: Seven new species of *Kanigara* Distant are described and a key given to separate the species in this genus.

The genus *Kanigara* was described by Distant (1906) with the species *K. flavomarginata* being the only included taxon and hence the type species. Distant (1910) figured the type species and Scudder (1962) transferred *Gonatas clypeatus* Distant 1904 into the genus, the latter species also being figured in Distant (1904). Until the present time, these two species have been the only ones described as belonging to *Kanigara*. Recently seven additional species have been recognized in material obtained for identification. These are described below and a key given to separate the nine species in the genus.

Type specimens are in Bishop Museum, Honolulu (BISHOP); British Museum (Natural History), London (BMNH); Leiden Museum (LEIDEN); Budapest Nat. Hist. Museum (BUDAPEST).

***Kanigara flavoscuta* Scudder, new species**

♀. Head dark brown; antennae ferruginous; rostrum flavo-ochraceous; pronotum dark brown with lateral areas of posterior 1/2 broadly flavo-ochraceous; scutellum dark brown with a flavescent Y-shaped elevation, the basal parts of Y connected to C-shaped flavescent marks; apex of scutellum with flavescent lateral streaks and ferruginous punctures; hemielytra pale ferruginous scutellar margin of clavus at base, and claval commissure margin, dark brown; apical margin of corium and apical 1/4 of costal margin dark brown; thoracic pleura dark ferruginous; underside of pronotal lateral carinae flavescent in posterior 1/2; anterior of costal margin of corium, viewed from side, flavescent; abdomen ferruginous and legs similarly colored.

Insect rather shiny above. Head width 1.15 mm, length 0.75 mm; vertex $2.5 \times$ eye width, flat and impunctate; ocelli very small; 1st antennal segment with apical 3/4 projecting beyond apex of head; antennal measurements 0.85: 1.40: 1.26: ? (mm).

Pronotum sharply inclined ventrally; lateral margins slightly concave in middle; anterior margin deeply concave; disc finely and shallowly punctate; pronotal width 2.60 mm, length 1.65 mm. Scutellum with sides a little sinuate; disc with a Y-shaped elevation, this for the most part pale and impunctate; basal angles with punctures fine and about same as on pronotum;

1. Specimens on loan from Bishop Museum were collected during fieldwork supported by grants from the U. S. National Institutes of Health (AI 01723), and the U.S. National Science Foundation (G-4774).

apical 1/2 of scutellum with very large punctures, most larger than size of ocellus scutellar width 1.60 mm, length 1.95 mm.

Hemelytra with costal margin distinctly sinuate; clavus with the 3 rows of punctures closely punctate; corium with a subcostal ridge; punctures on corium rather coarse. Mesosternum with a pair of tubercles; metapleura distinctly swollen and visible laterally when insect viewed from above.

Total length 6.35 mm.

Holotype ♂ (LEIDEN), Idjen, 950 m, Blawan 45, Dammerman,

Similar to *K. tuberculata* described herein, but larger and with scutellum wider than length of second antennal segment.

Kanigara fumosa Scudder, new species

♀. Head, pronotum, scutellum and hemelytra uniform dark brown; ochraceous markings present on humeral angles; antennae brown with 4th segment somewhat ochraceous except at base; membrane whitish opaque; venter brown; legs brown with tibiae and tarsi slightly ochraceous.

Dorsum not polished and shiny, but appearing rather granulose and dull. Head width 0.93 mm, length 0.62 mm; vertex 2× eye width, convex and smooth; ocelli relatively large; antennal measurements 0.50: 0.90: 0.83: 0.86 (mm); rostrum reaching to mesosternum.

Pronotum with lateral margins more or less straight; pronotal disc very finely and shallowly punctate; pronotal width 1.66 mm, length 0.93 mm. Scutellum with base and center punctures like those on pronotal disc; lateral margins and apex of scutellum with larger and deeper punctures; scutellum width 1.00 mm, length 1.30 mm.

Clavus with punctures like those on lateral margins of scutellum; rows of punctures on clavus each with about same spacing between punctures; corium with 2 rows of punctures adjacent to claval suture similar to punctures on clavus; corium with costal 1/3 finely punctate.

Total length 4.45 mm.

♂. Similar to ♀. Head width 0.90 mm; antennal measurements as ♀; pronotal width 1.58 mm, pronotal length 0.93 mm. Total length 4.10 mm.

Holotype ♀ (BISHOP 8227), NW New Guinea, Sentani, 90 m, 22. VI. 1959, light trap, Gressitt & Maa.

Paratypes: 3 ♀♀, same data as type; 9 ♂♂, NW New Guinea: Hollandia Area, W. Sentani, Cyclops Mts., 50-100 m, 22-24. VI. 1959, Light trap, J. L. Gressitt & T. C. Maa; 1 ♀, *id.*, 23-24. VI. 1959; 1 ♀, SE New Guinea (Papua), Kokoda, 360 m, VIII. 1933, L. E. Cheesman; 1 ♀, NW New Guinea: Hollandia, 18. X. 1954, L. D. Brongersma. New Guinea: 1 ♂, 3 ♀♀, NE Madang Dist., Finisterre Mts., Damanti, 1050 m, Stn. No. 46, 2-11. X. 1964, M. E. Bacchus; 1 ♀, Erima, Astrolabe B., 96, Biro. (BISHOP; BMNH; LEIDEN; BUDAPEST; Scudder Coll.).

Similar to the species herein described as *K. fusca*, but with corium and membrane colored differently.

Kanigara fusca Scudder, new species

♂. Head, pronotum, scutellum and hemelytra uniform dark brown; humeral angles flavescent; base of corium rather ochraceous; antennae dark ferruginous brown with 4th segment ochraceous except at base; membrane fuscous with base and veins pale; venter rather dark brown; legs brown to ferruginous apically.

Dorsum dull. Head width 1.25 mm, length 0.85 mm; vertex $2\times$ eye width, slightly convex and with faint punctures in center; ocelli moderately large; rostrum reaching to middle coxae; antennal measurements 0.75: 1.38: 1.30: 1.25 (mm); 2nd to 4th antennal segments with long, scattered outstanding hairs.

Pronotum with lateral margins straight or very faintly concave near middle; disc very finely and shallowly punctate; pronotal width 2.38 mm, length 1.55 mm. Scutellum flat in center; finely and shallowly punctate, but punctures at apex and laterally somewhat larger and deeper; scutellum width 1.45 mm, length 1.80 mm.

Clavus with row of punctures nearest scutellum with punctures smaller and less frequent than punctures in other 2 rows on clavus; median row of punctures on clavus and row on clavus adjacent to claval suture with punctures same as those on lateral margins of scutellum; 2 rows of punctures on corium adjacent to claval suture like punctures on lateral margins of scutellum; other punctures on corium smaller, but more distinct than punctures on pronotum.

Total length 6.25 mm.

♀. Color and structure similar to ♂. Head width 1.20 mm; antennal measurements 0.75: 1.30: 1.20: ? (mm); pronotal width 2.45 mm, length 1.43 mm. Total length 6.30 mm.

Holotype ♂ (BISHOP 8228), NW New Guinea, Hollandia Area, W. Sentani, Cyclops Mts., 50-100m, 22-24. VI. 1959, Light Trap, J. L. Gressitt & T. C. Maa.

Paratypes: 2 ♂♂, 5 ♀♀, same data as type; 1 ♂, NW New Guinea, Sentani, 90 m, 22. VI. 1959, M. V. light trap, Gressitt & Maa; 1 ♀, NE New Guinea, Madang Dist., Finisterre Mts., Damanti, 1065 m, Stn. No. 46, 2-11. X. 1964, M. E. Bacchus. (BISHOP; Scudder Coll.; BMNH).

Similar to *K. fumosa*, but larger and with membrane not whitish.

***Kanigara oculata* Scudder, new species**

♀. Head and antennae ferruginous; rostrum pale ferruginous; pronotum ferruginous with lateral areas of posterior 1/2 broadly flavescens, and this tending to extend onto anterior 1/2; scutellum uniform dark ferruginous; hemelytra ferrugino-flavescent with dark ferruginous punctures; costal margin and narrow subcostal line tending to be dark brown; apex of corium with dark ferruginous brown spot just on apical margin; membrane pale ferruginous and hyaline; legs ferrugino-flavescent; venter dark ferruginous.

Dorsum shiny. Head with eyes appearing large; vertex width $1.8\times$ eye width; distance between ocelli equal to width of eye; vertex virtually flat and more or less impunctate; ocelli relatively large; antennal measurements 0.90: 1.35: ? : ? (mm); head width 1.25 mm, length 0.75 mm; rostrum reaching mid way between fore and middle coxae.

Pronotum with lateral carinae distinct; lateral margins very slightly concave near middle; disc faintly and shallowly punctate; anterior margin of pronotum distinctly concave; pronotal width 2.40 mm, length 1.40 mm. Scutellum with disc virtually flat; weakly punctate, but punctures at apex larger than those on clavus, although not deep; scutellum width 1.50 mm, length 1.75 mm.

Clavus with punctures about same size as those on corium and smaller than those on apex of scutellum, if latter distinct.

Total length 6.90 mm.

♂. Similar to ♀. Head width 1.20 mm; pronotal width 2.15 mm, length 1.25 mm. Total length 6.30 mm.

Holotype ♀ (BMNH), Malaya, Johore, S. Kahang Estate, light trap, VI.1962, J. R. Pippet.

Paratypes: 1 ♂, data as type; 1 ♀, Sumatra, Padong, 7. VII. 1922, de Groot (Amer Mus. Nat. Hist.; Scudder Coll.).

In coloration this species is similar to *K. flavomarginata* and *K. punctata*, but it differs in having the head with larger eyes, larger ocelli and narrower vertex, the distance between the ocelli being equal to the width of an eye.

***Kanigara punctata* Scudder, new species**

♀. Head dark brown; antennae ferruginous; pronotum dark brown with posterior 1/2 of lateral areas longitudinally flavescens and extending to humeral angles; scutellum dark ferruginous brown; hemielytra ochraceous with ferruginous punctures and small ferruginous spot near apex of corium on apical margin; venter ferruginous; legs pale ferruginous.

Insects subshiny to dull. Head width 0.93 mm, length 0.56 mm; vertex 2.5× eye width, slightly convex and with very faint punctures in center; ocelli relatively large; antennal segments 2-4 with long outstanding hairs; antennal measurements 0.43: 0.86: 0.80: 0.83 (mm); rostrum attaining mesosternum.

Pronotum with lateral margins virtually straight; disc faintly punctate; pronotal width 1.83 mm, length 1.08 mm. Scutellum shallowly convex; faintly punctate at base, but punctures at apex and laterally, as large as or larger than punctures on clavus; scutellum width 1.12 mm, length 1.40 mm.

Clavus with 3 similar rows of rather large punctures; corium with the two rows of punctures adjacent to claval suture, with punctures like those on clavus; rest of corium with punctures smaller.

Total length 4.50 mm.

♂. Color and structure as in ♀. Head width 0.93 mm; antennal measurements 0.46: 0.86: 0.83: 0.90 (mm); pronotal width 1.83 mm, length 1.07 mm. Total length 4.55 mm.

Holotype ♀ (LEIDEN), Celebes, N. O. Soemba, Kambera, III. 1925 (Dammerman).

Paratypes: 1 ♂, same data as type; 3 ♀♀, Celebes, N. W. Soemba, Laora, 100 m, IV. 1925, Dammerman; 1 ♂, 2 ♀♀, Celebes, Makassar, I. 74, O. Beccari; 1 ♀, Celebes, Wallace; 1 ♂, 2 ♀♀, Philippine Is., Palawan, Tarumpitao Pt., 25. V. 1958, light trap, H. E. Milliron; 1 ♂, 1 ♀, *id.*, 29. V. 1958; 1 ♀, Philippine Is., Luzon, Mt. Makiling, 1. VI. 1932, F. C. Hadden; 1 ♂, 1 ♀, Philippine Is., Leyte, Dagami, 22 km, SW Tacloban, 23. VII. 1961 (P. I. Natl. Mus. & Am. Mus. Nat. Hist. Exped.); 1 ♀, Philippine Is., Leyte, Abuyog, 56 km S. Tacloban, 9. VII. 1961 (P. I. Natl. Mus. & Am. Mus. Nat. Hist. Exped.); 1 ♂, Sumatra, Tjinta, Radja (Mjöberg); 1 ♀, Sumatra, Bindjei-Medan, C. R. Pfister (Coll. Dr D. MacGillivry); 1 ♀, Sumatra, Medan (Mjob.); 3 ♂♂, 2 ♀♀, Malaysia (N. Borneo), Sabah, Tuaran, light trap, VII. 1967, T. E. Beok; 2 ♂♂, Malaysia, Sarawak, Semongok, X. 1967, secondary jungle, at light, G. Rothschild (BISHOP; LEIDEN; STOCKHOLM; GENOVA; BMNH; A. C. Eyles Coll.; G. G. E. Scudder Coll.; Amsterdam Univ.; AMNH).

Similar to *K. flavomarginata* but with lateral parts of anterior half of pronotum brown and scutellum with apical and lateral punctures larger than those on base and on pronotal disc.

***Kanigara tuberculata* Scudder, new species**

♀. Head ferruginous brown; antennae ferrugino-flavescens; pronotum ferruginous brown with lateral areas of posterior 1/2 broadly pale; scutellum with base dark brown, the apex with lateral areas pale flavescens and with ferruginous punctures; disc of scutellum with Y-shaped elevated flavescens area and basal arms of Y connected to pale flavescens C-shaped areas; hemielytra ferrugino-ochraceous with ferruginous punctures; apex of corium narrowly ferrugi-

nous brown; membrane hyaline with margin narrowly brown; legs flavo-ochraceous; thoracic venter dark ferruginous; abdomen ventrally ferrugino-flavescent.

Dorsum subshiny. Head width 0.93 mm, length 0.60 mm; vertex $3 \times$ eye width, slightly convex and virtually impunctate; ocelli small; antennal measurements 0.63: 1.00: 1.00: 1.00 (mm); rostrum reaching middle coxae.

Pronotum with lateral margins almost straight in middle; posterior $1/2$ of disc distinctly punctate, but punctures rather shallow; pronotal width 1.83 mm, length 1.10 mm. Scutellum with Y-shaped elevated and impunctate area; apical parts laterally with large and deep punctures; scutellum width 1.00 mm, length 1.23 mm.

Hemelytra with costal margin distinctly sinuate; corium with a subcostal ridge; punctures distinct. Mesosternum with a pair of tubercles; metapleura somewhat swollen.

Total length 5.00 mm.

Holotype ♀ (BUDAPEST), Taiwan (Formosa), Taihorin, I. 1910, Sauter.

Similar to *K. flavoscuta*, but smaller and with 2nd antennal segment equal to width of scutellum and with metapleura less swollen.

Kanigara virtuosa Scudder, new species

♂. Head, pronotum and scutellum uniform dark brown; antennae dark brown; hemelytra ferrugino-ochraceous with ferruginous punctures; apical angle of corium brown and this mark extending as a line along corium just inside costal margin; legs ferrugino-ochraceous; venter ferruginous.

Dorsum smooth, polished and shiny. Head width 1.10 mm, length 1.10 mm; vertex $2 \times$ eye width, hardly convex and not distinctly punctate; ocelli relatively large; antennal measurements 0.56: 0.93: 0.83: 0.83 (mm); antennae rather hirsute, 3rd and 4th segments with scattered long outstanding hairs; rostrum reaching mesosternum.

Pronotum with lateral margins straight; disc with fine pin-point punctures and these faint and shallow; pronotal width 1.68 mm, length 0.93 mm. Scutellum rather flat; whole of disc with uniform fine punctures as on pronotum; scutellum width 1.20 mm, length 1.00 mm.

Clavus with median row of punctures less densely punctate than other 2 rows; punctures in outer rows of punctures on clavus a little larger than those on pronotum and scutellum; corium with punctures in costal $1/3$ fine and like those on clavus; the 2 rows of punctures on corium adjacent to claval suture larger than those on rest of corium; membrane whitish opaque.

Total length 4.40 mm.

♀. Similar to ♂. Head width 1.00 mm; pronotal width 1.90 mm, length 1.00 mm. Total length 4.75 mm.

Holotype ♂ (BISHOP 8229), NW New Guinea, Hollandia area, W. Sentani, Cyclops Mts., 50-100 m, 22-24. VI. 1959, light trap, J. L. Gressitt & T. C. Maa.

Paratypes: 5 ♂♂ 1 ♀., data as type [BISHOP; Scudder Coll.].

Similar to the species herein described as *K. fumosa*, but with paler corium and with general surface dorsally highly polished and not dull.

KEY TO SPECIES OF KANIGARA DISTANT

1. Scutellum with Y-shaped flavescent elevated area; mesosternum with a pair of tubercles; metapleura rather swollen 2
- Scutellum if with elevated areas, then these not flavescent; mesosternum without a pair

- of tubercles; metapleura not swollen 3
2. Large insects, 6.00 mm or more in length; width of scutellum greater than length of second antennal segment **flavoscuta** Scud.
 Small insects, 5.00 mm in length; width of scutellum equal to length of 2nd antennal segment **tuberculata** Scud.
3. Scutellum with lateral areas apically flavescent, base brown; disc of scutellum with Y-shaped elevation, but this not pale; anterior margin of corium distinctly sinuate; pronotal carinae distinct **clypeatus** (Dist.)
 Scutellum uniform ferruginous brown and without Y-shaped elevation 4
4. Pronotum with lateral areas of posterior 1/2 broadly pale 5
 Pronotum uniform ferruginous to brown with at most only humeral angles pale 7
5. Distance between ocelli equal to eye width; larger insects, 7.00 mm or more in length **oculata** Scud.
 Distance between ocelli greater than eye width; smaller insects, less than 6.00 mm in length 6
6. Anterior 1/2 of pronotum with lateral areas brown; scutellum with apical and lateral punctures larger than punctures on basal area of scutellum and on pronotal disc **punctata** Scud.
 Anterior 1/2 of pronotum with lateral areas pale; scutellum with apical and lateral punctures not distinctly larger than punctures on basal area and on pronotum **flavomarginata** Dist.
7. Surface of pronotum and scutellum smooth, polished and shiny; hemielytra pale and hyaline; apex of corium only, brown **virtuosa** Scud.
 Surface of pronotum and scutellum dull and finely punctate, not polished and shiny; at least apical 1/2 of corium fuscous 8
8. Corium completely fuscous; membrane whitish opaque; smaller species, 4.0-4.50 mm in length **fumosa** Scud.
 Corium pale in basal half; membrane fuscous; larger species, 6.00-6.50 mm in length ...
 **fusca** Scud.

Acknowledgments: The research for this paper was carried out while in receipt of a grant from the National Research Council of Canada. I am indebted to the following for loan of material: Dr J. L. Gressitt (B. P. Bishop Museum, Honolulu); Dr W. J. Knight and the Trustees of the British Museum (Nat. Hist.) (London); Dr. H. C. Blöte (LEIDEN); Dr P. Wygodzinsky (American Museum of Natural History, New York); the Late Dr E. Kjellander (Naturhistoriska Riksmuseum, Stockholm); Prof. E. Tortonese & Dr D. Guiglia (Museo Civico di Storia Naturale, Genova); Dr A. Soos (BUDAPEST).

REFERENCES

- Distant, W. L.** 1904. *Fauna of British India, including Ceylon & Burma*. Rhynchota Vol. II. Taylor & Francis, London.
 1906. Oriental Heteroptera, *Ann. Soc. Ent. Belg.* 50: 405-417.
 1910. *Fauna of British India Including Ceylon & Burma*. Rhynchota Vol. V. Taylor & Francis, London.
- Scudder, G. G. E.** 1962. The World Rhyparochrominae (Hemiptera: Lygaeidae). I. New synonymy and generic changes. *Canad. Ent.* 94: 764-73.