

Review of *Jamella* Kirkaldy and *Malleja*, gen. nov. in Australia and New Guinea, with Descriptions of New Species (Homoptera : Flatidae)

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Abstract

New species of *Jamella* Kirkaldy are: *J. eurans*, *J. mimica*, *J. rubella*, *J. sojora* and *J. vexans*. A key is presented to separate the five new species and *J. australiae* Kirk., type species of *Jamella*. Closely related *Malleja* gen. nov., with type species *M. distincta*, sp. nov., is described. A key is provided to separate the two genera. Male genitalia are illustrated.

Introduction

Nothing has been added to the knowledge of *Jamella* Kirkaldy (1906) since the original description, other than illustration of the lectotype male genitalia by Medler (1987). Although reported as a monotypic genus in Queensland, Australia, research presented here has shown that *Jamella* is a complex of several taxa that have distributions in Northern Australia, Papua New Guinea, and Irian Jaya. Also, an undescribed closely related monotypic genus was recognised from Papua New Guinea and Irian Jaya.

The two species known in Australia are easily recognised by external morphological characters given in my descriptions. However, the complex of taxa in New Guinea was revealed by study of male genital characters. Treatment of the genital capsule with NaOH is recommended for positive identifications of the species.

Jamella is misplaced in the arrangement of genera proposed in the catalogue of Metcalf (1957). The genus should be removed from the tribe Selizini and placed in a phylogenetic lineage represented by *Atracis* Stal (1866) *sensu* Medler (1988). *Atracis* and related genera are poorly known, and considerable revisionary research is required before their satisfactory arrangement in a suprageneric hierarchy in the family Flatidae can be presented.

Jamella is similar to *Atracis* in general appearance. In both genera veins R and S are united in a distinct stem apical to the basal node. However, in *Jamella* the stem is short, and cell R elongate and 'open' at the costal margin (fig 2), whereas in *Atracis* the stem is long and cell R short and 'closed' by a distinctive thick vein formed by C+R that recurves to unite with vein S (fig 1). Female genitalia differ considerably, with segment X (the so-called wax plate) large and widely elliptical in *Atracis*, but relatively small and narrowly oval in *Jamella*.

Material

The collection of the J. Linsley Gressitt Center for Research in Entomology, Bishop Museum (BPBM), provided the majority of specimens studied. In addition, I wish to acknowledge loans kindly provided by the following curators who are listed in association with the acronyms used for their respective depository museums: Dr P.H. van Doesburg, Rijksmuseum voor Natuurlijke Historie, Leiden (RMNH); Dr H. Emmrich, Staatliches Museum für Tierkunde, Dresden (SMTD); Dr W.K. Knight, British Museum (Natural History), London (BMNH); Dr J. P. Kramer, United States Museum of Natural History, Washington, D. C. (USNM); Dr A. Neboiss, Museum of Victoria, Abbotsford (MV); Dr J. van Stalle, Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels (IRSN).

Methods

All measurements were made on type specimens. The overall length was measured with a mm ruler. All other measurements were made at 3× with a binocular microscope fitted with a 20×20 grid in a 15× eyepiece. The grid units were then converted to mm. Normally, the right tegmen was used for measurements. Data on the character states are recorded in the following uniform format:

Length; overall in side view along the midline from anterior margin of head to apical margin of tegmen. Vertex (v) dorsal view along midline from transverse posterior carina to anterior margin; frons (f) medially from frontoclypeal suture to margin with vertex; pronotum (p), and mesonotum (m) along their longitudinal midline; tegmen (t) from origin of basal stem to middle of apical margin; postclaval sutural margin (pcl) from apex of clavus to intersection of apical margin along a chord projected from preclaval sutural margin through apex of clavus (Fig. 1).

Width; vertex (v) transversely along the basal carina between its junction points with lateral carinae dorsal to eyes (Fig. 4); frons (f) at the maximal point (Fig. 5); tegmen (t) between apex of clavus and costal margin.

The hind leg spines are recorded by formula. Data are listed in sequence of (1) metatibial lateral spine, (2) metatibial apical spines, and (3) metatarsal basal segment apical spines: e.g. 1:6:8.

Genitalia drawings were made freehand from NaOH-treated specimens positioned under glycerine in a porcelain spot plate. Accurate dimensions were obtained with the same 20×20 grid used for measurements. The drawings were done in pencil on ruled paper, then inked on tracing paper for photo reproduction.

The figures of the right tegmen are diagrammatic, with pustules, minor veins and pigment markings not shown. The male genitalia are presented uniformly in left lateral view of the genital capsule, and dorsal view of the anal segment.

Key to *Jamella* and *Malleja*

- Postclaval sutural margin strongly elevated convexly; vein S displaced against vein M by prominent bulla; 3 longitudinal veins arising from basal stem (R, S, M) (Fig. 3)
 *Malleja*, gen. nov.
- Postclaval sutural margin only slightly elevated convexly; vein S not noticeably displaced; 2 longitudinal veins arising from basal stem (R+S, M) (Fig. 2) *Jamella* Kirkaldy

Genus *Jamella* Kirkaldy

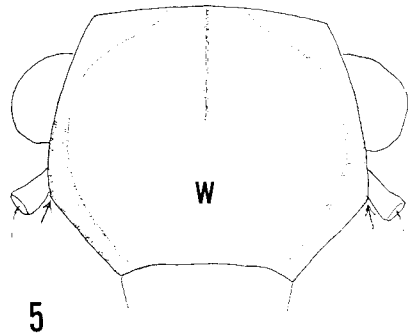
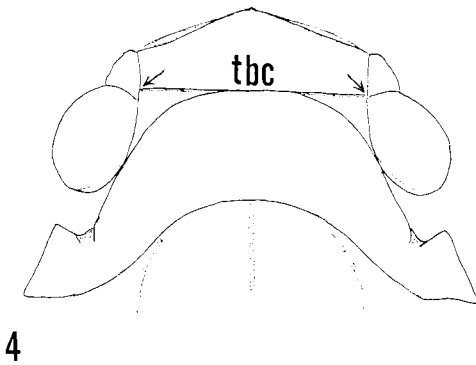
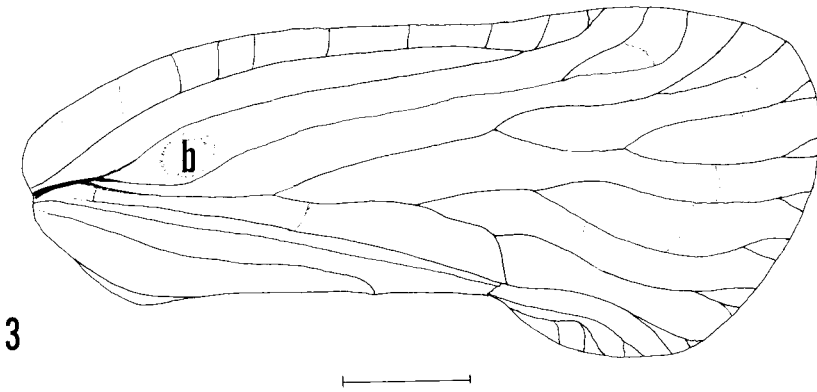
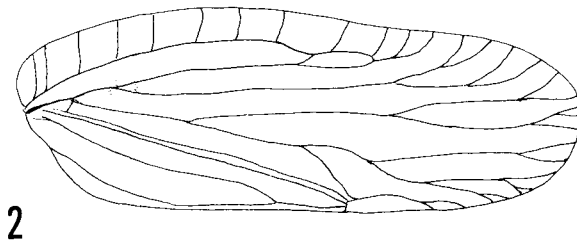
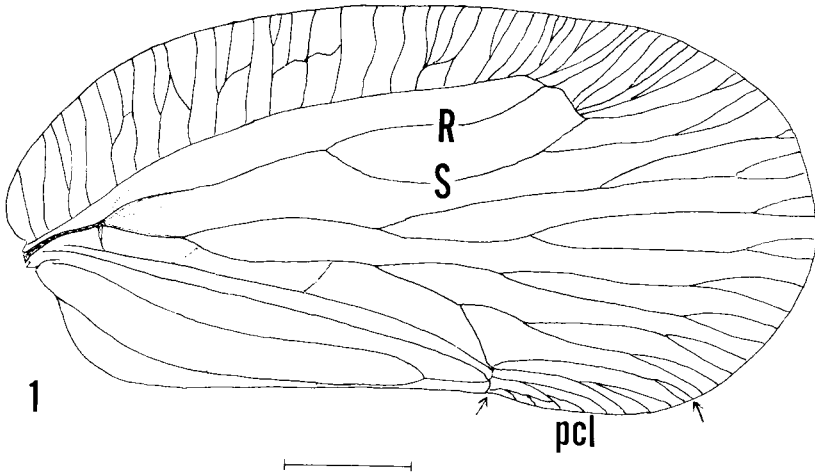
Jamella Kirkaldy, 1906: 460.

Type species: *Jamella australiae* Kirkaldy, 1906 by monotypy.

Diagnosis

Vertex short and flattened ledgelike, 3–4 times wider than long, anterior margin slightly convex or angular, separated from frons by carinate margin; frons about as long as wide, carinate medially from dorsal margin ventrad to midpoint, sometimes U-shaped lateral carinae faintly discernible, rarely well developed; ocelli present, often red. Pronotum twice as long vertex, slightly overlapping vertex, postocular eminence conical or truncate-conical; mesonotum tricarinate, lateral carinae strong, sinuate; apex of scutellum upturned. Tegmina resting at intermediate position between horizontal and vertical planes, convex, costal and sutural margins elongate parallel, slightly overlapping apically, postclaval margin slightly convex, apical margin narrowed elliptically; submarginal cell not much wider than costal cell, veins R and S united in short stem arising at basal node apically to R + S, fork veins R and S extended to costal margin without crossvein connection (R cell elongated, open apically), vein S forking near clavus apex; no submarginal line. Pustules in base of clavus moderately developed, vein A usually not elevated, Y-stem moderately elongate, not thickened or raised.

Figs 1–5. 1, *Atracis pyralis* Guerin-Meneville, tegmen. R = Radius, S = Sector, pcl = postclaval suture measurement. Scale = 2 mm. 2, *Jamella australiae* Kirkaldy, tegmen. Scale = 2 mm. 3, *Malleja distincta* Medler, tegmen. b = bulla. Scale = 2 mm. 4, *Jamella australiae* Kirkaldy, vertex, pronotum. tbc = transverse basal carina measurement. Scale = 2 mm. 5, frons. w = maximal width measurement. Scale = 2 mm.



The pattern of major veins in relation to above description is illustrated (Fig. 2).
 Post-tibial spines: 1 lateral spine, apical spines normally 6, range 5–7.
 Body length: 8–13 mm.

Key to species of *Jamella*

1. Frons tricarinate, lateral carinae U-shaped *J. sojora*, sp. nov.
 Frons with median longitudinal carina only 2
- 2(1). Tegmen broad basally, noticeably constricted apically; vein 2A raised basally
 *J. rubella*, sp. nov.
 Nearly full length of tegmen parallel margined; vein 2A not raised basally 3
- 3(2). Anterior margin of vertex slightly convex, not strongly carinate; median carina of frons
 scarcely visible from above; posterior margin of male anal segment concave,
 latero-apical margins acute (Fig. 7) *J. australiae* Kirkaldy
 Anterior margin of vertex shallowly angulate, median carina of frons visible from above;
 posterior margin of male segment not concave, or V-notched 4
- 4(3). Male 5
 Female 7
- 5(4). Dorso-apical margin of pygofer acute (Fig. 15); apex of anal segment narrowed to a blunt
 point (Fig. 16) *J. eurans*, sp. nov.
 Dorso-apical margin of pygofer convex; apex of anal segment not pointed 6
- 6(5). Recurved dorsal apical processes of aedeagus short, at most 1/2 length of aedeagus
 (Fig. 9); lateral margins of anal segment strongly concave (Fig. 10)
 *J. mimica*, sp. nov.
 Recurved dorsal apical processes of aedeagus elongate, extending to base of aedeagus
 (Fig. 11); lateral margins of anal segment slightly concave (Fig. 12)
 *J. vexans*, sp. nov.
- 7(4). Membrane of tegmen normally reddish brown *J. mimica*, sp. nov.
 Membrane of tegmen normally ivory 8
- 8(7). Length 13 mm. Fuscous pigmentation on tegmen forming irregular spots, bands or patches
 *J. eurans*, sp. nov.
 Length 10 mm. Fuscous pigmentation on tegmen limited to small lines or spots
 *J. vexans*, sp. nov.

Jamella australiae Kirkaldy

(Figs 2, 4–7)

Jamella australiae Kirkaldy, 1906: 460.—Metcalf, 1957: 445; Medler, 1987: 119, fig 17.

Material Examined

Lectotype. ♂, Cairns, Queensland, viii.1904, Koebele, BPBM.

Paralectotypes. 2 ♀, Cairns, Queensland, viii.1904; 18 ♂, 18 ♀, 16.vii.1904, Koebele, BPBM.

Other material. 1 ♀, Townsville, vi.1901, F.P. Dodd, 1911–190, BMNH; 2 ♂, 2 ♀, Claudie R., N. Queensland, xi.1912–ii.1913, J.A. Kershaw, MV.

Diagnosis

Overall appearance pale brown, with tegmina somewhat lighter color than head and thorax; sides of pronotum dark brown; veins and crossveins brown with reddish tinge, membrane opaque brown, with small red brown flecks in random pattern. Female segment X oval, diameter 5·6 mm.

Male genitalia (Fig. 6–7) dorso-apical margin of pygofer convex, apical margin of anal segment concave, lateral margins acute; aedeagus with short upcurved apical process. The U-shaped concavity of the apex of anal segment enables easy recognition of this species without recourse to dissection.

Measurements

Lectotype ♂, *Paralectotype* ♀. Length: overall 8·00, 9·50; v 1·75, 1·75; f 1·00, 1·08; p 0·50, 0·54; m 1·49, 1·83; t 6·47, 7·64; pcl 2·66, 3·32. Width: v 0·87, 1·00; f 1·08, 1·25; t 2·32, 2·66.

Hind leg spine formula: 1:6:7, 1:6:7.

Jamella mimica, sp. nov.

(Figs 9–10)

Material Examined

Holotype. ♂, Irian Jaya, Waris, S. of Hollandia, 450–500 m, 1–7.viii.1959, T. C. Maa, BPBM No. 14,029.

Allotype. ♀, Irian Jaya, Hollandia, 5.viii.1938, L. J. Toxopeus, Neth. Ind.-American New Guinea Exped. 1938-39, RMNH.

Paratypes. Papua New Guinea, 1 ♂, Goilala; Loloipa, Owen Stanley Range, 16–30.i.1958, W. W. Brandt; 1 ♂, Koitaki, 1500 ft. [457 m] x–xi.1928, C. Pemberton; 1 ♂, Ambunti, Sepik R., 150 m, 4.v.1963, light trap, R. Straatman, all in BPBM: Morobe Prov., 1 ♀, Buso, ix–xi.1979, J. Martin, BM 1980–150, BMNH; 1 ♂, 1 ♀, Wau, 1220 m, 18–21.vi.1981, J. Van Goethem, No. 307, No. 374; Madang Prov., (no abdomen), Awar, 26.vi.1981, U.V., J. Van Goethem, #374, all in IRSN; Irian Jaya,

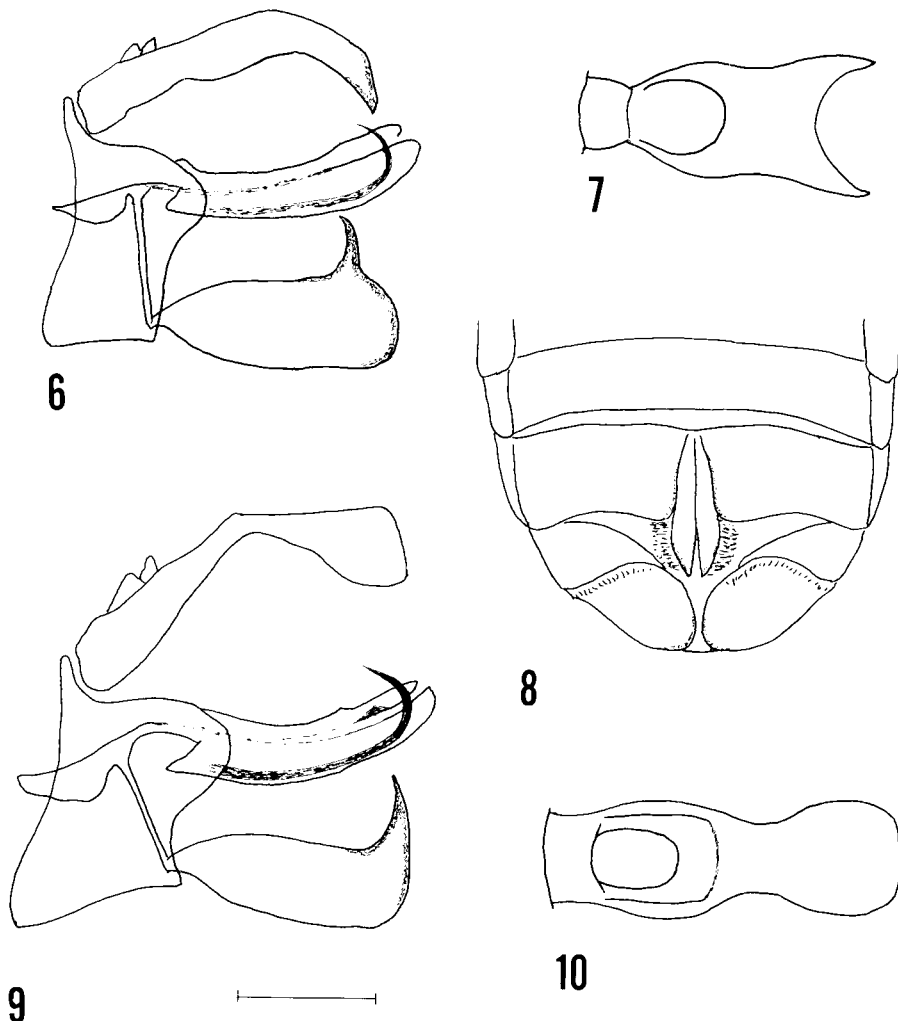


Fig 6–10. 6, *Jamella australiae* Kirkaldy, male genitalia; Fig 6.7, anal segment. Scale = 0.5 mm. 8, *Jamella rubella* Medler, female genitalia. Scale = 0.5 mm. 9, *Jamella mimica* Medler, male genitalia; 10, anal segment. Scale = 0.5 mm.

1 ♂, 4 ♀, Ifar, xii.1957, G. den Hoed, No. 46–51; 1 ♂, Araucaria Camp, 800 m, 18.iii.1939, L. J. Toxopeus, Neth. Ind.-American New Guinea Exped.; 1 ♂, Star Range, Sibil, 1260 m, at light; 1 ♀, Star Range, Katem, 200 m, 25.vi.1959, Neth. New Guinea Exped, all RMNH.

Diagnosis

Brown in overall appearance, tegmina infused to variable extent with small brown pigmented spots or lines, lacking strong pattern of dark brown spots, lines or large dots; dark red brown veins contrasting sharply with light red brown membrane. Female segment X oval, 6.0 mm.

Male genitalia (Fig. 13) dorso-apical margin of pygofer convex, apical margin of anal segment truncate, lateral margins concave (Fig. 14); apical processes of aedeagus short, upturned, lateral carina with small triangular projection, which is usually apical, but sometimes basal.

The character states of pygofer and aedeagus in *J. mimica* and *J. australiae* are closely similar, but the anal segment differs.

Measurements

Holotype ♂, *Allotype* ♀. Length: overall 10.50, 11.50; v 0.25, 0.33; f 1.16, 1.33; p 0.50, 0.58; m 1.83, 1.99; t 8.80, 9.79; pcl 2.82, 2.66. Width: v 0.95, 1.00; f 1.16, 1.25; t 2.99, 3.49. Hind leg spine formula: 1:7:7, 1:6:6.

Jamella vexans, sp. nov.

(Figs 11–12)

Material Examined

Holotype. ♂, Papua New Guinea: Mafulu, 4000 ft [1219 m], xii.1933, L. E. Cheesman, BM 1934–321, BMNH.

Allotype. ♀, Papua New Guinea: Mailu, 1907, Rosenberg, Coll. A. Jacobi, SMTD.

Paratype. ♂, Same label as holotype, BMNH.

Diagnosis

Specimens of this species are similar in size and coloration to *J. australiae*. Anterior carinate margin of vertex shallowly angular. Tegmina testaceous, veins and crossveins red brown, membrane ivory, infuscated. Spots and dashes distributed on tegmen without a constant pattern. Female segment X oval, diameter 4.0 mm.

Male genitalia (Fig. 11) dorso-lateral margin of pygofer convex, somewhat truncated; apical margin of anal segment truncate, lateral margins slightly concave (fig 12); aedeagus with dorsal and ventral processes elongate, extending from apex to base of aedeagus.

Measurements

Holotype ♂, *Allotype* ♀. Length: overall 10.00, 10.00; v 0.29, 0.29; f 1.08, 1.08; p 0.46, 0.50; m 1.66, 1.83; t 8.47, 8.63; pcl 3.32, 3.32. Width: v 0.83, 0.83; f 1.08, 1.16; t 2.82, 2.99. Hind leg spine formula: 1:6:6, 1:5:7.

Jamella eurans, sp. nov.

(Figs 15–16)

Material Examined

Holotype. ♂, Papua New Guinea, Morobe Prov., Wau, 1200 m, 1–5.iv.1963, M.V. light trap, J. Sedlacek, BPBM, No. 14,030.

Allotype. ♀, same label as holotype, except 24–26.ii.1963, BPBM.

Paratypes. 13 ♂, 7 ♀, Papua New Guinea, Wau, same label as holotype, various dates: 1961–1963; 1 ♂ Wau, Mt. Missim, 1100 m, 13.ii.1963, J. Sedlacek; 1 ♀, Lae, vii.1944, F.E. Skinner, all in BPBM: Morobe Prov., 1 ♀, Buso, ix–xi.1979, J. Martin, BM 1980–150; 1 ♂, 1 ♀, Bulolo, Samsam,

18.i.1983, on *Pandanus*, H.R. Roberts, No. 2021, CIE A, 14975, BM 1983-1 (nr *Massila/Dascalina*, det. M.R. Wilson, 1983); 3 ♂, 2 ♀, Lae, ii.1957, on bud of *Pandanus*; 1 ♂, 1 ♀, Lae, xii.1957, in leaf base of No. 1 *Pandanus*; 1 ♀, Lae (B.3), 6.iii.1957, feeds on *Pandanus*, R.W. Paine, CIE No. 15947, BM 1959-77, 1960-312 (det. ? gen. nr. *Atracis*, N.C.E. Miller 1958), all in BMNH: 1 ♀, Wau Ecology Inst, 1200 m, 12-24.vii.1983, second. montane forest, S.E. & P.M. Miller; 1 ♂, Nadzab, Markham R. Valley, viii.1944, K.V. Krombein, USNM; Madang Prov., 1 ♂, Sisimangum Village, i.vii.1961, U. V., J. van Goethem, No. 413, IRSN; Irian Jaya, 1 ♂, 1 ♀, Star Range, 1260 m, Sibil, 4-30.vi.1959, at light, Neth. New Guinea Exped, RMNH.

Diagnosis

Frons with strong median carina, remnants of lateral U-carinae scarcely discernible, vertex with thickened anterior marginal carina, dorsal termination of frontal carina visible from above. Tegmina mostly ivory, strongly marked with fuscous lines and dots, often heavy concentration of dark brown pigment forms distinct saddle marking basally; numerous short fuscous lines extending along veins in dendritic pattern. Female segment X oval, diameter 7.0 mm.

Male genitalia (fig 15) dorso-apical margin of pygofer acutely pointed; anal segment narrowed apically to a blunt point (fig 16); dorsal margin of aedeagus with strong thickened processes curved basally, apical slender processes extended nearly to base of aedeagus. The acute dorso-apical margin of the pygofer and bluntly pointed shape of the anal segment can be verified without dissection.

Measurements

Holotype ♂, *Allotype* ♀. Length: overall 11.00, 13.00; v 0.33, 0.37; f 1.29, 1.41; p 0.58, 0.66; m 2.16, 2.32; t 9.30, 11.29; pcl 2.49, 3.32. Width: v 0.95, 1.12; f 1.25, 1.41; t 3.49, 3.98. Hind leg spine formula: 1:6:6, 1:6:7.

The collections of specimens on *Pandanus* by R.W. Paine suggests that this may be a host plant of the species.

Jamella sojora, sp. nov.

(Figs 13-14)

Material Examined

Holotype. ♂, Northern Territory, Arnhem Land, Maningrida, 5 m, 18.iii.1961, J.L. & M. Gressitt, BPBM, No. 14,028.

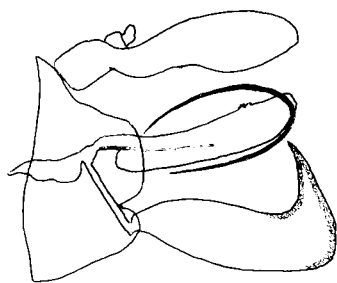
Allotype. ♀, same label as Holotype, 17.iii.1961, grass, BPBM.

Paratypes. 1 ♂, Northern Territory, same label as Holotype, 17.iii.1961; 1 ♂, Darwin, Nightcliff, 2 m, 2.x.1960, J.L. Gressitt; 1 ♀, Humpty Doo, Adelaide River, 23.ix.1960, 32621, J.L. Gressitt; 1 (no abdomen), Berry Springs, 50 km SE of Darwin, 12.iii.1961, J.L. & M. Gressitt, BPBM.

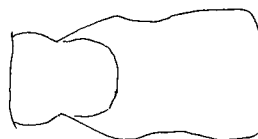
Diagnosis

All specimens seen by the author have a rich dark brown color and tegmina narrowed apically to greater degree than seen in representatives of *J. australiae*, the type species of *Jamella*. Other distinctive characters are strongly tricarinate frons, longer than usual R + S stem of tegmen, and male anal segment with V-notch. Tegmina marked with irregular patch of dark fuscous between bulla and costal margin and several smaller round spots in discal cells. Vertex with pair of dark brown spots on each side of medial area, mesonotum with pair of black round spots posteriorly on disc within lateral carinae and larger spots between carinae and posterior margin. Female segment X oval, diameter 6.5 mm.

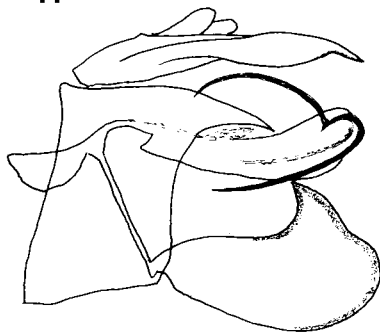
Male genitalia (Fig. 13) dorso-apical margin of pygofer sharply pointed; apical margin of anal segment incised V-shaped (fig 14); slender dorsal and ventral processes arising from apex of aedeagus, directed basally; dorso-apical margin of style rather robust, not slender as usual in the genus.



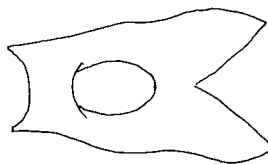
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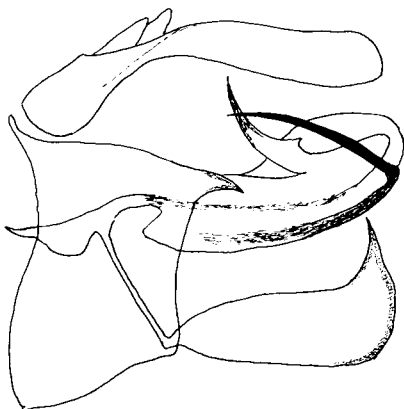
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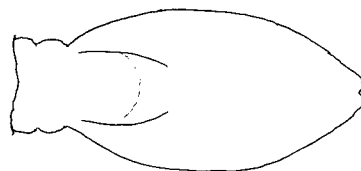
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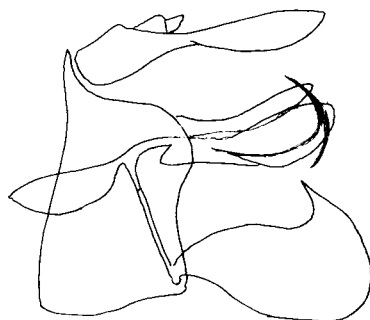
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Figs 11–18. 11, *Jamella vexans* Medler, male genitalia; 12, anal segment. Scale = 0.5 mm. 13, *Jamella sojora* Medler, male genitalia; 14, anal segment. Scale = 0.5 mm. 15, *Jamella eurans* Medler, male genitalia; 16, anal segment. Scale = 0.5 mm. 17, *Malleja distincta* Medler, male genitalia; 18, anal segment. Scale = 0.5 mm.

Measurements

Holotype ♂, *Allotype* ♀. Length: overall 9·50, 10·25; v 0·21, 0·29; f 1·16, 1·33; p 0·54, 0·54; m 1·74, 2·16; t 7·64, 8·63; pcl 2·32, 2·32. Width: v 0·87, 1·00; f 1·08, 1·29; t 3·32, 3·49. Hind leg spine formula: 1:6:7/8, 1:6:7.

***Jamella rubella*, sp. nov.**

(Fig 8)

Material Examined

Holotype. ♀, Papua New Guinea: Port Moresby, x-xi.1946, L. Jones, H.O. 21, Imp. Inst. Ent. Coll. No. 10608, BM 1947-29, BMNH.

Diagnosis

Anterior margin of vertex meeting frons at acute angle, somewhat less than 90 degrees; frons wider than long, smooth, the median carina only slightly elevated, extending about 1/3 length of frons. Tegmen somewhat narrowed apically, clavus elevated basally, vein A 2 sharp, heavily pustulate, apex of scutellum upturned. Overall coloration red brown, dorsal 1/4 of frons dark brown, ventral 3/4 testaceous, tegmina appearing dark red brown due to heavy concentrations of minute red dots and red pustules, with red suffusion especially strong in apical half of tegmina. Female genitalia (Fig. 8) valvulae III modified, not sclerotised, consisting of pair of elongate triangular processes extended posteriorly.

Measurements

Holotype ♀. Length: Overall 8·50; v 0·33; f 1·16; p 0·58; m 1·66; t 7·30; pcl 2·49. Width: v 1·12; f 1·49; t 2·66. Hind leg spine formula: 1:6:9.

Taxonomic Note

The characters of the only available specimen are distinctive, and sufficiently different from those of other species of *Jamella* to justify description of the new species. Characters of the male genitalia, when known, may help elucidate phyletic relationship of this species with other members of *Jamella*.

Genus *Malleja*, gen. nov.

Type species: *Malleja distincta*, sp. nov., here designated.

Diagnosis

Vertex about 3 times as wide as long, slightly depressed between lateral margins, anterior margin thickly carinate, meeting frons at right angle, junction with median carina of frons exposed in dorsal view. Pronotum not more than twice as long as vertex, postocular eminence conical; anterior margin of mesonotum sharply raised above pronotum, lateral carinae weakly developed; apex of scutellum upturned. Base of clavus heavily pustulate, vein A2 elevated in association with scutellum. Submarginal and costal cells of tegmen subequal, postclaval sutural margin strongly convex, apical margin and both apical angles convex. Three longitudinal veins (R, S, M) arising together from basal stem, vein S strongly displaced against M by enlarged bulla, R cell elongate, open to costal margin (Fig. 3).

Difference in shape and venation of the tegmina distinguish this genus from the closely related genus *Jamella*.

***Malleja distincta*, sp. nov.**

(Figs 3, 17-18)

Material Examined

Holotype. ♂, Irian Jaya: Star Range, Bivak, 1500 m, 28.vi.1959, at light, #39A, Neth. New Guinea Exped., RMNH.

Allotype. ♀, Irian Jaya: Star Range, Temna Sigin, 1800 m, at light, Neth. New Guinea Exped., RMNH.

Paratypes. 1 ♀, Papua New Guinea, Bismark Range, Simbal, 1730 m, 28.v.1966, Malaise trap, J.L. & M. Gressitt; Morobe Prov. 1 ♀, Mt. Missim, S side, 2000 m, 15.vi.1984, primethrin fog of *Castanopsis acuminatissima* mature canopy, sample No. 8, tree No. 3308, W.C. Gagne & UREP III, BPBM.

Diagnosis

Shape and venation of tegmina as shown (Fig. 3). Underlying color of tegmina ivory, heavily infuscated, varying from dark brown to black, veins red brown, pigmented veinlets forming strong dendritic patterns, vein terminals at apical margin heavily pigmented. Female segment X oval, diameter 5.0 mm.

Male genitalia (fig 17) dorso-apical margin of pygofer shallowly convex; apex of anal segment oval (fig 18); aedeagus with short curved pairs of processes directed dorsally and ventrally.

Measurements

Holotype ♂, *Allotype* ♀. Length: Overall 10.00, 13.00; v 0.29, 0.29; f 1.25, 1.49; p 0.54, 0.58; m 1.83, 2.16; t 8.63, 11.45; pcl 2.66, 3.49. Width: v 0.83, 1.00; f 1.12, 1.33; t 3.32, 4.15. Hind leg spine formula: 1:5:6, 1:6:6.

References

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