New species and new records of Perkinsiella (Hemiptera: Delphacidae) from Papua New Guinea

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Abstract

Six species of Perkinsiella, P. macrinus sp. n., P. diagoras sp. n., P. mycon sp. n., P. bulli sp. n., P. falcipennis sp. n. and P. boreon sp. n., are described from material collected in Papua New Guinea. New locality records are given for the sugar-cane pests P. saccharicida Kirk., P. vastatrix (Bredd.), P. rattlei Muir, P. sinensis Kirk., P. lalokensis Muir, P. papuensis Muir and P. thompsoni Muir.

The following notes and descriptions refer to material collected in Papua New Guinea by Mr. R. M. Bull, of the Southern Sugar Experiment Station, Bundaberg, Queensland, in May and June 1974 and sent to the Commonwealth Institute of Entomology for study.

The term 'suspensorium' used below refers to an elongate Y-shaped sclerite developed medially in the membrane between the ninth and tenth segments of the abdomen of the male, connecting the base of the aedeagus with the lateroventral angles of the anal segment.

Perkinsiella Kirkaldy

Perkinsiella Kirkaldy, 1903, 179. Type-species Perkinsiella saccharicida Kirkaldy.

Fig. 1-5.—Perkinsiella saccharicida Kirkaldy. 1, male genitalia, left side; 2, the same, posterolateral view from left; 3, the same, posteroventral view; 4, aedeagus, left side; 5, mesal edge of basal part of left first valvifer.

(L 3387)
Perkinsiella saccharicida Kirkaldy (Fig. 1–5)

Perkinsiella saccharicida Kirkaldy, 1903, 179.

Aedeagus with a minute tooth, directed dorsad, on left at apex; a pair of stout flattened spines, directed laterocephalad, laterally at three-fifths from base. Median stem of suspensorium longer than broad at base (3:1), with sides parallel.

Mesal margin of first valvifers at base produced in a convex lobe. First valvulae symmetrical at base.

Material examined. Papua New Guinea: 1♂, Central District, Port Moresby, Lesima Creek, 26.v.1974; 1♂, Northern District, Kokoda Road, 22.v.1974 (R. M. Bull).

Fig. 6–12.—Perkinsiella vastatrix (Breddin). 6, male genitalia, left side; 7, the same, posterolateral view from left; 8, the same, posterior view; 9, aedeagus, left side; 10, apical half of aedeagus, ventral view; 11, suspensorium; 12, base of ovipositor, ventral view.

Perkinsiella vastatrix (Breddin) (Fig. 6–12)

Dicranotropis vastatrix Breddin, 1896, 107.

Aedeagus with a moderately long spine dorsally at base of orifice, directed dorsocephalad; a smaller spine on right at three-quarters from base, directed laterocephalad; a slightly more slender spine of about the same length on left at about six-sevenths from base. Median stem of suspensorium longer than broad at base (4:1), with sides shallowly convex in distal three-quarters.

Mesal margin of first valvifers at base rounding rather abruptly, not produced. A pair of ovate processes, hollowed on posterior surface, extending from below base of first valvifers to meet in middle line. First valvulae not quite symmetrical at base.


Fig. 13–17.—Perkinsiella sinensis Kirkaldy. 13, male genitalia, left side; 14, the same, posterolateral view from left; 15, the same, posteroventral view; 16, aedeagus, left side; 17, base of ovipositor, ventral view.
**Perkinsiella sinensis** Kirkaldy (Fig. 13–17)

*Perkinsiella sinensis* Kirkaldy, 1907, 138.

Aedeagus relatively short, with a pair of short stout spines laterally at middle, the left spine slightly shorter than the right and situated slightly more distally. Median stem of suspensorium longer than broad at base (about 4:1), with sides converging distad.

Mesal margin of first valvifers at base moderately produced in a convex lobe. First valvulae symmetrical at base, pallid, with basal margin truncate.


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**Perkinsiella lalokensis** Muir (Fig. 18–24)

*Perkinsiella lalokensis* Muir, 1910, 9.

Aedeagus relatively long, with a pair of spines arising dorsally at anterior margin of orifice, directed cephalad, one spine rather longer than the other and extending cephalad for nearly half length of aedeagus.

Median stem of suspensorium longer than broad at base (about 4:1), with sides gradually converging distad.

Eighth pregenital sternite developed as two small, thin, narrow, slightly hollowed elongate-ovate lobes lying transversely. First valvifers with mesal margin abruptly and deeply hollowed near base, extreme basal inner angle sometimes slightly produced cephalad. First valvulae symmetrical, with inner margins separating from each other for a short distance distad of base.


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**Perkinsiella papuensis** Muir (Fig. 25–33)

*Perkinsiella papuensis* Muir, 1910, 9.

Aedeagus relatively short, with deep sides; dorsal margin moderately produced on left in a subtriangular lobe directed dorsolateral, and on right in a spine directed...
Perkinsiella papuensis Muir. 25, male genitalia, left side; 26, the same, posterolateral view from left; 27, the same, posterior view; 28, posterior margin of anal segment of male, left side; 29, aedeagus, left side; 30, aedeagus, posterior view; 31, suspensorium, with associated basal structures of aedeagus shown in broken line; 32, base of left first valvifer; 33, base of ovipositor, ventral view.

Median stem of suspensorium relatively short, about twice as long as broad at base, with sides in basal two-thirds converging distad.

Mesal margin of first valvifers at base moderately produced in a convex lobe that is slightly hollowed longitudinally. First valvulae symmetrical at base.


Perkinsiella thompsoni Muir (Fig. 34–41)

Perkinsiella thompsoni Muir, 1913, 240.

Aedeagus moderately long; a stout spine dorsally at apex, extending dorsocephalad for almost half length of aedeagus, a much shorter spine on right side at about two-
thirds from base, directed dorsolaterad, and a small spine on left at middle, close to
dorsal margin, directed laterocephalad. Median stem of suspensorium short, longer
than broad basally (about 2:5:1), with sides shallowly convex in basal half.
Mesal margin of first valvifers at base moderately produced in a convex lobe, which
is inflected ventrad. First valvulae symmetrical at base.

*Material examined.* Papua New Guinea: 4 ♂, 3 ♀, Central District, Port Moresby,

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**Perkinsiella rattlei** Muir (Fig. 42–47)

*Perkinsiella rattlei* Muir, 1910, 6.

Aedeagus with a long spine arising on left at about two-thirds from base, directed
laterocephalad, and a smaller spine arising more distally on right, directed latero-
cephalad. Inner margin of genital styles near base produced mesad in a subrectangular
lobe.

Mesal margin of first valvifers at base rather weakly produced in a convex lobe.
First valvulae symmetrical at base.

*Material examined.* Papua New Guinea: 10 ♂, 10 ♀, Central District, Port

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**Perkinsiella macrinus** sp. n. (Fig. 48–52)

Vertex with basal compartment broader than long (2:2:1), wider at base than at
level of anterior margin of eyes (1:3:1). Frons longer than broad at widest part
(1:6:1), lateral margins slightly concave distad of widest part. Antennae with basal
segment not strongly laterally compressed, not twice as wide at apex as at base; second segment only weakly compressed and slightly dilated, widest at about one-third from base.

Dark reddish brown; vertex and horizontal areas of pronotum, mesonotum and metanotum, yellowish white. Frons distad of widest part, genae, clypeus at apex and procoxae and mesocoxae at base and apex, rostrum and legs except for longitudinal stripes on femora and transverse bands on protibiae and mesotibiae pallid, almost white. Post-tibial spur and valvifers of ovipositor, except basal margin of first valvifer, pallid stramineous. Tegmina hyaline, with a broad reddish-brown vitta from base to apex posterior to $M$ but not including commissural margin; veins minutely granulate, apical veinlets narrowly infuscate at margin. No fuscous spot on margin of claval.

Male genitalia as figured. Aedeagus relatively long, with two spines near middle on left side, both short and directed cephalad and with the more dorsal spine close to the upper margin. Median stem of suspensorium longer than broad at base (about $3:5:1$), sides convex in distal half.

First valvifers of ovipositor rather abruptly produced mesad at base in a short acutely-pointed lobe. Right first valvula markedly tumid at base and partly concealing base of left first valvula.

**Male:** length 3.3 mm, tegmen 3.5 mm. **Female:** length 3.9 mm, tegmen 4.0 mm.

**Material examined.** Holotype ♂, PAPUA NEW GUINEA: Northern District, Kokoda, Road, Awala Village, 22.v.1974 (R. M. Bull) (Australian National Insect Collection no. 9423). Other material: 2 ♀, with same data as holotype.

This species is distinguishable by the detailed structure of the male and female genitalia. Superficially, the uniformly dark reddish brown coloration of the clypeus and coxae and the dark tegminal vitta are almost characteristic.

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**Perkinsiella diagoras sp. n.** (Fig. 53–58)

Vertex with basal compartment broader than long (2:5:1), wider at base than at level of anterior margin of eyes (1:3:1). Frons longer in middle line than broad at widest part (1:5:1), lateral margins slightly concave distad of widest part. Antennae with basal segment only moderately compressed, not twice as wide at apex as at base; second segment only weakly compressed, though carinate below, widest at one-third from base.

Frons reddish brown between eyes, with two pairs of linear markings submedially and two pairs of spots laterally, ochraceous; disc below eyes and genae, creamy white, except for a pale yellowish-brown transverse band near frontoclypeal suture; a row of five distinct round pale spots above and before eye; clypeus yellowish brown, with...
median carina distally, lateral carinae and a longitudinal stripe on each side sordid white. Antennae with basal segment and base of second segment dark fuscous. Intercarinal areas of vertex, pronotum and mesonotum yellowish brown, lateral fields of mesonotum only a little darker than disc, except laterobasally, where a triangular fuscous area encloses a small round pale spot. Procoxae and mesocoxae sordid white, each with two fuscous bands; legs sordid white heavily suffused with fuscous longitudinally on the femora and in two broad transverse bands on the tibiae, post-tibial spur brownish yellow, dorsobasally fuscous. Tegmina hyaline, with faint brownish suffusion, base and apex of apical cell $M_{1+2}$ and cells posterior to it fuscous, except near apical margin; veins with minute fuscous granules; no fuscous spot on hind margin of clavus.

Male genitalia as figured. Aedeagus moderately long, with a single short spine on left near upper margin at middle. Median stem of suspensorium longer than broad at base (about 3:1), wider in distal two-thirds than in basal third; sides sinuate, diverging distad.

Female with pregenital (7th) sternite well developed; eighth sternite short and broad, distinct. First valvifers feebly produced in a rounded lobe basally. First valvulae deeply pigmented, almost black, at base, asymmetrical, with base of right valvula projecting slightly farther mesad than that of left.

Male: length 3.9 mm, tegmen 5.0 mm. Female: length 4.9 mm, tegmen 5.7 mm.

Material examined. Holotype ♂, PAPUA NEW GUINEA: Western Highlands, Mendi-Mt. Hagen Road, 3100 m, 3.vi.1974 (R. M. Bull) (Australian National Insect Collection no. 9424). Other material: 14 ♂♂, 15 ♀♀, with same data as holotype (1 ♂, 1 ♀ in British Museum (Nat. Hist.).)

This species is distinguishable by the structural details of the male and female genitalia. In coloration, the presence of brown intercarinal areas on the vertex, pronotum and mesonotum in conjunction with the absence of a fuscous spot on the hind margin of the clavus near the point of entry of the common claval vein is of some aid in identification.

The specific name is a noun in apposition.

Perkinsiella mycon sp. n. (Fig. 59–66)

Vertex with basal compartment broader than long (nearly 2.5:1), wider at base than at level of anterior margin of eyes (1.3:1). Frons longer in middle line than broad at widest part (1.7:1), lateral margins straight distad of widest part. Antennae with basal segment not laterally compressed or dilated, carinate below.
Yellowish brown; frons with four pairs of linear transverse marks submedially and a pair of spots on each side, and a row of four spots on genae below eyes ochraceous. Mesonotal disc with a short broad band on each side of middle line anteriorly, becoming fainter and narrowing posteriorly, and one to three suffusions in each lateral field fuscous. Sclerites of lower surface of thorax more or less uniformly yellowish brown to fuscous. Protibiae and mesotibiae pallid at base and apex and with a dark fuscous band subapically; post-tibial spur fuscous or reddish brown, paler submarginally. Tegmina hyaline, a fuscous suffusion overlying veinlets $R-M$ and $M-Cu$ and extending into apical cell $R_1$ and entirely covering cells $M_1$ and $M_{1+2}$ and cells $M_{1+4}$ and $Cu_{1+2}$ except apically; a linear fuscous spot on margin near apex of common claval vein. Veins finely and evenly granulate with fuscous.

Male genitalia as figured. Aedeagus moderately long, a moderately long slender spine on left at apex curving laterocephalad and a rather longer slender process dorsally at apex directed dorsocephalad. Median stem of suspensorium longer than broad at base (almost 6:1), with sides gradually diverging distad.

Seventh sternite produced caudad to form a broad ovate wrinkled plate. Eighth sternite very short. First valvifers moderately produced mesad at base in a lobe that is abruptly angulately bent at its basal angle. First valvulae symmetrical at base.

Male: length 4-5 mm, tegmen 4-3 mm. Female: length 4-9 mm, tegmen 5-3 mm.

Material examined. Holotype ♂, PAPUA NEW GUINEA: Sepik District, Maprik, Bainyik, 8.vi.1974 (R. M. Bull) (Australian National Insect Collection no. 9425). Other material: 1 ♂, 2 ♀, with same data as holotype; 1 ♂, 1 ♀, Sepik District, Maprik, Balif No. 2 Village, 7.vi.1974; 1 ♀, Sepik District, Wewak North Coast, Salimbua Village, 6.vi.1974 (R. M. Bull).

This species is closely allied to *P. latokensis* but is distinguishable in the male by the absence of paired medioventral processes on the pygofer, and in the female by the presence of an ovate wrinkled plate above the base of the ovipositor.

The specific name is a noun in apposition.

**Perkinsiella bulli** sp. n. (Fig. 67-73)

Vertex with basal compartment broader than long (2:3:1), wider at base than at level of anterior margin of eyes (nearly 1:5:1). Frons longer in middle line than broad at widest part (1:7:1), lateral margins slightly concave distad of widest part. Antennae with basal segment only very slightly compressed, not twice as wide at apex as at base; second segment only slightly compressed and scarcely dilated, widest at a third from base, carinate below.

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Fig. 67–73.—*Perkinsiella bulli* sp. n. 67, male genitalia, left side; 68, the same, posterolateral view from left; 69, the same, posterior view; 70, aedeagus and suspensorium, left side; 71, suspensorium; 72, anal segment, left side; 73, base of left first valvifer, lateroventral view.
Frons light yellowish-brown between eyes, with two pairs of linear markings submedially and two pairs of spots laterally, creamy white; disc below eyes and genae creamy white, a narrow pale yellowish brown band transversely near frontoclypeal suture; clypeus yellowish brown in basal half, darker at sides, distally white. Antennae with basal segment pale dorsally and below, fuscous or yellowish brown elsewhere; second segment pale dorsally, elsewhere lightly infuscate. Intercarinal areas of vertex and pronotum, two parallel submedian bands on mesonotum and lateral angles pale tawny yellow; legs and lower surface of thorax, white, with only mesopleura and mesosternum and a round spot on metapleura reddish brown; markings on legs narrow and rather inconspicuous. Tegmina hyaline; a broad suffusion overlying basal third, except posterior half of clavus, a linear spot on margin of clavus near point of entry of common claval vein, a diffuse spot at apex of costal cell and cell Sc in corium, a border on each side of veins R and M, in membrane and an arcuate band from M at transverse line to apex of tegmen covering cells M3+4 and Cu1, except at apex, reddish brown or fuscous.

Male genitalia as figured. Aedeagus rather long, with two stout flattened spinose processes at same level dorsally near middle; two minute spines on right side at about one-third from apex and a minute spine ventrally at apex. Median stem of suspensorium longer than broad at base (almost 5:1), with sides parallel in basal two-thirds, converging in distal third.

Female with pregenital sternite well-developed. Eighth sternite short and broad, distinct. First valvifers moderately produced mesad in a lobe which is abruptly bent at its basal angle. First valvulae symmetrical and a little separated at base.

Material examined. Holotype ♂, PAPUA NEW GUINEA: Sepik District, Maprik, Balif Village, 7.vi.1974 (R. M. Bull) (Australian National Insect Collection no. 9426). Other material: 2 ♀, with same data as holotype.

This species is distinguishable by structural details of the male and female genitalia.

It appears to be the nearest to _P. variegata_ Muir (1910, 8) but differs strongly in the form of the paired medioventral processes of the pygofer. The combined presence of three white longitudinal bands on the yellowish mesonotum and of a dark suffusion overlying most of the basal third of the tegmen is almost characteristic but may not be evident in poorly-marked specimens.

I take much pleasure in naming this species after Mr. R. M. Bull, of the Southern Sugar Experiment Station.
Perkinsiella falcipennis sp. n. (Fig. 74–79)

Vertex with basal compartment broader than long (2·0:1), wider at base than at level of anterior margin of eyes (1·6:1). Frons longer in middle line than broad at widest part (1·9:1), lateral margins slightly concave distad of widest part. Antennae with basal segment about twice as long as broad at apex, moderately compressed, almost twice as wide at apex as at base; second segment not or scarcely compressed, carinate below. Tegmina distad of transverse line narrowing, with anterior margin convex and posterior margin slightly concave, apex acutely rounded; apical portion of tegmen usually curving slightly laterad.

Reddish brown; intercarinal areas of vertex and pronotum pale yellowish brown, disc of mesonotum white; frons between eyes darker yellowish brown with a pair of transverse linear markings submedially and a pair of spots laterally; frons distad of widest part, genae and apex of clypeus white, a narrow submarginal transverse band at apex of frons light brown. Ventral surface of thorax with sclerites almost uniformly brown; legs white, with markings very narrow, post-tibial spur sordid white. Tegmina reddish brown, except in costal cell and in apical cells (except the longest) at margin; veins $R$ and $M$ in corium with minute and sparse fuscous granules; venation colorous or paler than ground, no fuscous spot present on hind margin of clavus.

Male genitalia as figured. Aedeagus long, with a stout, moderately long median spine dorsally near base of orifice and a pair of shorter spines subdorsally slightly basad of this, all directed more or less cephalad. Median stem of suspensorium longer than broad at base (about 4·5:1), with lateral margins slightly sinuate.

Seventh abdominal sternite of female short. First valvifers each produced mesad at base and elevated in a broadly rounding and slightly reflected lobe, hollowed out submarginally. First valvulae symmetrical at base.

Male: length 3·8 mm, tegmen 4·9 mm. Female: length 4·5 mm, tegmen 5·2 mm.

Material examined. Holotype ♂, PAPUA NEW GUINEA: Sepik District, Wabindigin Village, 32 km south of Maprik, 8.vi.1974 (R. M. Bull) (Australian National Insect Collection no. 9427). Other material: 4 ♂, 8 ♀, with same data as holotype (1 ♂ in British Museum (Nat. Hist.)).

The long, distally upswept tegmina serve to distinguish this species from all others in the genus. The genitalia have the same general structure as those of *P. thompsoni*. The deeply hollowed first valvifers are characteristic.

The specific name is an adjective.

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Perkinsiella boreon sp. n. (Fig. 80–85)

Vertex with basal compartment broader than long (nearly 2·2:1), wider at base than at level of anterior margin of eyes (nearly 1·2:1). Frons longer than broad at

Fig. 80–85.—*Perkinsiella boreon* sp. n. 80, male genitalia, left side; 81, the same, posterolateral view from left; 82, the same, posterior view; 83, genital styles and medioventral processes, posteroventral view; 84, suspensorium; 85, base of ovipositor, ventral view.
widest part (1.6:1), lateral margins straight distad of widest part. Antennae with basal segment not compressed, and not twice as wide at apex as at base; second segment only weakly compressed, widest at one-third from base, carinate below.

Yellowish brown; frons with four pairs of submedian spots, two pairs of spots on each side, and each gena with four round spots, pale yellow; ground colour between eyes darker than in distal half; mesonotum with carinae and adjoining areas creamy white, lateral fields with two or three fuscous suffusions; sclerites of lower surface of thorax yellowish, unevenly suffused with brown, legs heavily suffused with yellowish brown, the underlying markings more or less obscured, except near apex of protibiae and mesotibiae; abdominal sternites uniformly dark reddish brown. Tegmina hyaline, more or less strongly suffused with brown, a suffusion overlying apical vein R, all apical cells of M, middle part of first apical cell Cu1a, and a linear spot on commissural margin at point of entry of common claval vein fuscous; veins yellowish brown, densely beset with fuscous granules.

Male genitalia as figured. Pygofer in side view with posterior margin straight, abruptly excavate near lower end. Aedeagus relatively long, with a long spine dorsally, perforated near its base, directed cephalad and curving towards right; an equally long spine arising dorsally on left at apex, directed cephalad. Median stem of suspensorium longer than broad at base (about 4:1).

Female with seventh sternite quadrate, with a median pallid line. Eighth sternite short and narrow, thick and polished. First valvifers produced mesad at base in a shallow lobe that basally bears a small eminence which fits into a hollow on the adjacent valvula. First valvula on external margin at base produced cephalad in a thick, parallel-sided polished yellow lobe.

Male: length 4.5 mm, tegmen 4.9 mm. Female: length 5.3 mm, tegmen 5.7 mm.

Material examined. Holotype ♂, PAPUA NEW GUINEA: Sepik District, Maprik, Balif No. 2 Village, 7.vi.1974 (R. M. Bull) (Australian National Insect Collection no. 9428). Other material: 15 ♂, 10 ♀, with same data as holotype (1 ♂, 1 ♀ in British Museum (Nat. Hist.)).

This species differs from P. lalokensis, to which it is nearest, in the shape of the lateral margin of the pygofer as seen in side view, this being markedly sinuate in P. lalokensis. The two species also differ in the form of the female genitalia, the first valvifers of P. boreo not lacking the deep oblique sulci that are present in P. lalokensis.

The specific name is a noun in apposition.

References

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