



The first Neotropical and Afrotropical species of *Microphorella* Becker, with a key to the genera of Parathalassiinae and species of *Microphorella* from the Southern Hemisphere (Diptera: Dolichopodidae *sensu lato*)

SCOTT E. BROOKS^{1,2} & JEFFREY M. CUMMING^{1,3}

¹Diptera Unit, Canadian National Collection of Insects, Agriculture and Agri-Food Canada, K.W. Neatby Building, 960 Carling Avenue, Ottawa, Ontario, K1A 0C6, CANADA

²✉ scott.brooks@agr.gc.ca; <https://orcid.org/0000-0001-7915-1941>

³✉ jeff.cumming@agr.gc.ca; <https://orcid.org/0000-0002-3619-3700>

Abstract

Two new species of *Microphorella* Becker are described and illustrated from Chile and South Africa, respectively: *M. amorimi* **sp. nov.** (Maule Region) and *M. irwini* **sp. nov.** (Western Cape Province), representing the first formal records of the genus from the Neotropical and Afrotropical Regions. In addition, a key to the genera of Parathalassiinae and species of *Microphorella* from the Southern Hemisphere is also provided.

Key words: Long-legged flies, Chile, South Africa, new species, new records, morphology, identification key

Introduction

Microphorella Becker belongs to the empidoid subfamily Parathalassiinae, a basal lineage of the Dolichopodidae *sensu lato* (Sinclair & Cumming 2006). The genus, as currently recognized, includes 24 described species and comprises at least 12 species groups worldwide that are not all closely related (Cumming & Brooks 2019). In the Southern Hemisphere, *Microphorella* is recorded from Southeast Asia and Australasia (Shamshev & Grootaert 2004; Brooks & Cumming 2022). Here for the first time, we describe two new species from the Neotropical and Afrotropical Regions, one from Chile (Figs 1, 2) and the other from South Africa (Figs 3, 4), respectively. Additionally, a key to the genera of Parathalassiinae and species of *Microphorella* from the Southern Hemisphere is provided.

Material & methods

This paper is based on examination of specimens that are deposited in the following institutions: Canadian National Collection of Insects, Ottawa, Canada (CNC); California State Collection of Arthropods, Sacramento, USA (CSCA); Museo Nacional de Historia Natural, Santiago, Chile (MNHNS); Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP); KwaZulu-Natal Museum, Pietermaritzburg, South Africa (NMSA); United States National Museum of Natural History, Washington D.C., USA (USNM).

Methods used for the citation of label data, preparation and illustration of terminalia and specimen photography follow our previous papers (*e.g.*, Brooks & Cumming 2022). Terms used for adult structures follow Cumming & Wood (2017) and homologies of the male terminalia follow our recent works (*e.g.*, Brooks & Cumming 2022). Distribution maps were created with SimpleMappr (Shorthouse 2010).

Systematics

Microphorella Becker

Microphorella Becker, 1909: 28. Type species: *Microphorus praecox* Loew, 1864, by original designation.

Diagnosis. Southern Hemisphere *Microphorella* can be distinguished from other parathalassiines by the following suite of characters (similar to the diagnosis of Australasian *Microphorella* given in Brooks & Cumming 2022): head with face broad, subequal to wider than combined width of antennal bases, or strongly narrowed ventrally (e.g., males of *M. amorimi* **sp. nov.**), gena weakly developed to moderately broad, antenna with arista-like stylus not lengthened (about 3X length of postpedicel or shorter) (Figs 6, 15), mouthparts directed ventrally, palpus narrowly ovate (Fig. 6), subtriangular, or broadly clavate and flattened (Fig. 26); thorax with prosternum fused to proepisternum and forming precoxal bridge, scutellum with 1 pair of strong setae near apex; wing with vein M_2 and cell dm present (Figs 8, 17), vein R_1 reaching costa beyond or (rarely) just before base of M_2 , cell cua convex apically, vein CuA+CuP short to absent, anal lobe barely developed; male terminalia with right epandrial lamella lacking ventral process, cerci including hypoproct nearly symmetrical and pointed to highly asymmetrical (Fig. 21); female abdomen with apical segments retractable into segment 5 or 6, syntergite 9+10 divided and bearing acanthoporous setae (Fig. 22) or acanthoporous spines (Fig. 13), cercus relatively broad, with apex pointed or broadly rounded, with or without long apical seta(e).

Remarks. Cumming & Brooks (2019) recognized five distinct species groups of *Microphorella* from the Southern Hemisphere, including the two species, each in their own group, described below from the Neotropical Region (Chile) and the Afrotropical Region (South Africa). The three other species groups occur in Australia and Southeast Asia, including New Guinea (Brooks & Cumming 2022). All four species included in the *Microphorella malaysiana* species group, which occurs in Southeast Asia and New Guinea, are treated in this paper even though the distribution of some species extends north of the equator. Worldwide the genus is known from various riparian, meadow and coastal habitats (Cumming & Brooks 2019).

Microphorella amorimi **sp. nov.**

(Figs 1, 2, 5–13)

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Type material. HOLOTYPE ♂ (Fig. 5) labelled: “CHILE: Maule Region:/ Corel River, 35°23'24.3"S/71°15'16.4"W, 314m, swp/ 28.i.2011, D.S. Amorim”; “HOLOTYPE/ *Microphorella amorimi*/ Brooks & Cumming [red label]” (MNHNS). **PARATYPES: CHILE:** same data as holotype (2♂, 2♀, MNHNS; 1♂, 2♂ dissected, 2♀ dissected, CNC; 1♂, 1♂ dissected, 2♀, MZUSP).

Diagnosis. *Microphorella amorimi* **sp. nov.** is distinguished from other known Southern Hemisphere species of the genus by the following combination of features: antennal postpedicel with short tip (Fig. 6); thorax with biserial acrostichal setae; body and legs brown with dark setation (Fig. 5); male face strongly narrowed ventrally (Fig. 7); male terminalia with large reniform hypandrium and elongate epandrial lamellae (Figs 9–12); female terminalia (Fig. 13) with acanthoporous spines on syntergite 9+10; cercus pointed apically, with a few short ventral setae.

Description. Male (Figs 5–12): Body length 1.1 mm, wing length 1.1 mm (based on Fig. 5). **Head** (Figs 5–7): Mainly blackish-brown pruinose, ventral part of frons, face and clypeus dark brown in anterior view; slightly broader than thorax in dorsal view; ovoid in lateral view (higher than broad); slightly broader than high in anterior view; larger setae black, smaller setae brown. Ocellar triangle conspicuous. Occiput weakly concave on upper median part (accentuated concavity in some paratypes is apparently an artifact of preservation). Eyes covered with short ommatrichia; medial edge of eye lacking distinct emargination adjacent to antenna; ommatidia larger anteriorly. Frons about 2X broader than high, widening above. Face broad dorsally, strongly narrowed ventrally (Fig. 7). Face and clypeus dark brown, concolorous with ventral part of frons (in anterior view). Clypeus not separated from face, small, higher than broad, slightly widening ventrally, weakly produced medially. Setae of head well differentiated (larger dorsal setae similar in size to anterior dorsocentrals): 1 pair of fronto-orbitals arising slightly anterior to median ocellus; 1 pair of lateroclinate anterior ocellars; 1 pair of small posterior ocellars; 1 pair of inner verticals

(sometimes referred to as postocellars); apparently 2 pairs of outer verticals (broken in most specimens); postocular setae short and uniserial. Antenna (Fig. 6) brown to blackish-brown, inserted above middle of head in profile; scape short, funnel-shaped; pedicel about 2X longer than scape, spheroidal with subapical circlet of setulae; postpedicel about 1.5X longer than pedicel, 1.2X longer than wide, rounded with apex drawn to short tip, clothed in fine setulae; arista-like stylus apical, nearly 3X length of postpedicel, with minute hairs. Palpus brown, relatively small, narrowly ovate, about 2.6X longer than wide, with 1 long preapical seta. Proboscis brown, short, projecting ventrally. Gena not developed below eye. **Thorax** (Fig. 5): Brown pruinose (dark brown in dorsal view), setae dark brown. Mesoscutum moderately arched, prescutellar depression present. Proepisternum with 2 small setae. Postpronotal lobe with 2 small setae. Mesonotum longer than wide. Acrostichal setae biserial, well differentiated, rows ending before prescutellar depression; other thoracic setae well differentiated, each side of mesonotum with: 7 dorsocentrals, anterior setae short (slightly longer than acrostichals), progressively longer and stronger, posterior 2 setae largest, 1 presutural supra-alar (posthumeral), 2 notopleurals, 1 postalar and several acrostichal-sized setae above notopleuron on either side of transverse suture. Scutellum broadly crescent-shaped with 1 long, strong, posteriorly projected seta per side. Mesopleuron bare. Halter brown. **Legs**: Brown, with short dark setae; tarsomeres 1–4 of all legs progressively shorter apically with tarsomere 5 slightly longer than 4; tarsal claws, pulvilli and empodium normally developed on all legs. *Foreleg*: Coxa with fine setae on anterior surface, longer at apical margin; femur, tibia and tarsus subequal in length; tarsomere 1 slightly shorter than combined length of tarsomeres 2–3. *Midleg*: Coxa with several setae on anterior surface and margin; femur, tibia and tarsus subequal in length; tarsomere 1 subequal to combined length of tarsomeres 2–4. *Hindleg*: Coxa with 2 setae on lateral surface; femur, tibia and tarsus subequal in length; tarsomere 1 subequal to combined length of tarsomeres 2–4. **Wing** (Fig. 8): With brownish tinge, veins dark brown, about 2.4X longer than wide. Pterostigma absent, membrane entirely covered with minute microtrichia, alula absent. Costa circumambient. Extreme anterior base of costa with strong dorsal seta and 1 or 2 shorter proximal setae. Anterior section of costa (between base and R_{2+3}) with double row of spine-like setae. Posterior section of costa (beyond R_{2+3}) with setae finer and slightly longer. Radial and medial veins complete and reaching wing margin, CuA+CuP (anal vein) short extending about halfway to wing margin, Sc faint apically. R_1 running close to costa in distal part, terminating near midpoint of wing at level with M_2 . Base of Rs originating opposite humeral crossvein. R_{2+3} subparallel with R_1 in basal 1/3, straight and subparallel with R_{4+5} in distal part. R_{4+5} and M_1 nearly straight, gradually diverging to wing apex. M_1 and M_2 divergent. M_2 and M_4 subparallel beyond cell dm. Costal section between M_1 and M_2 about 2X longer than costal section between M_2 and M_4 . CuA rounded (convex) and faint. Crossvein r-m short, sometimes very faint, distal to base of R_{4+5} . Crossvein bm-m incomplete, fading anteriorly. Cell dm present, closed by base of M_2 and dm-m crossvein, cell extending to middle of wing. Crossvein dm-m about 3X longer than base of M_2 . Cells br, bm and cua in basal fourth of wing. Cell cua ovoid, infusate basally. Anal lobe not developed. Calypter with fine setae. **Abdomen** (Fig. 5): Brown with weak brown setae; segment 7 bare. Segments 5–7 narrowed and laterally compressed to form cavity on right side for hypopygium. Sternite 5 with short, broad pregenitalic process on left side. Sternite 8 subrectangular, with short setae, width similar to segment 7; tergite 8 indistinct. *Hypopygium* (Figs 9–12): Concolorous with abdomen; lateroflexed to right; inverted with posterior end directed anteriorly; large, subequal in length to abdomen; asymmetrical; foramen not formed. Epandrium divided into left and right lamellae. Left epandrial lamella (Fig. 9) partially overlapping left side of hypandrium, posterior margin with projecting surstylar lobes and ventral epandrial process, ventral edge fused with hypandrium but margin distinct, ventral portion of lamella elongate-oval; ventral epandrial process articulated at base, long and slender with 3 preapical setae, narrowed apically with tip bent medially. Left surstylus bilobed, dorsal and ventral lobes separated by shallow U-shaped cleft through which left postgonite lobe protrudes. Dorsal lobe of left surstylus short with margin broadly rounded, with long curved marginal seta and 2 small setae anteriorly, medial surface with projection bearing seta with spearhead-shaped tip. Ventral lobe of left surstylus longer than dorsal lobe, with narrow base, medial surface with cluster of modified and curved setae, posterior margin with small subapical seta. Right epandrial lamella (Figs 10, 11) partially overlapping right side of hypandrium, longer than high, ventral edge not fused with hypandrium, shorter than hypandrium; ventral epandrial process absent. Right surstylus bilobed, dorsal and ventral lobes separated by U-shaped cleft through which right postgonite lobe protrudes. Dorsal lobe of right surstylus short conical with stout apical seta, lateral surface with seta near middle and 2 smaller setae anteriorly, with broad medial process basally. Ventral lobe of right surstylus larger and longer than dorsal lobe, broad basally with digitiform dorsally projecting tip, posterior margin with stout seta near middle and several smaller setae below. Hypandrium reniform, very large, longer than epandrium in lateral view, bare. Left postgonite, large and complex in structure,

apically trifurcate (Fig. 9). Right postgonite lobe bilobate, both lobes with truncate apex, with lateral seta at base of lobes (Fig. 10). Phallus tubular, J-shaped, projected anteriorly, preapical portion ribbed. Ejaculatory apodeme large and keel-like. Hypoproct simple, left and right sides broad, short and asymmetrical. Cercus subtriangular, with several setae medially, left and right cercus nearly symmetrical.

Female. Similar to male except as follows: **Head:** Face and clypeus broad, face about as broad as ocellar tubercle above, weakly narrowed ventrally. **Abdomen:** Tapering posteriorly, apical segments retractable into segment 5. **Terminalia** (Fig. 13): Syntergite 9+10 medially divided into subrectangular hemitergites, with four acanthophorous spines on each side; cercus sclerotized, pointed apically, with a few short ventral setae.

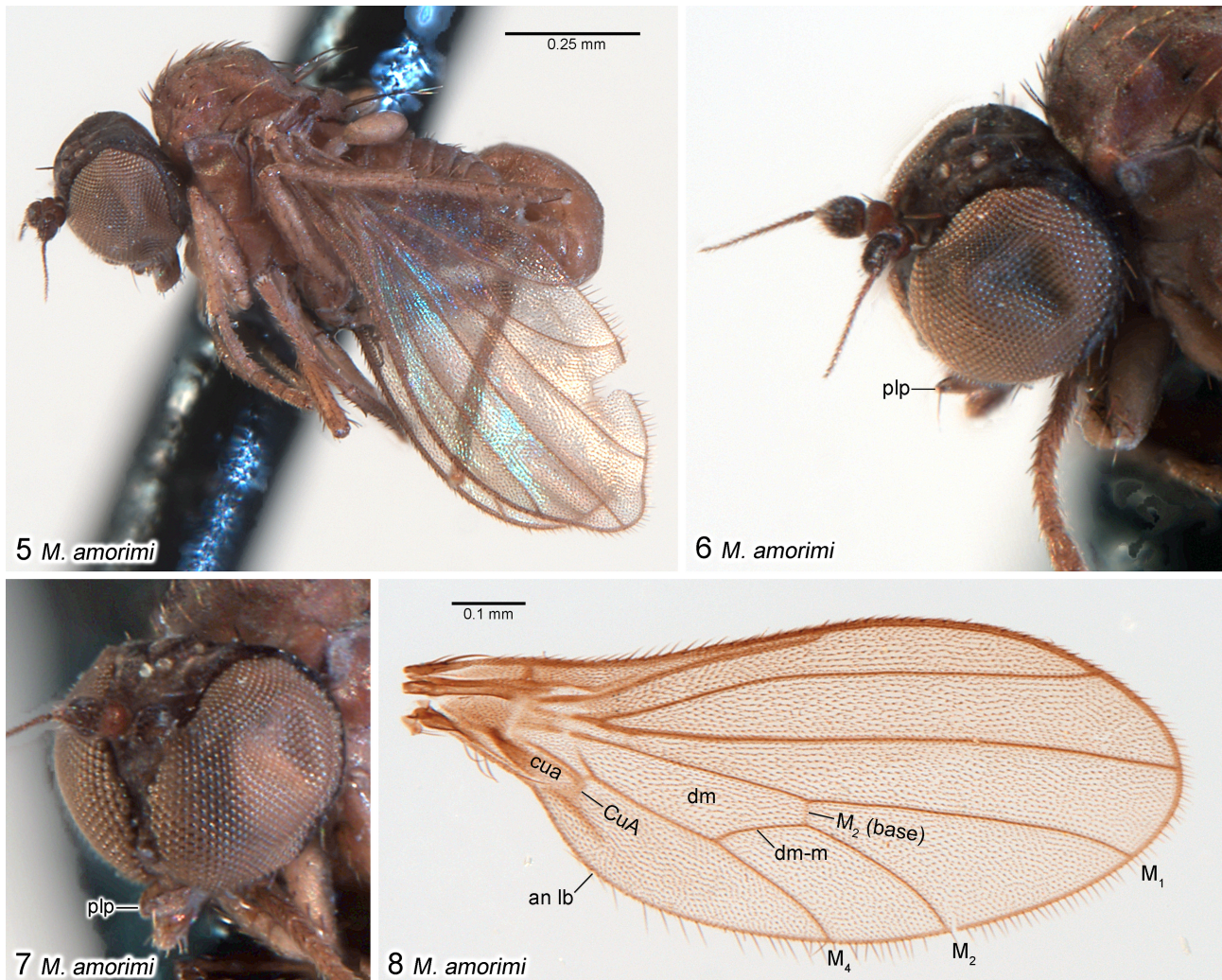
Distribution. This species is known only from the type locality of the Corel River in the Maule Region of Chile (Figs 1, 2).



FIGURES 1–4. Known geographical distribution of *Microphorella* in the Neotropical Region and Afrotropical Region. 1–2. Distribution of *M. amorimi* sp. nov. in the Neotropical Region (Chile). 3–4. Distribution of *M. irwini* sp. nov. in the Afrotropical Region (South Africa).

Etymology. This species is named in honour of Dr. Dalton De Souza Amorim of the University of São Paulo, who collected the type series of this new species.

Remarks. This species was collected by sweeping along the Corel River. *Microphorella amorimi* **sp. nov.** is the first recorded species of the genus from the Neotropical Region and is the first non-coastal parathalassiine species known from the Region.



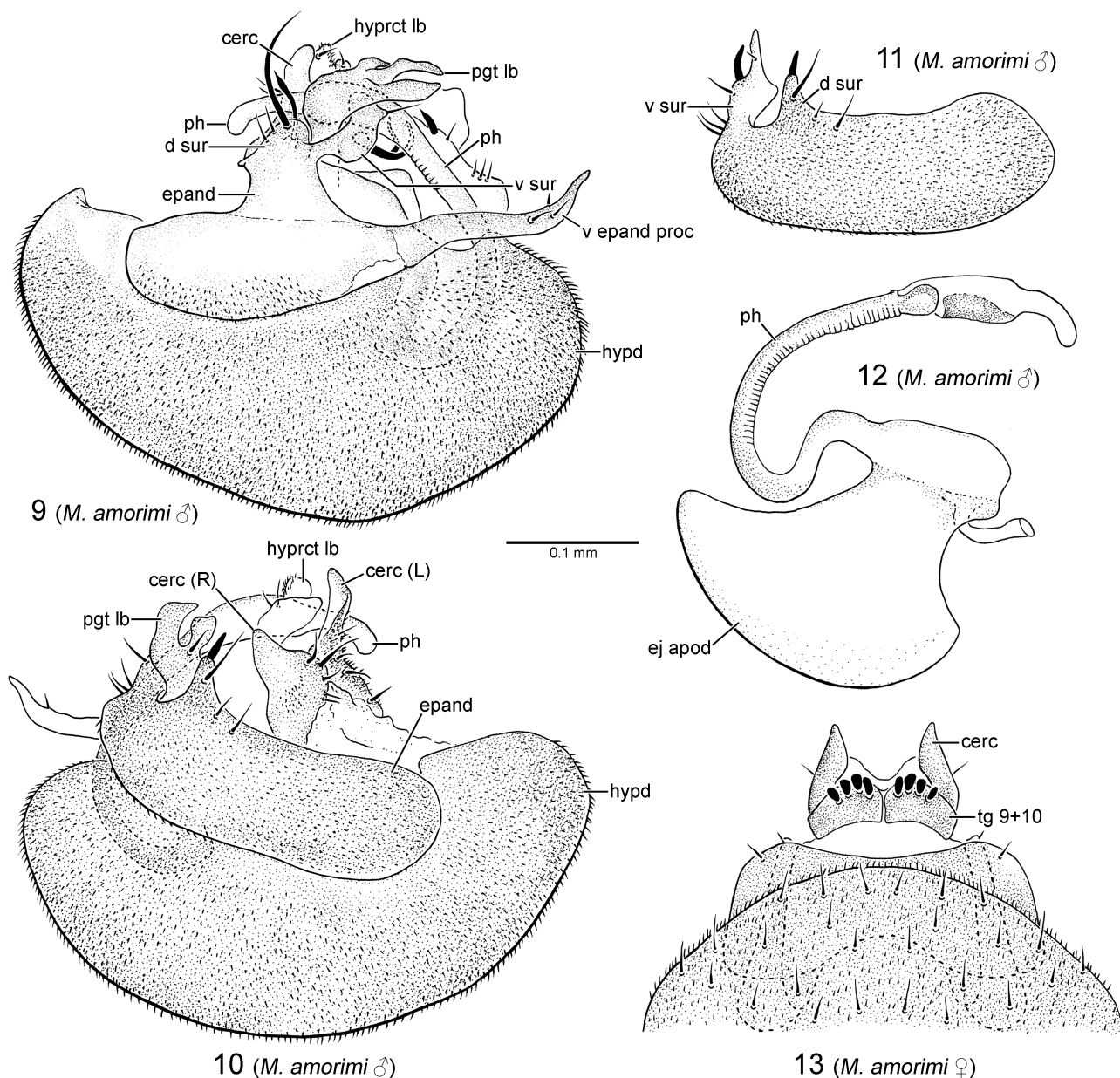
FIGURES 5–8. *Microphorella amorimi* **sp. nov.**, male. **5.** Habitus of holotype, lateral view. **6.** Head and antenna, dorsolateral view. **7.** Head oblique view. **8.** Wing. Abbreviations: an lb—anal lobe; cua—anterior cubital cell; CuA—anterior branch of cubital vein; dm—discal medial cell; dm-m—discal medial crossvein; M₁, M₂, M₄—medial veins; plp—palpus.

***Microphorella irwini* sp. nov.**

(Figs 3, 4, 14–22)

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Type material. **HOLOTYPE** ♂ (Figs 14, 15) labelled: “SOUTH AFRICA: W. Cape: [Langeberg]/ Tradouw Pass, Groot Vaders/ Bosch [South Cape Boundary], 300m, 33°56'52”S/ 20°42'26”E, 30.ix–22.x.2004,/ MT in meadow, Irwin, Parker,/ Hauser, CNC1099255”; “HOLOTYPE/ *Microphorella irwini*/ Brooks & Cumming [red label]” (NMSA). **PARATYPES: SOUTH AFRICA:** same data as holotype except, CNC1099257 (1♀, NMSA); same data as holotype except, CNC1099254, CNC1099256, CNC1099258, CNC1099260 (2♂, 1♂ dissected, 1♀ dissected, CNC); same data as holotype except, CNC1099252, CNC1099261 (2♂, CSCA); same data as holotype except, CNC1099253, CNC1099262 (1♂, 1♂ dissected, USNM).



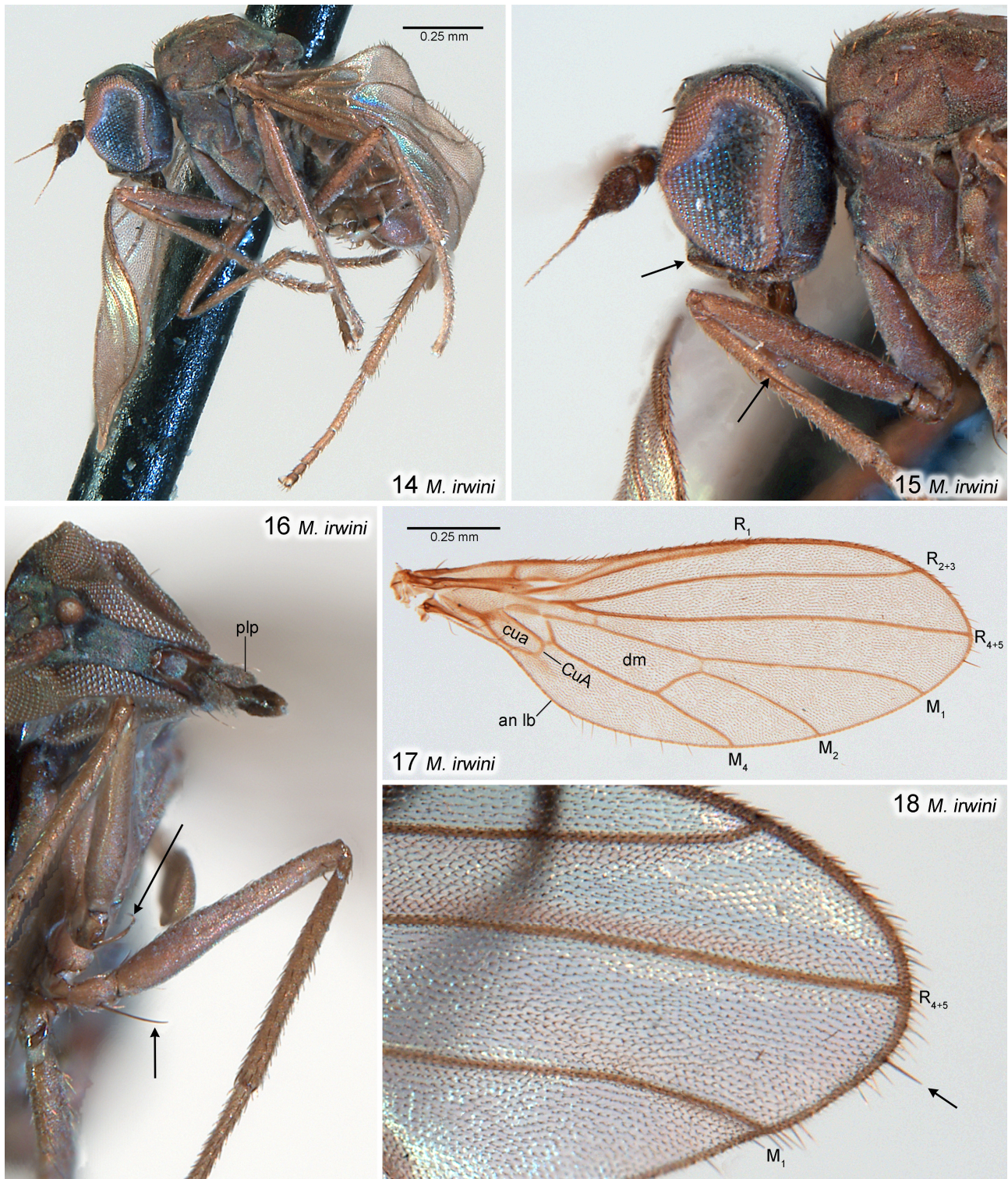
FIGURES 9–13. Male and female terminalia of *Microphorella amorimi* sp. nov. **9.** Hypopygium, left lateral view. **10.** Hypopygium, right lateral view. **11.** Right epandrial lamella, right lateral view. **12.** Phallus and ejaculatory apodeme, right lateral view. **13.** Female terminalia, dorsal view. Abbreviations: cerc—cercus; d sur—dorsal lobe of surstylus; ej apod—ejaculatory apodeme; epand—epandrium; hypd—hypandrium; hypcrt lb—hypoproct lobe; (L)—left; pgt lb—postgonite lobe; ph—phallus; (R)—right; tg—tergite; v epand proc—ventral epandrial process; v sur—ventral lobe of surstylus.

Diagnosis. *Microphorella irwini* sp. nov. is distinguished from other known Southern Hemisphere species of the genus by the following combination of features: head with lower margin of face projected anteriorly above frontoclypeal suture (Fig. 15); thorax with tiny biserial acrostichal setae; body and legs brown with dark setation; male foreleg with curled cluster of three long setae on trochanter (Fig. 16) and long posterior seta on tibia (Fig. 15); male midleg with long seta on trochanter (Fig. 16); male wing with larger costal seta posterior to apex (Figs 17, 18); female terminalia (Fig. 22) with syntergite 9+10 bearing acanthophorous setae, female cercus with broadly rounded apex, setose with longer apical setae.

Description. Male (Figs 14–21): Body length 1.7 mm, wing length 1.5 mm (based on Figs 14, 17). **Head** (Figs 14–16): Brown, frons and face coppery greenish-brown in anterior view, vertex and occiput coppery-brown to blackish depending on angle of examination; as wide as thorax in dorsal view; ovoid in lateral view (higher than broad); broader than high in anterior view; setae brown. Ocellar triangle conspicuous. Occiput weakly concave on

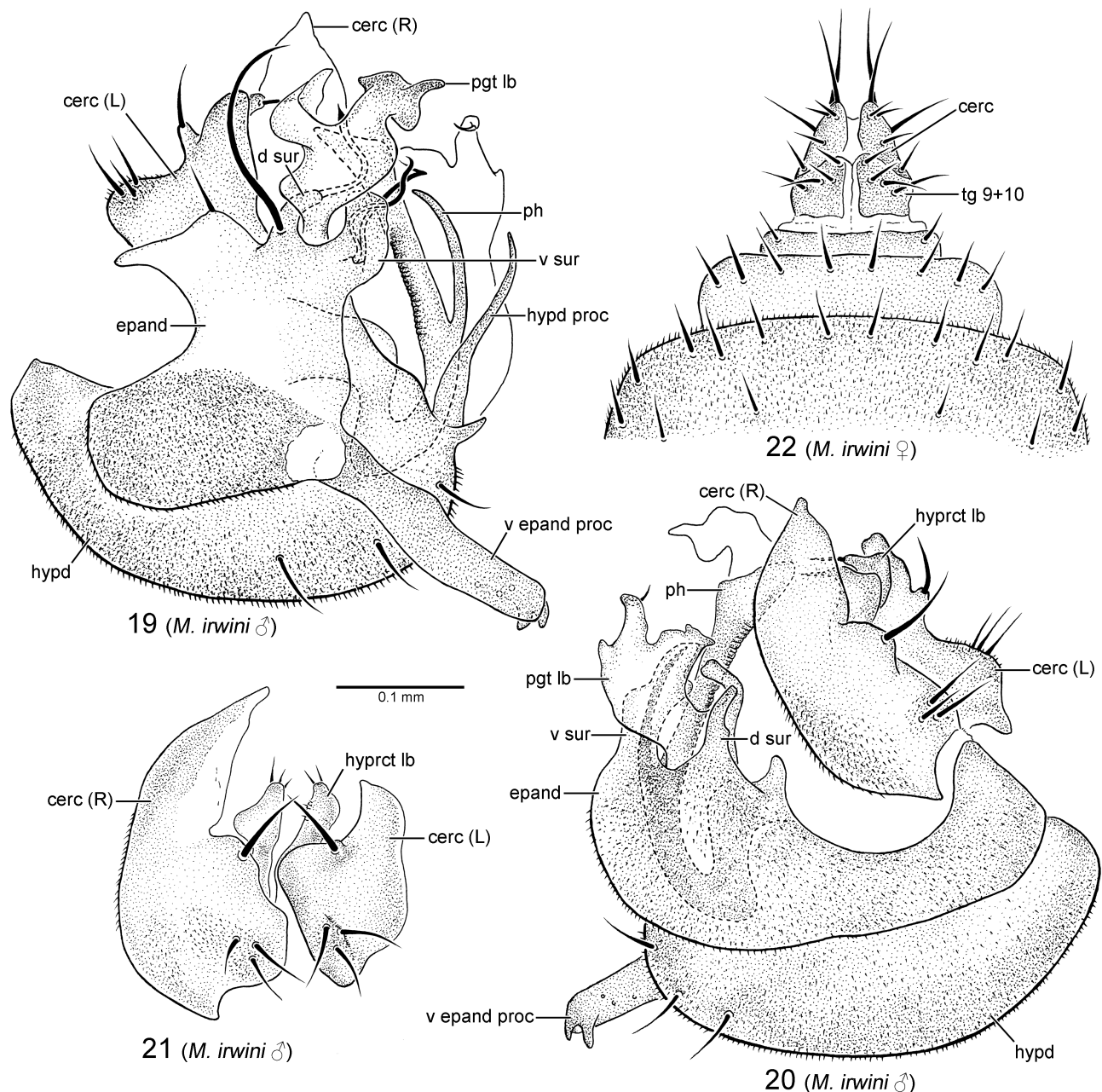
upper median part. Eyes covered with short ommatrichia; medial edge of eye with small but distinct emargination adjacent to antenna; ommatidia of uniform size. Frons about 1.5X broader than high, widening above. Face broad above (about width of combined antennal bases) weakly narrowed ventrally, coppery-brown in anterior view (Fig. 16), lower margin projected anteriorly above frontoclypeal suture (Fig. 15). Clypeus not separated from face, higher than broad (Fig. 16), deflected posteriorly and laterally flanked by protruding parafacial (Fig. 15). Setae of head well differentiated: 1 pair of fronto-orbitals near level of median ocellus; 1 pair of latero-clinate anterior ocellars; 1 pair of small posterior ocellars; 1 pair of inner verticals (sometimes referred to as postocellars) apparently present (setae missing but sockets visible); outer verticals apparently absent; postocular setae fine and uniserial. Antenna (Fig. 15) inserted above middle of head in profile, dark brown; scape short, funnel-shaped; pedicel slightly longer than scape, spheroidal with subapical circle of setulae; postpedicel about 2.7X longer than pedicel, 1.7X longer than wide, drop-shaped, clothed in fine setulae; arista-like stylus apical, 1.5X length of postpedicel, with minute hairs. Palpus brown, subtriangular, about as long as wide, with fine setae. Proboscis brown, short, projecting ventrally. Gena projected below eye, with a few setae along oral margin. **Thorax** (Figs 14, 15): Brown pruinose, setae dark brown. Mesoscutum moderately arched, prescutellar depression present. Proepisternum with 2 tiny setae. Postpronotal lobe with 1 tiny seta. Mesonotum longer than wide. Acrostichal setae tiny, biserial, rows ending before prescutellar depression; each side of mesonotum with: apparently 7–8 dorsocentrals, anterior setae tiny (similar to acrostichals), posterior 2 setae larger, progressively longer and stronger, 1 presutural supra-alar (posthumeral), 2 notopleurals (lower seta missing in all males, but socket visible), 1 postalar and several acrostichal-sized setae above notopleuron on either side of transverse suture. Scutellum broadly crescent-shaped with 1 long, strong, posteriorly projected seta per side. Mesopleuron bare. Halter brown. **Legs**: Brown, with brown setae; tarsomeres 1–4 of all legs progressively shorter apically with tarsomere 5 slightly longer than 4; tarsal claws, pulvilli and empodium normally developed on all legs. *Foreleg*: Coxa with fine setae on anterior surface, longer at apical margin; trochanter with curled cluster of three long setae (Fig. 16); femur, tibia and tarsus subequal in length; tibia with long, strong posterior seta before midlength; tarsomere 1 slightly shorter than combined length of tarsomeres 2–3. *Midleg*: Coxa with several setae on anterior surface and margin; trochanter with long, strong ventral seta (Fig. 16), 1 long anterodorsal seta (half as long as ventral seta) and a few small setae; femur slightly shorter than tibia, basally with series of 3–4 long anterodorsal setae, apically with distinct anteroventral and posteroventral setae; tibia and tarsus subequal in length; tarsomere 1 subequal to combined length of tarsomeres 2–5. *Hindleg*: Coxa with 2 setae on lateral surface; femur, tibia and tarsus subequal in length; femur with series of long anteroventral setae along distal 2/3 (setae slightly longer than femur width); tibia with distinct anterior and dorsal rows of setae; tarsomere 1 subequal to combined length of tarsomeres 2–4. **Wing** (Figs 17, 18): With brownish tinge, veins dark brown, about 2.6X longer than wide. Pterostigma absent, membrane entirely covered with minute microtrichia, alula absent. Costa circumambient. Extreme anterior base of costa with strong dorsal seta and a few shorter proximal setae. Anterior section of costa (between base and R_{2+3}) with double row of spine-like setae. Posterior section of costa (beyond R_{2+3}) with setae finer and longer, apex with 1 larger costal seta between R_{4+5} and M_1 (Fig. 18). Radial and medial veins complete and reaching wing margin, CuA+CuP (anal vein) very faint and short, Sc reaching costa. R_1 terminating beyond midpoint of wing distal to M_2 . Base of Rs originating opposite humeral crossvein. R_{2+3} subparallel with R_1 in basal 1/3, straight and subparallel with R_{4+5} in distal part. R_{4+5} and M_1 gently curved posteriorly, gradually diverging to wing apex. M_1 and M_2 divergent. M_2 and M_4 subparallel beyond cell dm. Costal section between M_1 and M_2 about 1.3X longer than costal section between M_2 and M_4 . CuA rounded (convex). Crossvein r-m short, distal to base of R_{4+5} . Crossvein bm-m complete. Cell dm present, closed by base of M_2 and dm-m crossvein, cell extending to middle of wing. Crossvein dm-m about 3.5X longer than base of M_2 . Cells br, bm and cua in basal fourth of wing. Cell cua ovoid. Anal lobe not developed. Calypter with a few fine setae. **Abdomen**: Brown with weak brown setae; segment 7 bare. Segments 5–7 narrowed and laterally compressed to form cavity on right side for hypopygium. Sternite 5 without process. Sternite 8 subrectangular, slightly broadening apically, with short setae, width similar to segment 7; tergite 8 indistinct. **Hypopygium** (Figs 19–21): Concolorous with abdomen; lateroflexed to right; inverted with posterior end directed anteriorly; large, half as long as abdomen; asymmetrical; foramen not formed. Epandrium divided into left and right lamellae. Left epandrial lamella (Fig. 19) partially overlapping left side of hypandrium, posterior margin trifurcate, with projecting surstylar lobes and ventral epandrial process, ventral edge fused with hypandrium but margin distinct; ventral epandrial process articulated at base, long and evenly broad with short apicomedial bifurcate tip; dorsal epandrial margin (anterior to surstylus) broadly humplike with marginal seta. Left surstylus bilobed, dorsal and ventral lobes separated by U-shaped cleft through which left postgonite

lobe protrudes. Dorsal lobe of left surstylus with elongate and curved lateral seta near base, medially with tubular process (projecting behind postgonite lobe), bearing elongate, curved and modified apical seta. Ventral lobe of left surstylus broad, slightly longer than dorsal lobe, with truncate apex, medial surface with basal cluster of modified and irregularly curved setae. Right epandrial lamella (Fig. 20) partially overlapping right side of hypandrium,

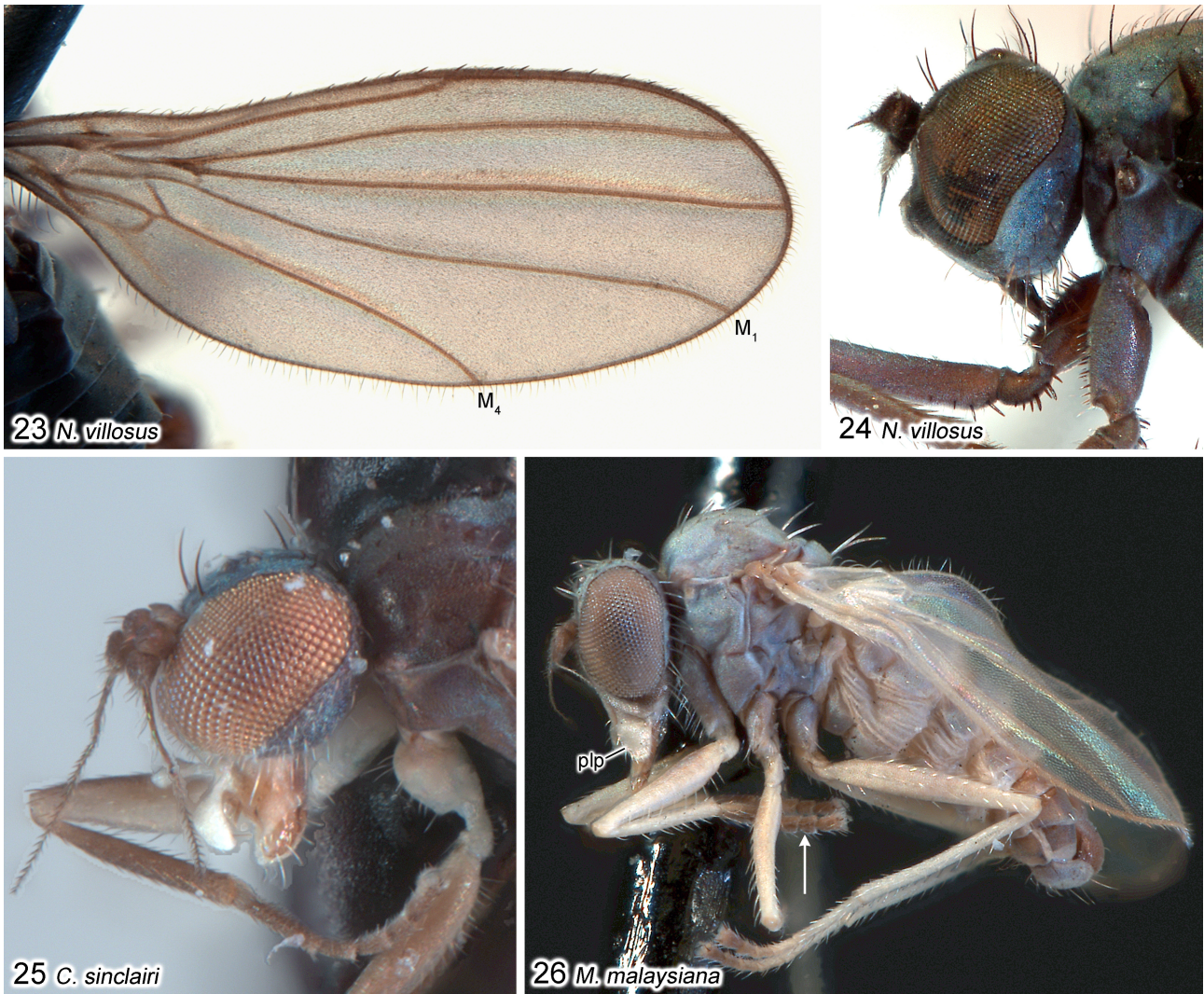


FIGURES 14–18. *Microphorella irwini* sp. nov., male. **14.** Habitus of holotype. **15.** Head and foreleg of holotype, lateral view showing projected lower margin of face (arrow) and long posterior seta on fore tibia (arrow). **16.** Fore and mid legs in ventral view (showing setae on each trochanter, arrows) and head in anterior view. **17.** Wing. **18.** Apex of wing, showing larger costal seta (arrow). Abbreviations: an lb—anal lobe; cua—anterior cubital cell; CuA—anterior branch of cubital vein; dm—discal medial cell; M₁, M₂, M₄—medial veins; plp—palpus; R₁, R₂₊₃, R₄₊₅—medial veins.

ventral edge apparently not fused with hypandrium, as long as hypandrium; dorsal margin with broad emargination bordering ventral margin of right cercus; ventral epandrial process absent. Right surstylus bilobed, dorsal and ventral lobes separated by U-shaped cleft through which right postgonite lobe protrudes. Dorsal lobe of right surstylus narrow, digitiform. Ventral lobe of right surstylus broader and longer than dorsal lobe. Hypandrium reniform, posterior half with series of 3 setae on each side, posterior end with long, narrow, dorsally projected process (Fig. 19). Left postgonite large and complex in structure, narrow basally, apex broad and multilobate (Fig. 19). Right postgonite lobe large and complex in structure, multilobate (Fig. 20). Phallus tubular, J-shaped, projected dorsally, preapical portion ribbed on inner surface, apex enlarged, outer surface with long, narrow process near middle. Ejaculatory apodeme moderately sized and keel-like. Hypoproct simple, left and right sides short and asymmetrical. Cerci (Fig. 21) asymmetrical, right cercus larger with longer subtriangular apical projection, each cercus with humplike base bearing 3 setae and medial tubercle bearing 1 larger seta.



FIGURES 19–22. Male and female terminalia of *Microphorella irwini* sp. nov. **19.** Hypopygium, left lateral view. **20.** Hypopygium, right lateral view. **21.** Male cerci and hypoproct lobes, dorsal view. **22.** Female terminalia, dorsal view. Abbreviations: cerc—cercus; d sur—dorsal lobe of surstylus; epand—epandrium; hypd—hypandrium; hypd proc—hypandrial process; hypcrct lb—hypoproct lobe; (L)—left; pgt lb—postgonite lobe; ph—phallus; (R)—right; tg—tergite; v epand proc—ventral epandrial process; v sur—ventral lobe of surstylus.



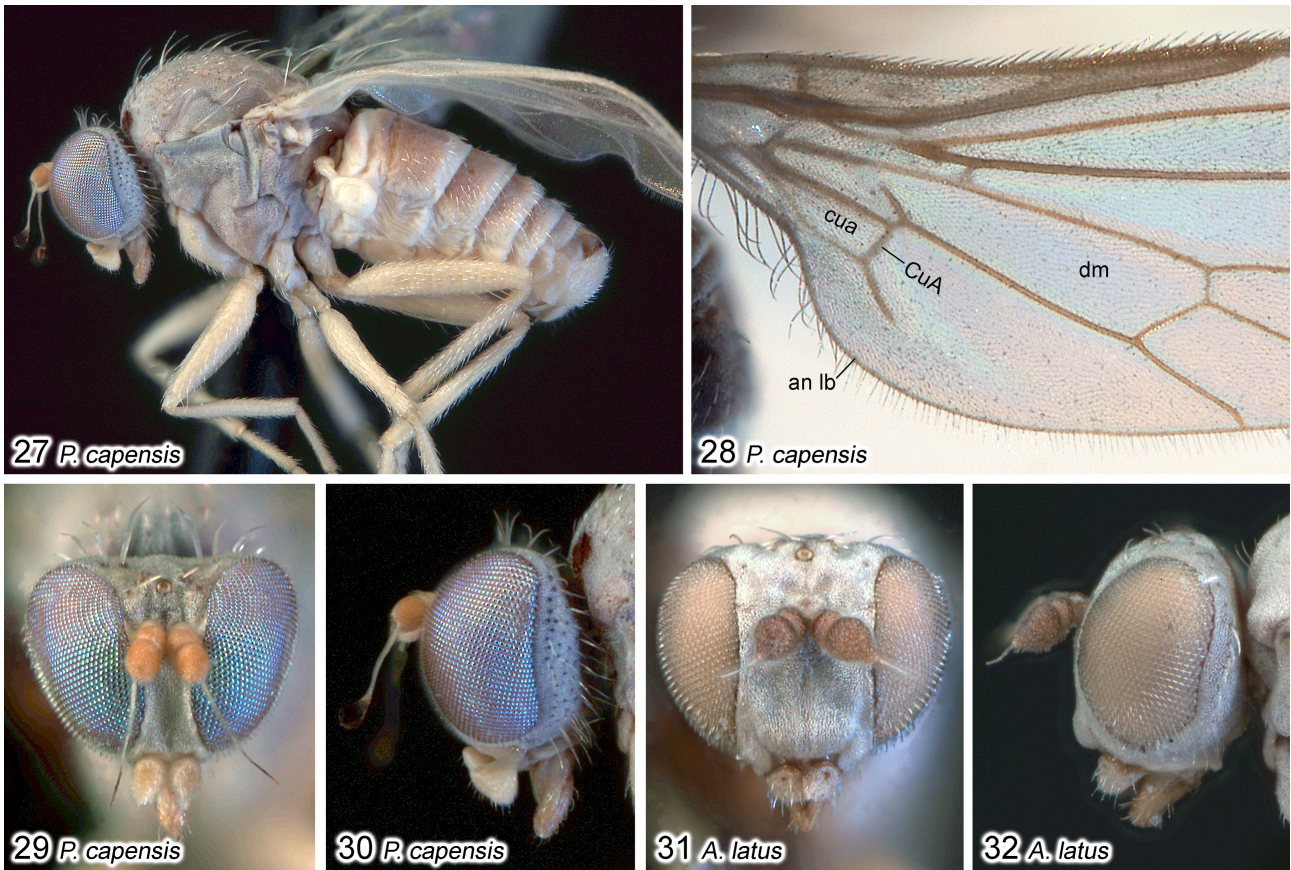
FIGURES 23–26. *Neothalassius villosus* Brooks & Cumming, *Chimerothalassius sinclairi* Brooks & Cumming and *Microphorella malaysiana* Shamshev & Grootaert. **23.** Wing of male *N. villosus*. **24.** Head and forelegs of female *N. villosus*, lateral view. **25.** Head and forelegs of male holotype of *C. sinclairi*, lateral view. **26.** Habitus of male *M. malaysiana*, arrow indicates thickened fore tarsus. Abbreviations: M_1 , M_4 —medial veins; plp—palpus.

Female. Similar to male except as follows: **Legs:** *Foreleg:* Trochanter without curled cluster of three long setae; tibia without long, strong posterior seta before midlength. *Midleg:* Trochanter without long, strong ventral seta. *Hindleg:* Femur without series of long anteroventral setae along distal 2/3; tibia lacking distinct anterior and dorsal rows of setae. **Wing:** Apex without larger costal seta between R_{4+5} and M_1 . **Abdomen:** Tapering posteriorly, apical segments retractable into segment 5. **Terminalia** (Fig. 22): Syntergite 9+10 medially divided into subrectangular hemitergites, with four acanthophorous setae on each side; cercus sclerotized, broadly rounded apically, setose, apical setae slightly longer than cercus.

Distribution. This species is known only from the type locality in Tradouw Pass, Grootvadersbosch, Western Cape, South Africa (Figs 3, 4).

Etymology. This species is named after our colleague, Dr. Michael Irwin formerly of the University of Illinois, Urbana-Champaign, who headed the team that collected the type series of this new species.

Remarks. This species was collected in a Malaise trap placed on an inland windswept meadow with very low, grassy vegetation at 300 m elevation (M.E. Irwin pers. comm.). *Microphorella irwini* **sp. nov.** is the first recorded species of the genus from the Afrotropical Region and the first non-coastal parathalassiine species from the Region.



FIGURES 27–32. *Plesiothalassius capensis* (Smith) and *Amphithalassius latus* Ulrich. 27. Habitus of male *P. capensis*. 28. Wing of male *P. capensis*. 29. Head of female *P. capensis*, anterior view. 30. Head of male *P. capensis*, lateral view. 31. Head of female *A. latus*, anterior view. 32. Head of female *A. latus*, lateral view. Abbreviations: an lb—anal lobe; cua—anterior cubital cell; CuA—anterior branch of cubital vein; dm—discal medial cell.

Key to the Southern Hemisphere genera of Parathalassiinae and species of *Microphorella*

Parts of this key were adapted from the Afrotropical dolichopodid key in Grichanov & Brooks (2017), the Australasian parathalassiine key in Brooks & Cumming (2022) and the Southeast Asian and Australian key to *Microphorella* in Shamshev & Grootaert (2004). For the *Microphorella* species, the key may be used to identify both sexes of several species, but females of *M. bungle* Brooks & Cumming, *M. satunensis* Shamshev & Grootaert and *M. viticula* Brooks & Cumming are unknown.

- 1 Wing with vein M_2 present; cell dm usually present (Figs 8, 17), but sometimes cell dm and crossvein dm-m absent (Shamshev & Grootaert 2005, fig. 12) 3
- Wing with vein M_2 , cell dm and crossvein dm-m absent (Fig. 23) 2
- 2 Head with parafacial and gena weakly developed, scarcely projected around lower eye margin (Fig. 25); mouthparts directed ventrally with fleshy labellum; palpus elongate and narrow or abruptly capitate and narrow basally (Fig. 25); fore coxa without spines (Fig. 25); male abdominal sternite 1 without medial projection on the anterior margin; female terminalia with acanthoporous setae on syntergite 9+10 (New Caledonia, New Zealand) *Chimerothalassius* Shamshev & Grootaert
- Head with well-developed parafacial and gena, distinctly projected around lower eye margin (Fig. 24); mouthparts directed posteriorly with narrow labellum (Fig. 24) and broad flat palpus; fore coxa with short spines (Fig. 24); male abdominal sternite 1 with medial projection on the anterior margin; female terminalia with acanthoporous spines on syntergite 9+10 (Chile, Peru) *Neothalassius* Brooks & Cumming
- 3 Wing vein CuA straight, cell cua truncate apically, anal lobe partially developed (Fig. 28); setae of body and legs mainly pale (Fig. 27) 4
- Wing vein CuA rounded, cell cua convex apically to entirely ovoid, anal lobe not developed (Figs 8, 17); setae of body and legs pale (Fig. 26) or dark (Figs 5, 6, 14, 15) 5

- 4 Antennal postpedicel conical, or pear-shaped, tapering apically (Fig. 32); face wide in both sexes, not narrowing in middle (Fig. 31); postocular setae uni- to biserial (Fig. 32); scutum with acrostichal setae uniserial at least behind, sometimes reduced; prothoracic precoxal bridge partly developed; female terminalia with tergite 8 not cleft (South Africa) *Amphithalassius* Ulrich
- Antennal postpedicel globular, or oval, broadly rounded at apex (Figs 29, 30); face moderately wide in both sexes, more or less narrowing in middle (Fig. 29); postocular setae multiserial (Fig. 30); scutum with acrostichal setae paired and flanked by accessory setae; prothorax without precoxal bridge; female terminalia tergite 8 deeply cleft (South Africa) *Plesiothalassius* Ulrich
- 5 Antenna with arista-like stylus at least 5X longer than broadly ovoid postpedicel (Shamshev & Grootaert 2005, figs 1–4; Brooks & Cumming 2022, fig. 35); face narrow, about width of anterior ocellus; hypopygium with hypandrium and epandrium largely fused, cerci highly asymmetrical (Shamshev & Grootaert 2005, figs 17, 29); female terminalia with syntergite 9+10 bearing acanthoporous setae, cercus slender with long apical seta (Shamshev & Grootaert 2005, fig. 20) (Southeast Asia, New Guinea, New Caledonia) *Eothalassius* Shamshev & Grootaert
- Antenna with arista-like stylus shorter, 3X as long as variably-shaped postpedicel or shorter (Figs 6, 15); face width variable, with sides subparallel (Fig. 16), or narrowed ventrally (Fig. 7); hypopygium with variable fusion of hypandrium and epandrium, cerci nearly symmetrical to highly asymmetrical; female terminalia with syntergite 9+10 bearing acanthoporous spines (Fig. 13) or setae (Fig. 22), cercus relatively broad, with apex pointed or broadly rounded, with or without with long apical seta(e) (Chile, South Africa, Southeast Asia, New Guinea, Australia)... *Microphorella* Becker 6
- 6 Body and legs with pale setation; head and thorax pale grey pollinose (Fig. 26); male palpus broadly clavate, flattened and pale (Fig. 26); female terminalia with syntergite 9+10 bearing acanthoporous setae (female unknown in *M. satunensis*); coastal habitats and beaches 7
- Body and legs with dark setation; head and thorax dark brownish or dark grey pollinose (Figs 5–7, 14–16); male palpus narrowly ovate or subtriangular, dark greyish brown to black (Figs 6, 7, 16); female terminalia with syntergite 9+10 bearing acanthoporous spines (Fig. 13) or setae (Fig. 22); inland riparian and meadow habitats 10
- 7 Scutum with five or six pairs of dorsocentral setae; male abdominal sternites 5 and 6 with equal sized posteromarginal processes 8
- Scutum with four pairs of dorsocentral setae; male abdominal sternites 5 and 6 with unequal sized posteromarginal processes, sternite 5 process smaller or absent 9
- 8 Scutum usually with six pairs of dorsocentral setae, rarely five pairs; male fore tarsus thickened, entirely dark brown (Fig. 26); male terminalia with right surstylus very large and leaf-like (Shamshev & Grootaert 2004, figs 13, 16) (Thailand, Malay Peninsula) *M. malaysiana* Shamshev & Grootaert
- Scutum with five pairs of dorsocentral setae; male fore tarsus slender with tarsomeres 1–2 yellow, tarsomere 3 brownish yellow and tarsomeres 4–5 brown; male terminalia with right surstylus large and subtriangular (Shamshev & Grootaert 2004, figs 38, 40) (Malay Peninsula) *M. satunensis* Shamshev & Grootaert
- 9 Male abdominal sternite 5 with short slender posteromarginal process, sternite 6 with longer broad process (Shamshev & Grootaert 2004, figs 25, 26); male fore tarsus slightly thickened; male terminalia with right surstylus long, broad and crescent-shaped (Shamshev & Grootaert 2004, figs 27, 30) (New Guinea) *M. papuana* Shamshev & Grootaert
- Male abdominal sternite 5 without posteromarginal process, sternite 6 with large broad process (Shamshev & Grootaert 2004, figs 31, 32); male fore tarsus slender; male terminalia with right surstylus long and narrow (Shamshev & Grootaert 2004, figs 33, 35) (Sulawesi) *M. bira* Shamshev & Grootaert
- 10 Face with lower margin projected anteriorly above frontoclypeal suture (Fig. 15); male foreleg with curled cluster of three long setae on trochanter (Fig. 16) and long posterior seta on tibia (Fig. 15); male midleg with long seta on trochanter (Fig. 16); male wing with larger costal seta posterior to apex (Figs 17, 18); female terminalia with syntergite 9+10 bearing acanthoporous setae (Fig. 22) (South Africa) *M. irwini* sp. nov.
- Face barely projected anteriorly above obscure frontoclypeal suture (Fig. 7); male foreleg without long setae on trochanter and tibia; male midleg without long seta on trochanter; male wing without longer costal seta near apex (Fig. 8); female terminalia with syntergite 9+10 bearing acanthoporous spines (Fig. 13) (female unknown in *M. bungle* and *M. viticula*) 11
- 11 Scutum with acrostichal setae; antennal postpedicel with short tip (Fig. 6); face strongly narrowed ventrally in male (Fig. 7), weakly narrowed ventrally in female (Chile) *M. amorimi* sp. nov.
- Scutum without acrostichal setae; antennal postpedicel with tip longer and narrow (Brooks & Cumming 2022, figs 40, 51); face in male and female evenly wide, about width of combined antennal bases or wider (Australia) 12
- 12 Hypopygium with phallus elongate, tightly curled (Brooks & Cumming 2022, figs 53–55) .. *M. viticula* Brooks & Cumming
- Hypopygium with phallus relatively short, not tightly curled (Brooks & Cumming 2022, figs 43–45, 47, 48) 13
- 13 Hypopygium with phallus tip bent and brush-like (Brooks & Cumming 2022, figs 47, 48) *M. iota* Colless
- Hypopygium with phallus tip straight and tubular (Brooks & Cumming 2022, figs 44, 45) .. *M. bungle* Brooks & Cumming

Discussion

Currently there are five species groups of *Microphorella* in the Southern Hemisphere according to Cumming & Brooks (2019) and Brooks & Cumming (2022). Two groups are found in Australia, namely the *M. iota* species group and the *M. bungle* species group, one group is found in New Guinea and Southeast Asia, namely the *M. malaysiana* species group, one group is found in Chile, now namely the *M. amorimi* species group and one group is found in

South Africa, now namely the *M. irwini* species group. Based on the phylogenetic analysis presented by Cumming & Brooks (2019), these species groups do not appear to be closely related, although the *M. malaysiana* species group was shown as the sister group to the *M. irwini* species group based on a single homoplasious character, an enlarged right male cercus (state 68.1) that has evolved more than once within *Microphorella* (Cumming & Brooks 2019, fig. 14). Finding two additional species groups of *Microphorella* from the Neotropical and Afrotropical Regions has made the distinction between *Microphorella* and *Eothalassius* more difficult (see key couplet 5 above). Hopefully this will resolve itself in the future with additional studies that continue to test the validity of current generic and species group concepts in the Parathalassiinae.

Discovery of the first Neotropical and Afrotropical records of *Microphorella* based on very few specimens and only two species, is highly suggestive of additional undocumented species diversity in both regions. This is probably because these flies are very small and easily overlooked. Further sampling of small Diptera in riparian and meadow habitats throughout at least Chile and Argentina in the Neotropical Region as well as South Africa in the Afrotropical Region, should help increase our knowledge of species diversity in Southern Hemisphere *Microphorella* and other Parathalassiinae.

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