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A new Afrotropical genus of Chamaemyiidae (Diptera: Lauxanioidea)

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ABSTRACT

The new Afrotropical genus and type species *Hamecamyia stuckenbergi* gen. et sp. n. (Diptera: Chamaemyiidae), from KwaZulu-Natal Province, South Africa, are described and figured. Characters are provided to differentiate this new genus from other Afrotropical chamaemyiids. Discussion is provided comparing this new genus to *Parochthiphila* Czerny, 1904, and an apparently unique (in Chamaemyiidae) set of characteristics of the female terminalia is described, figured and discussed.

KEY WORDS: Afrotropical, Diptera, Chamaemyiidae, *Hamecamyia*, new genus, new species.

INTRODUCTION

The current contribution honours and celebrates the legacy of the late Dr Brian Roy Stuckenberg, an eminent dipterist with the KwaZulu-Natal Museum in South Africa. Specifically, I want to honour his great contribution to the study of the acalyptrate dipteran superfamily Lauxanioidea. In total, Brian described 14 genera and 17 species of Lauxanioidea. In Celyphidae, he described the only two known Afrotropical species of *Spaniocelyphus* Hendel, 1914 (Stuckenberg 1960). In Lauxaniidae, he wrote a ground-breaking study of the genera of Old World Lauxaniidae (Stuckenberg 1971a) which after 40 years still remains a principal resource, and described a new species of *Drepanephora* Loew, 1869, from South Africa (Stuckenberg 1963) and two new species of the *Noetomima* Enderlein, 1937, from Australia and Nepal (Stuckenberg 1971b). He also clarified the identity of the Australian species *Sapromyza carinata* Thomson, 1869 (now a junior synonym of *Sapromyza nigriceps* Macquart, 1851), and discussed several of Francis Walker's Australasian lauxaniids that were described in non-lauxaniid genera (Stuckenberg 1966). Unfortunately, after 1971 he did not pursue his studies of (or at least did not publish on) Lauxaniidae further. The only lauxanioid family in which he never described any new taxa was the Chamaemyiidae (although the family is mentioned in Stuckenberg (1974)), the family in which this new genus and species are dedicated to him. Of course, his contributions to dipterology as a whole have been great, so his pursuits beyond lauxanioids are understandable!

The study of Afrotropical chamaemyiids has been woefully inadequate. By all appearances in the literature, the fauna is depauperate, although the writer's experience and study indicate this is not at all the case, with many undescribed taxa, including many genera with very rich faunas in the region (e.g., *Chamaemyia* Meigen, 1803, *Leucopis* Meigen, 1830 (particularly the subgenus *Leucopella* Malloch, 1927), and *Parochthiphila* Czerny, 1904). In Cogan's (1980) entry for Chamaemyiidae in the Afrotropical Diptera catalogue, eight species in six genera and subgenera were listed. Currently, there are only 12 described species known from the Region, in five genera and subgenera, one of which (*Melanochthiphila* Frey, 1958) is endemic to the Region. A world key by McAlpine (1960) included the genera and subgenera known at the time. The following

species are known from the Region: *Chamaemyia sexnotata* (Thomson, 1869); *Leucopis (Leucopis) gilva* Séguy, 1953; *L. (Leucopis) formosana* Hennig, 1938 (= the senior synonym of *L. lubrica* Frey, 1958); *L. (Leucopella) africana* Malloch, 1927; *L. (Leucopella) ardis* Gaimari & Raspi, 2002; *L. (Leucopella) euryvitta* Gaimari & Raspi, 2002; *L. (Leucopella) spatula* Gaimari & Raspi, 2002; *L. (Leucopella) vanharteni* Raspi & Gaimari in Gaimari & Raspi, 2002; *L. (Leucopella) yaromi* Gaimari & Raspi, 2002; *Melanochthiphila nigroaenea* (Frey, 1958); *Parochthiphila aethiopica* Hennig, 1938 and *P. inconstans* (Becker, 1903). Of these, all are known only from this Region, except for *L. formosana*, which has a very wide Old World distribution (Tanasijtshuk 1999).

MATERIAL AND METHODS

Specimens used in this study originate from the Canadian National Collection of Insects, Ottawa, Ontario, Canada (CNC), collected by Stewart and Jarmila Peck in South Africa in 1979. The primary type and some paratypes are deposited in the CNC, with some paratypes deposited in: California State Collection of Arthropods, Plant Pest Diagnostics Center, California Department of Food & Agriculture, Sacramento, California, USA (CSCA); KwaZulu-Natal Museum, Pietermaritzburg, South Africa (NMSA); National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (USNM).

Basic terminology follows McAlpine (1981, 1987), with some updates from Cumming and Wood (2009). Body length was measured by adding the length of the head (without antennae) plus thorax to the abdominal length, to account for differential curling of the abdomen among specimens. For head ratios: the head length and height were measured in lateral view, respectively, from the tip of the frons through the posterior occiput, and from the ocelli through the bottom edge of the subgena; the head width, frons width, and frons length were measured in dorsal view, with head width measured through the widest part, frons width through the anterior ocellus and a second measurement through the top of the lunule, and frons length from the anterior ocellus to the anterior edge of the frons. On the thorax, the scutal width was measured at the level of the supra-alar setae, and the scutellar width along the area of contact with the scutum. In the wing, the width was measured at the level just proximal to the apex of CuA_1 ; the discal medial cell length was measured from the *bm-cu* crossvein through the anterior tip of the *dm-cu* crossvein. All other measurements were made through their maximum widths, lengths, heights, etc.

Data for the holotype are presented in the form of the exact label information. Individual lines on each label are separated by a slash. Paratype data are presented according to the information provided, rather than in the form of the verbatim label. For specimens where terminalia were dissected, the abdomens are stored in glycerin in a microvial mounted on the pin below the specimen.

TAXONOMY

Genus **Hamecamyia** gen. n.

Type species: *Hamecamyia stuckenbergi* sp. n.

Etymology: As imitation is the sincerest form of flattery, I name this genus following Stuckenberg's (1971a) use of mixing up the letters of existing lauxanioid genera to form

genus-group names, as in *Prosamyza* (after *Sapromyza* Fallén, 1810) and *Mettinia* and *Nimettia* (after *Minettia* Robineau-Desvoidy, 1830). The current genus-group name is formed by mixing up the stem letters of *Chamaemyia*; feminine, retaining the gender of the Greek *myia* (fly).

Diagnosis: The following combination of features will aid recognition of this genus: body elongate, tapering posteriorly; lunule low, bare; 2 pairs of strong reclinate fronto-orbital setae present; postocellar setae present, convergent; ocellar setae strong, proclinate; 2 postsutural dorsocentral setae present, lacking presutural dorsocentral seta; frons lacking black transverse band across anterior fronto-orbital setae; anepisternal seta absent.

Remarks: A key to all Afrotropical genera would be premature with work only recently begun on the forthcoming *Manual of Afrotropical Diptera*. For the time being, the combination of characteristics in the diagnosis will help to differentiate the new genus from other chamaemyiid genera.

Hamecamyia stuckenbergi sp. n.

Figs 1–23

Etymology: It is with great pleasure that I name this species after the late South African dipterist Brian Roy Stuckenberg, specifically honouring his work on Lauxanioidea.

Diagnosis: Head higher than long. Postocellar setae strong, convergent to cruciate. Ocellar setae strong, proclinate. Frons with 2 pairs fronto-orbital setae, with anterior seta closer to lunule than to posterior seta. Anterior edge of frons black along straight narrow lunule. Antenna yellow, except for slight darkening dorsally and a dark brown arista; first flagellomere rounded distally with small subapical dorsal protrusion. Scutum with pairs of vittae through intra-alar region, through anterior half of medial region, and through posterior half of dorsocentral region. Scutum with 2 strong postsutural dorsocentral setae, and lacking strong prescutellar acrostichal setae. Proepisternum, prosternum and mesopleuron lacking setae or setulae, except 2 strong katepisternal setae along upper edge. Wing hyaline, with subcostal cell white, with membrane darkened along costal cell to wing apex; veins brown, except pale humeral crossvein and veins Sc , R_1 , Rs , basal half of R_{2+3} and $A_1 + CuA_2$. Abdominal tergites 2–5 with paired diffuse brown longitudinal spots dorsally, coalescing to appear as diffuse abdominal stripes, and tergites 3–5 each with brown pruinose longitudinal strip laterally. In female: sternite 6 shiny dark brown, with series of long thick setulae fanning out around rounded posterior margin.

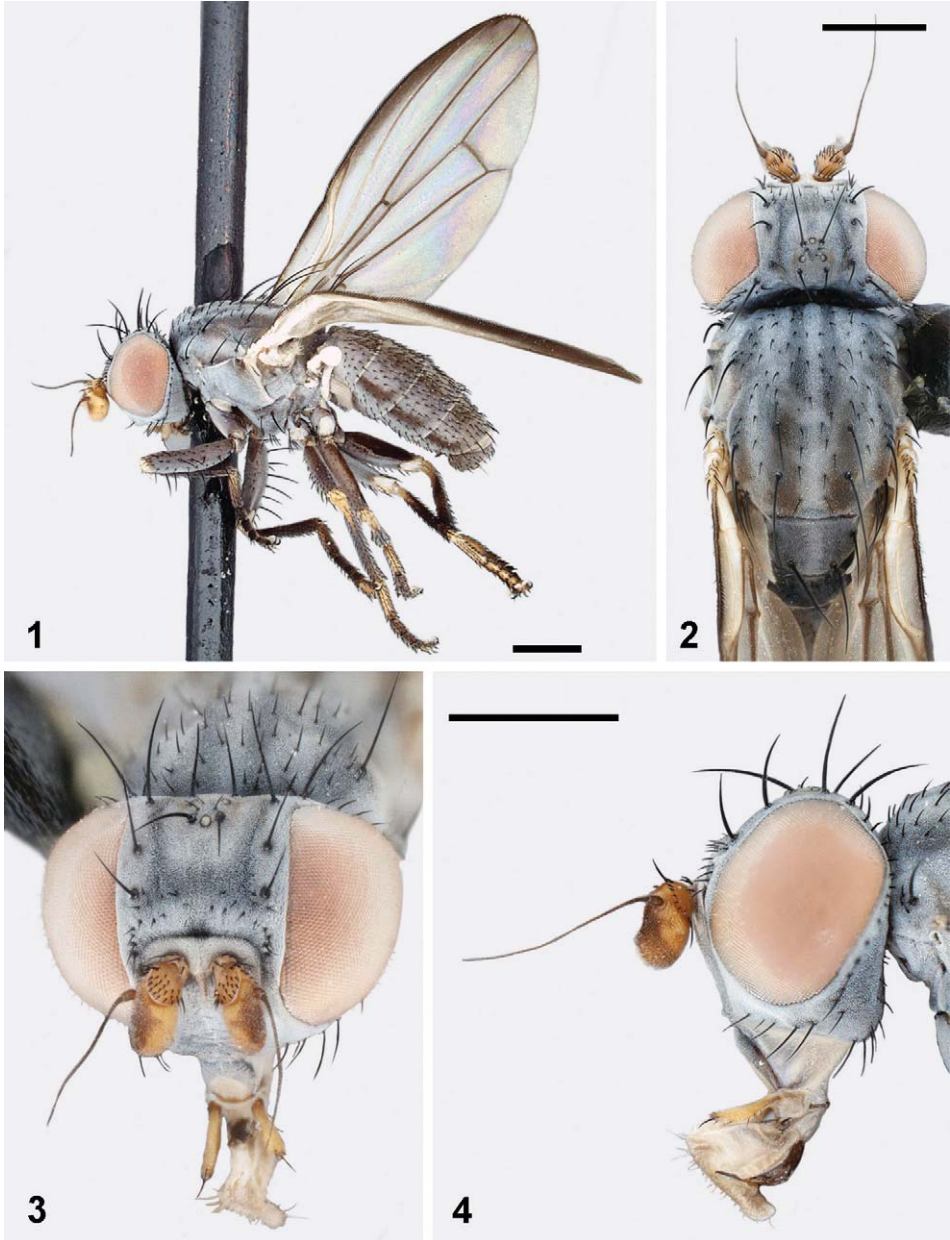
Description:

Male & Female.

Body length: male 2.7–4.6 mm, female 2.9–4.0 mm; silvery-grey pruinose, except as noted below.

Head (Figs 2–4). 1.3–1.4× as high as long; 1.8–1.9× as wide as long; 1.3–1.4× as wide as high. Vertex with strong vertical setae, inner one slightly longer than outer one. Postocellar setae strong, convergent to cruciate. Ocellar triangle slightly raised, placed at vertex; with 1 pair short black divergent setulae (occasionally with supernumerary setula); ocelli on small ocellar tubercle (each side 0.2× width of frons), with sides subequal; anterior ocellus slightly larger than posterior. Ocellar setae strong (subequal to inner vertical seta), proclinate; separated by distance equal to distance between posterior

ocelli; originating at level of anterior ocellus. Eye $1.0\text{--}1.1\times$ as high as long; $4.5\text{--}6.5\times$ as high as gena. Frons $0.4\text{--}0.5\times$ width of head; $1.4\text{--}1.6\times$ as wide as long; with lateral edges subparallel; U-shaped area around ocellar triangle with sparser pruinosity exposing dark groundcolour, not reaching eye margin laterally; lacking setulae posterior to level of

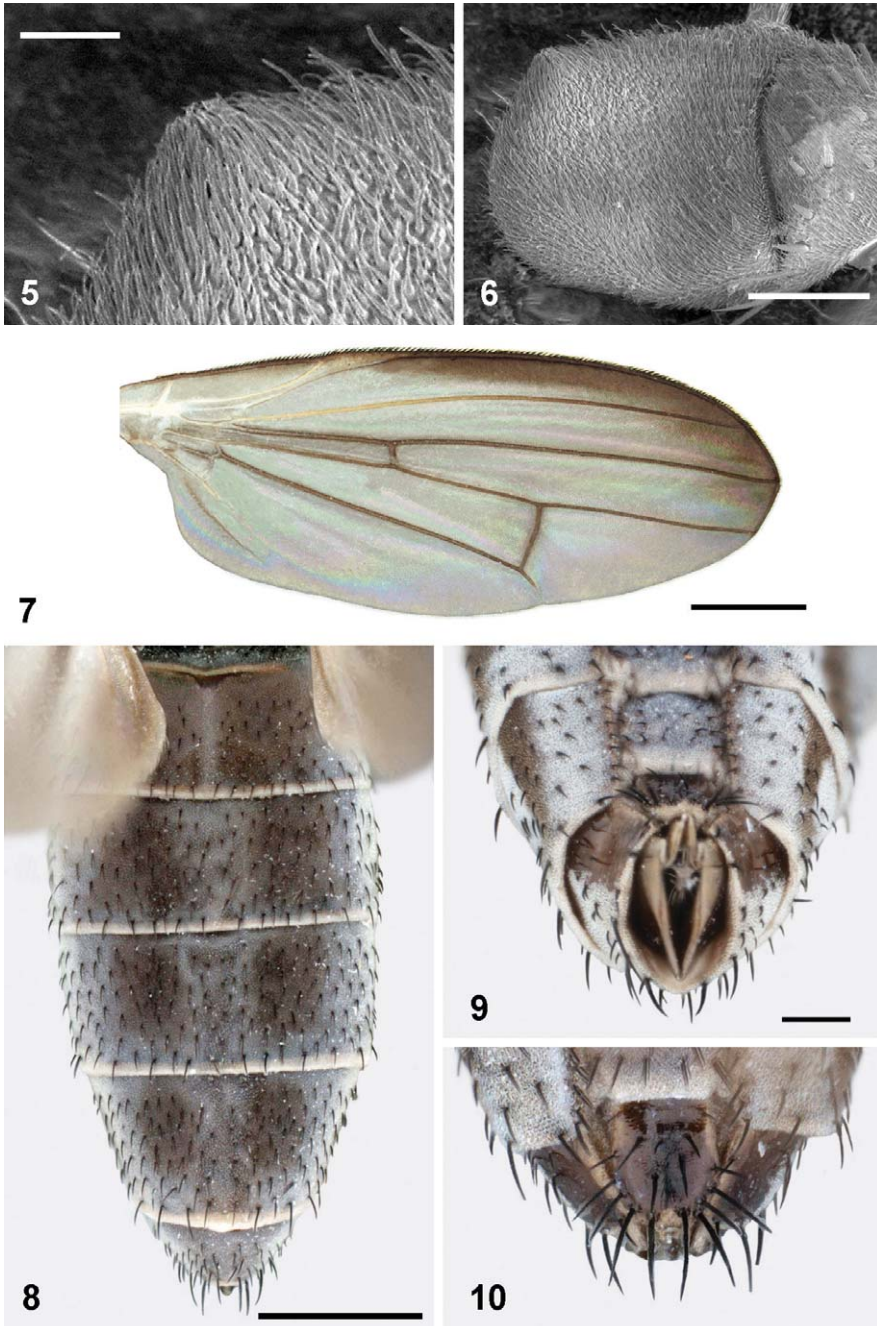


Figs 1–4. *Hamecamya stuckenbergi* gen. et sp. n.: (1) habitus, lateral view, holotype SDG7579; (2) thorax and head, dorsal view, paratype female SDG7582; (3, 4) head, paratype female SDG7582, anterior (3) and lateral (4) views. Scale bars = 0.5 mm.

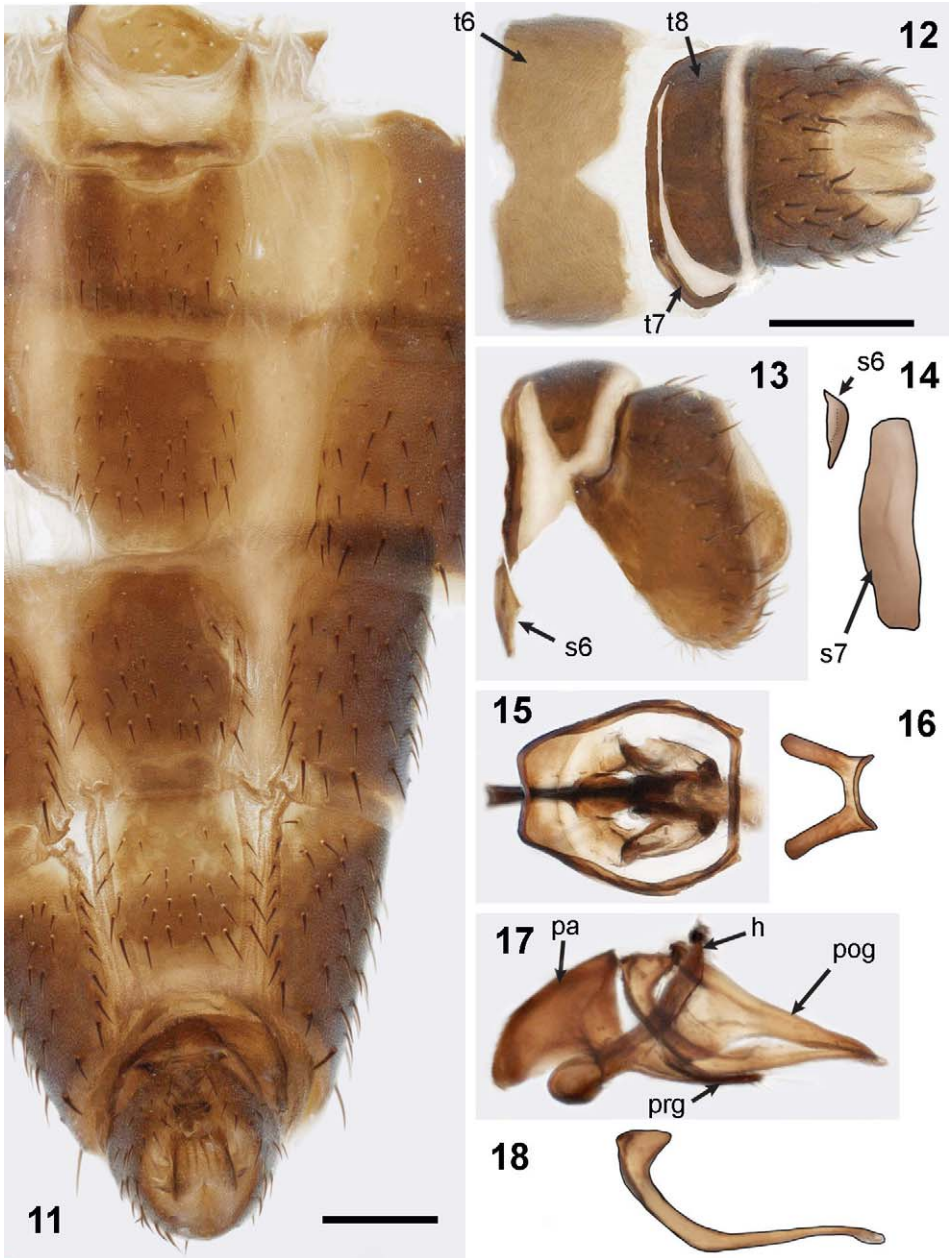
anterior fronto-orbital setae, with upside-down U-shaped irregular row of setulae over lunule. Fronto-orbital area with 2 pairs reclinate fronto-orbital setae, with posterior seta equidistant between anterior seta and inner vertical seta, and with anterior seta slightly closer to lunule than to posterior seta; anterior edge of frons along lunule black, not reaching eye margin laterally. Lunule narrow, straight; slightly paler pruinose. Antenna yellow-orange, except flagellomere 1 with slightly darkened spot anterior to arista, and arista dark brown; flagellomere 1 (Fig. 6) slightly longer than high, rounded distally with small subapical dorsal protrusion (Fig. 5); arista with distal segment 8–10× longer than basal. Face with short carina, sharpened ventrally and produced into round peg dorsally between antennal bases; with distinct antennal grooves. Parafacial narrow, 0.2 width of face; sides subparallel; extending indistinguishably into gena; with 1 or 2 strong genal setae in addition to row of 2–4 shorter subvibrissal setae. Clypeus small. Palpus yellow, cylindrical; with single strong distal seta in addition to sparse small setulae. Prementum small, partly devoid of pruinosity, displaying dark ground colour. Labellum pale yellowish with whitish hairs; pseudotracheal canals straight, not anastomosing.

Thorax (Figs 1, 2). Scutum 0.9–1.2 mm long, 1.2–1.4× as long as wide, 3.6–4.1× as long as scutellum; vittate, with dark grey vitta through intra-alar region becoming brown at posterior end, with dark grey vitta through anterior half of acrostichal region coalescing with wider brown vitta in posterior half encompassing dorsocentral setae to posterior edge and extending through scutellum as dark grey vitta; setulose with 4 irregular rows between dorsocentral rows and 2 irregular rows between dorsocentral and intra-alar rows, but lacking setulae in posterior fifth, except for 1 or 2 pairs of slightly enlarged prescutellar acrostichal setulae. Prescutellum present. Scutellum 1.5–1.7× as wide as long. Chaetotaxy: 0+2 dorsocentral setae, located in posterior half of scutum, anterior seta about 0.75 length of posterior seta; anterior to dorsocentral setae with 4 or 5 strong setulae (1–2 being presutural; always less than $\frac{1}{3}$ length of anterior dorsocentral seta, most only slightly longer than surrounding setulae), the first originating very close to anterior dorsocentral seta; 1 postpronotal seta, and 1–several small postpronotal setulae; 2 notopleural setae, in anterior and posterior corners, anterior one 2× longer than posterior one; 1 pre- and 1 postsutural supra-alar seta; 1 posterior intra-alar seta; 1 postalar seta; prescutellar acrostichal seta absent (see above regarding setulae); proepisternum and prosternum lacking setae or setulae; mesopleuron lacking setae or setulae, except 2 strong katapisternal setae along upper edge, with anterior seta about half size of posterior, and with several small setulae anterior to and below setae; two pairs scutellar setae, anterior seta 0.6 length of posterior seta.

Legs. Femora yellow apically; fore femur with row of 1–3 posterodorsal setae subapically, 3–5 posterior setae, 6 ventral setae; mid femur with row of 1–3 short anterodistal setae in distal part, 3 short anteroventral setae subapically, 2 posteroventral setae subapically; hind femur with no outstanding setae, posterior surface devoid of pruinosity; hind femur slightly enlarged relative to other femora, with fore femur slightly enlarged relative to mid femur. Tibiae brown with sparser grey pruinosity, except yellow proximally on fore tibia and proximally and distally on mid and hind tibiae; mid tibia with 1 apicoventral spur flanked on each side by 1–3 smaller spurs; hind tibia bowed basally. Tarsi with fore tarsus brown, except dorsally with wide orange longitudinal strip through tarsomeres 1 and 5 and narrow strip through tarsomeres 2–4, and ventrally on tarsomeres 3–5; mid and hind tarsi yellow, except brown laterally on tarsomeres 2–5.



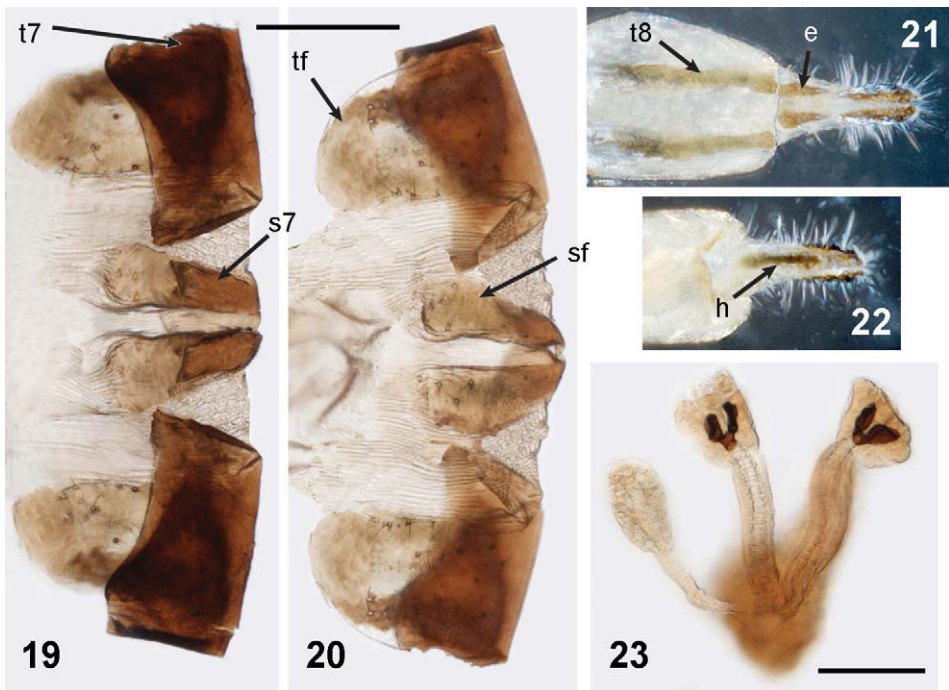
Figs 5–10. *Hamecamya stuckenbergi* gen. et sp. n.: (5, 6) paratype ♀ SDG7577, subapical protrusion on antennal first flagellomere, medial view (5) and antennal first flagellomere, medial view (6); (7) wing, ventral view, paratype ♂ SDG 7566; (8) abdomen, dorsal view, paratype ♀ SDG7570; (9) abdominal tip, posterior view, paratype ♀ SDG7594; (10) sternite 6, ventral view, paratype ♀ SDG7594. Scale bars: Fig. 5 = 0.01 mm; Fig. 6 = 0.05 mm; Figs 7, 8 = 0.5 mm; Figs 9, 10 = 0.1 mm.



Figs 11–18. *Hamecamyia stuckenbergi* gen. et sp. n., male paratype SDG7559 (dissection 1393) (12–18 oriented with posterior end to right): (11) abdomen, ventral view; (12) tergites 6–8 and epandrial complex, dorsal view; (13) tergites 7–8, sternite 7, and epandrial complex, lateral view; (14) sternites 6–7, ventral view; (15) hypandrium, dorsal view; (16) subepandrial sclerite, ventral view (inside epandrium); (17) aedeagal complex, lateral view; (18) phallus, lateral view. Abbreviations: *h* – hypandrium; *pa* – phallapodeme; *pog* – postgonite; *prg* – pregonite; *s6* – sternite 6; *s7* – sternite 7; *t6* – tergite 6; *t7* – tergite 7; *t8* – tergite 8. Scale bars = 0.2 mm.

Wing (Fig. 7). Length 2.9–4.0 mm; 2.5–2.8× as long as high. Hyaline; subcostal cell white; membrane darkened along costal cell to tip of vein R_{4+5} , or fading to M_1 . Veins brown, except pale humeral crossvein, and pale veins Sc , R_1 , Rs , basal half of R_{2+3} and A_1+CuA_2 ; vein A_1 present as fold, extending beyond tip of short A_1+CuA_2 ; veins R_{2+3} , R_{4+5} and M_1 parallel in distal half of wing. Crossvein $r-m$ located at about 0.4 wing length, and at halfway point of discal medial cell length. Discal medial cell 4–5× as long as crossvein $dm-cu$. Vein CuA_1 ending slightly before wing margin, but reaching wing margin as fold; apical section 1.8–3.2× as long as crossvein $dm-cu$. Haltere white.

Abdomen (Fig. 8). Tergites uniformly setulose, except setulae slightly enlarged along posterolateral margins of syntergite 1+2 and tergites 3–5, and along entire posterior margins of tergites 4 and 5; syntergite 1+2 and tergites 3–5 each with paired diffuse brown longitudinal spots dorsally, coalescing to appear as diffuse abdominal stripes; tergites 3–5 each with brown pruinose longitudinal strip laterally, not reaching posterior edge. Sternites 1–5 (Fig. 11) nearly identical in males and females; sternite 1 a thin transverse strip with anteriorly-directed lateral wings; sternite 2 slightly wider than long, with anterior margin invaginated; sternites 3–5 subequal, slightly narrower than sternite



Figs 19–23. *Hamecamya stuckenbergi* gen. et sp. n., female paratype SDG7586 (dissection 1394), except Fig. 23 female paratype SDG7594 (dissection 1395) (19–22 oriented with posterior end to right): (19) sternite 7, ventral view, and tergite 7, dorsolateral view (view is relative to tergite 7 being split dorsally into left and right halves); (20) interior flanges of sternite 7, dorsal view, and tergite 7 (view internal, relative to tergite 7 being split dorsally into left and right halves); (21) tergite 8, epiproct, and cerci, dorsal view; (22) hypoproct and cerci, ventral view; (23) spermathecae and one accessory gland, dorsal view. Abbreviations: *e* – epiproct; *h* – hypoproct; *s7* – sternite 7; *sf* – inner flange of sternite 7; *t7* – tergite 7 (split); *tf* – inner flange of tergite 7; *t8* – tergite 8. Scale bars: Figs 19–22 = 0.2 mm; Fig. 23 = 0.1 mm.

2, slightly longer than wide; tergites 4–5 with longitudinal row of 6–10 slightly enlarged setulae along lateral margin; sternites with setulae strongest laterally and posteriorly, particularly strong on sternite 5.

Male pregenitalic segments. Tergites telescoped under tergite 5. Tergite 6 (Fig. 12) saddle-shaped, with medial invagination on anterior and posterior margins; usually lacking setulae, but occasionally with 2–4 setulae on posterior margin. Tergites 7 and 8 (Figs 12, 13) closely associated as syntergite 7+8, but not fully fused (fused only on right side); tergite 7 asymmetrical, as thin transverse band produced and elongated on left side, closely associated at tip with small sternite 6 (Figs 13, 14), also asymmetrically placed to left side; sternite 7 (Fig. 14) slightly narrower than sternite 5, about 3× wider than long; tergite 8 narrow, saddle-shaped, tapering laterally.

Female pregenitalic segments (Figs 9, 10). Tergite 6 about $\frac{1}{3}$ length of tergite 5; with transverse series (not in regular row) of long thick setulae; laterally shiny dark brown, lacking pruinosity. Sternite 6 slightly longer than wide, about $\frac{2}{3}$ width of sternite 5; margin rounded posteriorly; with series of long thick setulae fanning out around rounded posterior margin; shiny dark brown, lacking pruinosity.

Male terminalia (Figs 12, 13, 15–18). Epandrium broadly rounded with no surstylar lobes, slightly elongated; with series of setae along posterodorsal part; with small setae along rounded distal part. Cerci large, with dense tiny setulae basally and fine longer setulae distally. Subepandrial sclerite U-shaped, articulated at anterior corners with posterior corners of hypandrium. Hypandrium slightly longer than wide; lateral arms bowed out, widest at posterior third; in lateral view, gently curved, broadened at anterior tip. Pregonite short, tapering to blunt tip with 2 subapical setulae. Postgonite elongate, 2× length of pregonite; tapering to blunt tip with tiny setulae on dorsomedial surface through distal $\frac{2}{3}$. Phallapodeme large, laterally flattened; in lateral view, nearly 2× as long as high, dorsal surface gently sloping. Phallus elongate; in dorsal view, parallel sided; in lateral view, basiphallus dorsally expanded, and gently curved through distiphallus to blunt tip.

Female terminalia (Figs 9, 10, 19–23). Tergite 7 shiny dark brown, lacking pruinosity; medially folded with left and right halves at acute angle to each other; posterior edge of each half folded back into internal, anteriorly-directed flange bearing several small setulae and connected to distal membrane at posterior (physically anterior) edge, with flange *ca* 2× as long as wide and extending anteriorly well beyond anterior edge of tergite. Sternite 7 shiny light brown, lacking pruinosity; medially separated into two halves held at 90° angle to each other, with each about 2× as long as wide; posterior edge of each half folded back into internal, anteriorly-directed flange bearing several small setulae and connected to distal membrane at posterior (physically anterior) edge, with flange about 2× as long as wide and extending anteriorly beyond anterior edge of sternite. Distal segments fully inserted within segment 7, with no parts exerted in any pinned specimens. Tergite 8 medially divided into two longitudinally elongated sclerites, each about 5× as long as wide. Sternite 8 not evident. Epiproct small, medially divided, as long as wide, bearing several tiny setulae. Hypoproct about 2.5× as long as basal width, tapering distally; bearing numerous tiny setulae, including pair of distal elongated setulae. Cerci pad-like, elongated, bearing numerous tiny setulae; closely associated along dorsal margins, opening more widely ventrally. Spermathecae 2+2, elliptical; strongly sclerotised, with each pair connected via sclerotised common entrance; short

spermathecal ducts originating together on dorsal surface of genital chamber. Simple central accessory gland originating in front of spermathecal duct origins; paired lateral accessory glands not observed, but may be present.

Holotype: ♂ (Fig. 1; glued to side of pin, excellent condition) SOUTH AFRICA: *KwaZulu-Natal*: “RSA, Natal 1760m / 75km WSW [error, 62 km 274°] Estcourt / Cathedral Pks. [Peak] For[est]. Sta[tion]. [28.968166°S 29.238465°E] / 21–31.XII.[19]79 S. & J.Peck”, “CHAMAEMYIIDAE / S.D. Gaimari / Specimen # / 7579”, “Holotypus ♂ / *Hamecamyia / stuckenbergi / Gaimari*” [red label] (CNC).

Paratypes: SOUTH AFRICA: *KwaZulu-Natal*: 20♂ 18♀ same label data as holotype (10♂ 10♀ CNC; 4♂ 3♀ CSCA; 2♂ 2♀ NMSA; 4♂ 3♀ USNM).

Biology: All specimens were collected in late December at 1760 m elevation in Cathedral Peak, which is in the Drakensberg section of the Great Escarpment. The collecting locality situates in the montane grasslands of the lower southern slopes, which is also characterised by presence of *Protea* and *Podocarpus*. As with other Chamaemyiini for which larval biology is known, larvae of this species likely feed on mealybugs in grasses.

DISCUSSION

This genus is most similar to *Parochthiphila*. The following discussion points out some specifics relative to the conclusion that the new species is a representative of a new genus.

In *Parochthiphila* there are four dorsocentral setae (1 presutural and 3 postsutural). In a few species, the second seta (the anterior postsutural seta) is absent, leaving a gap where the seta would be; this absence is species specific in some (*P. luppovae* Tanasijtshuk, 1968 and the *P. subnigripes* Tanasijtshuk, 1968 group), and an occasional aberration in other species. In only one species (*P. frontella* (Rondani, 1874)) is 0+2 dorsocentrals a constant character, but it is otherwise a typical *Parochthiphila* (Raspi 2006). In the new genus, all specimens have 0+2 dorsocentrals, and differ markedly from *P. frontella*, and other *Parochthiphila*, in the characters below.

Most *Parochthiphila* species have two transverse black bands from eye margin to eye margin, across the top of the lunule and across the anterior fronto-orbital setae. These characters can vary from specimen to specimen, and few species are known to lack this band, but a consistent characteristic is the presence of at least a black mark at the eye margin at the edge of the lunule, which is almost always accompanied by a separate small black mark on the parafacial. In the new genus, not only are the bands absent, but there are no black markings along the eye margins at all, nor on the parafacial. The frons instead has a U-shaped dark area encompassing the ocellar region (as is often the case for species of *Chamaemyia*), which does not extend laterally to the eye margin, and an upside-down U-shaped dark outline to the lunule, again not extending to the eye margin. This dark area consists of less-dense pruinosity, thus displaying some ground colour, while in *Parochthiphila*, the black bands consist of black pruinosity. In *Parochthiphila*, the first flagellomere is pointed and turned up distally, while in the new genus the first flagellomere is rounded distally but has a small subapical dorsal protrusion.

The male terminalia exhibit a few informative characters. In *Parochthiphila*, as in the new genus, syntergite 7+8 is asymmetrical, with the tergite 7 part elongated on the left side to form a thin transverse band. In *Parochthiphila*, however, this band terminates between strongly reduced sternites 6 and 7, both of which are medially placed. In the new genus, this band terminates at the highly reduced sternite 6, which is similarly

asymmetrical and placed to the left side; and sternite 7 is not sharply reduced, but rather is nearly as wide as sternite 5, and is 3× as wide as long. In *Parochthiphila*, the phallapodeme is diminutive, much shorter than high, and much shorter than the hypandrium and phallus. In the new genus, the phallapodeme is large, longer than high, nearly as long as the hypandrium in lateral view, and more than half the length of the phallus.

The new genus also has very unusual characteristics of the female terminalia. Of particular interest are the details of segment 7, relative to the posterior edges of tergite and sternite 7. Tergite 7 is folded medially into two halves, as is sternite 7. For each of these halves, the posterior edge is folded back into an internal, anteriorly-directed flange, that extends well beyond the anterior edge of the tergite and sternite; each flange is larger than its corresponding tergite or sternite, bears several small setulae, and is connected to the distal membrane (going to segment 8) at the posterior (physically anterior) edge. Surveying species of *Parochthiphila*, as well as numerous other species of Chamaemyiini, the characteristics of segment 7 in this new genus appear to be unique.

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REFERENCES

- BECKER, T. 1903. Ägyptische Dipteren. *Mitteilungen aus dem zoologischen Museum in Berlin* **2**: 67–195.
- COGAN, B.H. 1980. Family Chamaemyiidae. In: Crosskey, R.W., ed., *Catalogue of the Diptera of the Afrotropical Region*. London: British Museum (Natural History), pp. 601–602.
- CUMMING, J.M. & WOOD, D.M. 2009. Adult morphology and terminology. In: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M., eds, *Manual of Central American Diptera*. Vol. 1. Ottawa: NRC Research Press, pp. 9–50.
- CZERNY, L. 1904. *Cremifania nigrocellulata*, eine neue Ochthiphiline. Systematische Stellung und Gattungsdiagnose der Ochthiphilinen. *Wiener entomologische Zeitung* **23**: 167–170.
- ENDERLEIN, G. 1937. Acalyptrata aus Mandschukuo (Dipt.). *Mitteilungen der deutschen entomologischen Gesellschaft* **7**: 71–75.
- FREY, R. 1958. Zur Kenntnis der Diptera Brachycera p.p. der Kapverdischen Inseln. *Commentationes Biologicae* **18**: 1–61.
- GAIMARI, S.D. 2010. 72. Chamaemyiidae. In: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M., eds, *Manual of Central American Diptera*. Vol. 2. Ottawa: NRC Research Press, pp. 997–1007.
- GAIMARI, S.D. & RASPI, A. 2002. The species of *Leucopis*, subgenus *Leucopella* Malloch (Diptera: Chamaemyiidae) from northeastern Africa and Yemen. *African Entomology* **10**: 241–264.
- HENDEL, F. 1914. H. Sauter's Formosa-Ausbeute. Acalyptrate Musciden (Dipt.) III. *Supplementa Entomologica* **3**: 90–117.
- HENNIG, W. 1938. Beiträge zur Kenntnis des Kopulationsapparates und der Systematik der Acalyptraten 1. Chamaemyiidae und Odiiniidae. *Arbeiten über morphologische und taxonomische Entomologie aus Berlin-Dahlem* **5**: 201–213.
- LOEW, H. 1869. *Drepanephora*, eine neue Gattung der Sapromyzidae. *Berliner entomologische Zeitschrift* **13**: 95–96.
- MACQUART, P.J.M. 1851. Diptères exotiques nouveaux ou peu connus. Suite du 4^e supplément publié dans les mémoires de 1849. *Mémoires de la Société Royale des Sciences, de l'Agriculture et des Arts de Lille* **1850**: 134–294, pls 15–28.
- MALLOCH, J.R. 1927. A new agromyzid fly of economic importance from Africa. *Annals and Magazine of Natural History* **19**: 575–577.

- McALPINE, J.F. 1960. A new species of *Leucopis* (*Leucopella*) from Chile and a key to the world genera and subgenera of Chamaemyiidae (Diptera). *The Canadian Entomologist* **92**: 51–58.
- 1981. Morphology and terminology—Adults. In: McAlpine, J.F., Peterson, B.V., Shewell, G.E., Teskey, H.J., Vockeroth, J.R. & Wood, D.M., eds, *Manual of Nearctic Diptera*. Vol. 1. Monograph 27. Ottawa: Research Branch, Agriculture Canada, pp. 9–63.
- 1987. Chamaemyiidae. In: McAlpine, J.F., ed., *Manual of Nearctic Diptera*. Vol. 2. Monograph 28. Ottawa: Research Branch, Agriculture Canada, pp. 965–971.
- MEIGEN, J.W. 1803. Versuch einer neuen Gattungs Eintheilung der europäischen zweiflügeligen Insekten. *Magazin für Insectenkunde* **2**: 259–281.
- 1830. *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten*. Sechster Theil. Hamburg: Schulz.
- RASPI, A. 2006. On the identity of *Parochthiphila* (*Euestelia*) *frontella* (Diptera Chamaemyiidae). *Bollettino della Società Entomologica Italiana* **138**: 249–254.
- RONDANI, C. 1874. Species italicae ordinis dipterorum. Stirps XXII. Loncheinae Rond. *Bollettino della Società Entomologica Italiana* **6**: 243–274.
- SÉGUY, E. 1953. Dipteres de Mauritanie. *Encyclopédie Entomologique, Série B, II, Diptera* **9**: 65–71.
- STUCKENBERG, B.R. 1960. Two new African species of *Spaniocelyphus* Hendel (Diptera, Celyphidae). *Annals of the Natal Museum* **14**: 399–404.
- 1963. A new species of *Drepanephora* from South Africa (Diptera: Lauxaniidae). *Stuttgarter Beiträge zur Naturkunde* **105**: 1–5.
- 1966. A redescription of *Sapromyza carinata* Thomson, and a note on some Australasian Diptera described by Francis Walker (Diptera: Lauxaniidae). *The Australian Zoologist* **13**: 399–402.
- 1971a. A review of the Old World genera of Lauxaniidae (Diptera). *Annals of the Natal Museum* **20**: 499–610.
- 1971b. An account of the genus *Noeetomima*, with descriptions of new species from Queensland and Nepal (Diptera: Lauxaniidae). *Annals of the Natal Museum* **21**: 21–28.
- 1974. Class Insecta, order Diptera. In: Coaton, W.G.H., ed., *Status of the taxonomy of the Hexapoda of southern Africa. Entomology Memoirs of the Department of Agricultural Technical Services, Republic of South Africa* **38**: 105–113.
- TANASIJTSCHUK, V.N. 1968. Palearctic species of the genus *Parochthiphila* (Diptera, Chamaemyiidae). *Entomologicheskoye Obozreniye* **47**: 633–651. (In Russian; English translation, 1968, *Entomological Review* **47**: 388–399.)
- 1999. *Leucopis formosana* Hennig (Diptera, Chamaemyiidae) – synonymy, distribution, food links. *Entomologica Fennica* **10**: 235–238.
- THOMSON, C.G. 1869 (1868). Diptera. Species nova descriptis. In: *Kongliga Svenska fregatten Eugénies resa omkring jorden under befäl af C.A. Virgin, åren 1851–1853*. Vol. 2 (Zoologi), Section 1 (Insecta). Stockholm: P.A. Norstedt & Soner, pp. 443–614.