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Description of eight new Phaoniinae species from the Ethiopian region

(Diptera: Muscidae)

With 1 text figure

The subfamily Phaoniinae is made up of a large number of genera and species, particularly in the Ethiopian region. Many species have been described already but new unknown species are still to be expected in the future. The following 8 new species have been collected in South Africa, Rhodesia, Congo Kinshasa and Tanzania:

Limnophora stuckenbergi spec. nov.,

Limnophora abdominalis spec. nov.,

Hennigmyia zumpti spec. nov.,

Hydrotaea tanzaniae spec. nov.,

Hydrotaea wittei spec. nov.,

Helina paracaesioides spec. nov.,

Helina patersoni spec. nov.,

Mydaea capensis spec. nov.

Limnophora stuckenbergi spec. nov.

This species does not run down to any particular species in VAN EMDEN's (1951) key, as it has 2 posterior bristles at the apex of the mid-femur, 1 + 2 sternopleurals, 3 postsutural dorsocentral bristles, no costal spine but very short rays of the arista.

Male: Head densely goldish-grey dusted, particularly the lower half of the face. Proboscis, palpi and antennae dark brown, arista with short rays, the longest ones not longer than the basal diameter of the arista. Frons at its narrowest point about twice as wide as the ocellar triangle and with the frontal stripe well-developed. About 8 pairs of strong parafrontal bristles present, at least the last 4 pairs reclinate, 1 pair of ocellars and 1 pair of verticals well-developed. Eyes bare, facets all of same size.

Thorax laterally grey, dorsally shining dark brown with the humeral calli and the notopleura grey. The posterior part of the presutural part of the mesonotum with a grey transverse band, extending from the second pair of presutural dorsocentrals to the suture and another narrow grey transverse band in front of the scutellar suture. The area around the postalar bristles grey. The scutellum with a small grey tip. Chaetotaxy: Acrostichals = long and hair-like, irregularly distributed in 4–5 rows, dorsocentrals = 2 + 3, humerals = 2, posthumerals = 2, notopleurals = 2, postalars = 2, mesopleurals = 1 + 7 – 9, sternopleurals = 1 + 2, the lower one more distant from the anterior one than from the posterior one. Prosternum hairy. Legs brown. Fore-tibia without a posterior bristle; mid-femur with a row of anteriors and some postero-ventrals in the basal half as well as 2 strong posteriors at the apex; mid-tibia with 2 very long posteriors; hind-femur with a row of antero-dorsals and about 4 antero-ventrals in the apical half; hind-tibia with 1 antero-dorsal and 1 antero-ventral. Wings with a brownish tinge, the membrane covered with micro-

trichiae, veins brown and the node r_{4+5} ventrally with 1–2 setae. Halteres and calyptres yellowish.

Abdomen dorsally brown with a narrow grey median longitudinal vitta on all segments as well as small grey triangular spots laterally on the anterior half of each segment, ventrally grey.

Length: About 3.5 mm.

Female: Unknown.

Locality: 1 ♂ from Rhodes. — Inyanga National Park, Rhodesia; 13. I. 55; leg. STUCKENBERG. (♂ holotype in the S. A. Institute for Medical Research).

***Limnophora abdominalis* spec. nov.**

Limnophora abdominalis resembles *Limnophora obsignata* (RONDANI) but it differs from it by the thoracic pattern.

Male: Head densely silver-white and with a well developed dark frontal stripe. Proboscis, palpi and antennae dark brown, the longest rays of the arista about half as wide as the 3rd antennal segment. Frons at its narrowest point about $1\frac{1}{2}$ – 2 times as wide as the ocellar triangle. About 7 pairs of parafrontals, 1 pair of ocellars and 2 pairs of verticals present. All strongly developed. Eyes naked, facets all of same size.

Thorax with the ground-colour grey, dorsally with a brown spot between the 2 presutural dorsocentrals and the anterior posthumeral and in the anterior half of the postsutural mesonotum a dark brown transverse band extending to the 3rd pair of dorsocentrals, the scutellum with the anterior two thirds dark brown. Chaetotaxy: Acrostichals = short but numerous and irregularly distributed, dorsocentrals = 2 + 4, the anterior 2 post dc shorter than the posterior ones, humerals = 3, posthumerals = 2, notopleurals = 2, intra-alars = 1, postalars = 2, mesopleurals = 1 + 6, sternopleurals = 1 + 2, the lower one more distant from the anterior one than from the posterior one. Prosternum hairy. Legs brown. Fore-tibia without a posterior; mid-femur with a strong anterior at the middle, about 2 postero-ventrals at the basal half, a row of posteriors in the apical half with 2 stronger ones at the apex; mid-tibia with 2 posteriors; hind-femur with a row of antero-dorsals and about 3 antero-ventrals in the apical part; hind-tibia with 1 antero-dorsal at the middle and 1 antero-ventral beyond it. Wings with a brownish tinge, membrane covered with microtrichiae, veins brown and r_{4+5} dorsally and ventrally at the node with some setae. Calyptres white, halteres yellow.

Abdomen with the ground-colour light grey, dorsally tergite I–IV each with 2 dark brown spots extending over the whole length of the tergite and particularly on tergite IV of L-shape. Tergite V with a longitudinal median light brown vitta.

Hypopygium with broad paralobi (Fig. 1).

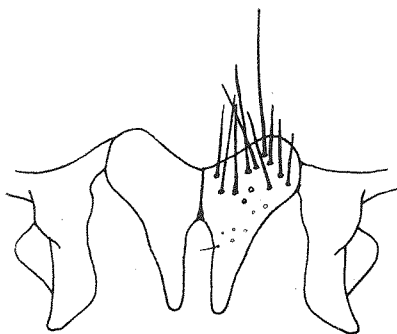


Fig. 1. Cerci and paralobi of *Limnophora abdominalis* spec. nov. (dorsal view)

Female: The female resembles the male but the frons is about 0.45 times as wide as the length of an eye. The spots on tergites I + II are weakly developed and the spots on tergites III and IV are strongly L-shaped. The longitudinal vitta on tergite V more strongly developed.

Length: 5.5 mm.

Locality: 4 ♂♂ and 4 ♀♀ from Brits, Transvaal, South Africa, IV. 55; leg. PATERSON. (♂ holotype, 3 ♂♂ paratypes and 4 ♀♀ paratypes in the S. A. Institute for Medical Research).

Hennigmyia zumpti spec. nov.

Female: Head with the ground-colour brown to dark brown with partly yellow pollinosity. Proboscis and antennae brown, palpi yellowish brown, arista with long rays. Frons at its narrowest point about 0.5 times as wide as the length of an eye. About 8 pairs of parafrontals with the last pairs reclinate, 1 pair of fronto-orbitals, 1 pair of interfrontals, 1 pair of ocellars and 2 pairs of verticals present. All strongly developed. Eyes naked.

Thorax with the ground-colour brown to dark brown and densely whitish dusted. Dorsally with a dark brown median longitudinal vitta which is dusted and 4 brown undusted longitudinal vittae extending to the 3rd pair of dorsocentrals. Chaetotaxy: Acrostichals = strongly developed, in 2 rows, each consisting of 3 + 3, dorsocentrals = 2 + 4, humerals = 3, posthumeral = 2, notopleurals = 2, in front of the anterior posthumeral bristle and in front of the anterior post de a small bristle, intra-alars = 2, postalar = 2, pre-alar = present and longer than the posterior notopleural, mesopleurals = 1 + 6, sternopleurals = 1 + 2, scutellum latero-ventrally with small, hair-like bristles. Legs yellow with the tarsi brownish. Fore-tibia without a posterior; mid-femur with some anteriors in the basal half and some postero-ventrals in the middle third, 3 posteriors at the apex; mid-tibia with 3 posteriors; hind-femur with a row of antero-dorsals, in the apical half a row of antero-ventrals and in the basal half some hair-like postero-ventrals; hind-tibia with 1 antero-dorsal at the middle and 1 smaller one beyond it, 3 antero-ventrals in the apical half and 1 long postero-dorsal in the apical third. Wings with a yellowish brown tinge, veins brownish, membrane uniformly covered with microtrichiae and r_{4+5} ventrally at the node and dorsally to $r - m$ with some setae, r_1 dorsally with a row of setae. Calyptrae and halteres yellowish.

Abdomen brown with an orange tinge, the anterior part of tergites I + II yellowish, the last tergite white dusted.

Male: The male resembles the females very much, but the frons at its narrowest point is about twice as wide as the anterior ocellus; about 7 pairs of strong parafrontals are in the anterior half of the frons and 1 pair of verticals and 1 pair of ocellars are present. Interfrontals and fronto-orbitals are wanting. The 4 undusted longitudinal vittae rather short. Abdomen with the tergites I + II, III and IV yellowish, tergite IV with a dark median spot, dilating in the posterior half, tergite V dark.

Length: About 7 mm.

Locality: ♀ holotype and 1 ♀ paratype from Knysna, Cape Prov., South Africa, IV. 1954, leg. ZUMPT; 1 ♂ paratype from Pt. St. JOHN's distr., Cape Prov., coastal forest, X. 1959, leg. B. & P. STUCKENBERG. All types in the S. A. Institute for Medical Research.

Hydrotaea tanzaniae spec. nov.

This species resembles *Hydrotaea polita* VAN EMDEN but it differs from it in having on the hind-tibia besides a strong antero-dorsal bristle 2 strong antero-ventral and 2—3 long hair-like postero-ventral bristles.

Male: Head with the ground-colour black. Proboscis, palpi and antennae dark, the 3rd antennal segment greyish brown dusted, arista bare. Frons at its narrowest point not wider than the anterior ocellus. About 2 pairs of parafrontals above the antennal groove and 1 pair of long distinct ocellars present. Eyes naked, facets not enlarged.

Thorax glossy dark brown without pollinosity. Chaetotaxy: Acrostichals = distinct bristle-like and in 2 rows, dorsocentrals = $2 + 4$, the anterior 2 post dc shorter than the posterior ones, humerals = $2-3$, posthumerals = 2, notopleurals = 2, intra-alars = 2, postalars = 2, mesopleurals = $1 + 5$, sternopleurals = $1 + 1$, hypopleuron and prosternum bare. Legs brown. Fore-femur with a row of long blunt-tipped postero-ventrals in the basal half and with rows of shorter postero-dorsals and dorsals as well as with a triangular dilatation before the emarginate apex of the ventral edge and a tooth, pointing towards the apex, the dilatation on the posterior side with about 6–10 small bristles, on the anterior side with about 6 somewhat stronger bristles; fore-tibia with a ventral emargination in the basal third and without posteriors; mid-femur in the basal half with a row of well-developed anteriors and antero-ventrals as well as 3–4 rather long blunt tipped postero-ventrals, at the apex some posteriors; mid-tibia with 2 posteriors; hind-femur with a row of anteriors to antero-dorsals, at the apex about 3–4 antero-ventrals; hind-tibia with 1 antero-dorsal and 2 antero-ventrals at the middle and 3 long hair-like postero-ventrals at the middle third. Wings with a weak brownish tinge, the membrane covered with microtrichiae, veins brown and bare. Halteres with the knob brown, calyptae transparent with a yellowish margin.

Abdomen glossy dark brown to black, tergites I + II somewhat lighter and with only a little light brown dust in the posterior part.

Length: About 3.5 mm.

Female: Unknown.

Locality: 1 ♂ Msingi, Tanzania, 1–19. V. 52; leg. D. O. Afrika Exp. (♂ holotype in the S. A. Institute for Medical Research).

***Hydrotaea wittei* spec. nov.**

This species leads in VAN EMDEN's (1943) key to *Hydrotaea ochribasis* VAN EMDEN but it differs from it by the absence of 2–3 posterior bristles on the fore-tibia and the presence of 3–4 posterior and 1 antero-dorsal bristles on the mid-tibia.

Female: Head with the frons black, buccae and parafacialia white, in certain light the frons brownish dusted and buccae and parafacialia black. Proboscis, palpi and antennae dark brown, the longest rays of the arista hardly as long as the basal diameter of the arista. Frons at its narrowest point about 0.5 times as wide as the length of one eye. About 9 pairs of parafrontals, 1 pair of interfrontals, 1 pair of ocellars and 2 pairs of verticals present and strongly developed. Eyes densely long-haired.

Thorax shining dark brown with 2 white longitudinal vittae along the dorsocentral rows and partly weakly developed. Chaetotaxy: Acrostichals = $0 + 1$, dorsocentrals = $2 + 4$, humerals = 2, posthumerals = 2, notopleurals = 2, intra-alars = 2, postalars = 2, mesopleurals = $0 + 8$, sternopleurals = $1 + 1$. Legs dark brown. Fore-tibia with 1 antero-dorsal beyond the middle; mid-femur with some anteriors at the basal half and some posterior at the apex; mid-tibia with 1 antero-dorsal in the apical third and 3–4 posteriors in the apical two thirds; hind-femur with a row of antero-dorsals and 2–3 antero-ventrals in the apical third; hind-tibia with 1 antero-dorsal and 3 antero-ventrals in the apical half as well as 1 long postero-dorsal at the apical third. Wings with a brown tinge, membrane covered with microtrichiae, veins brown and bare. Calyptae yellowish, halteres dark brown. Abdomen shining dark brown with 2 orange spots on the tergites I + II and III.

Length: About 7 mm.

Male: Unknown.

Locality: 1 ♀ from Congo Belge: P. N. A. Tshamugussa (Bweza) 2250 m (Bambous) 10. VIII. 1934; leg. DE WITTE. (♀ holotype in the S. A. Institute for Medical Research.)

Helina paracaesioides spec. nov.

This species resembles *Helina caesioides* (BEZZI) but it differs from it by the thoracic and abdominal pattern.

Male: Head silver-grey dusted but the upper part of the parafacialia with a spot of dark reflections. Proboscis, palpi and antennae brown, arista with long rays. Frons at its narrowest point about $1\frac{1}{2}$ as wide as the ocellar triangle and with the frontal stripe well-developed. Above the antennal groove 3 pairs of strong parafrontals. 1 pair of very strong ocellars present. Eyes not conspicuously haired, facets all of the same size.

Thorax with the ground-colour grey, dorsally only with two brown narrow longitudinal vittae inside of the dorsocentral rows extending beyond the 2nd pair of postsutural dorsocentrals. The area around the posthumeral brownish. Chaetotaxy: Acrostichals = short but numerous and irregularly distributed, dorsocentrals = 2 + 3, humerals = 2; posthumeral = 2, notopleurals = 2, intra-alars = 2, postalars = 2, mesopleurals = 1 + 6, sternopleurals = 1 + 2, the lower one more distant from the anterior one than from the posterior one. Legs with the fore-femur and the tarsi dark, mid-femur and hind-femur yellowish-brownish with dark apical parts and the tibiae yellowish. Fore-tibia with a distinct posterior bristle; mid-femur with 2 ventrals at the basal part, 2 anteriors at the middle and 2 strong posteriors at the apex; mid-tibia with 2 posteriors; hind-femur with 2 postero-ventrals at the basal part, 1–2 antero-ventrals at the apex as well as 2 weak ones at the base and a row of antero-dorsals all over the length; hind-tibia with 2 antero-dorsals before the middle and 1 antero-ventral at the middle. Wings greyish, membrane covered with microtrichiae, veins yellowish-brown, a dark brown spot around the cross-vein $r-m$ and a weakly developed brown spot along the posterior cross-vein. Halteres and calyptrae yellowish.

Abdomen long and strikingly slender. Tergites III and IV dorsally with 2 weakly developed round brown spots and tergite V with a median longitudinal vitta. Laterally on the tergites III–V round brown spots. Tergite III with some marginals, tergites IV and V with rows of marginal and discals, the discals of tergite V are stronger.

Length: About 8 mm.

Female: Unknown.

Locality: 1 ♂ from Johannesburg, Transvaal, South Africa, XII; leg. PATERSON. (♂ holotype in the S. A. Institute for Medical Research.)

Helina patersoni spec. nov.

Helina patersoni belongs to the subgenus *Hebecnema* SCHNABL and leads in VAN EMDEN's (1951) key to *Helina bwambae* VAN EMDEN. But in *Helina patersoni* the last two segments are shining dark brown and the anterior ones bright yellow without any dark pattern.

Male: Head with the ground-colour dark. Proboscis, palpi and antennae dark brown, arista with long rays, the longest ones about twice as long as the width of the 3rd antennal segment. Frons at its narrowest point about half as wide as the anterior ocellus. Above the antennal groove 4 pairs of strong parafrontals. In front of the ocellar triangle a pair of minute reclinate bristles. 1 pair of ocellars strongly developed. Eyes naked and without enlarged facets.

Thorax shining dark brown without a distinct pattern but with light brown pollinosity. Chaetotaxy: Acrostichals = bristle-like hairs numerous and irregularly distributed, dorso-

centrals = 2 + 4, humerals = 2, posthumerals = 2, notopleurals = 2, intra-alars = 2, postalars = 2, mesopleurals = 1 + 6, sternopleurals = 1 + 2, the lower one nearer to the posterior one. Legs with the femora and tarsi brown to dark brown, tibiae yellow. Fore-tibia without a posterior bristle; mid-femur with some anteriors and ventrals in the basal half and 2 posteriors at the apex; mid-tibia with 2 posteriors; hind-femur with some postero-ventrals in the basal part, a row of antero-ventrals in the apical half and a row of antero-dorsals all over the length; hind-tibia with 1 antero-dorsal at the middle and 1 antero-ventral beyond it. Wings with a dark brownish tinge, membrane covered with microtrichiae, veins brown, ventrally the node of r_{4+5} with 1 very small black seta. Halteres with the knob brown, calyptrae yellowish-brown.

Abdomen with the last 2 segments dark brown, the anterior segments all bright yellow without any dark pattern. Tergite III laterally with some strong marginals, tergites IV and V with rows of marginals. Tergite IV laterally with some discals, tergite V with a row of discals.

Length: About 5.5 mm.

Female: Unknown.

Locality: 1 ♂ Majuba, Natal, South Africa, III. 54; leg. PATERSON. (♂ holotype in the S. A. Institute for Medical Research.)

Mydaea capensis spec. nov.

Mydaea capensis leads in SNYDER's (1953) key to *Mydaea notonuda* SNYDER but it differs by the 2 + 4 dorsocentral bristles.

Female: Head densely greyish dusted with the frons somewhat darker. Proboscis, palpi and antennae dark brown. Frons at its narrowest point about 0.5 times as wide as the length of one eye. About 6 pairs of parafrontals, 1 pair of ocellars and 2 pairs of verticals strongly developed. Eyes conspicuously haired.

Thorax with the ground-colour yellowish brown and densely greyish dusted. Dorsally with 2 not very clearly defined brown undusted longitudinal vittae extending beyond the 2nd pair of postsutural dorsocentrals. Chaetotaxy: Acrostichals = 0 + 1, dorsocentrals = 2 + 4, the 2 anterior pairs of the post dc strikingly shorter than the posterior ones, humerals = 2, posthumerals = 2, notopleurals = 2, intra-alars = 2, postalars = 2, mesopleurals = 1 + 6, sternopleurals = 1 + 2, the lower one more distant from the anterior one than from the posterior one. Prosternum and hypopleuron bare. Legs yellow with the tarsi brown. Fore-tibia without a posterior bristle; mid-femur with some antero-ventrals and postero-ventrals in the basal third, some anteriors at the middle and some stronger posteriors at the apex; mid-tibia with 2 posteriors; hind-femur with a row of antero-dorsals and in the apical third 3–4 antero-ventrals; hind-tibia with 2 antero-dorsals and 1 antero-ventral. Wings almost hyaline, membrane covered with microtrichiae, veins yellowish brown, r_{4+5} dorsally and ventrally at the base with some black setae. The posterior cross-vein with a distinct inward-dip at the middle.

Abdomen brownish with grey dust, laterally tergite III somewhat orange. Tergite III laterally with some marginals, tergites IV and V each with a row of marginals, tergite IV laterally with some discals, tergite V with a row of discals.

Length: 6.5–8 mm.

Male: Unknown.

Locality: 5 ♀♀ from Emagusheni, Cape Prov., South Africa, II. 54. (♀ holotype and 4 ♀♀ paratypes in the S. A. Institute for Medical Research.)

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Summary

Eight new species of the genera *Limnophora*, *Hennigmyia*, *Hydrotaea*, *Helina* and *Mydaea* from the Ethiopian region are described and compared with related species.

Zusammenfassung:

Acht neue Arten der Gattungen *Limnophora*, *Hennigmyia*, *Hydrotaea*, *Helina* und *Mydaea* werden aus der äthiopischen Region beschrieben und mit den nächstverwandten Arten verglichen.

Резюме

Из эфиопской области описываются восемь новых видов родов *Limnophora*, *Hennigmyia*, *Hydrotaea*, *Helina* и *Mydaea* и сравниваются с близко родственными видами.

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Besprechungen

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Forstpathologie und Forstschutz werden in sieben Teilen dargelegt: Grundlagen (der Wald als Beziehungsgefüge und als Bewirtschaftungsobjekt des Menschen — Biozönotisches Gleichgewicht — Gesunder und kranker Wald) — Abiotisch bedingte Krankheiten (Feuerschäden — Krankheiten durch Luftverunreinigung, durch Wettererscheinungen, durch Bodeneigenschaften) — Biotisch bedingte Krankheiten (Pathozöne Organismen — Massentwicklung der pathogenen Organismen) — Disposition und Resistenz des Waldes — Krankheitsverlauf und Krankheitserscheinungen — Wirtschaftliche Auswirkungen der Waldkrankheiten — Ihre Verhütung und Bekämpfung (Waldhygiene — Waldtherapie).

Allein der Überblick des Inhaltes bestätigt das Lehrbuch als Standardwerk und seine Bedeutung für einen ungewöhnlich großen Interessentenkreis, vom Forstmann bis zum Entomologen, vom Botaniker bis zum Mitarbeiter des Pflanzenschutzes und bis zur Pflanzenschutzmittelindustrie selbst.

Gegenüber der zweiten Auflage „blieb nicht eine Seite“ gleich, um alle behandelten Probleme dem derzeitigen Wissensstand anpassen zu können. Dagegen wurden Leitgedanken und Ziel der ersten Auflage des Buches mit voller Berechtigung beibehalten, indem Forstpathologie und Forstschutz als Lehre vom gefährdeten Wald gesehen werden, der in seiner harmonischen Entwicklung gestört ist, was nicht allein vom Schaden oder Schädling und deren Folgen abgeleitet werden darf, sondern von seiner biologischen und wirtschaftlichen Einheit, von seinem Bestand. Unter diesem Aspekt werden die Schadensursachen von ihrer Verschiedenheit bis zu ihrer Bekämpfung behandelt. Die notwendigen Voraussetzungen für einen Krankheitsausbruch und für eine Schädwirkung werden sowohl für den Schaderreger wie für den Wald selbst untersucht und der Krankheitsverlauf und seine Auswirkungen finden eine ausführliche Prüfung. Verhütungs- und Abwehrmaßnahmen.