MYDIDAE 47

(Mydas Flies)

Torsten Dikow

Fig. 47.1. Male of *Cephalocera* sp. (South Africa) (photograph © S.A. Marshall).

Diagnosis

Afrotropical species small- to medium-sized (body length: 7–28 mm), yellow, light brown, grey, or black flies (Figs 1–11), with several species exhibiting mimicry of wasps (Figs 64, 65, 98, 99); palpus 1-segmented; antenna with apical seta-like sensory element positioned apically in cavity on postpedicel; thorax with postpronotal lobes only partly fused to scutum and lobes elevated above scutum posteriorly; metakatepisternum large and visible between mesothoracic and metathoracic coxa; majority of wing cells closed, wing microtrichia absent; pulvillus with single dorsal ridge, setiform empodium absent; male terminalia with gonostylus absent, male hypandrium reduced and fused to gonocoxites (forming a gonocoxite-hypandrial complex), male lateral ejaculatory processes absent.

The Afrotropical Mydidae exhibit the following features with *Tongamya* Stuckenberg, (Figs 10, 11, 96, 97) often the exemption to the rule, indicated by "(except T)" below:

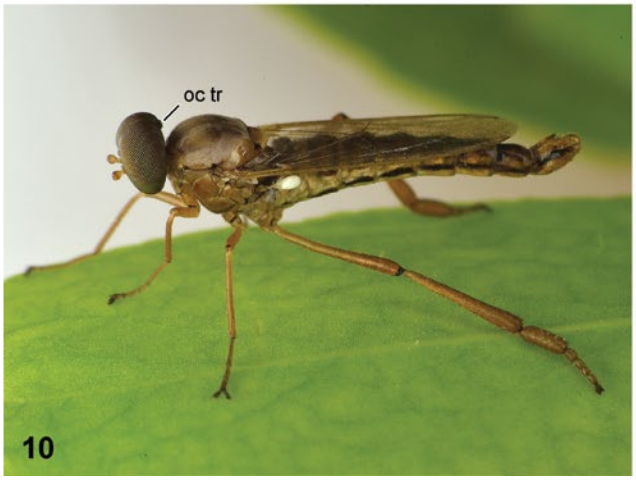
Head dichoptic in both sexes (except T); face protruding distinctly, bearing mystacal setae (Figs 12–15, except T); frons parallel-sided to slightly converging dorsally (Figs 12–15); vertex slightly to considerably depressed (sometimes lateral margins

Kirk-Spriggs, A.H. & Sinclair, B.J. (eds). 2017. Manual of Afrotropical Diptera. Volume 2. Nematocerous Diptera and lower Brachycera. *Suricata* 5. South African National Biodiversity Institute, Pretoria; pp. 1063–1095.

Figs 47.2–7. Photographs of living Mydidae: (2) *Eremomidas arabicus* Bequaert ♀ (United Arab Emirates); (3) same, ovipositing in sand dune; (4) same ♂; (5) *Leptomydas sardous* (Costa) ♀ (non-Afrotropical); (6) *Neolaparopsis puncturatus* Hesse ♂ (South Africa); (7) *Perissocerus arabicus* Bequaert ♂ (United Arab Emirates). Figs 2, 4, 7 (photographs © D. Gardner), Fig. 3 (photograph © B. Howarth), Fig. 5 (photograph © L. Lenzini), Fig. 6 (photograph © S.A. Marshall).

elevated above dorsal compound eye margin (Figs 12, 15, except T); anterior ocellus circular as in *Tongamya* (Fig. 11) to transversely oval in other genera (Fig. 12); ocellar triangle formed by 2 posterior, distinctly elongated ocelli positioned on ridge, anterior ocellus positioned at considerable distance anterior to posterior ocelli (Fig. 12, except T); antenna positioned in ventral ½ of head; antennal scapes proximally close together, almost touching (except T); postpedicel elongate and distinctly clubbed distally, composed of cylindrical proximal part and bulbous distal part separated by unsclerotised area (Figs 6, 8, except T); stylus reduced, only seta-like sensory element present; proboscis minute to long, extending beyond frontoclypeal suture; labellum either well-developed with large pseudotracheae separated from prementum or small and only forming distal tip of proboscis; palpus 1-segmented, usually short, in some species more than ½ as long as oral cavity.

Thorax with postpronotal lobe only partially fused to mesonotum, lobes elevated above scutum posteriorly; cervical sclerite flat (except T with cone-shaped sclerite); prosternum dorsal margin with flange-like projection; prosternum fused to proepisternum; proepisternum fused to lateral postpronotum, setulose; anterior proepimeron, anterior anepisternum, anterior and posterior basalare bare; posterior anepisternum, katepimeron, anatergite, mediotergite (mesopostnotum) setose or bare; katatergite usually setose and flat, sometimes elevated and convex; metakatepisternum large and visible between mesothoracic and metathoracic coxa; scutum entirely smooth or microrugose; laterally usually with at least a few setae (Fig. 35), often densely setose (Fig. 29); short dorsocentral setae pre- and postsuturally developed; acrostichal setae only sometimes presuturally; notopleural, supra-alar and postalar setae absent (Fig. 29). Scutellum small, mediotergite (mesopostnotum) visible in dorsal view (Fig. 42, except T); apical and discal scutellar macrosetae usually absent. Legs with metathoracic coxa setulose laterally; median metathoracic trochanter setulose, sometimes macrosetulose; femur usually cylindrical throughout length (Fig. 10) or slightly expanded posteriorly (Fig. 33), several genera with distinctly clubbed hind femur (Fig. 51, either evenly clubbed or distinctly and abruptly clubbed in

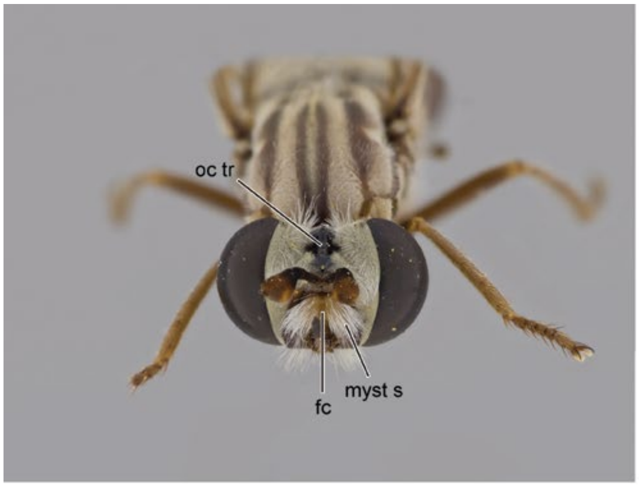


Figs 47.8–11. Photographs of living Mydidae; (8) *Rhopalia* sp. ♂ (non-Afrotropical); (9) *Syllegomydas* (*Syllegomydas*) *palestinensis* Bequaert (non-Afrotropical) ♀; (10) *Tongamya miranda* Stuckenberg ♂ (South Africa); (11) same ♀. Figs 8, 9 (photographs © A. Weinstein), Figs 10, 11 (photographs © S.A. Marshall).

Abbreviation: oc tr – ocellar triangle.

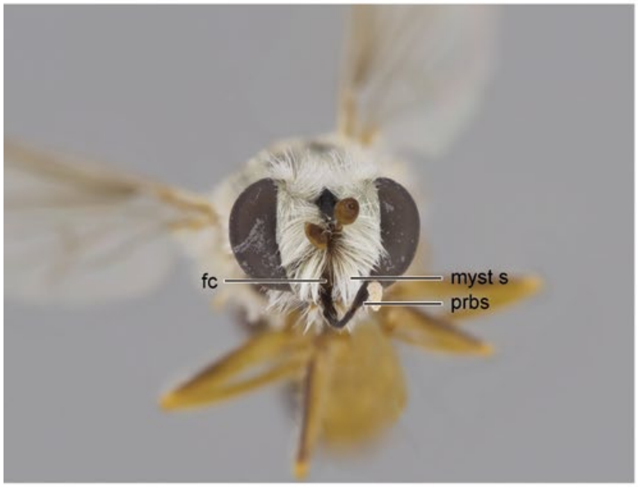
distal ½–⅓); hind femur usually with one anteroventral and one posteroventral row of macrosetae (sometimes with single row present or only a few distoventral macrosetae); femur additionally often with ventral spine-like macrosetae on elevated alveoli (Figs 27, 28); hind tibia usually straight, sometimes arched medially, usually without (Fig. 73), sometimes with ventral keel terminating in spine (Fig. 51); fore and mid proximal tarsomere as long as tarsomeres 2–3 combined (except T), hind proximal tarsomere usually longer than tarsomeres 2–3 combined; pulvillus usually well-developed with single dorsal ridge, sometimes reduced particularly in females, but never absent; setiform empodium absent. Wing membrane usually hyaline (Figs 2, 70), sometimes brown infuscate (Figs 31, 34), especially along veins; microtrichia absent; cells r_1, r_4 (usually), r_5 (usually), m_3 (except T), and *cua* closed (Figs 16–19, 30, 87); costal vein (*C*) rarely circumambient, usually terminating at veins R_1, R_5, or M_{1+2} (Figs 16–19, 23, 30, 42); stump vein (auxiliary crossvein R_3) usually present (Figs 17, 30), rarely absent (Fig. 62), in one genus connecting veins R_2 and R_4 (Figs 18, 85); veins M_1 and M_2 fused (Figs 16, 17, except T), veins M_{3+4} usually not terminating together into costal vein (*C*) (Fig. 16), sometimes terminating into costal vein (*C*) (Fig. 18).

Abdomen elongate, parallel-sided or slightly tapered towards apex, tergites 2–3 sometimes constricted forming "wasp-waist" (Fig. 98); tergite 2 on posterolateral margin with bullae (Fig. 1, except T and females of *Haplomydas* Bezzi); male tergites 1–7 well-developed; tergite 8 posteromedially weakly sclerotised, with anterior transverse sclerotised bridge connecting lateral sclerites (Fig. 100); abdominal tergites usually with 2 anterodorsal apodemes; sternite 6 usually simple ventrally, sometimes with clump of setae; sternite 8 usually simple (Fig. 106), sometimes



12 *Afroleptomydas* (*Afroleptomydas*) ♀

13 *Namibimydas* ♂



14 *Nothomydas* ♂

15 *Vespiodes* ♂

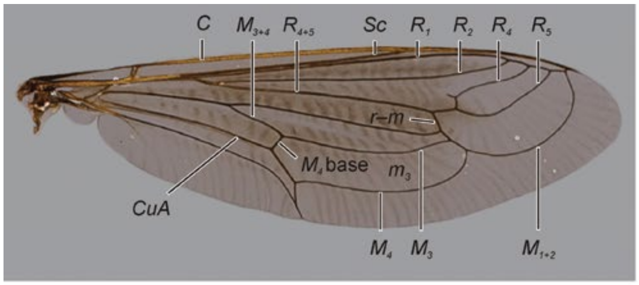
Figs 47.12–15. Heads of Afrotropical Mydidae (anterior views): (12) *Afroleptomydas* (*Afroleptomydas*) sp. ♀; (13) *Namibimydas psamminos* Dikow ♂; (14) *Nothomydas picketti* Dikow ♂; (15) *Vespiodes cerioidiformis* Hesse ♂.

Abbreviations: fc – face; myst s – mystacal setae; oc tr – ocellar triangle; prbs – proboscis.

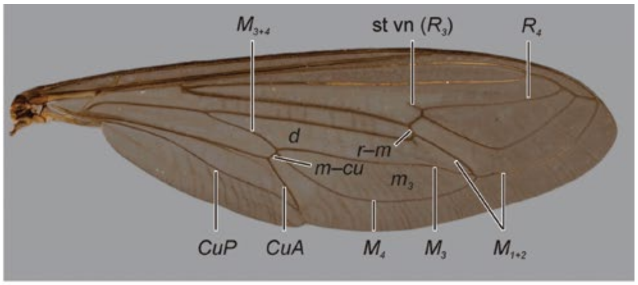
with median tooth posteromedially, divided into 2 halves, or directed ventrally (Fig. 100); male terminalia usually with epandrium fused medially (Fig. 110), sometimes separated medially and joined proximally (Fig. 101); hypandrium usually reduced, not differentiated and fused to gonocoxite, forming gonocoxite-hypandrial complex (Fig. 100), sometimes internal supra-hypandrial sclerite present (Fig. 100, see definition in Dikow 2012: 107); gonocoxal apodeme usually absent, sometimes short apodeme present; gonostylus absent; gonocoxite usually without appendages (2 genera with palpus-like appendage present) (Figs 105, 108); subepandrial sclerite usually without protuberances (2 genera with median protuberance present); lateral ejaculatory apodeme absent; 1 or 2 phallic prongs, when 2 phallic prongs present, then often dorsal phallic epimere (see definition in Hesse 1969: 36) present (Figs 100, 109, 112); female tergite 8 usually with anterior apodeme (Fig. 115) and auxiliary spiracle (Fig. 115); sternite 8 plate-like, divided into 2 halves; tergites 9–10 usually entirely fused (Fig. 115), acanthophorite spines present on fused tergite 9–10 (Fig. 115), few genera with enlarged tergite 9, only partially fused tergite 9–10 and without acanthophorite spines on tergite 10 (Fig. 116); either 2 or 3 equally large, poorly to well-sclerotised spermathecae present (Figs 117–121, sometimes median spermatheca larger than lateral ones); genital fork usually ring-like (joined anteriorly and posteriorly, Figs 117–120), sometimes inverted U-shaped (joined anteriorly, separated posteriorly, Fig. 121), anterior genital fork apodeme present (Fig. 117), lateral genital fork apodeme (Fig. 119) and median genital fork bridge usually absent.

Larva robust with 12 apparent segments, with small, partly retractable head capsule and large conical tip (Fig. 129); head conical, heavily sclerotised; maxilla enlarged (Figs 127, 128), laterally compressed and extending laterally to form head capsule (Fig. 128); maxillary palpus inserted apically (Figs 125, 127), mandible hidden beneath maxilla (Fig. 128); labrum pointed; submentum forming ventral plate (Fig. 128); abdominal segments 1–7 with transverse proleg-like ridges anteroventrally; posterior spiracle on abdominal segment 8; segment 9 conical and tapered (Fig. 129).

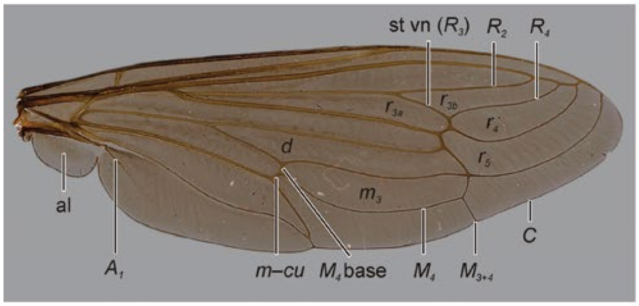
Pupa (*e.g.*, Figs 130–133) robust with appendages movable (exarate); head with 1 pair of cephalic and 2 pairs of antennal processes; abdominal segments 1–7 with row of posteroventrally oriented processes distally, particularly well-developed ventrally on segments 2–7; segment 9 with pair of caudally oriented apical processes.



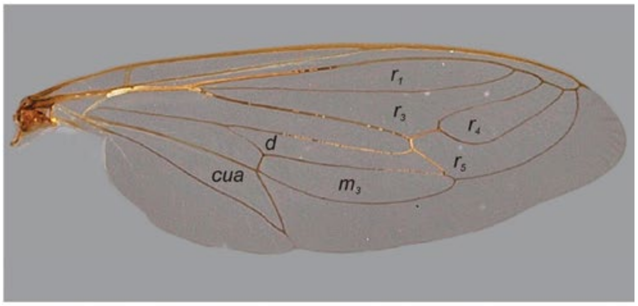
16 *Cephalocera*



17 *Mydaselpis*



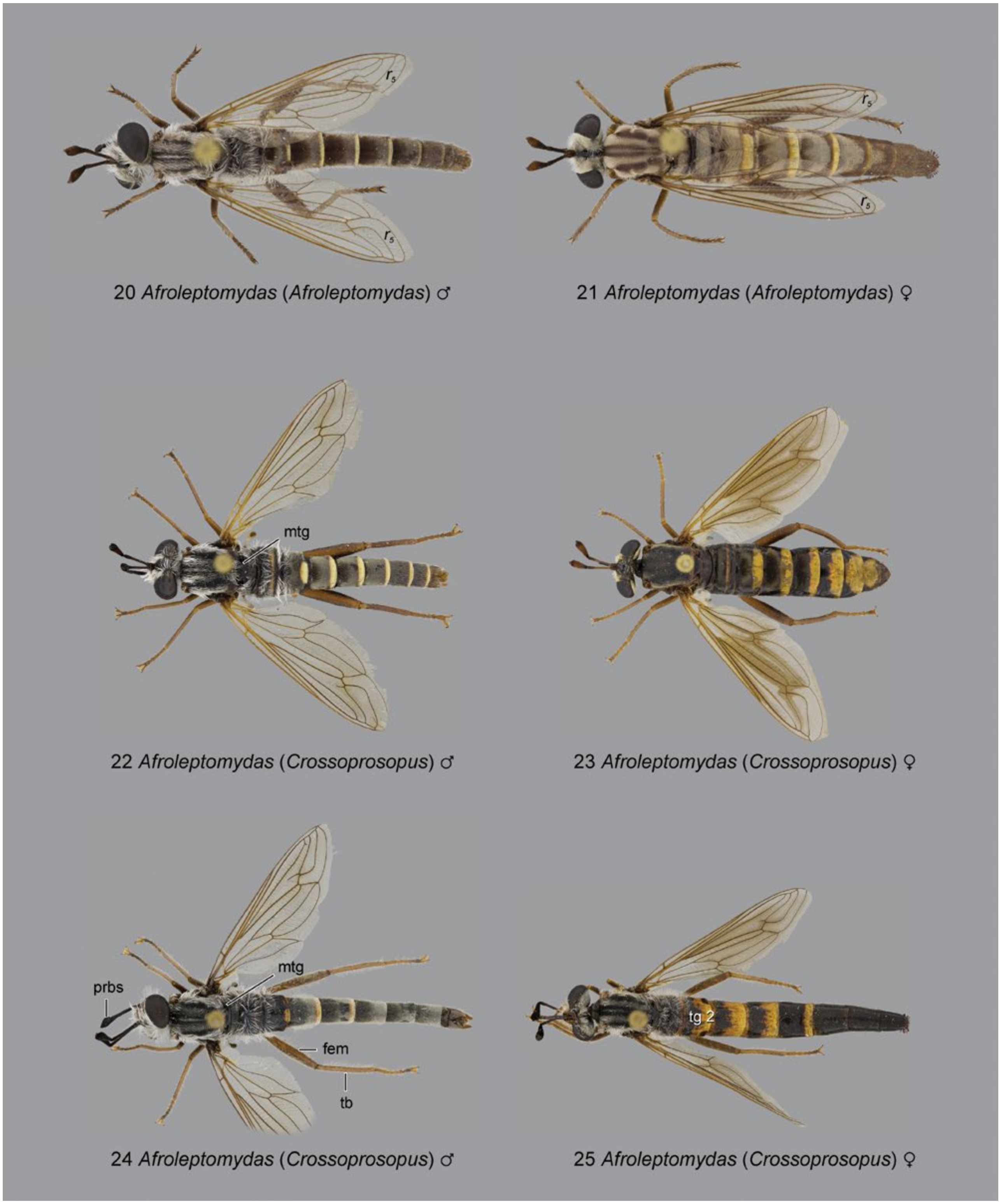
18 *Parectyphus*



19 *Syllegomydas* (*Syllegomydas*)

Figs 47.16–19. Wings of Afrotropical Mydidae (dorsal views): (16) *Cephalocera* sp.; (17) *Mydaselpis ngurumani* Dikow; (18) *Parectyphus namibiensis* Hesse; (19) *Syllegomydas* (*Syllegomydas*) *elachys* Dikow. Figs 17, 19 (Dikow 2010*a*, figs 43, 44), Fig. 18 (Lyons & Dikow 2010, fig. 38).

Abbreviations: A_1 – first branch of anal vein; al – alula; *C* – costal vein; *CuA* – anterior branch of cubital vein; *cua* – anterior cubital cell; *CuP* – posterior branch of cubital vein; *d* – discal cell; M_{1+2} – fused first and second branch of media; M_3 – third branch of media; m_3 – third medial cell; M_{3+4} – fused third and fourth branch of media; M_4 – fourth branch of media; *m–cu* – medial–cubital crossvein; R_1 – anterior branch of radius; r_1 – first radial cell; R_2 – upper branch of second branch of radius; R_3 – lower branch of second branch of radius; r_3 – third radial cell; r_4 – fourth radial cell; R_4 – upper branch of third branch of radius; R_{4+5} – third branch of radius; r_5 – fifth radial cell; R_5 – lower branch of third branch of radius; *r–m* – radial–medial crossvein; *Sc* – subcostal vein; st vn – stump vein.



20 *Afroleptomydas* (*Afroleptomydas*) ♂

21 *Afroleptomydas* (*Afroleptomydas*) ♀

22 *Afroleptomydas* (*Crossoprosopus*) ♂

23 *Afroleptomydas* (*Crossoprosopus*) ♀

24 *Afroleptomydas* (*Crossoprosopus*) ♂

25 *Afroleptomydas* (*Crossoprosopus*) ♀

Figs 47.20–25. Habitus photographs of Mydidae (dorsal views): (20) *Afroleptomydas* (*Afroleptomydas*) sp. ♂; (21) same ♀; (22) *A.* (*Crossoprosopus*) sp. ♂; (23) same ♀; (24) *A.* (*Crossoprosopus*) sp. ♂; (25) same ♀.

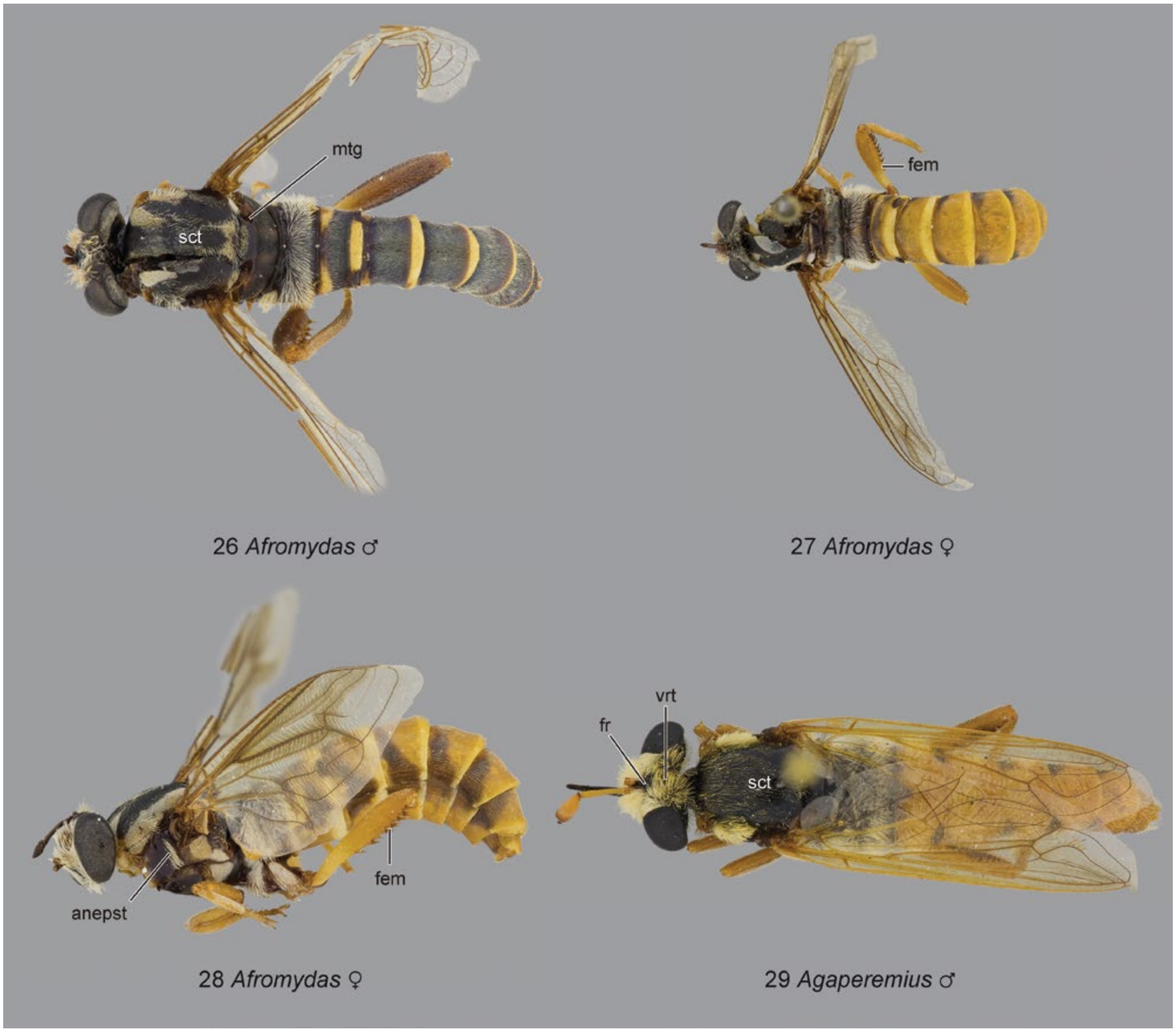
Abbreviations: fem – femur; mtg – mediotergite; prbs – proboscis; r_5 – fifth radial cell; tb – tibia; tg – tergite.

Mydidae are superficially similar to some Apioceridae (see Chapter 46) and Asilidae (see Chapter 48). The non-predacious proboscis, usually long antennae, peculiar wing venation (absence of wing microtrichia, closed cells r_1 *and cua*, and fused veins M_1 and M_2) and Hymenoptera-like flight easily differentiate Mydidae.

Biology and immature stages

The immature stages of Afrotropical Mydidae have so far only been described for the aberrant *Tongamya miranda* Stuckenberg, 1966 by Irwin & Stuckenberg (1972), who described and illustrated the first-instar larva (Figs 125–127). Information on extralimital larval and pupal morphology and behaviour is published for the Nearctic species *Mydas clavatus* (Drury, 1776) (Figs 128, 129) (Greene 1917; Wilcox 1981: 535), *M. maculiventris* (Westwood, 1835) (Genung 1959), *Rhaphiomidas acton* Coquillett, 1891 (Steinberg *et al*. 1998) and *R. terminatus* Cazier, 1941 (Hogue 1967), as well as the Neotropical species *Gauromydas heros* (Perty, 1833) (Wilcox & Papavero 1971; Zikan 1942, 1944), the largest known Diptera species (Calhau *et al*. 2015).

Mydidae larvae (Figs 122–124) are believed to be predatory, feeding on other insect larvae, as is the case with the families



26 *Afromydas* ♂

27 *Afromydas* ♀

28 *Afromydas* ♀

29 *Agaperemius* ♂

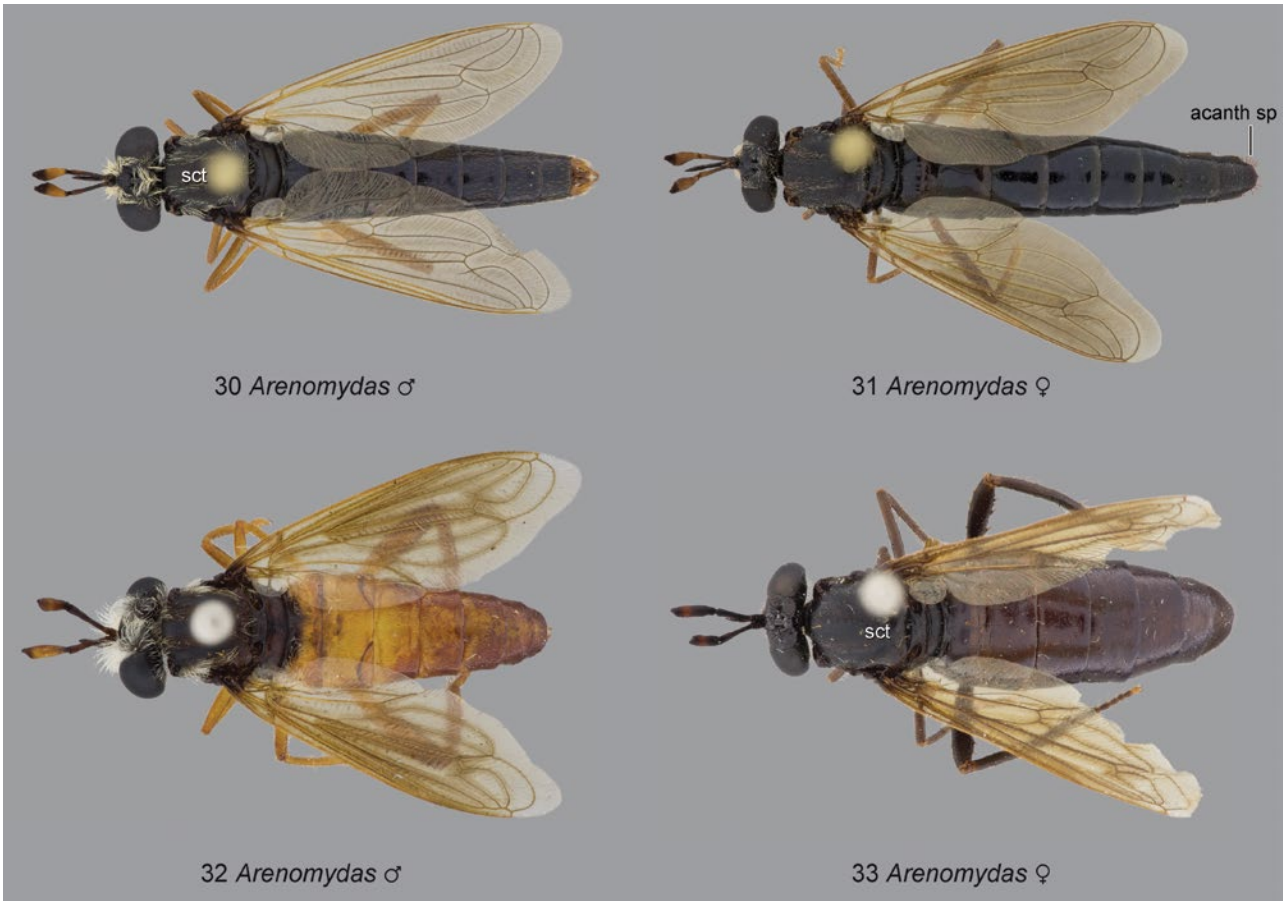
Figs 47.26–29. Habitus photographs of Mydidae: (26) *Afromydas guichardi* Bequaert, dorsal view ♂; (27) same ♀; (28) same, lateral view (Figs 27 and 28 with head rotated); (29) *Agaperemius hirtus* Hesse, dorsal view ♂.

Abbreviations: anepst – anepisternum; fem – femur; fr – frons; mtg – mediotergite; sct – scutum; vrt – vertex.

Apioceridae and Asilidae. The first known Afrotropical and Syllegomydinae pupae (Figs 130–133) are morphologically similar to Asilidae pupae and were collected by sifting loose sand (M.E. Irwin & B.S. Miller, pers. comms. 2015). Adults are pollen-feeders and their annual adult activity period may, therefore, coincide with the flowering of certain plant species. There is no evidence, however, that Mydidae rely on specific plant species for food. Some species with minute mouthparts, of which there are several in the Afrotropical Region, may not feed at all (Wharton 1982). Mydidae are very rarely observed and collected, but visiting the right habitat (usually sand dunes or sandy habitats) at the right time of the year can result in collection of several specimens. Several *Afroleptomydas* Bequaert species have been observed resting on termite mounts (S.K. & F.W. Gess, pers. comm. 2008), but the majority of species are encountered at rest on open sand or ground, much like Apioceridae and many Asilidae, low dry vegetation (Fig. 2), or on inflorescences (Fig. 1). The majority of Afrotropical species will oviposit in loose sand by using the acanthophorite spines to insert the abdomen deep into the substrate and sometimes almost the entire body (Fig. 3). Those genera most likely relying on decaying wood as larval and pupal habitat, *i.e.*, taxa without acanthophorite spines, such as *Afromydas* Bequaert, *Mydaselpis* Bezzi and *Vespiodes* Hesse, may rest further away from the ground, although no observations are currently available.

Several species exhibit mimicry of aculeate wasps, in particular the Mydaselpidini genera *Afromydas*, *Mydaselpis* and *Vespiodes*. Other genera, such as *Arenomydas* Hesse and *Namadytes* Hesse, include species that are at least partly yellow and may, therefore, resemble bees.

Sexual dimorphism may be quite pronounced within Mydidae species. Such dimorphism is predominant in the density of setation on the head, scutum and thoracic pleura, body size, the shape of the antennal postpedicel and also in general habitus. To illustrate this dimorphism, images of both males and females of the same species are provided. Compare, for example, males and females of *Cephalocerodes* Hesse (Figs 40, 41), *Eremomidas* Semenov (Figs 2, 4, 46, 47), *Halterorchis* Bezzi (Figs 48, 49), *Namadytes* (Figs 68, 69), *Neolaparopsis* Hesse (Figs 72, 73), *Perissocerus* Gerstaecker (Figs 86, 87) and *Syllegomydas* Becker (Figs 90–95). Males of *Halterorchis* and *Neolaparopsis* and females of *Cephalocerodes* are reported here for the first time and are



Figs 47.30–33. Habitus photographs of Mydidae (dorsal views): (30) *Arenomydas caerulescens* Hesse ♂; (31) same ♀; (32) *A. callosus* (Wiedemann) ♂; (33) same ♀.

Abbreviations: acanth sp – acanthophorite spine; sct – scutum.

associated with the known sex, while females of *Agaperemius* Hesse, *Mahafalymydas* Kondratieff, Carr & Irwin and *Mimadelphus* Hesse (but see *Halterorchis*) remain unknown.

Due to their extensive distribution in the Afrotropics, Mydidae adults can be observed throughout the year, although locally a particular taxon may only be active for a very short period (Wharton 1982). Several semi-desert-inhabiting species are active as adults in the Southern Hemisphere winter in July–August (data insufficient for species occurring in the Sahel and Sahara).

Economic significance

No species of Mydidae are known to have economic significance.

Classification

Mydidae is placed in the superfamily Asiloidea and is closely related to Apioceridae and Asilidae. Hennig (1973: 43), Irwin & Wiegmann (2001), Yeates (2002) and Yeates & Irwin (1996) established the close phylogenetic relationship between Apioceridae and Mydidae, while Dikow (2009*a*, *b*) proposed that a clade (Apioceridae + Mydidae) is sister-group to Asilidae, based on both morphological and molecular data. This set of relationships has also been supported by molecular analyses focusing on Asiloidea (Trautwein *et al*. 2010) and Diptera in general (Wiegmann *et al*. 2011).

Bequaert (1963), Wilcox & Papavero (1971) and Papavero & Wilcox (1974) published the first classifications of Mydidae with three, four and nine subfamilies, respectively. Bequaert's (1963) study focused on the Afrotropical fauna and he placed *Ectyphus* Gerstaecker in Mydinae and all remaining eight genera known at the time in the newly proposed subfamily Syllegomydinae. Wilcox & Papavero (1971) divided the Mydinae of Bequaert into the New World Mydinae and Afrotropical and Nearctic Ectyphinae, including *Ectyphus*. Yeates & Irwin (1996) published a phylogenetic hypothesis of relationships within Apioceridae, in which they re-delimited the family Mydidae. The Nearctic genus *Rhaphiomidas* Osten Sacken, Neotropical *Megascelus* Philippi, Australasian *Neorhaphiomidas* Norris and Afrotropical *Tongamya* Stuckenberg were transferred from the Apioceridae to the Mydidae in order to render the former monophyletic. *Rhaphiomidas* (as Rhaphiomidinae) and *Megascelus*, *Neorhaphiomidas* and *Tongamya* (as Megascelinae), were hypothesised to be the earliest divergences within Mydidae, respectively. With the addition of these two taxa there are now 11 currently recognised subfamilies. The hypothesis of the "basal" placement of Rhaphiomidinae and Megascelinae has since been supported by molecular (Irwin & Wiegmann 2001) and morphological data (Dikow 2009*a*). The relationships within Mydidae beyond the earliest divergences have not been adequately studied (see Yeates & Irwin 1996, fig. 68) and no modern morphological or molecular hypothesis has yet been published.

To date, representatives of five of the 11 subfamilies of Mydidae are known from the Afrotropical Region, *i.e.*, Ectyphinae (2 genera), Leptomydinae (3), Megascelinae (1), Rhopaliinae (2) and Syllegomydinae (24). Of these taxa, Syllegomydinae is found throughout the Afrotropics, except the Afrotropical part of the Arabian Peninsula, while Ectyphinae is restricted to Southern and Eastern Africa, Leptomydinae to the Arabian Peninsula, the north-eastern Afrotropics and Madagascar, Megascelinae to Southern Africa and Rhopaliinae to the north-eastern Afrotropics and the Arabian Peninsula.

Identification

The Afrotropical fauna has never been treated in a comprehensive way and no identification key to all genera exists. Bequaert (1938, 1940, 1951, 1959, 1961, 1963), Bezzi (1924) and Gerstaecker (1868) described most of the early species and the treatises of Hesse (1969, 1972) cover the diversity in Southern Africa. The keys in Hesse's 1969 and 1972 studies are difficult to use though as the couplets are often very long and confusing if one doesn't have specimens at hand that fit the detailed descriptions perfectly. Dikow (2010*a*, 2012), Dikow & Leon (2014) and Lyons & Dikow (2010) provided modern taxonomic revisions of several genera including identification keys to the species, which are also available online.

The identification key to genera provided below relies to a large degree on the chaetotaxy of thoracic sclerites and well-preserved field-pinned specimens are, therefore, most easily identified. Females are in general less setose than males and, for example, the presence of even a few short katatergal or posterior anepisternal setae is interpreted as being setose. In a few instances, the key relies on male terminalia features. Furthermore, in two couplets two genera are keyed out together, as these genera might have to be synonymised and more in-depth study is required.

The below identification key does not include eight "morphogenera" of Syllegomydinae from Southern Africa that have been identified and cannot be placed in any of the existing 32 Afrotropical genera included below. These will need to be described elsewhere and an updated key provided at that time. The identification key provided below can also be accessed electronically at https://asiloidflies.si.edu/content/online-identification-keys add http://bit.ly/Afrotropical_Mydidae_genera and will be updated when the new genera have been formally described. Mydidae should be preserved by direct-pinning in the field (see Chapter 2).

Key to genera of Afrotropical Mydidae

1. Antennal postpedicel composed of a single clubbed segment (Figs 10, 11); mystacal (facial) setae absent . . . . *Tongamya* Stuckenberg

– Antennal postpedicel composed of cylindrical proximal part and bulbous distal part, separated by membranous cuticle (*e.g.*, Fig. 6); mystacal (facial) setae present (*e.g.*, Figs 12–15) 2

2. Thorax with katatergite bare 3

– Thorax with katatergite setose (at least a few short setae present, often densely setose) 6

3. Wing cell r_4 closed; vein M_{3+4} present (terminating together at costal vein (*C*)) (*e.g.*, Figs 18, 85) 4

– Wing cell r_4 open; vein M_{3+4} absent (not terminating together at costal vein (*C*) or wing margin) 5

4. Wing stump vein (R_3) extending from vein R_4, but not reaching vein R_2 (Fig. 42); thorax with anatergite bare; posterior margin of anepisternum bare . . . . *Ectyphus* Gerstaecker

– Wing stump vein (R_3) connecting veins R_2 and R_4 (Figs 18, 85); thorax with anatergite setose; posterior margin of anepisternum setose . . . . *Parectyphus* Hesse

5. Proboscis minute; antennal postpedicel with cylindrical proximal part short, much shorter than bulbous distal part (Figs 7, 86, 87), this proximally expanded and narrower distally; head with vertex elevated above median compound eye margin . . . . *Perissocerus* Gerstaecker

– Proboscis long (extending beyond frontoclypeal suture); antennal postpedicel with cylindrical proximal part long, longer than bulbous distal part (Figs 8, 89), this more or less cylindrical; head with vertex slightly below median compound eye margin . . . . *Rhopalia* Macquart

6. Thorax with posterior margin of anepisternum setose (at least a few setae present, *e.g.*, in *Oreomydas* Hesse, often densely setose) (*e.g.*, Figs 51, 53) 7

– Thorax with posterior margin of anepisternum bare 16

7. Hind tibia with well-developed ventral keel, terminating in distinct spine (Figs 51, 53); hind femur greatly expanded; female without bullae on posterolateral margin of tergite 2 (Fig. 53) . . . . *Haplomydas* Bezzi

– Hind tibia without ventral keel; hind femur more or less cylindrical (only slightly expanded distally, *e.g.*, Fig. 24, a few taxa with somewhat expanded femur, *e.g.*, Figs 28, 83); females with bullae on posterolateral margin of tergite 2 (*e.g.*, Fig. 25) 8

8. Thorax with mediotergite (mesopostnotum) setose, at least laterally, usually also medially (*e.g.*, Figs 22, 24) 9

– Thorax with mediotergite (mesopostnotum) bare (*e.g.*, Fig. 26) 10

9. Proboscis long to very long, invariably projecting beyond frontoclypeal suture (Fig. 24); wing cell r_5 open (even if only narrowly so, Figs 20, 21) (restricted to Southern Africa, including southern Angola and southern Zambia) . . . . *Afroleptomydas* Bequaert

– Proboscis minute to short, but never projecting beyond frontoclypeal suture; wing cell r_5 (usually) closed (Figs 19, 95, but see Fig. 91) (widespread sub-Saharan Africa, with few species in Southern Africa) . . . . *Syllegomydas* Becker

10. Thorax with infra-halter sclerite present and setose (see definition in Dikow & Leon 2014: 37, figs 12b, c); male terminalia with 2 phallic prongs fused medially . . . . *Namadytes* Hesse

– Thorax with infra-halter sclerite absent; male terminalia with 2 phallic prongs invariably separated medially 11

11. Thorax with anatergite setose 12

– Thorax with anatergite bare 13

12. Hind femur cylindrical, not expanded distally (Fig. 71); thorax with posterior margin of anepisternum densely setose; larger flies (wing length: 11.2–17.7 mm) . . . . *Namibimydas* Hesse

– Hind femur distinctly expanded distally (Fig. 83); thorax with posterior margin of anepisternum only sparsely setose (1–4 setae, Fig. 83); smaller flies (wing length: 7.8–8.9 mm) . . . . *Oreomydas* Hesse

13. Proboscis very long, projecting beyond tip of antennal postpedicel (Figs 14, 78, 79) . . . . *Nothomydas* Hesse

– Proboscis long, projecting beyond frontoclypeal suture, but never beyond tip of antennal postpedicel (*e.g.*, Fig. 73) 14

14. Abdominal tergal setae with small alveoli (sockets) only, surface not punctate (Fig. 76); scutum smooth (Fig. 76) . . . . *Heteroleptomydas* Bequaert & *Nomoneuroides* Hesse

– Abdominal tergal setae with large, distinct alveoli, giving surface punctate appearance (*e.g.*, Figs 72, 73); scutum rugose (*e.g.*, Figs 72, 73) 15

15. Head with frons bare medially (directly anterior to anterior ocellus); thorax with posterior margin of anepisternum densely setose from dorsal to ventral margin (Fig. 28) (restricted to northern Somalia) . . . . *Afromydas* Bequaert

– Head with frons setose medially (at least a few setae present, directly anterior to anterior ocellus); thorax with posterior margin of anepisternum only sparsely setose dorsally (restricted to easternmost South Africa and southernmost Mozambique) . . . . *Neolaparopsis* Hesse

16. Base of wing vein M_4 and middle section of *CuA* fused for considerable distance (*m–cu* crossvein absent, base of vein M_4 connecting veins M_{3+4} and *CuA*, *e.g.*, Figs 16, 34); cell m_3 broad proximally (*e.g.*, Figs 16, 34). 17

– Base of wing vein M_4 and middle section of *CuA* separated by *m–cu* crossvein (*m–cu* connecting veins M_{3+4} and *CuA*, e.g., Fig. 17); cell m_3 narrow proximally (e.g., Figs 17–19) 18

17. Proboscis long, invariably extending well beyond frontoclypeal suture, often projecting beyond tip of antennal postpedicel (Figs 35, 37); thorax with anatergite bare; hind tibia with ventral keel at least proximally (restricted to southern Namibia, Eastern, Northern & Western Cape Provinces of South Africa) . . . . *Cephalocera* Latreille

– Proboscis short, usually minute, except extending just beyond frontoclypeal suture in *Cephalocerodes bequaerti* Hesse, 1969; thorax with anatergite setose; hind tibia entirely cylindrical (widely distributed throughout Southern Africa) . . . . *Cephalocerodes* Hesse

18. Proboscis minute (barely distinguishable) to short, never projecting beyond frontoclypeal suture. . . . 19

– Proboscis long, invariably projecting beyond frontoclypeal suture 25

19. Wing cell r_5 widely open (as in Fig. 18); hind tibia with well-developed ventral keel terminating in either spine or spine with distal macroseta; hind femur distinctly clubbed 20

– Wing cell r_5 closed (e.g., Fig. 19); hind tibia cylindrical, without ventral keel; hind femur not expanded (clubbed) 21

20. Anterior fore coxa and proepisternum with long macrosetae; head and scutum only sparsely short setose (Figs 44, 45); scutum slightly rugose (Figs 44, 45). . . . . *Eremohaplomydas* Bequaert

– Anterior fore coxa and proepisternum with long setae only (no macrosetae); head and scutum densely long setose (Figs 57, 58); scutum distinctly rugose (Fig. 59). . . . . *Lachnocorynus* Hesse

21. Scutellum with 2 lateral tufts of discal scutellar setae (Figs 48, 49, 63). . . . . *Halterorchis* Bezzi & *Mimadelphus* Hesse

– Scutellum without discal scutellar setae 22

22. Head with parafacial area (between tentorial pit and median eye margin) more than ½ width of central facial swelling (at same level) (more pronounced in females); light brown, grey pubescent, mostly bare flies (Figs 2, 4, 46, 47) (restricted to southern Arabian Peninsula) . . . . *Eremomidas* Semenov

– Head with parafacial area less than ½ width of central facial swelling (restricted to sub-Saharan Africa or Madagascar) 23

23. Discal wing cell (*d*) closed with long stalk (veins M_1 and M_3 merging before reaching *r–m* crossvein, Fig. 62); stump vein (R_3) on vein R_4 absent (Fig. 62) (restricted to Madagascar) . . . . *Mahafalymydas* Kondratieff, Carr & Irwin

– Discal wing cell (*d*) closed bluntly, with short stalk (veins M_1 and M_3 merging beyond *r–m* crossvein, *e.g.*, Figs 17); stump vein (R_3) on vein R_4 present (*e.g.*, Figs 17) (restricted to continental sub-Saharan Africa) 24

24. Median surface of hind tibia without long, erect setae; hind femur with ventral macrosetae on elevated alveoli; proboscis short, but extending to frontoclypeal suture (restricted to Kenya and Tanzania) . . . . *Mydaselpis* Bezzi [in part; *M. ngurumani* Dikow, 2010]

– Median surface of hind tibia with long, erect setae; hind femur without ventral macrosetae; proboscis very short, only extending halfway to frontoclypeal suture (restricted to north-westernmost Namibia) . . . . *Notosyllegomydas* Hesse

25. Thorax with anepimeron and katepimeron setose 26

– Thorax with anepimeron and katepimeron bare. 27

26. Restricted to Madagascar . . . . *Hessemydas* Kondratieff, Carr & Irwin

– Restricted to Sudan . . . . *Leptomydas* Gerstaecker

27. Surface of abdominal tergites punctate (setae on tergites with distinct alveoli, Fig. 65); abdominal tergite 10 in females without acanthophorite spines (*e.g.*, Fig. 99). 28

– Surface of abdominal tergites smooth (setae on tergites without distinct alveoli, Figs 31, 75); abdominal tergite 10 in females with acanthophorite spines (*e.g.*, Fig. 31) 29

28. Male terminalia with phallic epimere (*sensu* Hesse 1969: 36) absent (restricted to Southern Africa) . . . . *Mydaselpis* Bezzi [in part]

– Male terminalia with phallic epimere distally simple and evenly rounded (throughout sub-Saharan Africa) . . . . *Vespiodes* Hesse

29. Scutum rugose (except postalar callus, Figs 30, 33); abdomen broad proximally and tapering slightly distally (Figs 30, 32) . . . . *Arenomydas* Hesse

– Scutum smooth throughout, sometimes slightly punctate medially and sub-medially (*e.g.*, Figs 29, 74); abdomen parallel-sided throughout (*e.g.*, Figs 29, 74) 30

30. Thorax with katatergite, anterolateral scutum and abdominal tergite 1 densely long setose (Fig. 29, females unknown); wing with alula large, medially overlapping with scutellum (when wings folded over abdomen, Fig. 29); head with frons and vertex densely long setose (Fig. 29) (restricted to southern Namibia and north-western South Africa) . . . . *Agaperemius* Hesse

– Thorax with katatergite, anterolateral scutum and abdominal tergite 1 sparsely short setose in both sexes (Fig. 74); wing with alula well-developed, but medially not touching scutellum (when wings folded over abdomen, Fig. 74); head with frons and vertex sparsely short setose (virtually bare, Figs 74, 75) (restricted to eastern and southern South Africa) . . . . *Nomoneura* Bezzi

Synopsis of the fauna

The earliest mydid species described from the Afrotropical Region is *Afroleptomydas* (*Afroleptomydas*) *westermanni* (Wiedemann, 1819) from the "Promontorium Bonae Spei" (= Cape of Good Hope) referring to south-western South Africa.

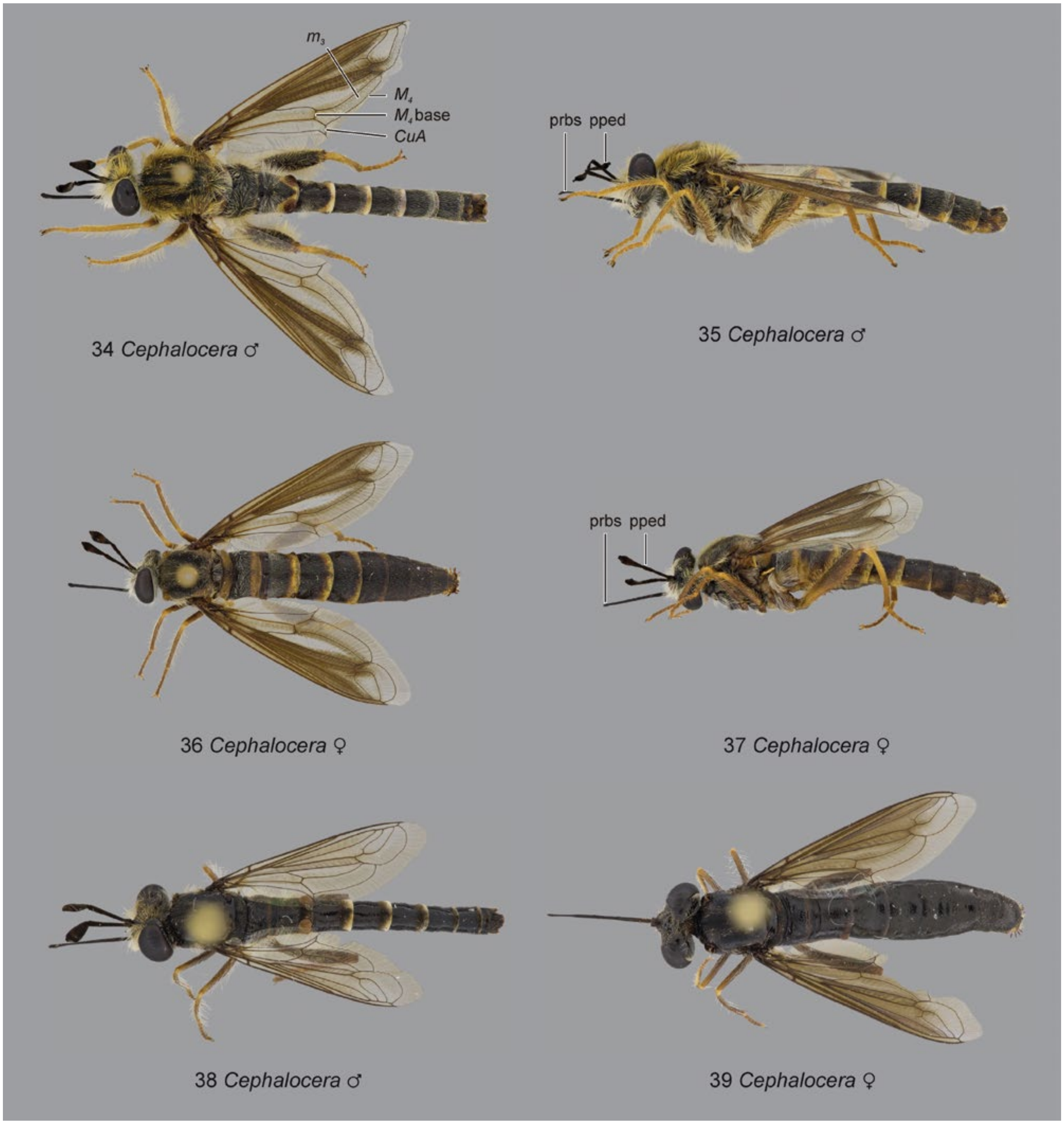
The Afrotropical fauna is the most diverse Mydidae fauna in the world. Of the 66 valid genera and 476 valid species known, 32 genera (48%) and 208 species (44%) occur in the region. Of the 32 genera, 28 are endemic to the Afrotropics and 20 (63%, 30% of world fauna) are endemic to Southern Africa. Similarly, 179 species (86%, 38% of world fauna) are endemic to Southern Africa alone and 161 species (77%, 34% of world fauna) are restricted to Namibia and South Africa. Kirk-Spriggs & Stuckenberg (2009: 185) predicted that *ca* 200 species (50%) of the Afrotropical fauna may await discovery and description.

The Ectyphinae and Syllegomydinae are especially speciose in the Afrotropics with seven species (70% of world fauna) and 189 species (92%), respectively, represented in the region. Less well represented are the Leptomydinae (4 species, 7% of world fauna), Megascelinae (2, 13%), and Rhopaliinae (6, 26%).

This synopsis is based on the study of more than 2,202 Afrotropical specimens, many of which were previously undetermined, from the major natural history collections and particularly those with substantial Afrotropical holdings. Of these, 35 specimens representing eight "morphogenera" of Syllegomydinae cannot be placed in any of the existing 32 Afrotropical genera and will need to be described elsewhere. The specimen occurrence data on which the below outlines are based can be accessed at http://gbif.org (Dikow 2016) and http://asiloidlfies.si.edu. In addition, the photographs of pinned specimens in Figs 20–99, plus additional views of the lateral habitus and head in anterior view, can be accessed electronically at Morphbank under Collection ID 859751 (http://www.morphbank.net/myCollection/?id=859751).

***Afroleptomydas* Bequaert** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 12, 20–25) of 88 species occurring in Southern Africa (including southern Angola and Zambia) and in particular in Namibia and western South Africa. *Afroleptomydas* is by far the most diverse genus in the Afrotropics and globally (19% of the world fauna). It is also the most often encountered Mydidae taxon in Southern Africa. Interestingly, the genus is absent, however, from the Indian Ocean coastline of eastern South Africa (part of the Eastern Cape and virtually entire KwaZulu-Natal Provinces). Specimens have been collected from September–May (with extremely few records for June and August and none for July). Sexual dimorphism varies from minimal to pronounced. The genus is distinguishable by the long proboscis (invariably extending beyond the fronto-clypeal suture), the open wing cell r_5 (even if only narrowly so) and the setose katatergite, posterior anepisternum and mediotergite (mesopostnotum). Hesse (1969, fig. 7) distinguished two subgenera, *Afroleptomydas sensu stricto*, with 64 species (Figs 20, 21) and *A.* (*Crossoprosopus* Hesse) with 24 species (Figs 22–25). Many species appear to have extremely restricted distributions and are based on only a small series of specimens collected at a particular locality. Willowmore, in the Eastern Cape Province of South Africa, for example, is the type locality of no less than five *Afroleptomydas* species (along with two *Cephalocera* and one *Mydaselpis* species), based on collections made by J. Brauns (Londt 1998). While Brauns certainly also collected specimens in surrounding habitats, five species occurring in this southern Karoo environment exemplifies how diverse this taxon is in semi-desert environments. It is likely that new species await discovery, although some species may have been described more than once. The identification key to species provided by Hesse (1969) is cumbersome to use and identifying specimens originating far from the known type localities often proves problematic. In addition, the key does not include the ten species later described by Hesse (1972).

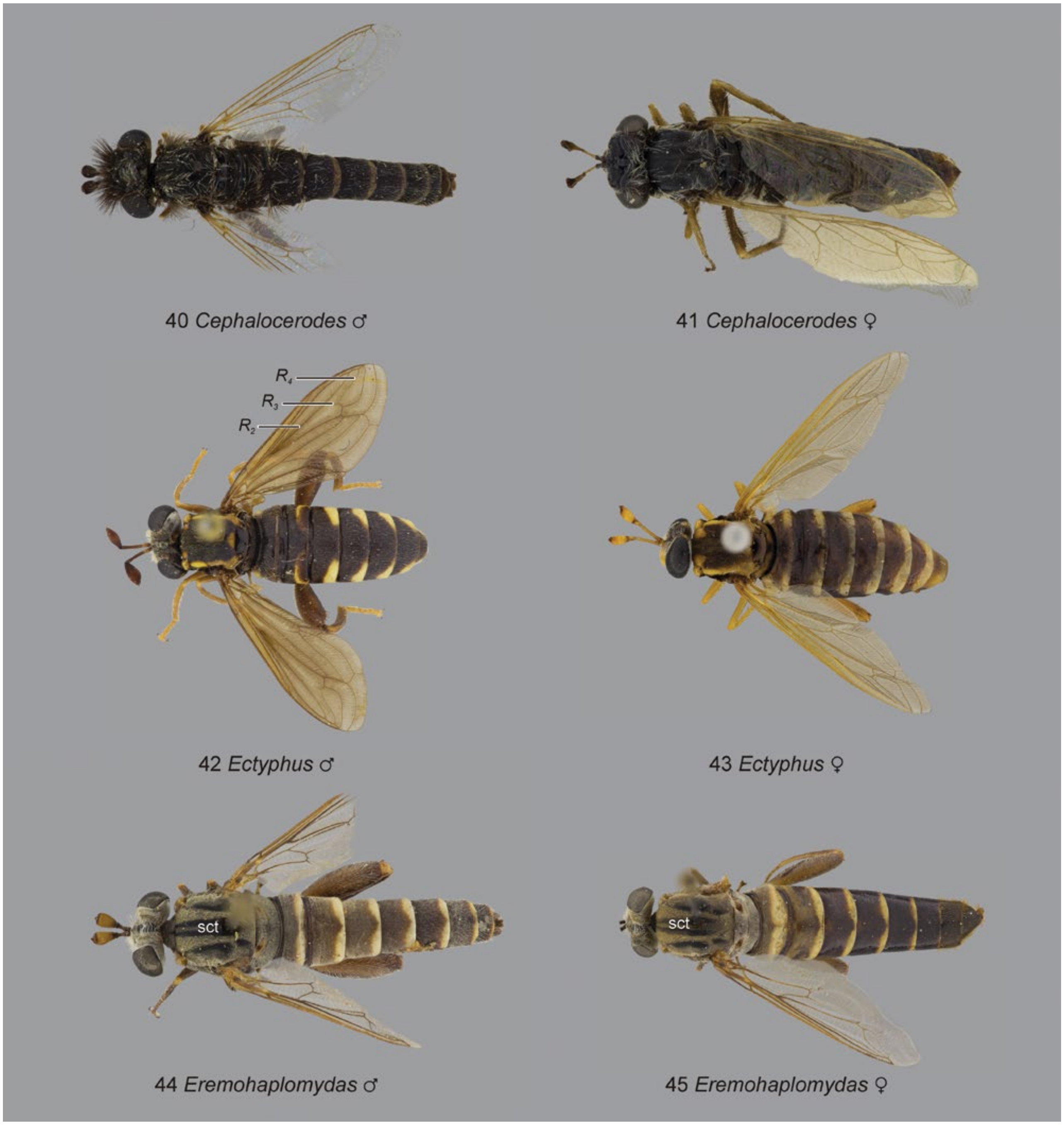
***Afromydas* Bequaert** (Syllegomydinae: Mydaselpidini)**.** An endemic monotypic genus (Figs 26–28) with the single described species, *A. guichardi* Bequaert, 1961, occurring in northern Somalia. The species is only known from the male holotype and single female paratype collected in April. Sexual dimorphism is minimal in the species. The genus is distinguishable by the setose posterior anepisternum, bare anatergite, punctate abdominal tergites and the female without acanthophorite spines. *Afromydas* is grouped together with the genera *Mydaselpis* and *Vespiodes* in the tribe Mydaselpidini. Females of these genera are unique within the subfamily Syllegomydinae, in having lost the acanthophorite spines. Within Mydidae, only the New World subfamilies Mydinae and Oriental Cacatuopyginae lack acanthophorite spines, which is an



Figs 47.34–39. Habitus photographs of Mydidae: (34) *Cephalocera imitata* Hesse, dorsal view ♂; (35) same, lateral view; (36) same, dorsal view ♀; (37) same, lateral view; (38) *Cephalocera* sp., dorsal view ♂; (39) same ♀.

Abbreviations: *CuA* – anterior branch of cubital vein; m_3 – third medial cell; M_4 – fourth branch of media; pped – postpedicel; prbs – proboscis.

indication that Mydaselpidini, like Mydinae, oviposit in decaying wood rather than soil. Dikow (2010a) mentioned that the three genera can only be distinguished based on the presence and shape of the phallic epimere (absent in *Mydaselpis*, present and distally simple and evenly rounded in *Vespiodes* and present and distally bifurcate in *Afromydas*). *Afromydas* keys out separately in the above identification key, as it is the only Mydaselpidini genus with a setose posterior anepisternum.

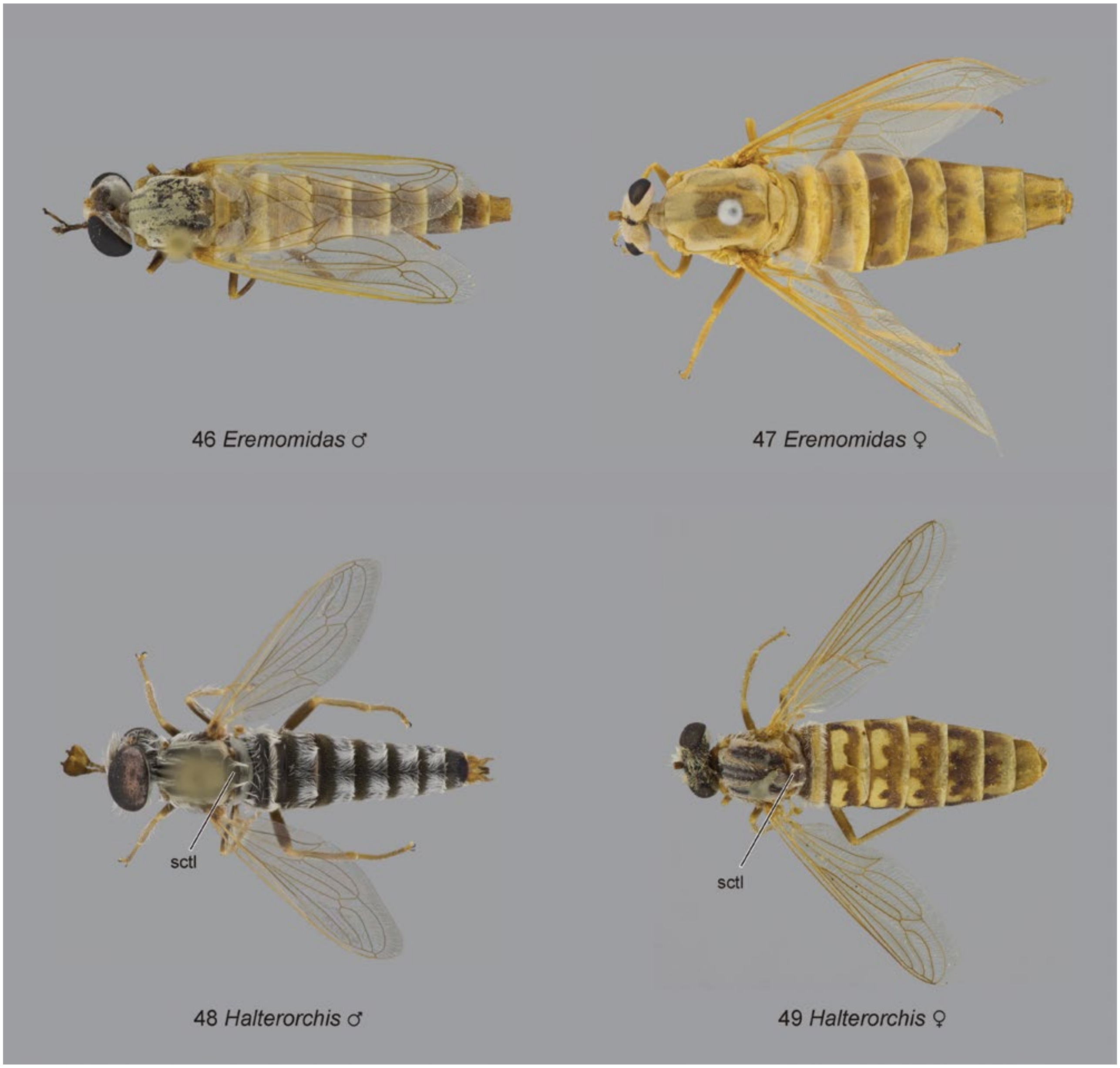


Figs 47.40–45. Habitus photographs of Mydidae (dorsal views): (40) *Cephalocerodes eremobius* Hesse ♂; (41) same ♀; (42) *Ectyphus pinguis* Gerstaecker ♂; (43) same ♀; (44) *Eremohaplomydas desertorum* Bequaert ♂; (45) same ♀.

Abbreviations: R_2 – upper branch of second branch of radius; R_3 – lower branch of second branch of radius; R_4 – upper branch of third branch of radius; sct – scutum.

***Agaperemius* Hesse** (Syllegomydinae: Syllegomydini)**.** An endemic monotypic genus (Fig. 29) with the single described species, *A. hirtus* Hesse, 1969, occurring in southern Namibia and north-western South Africa, known from three males only, all collected in October (females remain unknown). Wharton (1982) also recorded the genus from Gobabeb in the Namib Desert of Namibia, but the study of voucher specimens revealed that these specimens do not represent *Agaperemius*, but an undescribed genus and species. *Agaperemius* is distinguishable by the long proboscis (extending beyond the frontoclypeal suture) and the long setose frons, vertex, katatergite, anterolateral scutum and abdominal tergite 1.

***Arenomydas* Hesse** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 30–33) of nine species occurring in western South Africa with one record from southern Namibia. Specimens have been collected from September–November (very few records for August and December). Sexual dimorphism can be pronounced. The genus is distinguishable by the long proboscis (extending beyond frontoclypeal suture), the

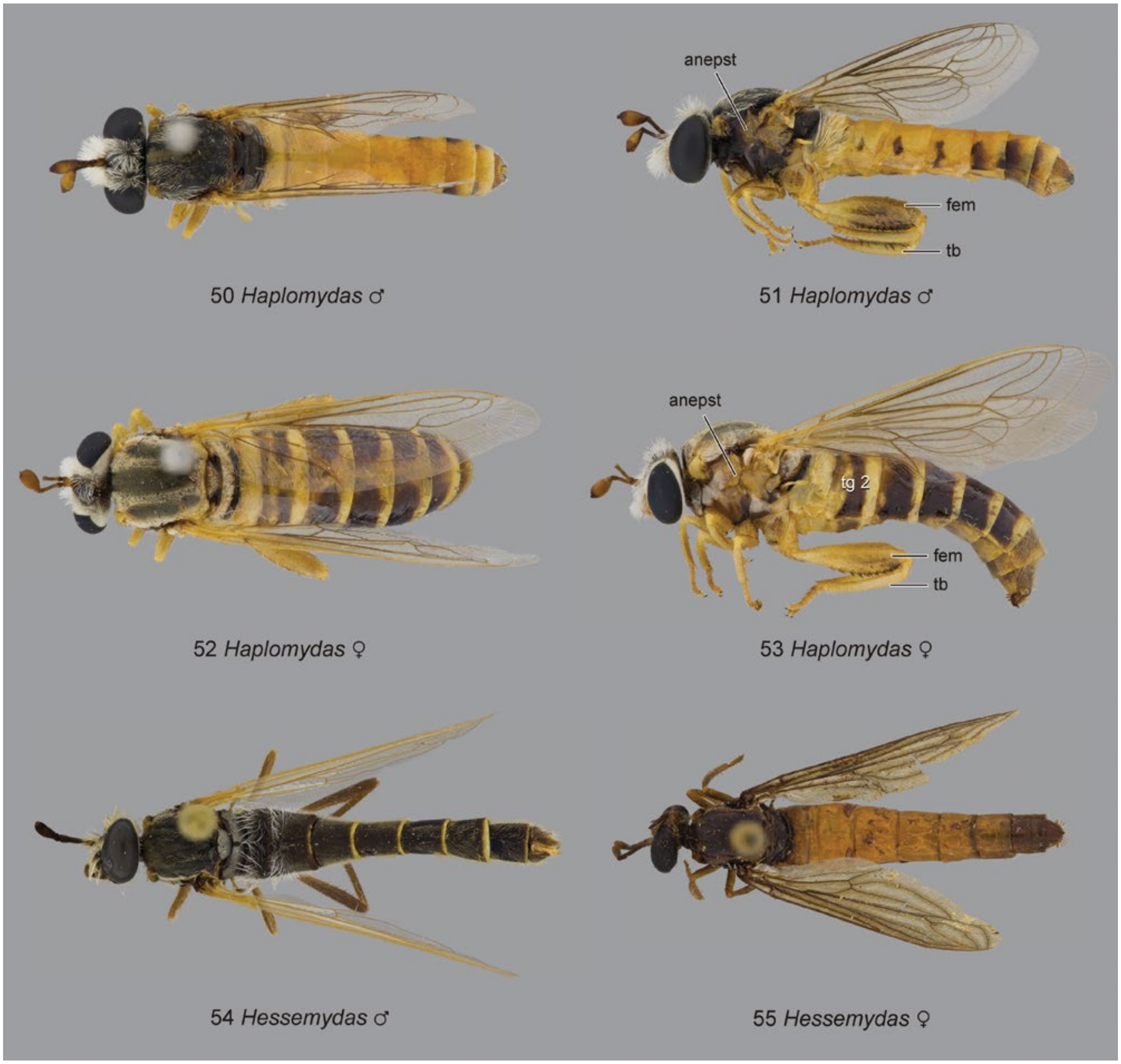


Figs 47.46–49. Habitus photographs of Mydidae (dorsal views): (46) *Eremomidas arabicus* (Bequaert) ♂; (47) same ♀; (48) *Halterorchis* sp. ♂; (49) *H. karooensis* Hesse ♀.

Abbreviation: sctl – scutellum.

rugose scutum (except the postalar callus) and broad abdomen that tapers slightly distally. An identification key to species was provided by Hesse (1969).

***Cephalocera* Latreille** (Syllegomydinae: Cephalocerini)**.** An endemic genus (Figs 1, 16, 34–39) of 28 species occurring in Namibia and South Africa. *Cephalocera* is the second-most diverse genus of Afrotropical Mydidae and is restricted in its distribution to western South Africa, particularly in the Succulent Karoo biome and the Cape Floristic Region, as well as southernmost Namibia. Specimens have been collected from August–November (few records for December). Sexual dimorphism is minimal. The genus is distinguishable by the long proboscis, which invariably extends well beyond the frontoclypeal suture and often beyond the tip of the antennal postpedicel, the ventral keel of the hind tibia and unique wing venation (veins *M*$_4$ and *CuA* merged for considerable distance, *m–cu* crossvein absent and base of vein *M*$_4$ connecting veins *M* and *CuA* and cell *m*$_3$ broad proximally, Figs 16, 34). *Cephalocera* is placed together with *Cephalocerodes* in the tribe Cephalocerini,

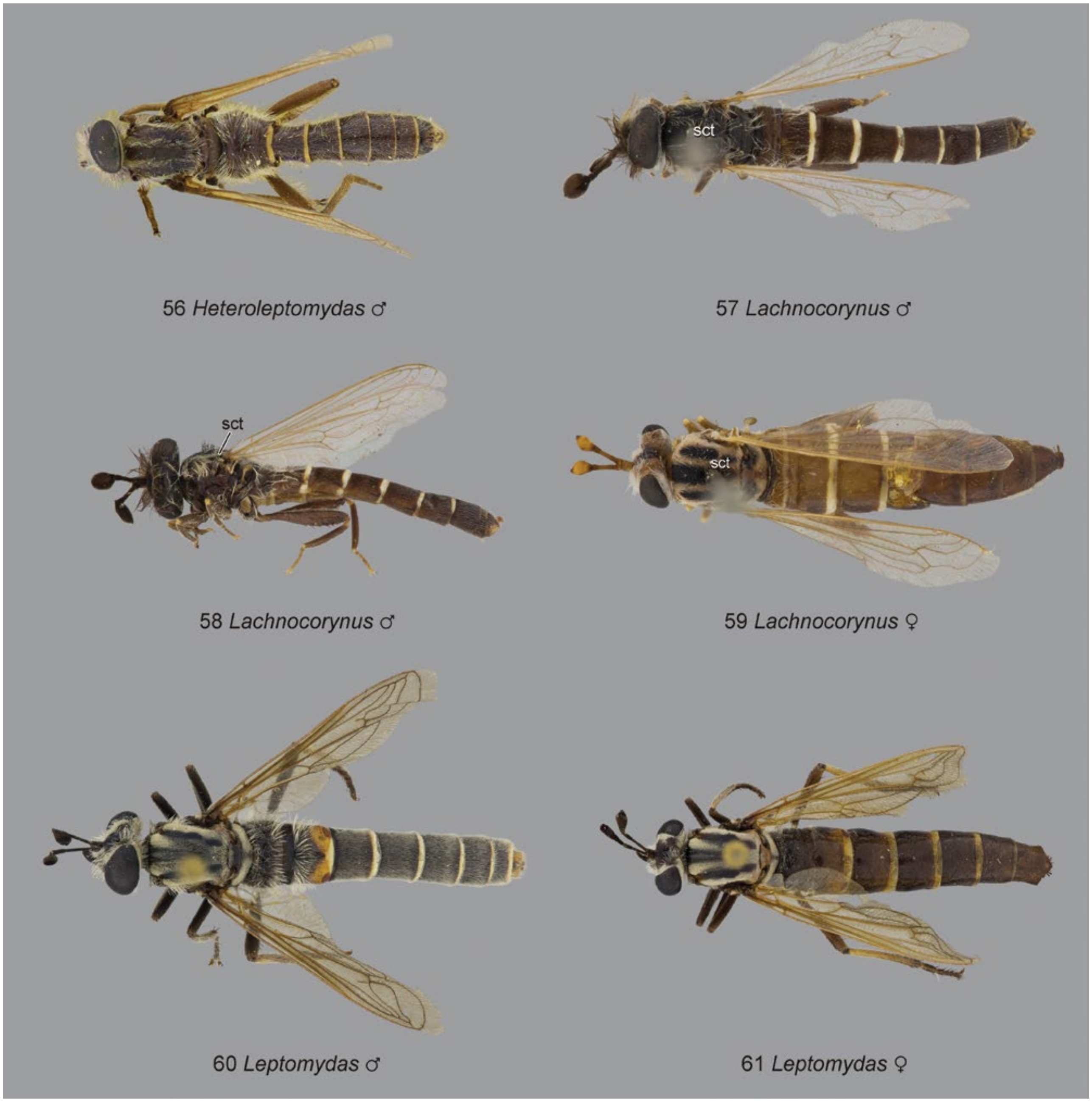


Figs 47.50–55. Habitus photographs of Mydidae: (50) *Haplomydas crassipes* Bezzi, dorsal view ♂; (51) same, lateral view; (52) same, dorsal view ♀; (53) same, lateral view; (54) *Hessemydas seyrigi* (Séguy), dorsal view ♂; (55) same ♀.

Abbreviations: anepst – anepisternum; fem – femur; tb – tibia; tg – tergite.

which is uniquely identified by the wing venation. An identification key to species was provided by Hesse (1969).

Cephalocerodes **Hesse** (Syllegomydinae: Cephalocerini)**.** An endemic genus (Figs 40, 41) of three described species: *C. bequaerti* Hesse, 1969, from South Africa; *C. eremobius* Hesse, 1969 from Namibia; and *C. oldroydi* (Bequaert, 1963), from Zimbabwe. These species were described based on males alone and females remained unknown until a single specimen of an undescribed species was discovered. Specimens have been collected in May–July (one record in September). Sexual dimorphism is substantial. The genus is distinguishable by



Figs 47.56–61 Habitus photographs of Mydidae: (56) *Heteroleptomydas conopsoides* Bequaert, dorsal view ♂; (57) *Lachnocorynus chobeensis* Hesse, dorsal view ♂; (58) same, lateral view; (59) same, dorsal view ♀; (60) *Leptomydas turcicus* Bowden, dorsal view ♂ (non-Afrotropical); (61) same ♀.

Abbreviation: sct – scutum.

the short proboscis, the setose anatergite and the unique wing venation (veins M_4 and CuA merged for considerable distance, $m–cu$ crossvein absent and base of vein M_4 connecting with veins M and CuA and cell m_3 broad proximally, as in Fig. 16). *Cephalocerodes* is placed together with *Cephalocera* in the tribe Cephalocerini. An identification key to species was provided by Hesse (1969).

***Ectyphus* Gerstaecker** (Ectyphinae)**.** An endemic genus (Figs 42, 43) of six described species occurring primarily in South Africa with a single species recorded from south-eastern Kenya. Sexual dimorphism is minimal. Specimens have been collected from September–February (none in October and single records for April and July). The genus is distinguishable by the closed r_4 wing cell, the presence of vein M_{3+4}, which terminates in the costal vein (C) and the bare anatergite. *Ectyphus* was recently revised by Lyons & Dikow (2010), who provided an identification key to species.

***Eremohaplomydas* Bequaert** (Syllegomydinae: Syllegomydini)**.** An endemic monotypic genus (Figs 44, 45), with the single described species, *E. desertorum* Bequaert, 1959, occurring in north-westernmost Namibia. Wharton (1982) also recorded the genus from Gobabeb in the central Namib Desert of Namibia and study of voucher specimens supports this. Specimens have been collected from April–May. Sexual dimorphism is minimal although females are larger than males. The genus is distinguishable by the very short proboscis, the widely open wing cell r_5, the well-developed ventral keel on the hind tibia and sparse setation on the head and scutum.

***Eremomidas* Semenov** (Leptomydinae)**.** A genus of five species, occurring primarily in the Palaearctic Region (Central Asia), with a single species, *E. arabicus* Bequaert, 1961 (Figs 2–4, 46, 47), from the Afrotropical Region. The species is recorded from Oman, United Arab Emirates and Yemen in the Arabian Peninsula (Dikow 2010*b*: 608). An undescribed species, known from three male specimens only, has been discovered from south-western Sudan that exhibits the same male terminalia configuration as *E. arabicus*. Afrotropical specimens of *Eremomidas* have been collected from September–October and in June. Sexual dimorphism is pronounced and females are considerably larger than males (when known). Morphological evidence suggests that *E. arabicus* and the undescribed species do not belong to *Eremomidas* and that the subfamilial classification within Leptomydinae is also questionable. *Eremomidas arabicus* is distinguishable by the large size (female wing length: 17.5–18.2 mm), closed wing cell r_5, the broad parafacial area (more than ½ width of central facial swelling at same level) and a distribution in the southern Arabian Peninsula. The male terminalia of *E. arabicus* and the undescribed species are unique in having an almost entirely fused epandrium medially, the phallus with bifid tip extending beyond the gonopore and a dorsal phallic epimere.

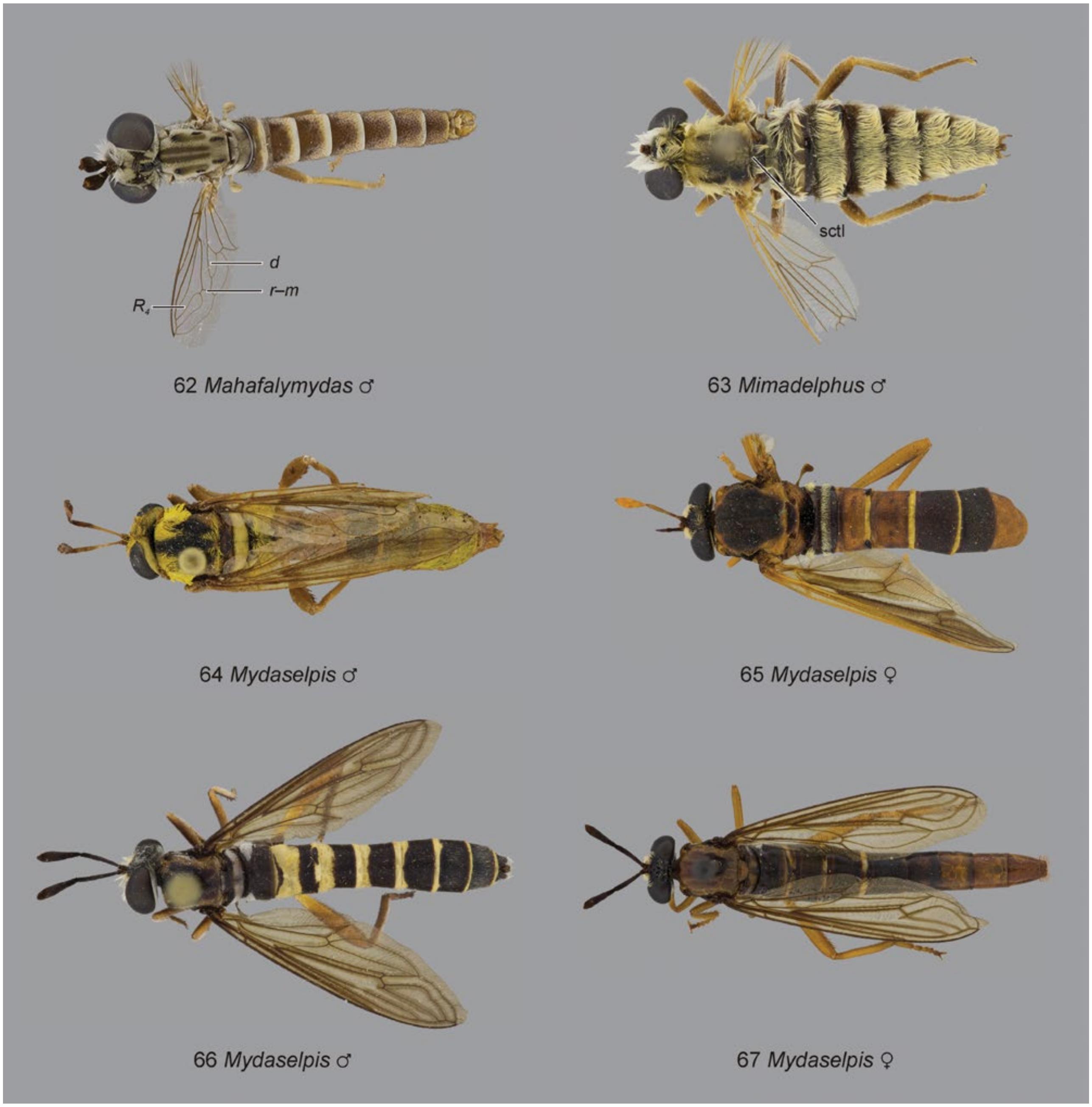
***Halterorchis* Bezzi** (Syllegomydinae: Halterorchini)**.** An endemic genus (Figs 48, 49) with two species, *H. inermis* Bezzi, 1924 and *H. karooensis* Hesse, 1969, occurring in western South Africa. Both species were initially based on female holotype specimens only, which are poorly-preserved. The discovery of a male specimen of an undescribed species, as well as the possible synonymy with *Mimadelphus* (based on a single male only), extend the knowledge of the genus somewhat. Specimens have been collected in March. Sexual dimorphism is pronounced. The genus is distinguishable by the minute proboscis, the bare posterior anepisternum and the two lateral tufts of discal scutellar setae. Dikow (2012) noted, that in the tribe Halterorchini there is a need to determine whether the supra-hypandrial sclerite, so far unique to *Namibimydas* and *Nothomydas*, is also present in *Halterorchis* (due to the paucity of male specimens none have been dissected). Wharton (1982) also recorded the genus from Gobabeb in the central Namib Desert of Namibia, but study of voucher specimens revealed that these do not represent *Halterorchis*. *Halterorchis* is placed, together with *Mimadelphus*, *Namibimydas* and *Nothomydas*, in the tribe Halterorchini. An identification key to the two Afrotropical species was provided by Hesse (1969).

***Haplomydas* Bezzi** (Syllegomydinae: Syllegomydini)**.** An endemic monotypic genus (Figs 50–53) with the single, distinctive species, *H. crassipes* Bezzi, 1924, recorded from Botswana, Mozambique, Namibia and Zimbabwe, but interestingly absent from South Africa. Specimens have been collected from March–May (with a single record in February). Sexual dimorphism is moderate. The genus is distinguishable by the well-developed ventral keel on the hind tibia terminating in a distinct spine and the greatly expanded hind femur. Females of *H. crassipes* appear to lack bullae on the posterolateral corner of abdominal tergite 2. *Heleomydas* Séguy, 1929 was synonymised with *Haplomydas* by Bequaert (1963).

***Hessemydas* Kondratieff, Carr & Irwin** (Leptomydinae)**.** An endemic genus (Figs 54, 55) with three species: *H. parkeri* Kondratieff, Carr & Irwin, 2005, *H. seyrigi* (Séguy 1960) and *H. tulear* Kondratieff, Carr & Irwin, 2005, from the state of Toliara, in south-western Madagascar (Kondratieff 2009; Kondratieff *et al*. 2005). Specimens have been collected from March–April and from September–November. Sexual dimorphism is minimal. The first species was described decades ago in the genus *Leptomydas* (*H. seyrigi*) and all currently recognised species were available in collections by 1984, but only a recent Malaise trap sampling project in Madagascar, which began in the early 2000s, ignited the description of the genus and new species. The genus is distinguishable by the setose katatergite, anepimeron and katepimeron and the long proboscis that extends beyond the frontoclypeal suture. These characteristics are shared with the genus *Leptomydas* and it is possible that *Hessemydas* represents a synonym of this widespread Northern Hemisphere genus. *Hessemydas* is the only Leptomydinae genus occurring in the Southern Hemisphere, as *Plyomydas* Wilcox & Papavero from the Neotropical Region has recently been transferred to the Mydinae (Castillo & Dikow 2017). An identification key to the three described species was provided by Kondratieff *et al*. (2005).

***Heteroleptomydas* Bequaert** (Syllegomydinae: Syllegomydini)**.** An endemic monotypic genus (Fig. 56) with the single described species, *H. conopsoides* Bequaert, 1963, occurring in south-eastern South Africa. The genus is known from the male holotype and a female non-type specimen, collected at Port St. Johns on the Indian Ocean coast from December–January. Sexual dimorphism is pronounced. The genus is distinguishable by the setose katatergite, bare anatergite, the setose posterior margin of the anepisternum, the long proboscis that extends beyond the frontoclypeal suture and the smooth scutal and abdominal cuticle. Hesse (1969) noted the constriction of abdominal segments 2–3 as a generic character, but this constriction in the holotype (Fig. 56, illustrated by Bequaert 1963, fig. 114), is more probably a preservation anomaly. *Heteroleptomydas* and *Nomoneuroides* key out together in the above identification key and are likely synonymous (see *Nomoneuroides* below).

***Lachnocorynus* Hesse** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 57–59) with two described species, *L. chobeensis* Hesse, 1969 from northern Botswana and *L. kochi* Hesse, 1969, from northern Namibia. An undescribed species is also known from north-eastern Zimbabwe. Specimens have been collected from July–August. Sexual dimorphism is pronounced. The genus is distinguishable by the very short proboscis, the widely open wing cell r_5, the well-developed ventral keel on the hind tibia and the long setation



62 *Mahafalymydas* ♂

63 *Mimadelphus* ♂

64 *Mydaselpis* ♂

65 *Mydaselpis* ♀

66 *Mydaselpis* ♂

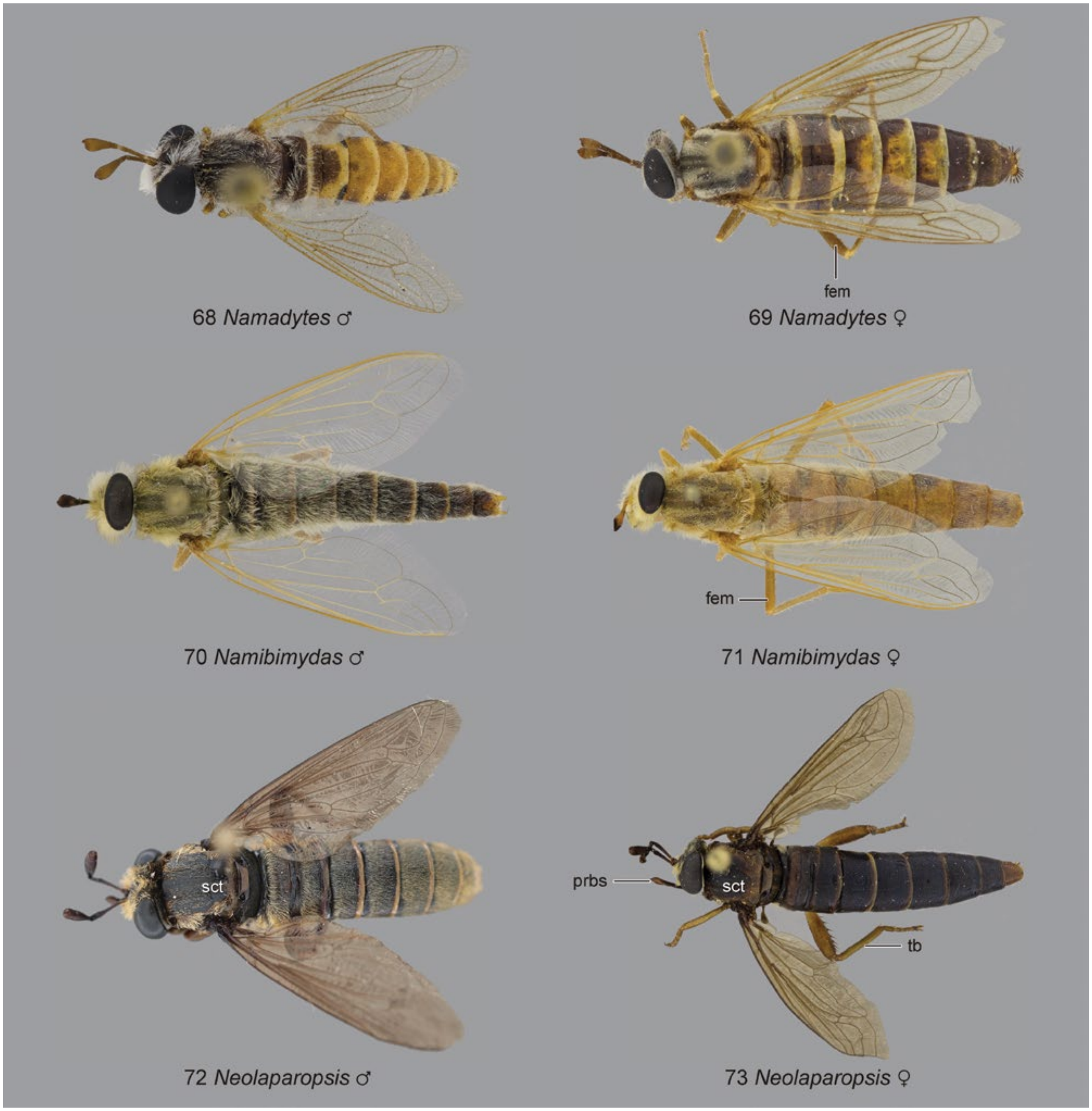
67 *Mydaselpis* ♀

Figs 47.62–67. Habitus photographs of Mydidae (dorsal views): (62) *Mahafalymydas tuckeri* Kondratieff, Carr & Irwin ♂; (63) *Mimadelphus vellosus* Hesse ♂; (64) *Mydaselpis* sp. ♂; (65) *M. peringueyi* Bezzi ♀; (66) *M. ngurumani* Dikow ♂; (67) same ♀.

Abbreviations: *d* – discal cell; R_4 – upper branch of third branch of radius; *r–m* – radial–medial crossvein; sctl – scutellum.

on the head and scutum. An identification key to the two described species was provided by Hesse (1969).

Leptomydas **Gerstaecker** (Leptomydinae)**.** A genus of 18 described species (Figs 5, 60, 61), occurring primarily in the Palaearctic and Oriental Regions (Dikow 2010*a*). Only one species, *L. fulviventris* Bigot, 1885, is recorded from the Afrotropical Region, based on two specimens collected in north-eastern Sudan in April. This specific epithet is a homonym of *L. fulviventris* (Dufour, 1850) (which in turn is a junior synonym of the Palaearctic species *L. lusitanicus* (Wiedemann, 1830)). Sexual dimorphism is minimal. Bowden (1980: 326) combined *Rhopalia tutankhameni* Brunetti, 1929 with this genus, but that species belongs in *Rhopalia* (see below). The



Figs 47.68–73. Habitus photographs of Mydidae (dorsal views): (68) *Namadytes vansoni* Hesse ♂; (69) same ♀; (70) *Namibimydas psamminos* Dikow ♂; (71) same ♀; (72) *Neolaparopsis puncturatus* Hesse ♂; (73) same ♀.

Abbreviations: fem – femur; prbs – proboscis; sct – scutum; tb – tibia.

genus is distinguishable by the setose katatergite, anepimeron and katepimeron and the long proboscis that extends beyond the frontoclypeal suture (see also *Hessemydas* above).

***Mahafalymydas* Kondratieff, Carr & Irwin** (Syllegomydinae)**.** An endemic genus (Fig. 62) with two described species, *M. wiegmanni* Kondratieff, Carr & Irwin, 2005 and *M. tuckeri* Kondratieff, Carr & Irwin, 2005, endemic to the state of Toliara in south-western Madagascar (Kondratieff *et al*. 2005), both only known from males. Specimens have been collected from September–October. *Mahafalymydas* species are very small (wing length: 4.3–5.0 mm) and have the two-pronged phallus characteristic of the subfamily Syllegomydinae. It is the only genus of this diverse Afrotropical radiation that occurs in Madagascar.

74 *Nomoneura* ♂

75 *Nomoneura* ♀

76 *Nomoneuroides* ♂

77 *Nomoneuroides* ♀

78 *Nothomydas* ♂

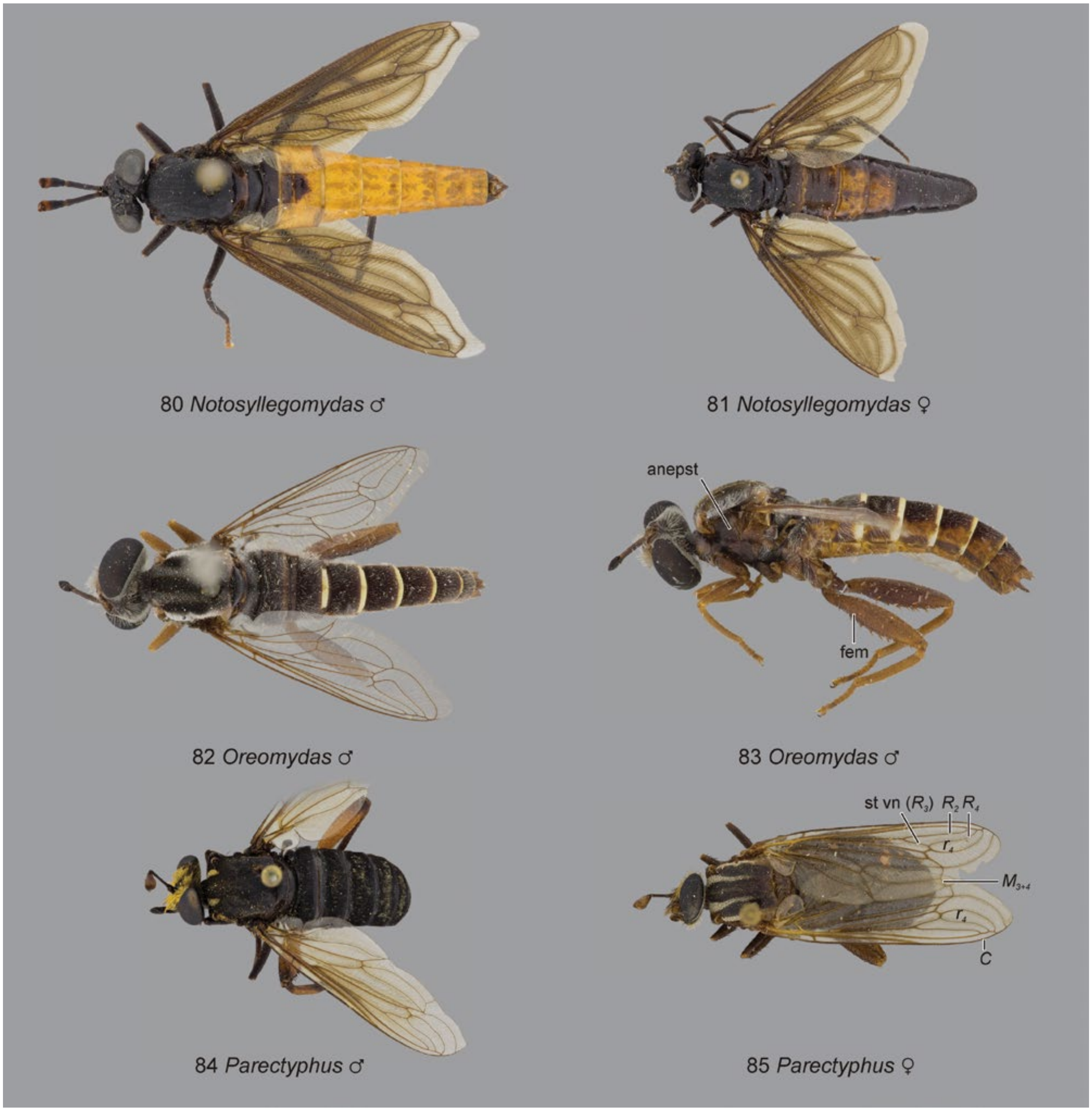
79 *Nothomydas* ♀

Figs 47.74–79. Habitus photographs of Mydidae (dorsal views): (74) *Nomoneura caffra* Hesse ♂; (75) same ♀; (76) *Nomoneuroides natalensis* Hesse ♂; (77) same ♀; (78) *Nothomydas picketti* Dikow ♂; (79) same ♀.

Abbreviations: al – alula; fr – frons; m_3 – third medial cell; prbs – proboscis; sct – scutum; vrt – vertex.

The genus is distinguishable by the unique wing venation (discal wing cell (*d*) closed with long stalk) and a distribution confined to Madagascar. The two species can be identified by reference to original descriptions of Kondratieff *et al*. (2005).

Mimadelphus **Hesse** (Syllegomydinae: Halterorchini)**.** An endemic monotypic genus (Fig. 63) with the single described species, *M. vellosus* Hesse, 1972, recorded from Namibia. Seasonality and females remain unknown. The genus is



80 *Notosyllegomydas* ♂

81 *Notosyllegomydas* ♀

82 *Oreomydas* ♂

83 *Oreomydas* ♂

84 *Parectyphus* ♂

85 *Parectyphus* ♀

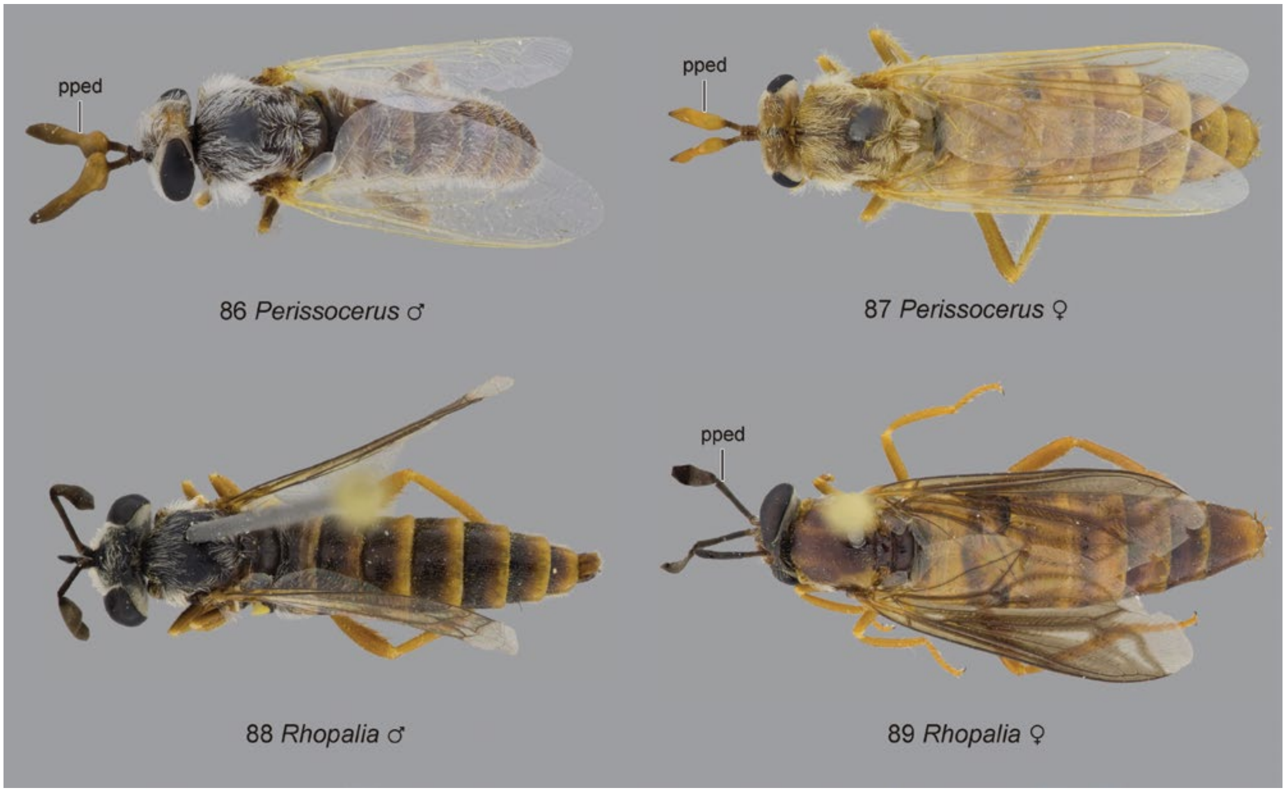
Figs 47.80–85. Habitus photographs of Mydidae: (80) *Notosyllegomydas brincki* (Bequaert), dorsal view ♂; (81) same, dorsal view ♀; (82) *Oreomydas luctuosus* (Bezzi), dorsal view ♂; (83) same, lateral view; (84) *Parectyphus namibiensis* Hesse, dorsal view ♂; (85) same, dorsal view ♀.

Abbreviations: anepst – anepisternum; *C* – costal vein; fem – femur; M_{3+4} – fused third and fourth branch of media; R_2 – upper branch of second branch of radius; R_3 – lower branch of second branch of radius; r_4 – fourth radial cell; R_4 – upper branch of third branch of radius; st vn – stump vein.

distinguishable by the minute proboscis, the bare posterior anepisternum and the two lateral tufts of discal scutellar setae. The type locality of *M. vellosus*, which is based on a single male specimen, is apparently unknown, but was likely collected in southern Namibia. Hesse (1972) suggested that this species may represent the unknown male of *Halterorchis* and this finding is supported here. Both genera are keyed out together in the above identification key, based on the presence of lateral tufts of discal scutellar setae. Further examination of specimens of both genera is required to establish the possible synonymy. *Mimadelphus* is placed, together with the genera *Halterorchis*, *Namibimydas* and *Nothomydas* in the tribe Halterorchini (see *Halterorchis* above).

Mydaselpis **Bezzi** (Syllegomydinae: Mydaselpidini)**.** An endemic genus (Figs 17, 64–67) of six species, occurring in Eastern (Kenya and Tanzania) and Southern Africa (Namibia, South Africa and Zimbabwe). Specimens have been collected from October–January (in Southern Africa, with a single record for April) and from June–July (in Eastern Africa). Sexual dimorphism is minimal. The genus is distinguishable by the bare posterior anepisternum, anepimeron and katepimeron, the punctate abdominal tergites, the somewhat constricted abdominal tergites 2–3 (exhibiting a "wasp waist"), females without acanthophorite spines (one species with acanthophorite spines) and males without a phallic epimere. The majority of species are only known from a single sex and several species exhibit mimetic colouration resembling various wasp taxa. *Mydaselpis ngurumani* is the only species in Eastern Africa and by contrast to all other species, the female possesses acanthophorite spines. The species was described in *Mydaselpis*, based on the male terminalia with the bifid phallus and the absence of a phallic epimere, but could also represent a new generic taxon. This species is keyed out separately from *Mydaselpis sensu stricto* in the above identification key. *Mydaselpis* is included in the tribe Mydaselpidini, along with genera *Afromydas* and *Vespiodes* (see *Afromydas* above). The possibility of synonymy between *Mydaselpis* and *Vespiodes* exists, as these two genera can only be distinguished based on the presence of a phallic epimere in males. While *Mydaselpis* primarily occurs in Southern Africa and *Vespiodes* occurs further north, the distributional ranges overlap in Zimbabwe and northern South Africa. An identification key to species was provided by Hesse (1969).

Namadytes **Hesse** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 68, 69) of three described species: *N. cimbebasiensis* Hesse, 1972, *N. maculiventris* (Hesse, 1969) and *N. vansoni* Hesse, 1969, occurring primarily in Namibia, with a few collecting localities in north-western South Africa. Specimens have been collected from February–June (with a few records in October). Sexual dimorphism is pronounced. The genus is distinguishable by the presence of the setose infra-halter

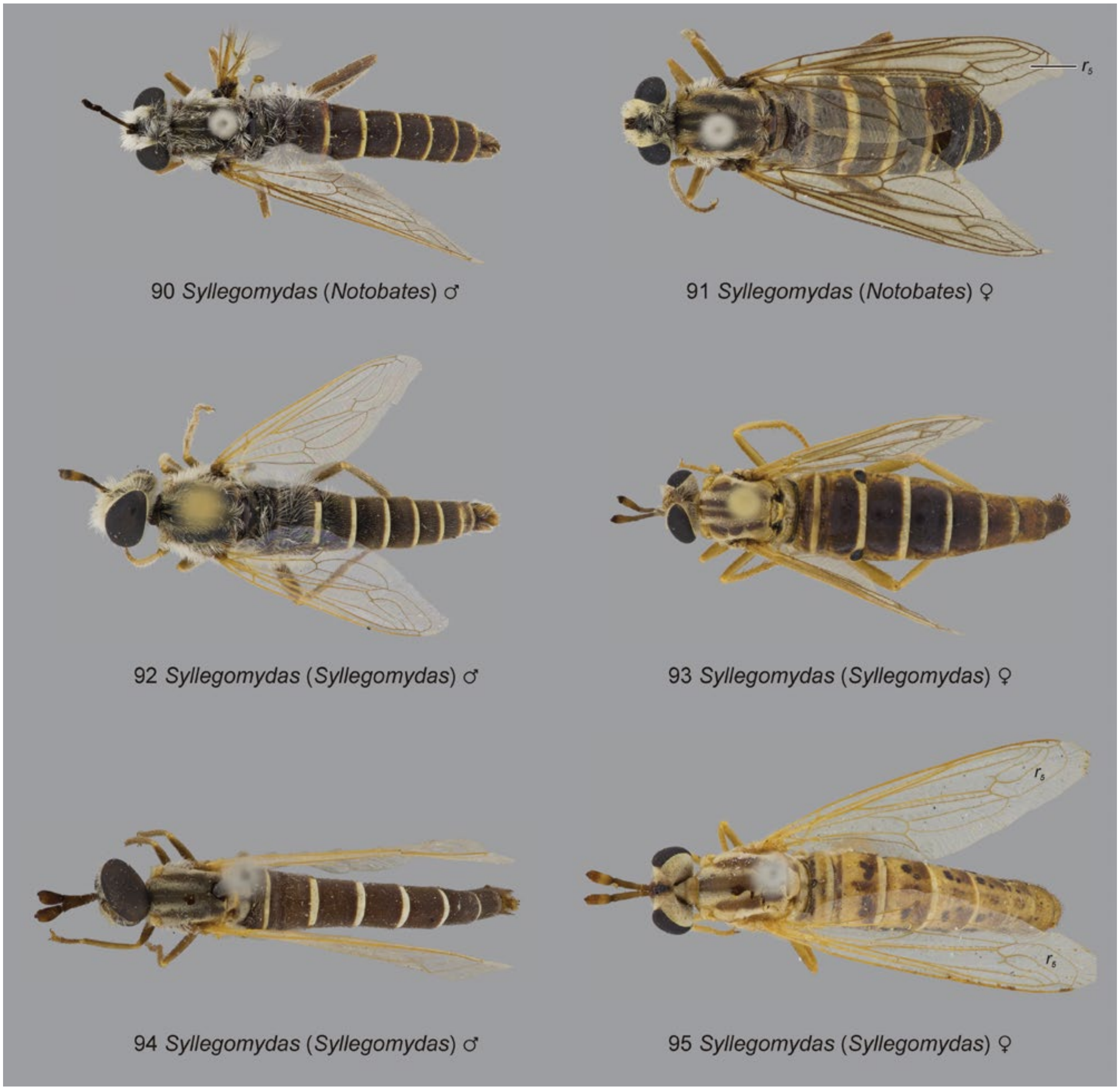


Figs 47.86–89. Habitus photographs of Mydidae (dorsal views): (86) *Perissocerus transcaspicus* Portschinsky ♂ (non-Afrotropical); (87) same ♀; (88) *Rhopalia* sp. ♂; (89) same ♀.

Abbreviation: pped – postpedicel.

sclerite (Dikow & Leon 2014), the setose katatergite and posterior anepisternum and the bare mediotergite (mesopostnotum). *Namamydas* Hesse, 1969 was synonymised with *Namadytes* by Hesse (1972). The genus was last revised by Dikow & Leon (2014), who provided an identification key for the three species.

Namibimydas **Hesse** (Syllegomydinae: Halterorchini)**.** An endemic genus (Figs 13, 70, 71) of four species, occurring primarily in Namibia, with a single species in western South Africa. Specimens have been collected from January–February with single records for November and April. Sexual dimorphism is minimal. The genus is distinguishable by the setose katatergite and anatergite, the densely setose posterior margin of the anepisternum, the cylindrical hind femur and the large size (wing length: 11.2–17.7 mm). Three species possess a long proboscis that extends beyond the frontoclypeal suture, while one species from the interior of the Namib Desert in


90 *Syllegomydas* (*Notobates*) ♂

91 *Syllegomydas* (*Notobates*) ♀

92 *Syllegomydas* (*Syllegomydas*) ♂

93 *Syllegomydas* (*Syllegomydas*) ♀

94 *Syllegomydas* (*Syllegomydas*) ♂

95 *Syllegomydas* (*Syllegomydas*) ♀

Figs 47.90–95. Habitus photographs of Mydidae (dorsal views): (90) *Syllegomydas* (*Notobates*) *rhodesiensis* Bequaert ♂; (91) same ♀; (92) *Syllegomydas* (*Syllegomydas*) *astrictus* Dikow ♂; (93) same ♀; (94) *S.* (*S.*) *proximus* Séguy ♂; (95) same ♀.

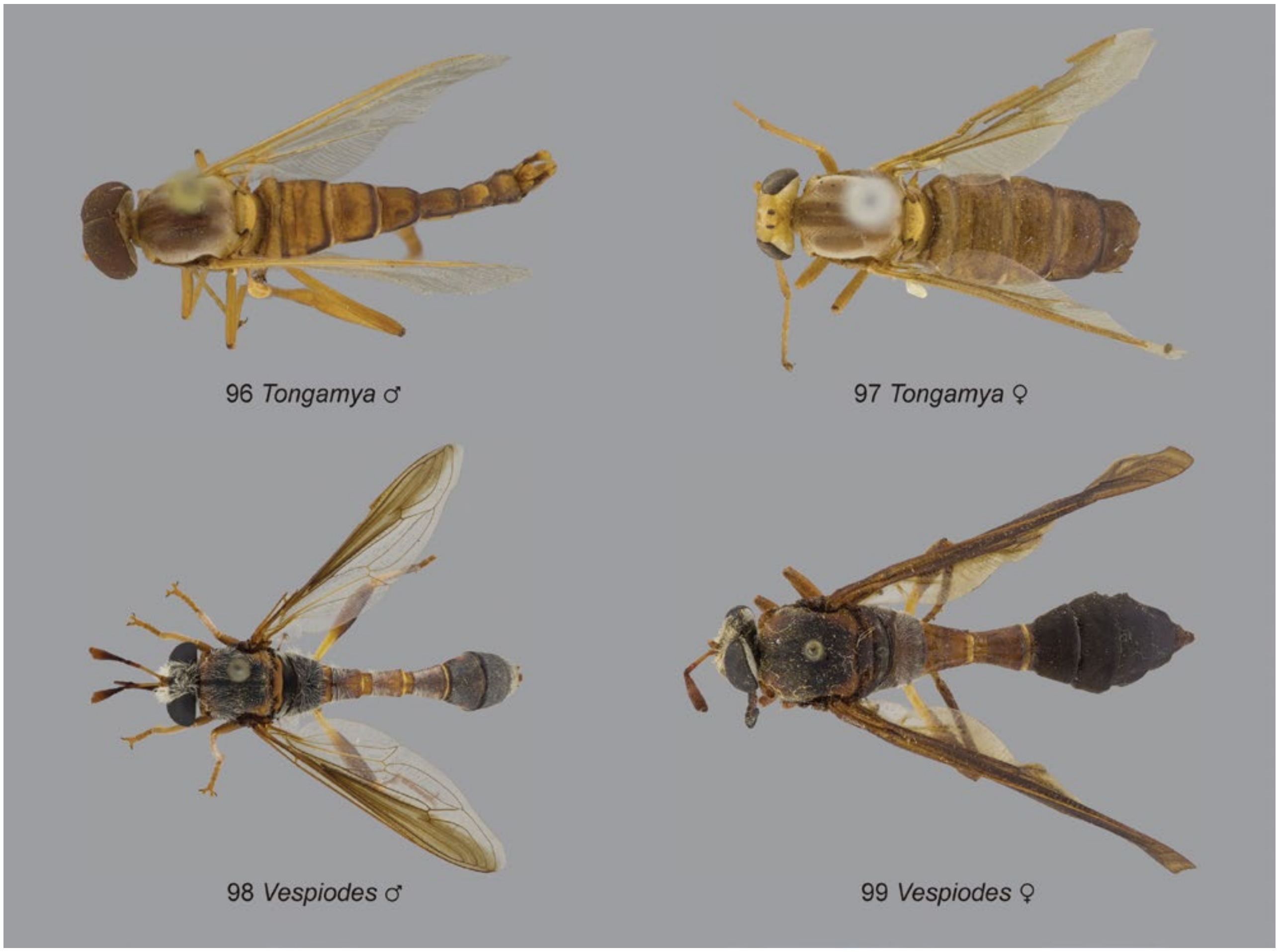
Abbreviation: r_5 – fifth radial cell.

Namibia exhibits a very short proboscis. *Namibimydas* is placed together with *Halterorchis*, *Mimadelphus* and *Nothomydas* in the tribe Halterorchini. The genus was last revised by Dikow (2012), who provided an identification key to species.

Neolaparopsis **Hesse** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 6, 72, 73) with the single described species, *N. puncturatus* Hesse, 1969, occurring in easternmost South Africa and adjacent southernmost Mozambique. Specimens have been collected from November–December and in February. Sexual dimorphism is pronounced. The genus is distinguishable by the setose katatergite and posterior anepisternum, the bare anatergite, the long proboscis that extends beyond the frontoclypeal suture and setae on the median frons (directly anterior to anterior ocellus). At the time of description, Hesse (1969) had only two female specimens at hand. Only through the discovery of female and male specimens collected during the same collecting event was it possible to associate the sexes.

Nomoneura **Bezzi** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 74, 75) of six described species, occurring primarily in South Africa, but also recorded from Mozambique and Zimbabwe. Specimens have been collected from August–February (with a single record for March). Sexual dimorphism is minimal. The genus is distinguishable by the setose katatergite, the bare anepimeron and katepimeron and the long proboscis that extends beyond the frontoclypeal suture. Hesse (1969) placed *N. bellardi* (Bertoloni, 1861), originally described from Inhambane, Mozambique and recorded from Zimbabwe, in this genus, but the type specimen has not been located, so the placement of the species requires verification. The only other Mydidae species known from Inhambane is *Syllegomydas* (*Notobates*) *dispar* (Loew, 1852), which is a valid species, known from the type and other specimens. Should *N. bellardi* be correctly placed in *Nomoneura*, it would be the only species of this genus to occur outside of South Africa. An identification key to species was provided by Hesse (1969).

Nomoneuroides **Hesse** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 76, 77) of three species, *N. brunneus* Hesse, 1969, *N. melas* Hesse, 1969 and *N. natalensis* Hesse, 1969, occurring in southern Mozambique and south-eastern South Africa. Specimens have been collected from December–February (single records for March and April). Sexual

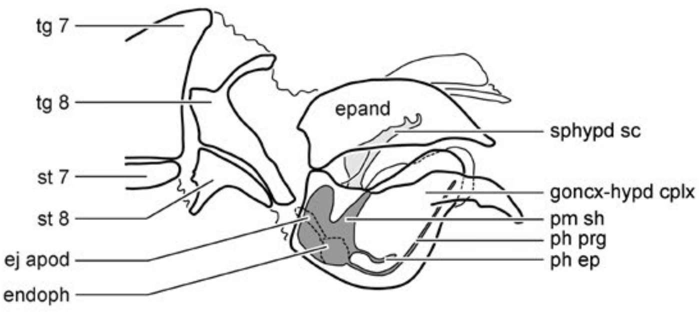


Figs 47.96–99. Habitus photographs of Mydidae (dorsal views): (96) *Tongamya miranda* Stuckenberg ♂; (97) same ♀ (tip of abdomen missing); (98) *Vespiodes cerioidiformis* Hesse ♂; (99) *V. katangensis* (Bequaert) ♀.

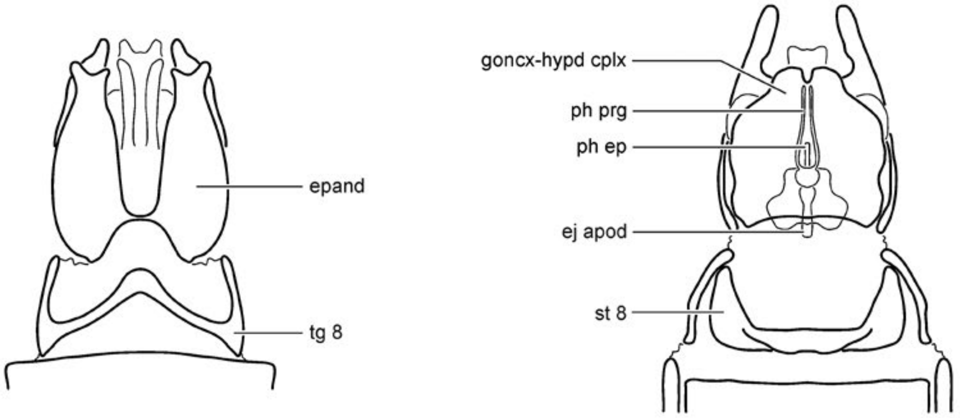
dimorphism is pronounced. The genus is distinguishable by the setose katatergite, bare anatergite, the setose posterior margin of the anepisternum, the long proboscis that extends beyond the frontoclypeal suture and smooth scutal and abdominal cuticle. *Heteroleptomydas* and *Nomoneuroides* key out together in the above identification key and these genera are likely synonymous. Both are confined to coastal sand dunes on the Indian Ocean coast of southern Mozambique and South Africa (Eastern Cape and KwaZulu-Natal Provinces). *Nomoneuroides* was originally based on specimens collected between Inhaca Island in the north and Durban in the south, while *Heteroleptomydas conopsoides* was based on specimens from Port St. Johns, much farther south (a distance of some 250 km). The discovery of specimens from habitats in between these two localities substantiates the possible synonymy. Furthermore, *N. melas* Hesse, 1969 (based on male and female type specimens) and *N. brunneus* Hesse, 1969 (based on females only) are likely synonyms as both type series originate from the same collecting event at Inhaca Is. An identification key to species was provided by Hesse (1969).

Nothomydas **Hesse** (Syllegomydinae: Halterorchini)**.** An endemic genus (Figs 14, 78, 79) of four species, occurring in south-western Namibia and north-westernmost South Africa. Specimens have been collected from September–November. Sexual dimorphism is pronounced. The genus is distinguishable by the very long proboscis that extends beyond the tip of the antennal postpedicel and the bare anatergite and mediotergite (mesopostnotum). *Nothomydas* is placed together with *Halterorchis*, *Mimadelphus*, and *Namibimydas* in the tribe Halterorchini. The genus was last revised by Dikow (2012), who provided an identification key to species.

Notosyllegomydas **Hesse** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 80, 81) with the single species, *N. brincki* (Bequaert, 1959), occurring in north-westernmost Namibia in April. Sexual dimorphism is minimal. The genus is distinguishable by the short proboscis (distinct, but not extending beyond frontoclypeal suture), the long erect setae on the median surface of the hind tibia, the closed wing cell r_5 and the bare posterior anepisternum. This species was originally described in *Syllegomydas*



100 *Nothomydas* ♂

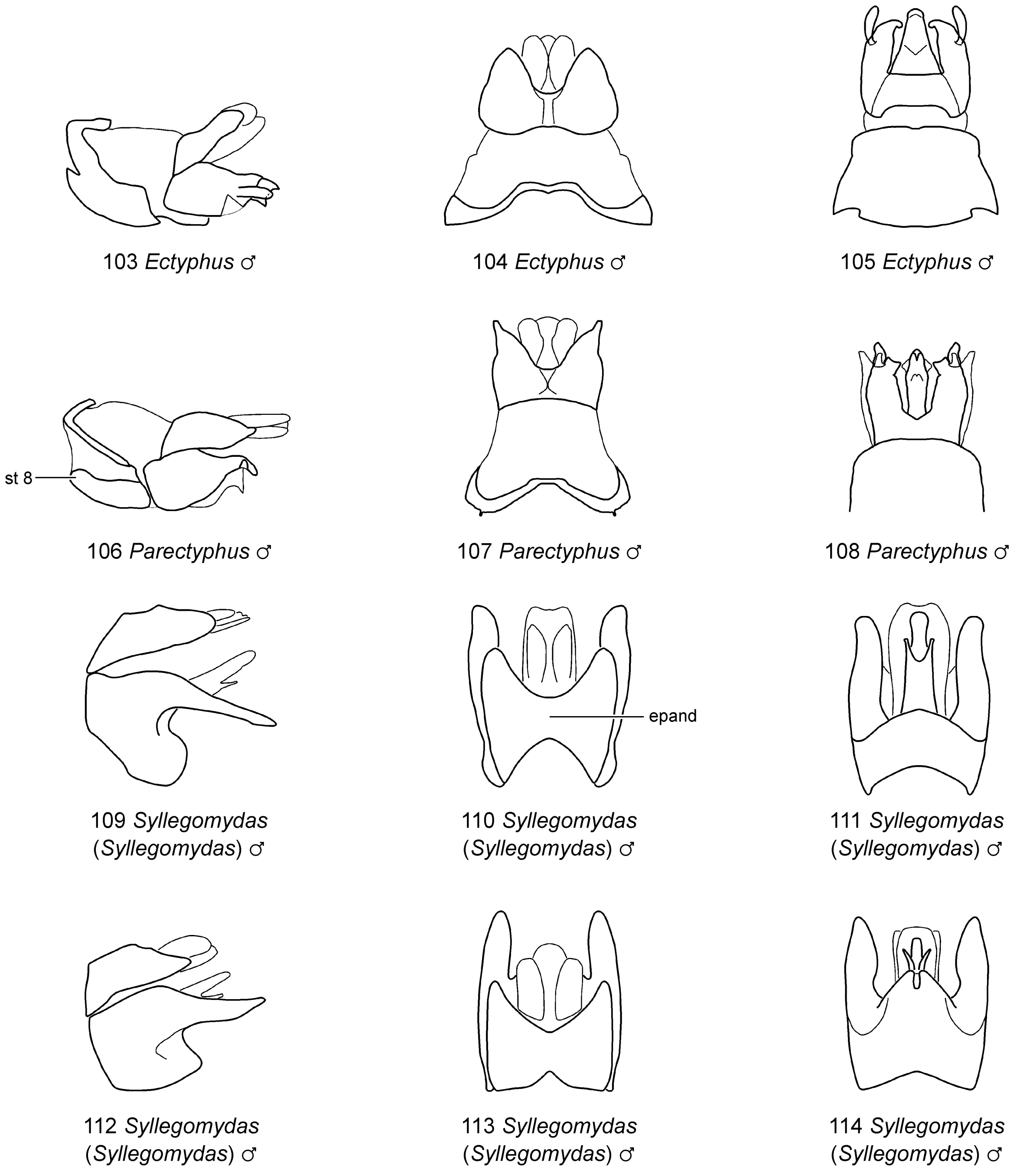


101 *Nothomydas* ♂

102 *Nothomydas* ♂

Figs 47.100–102. Male terminalia of Mydidae: (100) *Nothomydas picketti* Dikow, lateral view; (101) same, dorsal view; (102) same, ventral view. Figs 100–102 (Dikow 2012, figs 32–34).

Abbreviations: ej apod – ejaculatory apodeme; endoph – endophallus; epand – epandrium; goncx-hypd cplx – gonocoxal-hypandrial complex; ph ep – phallic epimere; ph prg – phallic prongs; pm sh – parameral sheath; sphypd sc – supra-hypandrial sclerite; st – sternite; tg – tergite.



103 *Ectyphus* ♂ 104 *Ectyphus* ♂ 105 *Ectyphus* ♂

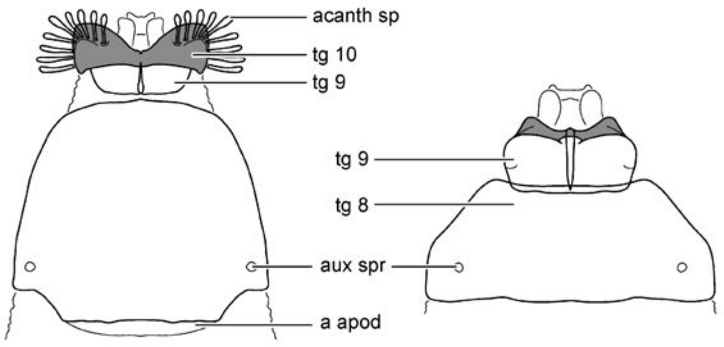
106 *Parectyphus* ♂ 107 *Parectyphus* ♂ 108 *Parectyphus* ♂

109 *Syllegomydas* (*Syllegomydas*) ♂ 110 *Syllegomydas* (*Syllegomydas*) ♂ 111 *Syllegomydas* (*Syllegomydas*) ♂

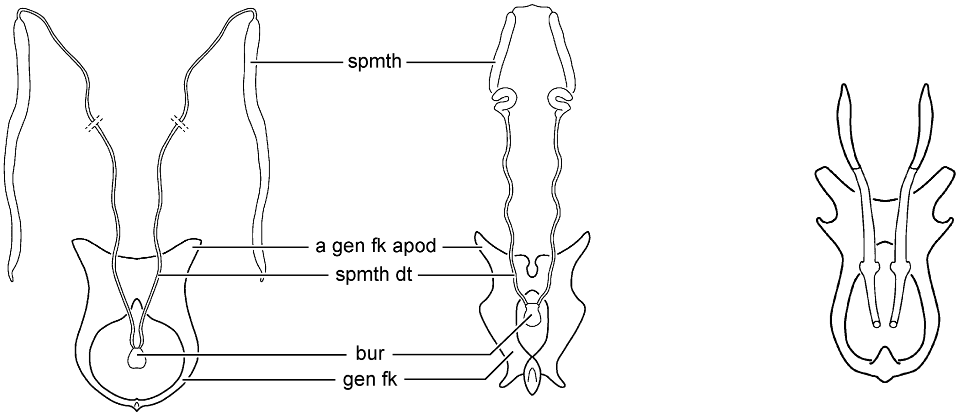
112 *Syllegomydas* (*Syllegomydas*) ♂ 113 *Syllegomydas* (*Syllegomydas*) ♂ 114 *Syllegomydas* (*Syllegomydas*) ♂

Figs 47.103–114. Male terminalia of Mydidae: (103) *Ectyphus pinguis* Gerstaecker, lateral view; (104) same, dorsal view; (105) same, ventral view; (106) *Parectyphus namibiensis* Hesse, lateral view; (107) same, dorsal view; (108) same, ventral view; (109) *Syllegomydas* (*Syllegomydas*) *astrictus* Dikow, lateral view; (110) same, dorsal view; (111) same, ventral view; (112) *S.* (*S.*) *dispar* (Loew), lateral view; (113) same, dorsal view; (114) same, ventral view. Figs 103–108 (Lyons & Dikow 2010, figs 29–22, 26–28), Figs 109–114 (Dikow 2010*a*, figs 21–23, 27–29).

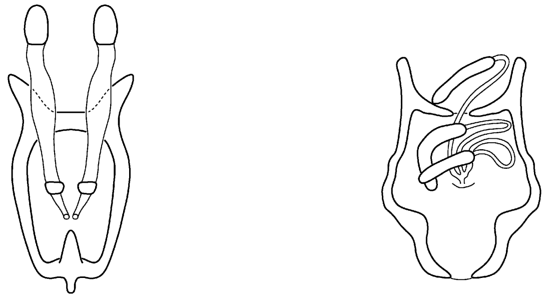
Abbreviations: epand – epandrium; st – sternite.



115 *Leptomydas* ♀ 116 *Vespiodes* ♀



117 *Namibimydas* ♀ 118 *Nothomydas* ♀ 119 *Mydaselpis* ♀



120 *Syllegomydas* ♀ 121 *Parectyphus* ♀

Figs 47.115–121. Female external and internal terminalia of Mydidae (dorsal views): (115) *Leptomydas lusitanicus* (Wiedemann) (non-Afrotropical); (116) *Vespiodes phaios* Dikow (tergite 10 indicated in grey); (117) *Namibimydas gaerdesi* Hesse; (118) *Nothomydas namaquensis* Hesse; (119) *Mydaselpis ngurumani* Dikow; (120) *Syllegomydas* (*Notobates*) *heothinos* Dikow; (121) *Parectyphus namibiensis* Hesse. Figs 117, 118 (Dikow 2012, figs 21, 22), Figs 119, 120 (Dikow 2010*a*, figs 19, 20); Fig. 121 (Lyons & Dikow 2010, fig. 30).

Abbreviations: a apod – anterior apodeme; bur – bursa; a gen fk apod – anterior genital fork apodeme; acanth sp – acanthophorite spine; aux spr – auxiliary spiracle; gen fk – genital fork; spmth – spermatheca; spmth dt – spermathecal duct; tg – tergite.

and later transferred to a new genus by Hesse (1969), which he based solely on literature study, without having studied the type specimens. *Notosyllegomydas brincki* can, however, be easily distinguished from *Syllegomydas*, based on the bare posterior anepisternum and the long setose median hind tibia.

Oreomydas **Hesse** (Syllegomydinae: Syllegomydini)**.** An endemic genus (Figs 82, 83) with the single described species, *O. luctuosus* (Bezzi, 1924), known from the two type specimens only, collected on the Matroosberg at an elevation of 1,200 m in south-western South Africa. Specimens have been collected in January. Sexual dimorphism is minimal. The genus is distinguishable by the setose katatergite and anatergite, the bare mediotergite (mesopostnotum), and an expanded metathoracic femur. Both, Bezzi (1924) and Hesse (1969) mention several differences to *Afroleptomydas* species, such as the less setose anepisternum, anepimeron and katatergite and shorter antennae. In addition, the mediotergite (mesopostnotum) is bare in *Oreomydas*, which distinguishes it from *Afroleptomydas* and *Syllegomydas*.

Parectyphus **Hesse** (Ectyphinae)**.** An endemic genus (Figs 18, 84, 85) with the single described species, *P. namibiensis* Hesse, 1972, occurring in Namibia and north-westernmost South Africa. Specimens have been collected from June–September. Sexual dimorphism is minimal. The genus is distinguishable by the bare katatergite, the setose anatergite, the closed wing cell r_4, presence of vein M_{3+4}, which terminates in the costal vein (*C*) and presence of a stump vein (R_3) connecting veins R_2 and R_4. The genus was last revised by Lyons & Dikow (2010).

Perissocerus **Gerstaecker** (Rhopaliinae)**.** A genus of seven species, occurring primarily in the Palaearctic Region, with three species found in the Afrotropics (Figs 7, 86, 87). The most widespread Afrotropical species, *P. arabicus* (Bequaert, 1961),

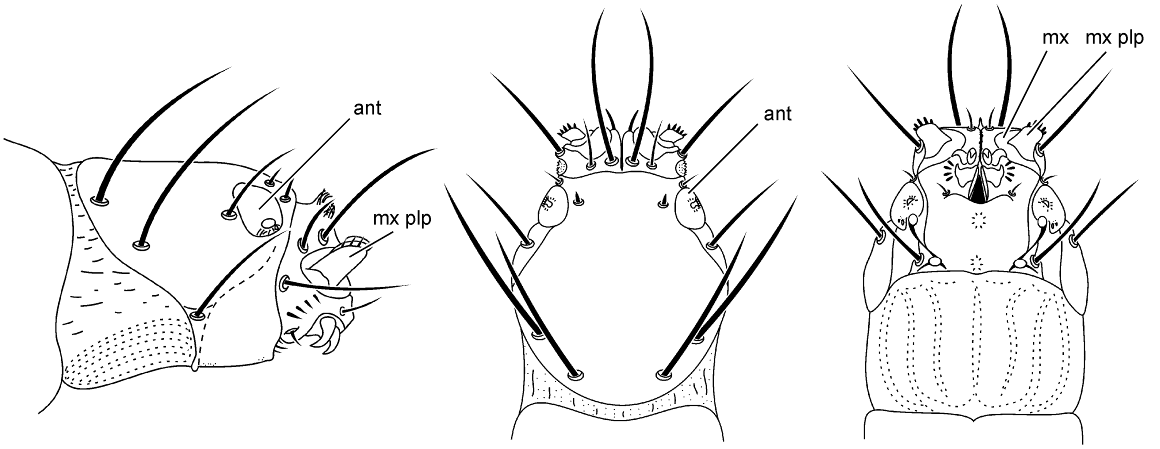
122 (?) *Syllegomydas*

123 (?) *Syllegomydas*

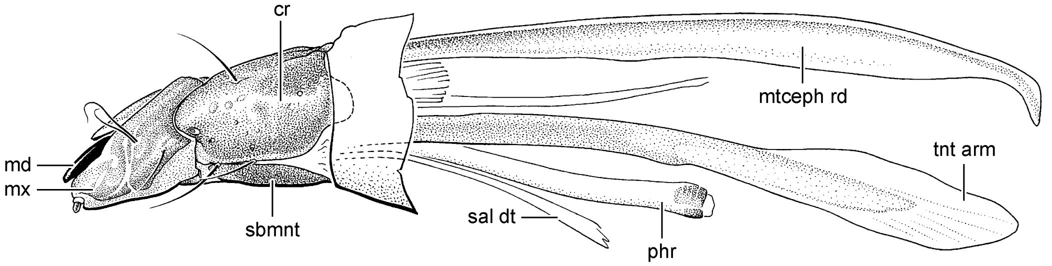
124 (?) *Syllegomydas*

Figs 47.122–124. Third-instar larva of Mydidae (Syllegomydinae) (note sand particles attached to larval cuticle): (122) larval habitus of (?) *Syllegomydas* sp., dorsal view; (123) same, lateral view; (124) same, ventral view.

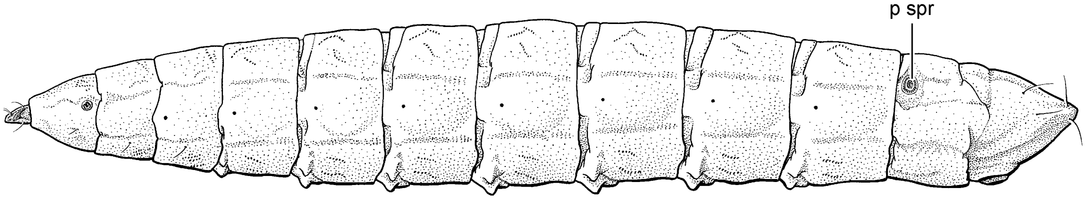
occurs in the United Arab Emirates and Yemen (Dikow 2010*b*: 612). The type species *P. abyssinicus* Gerstaecker, 1868 remains known only from the type specimen from "Abyssinia" [= Ethiopia] and *P. dumonti* Séguy, 1928, an otherwise Palaearctic species, has been recorded from the Tibesti Mountains in north-western Chad. Afrotropical species have been collected in October–November. Sexual dimorphism is pronounced. The genus is distinguishable by the minute proboscis, the bare katatergite, the open wing cell r_4 and the peculiar shape of the antennal postpedicel. These small flies are very rarely collected and a taxonomic revision is required. No identification key to Afrotropical species is available.



125 *Tongamya* 126 *Tongamya* 127 *Tongamya*



128 *Mydas*



129 *Mydas*

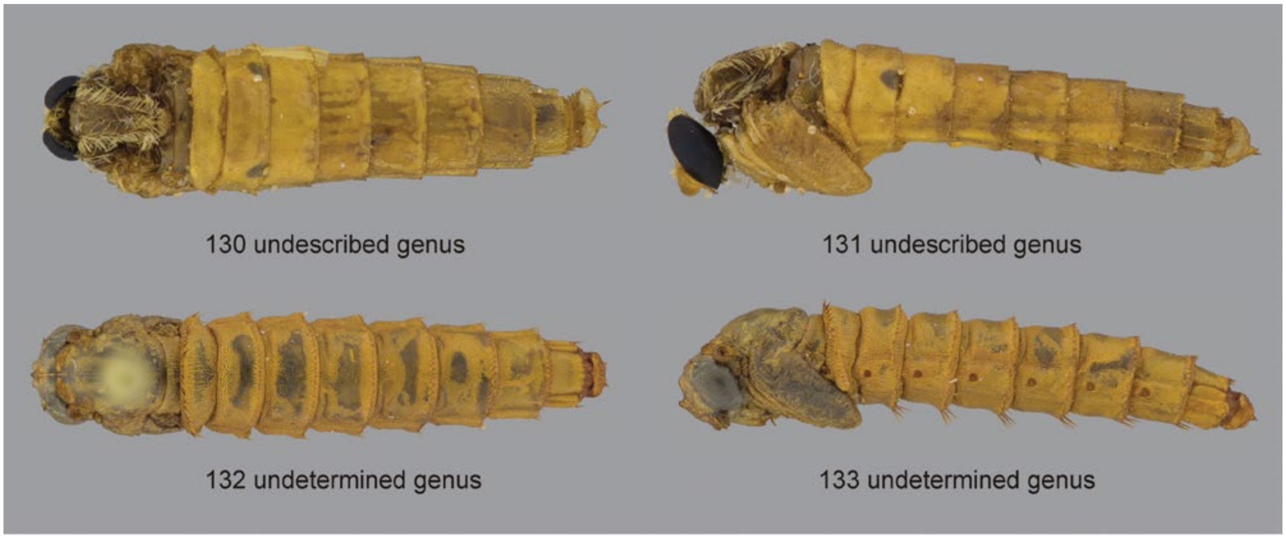
Figs 47.125–129. Larval features of first- and third-instar larvae of Mydidae: (125) head of first-instar larva of *Tongamya miranda* Stuckenberg, lateral view; (126) same, dorsal view; (127) same, ventral view; (128) head capsule and internal structures of third-instar larva of *Mydas clavatus* (Drury) (non-Afrotropical); (129) same, larval habitus of third-instar larva. Figs 125–127 (after Irwin & Stuckenberg 1972, figs 19–21), Figs 128, 129 (Wilcox 1981, figs 28, 29).

Abbreviations: ant – antenna; cr – cranium; md – mandible; mtceph rd – metacephalic rod; mx – maxilla; mx plp – maxillary palpus; phr – pharynx; p spr – posterior spiracle; sal dt – salivary duct; sbmnt – submentum; tnt arm – tentorial arm.

***Rhopalia* Macquart** (Rhopaliinae)**.** A genus of 15 species, occurring primarily in the Palaearctic Region, with three species found in the Afrotropics (Figs 8, 88, 89). Two species, *R. gyps* Bowden, 1987 and *R. olivieri* Macquart, 1838, are recorded from United Arab Emirates in the Arabian Peninsula (Deeming 2008: 602; Dikow 2010*b*: 612) and *R. tutankhameni* is known from eastern Sudan. Afrotropical specimens have been collected from March–May. Sexual dimorphism is minimal. The genus is distinguishable by the long proboscis that extends beyond the frontoclypeal suture, the bare katatergite, the open wing cell r_4 and the long cylindrical antennal postpedicel. Bowden (1980: 326) ascribed *R. tutankhameni* to *Leptomydas*, but the species belongs to *Rhopalia*, based on the unique wing venation of Rhopaliinae (vein R_5 ending in costal vein (*C*) and cell r_4 open). The two Afrotropical species occurring in the Arabian Peninsula can be identified by reference to Dikow (2010*b*).

***Syllegomydas* Becker** (Syllegomydinae: Syllegomydini)**.** A genus of 26 species, occurring primarily in the south-western Palaearctic Region (Mediterranean), with ten species recorded from the Afrotropics (Figs 9, 19, 90–95). Two Palaearctic species, *S. dallonii* Séguy, 1936 and *S. vittatus* (Wiedemann, 1828), penetrate the far northern Afrotropical Region in Chad and Sudan, respectively. The remaining eight species are endemic to the region and are distributed throughout sub-Saharan Africa and in particular in Eastern Africa. Specimens have been collected from May–August and from September–December (with a single record for March in Sudan). Sexual dimorphism is pronounced. The genus is distinguishable by the minute to short proboscis (never extending beyond the frontoclypeal suture), the closed wing cell r_5 (a few specimens with a narrowly open cell and a single undescribed species from western South Africa with widely open cell r_5) and the setose katatergite, posterior anepisternum and mediotergite (mesopostnotum). *Afroleptomydas* and *Syllegomydas* can be distinguished by the length of the proboscis and cell r_5, but the undescribed species from the Atlantic coast of South Africa exhibits a minute proboscis, as *Syllegomydas* and an open cell r_5, as in *Afroleptomydas*. Hesse (1969) distinguished two subgenera, *Syllegomydas sensu stricto* (five Afrotropical species) and *S.* (*Notobates* Hesse), the latter being endemic to the Afrotropics. Currently, there are four species placed in *S.* (*Notobates*) (Dikow 2010*a*; Hesse 1969) and *S. lamborni* Bequaert, 1951 should also be placed here. The placement of *S.* (*N.*) *dispar* (Loew, 1852) from Mozambique, which was listed as unplaced by Bowden (1980: 333), has been addressed by Dikow (2010*a*), who also provided the latest treatment of the genus. An undescribed species from the Namib Desert, Namibia and north-western South Africa, known only from three female specimens is the largest Afrotropical Mydidae with a wing length of 22 mm. A key to all species is unavailable, but species can be identified by reference to Hesse (1969) and Dikow (2010*a*).

***Tongamya* Stuckenberg** (Megascelinae)**.** An endemic genus (Figs 10, 11, 96, 97) of two species, *T. miranda* Stuckenberg, 1966 and *T. stuckenbergi* Irwin & Wiegmann, 2001, occurring in Angola, Botswana, Mozambique, Namibia and South Africa (Irwin & Wiegmann 2001), but only known from a few scattered collecting localities. Specimens have been collected from October–January (a record in April exists from Angola). Sexual dimorphism is pronounced and females are considerably larger than males. The genus is distinguishable by the antennal postpedicel composed of a single clubbed segment, the absence of mystacal (facial) setae and bullae on abdominal tergite 2, the peculiar wing venation and holoptic males. The genus was initially described in Apioceridae (Stuckenberg 1966) and later transferred to Mydidae by Yeates & Irwin (1996). This morphologically unique taxon is phylogenetically related to *Megascelus* Philippi from Chile and *Neorhaphiomidas* Norris from Australia, which represents a true Gondwanan radiation of the Megascelinae. Species of *Tongamya* are extremely rarely collected, but can be abundant at the right locality and time



Figs 47.130–133. Pupal habitus of Mydidae: (130) undescribed genus (Namib Desert, Namibia) with adult head and thorax partially extruded, dorsal view; (131) same, lateral view; (132) undetermined genus (possibly *Afroleptomydas* Bequaert, *Cephalocerodes* Hesse or *Namadytes* Hesse), dorsal view; (133) same, lateral view.

of year and were originally described from north-easternmost KwaZulu-Natal Province of South Africa (Stuckenberg 1966) and northern Namibia (Irwin & Wiegmann 2001). The genus might be more widespread and new populations or species might be encountered when suitable habitat is visited during the right time of the year. The two species can be identified by reference to Irwin & Wiegmann (2001).

***Vespiodes* Hesse** (Syllegomydinae: Mydaselpidini)**.** An endemic genus (Figs 15, 98, 99) of ten species, occurring throughout sub-Saharan Africa (Ghana to Kenya to northern South Africa), but with few collecting events. It is the only Mydidae genus known to date to occur in the tropical rainforests of central Africa. Specimens have been collected from February–May and from September–November. Sexual dimorphism is minimal. The genus is distinguishable by the bare posterior anepisternum, anepimeron and katepimeron, the punctate abdominal tergites, the constricted abdominal tergites 2–3 (exhibiting a "wasp waist"), females without acanthophorite spines and males with a distally simple phallic epimere. The majority of species are only known from one sex and several species exhibit mimetic colouration resembling various wasp taxa. *Vespiodes* is placed together with *Afromydas* and *Mydaselpis* in the Mydaselpidini (see *Afromydas* above). The genus may represent a junior synonym of *Mydaselpis* (see under that genus). A key to species was provided by Hesse (1969).

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