

## **A Review of Afrotropical Trichardis Hermann, 1906, and the Description of the First Oriental Representative of the Genus (Diptera: Asilidae: Laphriinae)**

Author: Londt, Jason G. H.

Source: African Invertebrates, 49(2) : 171-226

Published By: KwaZulu-Natal Museum

URL: <https://doi.org/10.5733/afin.049.0210>

---

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](http://www.bioone.org/terms-of-use).

Usage of BioOne Complete content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

## A review of Afrotropical *Trichardis* Hermann, 1906, and the description of the first Oriental representative of the genus (Diptera: Asilidae: Laphriinae)

Jason G. H. Londt

Natal Museum, P. Bag 9070, Pietermaritzburg, 3200 South Africa, and School of Biological & Conservation Sciences, University of KwaZulu-Natal, P. Bag X01, Scottsville, 3209 South Africa; robber4afr@telkomsa.net

### ABSTRACT

The Afrotropical species of *Trichardis* Hermann, 1906 are reviewed, and the first species to be recorded from the Oriental Region is described. Brief descriptions are provided for all Afrotropical species studied, and keys supplied for their identification. The following new species are described: Afrotropical *T. abdelkuri* (Yemen), *crassipala* (Burkina Faso, Mali, Niger), *eburacta* (Ivory Coast, Nigeria), *effrena* (Namibia, South Africa), *glabra* (Gambia), *hesperia* (Gambia, Senegal), *lavignei* (Somalia), *malawi* (Malawi, Tanzania, Zimbabwe), *mellina* (Eritrea), *ornata* (Chad), *similis* (Malawi), *spicata* (Mozambique), *zinidi* (Kenya, Tanzania); Oriental *T. indica* (India). The previously described species are redescribed: *T. apicalis* Oldroyd, 1974; *cribrata* (Loew, 1858); *grisescens* Engel, 1924; *katangaensis* Oldroyd, 1970; *leucocoma* (Wulp, 1899); *nigrescens* (Ricardo, 1903); *picta* Hermann, 1906; *pohli* Geller-Grimm, 2002; *rueppelii* (Wiedemann, 1828); *terminalis* Oldroyd, 1974; *testacea* (Macquart, 1838); *turneri* Oldroyd, 1974. A lectotype of *Hoplistomera leucocoma* Wulp, 1899 has been designated. The following new synonymies have been established: *Trichardis lucifer* Oldroyd, 1974 = *Trichardis picta* Hermann, 1906; *Triclis rufescens* Austen, 1914 = *Trichardis leucocoma* (Wulp, 1899).

KEY WORDS: Diptera, Asilidae, Laphriinae, *Trichardis*, robber flies, Afrotropical, Oriental, new species, new synonymy, identification keys.

### INTRODUCTION

*Trichardis* Hermann, 1906 is primarily an Afrotropical genus. It is also recorded for the Palearctic Region where four species, including one also found in the Afrotropics, were catalogued by Lehr (1988) (i.e. *T. aphanisievae* Lehr, 1964; *cinctella* Séguy, 1934; *leucocomus* (Wulp, 1899); *mongolica* Richter, 1972). While this genus has not been previously recorded from any other region, I have found an undescribed species from India (Oriental Region), which is described at the end of this paper. The systematic position of the genus, which has been placed in both the Laphriinae and Laphystiinae, has been discussed by Londt (2007a, b) who recommends that it be treated, together with *Perasis* Hermann, 1905 and *Hoplistomerus* Macquart, 1838, within the Laphriinae. These relatively small robber flies have been confused with the generally larger species of *Hoplistomerus*, and it is hoped that this paper will finally resolve any confusion that may still exist.

The development of our knowledge of Afrotropical *Trichardis* species may be summarised briefly as follows.

Wiedemann (1828) – Described *Dasypogon Rüppelii* from ‘Abyssinia’ (= Eritrea).

Macquart (1838) – Described *Laphria testacea* from ‘Du Cap’ (i.e. The Cape = Western Cape Province of South Africa).

Loew (1858) – Described *Hoplistomera cribrata* from ‘Caffraria’ (i.e. the eastern parts of Southern Africa).

Loew (1860) – Elaborated on his 1858 publication, providing a redescription of *Hoplistomera cribrata*.

Wulp (1899) – Described *Hoplistomera leucocoma* from Yemen, southern Arabia.

Ricardo (1903) – Described *Hoplistomera nigrescens* from Socotra Island (Yemen).

- Hermann (1906) – Described the genus *Trichardis*, assigning two new species to it (*picta* and *testacea*), but neglected to designate a type species. He briefly discussed the group of genera subsequently included in the subfamily Laphystiinae.
- Becker (1907) – Described the genus *Strobilothrix* for his new species *Strobilothrix albipila* from Algeria, in the Palaearctic Region.
- Kertész (1909) – Catalogued two species of *Trichardis* (*picta* and *testacea*) from ‘Prom. bon. Sp.’ (i.e. the Cape of Good Hope).
- Hermann (1920) – Designated *Laphria testacea* Macquart as type species of *Trichardis* listing six other species—*picta*, *cribrata*, *leucocoma*, *grisescens*, *erythrogaster*, and ? *nigrescens*. *T. grisescens* was at the time an unpublished manuscript name, while *erythrogaster*, described in *Hoplistomerus*, has subsequently been retained in *Hoplistomerus* (see Londt 2007b).
- Engel (1924) – Provided a brief discussion of *Trichardis* before keying out (giving full descriptions) five species considered belonging to the genus (*cribrata*, *grisescens*, *leucocoma*, *picta* and *testacea*). In providing a description for *grisescens* he became author of the species even though he attributed the species to Hermann (see previous entry).
- Efflatoun (1937) – Included *T. leucocoma* in an extensive review of Egyptian Asilidae (part of the Palaearctic fauna).
- Hull (1962) – Redescribed *Trichardis* as part of his world revision of genera, giving *Strobilothrix* as a synonym and listing those species he considered to be congeneric. The Ethiopian (= Afrotropical) species listed were *cribratus*, *grisescens* (correctly attributed to Engel), *nigrescens*, *picta*, and *testacea* Hermann (he was apparently unaware of Macquart’s species with the same name). Two Palaearctic species were also listed, one of which was *leucocoma* (with *albipila* as a synonym).
- Oldroyd (1970) – In handling the Asilidae of the Congo Basin provided a brief discussion of *Trichardis* and the description of a new species, *katangaensis*.
- Oldroyd (1974) – Published an introduction to the Asilidae of southern Africa. He briefly discussed *Trichardis* and described four new species (*apicalis*, *lucifer*, *terminalis*, and *turneri*) in an illustrated key to seven southern African taxa that included three previously described species (*cribrata*, *picta* and *testacea*).
- Theodor (1980) – Included *T. leucocoma* in his review of Palestinian Asilidae focussing attention on genital morphology.
- Oldroyd (1980) – Catalogued (under the tribe Laphriini of subfamily Laphriinae) the then accepted Afrotropical species *apicalis*, *cribrata*, *grisescens*, *katangaensis*, *leucocoma*, *lucifer*, *nigrescens*, *picta*, *terminalis*, *testacea*, and *turneri* — giving *grisescens* Hermann as a *nomen nudum*, *albipila* as a synonym of *leucocoma*, and *testacea* Hermann as a synonym and homonym of *testacea* Macquart. He placed *Dasypogon Rüppelii* in *Laphria* as *L. rueppelii* giving Sudan as the country of origin.
- Geller-Grimm (1999) – Placed *Dasypogon rueppelii* (as *rueppelii*) in *Trichardis*.
- Geller-Grimm (2002) – Described *Trichardis pohli* from Socotra Island and provided a redescription and records of *nigrescens* from the island.

There were, therefore, 13 valid species of Afrotropical *Trichardis* at the commencement of this study, i.e. those catalogued by Oldroyd (1980) and the species subsequently added by Geller-Grimm (1999, 2002). This study was prompted by an accumulation of

many specimens in the collections of the Natal Museum and other institutions. At the completion of my study a further 13 undescribed species need to be added and one new synonym established bringing the number of Afrotropical species to 25. In addition, I believe this is a good opportunity to provide the description of the first representative of the genus from the Oriental Region.

#### MATERIAL AND METHODS

Specimens studied are housed in the Natal Museum (NMSA) unless otherwise indicated. Other institutions housing material are listed below, together with the abbreviations used in the text when citing these repositories and the names of the people who kindly assisted with information and/or loans.

- AMGS – Albany Museum, Grahamstown, South Africa (A. Kirk-Spriggs).
- BMNH – The Natural History Museum, London, UK (E. McAlister).
- CASC – California Academy of Sciences, San Francisco, USA (A. Carmichael).
- HLMD – Hessisches Landesmuseum Darmstadt, Germany (W. Schneider).
- MCMI – Museo Civico di Storia Naturale, Milano [Milan], Italy (F. Rigato).
- MNHN – Museum National d’Histoire Naturelle, Paris, France (C. Daugeron).
- MRAC – Musee Royal de l’Afrique Centrale, Tervuren, Belgium (E. De Coninck).
- MZLU – Zoological Museum, Dept. Zoology, Lund, Sweden (R. Danielsson).
- MZUF – Museo Zoologica de ‘La Specola’, Firenze [Florence], Italy (L. Bartolozzi).
- NHMW – Naturhistorisches Museum Wien, Wien, Austria (P. Sehnal).
- NHRS – Naturhistoriska Riksmuseet, Stockholm, Sweden (B. Viklund).
- NMNH – National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (F.Ch. Thompson).
- OXUM – Hope Entomological Collections, Oxford University Museum of Natural History, Oxford, UK (D. Mann).
- SAMC – South African Museum, Cape Town, South Africa (M. Cochrane).
- SANC – National Collection of Insects, Pretoria, South Africa (R. Urban).
- SMFD – Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt, Germany (P. Haase).
- ZMHB – Museum für Naturkunde, Humboldt-Universität zu Berlin, Germany (J. Ziegler).
- ZSMC – Zoologische Staatssammlung, München, Germany (B. Stock).

Other collections cited in this paper, but not consulted personally are: NHCY (Natural History Collection, Yemen), COGG (Collection of Fritz Geller-Grimm, Frankfurt), CWWR (Collection of Wolfgang Wranik, Rostock).

A standard format has been employed in recording label information. For type specimens data is reproduced as it appears on labels, each label being demarcated by the use of single inverted commas, and each line of data separated by a spaced slash (/). Data that appear on the reverse side of a label are preceded by a ‘~’ symbol. For other specimens cited, information is provided in a briefer format, but maintaining actual information provided, and in order that facilitates electronic data capture. Square brackets are used to add useful information or comment not found on labels. In this regard, co-ordinates are usually provided when these, or a quarter-degree grid reference, do not appear on a label. When a locality could not be traced or other information is not

understood the wording may be followed by [?]. Specimens are arranged in geographical order (according to latitude) within countries, which are alphabetically ordered.

An adequate generic diagnosis is provided. If a fuller description is required that of Hull (1962) may be consulted. Species descriptions are brief and confined largely to characteristics that are considered helpful in the separation of species. Final illustrations were prepared from pencil drawings and do not depict setae that are not considered to have diagnostic value. Measurements were taken as follows: antennal postpedicel length (L) includes terminal style, depth (D) is taken at maximum level; wing length is from humeral crossvein to tip, breadth is taken at its maximum level; metathoracic (hind) femur length is measured in anterior view (excluding any part of coxa or trochanter), height is taken at its maximum level. Morphological terminology generally follows McAlpine (1981).

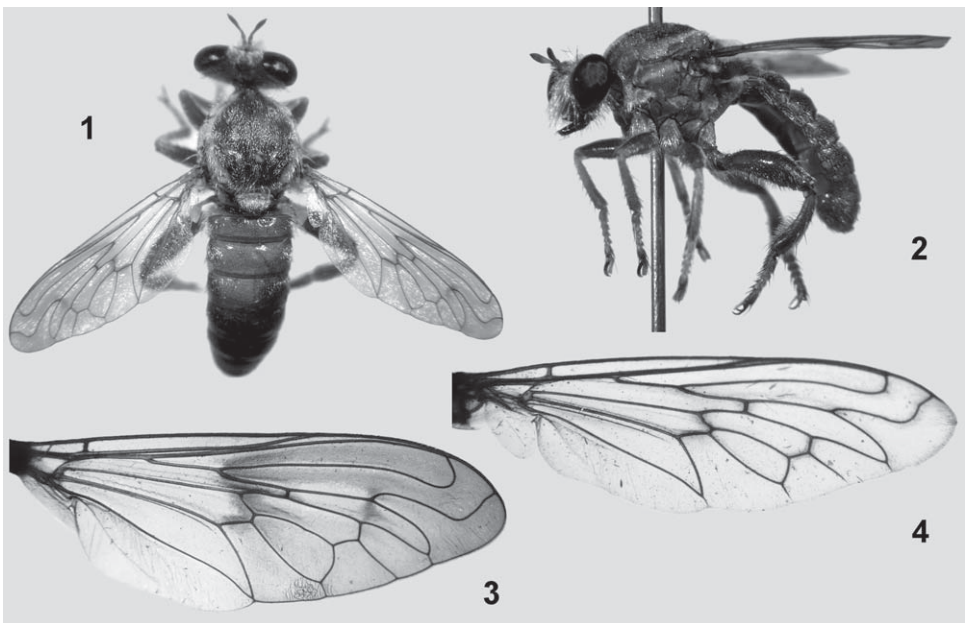
#### TAXONOMY

##### Genus *Trichardis* Hermann, 1906

*Trichardis* Hermann, 1906: 137. Type species: *Laphria testacea* Macquart, 1838, by designation of Hermann (1920: 177).

*Strobilothrix* Becker, 1907: 42–43. Type species: *Strobilothrix albipila* Becker, 1907 [*Hoplistomera leucocoma* Wulp, 1899], by monotypy.

Diagnosis (Figs 1–4): Laphriine asilids (wing length <7 mm) with the following combination of characters. *Head*: Antennal postpedicel moderately elongate to clavate; proboscis small and hardly protruding beyond lower epistomal margin. *Thorax*: Postpronotal lobe with at least a few strongly developed macrosetae; anatergal macrosetae usually present; scutellum with weakly developed marginal macrosetae;



Figs 1–4. *Trichardis* species: (1–3) *T. testacea* (Macquart, 1838): (1) dorsal view of entire male, (2) lateral view of entire male, (3) wing; (4) *T. effrena* sp. n., wing. See text for measurements.

postmetacoxal area membranous; hind femora robust (length: breadth ratio  $<4$ ), with a swollen appearance and usually equipped with ventral tubercles; hind leg of male usually lacking a tibial spur; vein R2+3 bent anteriorly at tip and joining R1 just before or at C; cell  $r_5$  always closed; C continues fairly strongly along wing margin to Cu+A1 before becoming much weaker along anal cell and completely absent from alula. *Abdomen*: Terga with discal setae beyond T1 and lacking obvious golden setation.  $\sigma$  genitalia: Epandrium in dorsal view hardly if at all incised (i.e. not divided into lobes); hypandrium usually absent or at best poorly developed; gonocoxites usually closely associated ventrally and rarely with a median projection (when present it is short and medially directed) and commonly with mediobasal macrosetae.

Notes: Hermann's original description makes reference to '*Hoplistomera*' and includes figs 5 (antenna) and 7 (wing), but no indication of which species was involved. Hermann (1920) separates *Trichardis* from *Strobilothrix* on the basis of femoral setation. Oldroyd (1970: 247) says the genus is not easily separated from *Hoplistomerus* and provides a brief discussion of the characterisation of these taxa.

#### AFROTROPICAL SPECIES

### ***Trichardis abdelkuri* sp. n.**

Figs 5, 6

**Etymology**: Named after the type locality, Abd el Kuri I. [also written Abd al Kuri], Yemen.

**Description** (based on holotype in good condition):

*Head*: Dark red-brown to black, extensively silver pruinose except for central face, frons and ocellar tubercle, setae black, pale yellow and white. Antennal scape dark red-brown, white setose except for a single pale yellow ventrally situated macroseta (right side has an additional slender black ventral macroseta); pedicel brown-yellow, setae white except for 1 or 2 longish black ones; postpedicel and style dark red-brown, postpedicel elongate spindle-shaped (L:D=4.1:1) with few pale setulae dorsally. Mystax white with some black setae along epistomal margin and below antennal sockets. Ocellar tubercle with 4 pale yellowish macrosetae. Proboscis and palpi dark red-brown.

*Thorax*: Dark red-brown to black, largely apruinose with gold-silver pruinose parts, fine setae whitish, more major setae yellow. Postpronotum largely apruinose except for narrow medial part, mesonotum largely apruinose except for margins, macrosetae shiny pale yellow, setulae shiny white. Scutellum black, entirely apruinose. Anepisternum with slender pale yellow posterior macroseta, extensively pruinose except for small area anteroventrally. Proepimeron anteriorly pruinose, posteriorly apruinose; katepisternum posteriorly pruinose, anteriorly apruinose; anepisternum pruinose except for anterodorsal part. Legs: Dark red-brown to black, pulvilli and empodium of similar length. Hind femur uniformly dark red-brown, length: height ratio 3.8:1, ventral tubercles poorly developed, major setae pale yellowish. Hind tibia lacking ventrodorsal spur. Wing: 5.3×2.2 mm. Costal vein extends around most of wing margin, weak along anal cell, absent from alula. Membrane not extensively microtrichose—discal cell largely lacking microtrichiae (a few present centrally), cell  $r_5$  with microtrichiae limited mainly to distal half.

**Abdomen:** Anterior four terga dark red-brown, terminal two visible segments and hypopygium orange, apruinose except for narrow silver pruinose distolateral margins, setae transparent whitish. T2 dark red-brown, apruinose except for narrow silver pruinose posterior margins laterally.

♂ genitalia (Figs 5, 6): Epandrium in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without median projections distally and with mediolaterally arranged macrosetae, mediolateral projection fairly slender with slightly upturned distal end. Gonostylus slender with straight distal end. Aedeagal prongs more or less straight with small terminal tubules.

**Variation:** The paratype ♂ is slightly teneral and displays a few minor differences in coloration. Both scape and pedicel are yellowish brown and both have major setae black. Macrosetae of thorax and abdomen are transparent, lacking colour. The ♀ paratypes are similar to the holotype, but have the first five terga dark red-brown.

**Holotype:** YEMEN: *Abd el Kuri I.*: ♂ 'Abdelkuri I: [12°05'N:52°20'E] / Jebel Saleh [?], / 500–1500 ft / 7.v.1967 / K. Guichard', 'Brit. Mus. / 1967-455' (BMNH).

**Paratypes:** 1♂ 2♀ with same label data.

**Distribution and biology:** Known only from the type series. The species may be confined to the island of Abd el Kuri and has so far only been collected in May. No biological information is available.

**Similar species:** *T. abdelkuri* is superficially very similar to *nigrescens*, but the species can be reliably separated on male genital features. Although I have seen relatively few specimens of both species, all specimens of *abdelkuri* have mesonotal, anepisternal and ocellar setae yellowish, while these setae are mostly black in *nigrescens* (some variation exists). These species are also somewhat similar to *pohli*, but easily separated on size and male genital form.

### *Trichardis apicalis* Oldroyd, 1974

Figs 7, 8, 58

*Trichardis apicalis*: Oldroyd 1974: 120; 1980: 355 (catalogue).

**Redescription** (based on ♂ holotype in good condition):

**Head:** Uniformly brown-orange. Antenna uniformly brown-orange, yellowish setose; postpedicel not markedly clavate (L:D=3.2:1). Mystax uniformly yellowish on slightly and evenly convex face. Ocellar tubercle with 4 macrosetae. Proboscis brown-orange with dark red-brown distal half, palpi brown-orange.

**Thorax:** Brown-orange, dorsal parts slightly darker; mesonotal macrosetae orange, fine setae white or pale yellow. Postpronotum entirely pruinose, mesonotum apruinose except for narrow silver pruinose lateral and posterior margins. Scutellum apruinose. Anepisternum with yellow posterior macroseta; dorsal half pruinose, ventral half apruinose. Proepimeron dorsally pruinose, ventrally apruinose; katepisternum dorsally pruinose, ventrally apruinose; anepisternum posteriorly pruinose, anteriorly apruinose. Legs: Brown-orange except for terminal tarsomeres and distal parts of hind tibiae; pulvilli and empodium of similar length. Hind femur brown-orange, length:height ratio 3.5:1,

ventral tubercles poorly developed. Hind tibia lacking ventrodistal spur. Wing: 5.0×2.1 mm. Costal vein strongly developed around most of wing margin, weak to absent along anal cell and alula. Membrane not extensively microtrichose—discal cell entirely lacking microtrichiae, cell  $r_5$  with microtrichiae only in distal half.

*Abdomen*: Uniformly brown-orange, fine white setose. T2 orange, apruinose except for small areas of silver pruinescence on posterolateral corners.

♂ genitalia (Figs 7, 8): Epandrium in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple in structure. Gonocoxite in ventral view without median projections distally and with a few moderately developed mediobasal setae; mediobasal projection stout with upturned and darkly sclerotised distal end. Gonostylus stout with upturned, slightly clavate distal end. Aedeagal prongs more or less straight, with small, slender tips.

Holotype (examined): MOZAMBIQUE: ♂ 'Holo- / type' [circular, red edge], 'Lourenço Marques. [Maputo, 25°57'S:32°34'E] / Sept. – Dec., 1913. / H. A. Junod.', 'C. J. Wainwright / collection / B.M. 1948-488', '*Trichardis / apicalis* Oldr. / det. H. Oldroyd 1972 / Holotype' [white] (BMNH).

Paratypes (examined): MOZAMBIQUE: 3♂ 1♀ same data as holotype (BMNH); 1♂ 1♀ same data as holotype but 'Jan. – Mar., 1914' (BMNH); 1♂ 'Para- / type' [circular with yellow border], 'Lourenço Marques / Sept. – Dec., 1913, / H.A. Junod', 'C. J. Wainwright / collection. / B.M. 1948-488' (BMNH). SOUTH AFRICA: 1♂ 'South Africa, Natal Prov / Zululand. 4 mi S. Ndumu / Game Res. Camp (2632Cc) / Dec. 1, 1971; ME&BJ Irwin / dry scrub forest; 160 ft' (NMSA); 7♂ 1♀ 1? 'South Africa, Natal Prov / Zululand. 20 mi S. Ndumu / Game Res. Camp (2732Aa) / Nov. 29, 1971; ME&BJ Irwin / dry scrub forest; 320 ft', '*Trichardis / apicalis* Oldr / det. H. Oldroyd 1973 / Paratypes' (NMSA); 3♂ 3♀ 'Ndumu Reserve [26°52'S:32°15'E], / Ingwavuma District / Tongaland, S. Africa / B. & P. Stuckenberg / 1–10 December 1963', '*Trichardis / apicalis* Oldr / det. H. Oldroyd 1973 / Paratypes' (NMSA); 2♀ 'Para- / type' [circular with yellow border], 'Ndumu Reserve / Ingwavuma dist. / Zululand, Natal / South Africa / 1–10.xii.63', 'collectors / B. & P. Stuckenberg' (BMNH).

Other material examined: BOTSWANA: 1♀ Ghanzi-Maun Rd, 2122AB, 19.xii.1984, Johnson; 1♂ Palapye [22°33'S:27°08'E], 4.iii.1934, Ogilvie (BMNH). MOZAMBIQUE: 1♀ Nampula [15°07'S:39°15'E], 29.ii.1982, Feijen; 1♂ Masiene [16°24'S:39°54'E], xii.1923, Lawrence (SAMC); 1♂ Nyaka [16°40'S:32°42'E], ii.1924, Lawrence (SAMC); 1♂ Mabote [22°02'S:34°08'E], 27–30.iii.1964, Moore (NMNH); 2♂ Massangwa [2°Massangera, 22°02'S:34°08'E], 1–8.ii.1964, Moore (NMNH); 1♀ Inhambane [23°51'S:35°29'E], i.1924, Lawrence (SAMC); 4♂ 4♀ Chimonzo [24°58'S:33°17'E], 21–27.ii.1964, Moore (NMNH); 1? Lorenzo Marques [= Maputo, 25°57'S:32°34'E], 1909, De Azevedo (NMNH); 7♂ 10♀ Chiquibo [?], 11–20.ii.1964, Moore (NMNH). NAMIBIA: 1♂ 1♀ Waterberg Nat. Park Entrance, 20°32'S:17°20'E, 20.iii.1984, Stuckenberg & Londt, *Acacia* thornveld; 1♂ Etosha-Pan, Namutoni [18°48'S:16°59'E], 23.i.1993, Koch (ZMHB). SOUTH AFRICA: 1♀ Messina Nat. Res., 22°24'54"S:30°05'12"E, 487 m, 14.ii.2005, Londt & Dikow, dry woodland Sand R.; 1♂ 2♀ Soutpansberge Soutpan, 2229CD, 23–24.ii.1980, Londt & Schoeman, bushveld vegetation; 1♂ 37 km N Louis Trichardt, 2229DD, i.1975, Stuckenberg, arid bushveld; 1♀ Wyllies Poort, 10 km N Louis Trichardt, 2229DD, 22.ii.1980, Londt & Schoeman; 1♀ Lapalala Nat. Res., 23°52'52"S:28°20'19"E, 1072 m, 16.ii.2005, Londt & Dikow, *Acacia Combretum* woodland; 4♂ Mogol Nat. Res., Ellisras Dist., 23°58'S:27°45'E, 19–23.xi.1979, van Tonder, Kok, Prinsloo & Mansell (SANC); 2♂ Ndumu Game Reserve, 26°55'S:32°19'E, 3.ii.1995, Koch (ZMHB); 1♂ Ndumu Game Reserve Rest Camp, 2632CD, 95 m, 15.ii.1978, Brothers, Malaise trap; 1♀ Ndumu Reserve, Ingwavuma Dist. [27°08'S:31°59'E], 1–10.xii.1963, Stuckenberg; 1♂ 32 km N Jozini, 2732AC, 229 m, 28.xi.1971, Irwin. ZIMBABWE: 2♂ Lusulu [18°04'S:27°50'E], 19.xi.1963, Phelps; 1♀ Hartley [18°08'S:30°09'E], xii.1930, Cuthbertson (BMNH); 1♀ Sawmills [19°35'S:28°01'E], 10.ii.1923, Swinburn & Stevenson; 1♂ 1♀ Sawmills, 26.xii.1923, Stevenson (SAMC); 1♀ Sawmills, 14.xi.1924, Stevenson.

*Distribution and biology*: The species, a southern African endemic, has a fairly wide distribution (Fig. 58), occurring in the northern parts of Namibia eastwards through Botswana, Zimbabwe, the northern parts of South Africa and Mozambique. Adults fly between November and March (Table 1). While little information is available concerning habitat, labels suggest that the species is found in dry to arid woodland dominated by *Acacia* trees.



Similar species: *T. apicalis* has an entirely pruinose postpronotal lobe and in this respect can be grouped with *grisescens*, *ornata*, *picta*, *terminalis*, *testacea*, *turneri* and *zinidi*. The species is, however, most similar to *zinidi*.

### **Trichardis crassipala** sp. n.

Figs 9, 10

Etymology: From Latin *crassus* (thick) and *palus* (stake/stick). Refers to enlarged gonostyli.

Description (based on holotype in excellent condition):

*Head*: Dark red-brown to black. Antenna dark red-brown to black, black setose except for a few small white setae; postpedicel not markedly clavate (L:D=3.7:1). Mystax white, a few black macrosetae along epistomal margin, on slightly convex and mostly shiny apruinose face. Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown to black.

*Thorax*: Dark red-brown to blackish, mostly apruinose, pruinose areas silvery. Postpronotum strongly silver pruinose medially, extensively apruinose laterally, mesonotum apruinose except for narrow silver pruinose lateral and posterior margins, macrosetae pale yellow, fine setae white. Scutellum apruinose except for narrow anterior margin. Anepisternum with pale yellow posterior macroseta, dorsally pruinose, ventrally apruinose. Proepimeron intensively pruinose, posterior part apruinose; katepisternum anteriorly apruinose, posteriorly pruinose; anepisternum pruinose. Legs: Dark red-brown, pulvilli and empodium of similar length. Hind femur dark red-brown, length:height ratio 3.7:1, ventral tubercles moderately developed. Hind tibia lacking ventrodistal spur. Wing: 4.2×1.6 mm. Costal vein moderately developed along entire wing margin, but weak along anal cell and absent from alula. Membrane extensively microtrichose (except for parts of some proximally situated cells)—discal and  $r_5$  cells entirely microtrichose.

*Abdomen*: Dark red-brown anteriorly becoming progressively more brown-orange posteriorly. T2 dark red-brown, apruinose except for narrow silver pruinose posterior margin laterally.

♂ genitalia (Figs 9, 10): Epandrium in lateral view significantly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger fairly long and strongly dorsoventrally compressed. Hypandrium moderately developed, with characteristic bilobed shape distally. Gonocoxite in ventral view with moderately well-developed median projection distally and lacking macrosetae except for a group of small ones on median projection; mediobasal projection stout, broad, laterally flanged, strongly sclerotised with characteristic shape. Gonostylus short, slender, largely hidden by gonocoxite. Aedeagal prongs more or less straight with moderately well-developed trifurcate tip.

Holotype: BURKINA FASO: ♂ 'Ouaga. [Ouagadougou, 12°25'N:01°30'W] 8.vii.69 / Haute – Volta / J.G. Pointel' (MNHN).

Paratypes: BURKINA FASO: 2♂ 1♀ same data as holotype (MNHN). MALI: 1♂ 1♀ 'Coll. Mus. Tervuren / Mali: Kassarola [?] / 31.vii.1970 / G. Pierrard' (MRAC). NIGER: 5♂ 3♀ 'Museum Paris / Rég. O. De Zinder / Tibiri–Maradi [13°35'N:08°10'E] / (Mission Tilho) / Dr R. Gaillard 1910', 'Juillet', 'Aout' (MNHN); 1♂ 3♀ 'Museum Paris / Rég. O. De Zinder / Maradi / (Mission Tilho) / Dr R. Gaillard 1910', 'Juillet' (MNHN). SUDAN: 3♂ 3♀ '11.v.55 38 / Southern Sudan / Equatoria Province / Juba [04°57'N:31°35'E] / P. Blasdale. 34–1955' (OXUM).

Other material examined: There are three specimens of undetermined sex from Niger (same labels as above) in MNHN.

**Distribution and biology:** The species is widely distributed in Africa north of the Equator, being found in West Africa (Mali, Burkina Faso), Central Africa (Niger) and East Africa (Sudan). Adults fly between May and August (no records for June), the northern hemisphere summer (Table 1). No information is available concerning habitat preference, but locality information suggests that this is a savannah species.

**Similar species:** A member of what is here called the ‘*cribrata* species group’ which consists of *crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis*, *spicata* and *indica*. These species are superficially similar, but can be easily separated on characters of the male genitalia. *T. crassipala* is most similar to *similis* in that both species have well-developed hypandria.

*Trichardis cribrata* (Loew, 1858)

Figs 11, 12, 59

*Hoplistomera cribrata*: Loew 1958: 357; 1860: 193.

*Trichardis cribrata*: Engel 1924: 108–109; Oldroyd 1970: 249 (fig. 28, mesopleuron); 1974: 118; 1980: 355 (catalogue).

*Trichardis cribratus*: Hull 1962: 97.

**Redescription** (based on Mhlopeni Nat. Res. male in excellent condition):

**Head:** Dark red-brown to black, finely silver pruinose except for central parts of face. Antenna orange-brown, black setose except for a few small pale yellow setae; postpedicel not markedly clavate (L:D=3.2:1). Mystax uniformly pale yellowish. Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown.

**Thorax:** Dark red-brown to black, silver pruinose except for some bare areas. Postpronotum medially strongly silver pruinose, laterally apruinose, mesonotum apruinose except for silver lateral and posterior margins, macrosetae yellow-white, fine setulae yellowish. Scutellum apruinose except for narrow anterior margin. Anepisternum with pale yellow posterior macroseta, extensively silver pruinose except for apruinose area anteroventrally. Proepimeron anteriorly pruinose, posteriorly apruinose; katopisternum posteriorly pruinose, anteriorly apruinose; anepisternum entirely pruinose. Legs: Dark red-brown, tibiae orange-brown proximally, pulvilli and empodium of similar length. Hind femur dark red-brown, length:height ratio 3.4:1, ventral tubercles well-developed. Hind tibia lacking ventrodorsal spur. Wing: 4.0×1.6 mm. Costal vein moderately developed around most of wing margin, weakening along anal cell and absent from alula. Membrane extensively microtrichose—discal and  $r_5$  cells entirely microtrichose.

**Abdomen:** Dark red-brown with narrow brown-orange posterior margins, fine pale white setose. T2 dark red-brown, apruinose except for narrow weakly silver pruinose posterior margins laterally.

♂ genitalia (Figs 11, 12): Epandrium in lateral view significantly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without median projections distally and with a row of about 7 mediolaterally arranged macrosetae; mediolateral projection long, well-developed and with slightly upturned sclerotised distal end. Gonostylus stout with

relatively straight and broadly rounded apex. Aedeagal prongs small, more or less straight and with small trifurcate tip.

Type specimens: Despite an extensive search, I have not been able to trace the whereabouts of the type material. Loew's (1858) short description, in Latin, was based on '♂ & ♀' from 'Caffraria (Wahlb.)'. As no holotype was designated his specimens must be considered syntypes. There is only one species from southern Africa that answers to the description, so I am confident that the material here assigned to this taxon has been correctly allocated, and that there is little need for a neotype to be designated.

Type locality designation: Loew's material, collected by Wahlberg, came from 'Caffraria', a term used to cover much of the eastern part of present day Southern Africa. As Wahlberg passed through the KwaZulu-Natal midlands, I hereby designate the Mhlopheni Nat. Res., SE of Muden, as type locality as a good series has been collected there.

Specimens studied: LESOTHO: 5♂ 3♀ Mamathes [29°08'S:27°51'E], 31.xii.1947 (1♀), 4.i.1948 (1♂), 9.i.1949 (1♂), 9.xii.1949 (1♂), 8.i.1950 (1♂ 1♀) 1.i.1952 (1♂ 1♀), Jacot-Guillarmod (AMGS); 1♀ Mahlatsa [29°13'S:28°00'E], 30.xii.1951, Jacot-Guillarmod (AMGS). MOZAMBIQUE: 1♂ Maqudê [?Magude, 25°02'S:32°40'E], 29.ii.1964, Moore (NMNH); 3♂ 1♀ Maoamba [25°36'S:32°15'E], 9–12.iii.1964, Moore (NMNH). SOUTH AFRICA: 1♀ Pietersburg [Polokwane, 23°54'S:29°27'E], 8.xii.1965, Hoffmann (SANC); 1♀ Groenfontein, 35 km E Thabazimbi, 24°34'S:27°45'E, 27.xi.1980, Kok (SANC); 1♀ Ben Alberts Nat Res. Thabazimbi, 24°37'S:27°23'E, 24–28.xi.1980, Kok (SANC); 1♂ Sondéla Nat. Res., 24°54.127'S:28°25.191'E, 1086 m, 7–14.xi.2003, Londt, *Acacia* savannah; 1♀ Skukuza [24°59'S:31°36'E], 23.xi.1959 (BMNH); 1♀ Saliétjie Pad, KNW [= KNP – Kruger National Park], 27 km from Skukuza, 8.xi.1960, van Schalkwyk (SANC); 1♂ 1♀ Kruger National Park, N of Sabie R., 25.xi.1959, Munro & v. Bruggen (SANC); 1♀ Lydenburg Dist. [25°06'S:30°27'E], 1896, Krantz; 1♀ 1? Wonderboom [25°36'S:29°20'E], 21.xi.1915, Roberts; 1♀ W. boom [Wonderboom] Pretoria, xii.1915, Munro (NMNH); 2♂ 1♀ Swartruggens Marico [25°39'S:26°42'E], 15.i.1921, Brauns; 1♂ Zwarttruggens Marico, 15.i.1921, Brauns (NMNH); 1♂ Rustenburg [25°40'S:27°15'E], 3.xii.1961 (BMNH); 2♂ 4♀ Pretoria [25°44'S:28°11'E], 28.xii.1912 (1♂), 16.xii.1913 (1♀), 12.xii.1914 (1♀), 2.xii.1915 (1♂), 18.xii.1915 (1♀), xii.1929 (1♀), Munro (NMNH); 1♀ 1? Pretoria, 16.xii.1913, Munro (SANC); 1♂ 2♀ Hennops R., 20 km W Pretoria, 25°47'S:27°55'E, 17.xii.1981, Oberprieeler (SANC); 1♀ Brnkh.spr. [Bronkhorstspuit, 25°48'S:28°44'E], 15.xii.1906; 1♂ 2♀ Halfway House [25°59'S:28°07'E], 22.vii.1981, Elferink; 1♂ Lichtenburg [26°09'S:26°10'E] (MCM); 3♂ 2♀ Lichtenburg, Brauns (ZSMC); 1♀ 'Sammlung F. Hermann' [no locality data, but probably from Lichtenburg] (ZSMC); 1♀ Kroonstad [27°40'S:27°14'E], O.R.C. [Orange River Colony = Free State Province], Eckersley (BMNH); 2♂ 1♀ 1? M'fongosi [28°42'S:30°48'E], x.1911 (1?), iii.1917 (1♀), iv–xi.1934 (2♂), Jones (SAMC); 2♂ 3♀ Weenen [28°51'S:30°05'E], i.1925 (2♂ 2♀), iii.1925 (1♀), Thomasset (BMNH); 1♀ Koornspruit Weenen, 2830CC, 24.xi.1981, Milton, *Acacia tortilis*; 1♂ 1♀ Colenso, 2829DB, 7.x.1981, Londt; 1♂ 1♀ 20 km W Tugela Ferry, 2830CA, 26–27.ii.1977, Miller, Malaise trap; 9♂ 4♀ c. 10 km E Estcourt [29°00'S:29°53'E], 13.xii.1995, Londt & Cradock, *Acacia* woodland; 1♂ 1♀ Estcourt, 1894, Haviland (SAMC); 1♂ 3♀ Estcourt, xii.1896 (2♀ in BMNH); 1♂ 1♀ Estcourt, 1897, Marshall (BMNH); 6♂ 2♀ Mhlopheni Nat. Res. 15 km SE Muden, 2930AB, 22.xii.1983, Londt; 2♀ Aliwal North [30°42'S:26°42'E], 1326 m, 1–13.i.1923, Turner (BMNH); 1♀ Umdala Fort Beaufort [32°48'S:26°39'E], iii.1954, S.A.Museum (SAMC); 1♂ Willowmore [33°17'S:23°29'E], 10.i.1907, Brauns (ZSMC); 2♂ 2♀ 5 km NE Kenton on Sea, 3326AD, 29.xii.1985, Londt, bush & grass & stream bed; 1♂ 1♀ Kangwane, Thomeni Res. [?], 16.i.1992, *Acacia* veld. ZIMBABWE: 1♀ Rekomitjie [16°08'S:29°24'E], i.1988, Phelps, Mopane woodland; 1♀ Mt Selinda [20°25'S:32°42'E], xii.1935, van Son.

Distribution and biology: The species is a southern African endemic, distributed widely within the eastern half of the subregion (eastwards of about 23°E), but does not appear to occur along the subtropical and tropical eastern coast (Fig. 59). Adults fly during the summer months of October and March (there is a record for July that needs verification) (Table 1). While little information is available concerning habitat, labels suggest that the species is found mainly in *Acacia* savannah and woodland.

Similar species: Oldroyd (1970) compared *katangaensis* with *cribrata*, but these species are in fact quite different in many respects. *T. cribrata* is a member of what is here

called the ‘*cribrata* species group’ which consists of *crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis*, *spicata* and *indica*. These species are superficially similar, but can be separated on characters of the male genitalia. *T. cribrata* appears to be a fairly distinctive species within the group.

### ***Trichardis eburacta* sp. n.**

Figs 13, 14

**Etymology:** From Latin *ebur* (ivory) and *acta* (shore). Refers to the country of Ivory Coast, where most of the type specimens were collected.

**Description** (based on holotype in excellent condition):

**Head:** Dark red-brown to black, fine silver pruinose except for much of face and frons. Antenna dark red-brown to black, black setose; postpedicel not markedly clavate (L:D=3.7:1). Mystax white with black macrosetae along epistomal margin. Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown to black.

**Thorax:** Dark red-brown to black, silver pruinose except for some shiny apruinose areas. Postpronotum medially silver pruinose, laterally apruinose; mesonotum largely apruinose except for lateral and posterior margins. Scutellum apruinose except for narrow anterior margin. Anepisternum with pale yellow posterior macroseta, dorsally and posteriorly pruinose, anteroventrally apruinose. Proepimeron pruinose except for posterior margin, katapisternum pruinose except for anterior margin, anepisternum entirely pruinose. Legs: Dark red-brown to black, pulvilli and empodium of similar length. Hind femur dark red-brown to black, length:height ratio 3.6:1, ventral tubercles well-developed. Hind tibia lacking ventrodistal spur. Wing: 4.3×1.7 mm. Costal vein well-developed and extending along much of wing margin, weakly along anal cell, absent from alula. Membrane extensively microtrichose—discal and  $r_5$  cells entirely microtrichose.

**Abdomen:** Dark red-brown to black anteriorly becoming progressively red-brown posteriorly. T2 dark red-brown, apruinose except for silver pruinose posterior margins laterally.

♂ genitalia (Figs 13, 14): Epandrium in lateral view significantly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed, lower valve long. Hypandrium greatly reduced and simple. Gonocoxite in ventral view with sharp median projection dorso-distally and without distally arranged macrosetae; mediobasal projection moderately well developed with fairly straight, broadly rounded distal end. Gonostylus fairly stout, jutting out beyond medial process of gonocoxite, with slightly upturned distal end. Aedeagal base with a short finger-like projection laterally; prongs more or less straight, stout, with small trifurcate tip.

**Holotype:** IVORY COAST: ♂ ‘Côte D’Ivoire: 28 km / W Bouaflé, Maraoué / Nat Park 19.iv.1989 / 06°59’N:: 05°54’W / JGH Londt. Woodland / and forest margins’ (NMSA).

**Paratypes:** IVORY COAST: 1♂ 3♀ same data as holotype; 1♂ 1♀ ‘Côte D’Ivoire: Comoé / Nat. Park. ca. 7 km NW / Gansé. 17.iv.1989 / 08°39’N:: 03°56’W / Viewpoint 2 J Londt / riverine forest area’; 3♂ ‘Côte D’Ivoire: Comoé / Nat. Park. nr where / Lolo riv meets Comoé / 08°44’N:: 03°50’W / Viewpoint 4 J Londt / 17.iv.1989 riverside’. NIGERIA: 1♀ ‘N. Nigeria / Zaria, / Samaru. [11°10’N:07°37’E] / 18.vi.1968’, ‘J. C. Deeming / m.v. trap.’ (BMNH).

**Distribution and biology:** The species has only been found in West Africa. Adults fly during the summer months of April and June (Table 1). Little information is available

concerning habitat, however, I collected specimens in woodland and open areas adjacent to forests.

Similar species: *T. eburacta* is a member of what is here called the ‘*cribrata* species group’ which consists of *crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis*, *spicata*, and *indica*. These species are superficially similar, but can be separated on characters of the male genitalia. *T. eburacta* appears to be a fairly distinctive species, however it is most similar to *crassipala* and *similis* in that the hypandrium is better developed than in other species and the form of the gonocoxites is very similar.

### **Trichardis effrena** sp. n.

Figs 4, 15, 16, 59

**Etymology:** From Latin *effrena* (unrestrained). Refers to the absence of the costal vein along the posterior margin of the wing.

**Description** (based on holotype in excellent condition):

**Head:** Brown-orange, entirely fine silver pruinose. Antenna brown-orange except for distal part of postpedicel and style which are red-brown, setae orange; postpedicel clavate (L:D=2.4:1). Mystax uniformly shiny orange. Ocellar tubercle with 4 macrosetae. Proboscis proximally orange-brown distally dark red-brown, palpi orange-brown.

**Thorax:** Brown-orange with some red-brown areas, extensively fine silver pruinose. Postpronotum medially pruinose, laterally apruinose; mesonotum brown-orange with red-brown dorsal stripe and laterally situated broad bands, apruinose except for narrow lateral and posterior margins. Scutellum entirely apruinose. Anepisternum with orange posterior macroseta, extensively pruinose except for small anteroventral area. Propimeron pruinose; katepisternum red-brown pruinose posteriorly, apruinose anteriorly; anepisternum entirely pruinose. Legs: Brown-orange (femora, tarsomere 5 and hind tibiae darker), pulvilli and empodium of similar length. Hind femur orange-brown, length:height ratio 3.4:1, ventral tubercles poorly developed. Hind tibia lacking ventro-distal spur. Wing: 4.6×1.8 mm. Costal vein strongly developed only as far as wing tip, very weak or absent along entire posterior margin of wing. Membrane not extensively microtrichose—discal and  $r_5$  cell almost entirely lacking microtrichiae.

**Abdomen:** Brown-orange, macrosetae orange, fine setulae pale yellow. T2 brown-orange, apruinose except for strong silver pruinose spot posterolaterally.

♂ genitalia (Figs 15, 16): Epandrium in lateral view longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without median projections distally and with a distal row of about 7 macrosetae; mediobasal projection stout, with strongly upturned and sclerotised distal end. Gonostylus fairly stout, with broadly rounded, fairly straight distal end. Aedeagal prongs small, more or less straight and with a small terminal end.

**Holotype:** SOUTH AFRICA: ♂ ‘South Africa: N Cape / Witsand Nature Reserve / 28°33.975'S:022°29.279'E / 1150 m J Londt & T Dikow / 31.i.2004 *Acacia* mixed / woodland. Reception area’ (NMSA).

**Paratypes:** NAMIBIA: 1 ♀ ‘Brit. S. W. – Africa / Kalahari / L. Schultze S.’, ‘*Hoplistomere / cribrata* / Lw / Kalahari / 1 968. a. / Det Dr. F. Hermann [sideways]’ (ZMHB). SOUTH AFRICA: 2 ♂ 2 ♀ ‘S: Africa: NW Province / Molopo Game Reserve / Phiri Camp area / 25°46'43"S:22°55'53"E / 990 m 14.iii.2003 J Londt / *Acacia Eragrostis* savannah’; 1 ♀ ‘S Africa: N Cape #15 / 14 km S of Hotazel / 27 19'S:22 54'E 1050 m /

Date: 14.iii.1991 / Londt & Whittington / Ga-Mogara River bed'; 1 ♀ 'South Africa: N Cape / Vaalbos National Park / Riverside Picnic site 1055 m / 28°27.470'S 024°19.994'E / 28–29.i.2004 JGH Londt & / T Dikow *Acacia* savannah'; 1 ♂ 'S Africa: N Cape / Witsand Farm, 28°32'S / 22°30'E. 2–4.ii.1979 / B / Lamoral, I Bampton / J. Barnley. Malaise tr'; 4 ♂ 4 ♀ 'South Africa: N Cape / Witsand Nature Reserve / 28°33.615'S 022°29.105'E / 1160 m J Londt & T Dikow / 31.i.– 1.ii.2004 *Acacia* / savannah & white dune area'; 2 ♂ 1 ♀ 'South Africa: N Cape / Witsand Nature Reserve / 28°33.673'S 022°29.656'E / 1200 m J Londt & T Dikow / 30.i.– 1.ii.2004 *Acacia* / savannah. Red sandy ridge'; 6 ♂ 1 ♀ same data as holotype.

Other material examined: I have seen the following specimen, identified as *testacea* by Engel, which appears to belong to *effrena*. Because the locality is so far removed from the Northern Cape records, I refrain from including the specimen in the type series. ZIMBABWE: 1 ♂ 'Victoria Falls [17°55'S:25°51'E], / 4.i.1920 / Rhodesia / Museum', Pres. by / Imp. Inst. Ent. / Brit. Mus. / 1930-298.', '*Trichardis testacea* / Merh. / Dr. E. O. Engel det.' (BMNH).

Distribution and biology: The species is a southern African endemic, being found in the Northern Cape Province of South Africa and in western Zimbabwe (Fig. 59). While I hesitate to give type status to the single Zimbabwean specimen because of its isolated position relative to the other records, I am fairly confident that the specimen is correctly labelled and identified. Botswana is generally poorly sampled and so this kind of apparently disjunct distributional pattern should not cause undue concern. Other asilid species have been shown to have a similar distributional pattern. For example Londt (2004) demonstrated that *Laphystotes albicans* (Engel, 1932) is similarly distributed. Adults of the new species are active during summer and have been collected between January and March (Table 1). This species is associated with open *Acacia* savannah and mixed woodland. All the specimens captured at Witsand Nat. Res. were found resting on sandy pathways.

Similar species: Although sharing a number of characters with *glabra* and *mellina*, *effrena* is a distinctive species in that it displays a remarkable reduction in wing venation and has a distinctive male genital form.

### ***Trichardis glabra* sp. n.**

Figs 17, 18

Etymology: From Latin *glabra* (hairless, bald, smooth). Refers to the extensively apruinose thoracic pleura.

Description (based on holotype in excellent condition):

**Head:** Dark red-brown, extensively silver pruinose, but weakly on central face and ocellar tubercle, setae black, orange and white. Antennae yellow-brown except distal end of postpedicel and scape which are dark red-brown; scape with two macrosetae ventrally (1 black, 1 orange), fine setulae white and black; pedicel entirely black setose; postpedicel not markedly clavate (L:D=3.1:1), with few black setulae dorsally. Mystax entirely white. Ocellar tubercle with 2 black macrosetae. Proboscis and palpi dark red-brown.

**Thorax:** Dark red-brown, largely apruinose with silver pruinose parts, fine setae whitish, macrosetae brown-yellow. Postpronotum largely apruinose except for narrow medial part, mesonotum largely apruinose except for margins, macrosetae orange, setulae shiny white. Scutellum dark red-brown, entirely apruinose. Anepisternum with slender orange posterior macroseta. Pleura entirely apruinose except for the following small sections— anterior part of proepimeron, dorsal part of anepisternum, ventral part of metepisternum. **Legs:** Dark red-brown, pulvilli and empodium of similar length. Hind femur uniformly dark red-brown, length:height ratio 3.7:1, ventral tubercles hardly evident, major setae

pale yellowish. Hind tibia lacking ventrodistal spur. Wing: 4.2×1.5 mm. Costal vein extends around most of wing margin, weakly along anal cell, absent from alula. Membrane not extensively microtrichose—discal cell largely lacking microtrichiae (a few centrally), cell  $r_5$  with microtrichiae limited mainly to distal half.

**Abdomen:** Terga and hypopygium dark red-brown, apruinose, setae transparent whitish. T2 dark red-brown, apruinose.

♂ genitalia (Figs 17, 18): Epandrium in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hyandrium greatly reduced and simple. Gonocoxite in ventral view with large broadly-rounded dorsomedial projection equipped with moderately developed setae; mediobasal projection sinuous at base with long slender slightly curved distal end. Gonostylus fairly broad basally with slender down-curved distal end. Aedeagal prongs more or less straight and with small terminal tubules.

**Holotype:** GAMBIA: ♂ 'Bansang [13°26'N:14°39'W], Gambia / 11.v.77 Malaise in scrub / beside river', 'W. F. Snow Collection / pres. W. F. Snow, 1996 / OUM 02-1996' (OXUM).

**Paratypes** (all OXUM): GAMBIA: 1♀ same data as holotype; 1♂ 'Bansang, Gambia / 10.v.77 Malaise in / scrub beside river', 'W. F. Snow Collection / pres. W. F. Snow, 1996 / OUM 02-1996'; 1♂ same labels but '9.v.77'; 1♀ 'Bansang, Gambia / 4.iv.75 Scrub along / river bank', 'W. F. Snow Collection / pres. W. F. Snow, 1996 / OUM 02-1996'.

**Distribution and biology:** Known only from the type locality in Gambia, specimens being collected in April and May (Table 1). All specimens were collected in scrub along a river bank. No other biological information is available.

**Similar species:** *T. glabra* is most similar to *mellina*, and they key out together. The male genitalia, especially the form of the gonocoxites are particularly diagnostic in this pair. *T. effrena* shares some characteristics with these species, but is otherwise distinctive.

### *Trichardis grisescens* Engel, 1924

Figs 19, 20

*Trichardis grisescens* Hermann, 1920: 178. *Nomen nudum*.

*Trichardis grisescens*: Engel 1924: 108; Hull 1962: 97; Oldroyd 1980: 356 (catalogue).

**Redescription** (based on holotype in excellent condition):

**Head:** Orange anteriorly, red-brown posteriorly; entirely silvery pruinose. Antenna brown-orange except for red-brown distal part of postpedicel and style, pale yellow setose; postpedicel clavate (L:D=2.3:1). Mystax uniformly yellow-white. Ocellar tubercle with 2 macrosetae. Proboscis and palpi red-brown.

**Thorax:** Orange-brown with some darker red-brown parts, extensively silver pruinose, macrosetae pale yellow, setulae shiny pale yellow. Postpronotum entirely pruinose, mesonotum with red-brown dorsal stripe and lateral broad bands, extensively pruinose except for darker red-brown areas. Scutellum pruinose (except for narrow posterior margin). Anepisternum with pale yellow posterior macroseta, dorsally pruinose, ventrally apruinose. Proepimeron pruinose anteriorly, apruinose posteriorly; katopisternum pruinose posteriorly, apruinose anteriorly; anepisternum pruinose posteroventrally, apruinose anterodorsally. Legs: Orange-brown (but femora, tarsomere 5 and hind tibiae darker), pulvilli and empodium of similar length. Hind femur red-brown, length:height ratio 3.6:1, ventral tubercles poorly developed. Hind tibia lacking ventrodistal spur.

Wing: 5.3×1.9 mm. Costal vein extends around most of wing margin, weak along anal cell, absent from alula. Membrane extensively lacking microtrichiae—discal and  $r_5$  cells entirely lacking microtrichiae.

**Abdomen:** Red-brown, apruinose, macrosetae pale yellow, setulae shiny white. T2 red-brown, apruinose.

♂ genitalia (Figs 19, 20): Epandrium in lateral view longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium reduced, with somewhat pointed distal end and simple structure. Gonocoxite in ventral view without median projections and distally with a single short, stout macroseta; mediobasal projection slender with slightly upturned distal end. Gonostylus long, slender with straight distal end. Aedeagal prongs slightly sinuous, with small trifurcate tip.

Holotype (examined): GAMBIA: ♂ 'Essan [?Essau, 13°29'N:16°32'W] / Gambia. / J. J. Simpson. / 25.iv.1910', 'Sammlung / F. Hermann', 'Type von / *Trichardis / griseescens* H.i.l. / Engel' [orange], 'Ost-Africa / *Trichardis / griseescens* / Type Hrm' [pink] (ZSMC). Note: Although Engel (1924) attributed the species to 'Herm. In litt.', and the specimen is labelled 'Type Hrm', this action has no validity and Engel himself must be credited with authorship.

Other material examined: ETHIOPIA: 1 ♀ Mério Bourié Bord de la Riv Omo [04°31'N:35°59'E], 600 m, ii.1932–33 [?], Arambourg, Chappuis & Jeannel (MNHN). GAMBIA: 1 ♂ Outside Abuko Nat. Res. at Waterworks [13°24'N:16°39'W], at light 19.00–20.00, Loc. No. 6. UTM28pk214812, 26.ii.1977, Lund Univ. Syst. Dept. Sweden (MZLU); 1 ♀ [has a holotype label placed by J.E. Chainey 1984, but is not a type], Essan [?Essau], 25.iv.1919, Simpson (BMNH); 2 ♀ Karantaba Tenda [13°33'N:14°34'W], 23.iii.[19]75, Nth Bank on stony river shore, W.F. Snow (OXUM); 1 ♀ [has a 'typus' label, but is not a type], Jalokunda [Jalo Kunda, 13°47'N:15°00'W], 17.iii.1911, Simpson (BMNH); 1 ♀ Gambia, 16.iii.1911, Simpson (BMNH). KENYA: 1 ♀ Archers Post [00°39'N:37°41'E], 15.i.1973, Bampton; 1 ♀ Nairobi National Park [01°16'S:36°46'E], 16.xi.1969, Irwin & Ross (CASC); 2 ♀ Kiboko [02°11'S:37°43'E], 24.ii.1968, Hussey (BMNH); 1 ♂ Kiboko, 28.ii.1968, Hussey (BMNH). SENEGAL: 1 ♀ Camon [?Gamon, 13°20'N:12°55'W] Oriental Ref[igion]., 14.v.1966, Harvey (NMNH).

**Distribution and biology:** A widespread species having been collected in both West Africa (Senegal, Gambia) and East Africa (Ethiopia, Kenya) and both north and south of the equator. Adults fly between November and May (no records for December) (Table 1). Label data do not provide insights into the habitat requirements of the species. Although Engel and Cuthbertson (1939) records the following for *griseescens*—'In S. Rhodesia [Zimbabwe] this species is known from the Nyamandhlovu district, Matabeleland, and Urungwe, Lomagundi district. At Kariba Gorge, Zambezi River, it is found on leaf-strewn ground in September. The prey consists of leaf-hoppers and small Hymenoptera (teste W.L. Williams). Rhodesian specimens (males) are much larger than the types which came from Gambia.'—the accepted distribution indicates that these notes must refer to another species.

**Similar species:** *T. griseescens* has an entirely pruinose postpronotal lobe and in this respect can be grouped with *apicalis*, *ornata*, *picta*, *terminalis*, *testacea*, *turneri*, and *zinidi*. The species is, however, most similar to *terminalis*.

### ***Trichardis hesperia* sp. n.**

Figs 21, 22

**Etymology:** From Latin *hesperia* (western). Refers to the West African distribution of this species.



Description (based primarily on holotype in fair condition—antennae broken off beyond pedicel, postmetacoxal area and most of anterior sterna missing presumably due to damage by dermestids—but supplemented by information from paratypes):

*Head:* Dark red-brown to black, silver pruinose except for central part of face and frons. Antenna dark red-brown, black setose; postpedicel (♂ paratype) not markedly clavate (L:D=3.6:1). Mystax white with black macrosetae along epistomal margin. Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown.

*Thorax:* Dark red-brown, silver pruinose except for bare areas, macrosetae orange, setulae pale yellow. Postpronotum medially pruinose, laterally apruinose; mesonotum apruinose except for narrow lateral and posterior margins. Scutellum entirely pruinose. Anepisternum with orange posterior macroseta, dorsally pruinose, ventrally apruinose. Propimeron pruinose; katepisternum pruinose posteriorly, apruinose anteriorly; anepisternum pruinose anteriorly, apruinose posteriorly. Legs: Dark red-brown, pulvilli and empodium of similar length. Hind femur dark red-brown, length:height ratio 3.6:1, ventral tubercles poorly developed. Hind tibia lacking ventrodiscal spur. Wing: 4.0×1.4 mm. Costal vein extends around most of wing margin, weak along anal cell, absent from margin of alula. Membrane extensively microtrichose—discal cell microtrichose, but weakly so anteroproximally, cell  $r_5$  entirely microtrichose.

*Abdomen:* Dark red-brown proximally rapidly becoming brown-orange more distally, macrosetae pale yellow, setulae pale white. T2 red-brown, apruinose except for narrow posterolateral margins, which have some silver pruinescence.

♂ genitalia (Figs 21, 22): Epandrium in lateral view as long as basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger long, strongly dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view with projections distally and with a few laterally positioned macrosetae; mediolateral projection stout, fairly straight. Gonostylus slender, slightly sinuous with slightly down turned tip. Aedeagal prongs more or less straight, fairly stout, with small trifurcate tip.

Holotype: SENEGAL: ♂ 'Museum Paris / Sénégal / Kayes [14°25'N:11°30'W] / F. De Zeltner 1905' (MNHN). Paratypes: GAMBIA: 1 ♀ 'Keneba [13°19'44"N:16°00'54"W], Gambia / 14.viii.75 Woodland', 'W. F. Snow Collection / pres. W. F. Snow, 1996 / OUM 02-1996' (OXUM); 2 ♀ 'Keneba, Gambia / 11.viii.74 Tambana / Bare ground', 'W. F. Snow Collection / pres. W. F. Snow, 1996 / OUM 02-1996' (OXUM); 1 ♀ 'Keneba, Gambia / 30.v.74 Tambana / dry stream bed', 'W. F. Snow Collection / pres. W. F. Snow, 1996 / OUM 02-1996' (OXUM). SENEGAL: 1 ♂ same data as holotype (MNHN).

Distribution and biology: This West African species is known from Gambia and Senegal. Adults have been collected in May and August and so the species is probably active during the northern hemisphere summer. Apart from the fact that specimens have been collected on bare ground, dry river beds and in woodland, no biological information exists.

Similar species: A member of what is here called the '*cribrata* species group' which consists of *crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis*, *spicata*, and *indica*. These species are superficially similar, but can be easily separated on characters of the male genitalia. *T. hesperia* is distinctive.

### *Trichardis katangaensis* Oldroyd, 1970

Figs 23, 24

*Trichardis katangaensis*: Oldroyd 1970: 248–249, fig. 29 (mesopleuron); 1980: 356 (catalogue).

Redescription (based on holotype in good condition, with wings a little crumpled and with damaged hind margins):

*Head*: Dark red-brown to black, silver pruinose (sparse on lower face), setae longish black, yellow and white. Antenna dark red-brown, black setose; postpedicel not markedly clavate (L:D=3.9:1). Mystax shiny yellowish with black macrosetae along epistomal margin. Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown.

*Thorax*: Dark red-brown to black, postpronotal and postalar lobes orange-brown, gold-silver and silver pruinose, generally appearing more setose than many other species. Postpronotum medially narrowly pruinose, laterally extensively apruinose; mesonotum apruinose with narrow silver pruinose lateral and posterior margins, macrosetae black, setulae mixed long black and short yellow. Scutellum apruinose. Anepisternum with black posterior macroseta, pruinose except for large anteroventral area. Proepimeron entirely pruinose, katapisternum pruinose except for small central area, anepisternum entirely pruinose. Legs: Dark red-brown except for orange-brown coxae, pulvilli and empodium of similar length. Hind femur dark red-brown, length:height ratio 3.1:1 (i.e. moderately inflated), ventral tubercles well-developed. Hind tibia with well-developed ventrodistal spur. Wing: 6.1×2.2 mm. Costal vein extends along most of wing margin, weakly along anal cell, absent from margin of alula. Membrane extensively microtrichose—discal cell microtrichose but weakly so anteroproximally, cell  $r_5$  entirely microtrichose.

*Abdomen*: Dark red-brown, macrosetae pale yellow, setulae longish white. T2 dark red-brown, apruinose except for posterolateral margins.

♂ genitalia (Figs 23, 24): Epandrium in lateral view longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger short, only moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without median projections distally and with about four medially-directed macrosetae at about mid-length; mediodistal projection stout, with upturned forked distal end. Gonostyli stout with converging, pointed distal ends. Aedeagal prongs small, more or less straight and with small trifurcate tip.

Holotype: DR CONGO: ♂ 'Holotypus' [orange], 'Musée Du Congo / Lulua [05°56'S:25°47'E]: Kapanga / x-1932 / G. F. Overlaet', *Trichardis / katangaensis* Oldr / det. H. Oldroyd, 1965 / Paratype' [white] (MRAC).

Paratypes (all MRAC): DR CONGO: 1 ♀ 'Paratypus' [orange], 'Musée Du Congo / Elisabethville [11°40'S:27°28'E] / xi-1911 / Miss. Agric.', *Trichardis / katangaensis* Oldr / det. H. Oldroyd, 1965 / Holotype' [white]. TANZANIA: 1 ♀ 'Coll. Mus Congo / Tang.: Sunkutu [?], 1140 m. / Km. 95, Rte Pepa-Moliro / H. Bomans xii-1953', *Trichardis / katangaensis* Oldr / det. H. Oldroyd, 1965 / Paratype' [white].

Note: The two DR Congo types above were incorrectly labelled when received from MRAC. The male from Lulua, clearly designated as holotype, carried the paratype label while the female from Elisabethville was labelled as holotype. These labels have been switched.

*Distribution and biology*: The species is found in Central and East Africa. Adults fly between October and December (Table 1) during the southern hemisphere summer. No biological information is available.

*Similar species*: Oldroyd (1970) compared the species to *cribrata* and illustrated the mesopleura of both species. Why he did this is not understood as these species do not have a great deal in common. *T. katangaensis* can be linked with *lavignei* in that both species possess hind-tibial spurs. However, both are otherwise distinctive species.

**Trichardis lavignei** sp. n.

Figs 25, 26

**Etymology:** Named for Dr Robert Lavigne whose collecting activities in Somalia have added significantly to our understanding of Asilidae from this part of Africa.

**Description** (based on holotype in good condition; the genitalia, macerated and stored in a capsule some years before this study, are intact, but somewhat squashed and inflexible, making it difficult to illustrate the structures in the standard manner used in this paper):

**Head:** Dark red-brown to black, gold-silver pruinose except for area around antennal bases and ocellar tubercle, setae black, yellow and white. Antenna dark red-brown, mainly yellow setose (a few black); postpedicel elongate spindle-shaped (L:D=4.2:1). Mystax black, confined to lower half of face (which in profile has a slightly concave area centrally). Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown.

**Thorax:** Dark red-brown, postpronotal and postalar lobes and anterior part of scutellum orange-brown, silver pruinose except for bare areas, setae yellowish. Postpronotum apruinose except for a tiny area medially, mesonotum extensively apruinose except for narrow lateral and posterior margins, macrosetae yellow, setulae yellow and white. Scutellum entirely pruinose. Anepisternum with pale yellow posterior macroseta, dorsally pruinose, ventrally apruinose. Proepimeron pruinose; katepisternum pruinose posteriorly, apruinose anteriorly; anepisternum extensively apruinose. **Legs:** Dark red-brown, femora and tibiae paler proximally, pulvilli and empodium of similar length. Hind femur dark red-brown with paler proximal end, length:height ratio 3.2:1, ventral tubercles well-developed. Hind tibia with ventrodistal spur. Wing: 4.0×1.6 mm. Costal vein extends along most of wing margin, weakly along anal cell, absent from alula. Membrane extensively microtrichose—discal cell microtrichose but weakly so at proximal end, cell  $r_5$  entirely microtrichose.

**Abdomen:** Dark red-brown proximally becoming orange-brown distally, macrosetae pale yellow, setulae white. T2 dark red-brown, entirely apruinose, tufts of white setulae posterolaterally.

♂ genitalia (Figs 25, 26): Epandrium significantly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view with slender projections distally and without distally arranged macrosetae; mediolateral projection unusually slender and not medially situated as in most other species. Gonostylus slender, fairly straight, with slightly hooked tip. Aedeagal prongs more or less straight, with small sinuous terminal filamentous tubules.

**Holotype:** SOMALIA: ♂ ‘Somalia / Mogadishu [02°02'N:45°21'E], / v-10-86 / R. Lavigne’ (NMSA).

**Paratype:** 1 ♀ ‘Somalia / Mogadishu / vi-7-86 / R. Lavigne’ (NMSA).

**Distribution and biology:** The species is recorded only from the type locality. Adults have been recorded in May and June (Table 1). No biological information exists.

**Similar species:** *T. lavignei* can be linked with *katangaensis* in that both species possess hind tibial spurs. However, both are otherwise distinctive species.

*Trichardis leucocoma* (Wulp, 1899)

Figs 27, 28

*Hoplistomera leucocoma*: Wulp 1899: 90–91.

*Trichardis leucocoma*: Engel 1924: 107; Efflatoun 1937: 208–212, figs 150, 151 (head), 152 (wing), 153 (hind leg), 154, 155 (♂ gen.), 156 (♀ gen.), pl. IV, fig. 34 (whole fly); Theodor 1980: 256–258, figs 433 (head), 433a (antennal postpedicel), 434 (aedeagus), 435 (epandrium and proctiger), 436 (hypandrium), 437 (gonocoxite and dististylus), 438 (spermatheca); Oldroyd 1980: 356 (catalogue).

*Strobilothrix albipila* Becker, 1907: 43–44.

*Trichardis leucocomus*: Hull 1962: 97; Lehr 1988: 212 (incorrect subsequent spelling).

*Triclis rufescens* Austen, 1914: 267. **Syn. n.**

Redescription (based on lectotype in excellent condition):

**Head:** Probably orange but colour masked by strong silver pruinescence, setae white. Antenna orange except for dark red-brown style, white setose; postpedicel not markedly clavate (L:D=3.6:1). Mystax white. Ocellar tubercle with 4 macrosetae. Proboscis orange with orange-brown distal half, palpi orange.

**Thorax:** Probably orange and red-brown but colour largely masked by strong silver pruinescence, setae white. Postpronotum entirely pruinose, mesonotum dark red-brown centrally, orange laterally, entirely silver pruinose, setae white. Scutellum pruinose except for hind margin. Anepisternum lacking posterior macroseta, entirely pruinose (weakish anteroventrally). Proepimeron, katepisternum and anepimeron pruinose. Legs: Yellowish with hind tibiae and dorsal parts of all femora red-brown, pulvilli clearly much shorter than empodium. Hind femur orange-brown with ventral parts yellow, length:height ratio 4.0:1 (i.e. slender), ventral tubercles not evident. Hind tibia lacking ventrodistal spur. Wing: 5.6×2.0 mm. Costal vein extends along most of wing margin, weakly along anal cell, absent from alula. Membrane entirely without microtrichiae.

**Abdomen:** Brown-orange proximally becoming red-brown, hypopygium orange, silver pruinose except for small areas anterolaterally, white setose (setulae longish). T2 orange, pruinose, pruinose except for small anterolateral areas.

♂ genitalia (Figs 27, 28): Epandrium in lateral view longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without median projections and with about 6 well-developed medially directed macrosetae; mediobasal projection stout with slightly upturned distal end. Gonostylus stout with upturned straight distal end. Aedeagal prongs short, fairly stout, more or less straight, with moderately well-developed tips.

Lectotype designation: Wulp (1899: 90–91) based his description on ‘Five specimens (2♂ 3♀) from Shaik Othman.’ A holotype was not designated and so all the specimens are syntypes. While the ZSMC female is labelled ‘Type’, I here designate one of the OXUM males as lectotype, all the other specimens are paralectotypes.

Lectotype: YEMEN: 1♂ ‘Type / v.d.Wulp, / Trans. Ent. Soc. / 1899, page 90–1.’ [white with red edge], ‘S. W. Arabia, / 6 m. N. of Aden [12°50'N:45°00'E], / Shaik Othman. / Capt. Mar. 4. 95 / & pres. 1899 by / J.W. Yerbury.’, ‘1899 / 7716’, ‘Type Dip: 214<sup>3</sup>/<sub>4</sub> / *Hoplistera / leucocoma* / v der Wulp / Hope Dept Oxford’ (OXUM).

Paralectotypes: YEMEN: 1♀ ‘S. W. Arabia, / 6 m. N. of Aden / Shaik Othman. / Capt. Apr. 1. 95 / & pres. 1899 by / J. W. Yerbury.’, ‘Sammlung / F. Hermann’, ‘Type. / v.d.Wulp, / Trans. Ent. Soc., / 1899, page 90–1.’ [white with pink edge], ‘[red square]’, ‘*Trichardis / leucocoma* / ♀ v. d. W.’, ‘Arabia / *Hoplistera / leucocoma*. / Type. V. d. W.’ (ZSMC); 1♀ ‘Type / v.d.Wulp, / Trans. Ent. Soc. / 1899, page 90–1.’ [white with red edge], ‘S. W. Arabia, / 6 m. N. of Aden, / Shaik Othman. / Capt. Feb. 24. 95 / & pres. 1899 by / J.W. Yerbury.’ ‘*Hoplistera* sp nov? / nearest *cribrata* Loew / Dipt sud afr p 121 but / distinct’ [faint pencil handwriting] ‘1899 / 7717’, ‘*Hoplistera / leucocoma* n.s.’, ‘Type Dip: 214<sup>3</sup>/<sub>4</sub> / *Hoplistera / leucocoma* / v der Wulp / Hope Dept Oxford’ (OXUM); 1♂ ‘Type / v.d.Wulp, / Trans. Ent. Soc. / 1899, page 90–1.’ [white with red edge], ‘S. W. Arabia, / 6 m. N. of Aden, / Shaik Othman. / Capt. Feb. 17. 95 / & pres. 1899 by / J.W. Yerbury.’, ‘1899 / 7715’, ‘Type Dip: 214<sup>3</sup>/<sub>4</sub> / *Hoplistera / leucocoma* / v der Wulp / Hope Dept Oxford’ (OXUM); 1♀ ‘Type / v.d.Wulp, / Trans. Ent. Soc. / 1899, page 90–1.’ [white with red edge], ‘S. W.

Arabia, / 6 m. N. of Aden, / Shaik Othman. / Capt. Apr. 1. 95 / & pres. 1899 by / J.W. Yerbury., '1899 / 7714', 'Type Dip: 214<sup>1</sup>/<sub>4</sub> / *Hoplistomera / leucocoma / v der Wulp / Hope Dept Oxford* (OXUM).

Other material examined:

Afrotropical: NIGER: 1♂ Air [18°30'N:08°00'E], Tafidet Valley, North East of Agadez, viii.2004, Mamadou (OXUM). YEMEN: 2♂ 1♀ 1? Huswah, nr Aden [12°50'N:45°00'E], 14.iv.1895, Nurse (BMNH); 1♂ 2♀ Lodar [13°56'N:45°56'E], 16.v.1967, 800 m, Guichard (BMNH).

Palaeartic: ALGERIA: ♂ (*T. rufescens* holotype) '*Triclis / Type / rufescens / Austen*', 'Algeria: / Biskra [?] / 5.vi.1897. / Rev. A.E. Eaton . 97.268.', 'Biskra / 5.vi.97 / ♂', 'Holotype / *Triclis / rufescens* Austen / det. J.E. Chainey, 1984' (BMNH). EGYPT: 1♀ Wadi Husein [26°48'N:33°27'E], 1.v.1919, Adair (ZSMC); 1♀ Wadi Hof [29°52'N:31°19'E], 8.v.1924, H.C.E. (ZSMC); 1♂ Wadi Hof, 9.vi.[19]22, Efflatoun (MCMH); 1♂ Um Elek [?], 14.v.[19]26 (BMNH); 1♂ W. Kakhla [?], 7.vi.[19]26, Efflatoun (BMNH). LIBYA: 5♂ 1♀ Leptis Magna [32°59'N:14°15'E], 9.vii.1957, Guichard (BMNH). PAKISTAN: *Baluchistan*: 2♂ 3♀ Turbat [26°00'N:63°06'E], 12.v.1963, Popov (BMNH); 1? Patkin [Patkin Chauki, 29°05'N:65°48'E], 2.vi.1963, Popov (BMNH); 1♂ 1? Mastung [29°44'N:66°56'E], 13.vi.1963, Popov (BMNH); 1♂ 1? Khuzelar [?], 17.vi.1963, Popov (BMNH); 1♂ 1? Guelta [?], 4.vi.1963, Popov (BMNH). MONGOLIA: 1♀ S.W. Mongolia, 24.vii, Söderbom, Sven Hedins Exp. Str. Asien (NHRS). PALESTINE: 1♂ Rubin [31°56'N:34°42'E], 28.v.1921, Aharoni (BMNH). SAUDI ARABIA: 1♂ 1♀ Wadi Qanuna [?Wadi Qanahu, 13°12'N:43°46'E], 30.iii.1948, Uvarov (BMNH); 1♂ 1? nr Hais [13°56'N:43°29'E], 7.x.1962 (BMNH); 1♂ 1♀ Zeidiya [15°20'N:43°01'E], 28.ix.1962 (BMNH); 1? Mahfad [?Mahfa, 15°53'N:43°15'E], 20.x.1962 (BMNH); 2♂ nr Bisha [?Bitah, 16°02'N:42°59'E], 25.vi.1962 (BMNH); 1♀ Nejran [?], 17.vii.1962 (BMNH); 1♂ [locality illegible], 20.ix.1963 (BMNH). UNKNOWN: 1♀ Darré Zohrab [?], Aulimesk [?], 29.v.1962 (BMNH); 1♂ Lehaj [?Lahaj – may be from Yemen], 11.v.1895, Nurse (BMNH).

New synonymy: I have studied the unique holotype of *T. rufescens* Austen, 1914 and believe it to be entirely conspecific with *T. leucocoma*. The species name is therefore a synonym of *T. leucocoma*. The genus *Triclis* Loew, 1851 (type species *Triclis olivaceus* Loew, 1851) is Palaeartic with three catalogued species (Lehr 1988) including *rufescens*. Although I do not claim to be familiar with the species of *Triclis*, in attempting to check the classification of *rufescens* it became clear that it is somewhat unlike other species included in *Triclis*. Hull (1962) uses the extent of abdominal setation to effectively isolate *Triclis* from *Trichardis* in his key. In keying *rufescens* the species does not agree with the condition described for *Triclis*. Theodor (1980) draws attention to the condition of the antennal style in keying *Triclis*, and *rufescens* does not possess a *Triclis*-like style. Indeed when comparing the types of *rufescens* and *leucocoma* directly, there is little doubt that these are conspecific taxa.

Distribution and biology: This is primarily a Palaeartic species. Lehr (1988) summarised the distribution of the species thus—'USSR: KZ [Kazakhstan]; Asia: Arabic States, Israel, Iran, ?Mongolia; North Africa: Morocco, Algeria, Egypt; Afrotropical Region.' Previously recorded only from one Afrotropical location (Yemen), the new record from Niger suggests that the species may be far more widely distributed within the Afrotropics. My records show that adults have been collected between February and May as well as August and so the species probably flies during the northern hemisphere summer. Little biological information is available. However, Efflatoun (1937: 212), in his report on Egyptian asilids records: '*T. leucocoma* is very common ... My records extend from end of March to end of September. The favourite hunting grounds for this Asilid ... are the dried stony and sandy beds of Wadies where it sits on sand or on stones. I have never seen it sitting or settling on plants or grasses and I have caught it feeding on *Musca lucidula* and on two or three species of Tachinids, among which *Wolfartia trina* Wied.'

Similar species: *T. leucocoma* is very similar to *rueppelii* and may be a synonym of that older-named species (see discussion under *rueppelii*) from Algeria. Together these make

a distinctive pair not to be confused with any other Afrotropical species. The absence of anepisternal macrosetae sets them apart from all others studied by me. The fact that the species occurs in both the Afrotropical and Palearctic regions suggests that there may be other similar species in the Palearctic Region.

***Trichardis malawi* sp. n.**

Figs 29, 30

**Etymology:** Named after Malawi, where the holotype and a number of paratypes were collected.

**Description** (based on holotype in excellent condition):

**Head:** Dark red-brown to black, extensively silver pruinose except for shiny apruinose strip centrally from ocellar tubercle to epistomal margin, setae black and white. Antenna orange-brown, distal part of postpedicel and style dark red-brown, black and white setose; postpedicel elongate spindle-shaped (L:D=4.2:1). Mystax sparse white with black macrosetae along epistomal margin. Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown.

**Thorax:** Dark red-brown to black with a few small orange-brown areas (postalar lobes, anepisternum and coxae), fairly extensively silver pruinose, pale yellow-white setose. Postpronotum strongly silver pruinose medially, apruinose laterally; mesonotum apruinose except for margins, macrosetae pale yellowish, setulae pale white. Scutellum apruinose except for narrow silver pruinose anterior margin. Anepisternum with pale yellowish posterior macroseta, silver pruinose except for large apruinose anteroventral area. Proepimeron, katepisternum and anepisternum entirely pruinose. Legs: Orange-brown with femora slightly darker, pulvilli and empodium of similar length. Hind femur orange-brown, length:height ratio 3.5:1, ventral tubercles poorly developed. Hind tibia lacking ventrodiscal spur. Wing: 4.7×1.9 mm. Costal vein extends along most of wing margin, weakly along anal cell, absent from alula. Membrane extensively microtrichose, small areas of some proximally situated cells without microtrichiae; discal and  $r_5$  cells entirely microtrichose.

**Abdomen:** Dark red-brown anteriorly becoming brown-orange posteriorly, apruinose except for narrow silver pruinose posterolateral tergal margins, macrosetae pale yellowish, setulae whitish. T2 dark red-brown, apruinose except for hind margins laterally.

♂ genitalia (Figs 29, 30): Epandrium in lateral view significantly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple in structure. Gonocoxite in ventral view with weakly defined projections distally and lacking macrosetae; mediobasal projection stout with upturned darkly sclerotised distal end. Gonostylus fairly stout with slightly upturned tip. Aedeagal base well-developed, upturned mediobasally; prongs large, upwardly directed and with expanded trumpet-like openings.

**Holotype:** MALAWI: ♂ 'Malawi 35 km SE of / Monkey Bay on road / to Mangochi 1434Aa / 12.xii.1980 500m / Londt & Stuckenberg / mixed woodland' (NMSA).

**Paratypes:** MALAWI: 1♂ 6♀ same data as holotype. TANZANIA: 2♀ 'Tanzania: Serengeti / Nat. Park. Seronera [02°16'S:34°47'E] / 23-xi-1069 / M.E. Irwin & / E.S. Ross' (CASC). ZIMBABWE: 1♂ 'Country

Rhodesia / Loc. Lusulu [18°04'S:27°50'E] / Date 22/xi/63 / Coll. G. Davison' (NMSA); 1 ♀ 'Country Rhodesia / Loc. 22/xi/63 / Date Lusulu / Coll. R. J. Phelps' (NMSA).

**Distribution and biology:** The species is recorded from Southern and Eastern Africa. Adults have been collected during the summer months of November and December (Table 1). I collected the Malawian specimens resting on the ground in mixed woodland.

**Similar species:** A member of what is here called the '*cribrata* species group' which consists of *crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis*, *spicata* and *indica*. These species are superficially similar, but can be easily separated on characters of the male genitalia. *T. malawi* has distinctive male genitalia.

### **Trichardis mellina** sp. n.

Figs 31, 32

**Etymology:** From Latin *mellina* (honey coloured). Refers to the orange-brown colour of this species.

**Description** (based on holotype in good condition, with left antenna broken off beyond pedicel and mid leg broken off beyond femur):

**Head:** Brown-orange with dark red-brown occipital area, entirely silver pruinose, white setose. Antenna brown-orange, white setose; postpedicel not markedly clavate (L:D=3.8:1). Mystax shiny white. Ocellar tubercle with 4 macrosetae. Proboscis brown-orange proximally, red-brown distally; palpi brown-orange.

**Thorax:** Brown-orange, gold-silver pruinose except for apruinose areas, pale whitish yellow setose. Postpronotum extensively pruinose except for narrow lateral strip, mesonotum orange-brown, extensively silver-gold pruinose (weak mediolaterally), pale yellowish setose. Scutellum gold-silver pruinose except for narrow hind margin and central part of disc. Anepisternum with pale yellowish posterior macroseta, pruinose dorsally, apruinose ventrally. Proepimeron pruinose anteriorly, apruinose posteriorly; katepisternum pruinose posteriorly, apruinose anteriorly; anepisternum pruinose posteriorly, apruinose anteriorly. Legs: Brown-orange, pulvilli and empodium of similar length. Hind femur brown-orange, length:height ratio 4.2:1 (slender), ventral tubercles absent. Hind tibia lacking ventrodiscal spur. Wing: 4.2×1.6 mm. Costal vein extends along most of wing margin, weakly along anal cell, absent from alula. Membrane extensively microtrichose—discal and  $r_5$  cells almost entirely microtrichose (weakly proximally and adjacent to veins).

**Abdomen:** Brown-orange, hind margins of terga yellow, entirely apruinose, pale yellowish setose. T2 brown-orange, apruinose.

♂ genitalia (Figs 31, 32): Epandrium in lateral view longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger fairly long, strongly dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without median projections distally and with about 4 distally arranged weak macrosetae; mediolateral projection stout at base becoming slender towards sclerotised distal end. Gonostyli short, stout, with broadly-rounded converging distal ends. Aedeagal prongs slender, slightly curved, ending as small terminal filamentous tubules.

Holotype: ERITREA: ♂ 'Ghinda [15°26'N:39°07'E] / Mochi / vi-16 [1916]' (MCMI).

Paratypes: ERITREA: 3♂ 3♀ same data as holotype; 1♂ '*Trichardis / erythrogaster*. Herm / Typus', 'Pres by / Imp. Bur. Ent. / Brit Mus. / 1923–58.', 'Abyssinia / Nov. 1911 / R. J. Stordy' (BMNH). Note: The specimens have poorly hand-written labels difficult to decipher.

Distribution and biology: The species is known with certainty only from Ghinda in Eritrea. Apart from the fact that adults fly during June, midsummer in the northern hemisphere (Table 1), nothing is known of its biology.

Similar species: *T. mellina* is most similar to *glabra* and these species key out together. The male genitalia, especially the form of the gonocoxites are particularly diagnostic in this pair. *T. effrena* shares some characteristics with these species, but is otherwise distinctive.

*Trichardis nigrescens* (Ricardo, 1903)

Figs 33, 34

*Hoplistomera nigrescens*: Ricardo 1903: 362.

*Trichardis nigrescens*: Hull 1962: 97; Oldroyd 1980: 356 (catalogue); Geller-Grimm 2002: 470, pls 3, 17 (entire ♂).

Redescription (based on holotype ♀ in good condition):

**Head:** Dark red-brown, extensively silver pruinose except for lower face and frons (including ocellar tubercle), black and white setose. Antenna red-brown, black and pale yellow setose; postpedicel elongate spindle-shaped (L:D=5.3:1). Mystax mainly white with a few black macrosetae along epistomal margin. Ocellar tubercle with 4 yellowish macrosetae. Some black occipital macrosetae. Proboscis and palpi dark red-brown.

**Thorax:** Dark red-brown, silver pruinose when present, pale whitish setose. Postpronotum dark red-brown with small orange part posteriorly, largely apruinose except for medial part, mesonotum largely apruinose except for lateral and posterior margins, macrosetae black (notopleurals) and whitish, setulae shiny white. Scutellum apruinose except for narrow anterior margin. Anepisternum with slender, weakly developed posterior macroseta, extensively pruinose except for small area anteroventrally. Proepimeron anteriorly pruinose, posteriorly apruinose; katapisternum posteriorly pruinose, anteriorly apruinose. Legs: Femora dark red-brown, other segments orange-brown, pulvilli and empodium of similar length. Hind femur dark red-brown, moderately slender (length to height ratio not measured), ventral tubercles poorly developed. Hind tibia lacking ventrodistal spur. Wing: 5.5×2.1 mm. Costal vein extends along most of wing margin, weakly along anal cell, absent from alula. Membrane not extensively microtrichose—discal cell largely lacking microtrichiae (a few present), cell  $r_5$  with microtrichiae in distal half only.

**Abdomen:** Anterior five terga dark red-brown with orange-brown hind margins, posterior terga and hypopygium mustard colour, apruinose except for silver pruinose posterolateral corners, setae whitish. T2 dark red-brown, apruinose except for silver pruinose posterolateral corner.

♂ genitalia: Geller-Grimm (2002: figs 2–4) illustrated a male from Socotra. I here illustrate the genitalia of an already macerated ♂ from Homhil (Figs 33, 34). While this is probably the specimen illustrated by Geller-Grimm, I believe that my drawings more accurately depict the genital structures and the subtle differences between *nigrescens* and *abdelkuri*, the closely similar species from the nearby island of Abd el Kuri. The following is a description of the Homhil ♂ genitalia based on my illustrations. Epandrium



in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without median projections distally and with mediodistally arranged macrosetae; mediodistal projection fairly slender with slightly upturned distal end. Gonostylus slender with straight distal end. Aedeagal prongs more or less straight and with small terminal tubules.

Note: Although this description is similar to that of the genitalia of *abdelkuri*, the genital differences in these species can easily be detected by comparing the relevant illustrations. The shape of the gonocoxite in ventral view is particularly diagnostic.

Holotype (examined): YEMEN: *Socotra I.*: ♀ 'Type' [circular, red edged], '*Hoplistomera / nigrescens* Ric. / 2 ♀', 'Sokotra / Hadibu [12°40'N:53°59'E] Plains. / 11.xii.1898 / W. R. O. Grant. / 1916-75.' 'Holotype / *Hoplistomera / nigrescens* Ricardo / det. J. E. Chainey, 1984' [has circular, red edged label stuck to top right corner of holotype label] (BMNH).

Other material examined: YEMEN: *Socotra I.*: 1♂ Homhil, 12°34'13"N:54°18'32"E, 29–30.x.2000, Pohl (HLMD); 1♂ 1♀ Goeeh, 12°32'25"N:54°10'22"E, 240 m, 23.x.2000, Pohl (HLMD).

Recorded specimens not studied (cited from Geller-Grimm (2002)): YEMEN: *Socotra I.*: 2♀ Goeeh, 12°32'25"N:54°10'22"E, 240 m, 23.x.2000, Pohl (NHCY 1♀ COGG 1♀); 1♀ Firmihin, 12°24'41"N: 54°13'35"E, 34–25.x.2000, Pohl (HLMD); 1♀ Deksam, 12°32.298'N:53°56.102'E, ca 300 m, 26.x.2000, Pohl (HLMD); 2♂ 1♀ Homhil, 12°32'N:53°56'E, 9.i.1998, Wranik (CWWR, COGG 1♂).

Distribution and biology: The species has been recorded only from four localities on the island of Socotra. Collections have been made in October, December and January (Table 1). No biological data have been recorded on specimen labels.

Similar species: *T. nigrescens* is superficially very similar to *abdelkuri*, but the species can be reliably separated on male genital features. Although I have seen relatively few specimens of both species, all specimens of *abdelkuri* have mesonotal, anepisternal and ocellar setae yellowish while these setae are mostly but not always black in *nigrescens*. These two species are somewhat similar to *pohli*, but easily separated on size and male genital form.

### ***Trichardis ornata* sp. n.**

Figs 35, 36

Etymology: From Latin *ornata* (handsome, splendid). Refers to the attractiveness of this species.

Description (based on unique holotype in good condition, right antenna broken off beyond pedicel, genitalia slightly damaged):

*Head*: Dark red-brown to black, entirely silver pruinose, white setose. Antennal scape and pedicel orange, postpedicel dark red-brown, setae white; postpedicel somewhat clavate (L:D=2.9:1). Mystax white. Ocellar tubercle with 4 macrosetae. Proboscis and palpi dark red-brown.

*Thorax*: Dark red-brown, extensively silver pruinose, pale yellow and white setose. Postpronotum entirely pruinose, mesonotum apruinose except for fairly broad silver pruinose margins, macrosetae pale yellowish, setulae white. Scutellum apruinose except for narrow silver pruinose anterior margin. Anepisternum with pale yellow posterior macroseta, entirely pruinose, but weakly so anteroventrally. Proepimeron, katapisternum and anepisternum entirely pruinose. Legs: Femora orange with dark red-brown band subapically (broad on hind legs), tibiae orange proximally red-brown distally, tarsi dark

red-brown, pulvilli and empodium of similar length. Hind femur dark red-brown distally orange proximally, length:height ratio 4.3:1 (slender), ventral tubercles poorly developed. Hind tibia lacking ventrodistal spur. Wing: 5.3×2.0 mm. Costal vein strongly developed as far as wing tip, then very weakly developed along posterior margin of wing and absent from alula. Membrane not extensively microtrichose—discal cell lacking microtrichiae, cell  $r_5$  only with weakly developed microtrichiae in distal half.

*Abdomen*: Dark red-brown, extensively apruinose but hind margins of terga broadly pruinose and lateral parts weakly pruinose anteriorly, white setose. T2 dark red-brown, apruinose except for broad posterior bands laterally and weaker areas anterolaterally.

♂ genitalia (Figs 35, 36; note slight damage to tips of proctiger, aedeagal prongs, tip of mediobasal process of left gonocoxite, and tip of left gonostylus): Epandrium in lateral view longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed (tip broken off). Hypandrium greatly reduced and simple. Gonocoxite in ventral view without projections and lacking distally arranged macrosetae; mediobasal projection fairly slender with straight distal end. Gonostylus moderately slender, gently curved with broadly rounded apex. Aedeagus with fairly elongate lateral projections basally; prongs more or less straight, tip damaged.

Holotype: CHAD: ♂ 'Tchad, N'Djaména [12°04'N:15°08'E] / Chari – Baguirmi / 2.viii.1992 / Leg. H.R. Feijen' (NMSA).

*Distribution and biology*: The species is known only from the type locality. The holotype was collected in August (Table 1). No biological information exists.

*Similar species*: *T. ornata* has an entirely pruinose postpronotal lobe and in this respect can be grouped with *apicalis*, *grisescens*, *picta*, *terminalis*, *testacea*, *turneri* and *zinidi*. The species is, however, most similar to *testacea*.

### *Trichardis picta* Hermann, 1906

Figs 37–40, 59

*Trichardis picta*: Hermann 1906: 139–141; Kertész 1909: 159; Engel 1924: 107; Hull 1962: 97; Oldroyd 1974: 119; 1980: 356 (catalogue).

*Trichardis Lucifer*: Oldroyd 1974: 120. **Syn. n.**

*Trichardis lucifera*: Oldroyd 1980: 356 (catalogue), unjustified emendation.

*Redescription* (based on holotype in excellent condition):

*Head*: Dark red-brown except for brown-orange face, colours masked by strong silver pruinescence, setae white. Antenna brown-yellow except for brown distal part of postpedicel and style, setae white; postpedicel not markedly clavate (L:D=3.2:1). Mystax white. Ocellar tubercle with 6 macrosetae. Proboscis red-brown, palpi brown-orange.

*Thorax*: Dark red-brown, colour masked by strong silver pruinescence, pale yellow-white setose. Postpronotum entirely pruinose, mesonotum entirely pruinose, but more weakly posteriorly. Scutellum pruinose except for hind margin. Anepisternum with pale yellow posterior macroseta, entirely pruinose. Proepimeron, katapisternum and anepisternum entirely pruinose. Legs: Dark red-brown, narrowly brown-orange proximally, pulvilli and empodium of similar length. Hind femur dark red-brown with brown-orange proximal parts, length:height ratio 3.9:1, ventral tubercles poorly developed. Hind tibia lacking ventrodistal spur. Wing: 5.8×2.2 mm. Costal vein strongly

developed as far as wing tip, then very weakly developed along posterior margin of wing and absent from alula. Membrane devoid of microtrichiae, including discal and  $r_5$  cells.

*Abdomen*: Red-brown, extensively silver pruinose except for hind margins of terga and transverse bands across each tergite at about mid-length, setae white. T2 red-brown, strongly pruinose except for apruinose hind margin and weakly pruinose central area.

♂ genitalia (Figs 37, 38): Epandrium in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger hardly dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without projections and with about 7 small, distally arranged macrosetae; mediobasal projection fairly stout with upturned sclerotised distal end. Gonostylus stout, laterally flanged, with broad laterally compressed tip. Aedeagal prongs small, straight.

Notes on type material: Hermann (1906) based his description on '♂' (number of specimens not stated) from 'Capland, Willowmore (Dr. Brauns)'. While Engel (1924: 107) records the following material '♀ Lichtenburg, Transvaal. – 1♂♀ Willowmore, Kapland, Dr. Brauns leg.', and these ZSMC specimens (listed below) carry type labels, as do a pair of 'cotype' specimens in the AMGS (also listed below), only one specimen was collected before the published description. The single 1905 specimen must be considered the holotype, others were presumably mislabelled as types by Engel and possibly other workers.

The two BMNH specimens of *lucifer* (holotype and paratype) when received, were incorrectly labelled—the female from Kahn River being labelled as the holotype. As Oldroyd (1974) clearly indicated that the male from Satansplatz was the holotype, these labels have been switched. While Oldroyd (1974) called the species *lucifer*, presumably because the type locality was Satansplatz (i.e. Satan's Place, referring to Lucifer), the spelling was amended to read *lucifera* in the Afrotropical Diptera catalogue (1980) by the Editor R.W. Crosskey, a change I consider both unnecessary and inappropriate as the name *lucifera* has a totally different derivation (from Latin *lux*).

I consider the synonymy of *lucifer* with *picta* to be entirely justified. *T. picta* is a widely distributed species displaying variation over its range. The paler colour of the *lucifer* types represents variation, and while the male genitalia do show slight differences (Figs 39, 40), these too are considered to be within acceptable limits of variation.

Type specimens studied: SOUTH AFRICA: 1♂ (holotype *picta*) 'Capland / Willowmor [Willowmore: 33°17'S:23°29'E] / 20 1 1905 / Dr. Brauns', 'Sammlung / F. Hermann', 'Type von / ♂ *Trichardis* / *picta* Herm.' [orange] (ZSMC); NAMIBIA: ♂ (holotype *lucifer*) 'Holo- / type' [circular with red border], 'S. W. Africa: Satansplatz. [24°51'S:17°31'E] / 1300m. / 17–19.xii.1933. / K. Jordan', 'Brit. Mus. / 1934–288', '*Trichardis* / *lucifer* Oldr. / det. H. Oldroyd 1972 / Paratype' [white] (BMNH); 1♀ (paratype *lucifer*) 'Para- / type' [circular with yellow border], 'Southern / African Exp. / B.M. 1972–1', 'S.W. Africa (29) / Kahn River, 5 mls. / N. Usakos [22°00'S:15°34'E] / 30–31.i.1972', '*Trichardis* / *lucifer* Oldr. / det. H. Oldroyd 1972 / Holotype' [white] (BMNH).

Other material examined: NAMIBIA: 1♀ Otjitundua [18°39'S:14°14'E], iii.1926, Mus. Exped. (SAMC); 1♀ 60 km E Otjiwarongo, 20°39'S:17°05'E, 20.iii.1984, Londt & Stuckenberg, *Acacia* thornveld and dry river course; 2♂ 1♀ 26 km N Windhoek, 22°20'S:17°04'E, 29.iii.1984, Londt & Stuckenberg, dry river bed *Acacia* riparian woodland; 2♂ 1♀ 191 km E Walvis Bay [22°57'S:14°30'E], 12.xi.1963, Moore (NMNH); 1♂ 3♀ 1? Hakas Mts [Hakos Mts, 23°10'S:16°20'E], 12.xi.1963 (1♀), 13.xi.1963 (1♂ 2♀ 1?), Moore (NMNH); 4♂ 3♀ Gobabeb [23°33'S:15°02'E], 17.xi.1963, Moore (NMNH); 3♂ 1♀ Namib Desert Park, Kuiseb R. at Gobabeb, 2315Ca, 12.ii.1974, Irwin, riverine forest and sand; 1♂ Kuiseb R., 9.xii.1976, Cunningham; 2♀ Keetmanshoop Dist., 17.5 km N Grünau, 2718Bc, 1350 m, 30.i.1974, Irwin, dry river bed; 2♂ Fish River Canyon Park, Ai-Ais [27°55'S:17°29'E], 19–21.xi.1993, Koch (ZMHB). SOUTH

AFRICA: 1♂ Baberspan, 25°07'S:26°05'E, 14–21.xii.1993, Joffe; 1♀ Lichtenburg [26°09'S:26°10'E], Brauns (ZSMC); 1♂ 2♀ 10 km W Bloubos Farm, 28°07'S:20°45'E, 900 m, 17.iii.1991, Londt & Whittington, red dunes [habitat] N Upington; 1♂ Bloemfontein [29°10'S:26°00'E], 13.ii.1918 (SANC); 1♀ 5 km S Laingsburg, 33°14'S:20°52'E, 700 m, 25.xi.1990, Londt & Whittington, Banks Buffels River; 1♂ Gamka R. 40 km N Prince Albert, 3321BB, 500 m, 11.xi.1986, Londt & Quickelberge, sandy area/Acacias; 1♂ Meiringspoort, 3322BC, 11–12.xii.1979, Londt & Stuckenberg, rocky hillside & stream edge; 8♂ 2♀ Diepkloof ca 20 km E De Rust, 3322BD, 12.xii.1979, Londt & Stuckenberg, dry rocky hillside & stream; 1♀ Graaff-Reinet Urquhart Park Caravan Park, 32°15'S:24°33'E, 4–6.xii.1988, Londt, riverine vegetation, sandy ground; 1♂ Middelburg [31°29'S:25°01'E], 13.ii.1925, Munro; 3♂ 2♀ Rietvlei Nieuvelid Escarpment [32°20'S:21°30'E], i.1949, Zinn & Hesse (SAMC); 1♀ Tankwa Karoo [32°30'E 19°45'E], i.1949, Zinn & Hesse (SAMC); 1♂ Letjiesbosch Koup [32°34'S:22°16'E], iii.1937, Mus. Staff (SAMC); 2♂ 7♀ Merweville [32°40'S:21°31'E], i–ii.1947, Zinn (SAMC); 1♂ 1♀ Merweville Lainsburg Dist., i.1959, Zinn (SAMC); 1♂ Dikbome Merweville Koup, i.1953, Zinn (SAMC); 1♂ Oukloof Beaufort West [33°15'S:22°06'E], i.1949, Zinn & Hesse (SAMC); 1♀ Willowmore [33°17'S:23°29'E], 25.ii.1907, Brauns (ZSMC); 1♂ 1♀ Willowmore, 5.ii.1907 (1♀), 1.iii.1907 (1♂), Brauns (AMGS); 2♂ 3♀ Willowmore, 25.ii.1907 (1♀), 1.xii.1909 (1♂), xii.1912 (1♀), 25.xii.1916 (1♂), 10.xii.1920 (1♀), Brauns; 2♂ 1♀ Willowmore, 5.ii.1907 (1♂), 1.xii.1920 (1♀), no date (1♂), Brauns (NMNH); 1♂ 1♀ Willowmore, 20.i.1908, Brauns (BMNH); 1♀ Willowmore, 25.xii.1915, Brauns (MRAC); 1♂ Willowmore, 15.xii.1917, Brauns (SAMC); 6♂ 3♀ Rooinek Lainsburg Dist. [33°20'S:20°55'E], i.1949, Zinn & Hesse (SAMC); 1♀ Rooinek Pass, x.1952, Mus. Expd. (SAMC); 4♂ 1♀ Tierberg Res. Stat. Prince Albert Dist., 33°07'42"S:22°16'24"E, 26.xi–5.xii.1987, Gess (AMGS); 1♂ 1♀ De Hoek Uitenhage [33°45'S:25°24'E], 11.iii.1919, Munro (NMNH).

**Distribution and biology:** The species is a southern African endemic being found in the western parts of the region. It ranges from northern Namibia southwards to the Western and Eastern Cape provinces (Fig. 59). Adults fly between October and March (Table 1). Personal experience and label data indicate that the species frequents *Acacia* woodland and is associated with sandy stream banks or dry river courses where individuals rest on the ground. Two prey records are known to me, both in AMGS: 1♂ (Tierberg, Prince Albert Dist.) pinned with a pollen wasp (Hymenoptera: Masaridae), and 1♀ (same locality) pinned with a tachinid fly (Diptera: Tachinidae).

**Similar species:** *T. picta* has an entirely pruinose postpronotal lobe and in this respect can be grouped with *apicalis*, *grisescens*, *ornata*, *terminalis*, *testacea*, *turneri* and *zinidi*. The species is, however, distinctive and difficult to confuse with others in this group.

### *Trichardis pohli* Geller-Grimm, 2002

Figs 41, 42

*Trichardis pohli*: Geller-Grimm 2002: 472–474, pls 4, 18 (entire ♂), figs 5–7 (♂ terminalia).

**Redescription (based on holotype in excellent condition):**

**Head:** Dark red-brown to black, extensively silver pruinose, but weakly so on frons and apex of ocellar tubercle, setae black and white. Antennal scape yellow-brown, pedicel, postpedicel and style dark red-brown, setae black and white (black setae being better developed than white); postpedicel elongate spindle-shaped (L:D=4.5:1), with few black setulae dorsally. Mystax black and white (black setae better developed). Ocellar tubercle with 4 black macrosetae. Proboscis and palpi dark red-brown.

**Thorax:** Dark red-brown to black with orange parts, silver pruinose except for some apruinose parts, fine setae whitish, macrosetae either black (mesonotum) or white (pleura). Postpronotum largely apruinose except for narrow medial part, mesonotum dark red-brown to blackish except for orange postpronotal and postalar lobes, largely apruinose except for margins, macrosetae black, setulae shiny yellowish. Scutellum dark red-brown with orange posterior margin, anterior half silver pruinose. Anepisternum with slender black posterior macroseta, extensively pruinose except for small area antero-

ventrally. Katatergite with white macrosetae. Proepimeron anteriorly pruinose, posteriorly apruinose; katapisternum posteriorly pruinose, anteriorly apruinose; anepisternum pruinose except for anterodorsal part. Legs: Generally dark red-brown to black anteriorly, yellowish posteriorly, pulvilli and empodium of similar length. Hind femur dark red-brown anterodorsally, yellowish posteroventrally; length:height ratio 4.2:1; ventral tubercles hardly evident, major setae pale yellowish. Hind tibia lacking ventrodistal spur. Wing: 4.0×1.6 mm. Costal vein extends along most of wing margin, weakly along anal cell, absent from alula. Membrane not extensively microtrichose—discal cell largely lacking microtrichiae (a few present centrally), cell  $r_5$  with microtrichiae limited mainly to distal half.

*Abdomen*: Terga and hypopygium dark red-brown, but with orange parts laterally, apruinose except for narrow silver pruinose distolateral margins, setae transparent whitish. T2 dark red-brown with orange parts laterally (anterior and posterior parts), apruinose except for narrow silver pruinose posterior margins laterally.

♂ genitalia: Holotype well illustrated by Geller-Grimm (2002: figs 5–7). Another male from Socotra (NHMW) is here illustrated (Figs 41, 42) and described: Epandrium in lateral view longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without median projections distally and with mediolaterally arranged macrosetae; mediolateral projection slender with slightly upturned tip. Gonostylus long, laterally compressed, with slender slightly down turned apex. Aedeagal prongs more or less straight and with small terminal tubules.

Holotype (examined): YEMEN: *Socotra I.*: ♂ ‘Soqotra · Archipel: Soqotra, /Route von Hadibo zum Deksam-Plateau, 800 m / 12°32'N:53°56'E, 22.2.1999 / leg.: H. Pohl, SOQ35' (HLMD).

Other material examined: YEMEN: *Socotra I.*: 1 ♀ 1? Hamadara [?], 400 m, 4.iv.1967, Guichard (BMNH); 1♂ 1♀ Socotra I., 1899, Simony (NHMW).

*Distribution and biology*: A species apparently confined to Socotra I. and known with certainty from two localities. Collected in February and April (Table 1). No biological data have been recorded on labels.

*Similar species*: A fairly distinctive species with some similarities to both *abdelkuri* and *nigrescens*.

### *Trichardis rueppelii* (Wiedemann, 1828)

*Dasyopogon Rüppelii*: Wiedemann 1828: 569–570.

*Laphria rueppelii*: Oldroyd 1980: 352.

*Trichardis rueppelii*: Geller-Grimm 1999: 214.

*Redescription* (based on holotype in fair condition: both antennae broken off beyond pedicels, hind margins of wings damaged and not showing extent of costal vein, terminal tarsomeres mostly missing, damaged or dirty):

*Head*: Pale orange, silver pruinescence, setae white. Antennae orange, both broken off beyond pedicel, white setose. Mystax white. Ocellar tubercle with 4 macrosetae and a few fairly big setae. Proboscis orange with orange-brown distal half, palpi orange.

*Thorax*: Brown-orange, dorsal parts red-brown, setae white. Postpronotum entirely pruinose, mesonotum dark red-brown centrally, orange laterally, extensively silver

pruinose except for central parts [may be worn smooth through handling?], setae white. Scutellum pruinose except for hind margin. Anepisternum lacking posterior macroseta, extensively pruinose (somewhat apruinose anteroventrally [may be worn]). Proepimeron, katapisternum and anepimeron pruinose. Legs: Uniformly orange, lengths of pulvilli and empodia difficult to study as terminal tarsomeres dirty, damaged or missing. Hind femur orange, length:height ratio 4.1:1 (i.e. slender), ventral tubercles not evident. Hind tibia lacking ventrodistal spur. Wing: 6.3×2.4 mm. Costal veins broken and missing beyond wing tips [due to damaged hind margins]. Membrane entirely without microtrichiae.

*Abdomen*: Uniformly brown-orange, terga silver pruinose except for small areas anterolaterally and centrally [may be worn], white setose (setulae longish). T2 orange, pruinose except for small anterolateral and central [may be worn] areas.

Holotype (examined): ERITREA: ♀ 'Abyssinia [no locality given] / Dr Rüppell.', '136' [blue with black frame], 'Typus' [red with black frame], ~ 'Dipt. / 105' [white], '*Trichardis* / *Ruppelii* Wd. / det. / Dr. F. Herman' (SMFD). Note: Wiedemann (1928) gives the provenance as 'Aus Nubien'. This suggests the Nubian Desert which is in Eritrea and not Sudan, as listed by Oldroyd (1980). For the present it is not possible to provide a type-locality.

Taxonomic status: Morphologically the holotype closely agrees with the description provided above for the *leucocoma* type except for a few small details as follows. Pruinescence of head and thorax is not as strong or extensive; the legs are uniformly orange and totally lack red-brown parts. Bearing in mind that the *rueppelii* holotype is a female and that some sexual dimorphism is evident in *leucocoma* everything points to *leucocoma* being a synonym of *rueppelii*. However, while I am reasonably sure that this will be the future taxonomic outcome, I refrain from establishing the synonymy until male specimens agreeing with *leucocoma* are found in Eritrea. This conservative approach also ensures retention of the well-known name, *leucocoma*, until further investigations of the Palearctic *Trichardis* fauna have been undertaken.

### *Trichardis similis* sp. n.

Figs 43, 44

*Etymology*: From Latin *similis* (similar). Refers to the similarity between the male genitalia of this species and *crassipala*.

*Description* (based on holotype in excellent condition):

*Head*: Black, silver pruinose except for strip between ocellar tubercle and epistomal margin, setae black, white and pale yellow. Antenna dark red-brown to black, black setose; postpedicel elongate spindle-shaped (L:D=4.3:1). Mystax shiny yellow-white with black macrosetae along epistomal margin. Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown to black.

*Thorax*: Dark red-brown to black, silver pruinose except where apruinose, shiny yellowish setose. Postpronotum extensively apruinose except for narrow band medially, mesonotum apruinose except for narrow lateral and posterior margins, yellowish setose. Scutellum apruinose except for narrow anterior margin. Anepisternum with pale yellowish posterior macroseta, pruinose except for large area anteroventrally. Proepimeron pruinose anteriorly, apruinose posteriorly; katapisternum pruinose posteriorly, apruinose anteriorly; anepisternum pruinose except for small central spot. Legs: Dark

red-brown, pulvilli and empodium of similar length. Hind femur dark red-brown, length:height ratio 3.9:1, ventral tubercles well-developed. Hind tibia lacking ventrodistal spur. Wing: 4.3×1.7 mm. Costal vein strongly developed as far as wing tip, then very weakly developed along posterior margin of wing and absent from alula. Membrane extensively microtrichose—discal and  $r_5$  cells entirely microtrichose.

*Abdomen*: Dark red-brown proximally becoming red-brown distally, apruinose, pale yellow setose. T2 dark red-brown, apruinose.

♂ genitalia (Figs 43, 44): Epandrium in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger long, strongly dorsoventrally compressed. Hypandrium moderately well developed with two pairs of lobes distally. Gonocoxites in ventral view with medially directed dorsal projections and lacking macrosetae; mediolateral projection well-developed, strongly sclerotised, broad with characteristic shape. Gonostylus short, slender, poorly developed, straight. Aedeagal prongs more or less straight, small, tapering to small terminal filamentous tubules.

Holotype: MALAWI: ♂ ‘Malawi Kasungu Nat. / Park Lifupa Camp / 1333Aa 9–10.xii.1980 / 1000 m Stuckenberg & / Londt, *Brachystegia*’ (NMSA).

Paratypes: 1♂ same data as holotype; 1♀ ‘Malawi Chimaliro / forest reserve 1200 m / 1233Bc Stuckenberg & / Londt 9.xii.1980 / *Brachystegia* woodland’ (NMSA).

*Distribution and biology*: The species is recorded from two localities in Malawi. Adults are known to fly in December (Table 1), midsummer in the southern hemisphere. The type material was collected on the ground in *Brachystegia* woodland.

*Similar species*: A member of what is here called the ‘*cribrata* species group’ which consists of *crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis*, *spicata* and *indica*. These species are superficially similar, but can be easily separated on characters of the male genitalia. *T. similis* is most similar to *crassipala* in that both species have well-developed hypandria.

### ***Trichardis spicata* sp. n.**

Figs 45, 46

*Etymology*: From Latin *spica* (point, spike). Refers to the long spike-like aedeagal projections.

*Description* (based on holotype in excellent condition):

*Head*: Dark red-brown to black. Antenna dark red-brown to black, setae black, post-pedicel elongate spindle-shaped (L:D=5.0:1). Mystax white, with a few black macrosetae along epistomal margin, on plane and mostly shiny apruinose face (narrow pruinose strips along eye margins). Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown to black.

*Thorax*: Dark red-brown to blackish, extensively apruinose, pruinose areas silvery. Post-pronotum strongly silver pruinose medially, extensively apruinose laterally, mesonotum apruinose except for narrow silver pruinose margins, macrosetae pale yellow, fine setae yellow-white. Scutellum apruinose except for anterior margin. Anepisternum with longish pale yellow posterior macroseta, dorsally pruinose, ventrally apruinose. Pro-epimeron pruinose except for small apruinose area posteriorly, katepisternum pruinose

except for small apruinose part anteriorly, anepisternum pruinose. Legs: Dark red-brown, tibiae paler brownish, pulvilli and empodium of similar length. Hind femur dark red-brown, length:height ratio 3.6:1, ventral tubercles moderately developed. Hind tibia lacking ventrodistal spur. Wing: 4.1×1.5 mm. Costal vein moderately developed along entire wing margin, but weak along anal cell and apparently absent from alula. Membrane extensively microtrichose (except for small parts of some proximally situated cells)—discal and  $r_5$  cells entirely microtrichose.

*Abdomen*: Dark red-brown, largely apruinose, terga weakly pruinose along hind margins. T2 dark red-brown, apruinose except for weak, narrow, silver pruinose posterior margin.

♂ genitalia (Figs 45, 46): Epandrium in lateral view significantly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger long and moderately dorsoventrally compressed. Hypandrium highly reduced and simple. Gonocoxite in ventral view distally pointed, with moderately well-developed median hook-like projection distally and group of about 6 macrosetae laterally at mid-length; medioidistal projection short, stout, straight, strongly sclerotised. Gonostylus short, stout. Aedeagal base with pair of projections that exceptionally long, slender, strongly sclerotised, and gently downcurved to pointed tips; prongs tiny, slightly curved, poorly developed distally.

Holotype: MOZAMBIQUE: ♂ '3.xii.2006 Mozambique / Sofala Prov. 30 km S Caia / 18.02S – 34.02E / P. Schüle leg.' (MRAC).

Paratypes: 1♂ 1♀ same data and depository as holotype.

Distribution and biology: The species is known only from the type locality where it has been collected in December (Table 1). No biological data are available.

Similar species: A member of what is here called the '*cribrata* species group' which consists of *crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis*, *spicata* and *indica*. These species are superficially similar, but can be easily separated on characters of the male genitalia. *T. spicata* has distinctive male genitalia that cannot be confused with any other species.

### *Trichardis terminalis* Oldroyd, 1974

Figs 47, 48, 58

*Trichardis terminalis*: Oldroyd 1974: 118 (figs 109 ♂ genitalia, 110 ♀ genitalia); 1980: 356 (catalogue).

Redescription (based on holotype in fair condition; following parts missing: right antennae beyond pedicel, left pro- and mesothoracic legs, right prothoracic tarsus, right wing):

*Head*: Orange-brown anteriorly dark red-brown posteriorly, but colours masked by silver pruinescence, yellow and white setose. Antenna brown-orange except for red-brown distal part of postpedicel and style, yellowish setose; postpedicel clavate (L:D=2.7:1). Mystax shiny yellowish. Ocellar tubercle with 2 macrosetae. Proboscis and palpi dark red-brown.

*Thorax*: Dark red-brown with red-brown patches, colours masked by silver pruinescence, yellowish setose. Postpronotum entirely pruinose, mesonotum red-brown with dark red-brown dorsal stripe and broad lateral bands, extensively pruinose except for central area, shiny yellowish setose. Scutellum pruinose except for posterior margin. Anepisternum with yellow posterior macroseta, dorsally pruinose, ventrally apruinose.



Proepimeron pruinose anteriorly, apruinose posteriorly; katepisternum pruinose posteriorly, apruinose anteriorly; anepisternum pruinose posteriorly, apruinose anteriorly. Legs: Femora and distal half of hind tibiae red-brown, rest brown-yellow, pulvilli and empodium of similar length. Hind femur red-brown with paler apices, length:height ratio 3.6:1, ventral tubercles well-developed. Hind tibia lacking ventrodiscal spur. Wing: 6.1×2.3 mm. Costal vein strongly developed as far as wing tip, then very weakly developed along posterior margin of wing and absent from alula. Membrane devoid of microtrichiae, including discal and  $r_5$  cells.

*Abdomen*: Dark red-brown, apruinose, shiny yellow setose. T2 dark red-brown, apruinose.

♂ genitalia (Figs 47, 48): Epandrium in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger well-developed, moderately dorsoventrally compressed. Hypandrium reduced and simple. Gonocoxite in ventral view without dorsomedial projections and tapering to narrowly rounded tip carrying about 4 short macrosetae; mediobasal projection moderately stout, tapering to slender slightly upturned tip. Gonostylus well-developed, moderately slender, jutting out beyond mediobasal projection of gonocoxite, gently downcurved distally. Aedeagal prongs slender, sinuous in lateral view, with long terminal filamentous tubules.

Holotype (examined): ZIMBABWE: ♂ 'S. Rhodesia / Umguza Valley [19°30'S:27°46'E] / 17.12.22 / Roy Stevenson', '*Trichardis / terminalis* Oldr. / det. H. Oldroyd, 1972 / Holotype' (NMSA).

Paratypes (examined): BOTSWANA: 1 ♀ 'Para- / type' [circular with yellow border], 'S. Africa: / Bechuanaland. / Ngamiland [ca 20°30'S:22°40'E], Nov. 1930–Jan. 1931. / G.D. Hale Carpenter. / B.M. 1931–160', '*trichardis / terminalis* Oldr. / det. H. Oldroyd 1972 / Paratype' [white] (BMNH). ZIMBABWE: 1 ♀ 'Country Rhodesia / Loc. Chirundu [16°02'S:28°50'E] / Date 17.ii.65 / Coll. K Borthwick', '*Trichardis / terminalis* Oldr. / det. H. Oldroyd, 1972 / Paratype'; 1 ♀ 'Country Rhodesia / Loc. Chirundu / Date 15.ii.65 / Coll. K Borthwick', '*Trichardis / terminalis* Oldr. / det. H. Oldroyd, 1972 / Paratype'; 1 ♀ 'Para- / type' [circular with yellow border], 'Dovenby Farm. [19°53'S:28°29'E], / S. Rhodesia / 17.9.1922, Rhodesia / Museum', '*Trichardis / cribrata* / Lw. / Dr. EO. Engel det.', '*Trichardis / terminalis* Oldr. / det. H. Oldroyd 1972 / Paratype' [white] (BMNH).

Note: In describing this species Oldroyd (1974) lists his material as follows: 'Type in Pretoria. Type-locality: RHODESIA, Umguza Valley, 17.ix.22 (Roy Stevenson)'. He then states 'Distribution. RHODESIA: Umguza Valley; Dovenby Farm; Chivundu (Borthwick). BOTSWANA: Ngamiland, 1931 (G. D. Hale Carpenter)'. The specimens he studied are in NMSA and BMNH and carry paratype labels. So although not formally listed in his publication, I accept the above specimens as the full type series.

Other material examined: BOTSWANA: 1 ♂ 2 ♀ Maxwee [19°28'S:23°40'E], ix.1976, Russell-Smith, Mopane woodland; 1 ♂ Kwaai [Khwai] R. 20 km W Moremi North gate [ca 19°S:23°E], 14.x.1977, Russell-Smith, *Acacia giraffae* woodland. NAMIBIA: 1 ♂ E Caprivi Linyanti [17°47'S:24°23'E], 9–17.x.1970, Strydom. TANZANIA: 1 ♂ Seranda Rd [?] K.I., 27.xi.1927, Nash (OXUM). ZIMBABWE: 2 ♂ 2 ♀ Rekomitjie Research Station [16°08'S:29°24'E], 14.x.1973 (1 ♂), 15.x.1973 (1 ♂ 1 ♀), 16.x.1973 (1 ♀), Phelps; 1 ♂ Sanyanti Valley [?Sanyati, 17°30'S:29°23'E], ix–x.1925, Stevenson; 12 ♂ 8 ♀ ? Triangle [21°02'S:31°27'E], 19.ix.1963 (5 ♂ 3 ♀), 21.ix.1963 (5 ♂ 4 ♀ ?), 23.ix.1963 (2 ♂ 1 ♀ ?), Moore (NMNH).

Distribution and biology: The species is known mainly from a relatively small area of southern Africa (Fig. 58), being recorded from Botswana, Namibia (the Caprivi) and Zimbabwe. A single record from Tanzania suggests a wider distribution. Adults fly between September and February (no record for January) (Table 1). Label data indicate that the species lives in both *Acacia* and Mopane woodland.

Similar species: *T. terminalis* has an entirely pruinose postpronotal lobe and in this respect can be grouped with *apicalis*, *grisescens*, *ornata*, *picta*, *testacea*, *turneri* and *zinidi*. The species is, however, most similar to *grisescens*.

*Trichardis testacea* (Macquart, 1838)

Figs 1–3, 49, 50, 60

*Laphria testacea* Macquart, 1838: 63.*Trichardis testacea* Hermann, 1906: 137–139 [Junior synonym and junior secondary homonym, preocc. *testacea* Macquart, 1838]; Kertész 1909: 159; Engel 1924: 109–110; Hull 1962: 97.*Trichardis testacea* Macquart: Oldroyd 1974: 120 (figs 107 entire ♀, 108 wing); 1980: 356 (catalogue).Redescription (based on a ♂ syntype of *T. testacea* Hermann in good condition):

**Head:** Orange anteriorly red-brown distally, somewhat masked by silver pruinescence, white and pale yellow setose. Antenna orange with red-brown style, pale yellow setose; postpedicel not markedly clavate (L:D=3.3:1). Mystax pale yellow. Ocellar tubercle with 4 macrosetae. Proboscis and palpi orange-brown.

**Thorax:** Orange, fine silver pruinose, yellow and white setose. Postpronotum entirely pruinose, mesonotum extensively apruinose except for silver pruinose lateral and posterior margins, macrosetae shiny orange, setulae white. Scutellum apruinose except for small spots laterally. Anepisternum with orange posterior macroseta, entirely pruinose. Proepimeron, katepisternum and anepisternum entirely pruinose. Legs: Orange, pulvilli and empodium of similar length. Hind femur orange, length:height ratio 3.7:1, ventral tubercles absent. Hind tibia lacking ventrodiscal spur. Wing: 5.6×2.2 mm. Costal vein strongly developed as far as wing tip, then proceeding more weakly along posterior margin of wing and absent from alula. Membrane microtrichose only in distal half—discal cell entirely microtrichose, cell  $r_5$  extensively microtrichose but weak to absent in proximal half. Wing membrane with orange stained areas.

**Abdomen:** Orange, terga somewhat reddish laterally, each tergum with a small silver pruinose spot posterolaterally, setae pale yellow, setulae minute shiny whitish. T2 yellowish orange, laterally somewhat reddish, apruinose except for small posterolateral spot.

♂ genitalia (Figs 49, 50): Epandrium in lateral view longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger short, moderately dorsoventrally compressed. Hypandrium greatly reduced and simple in structure. Gonocoxite in ventral view without obvious projections distally and with about 5 medially directed distal macrosetae; mediodistal projection moderately stout with upturned sclerotised tip. Gonostylus stout with broad flange-like distal tip. Aedeagal prongs small, fairly straight, with small terminal filamentous tubules.

Type material examined: I have not studied the Macquart types as I am unable to establish their whereabouts. I have studied a number of specimens, in three different collections, that have been labelled as ‘types’ or ‘cotypes’ of *testacea* Hermann. While it is difficult to establish exactly which of these were actually used by Hermann for his 1906 publication it is certain that at least some of them were not available to him. As Hermann’s description was based on males (number not stated) from ‘Capland, Willowmore (Dr. Brauns)’ I suggest that the following three specimens can be accepted as syntypes: SOUTH AFRICA: 1♂ ‘Willowmore [33°17’S:23°29’E] / Capland / Dr. Brauns’, ‘Type von / *Trichardis / testacea* ♂ / Herm.’ [orange], ‘Capland / *Trichardis / testacea* / Type Hr.’ [pink] (ZSMC); 1♂ ‘Capland / Willowmore [Willowmore] / 1.2 1906 / Dr. Brauns’, ‘Type von / *Trichardis / ♂ testacea* / Herm.’ [orange] (ZSMC); 1♂ ‘Cotype’, ‘Capland / Willowmore / 6 12 1906 / Dr. Brauns’, ‘Diptera / Asilidae / *Trichardis / testacea* / Hermann’, ‘Cotype / *Trichardis / testacea* / Hermann’ [green] (AMGS).

The following specimens are females or were either collected at another locality or in the year following the appearance of the description and so should be excluded from any list of syntypes: SOUTH AFRICA: 1♀ ‘Lichtenburg [26°09’S:26°10’E] / Transvaal / Dr. Brauns’, ‘Type von / *Trichardis* ♀ / *testacea* / Herm.’ [orange] (ZSMC); 1♂ [without type label] ‘Capland / Willowmore / 15.2 1907 / Dr. Brauns’, ‘*Trichardis / testacea* / ♂ Lw/Herm.’ [white] (ZSMC); 1♀ ‘Capland / Willowmore / 1 1 1907 / Dr. Brauns’, ‘*Trichardis*

*testacea* / Hermann', 'Trichardis / testacea / Cotype / Hermann' (MCMI); 1 ♂ 'Willowmore / Capland / Dr. Brauns', 'Type von / Trichardis / testacea ♀ / Herm.' [orange] (ZSMC); 1 ♀ 'Cotype', 'Capland / Willowmore / 12 12 1906 / Dr. Brauns', 'Cotype / Trichardis / testacea / Hermann' [green] (AMGS).

Notes: Macquart (1838) described his species briefly on female specimens (number not stated) from 'Du Cap'. Unfortunately Hermann (1906), unaware of Macquart's species, placed in another genus, described his species using the same name, thus creating a homonym. Engel (1924) subsequently provided a brief description in a key, recording for *testacea* Hermann '2♂ 2♀ Willowmore, Kapland, Dr. Brauns leg.' and indicated (p. 106) that '*testacea* Mcq. 1838 [*Laphria*] ist ein *Storthingomerus*'. This unlikely identification was checked by Oldroyd (1970: footnote on p. 247) and found to be incorrect—the homonymy of Hermann's species with that of Macquart being fully supported.

Other material examined: BOTSWANA: 8♂ 14♀ Farmer's Brigade Serowe, 2226BD, 21.xii.1982 (1♂), 20.x.1984 (1♂), 31.x.1984 (1♀), xii.1985 (2♂ 2♀), 3.xii.1985 (1♂), 9.xi.1988 (1♀), 8.xii.1988 (1♂), ix.1989 (1♂ 3♀), x.1989 (3♀), x.1990 (1♂ 3♀), 28.xi.1990 (1♀), Forchhammer; 4♂ 6♀ same place, x.1989 (2♂ 4♀), xi.1989 (1♂ 1♀), xii.1989 (1♂), ii.1990 (1♀), Forchhammer, Mercury V.L. light trap (NHRS); 1♂ Close to Otse [23°10'S:21°00'E] Vultury, 6.xi.1993, Viklund (NHRS); 1♂ Gaberones [24°39'S:25°54'E], ii.1915, Ellenberger (MNHN); 1♂ Sanitas garden Gaberones Dam, 7–19.xi.1993, Viklund (NHRS). NAMIBIA: 1♀ Kunene, Epupa Falls, 17°00'S:13°15'E, 22.ii.1995, Koch (ZMBH); 1♂ 1♀ Kaoko Otavi [18°18'S:13°42'E], iii.1926, Mus. Exped. (SAMC); 1♂ Etosha-Pan, Namutoni [18°48'S:16°59'E], 23.i.1993, Koch (ZMBH); 1♀ Brandberg Tsisab Valley [21°01'S:14°41'E], viii.1948, Strey. SOUTH AFRICA: 1♂ 1♀ Messina Nat. Res., 22°24'54"S:30°05'12"E, 487 m, 14.ii.2005, Londt & Dikow, Mopane dry woodland Sand R. [habitat]; 1♀ Soutpansberge Soutpan, 2229CD, 23–24.ii.1980, Londt & Schoeman, bushveld vegetation; 1♂ 37 km N Louis Trichardt, 2229DD, i.1975, Stuckenber, arid bushveld; 1♀ Swarttruggens Marico [25°39'S:26°42'E], 15.i.1901, Brauns; 1♂ 2♀ Wolmaransstad [27°12'S:25°58'E], 20.x.1963 (1♀), 23.x.1963 (1♂ 1♀), Moore (NMNH); 1♂ Kroonstad [27°40'S:27°14'E], 29.xi.1965, Brothers (AMGS); 1♀ 35 km SE Noenieput, 2720CB, 20.iii.1982, Londt & Schoeman, flowers on roadside; 1♀ Cape Colony, Windsorton [28°20'S:24°43'E], 20.xii.1920, Brauns; 1♂ Modder R., Brandfont Dist. [2826CD], xi.1939, Mus. Staff (SAMC); 1♂ Grootvlei [29°13'S:26°18'E], 9.xii.1913, Munro (SANC); 1♂ Grootvlei, 9.xii.1914; 1♀ Wyk's Vlei [Vanwyksvlei] [30°21'S:21°49'E], Alston (NMNH); 1♂ Wyk's Vlei, 1885, Alston (BMNH); 1♂ Wyk's Vlei, 1886, Alston (SAMC); 1♀ Vanwyksfontein, 8 km W Norvalspont [30°38'S:25°27'E], 16.i.1985, Gess (AMGS); 1♂ 2♀ Norval's Pont [30°38'S:25°27'E], 9.xii.1971, Greathead (BMNH); 1♂ 1♀ Aliwal North [30°42'S:26°42'E], 1326 m, 1–13.1923 [?], Turner (BMNH); 3♂ Lady Grey [30°42'S:27°14'E], 30.xii.1924, 6.i.1925, 6.i.1926, Nel; 1♂ Lady Grey, 22.xii.1925, Nel (BMNH); 1♂ 13 km NW Camarvon V. Wyksvlei Rd, 3022CC, 14.xi.1986, Londt & Quickelberge, dry riverbed Acacias; 1♀ Camarvon [30°57'S:22°08'E] (SAMC); 1♀ Steynsburg [31°19'S:24°20'E], 1910, Ellenberger (MNHN); 1♀ Richmond Dist. [31°25'S:23°56'E], iii.1931, Museum Staff (SAMC); 1♂ 1♀ Middelburg [31°29'S:25°01'E], 13.ii.1925, Munro (NMNH); 5♂ 4♀ 14 m E Middelburg, Cape Province, 8–14.xii.1960, Brown, Fürst & Haacke (SANC); 1♀ 5 km N Nieuwoudtville, 3119AC, 760 m, 16.xi.1986, Londt & Quickelberge, stream macchia; 1♂ Visrivier 50 km E Calvinia on Williston Rd, 31°26'15"S:20°16'48"E, 990 m, 10.xi.1998, Londt, river edge vegetation; 2♂ 10 km W Williston, 3120BD, 1060 m, 15.xi.1986, Londt & Quickelberge, sand/Acacias; 2♀ Cacadu R. nr Lady Frere, 3127CA, 27.x.1978, Londt & Miller, river bank; 1♀ 23 km N Middelpos, 31°44'S:20°14'E, 29.xi.1990, 1170 m, Whittington & Londt, at Kookfontein R.; 1♂ nr Perdefontein, E Middelpos, 31°45'S:20°44'E, 11.xii.1988, Eardley (SANC); 1♂ Queenstown [31°54'S:26°53'E], 16.i–10.ii.1923, Turner (BMNH); 1♀ Dunedin [31°57'S:22°25'E], 1.xi.1979, Whitehead (SAMC); 4♂ 1♀ Murraysburg Dist. [31°57'S:23°46'E], xi.1935, Museum Staff (SAMC); 1♂ 1♀ 23 km SE Middelpos, 32°01'S:20°25'E, 1200 m, 28.xi.1990, Whittington & Londt, banks of Visrivier; 1♀ Cape of Good Hope, Nels Poort [32°07'S:23°00'E], 5.xii.1933, Ogilvie (BMNH); 1♂ Ingleside, Cradock [32°11'S:25°37'E], iv.1914, Brincker (BMNH); 1♂ Cradock, i.1915, Brincker (BMNH); 1♀ Goshen nr Cathcart [32°13'S:27°03'E], iii.1954, S.A. Museum (SAMC); 1♂ 1♀ Graaff-Reiner Urquhart Park Caravan Park, 32°15'S:24°33'E, 4–6.xii.1988, Londt, riverine vegetation, sandy ground; 1♀ Urquhart Park Caravan Park in Graaff-Reinet, 32°15'S:24°33'E, 7.xii.1989, Londt, *Acacia* savannah nr dam; 1♂ Graaf-Reinet [Graaff-Reinet, 32°17'S:24°28'E], 19.xi.1959, Greathead (BMNH); 8♂ 7♀ Rietvlei Nieuvelid Escarpment [32°20'S:21°30'E], i.1949, Zinn & Hesse (SAMC); 1♂ Beaufort West Dist. [32°21'S:22°35'E], ii.1958, SAM (SAMC); 1♀ Renoster R. Tankwa Karoo [32°25'S:20°00'E], xi.1952, Mus. Expd. (SAMC); 5♂ 10♀ 1♀ Aberdeen [32°29'S:24°05'E], xi.1935, Mus. Staff (SAMC); 1♂ Katberg [32°31'S:26°38'E], 1219 m, xi.1932, Turner (BMNH); 1♀ Merweville Lainsburg Dist. [32°40'S:21°31'E], i.1959, Zinn (SAMC); 4♂ 2♀ Merweville, i–ii.1947, Zinn (SAMC); 1♀ Dikbome Merweville Koup, i.1953, Zinn (SAMC); 3♂ 2♀ Gardiner's Drift Adelaide [32°42'S:26°18'E], iii.1954, S.A. Museum (SAMC); 2♂ Somerset East [32°43'S:25°35'E], 1–9.xii.1930, Turner (BMNH); 4♂ Somerset East, 25–30.xi.1930, Turner (BMNH); 1♂ Cookhouse [32°45'S:25°49'E], 8.ii.1925, Munro HK (NMNH); 2♂ 1♀ Cookhouse, iii.1954, S.A. Museum (SAMC); 1♂ Fort Willshire nr Alice [32°47'S:26°50'E], 21.i.1959, Jacot-Guillarmod (AMGS); 5♂ 3♀ Umdala Fort Beaufort [32°48'S:26°39'E], iii.1954, S.A. Museum (SAMC); 2♀ Mountain Zebra Nat Park, 3225AD, 17–21.xii.1985, Londt, Bushveld vegetation; 2♂ 3♀ 16 km E Cradock Farm "Who can tell", 3225BB, 11.iii.1972, Irwin; 1♀ Meiringspoort, 3322BC, 11–12.xii.1979, Londt & Stuckenber, rocky hillside & stream edge; 1♂ 22 km NW Grahamstown, Clifton Farm, 3326AB, 3–5.i.1986, Londt & Gess, arid area; 1♂ Tierberg Res. Stat. Prince Albert Dist., 33°07'42"S:22°16'24"E, 26.xi–5.xii.1987, Gess (AMGS); 1♂ Fort Brown [33°08'S:26°37'E], 23.ii.1928, Walton (AMGS); 1♀ Fort Brown area, 33°08'38"S:26°38'37"E, 314 m, 21.x.2004,

Londt, *Euphorbia* & *Aloe* sp. nr farm "Resolution"; 8♂ 5♀ Grahamstown, Resolution [farm] [33°10'S:26°37'E], 6.ii. (2♂), 1.iv. (1♀), 1.xii. (1♂), 13.xii.1928 (1♀), 9.i. (1♂), 11.i. (1♂), 12.i. (1♀), 15.i. (1♀), 18.i. (1♀), 24.i. (1♂), 26.i.1929 (2♂), Walton; 3♂ 2♀ same place, 1930, Walton (SAMC); 1♀ Spitzkop Laingsburg [33°12'S:20°50'E], iii.1937, Mus. Staff (SAMC); 2♂ Oukloof Beaufort West [33°15'S:22°06'E], i.1949, Zinn & Hesse (SAMC); 1♂ 1♀ Alicedale New Year's Dam, 3326AC, 5.xi.1978, Miller & Londt, dam edge; 5♂ 2♀ 1♀ Willowmore [33°17'S:23°29'E], 1.xii. (2♂ 1♀), 7.xii. (?), 10.xii.1920 (2♂ 1♀), 3.i.1927 (1♂), Brauns; 1♂ Willowmore, Brauns (NMNH); 1♂ 1♀ Willowmore, 1.xii.1920, Brauns (NMNH); 1♂ 1♀ Willowmore, 10.xii.1909 (1♂), ii.1914, Brauns (SAMC); 2♂ 3♀ Willowmore, ii.1908 (2♂), xi.1909 (2♀), 25.xii.1915 (1♀), Brauns (MRAC); 1♂ Willowmore, 12.xii.1906, Brauns (BMNH); 2♂ 1♀ Willowmore, 15.i.1907 (1♀), 15.xii. 25.xii. (1♂), 1915 (1♂), Brauns (MCMI); 1♀ Willowmore, 1907 Brauns (ZSMC – While labelled a syntype, this specimen was collected a year after Herman's description); 1♀ Willowmore, Brauns (BMNH); 1♀ Willowmore Modderfontein, 7.xii.1920, Brauns; 2♀ Grahamstown [33°18'S:26°32'E], iii.1971, Londt; 1♂ Grahamstown, 29.xi.1964, Brothers (AMGS); 2♂ Grahamstown, 21.xii.1971, Greathead (BMNH); 1♀ 2 km S Grahamstown, 33°20'S:26°31'E, 800 m, 20.xi.1990, Londt & Whittington, Dassie Krantz forest; 2♀ Rooinek Lainsburg Dist. [33°20'S:20°55'E], i.1949, Zinn & Hesse (SAMC); 1♂ 30 km E of Touws R. to Hondewater [33°20'S:20°02'E], xii.1962, SAM (SAMC); 1♀ Dunbrody [33°28'S:25°33'E], 1897, O'Neil (SAMC); 1♂ nr Highgate Ostrich Farm Oudtshoorn [33°35'S:22°12'E], 10.xii.1986, Gess (AMGS); 1♂ Frischgewaagd Oudtshoorn, 33°39'29"S:22°13'18"E, 7–8.xii.1986, Gess (AMGS); 1♀ Dr Hoek Uitenhage [33°45'S:25°24'E], 11.iii.1919, Munro; 1♂ Table farm Grahamstown, 12–25.ii.1971, Gess (AMGS); 1♂ Strowan Grahamstown, 11.vii.1968, Gess (AMGS); 2♂ 8♀ Hilton Grahamstown, 5.xi.1969 (1♀), 21.xii.1976 (1♂), 13.xii.1977 (1♂), 14.ii. (1♀), 23.ii. (1♀), 28.ii. (1♀), 17.iii. (2♀), 21.iii.1978 (1♀), 30.i.1986 (1♀), Gess (AMGS); 1♂ 1♀ Pluto's Vale Grahamstown, 6.iii.1960, Jacot-Guillarmod (AMGS); 2♂ 2♀ Boesmans R. [33°42'S:26°40'E], iii.1954, S.A.Museum (SAMC); 1♀ Algoa Bay [Port Elizabeth, 33°58'S:25°35'E], 25.xii.1896, Brauns (NHMW); 1♀ Mossel Bay [34°11'S:22°08'E], 15–28.iii.1922, Turner (BMNH); 1♂ Mossel Bay, ii.1922, Turner (BMNH); 1♂ Cap [Cape] (NHMW); 3♀ C.B.Sp. [on general label not attached to specimens = Cape of Good Hope] (OXUM). ZIMBABWE: 1♀ Zambezi, Victoria Falls [17°55'S:25°51'E], vii.1914, Brincker (BMNH); 1♂ 1♀ Sarowa B.B. [?], 17.x.1923, Stevenson (SAMC).

**Distribution and biology:** A fairly commonly encountered, widely distributed and easily recognised southern African species (Fig. 60), being recorded from Namibia, Botswana, Zimbabwe and many localities in South Africa. The species is absent from the winter-rainfall area, the eastern highlands and subtropical coastal areas of southern Africa. Adults fly between July and April (Table 1). Personal experience and label data indicate that the species lives predominantly in dry woodland (*Acacia* and Mopane) and is often associated with sandy stream banks or dry river courses where they are found resting on the ground. Little biological information is available. I am aware of five prey records, four in NMSA collection and one in AMGS. These are: 1♂ 3♀ (from Oudtshoorn, 16 km E Cradock, Soutpan & Middelpoos respectively) pinned with sweat bees (Hymenoptera: Halictidae), 1♀ (16 km E Cradock) pinned with a spider-hunting wasp (Hymenoptera: Pompilidae). Engel and Cuthbertson (1934) record for *testacea* 'Many of both sexes were taken along native paths in mopani forest in December, 1930, at Nympani Vlei near Gatooma. One female has been compared with the type'.

Similar species: *T. testacea* has an entirely pruinose postpronotal lobe and in this respect can be grouped with *apicalis*, *grisescens*, *ornata*, *picta*, *terminalis*, *turneri* and *zinidi*. Although the species is distinctive in having a number of unique features, such as the clearly marked wings, it is perhaps most similar to *ornata*.

### *Trichardis turneri* Oldroyd, 1974

Figs 51, 52, 58

*Trichardis turneri*: Oldroyd 1974: 120; 1980: 356 (catalogue).

Redescription (based on paratype ♂ from type locality in excellent condition):

**Head:** Dark red-brown except for outer borders of face which are brown-orange, extensively silver pruinose (weak on face centrally), white setose. Antenna brown-orange, postpedicel red-brown with brown-orange base, setae orange and black; postpedicel

not markedly clavate (L:D=3.2:1). Mystax white. Ocellar tubercle with 2 macrosetae. Proboscis dark red-brown, palpi red-brown.

*Thorax*: Brown-orange with dark red-brown areas, extensively silver pruinose, yellow and white setose. Postpronotum entirely pruinose, mesonotum dark red-brown with brown-orange borders, apruinose except for lateral and posterior margins, macrosetae pale yellow, setulae white. Scutellum apruinose except for narrow anterior margin. Anepisternum with pale yellow posterior macroseta, extensively pruinose except for a small anteroventral area. Proepimeron pruinose but weakly posteriorly, katapisternum pruinose but weakly anteriorly, anepisternum entirely pruinose. Legs: Brown-orange, femora orange-brown, pulvilli and empodium of similar length. Hind femur orange-brown, length:height ratio 3.3:1, ventral tubercles well-developed. Hind tibia lacking ventrodiscal spur. Wing: 5.2×2.2 mm. Costal vein strongly developed as far as wing tip, then very weakly developed along posterior margin of wing and absent from alula. Membrane extensively microtrichose but microtrichiae absent from parts of proximally situated cells; discal and  $r_5$  cells entirely microtrichose.

*Abdomen*: Dark red-brown, apruinose, macrosetae pale yellow setulae white. T2 dark red-brown, apruinose.

♂ genitalia (Figs 51, 52): Epandrium in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view without projections and with about 13 distally arranged macrosetae; mediiodistal projection stout, with upturned sclerotised tip. Gonostyli stout, converging distally and ending in upturned slightly curved tips. Aedeagal prongs small, fairly straight.

Holotype (examined): SOUTH AFRICA: ♂ 'Holo- / type' [circular, red edge], 'S.W. Africa. / R. E. Turner. / Brit. Mus. / 1931-12.', 'Trichardis / turneri Oldr / det. H. Oldroyd 1972 / Holotype' [white], 'Cape Province: / Somerset East. [32°43'S:25°35'E] Nov. 25-30 1930' (BMNH).

Paratypes (examined; all BMNH): SOUTH AFRICA: 1♂ 'Para- / type', 'Aliwal North [30°42'S:26°42'E], / Cape Province. / Dec. 1922', 'S. Africa. / R. E. Turner. / Brit. Mus. / 1932-45'; 6♂ 2♀ 1? 'Para- / type' [circular with yellow border], 'Cape Province / Somerset East. / Nov. 25-30.1930.', 'SW Africa / R.E. Turner / Brit. Mus. / 1931-12'; 1♀ 'Para- / type', 'Cape Province / Somerset East. / 10-22.xii.1930.', 'S. Africa / R.E. Turner / Brit. Mus. / 1931-37'.

Other material examined: SOUTH AFRICA: 1♂ 2♀ Parys [26°54'S:27°27'E], ARC, Fry (SAMC); 1♀ Bothaville [27°22'S:26°37'E], 30.xii.1964, Brothers (AMGS); 1♂ 1♀ Verdun Kommadagga Dist. [30°18'S:20°59'E], 1.xii.1985, Gess (AMGS); 2♂ Dreunberg Burghersdorp [30°59'S:26°19'E], xi.1939, Mus. Staff (SAMC); 1♂ 2♀ 3 km E Cradock, 32°10'02"S:25°40'09"E, 956 m, 29.x.2004, Londt, *Acacia* scrubland with many wild flowers; 1♂ Urquhart Park Caravan Park Graaff-Reinet, 32°15'S:24°33'E, 4-6.xii.1988, Londt, riverine vegetation, sandy ground; 1♂ Klein Visrivier c. 10 km W Somerset East, 32°44'S:25°30'E, 800 m, 6.xii.1989, Londt, rocky ridge & stream; 2♂ 2♀ Willowmore [33°17'S:23°29'E], 20.i.1908 (1♂), ii.1914 (1♂), xii.1914 (1♀), 25.xii.1914 (1♀), Brauns; 1♀ Willowmore, 10.i.1908, Brauns (SAMC); 1♂ Bathurst [33°31'S:26°50'E], 14.i.1959, Jacot-Guillarmod (AMGS).

Distribution and biology: A South African endemic restricted to the central parts of the country (Fig. 58). Adults recorded in summer between October and February (Table 1). The species has been collected on sandy ground in *Acacia* scrubland and in the vicinity of a stream. The biology is otherwise unknown.

Similar species: *T. turneri* has an entirely pruinose postpronotal lobe and in this respect can be grouped with *apicalis*, *grisescens*, *ornata*, *picta*, *terminalis*, *testacea* and *zinidi*. The species is distinctive, especially with respect to male genital form.

***Trichardis zinidi* sp. n.**

Figs 53, 54

**Etymology:** Named for the collector Dr I. Abu-Zinid, who donated a number of East African Asilidae to the Natal Museum.

**Redescription** (based on holotype in excellent condition):

**Head:** Orange-brown anteriorly dark red-brown posteriorly, colours masked by silver pruinescence covering entire head, pale yellow and white setose. Antenna brown-orange, postpedicel dark red-brown, yellow setose; postpedicel clavate (L:D=2.6:1). Mystax shiny yellowish. Ocellar tubercle with 4 macrosetae. Proboscis and palpi dark red-brown.

**Thorax:** Orange-brown and dark red-brown patches, gold-silver pruinose, shiny pale yellow setose. Postpronotum entirely pruinose, mesonotum extensively apruinose centrally margins silver pruinose, macrosetae and setulae shiny yellowish. Scutellum apruinose except for narrow anterior margin. Anepisternum with pale yellow posterior macroseta, pruinose except for large anteroventral area. Proepimeron, katepisternum and anepisternum entirely pruinose. Legs: Orange-brown, femora dark red-brown dorsally, pulvilli and empodium of similar length. Hind femur orange-brown, dark red-brown dorsally, length:height ratio 3.6:1, ventral tubercles poorly developed. Hind tibia lacking ventrodiscal spur. Wing: 4.8×1.8 mm. Costal vein strongly developed as far as wing tip, then very weakly developed along posterior margin of wing and absent from alula. Membrane extensively microtrichose; discal cell microtrichose but weak proximally, cell  $r_5$  microtrichose in distal half only.

**Abdomen:** Dark red-brown, extensively silver pruinose, shiny pale yellowish setose. T2 dark red-brown, extensively pruinose (central area apruinose).

♂ genitalia (Figs 53, 54): Epandrium in lateral view slightly longer than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in ventral view lacking projections and with about 6 medially directed distal macrosetae; mediobasal projections stout, converging distally, with fairly sharply upturned sclerotised distal part. Gonostyli well-developed, bulky, converging distally to upturned flange-like tips. Aedeagal prongs small, more or less straight, with small terminal filamentous tubules.

**Holotype:** KENYA: ♂ 'Kenya: Kajiado Dist. / Nguruman area 700 m / 01°50'S:36°56'E / coll: I. Abu-Zinid / Date: 28.iv.1990' (NMSA).

**Paratypes:** KENYA: 1 ♀ same data as holotype (NMSA). TANZANIA: 1 ♀ 'Tanzania: 10 km N-NE / di Mto Wa Mbu [?], presso bosco / di euforbia (1100 m), alla luce' (MZUF). UNKNOWN: 1 ♀ 'Afrique / Laga Arba [?] / 25 juillet', 'Museum Paris', '*Trichardis* / H. Oldroyd det. 1965' (MNHN).

**Distribution and biology:** Recorded from Kenya and Tanzania. Adults collected in April and July (Table 1). Little label data relating to habitat preference exists, although one specimen is labelled 'presso bosco di euforbia' which suggests an arid environment. The life history and prey preferences are unknown.

**Similar species:** *T. zinidi* has an entirely pruinose postpronotal lobe and in this respect can be grouped with *apicalis*, *griseescens*, *ornata*, *picta*, *terminalis*, *testacea* and *turneri*. The species is, however, most similar to *apicalis*.

## ORIENTAL SPECIES

While this paper focuses on the Afrotropical fauna I have identified a single new species of *Trichardis* from India that represents the first record of the genus from the Oriental Region.

***Trichardis indica* sp. n.**

Figs 55, 56

**Etymology:** Named after the country of origin, India.

**Description** (based mainly on holotype, that is in fair condition, but some details taken from paratype; the holotype is missing both mesothoracic legs and parts of the right metathoracic leg, mesonotum and scutellum appear to have been eaten away by dermestid beetles; the paratype is in fair condition although somewhat ‘greasy’):

**Head:** Dark red-brown, extensively dull silver pruinose except for central face, setae pale yellow and white. Antennae red-brown, pale yellow setose except for a few black setae on pedicel; postpedicel elongate spindle-shaped (L:D=3.7:1), with few pale setulae dorsally. Mystax pale yellowish, fairly well-developed. Ocellar tubercle with 2 strong pale yellowish macrosetae. Occipital setae whitish. Proboscis and palpi dark red-brown.

**Thorax:** Dark red-brown, largely apruinose with dull silver pruinose parts, fine setae yellowish, more major setae shiny yellowish. Postpronotum largely apruinose except for narrow medial part, mesonotum largely apruinose except for margins, macrosetae shiny pale yellow, setulae yellowish. Scutellum dark red-brown, apruinose except for anterior margin. Anepisternum with slender pale yellow posterior macroseta, extensively pruinose except anteroventrally. Proepimeron anteriorly pruinose, posteriorly apruinose; katepisternum posteriorly pruinose, anteriorly apruinose; anepisternum largely apruinose. **Legs:** Orange-brown, pulvilli and empodium of similar length. Hind femur uniformly orange-brown, length:height ratio 3.6:1, ventral tubercles poorly developed, major setae pale yellowish. Hind tibia lacking ventrodorsal spur. **Wing:** 4.0×1.6 mm. Costal vein extends around most of wing margin, weakly along anal cell, absent from alula. Wing membrane extensively microtrichose—discal cell microtrichose, except for tiny proximal part, cell  $r_5$  microtrichose, but weakly so proximally.

**Abdomen** (entire abdomen macerated): Terga red-brown with orange-brown central parts, apruinose, setae transparent yellowish. T2 orange-brown, apruinose.

♂ genitalia (Figs 55, 56): Epandrium in lateral view slightly shorter than basal part of gonocoxite (i.e. excluding distal projection of gonocoxite and gonostylus). Proctiger small, moderately dorsoventrally compressed. Hypandrium greatly reduced and simple. Gonocoxite in lateral view somewhat extended proximally and tip somewhat clavate, in ventral view without median projections distally and with long mediobasal setae; mediobasal projection moderately developed with pointed distal end. Gonostylus uniquely shaped—fairly broad basal part, in lateral view, with a long slender subapically positioned dorsal projection that projects out to a similar degree to mediobasal lobe of gonocoxite. Aedeagal prongs more or less straight, with small terminal tubules.

**Holotype:** INDIA: ♂ ‘Region Himalayenne / Kurséong [26°56'N:80°18'E] (1500 m alt.)’, ‘Museum Paris / Inde / P. Caius 1924’ (MNHN).

**Paratype:** 1 ♀ same data as holotype.

Note: I have seen and recorded below another specimen from India that was not available at the time this description was drafted. While I list it here, it has no type status and indeed needs to be confirmed as belonging to *T. indica*: 1♂ 'Coimbatore [11°02'N:76°59'E] / S. India 15-iv-37' ~ 'B.M. – C.M. Expdn. / to South India. / April–May 1937' (BMNH).

Distribution and biology: The species is known with certainty from the type locality only. Phenology is uncertain, but a specimen that may be conspecific was collected in April. Nothing is known of its biology.

Similar species: This species is of particular interest as it is clearly morphologically most similar to the group of Afrotropical species that has here been called the 'cribrata species group'. The group is made up of eight species, including *indica* and the following African taxa—*crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis* and *spicata*. These are generally small, darkly sclerotised species with entirely microtrichose wings. They are difficult to key without reference to the male genitalia that serve to easily separate the species. *T. indica* has distinctive male genitalia.

#### Key to Afrotropical species of *Trichardis*

Although the following key attempts to separate species without reference to characters of the male genitalia it is preferable that well preserved males are used and that identifications are confirmed by comparisons of the genitalia with the illustrations provided.

- 1 Anepisternal macroseta absent; pulvilli reduced in size and clearly shorter than empodium [unknown for *rueppelii*]; T2 entirely pruinose; ♂ genitalia as in Figs 27, 28 (Niger, Yemen and various Palearctic countries) .....  
..... **leucoma** (Wulp, 1899) & **rueppelii** (Wiedemann, 1828)
- Anepisternal macroseta present; pulvilli normal and approximately equal in length to empodium; T2 at least partly, if not entirely apruinose ..... 2
- 2 Postpronotal lobe entirely pruinose ..... 3
- Postpronotal lobe partly to extensively apruinose ..... 10
- 3 Scutellum extensively apruinose ..... 4
- Scutellum extensively pruinose ..... 8
- 4 Cell  $r_5$  extensively microtrichose; usually 2 ocellar macrosetae; hind femur with a few well-developed ventral tubercles (some higher than broad); ♂ genitalia as in Figs 51, 52 (South Africa) ..... **turneri** Oldroyd, 1974
- Cell  $r_5$  microtrichose only in distal half; usually 4 ocellar macrosetae; hind femur with at most poorly developed ventral tubercles (broader than high) ..... 5
- 5 Anepisternum entirely pruinose (even if only weakly anteroventrally) ..... 6
- Anepisternum apruinose anteroventrally ..... 7
- 6 T2 yellowish; costal vein continues around wing margin beyond wing tip; wing membrane with distinct dark markings; ♂ genitalia as in Figs 49, 50 (Botswana, Namibia, South Africa, Zimbabwe) ..... **testacea** (Macquart, 1838)
- T2 dark red-brown; costal vein continues weakly, if at all, around wing margin beyond wing tip; wing membrane without distinct markings; ♂ genitalia as in Figs 35, 36 (Chad) ..... **ornata** sp. n.
- 7 Discal cell extensively microtrichose; hind femur dark red-brown; T2 dark red-brown; ♂ genitalia as in Figs 53, 54 (Kenya, Tanzania) ..... **zinidi** sp. n.



- Discal cell entirely lacking microtrichiae; hind femur brown-orange; T2 orange; ♂ genitalia as in Figs 7, 8 (Namibia, Mozambique, South Africa, Zimbabwe) .....  
..... **apicalis** Oldroyd, 1974
- 8 Anepisternum extensively apruinose; T2 apruinose ..... 9
- Anepisternum entirely pruinose; T2 extensively pruinose (Namibia, South Africa)  
..... **picta** Hermann, 1906
- 9 Scutellar disc entirely pruinose; male terminalia not markedly elongate, as in Figs  
19, 20 (Ethiopia, Gambia, Kenya, Senegal) ..... **grisescens** Engel, 1924
- Scutellar disc partly apruinose (i.e. weak centrally); male terminalia markedly  
elongate, as in Figs 47, 48 (Botswana, Namibia, Zimbabwe) .....  
..... **terminalis** Oldroyd, 1974
- 10 Hind tibia with well-developed ventrodiscal spur ..... 11
- Hind tibia lacking ventrodiscal spur ..... 12
- 11 Mystax entirely blackish; T2 entirely apruinose; ♂ genitalia as in Figs 25, 26  
(Somalia) ..... **lavignei** sp. n.
- Mystax with both shiny yellowish and black macrosetae; T2 apruinose except for  
silver pruinose patches posterolaterally; ♂ genitalia as in Figs 23, 24 (DR Congo,  
Tanzania) ..... **katangaensis** Oldroyd, 1970
- 12 Discal cell lacking microtrichiae, especially proximally and adjacent to veins ..13
- Discal cell extensively microtrichose (members of *cribrata* species group) .... 18
- 13 Mystax entirely white, yellow or orange, lacking black setae; antennal segments  
predominantly yellowish or light brownish ..... 14
- Mystax with some black setae; antennal segments entirely or almost entirely dark  
red-brown ..... 16
- 14 Antennal postpedicel clavate (L:D < 3.0); costal vein ends at wing tip; veins R5+M1,  
M2 and M3+CuA1 not reaching wing margin (Fig. 4); cell  $r_3$  almost entirely lacking  
microtrichiae; ♂ genitalia as in Figs 15, 16 (Namibia, South Africa) .....  
..... **effrena** sp. n.
- Antennal postpedicel spindle shaped (L:D > 3.0); costal vein continues around  
wing tip and along much of hind margin of wing; veins R5+M1, M2 and M3+CuA1  
reaching wing margin (e.g. Fig. 3); cell  $r_3$  at least weakly microtrichose ..... 15
- 15 A yellowish or orange species; ♂ genitalia as in Figs 31, 32 (Eritrea) .....  
..... **mellina** sp. n.
- A dark red-brown to blackish species; ♂ genitalia as in Figs 17, 18 (Gambia) .....  
..... **glabra** sp. n.
- 16 Postpronotal and postalar lobes orange and contrasting with dark red-brown to  
blackish mesonotum; legs ventrally orange-brown; smaller species (wing length *ca*  
4.0 mm); ♂ genitalia as in Figs 41, 42 (Socotra I., Yemen) .....  
..... **pohli** Geller-Grimm, 2002
- Postpronotal and postalar lobes blackish and not contrasting with mesonotum; legs  
uniform dark red-brown to blackish; bigger species (wing length *ca* 5.5 mm).. 17
- 17 Mesonotal macrosetae, anepisternal seta(e) and ocellar setae black; ♂ genitalia as  
in Figs 33, 34 (Socotra I., Yemen) ..... **nigrescens** (Ricardo, 1903)

- Mesonotal macrosetae, anepisternal seta(e) and ocellar setae yellowish; ♂ genitalia as in Figs 5, 6 (Abd el Kuri I., Yemen) ..... **abdelkuri** sp. n.
- 18 Pleural pruinescence confined to anepisternum (i.e. proepimeron, katepisternum and anepimeron uniformly pruinose); in males the greatly expanded (trumpet-like) distal tips of the three aedeagal openings are clearly visible; ♂ genitalia as in Figs 29, 30 (Malawi, Tanzania, Zimbabwe) ..... **malawi** sp. n.
- Anterior part of katepisternum and posterior part of proepimeron shiny apruinose; male aedeagal openings not markedly trumpet-like ..... 19
- 19 Anepimeron with an extensive apruinose area; ♂ genitalia as in Figs 21, 22 (Gambia, Senegal) ..... **hesperia** sp. n.
- Note:* The Oriental species, *indica* sp. n., from India, keys out here and can be separated from *hesperia* on characters of the ♂ genitalia, Figs 55, 56)
- Anepimeron entirely pruinose ..... 20
- 20 Hypopygium dark red-brown and not contrasting with proximally situated abdominal terga ..... 21
- Hypopygium dark somewhat orange and contrasting with proximally situated abdominal terga that are dark red-brown ..... 22
- 21 ♂ genitalia as in Figs 11, 12 (Lesotho, Mozambique, South Africa, Zimbabwe) ...  
..... **cribrata** (Loew, 1858)
- ♂ genitalia as in Figs 45, 46 (Mozambique) ..... **spicata** sp. n.
- 22 ♂ genitalia as in Figs 9, 10 (Burkina Faso, Niger) ..... **crassipala** sp. n.
- ♂ genitalia as in Figs 13, 14 (Ivory Coast, Nigeria) ..... **eburacta** sp. n.
- ♂ genitalia as in Figs 43, 44 (Malawi) ..... **similis** sp. n.

## DISCUSSION

### *Taxonomy*

Londt (2007a) discussed the situation regarding the characterisation of Afrotropical laphriine genera previously considered to belong to the subfamily Laphystiinae (i.e. *Perasis*, *Hoplistomerus* and *Trichardis*), saying that these rather similar genera had not been adequately separated using published keys. Londt (2007a) gave a provisional key to these genera stating that it would probably have to be updated following revisions of the genera. These studies have now been completed, and, although the provisional key works reasonably well for most of the species, a new key is provided below and is considered superior.

### Key to genera of Afrotropical Laphriinae previously classified as Laphystiinae

- 1 C continues fairly strongly along entire wing margin, including anal cell and alula; postpronotal lobe without macrosetae; covered with tiny setulae only; hind femora slender (length/breadth ratio >5) and lacking tubercles; abdominal terga lacking discal setae beyond T1. ♂ genitalia: Epandrium in dorsal view deeply incised (i.e. lobes evident for about half length); hypandrium moderately well-developed and gonocoxites widely separated ventrally ..... **Perasis** Hermann
- C continues fairly strongly along wing margin to Cu+A1 before becoming much weaker along anal cell and completely absent from alula; postpronotal lobe with at

- least a few long and sometimes strongly developed macrosetae; hind femora robust (length/breadth ratio <4), with a swollen appearance and usually equipped with tubercles; abdominal terga with discal setae beyond T1. ♂ genitalia: Epandrium in dorsal view hardly incised (i.e. not divided into lobes); hypandrium usually absent or at best poorly developed and gonocoxites usually closely associated ventrally ..... 2
- 2 Antennal postpedicel elongate; proboscis large and protruding well beyond lower epistomal margin; hind tibia of male always with a distoventral spur; hind femur always with well-developed tubercles, the largest often coalescing with each other; usually large species (wing length >7 mm), commonly with golden abdominal setation. ♂ genitalia: Gonocoxite always with median projection which is usually elongate and distally directed, and lacking mediobasal macrosetae ..... **Hoplistomerus** Macquart
- Antennal postpedicel moderately elongate to clavate; proboscis small and hardly protruding beyond lower epistomal margin; hind leg of male usually lacking a distoventral tibial spur; hind femur usually with tubercles, which, when present, do not coalesce; usually small species (wing length <7 mm) lacking obvious golden abdominal setation. ♂ genitalia: Gonocoxite rarely with median projection (when present it is short and medially directed) and commonly with mediobasal macrosetae ..... **Trichardis** Hermann

When attempting to draw up a key to Afrotropical *Trichardis* it became evident that there was at least one fairly distinctive ‘species group’. The species in this group, comprising seven Afrotropical species (*crassipala*, *cribrata*, *eburacta*, *hesperia*, *malawi*, *similis*, *spicata*), were difficult to separate using easily observed external characters, but possess highly distinctive male genitalia. As only one of these species (*cribrata*) had been described, I suggest that the group be called the ‘*cribrata* species group’. Species in this group are widely distributed, occurring mainly in West Africa, but also in East and Southern Africa. Of interest is the fact that the newly described Oriental species (*indica*) appears also to belong to this group. There may be other groups that can be detected, but as these can only be very poorly defined I prefer to refrain from making further comment on the matter apart from saying that I believe ‘related’ or ‘sister species’ tend to key out together in the key provided above.

*Distribution and phenology*

*Trichardis* is widely distributed throughout the Afrotropical region (Fig. 57) where the vast majority of species are to be found. The genus is, however, also represented by a few widely scattered species within the Palaearctic and Oriental regions. Only one species, *T. leucocoma*, has been recorded from two regions. This species is primarily Palaearctic as there are only a few records of it in the Afrotropical region. The limited data available to me suggest, however, that it may be a more widely distributed than currently appreciated.

Of the 25 Afrotropical species, eight (32%) are found only in Southern Africa (*apicalis*, *cribrata*, *effrena*, *picta*, *spicata*, *terminalis*, *testacea*, *turneri*). Nine (36%) are known only from Eastern Africa (*abdelkuri*, *lavignei*, *mellina*, *nigrescens*, *ornata*, *pohli*, *rueppelii*, *similis*, *zinidi*), three of these being confined to the small Yemenese islands of Socotra and Abd el Kuri (*abdelkuri*, *nigrescens*, *pohli*). Three (12%) species are

known only from Western Africa (*eburacta*, *glabra*, *hesperia*). Two species (8%) are widespread between East and West Africa (*crassipala*, *griseascens*), one (4%) is distributed between East and Central Africa (*katangaensis*), and another is found in both East and Southern Africa (*malawi*).

Bearing in mind that the genus is found straddling the equator, without exception, adult *Trichardis* appear to be active during the warmer, summer months of the year (Table 1).

### Biology

*Trichardis* appears to be a genus largely restricted to grassland and savannah biomes. Fig. 57 demonstrates its absence from tropical and subtropical areas where forests dominate, and from the winter-rainfall area of the south-western parts of South Africa, which is dominated by succulents and fynbos. Nothing is known about the immature stages of any *Trichardis* species and biological data relating to the adults are fragmentary. It appears that all species are normally encountered resting on the ground (on sand or peddles) in savannah or woodland biomes (see Londt 1994). Londt (2006) mentions *Trichardis* in a discussion of asilid predation and this information is added here too. Only six prey records are known to me, four for *T. testacea* and two for *T. picta*. Except for a single dipteran (Tachinidae), all prey items are hymenopterans (4 Halictidae, 1 Masaridae, 1 Pompilidae). The possible predilection for Hymenoptera, and Halictidae in particular, is interesting, but probably not significant as these insects are also commonly found resting on the ground and therefore easily accessible as prey.

### ACKNOWLEDGEMENTS

Curators of the museums who have kindly hosted me or sent specimens for study are gratefully acknowledged for their participation and assistance. Dr Mike Mostovski (Natal Museum) is thanked for his encouragement and helpful editorial advice. Mrs Heidi Snyman (Ezemvelo KZN Wildlife) is thanked for generating the distribution maps. The University of KwaZulu-Natal allocated funding in support of my research, while the Natal Museum provided laboratory space and library services. I also wish to acknowledge the assistance of all the conservation authorities who have issued collecting permits over the many years I have been working on Afrotropical Asilidae. My wife Ann is thanked for all the assistance she has rendered me especially in relation to my field work.

### REFERENCES

- AUSTEN, E.E. 1914. On Diptera collected in the western Sahara by Dr. Ernst Hartert, with descriptions of new species. *Novitates Zoologicae* **21**: 265–274.
- BECKER, T. 1907. Die Ergebnisse meiner dipterologischen Frühjahrsreise nach Algier und Tunis. 906. [part.] *Zeitschrift für systematische Hymenopterologie und Dipterologie* **7**: 33–61.
- EFFLATOUN, H. C. 1937. A monograph of Egyptian Diptera. Part V. Family Asilidae (Section II). *Mémoires de la Société Royal Entomologique d'Égypte* **4** (3): 199–443 + pls IV–VIII.
- ENGEL, E.O. 1924. Studien über afrikanische Dipteren (Asiliden). *Wiener Entomologische Zeitung* **41**: 100–110.
- ENGEL, E.O. & CUTHBERTSON, A. 1934. Systematic and biological notes on some Asilidae (Diptera) of Southern Rhodesia with a description of a species new to science. *Proceedings of the Rhodesia Scientific Association* **34** (1): 35–47.
- 1939. Systematic and biological notes on some brachycerous Diptera of Southern Rhodesia. *Journal of the Entomological Society of Southern Africa* **11**: 181–195.

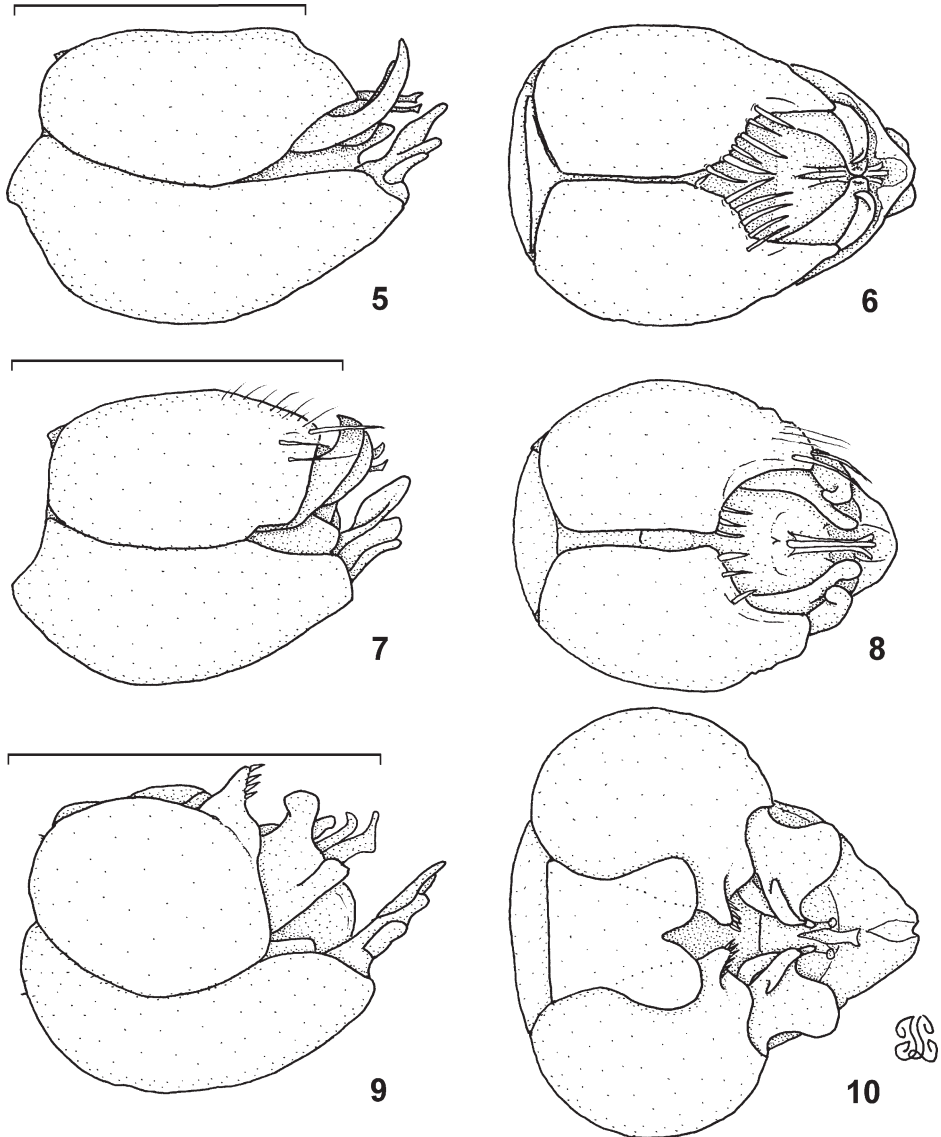
- GELLER-GRIMM, F. 1999. Raubfliegen-Typenmaterial des Senckenberg-Museums in Frankfurt am Main, das überwiegend von Wiedemann und Jaenicke bearbeitet wurde (Insecta, Diptera, Asilidae). *Senckenbergiana biologica* **78** (1/2): 205–217.
- 2002. Robber flies (Diptera: Asilidae) of the Socotra Archipelago, Yemen. *Fauna of Arabia* **19**: 467–489.
- HERMANN, F. 1906. Beitrag zur Kenntnis der Asiliden (II.) (Dipt.). *Zeitschrift für Systematische Hymenoptero-logie und Dipterologie* **6**: 129–144.
- 1920. Beitrag zur allgemeinen Systematik der Asiliden. *Zoologische Jahrbücher, Abteilung für Systematik* **43**: 161–194.
- HULL, F.M. 1962. Robber flies of the World. The genera of the family Asilidae. *Bulletin of the United States National Museum* **224** (1): 1–430, (2): 431–907.
- KERTÉSZ, C. 1909. *Catalogus dipteriorum hucusque descriptorum*. IV. Oncodidae, Nemestrinidae, Mydidae, Apioceridae, Asilidae. Budapest: Museum Nationale Hungaricum, pp. 1–348.
- LEHR, P. A. 1988. Family Asilidae. In: Soos, A. & Papp, L., eds, *Catalogue of Palaearctic Diptera*. Vol. 5. Amsterdam: Elsevier, pp. 197–326.
- LOEW, H. 1858 [1857]. Bidrag till kannedomen om Afrikas Diptera [part]. *Öfversigt af Kongliga Vetenskaps-Akademiens Föreläsningar* (Stockholm) **14**: 337–383.
- 1860. Die Dipteren-Fauna Südafrika's. Erste Abtheilung. *Abhandlungen des Naturwissenschaftlichen Vereins für Sachsen und Thüringen in Halle* **2** (1858–1861): 57–402.
- LONDT, J.G.H. 1994. Afrotropical Asilidae (Diptera) 26. Ethological observations, and a possible ecological classification based on habitats. *Annals of the Natal Museum* **35**: 97–122.
- 2004. A revision of *Laphystotes* Oldroyd, with the description of a new species, and a key to the genera of afrotropical Laphriinae (Diptera: Asilidae). *African Entomology* **12** (1): 19–28.
- 2006. Predation by Afrotropical Asilidae (Diptera): An analysis of 2000 prey records. *African Entomology* **14** (2): 317–328.
- 2007a. A review of Afrotropical *Perasis* (Hermann, 1905) (Diptera: Asilidae: Laphriinae). *Zootaxa* **1521**: 9–18.
- 2007b. A review of the genus *Hoplistomerus* Macquart, 1838 (Diptera: Asilidae: Laphriinae). *African Invertebrates* **48** (2): 167–198.
- MACQUART, P.J.M. 1838. Diptères exotiques nouveaux ou peu connus. *Mémoires de la Société (Royale) des Sciences, de l'Agriculture et des Arts à Lille* **1** (2): 5–207.
- MCALPINE, J. F. 1981. Morphology and terminology—Adults. In: McAlpine, J.F. et al., eds, *Manual of Nearctic Diptera*. Vol. 1. Monograph 27. Ottawa: Agriculture Canada, Research Branch, pp. 9–63.
- OLDROYD, H. 1970. Studies of African Asilidae (Diptera). 1. Asilidae of the Congo basin. *Bulletin of the British Museum (Natural History). Entomology, Supplement* **24** (7): 207–334.
- 1974. An introduction to the robber flies (Diptera: Asilidae) of southern Africa. *Annals of the Natal Museum* **22** (1): 1–171.
- 1980. Family Asilidae. In: Crosskey, R.W., ed., *Catalogue of the Diptera of the Afrotropical Region*. London: British Museum (Natural History), pp. 334–373, 1218, 1226, 1229.
- RICARDO, G. 1903. Insecta: Diptera. In: Forbes, H.O., ed., *The natural history of Sokotra and Abd-el-Kuri*, etc. *Bulletin of the Liverpool Museum (Special)*: 357–378.
- THEODOR, O. 1980. *Diptera: Asilidae. Fauna Palaestina, Insecta II*. Jerusalem: Israel Academy of Sciences and Humanities.
- WIEDEMANN, C.R.W. 1828. *Aussereuropäische zweiflügelige Insekten als Fortsetzung des Meigenschen Werkes v. 1. Pt 8. Familie: Räuberfliegen (Asilici)*. Hamburg: Schulzischen Buchhandlung, 1828–1830.
- WULP, F.M. VAN DER. 1899. Asilidae from Aden and its neighbourhood. *Transactions of the Entomological Society of London* **1899**: 81–98.

TABLE 1  
Phenology of Afrotropical *Trichardis* species.

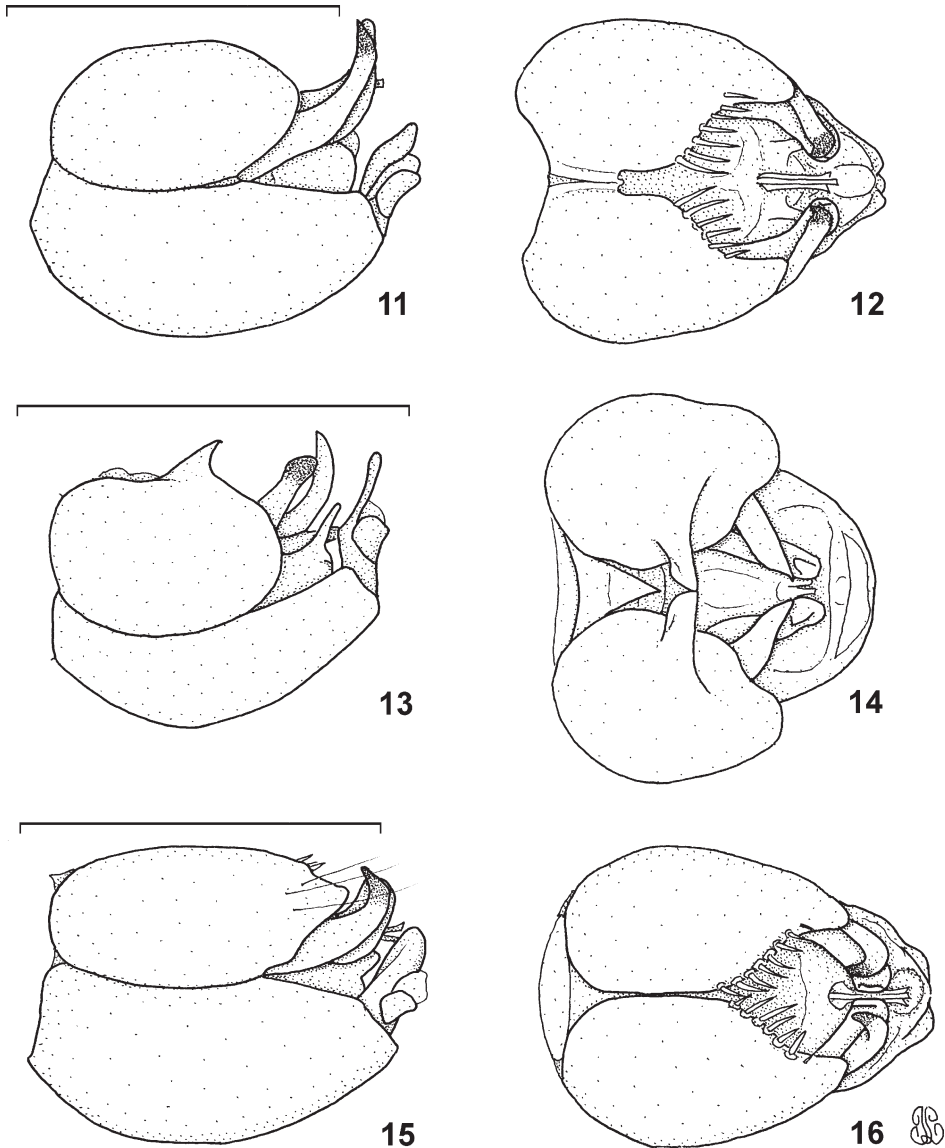
Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<i>abdelkuri</i>	–	–	–	–	–	–	–	–	–	–	•	–
<i>apicalis</i>	–	–	–	–	•	•	•	•	•	–	–	–
<i>crassipala</i>	•	•	–	–	–	–	–	–	–	–	•	–
<i>cribrata</i>	•	–	–	•	•	•	•	•	•	–	–	–
<i>eburacta</i>	–	–	–	–	–	–	–	–	–	•	–	•
<i>effrena</i>	–	–	–	–	–	–	•	•	•	–	–	–
<i>glabra</i>	–	–	–	–	–	–	–	–	–	•	•	–
<i>grisescens</i>	–	–	–	–	•	–	•	•	•	•	•	–
<i>hesperia</i>	–	•	–	–	–	–	–	–	–	–	•	–
<i>katangaensis</i>	–	–	–	•	•	•	–	–	–	–	–	–
<i>lavignei</i>	–	–	–	–	–	–	–	–	–	–	•	•
<i>leucocoma</i>	–	•	–	–	–	–	–	•	•	•	•	–
<i>malawi</i>	–	–	–	–	•	•	–	–	–	–	–	–
<i>mellina</i>	–	–	–	–	•	–	–	–	–	–	–	•
<i>nigrescens</i>	–	–	–	•	–	•	•	–	–	–	–	–
<i>ornata</i>	–	•	–	–	–	–	–	–	–	–	–	–
<i>picta</i>	–	–	–	•	•	•	•	•	•	–	–	–
<i>pohli</i>	–	–	–	–	–	–	–	•	–	•	–	–
<i>rueppelii</i>	–	–	–	–	–	–	–	–	–	–	–	–
<i>similis</i>	–	–	–	–	–	•	–	–	–	–	–	–
<i>spicata</i>	–	–	–	–	–	•	–	–	–	–	–	–
<i>terminalis</i>	–	–	•	•	•	•	–	•	–	–	–	–
<i>testacea</i>	•	•	•	•	•	•	•	•	•	•	–	–
<i>turneri</i>	–	–	–	•	•	•	•	•	–	–	–	–
<i>zinidi</i>	•	–	–	–	–	–	–	–	–	•	–	–
<b>No. species</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>7</b>	<b>10</b>	<b>11</b>	<b>8</b>	<b>10</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>3</b>

Index to *Trichardis* species described or revised in this paper (valid names in **bold face**)

	Page		Page
<b>abdelkuri</b> sp. n. ....	175, 211, 216	<i>lucifera</i> Oldroyd, 1980 = <b>picta</b> .....	195
<i>albipila</i> Becker, 1907 = <b>leucocoma</b> .....	189	<b>malawi</b> sp. n. ....	191, 211, 220
<b>apicalis</b> Oldroyd, 1974 .....	176, 210, 216	<b>mellina</b> sp. n. ....	192, 210, 220
<b>crassipala</b> sp. n. ....	178, 211, 216	<b>nigrescens</b> (Ricardo, 1903) .....	193, 210, 220
<b>cribrata</b> (Loew, 1858) .....	179, 211, 217	<b>ornata</b> sp. n. ....	194, 209, 221
<i>cribratus</i> = <b>cribrata</b> .....	179	<b>picta</b> Hermann, 1906 .....	195, 210, 221
<b>eburacta</b> sp. n. ....	181, 211, 217	<b>pohli</b> Geller-Grimm, 2002 .....	197, 210, 222
<b>effrena</b> sp. n. ....	182, 210, 217	<b>rueppelii</b> (Wiedemann, 1828) .....	198, 209
<b>glabra</b> sp. n. ....	183, 210, 218	<i>rueppelii</i> = <b>rueppelii</b> .....	198
<b>grisescens</b> Engel, 1924 .....	184, 210, 218	<i>rufescens</i> Austen, 1914 = <b>leucocoma</b> .....	189
<i>grisescens</i> Hermann, 1920		<i>rueppelii</i> = <b>rueppelii</b> .....	198
= <b>grisescens</b> Engel, 1924 .....	184	<b>similis</b> sp. n. ....	199, 211, 222
<b>hesperia</b> sp. n. ....	185, 211, 218	<b>spicata</b> sp. n. ....	200, 211, 222
<b>indica</b> sp. n. ....	208, 224	<b>terminalis</b> Oldroyd, 1974 .....	201, 210, 223
<b>katangaensis</b> Oldroyd, 1970 .....	186, 210, 219	<b>testacea</b> (Macquart, 1838) .....	203, 209, 223
<b>lavignei</b> sp. n. ....	188, 210, 219	<i>testacea</i> Hermann, 1906	
<b>leucocoma</b> (Wulp, 1899) .....	188, 209, 219	= <b>testacea</b> (Macquart, 1838) .....	203
<i>leucocomus</i> .....	189	<b>turneri</b> Oldroyd, 1974 .....	205, 209, 223
<i>lucifera</i> Oldroyd, 1974 = <b>picta</b> .....	195, 221	<b>zinidi</b> sp. n. ....	207, 209, 224

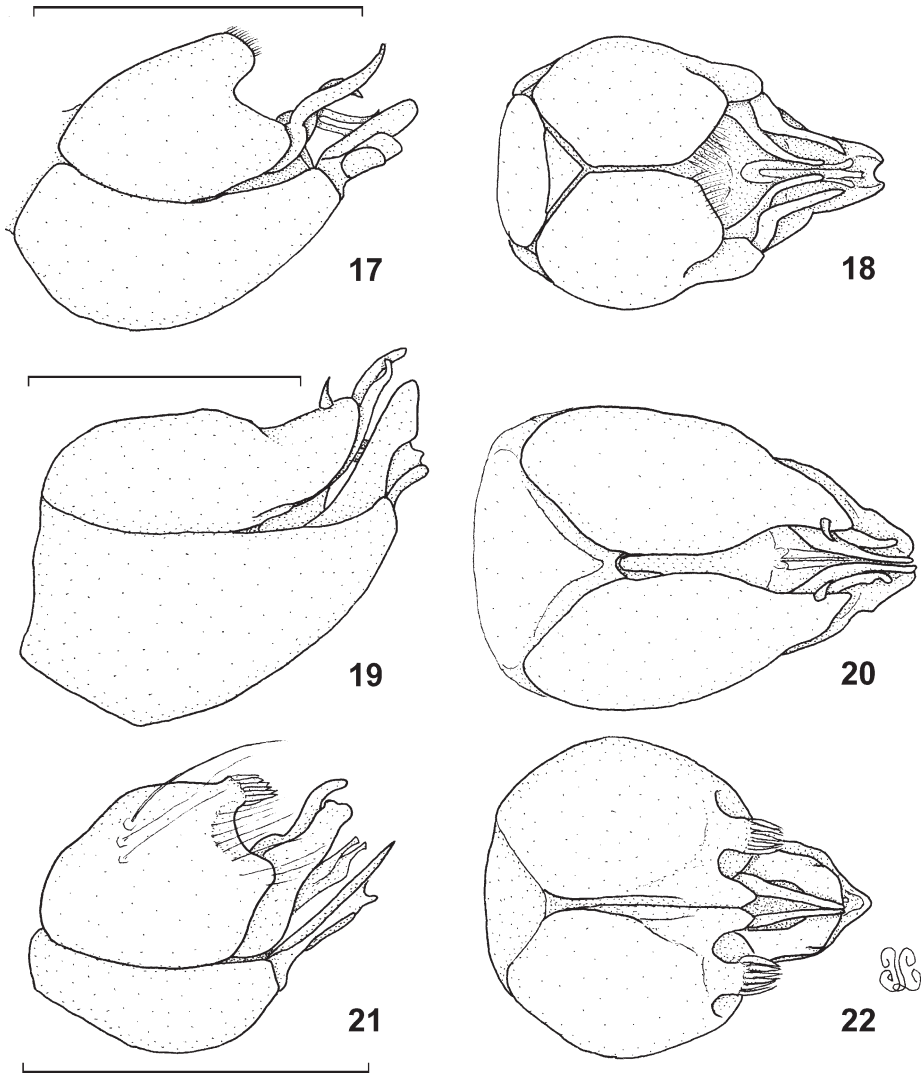


Figs 5–10. *Trichardis* species, male genitalia: (5, 6) lateral and ventral of *T. abdelkuri* sp. n., paratype, Jebel Saleh; (7, 8) lateral and ventral of *T. apicalis* Oldroyd, 1974, paratype, Ndumu Game Reserve; (9, 10) lateral and ventral of *T. crassipala* sp. n., paratype, Ouagadougou. Scale lines = 1 mm.

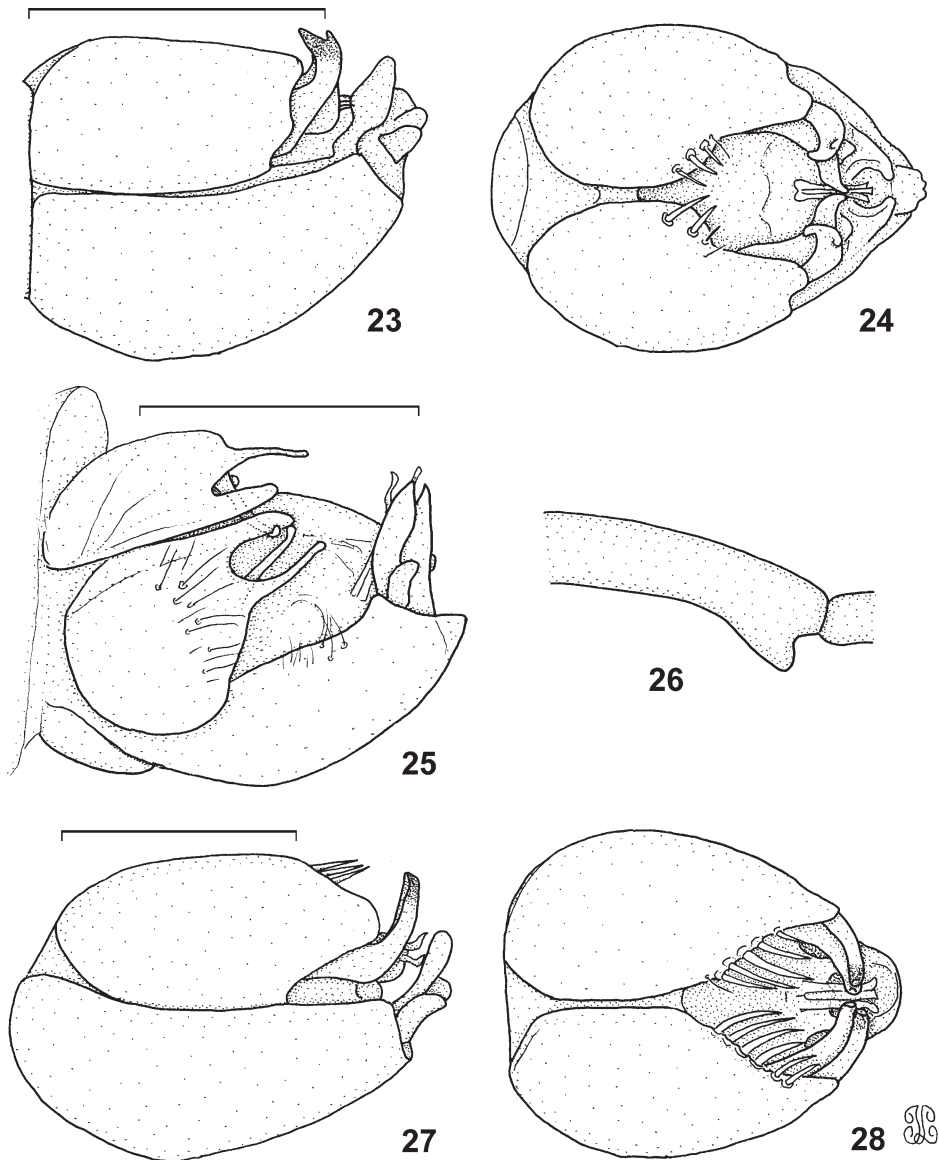


Figs 11–16. *Trichardis* species, male genitalia: (11, 12) lateral and ventral of *T. cribrata* (Loew, 1858), Mhlopeni Nat. Res.; (13, 14) lateral and ventral of *T. eburacta* sp. n., paratype, Comoé National Park; (15, 16) lateral and ventral of *T. effrena* sp. n., paratype, Witsand Nat. Res. Scale lines = 1 mm.

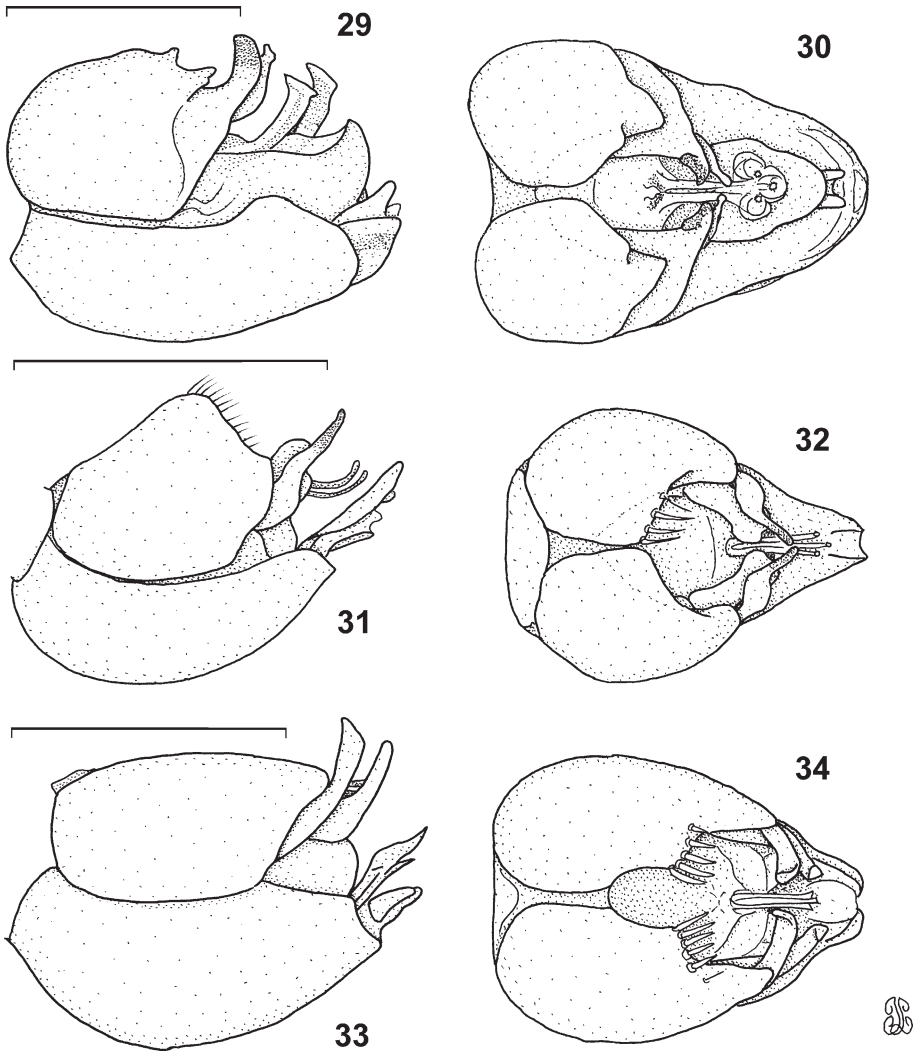




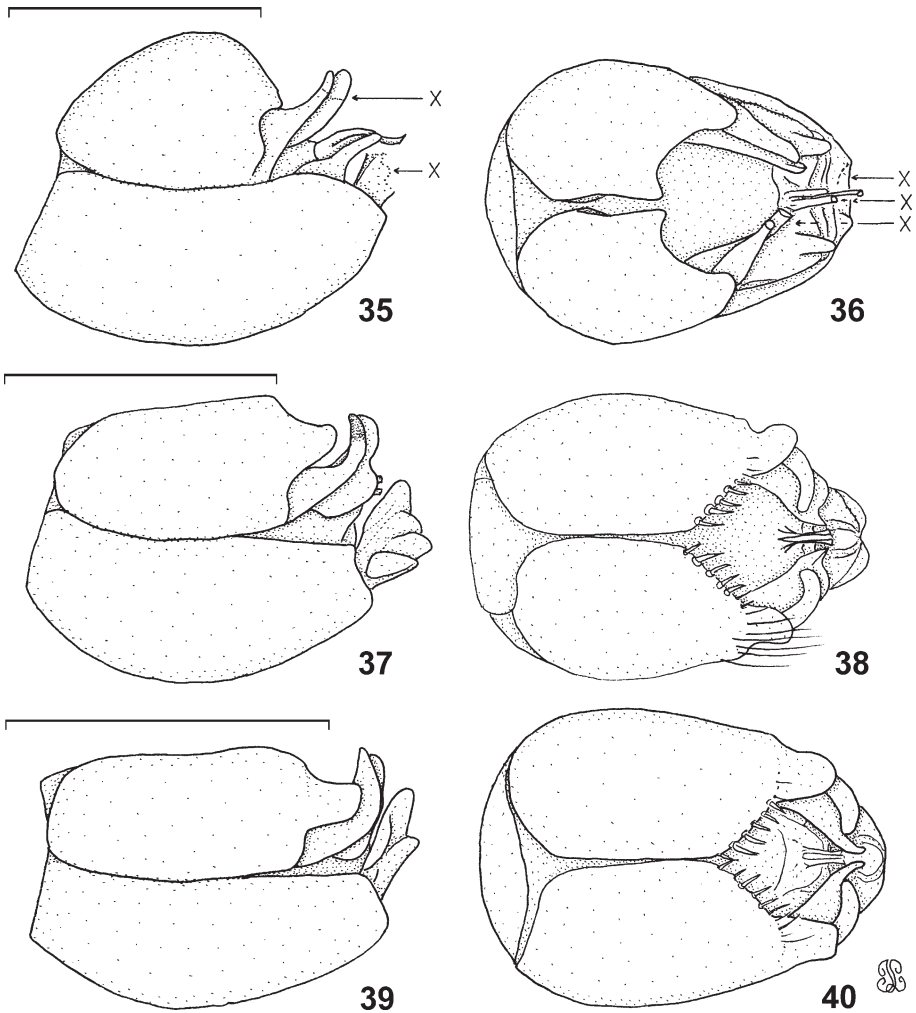
Figs 17–22. *Trichardis* species, male genitalia: (17, 18) lateral and ventral of *T. glabra* sp. n., paratype, Bansang; (19, 20) lateral and ventral of *T. grisescens* Engel, 1924, holotype; (21, 22) lateral and ventral of *T. hesperia* sp. n., paratype, Kayes. Scale lines = 1 mm.



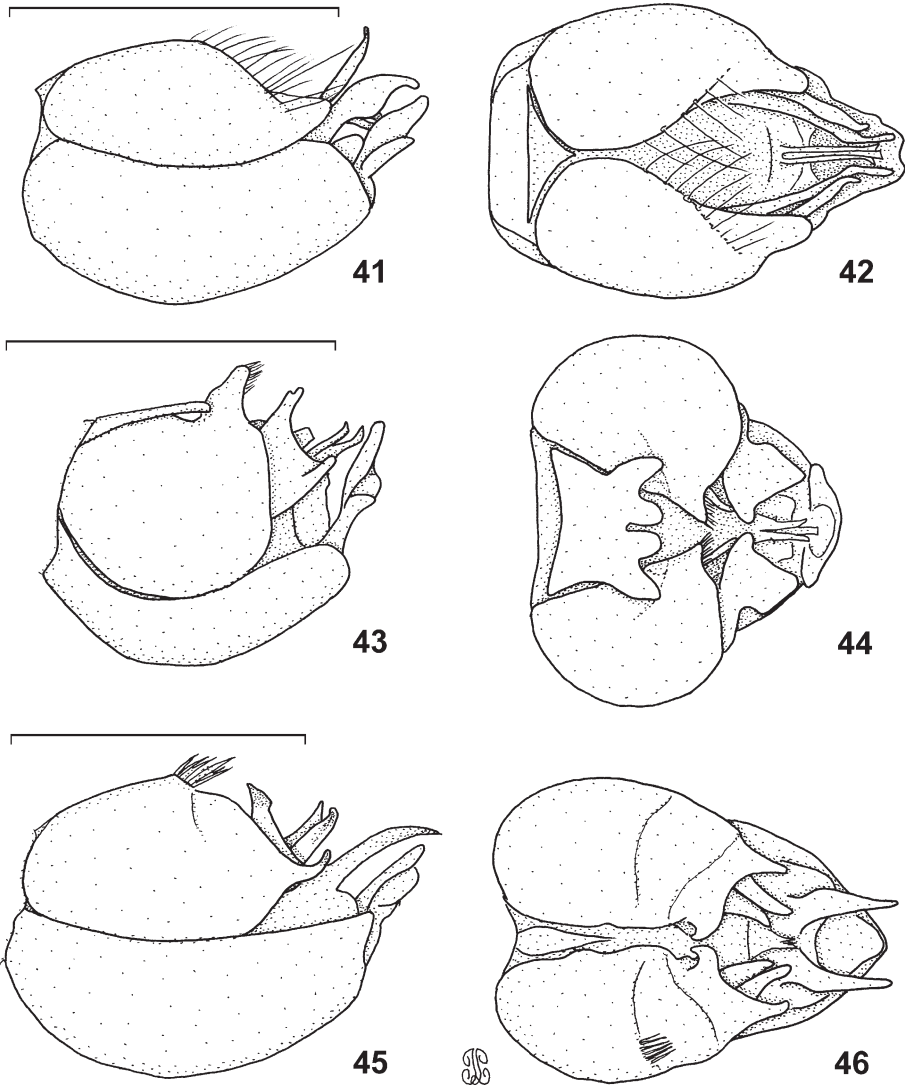
Figs 23–28. *Trichardis* species: (23, 24) *T. katangaensis* Oldroyd, 1970, male genitalia, paratype, Kapanga: (23) lateral, (24) ventral; (25, 26) *T. lavignei* sp. n., holotype: (25) male genitalia, dorsolateral, (26) posterior view of distal end of right hind tibia; (27, 28) *T. leucocoma* (Wulp, 1899), male genitalia, paratype, Shaik Othman: (27) lateral, (28) ventral. Scale lines = 1 mm.



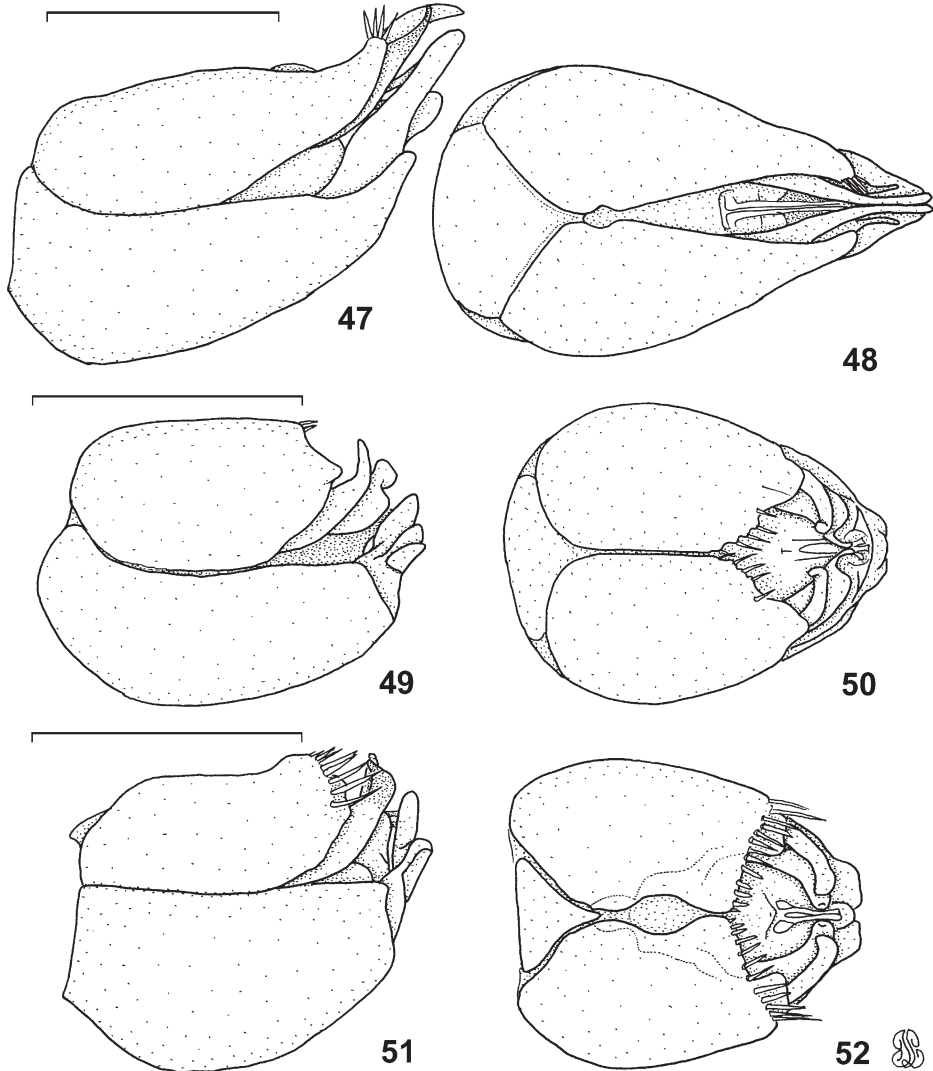
Figs 29–34. *Trichardis* species, male genitalia: (29, 30) lateral and ventral of *T. malawi* sp. n., paratype, Monkey Bay; (31, 32) lateral and ventral of *T. mellina* sp. n., paratype, Ghinda; (33, 34) lateral and ventral of *T. nigrescens* (Ricardo, 1903), Homhil. Scale lines = 1 mm.



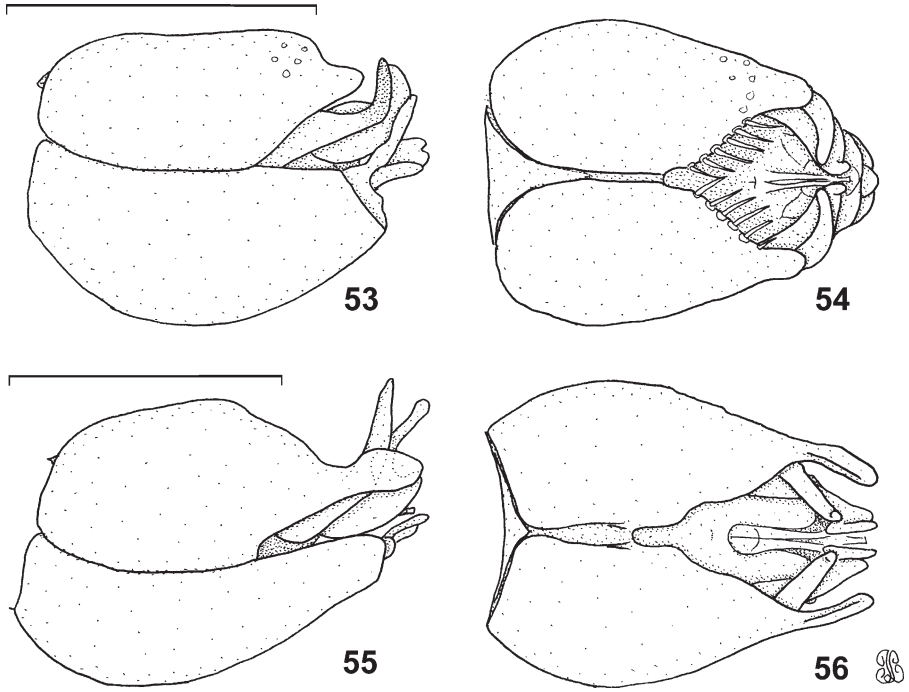
Figs 35–40. *Trichardis* species, male genitalia: (35, 36) lateral and ventral of *T. ornata* sp. n., holotype, (note: X indicates broken structures); (37–40) *T. picta* Hermann, 1906: (37, 38) lateral and ventral of holotype, (39, 40) lateral and ventral of holotype of *T. lucifer* Oldroyd, 1974. Scale lines = 1 mm.



Figs 41–46. *Trichardis* species, male genitalia: (41, 42) lateral and ventral of *T. pohli* Geller-Grimm, 2002, Sokotra I.; (43, 44) lateral and ventral of *T. similis* sp. n., paratype, Kasungu National Park; (45, 46) lateral and ventral of *T. spicata* sp. n., paratype, 30 km S Caia. Scale lines = 1 mm.



Figs 47–52. *Trichardis* species, male genitalia: (47, 48) lateral and ventral of *T. terminalis* Oldroyd, 1974, holotype; (49, 50) lateral and ventral of *T. testacea* (Macquart, 1838), holotype; (51, 52) lateral and ventral of *T. turneri* Oldroyd, 1974, Graaff-Reinet. Scale lines = 1 mm.



Figs 53–56. *Trichardis* species, male genitalia: (53, 54) lateral and ventral of *T. zinidi* sp. n., holotype; (55, 56) lateral and ventral of *T. indica* sp. n., holotype. Scale lines = 1 mm.



Fig 57. The distribution of Afrotropical *Trichardis* species.

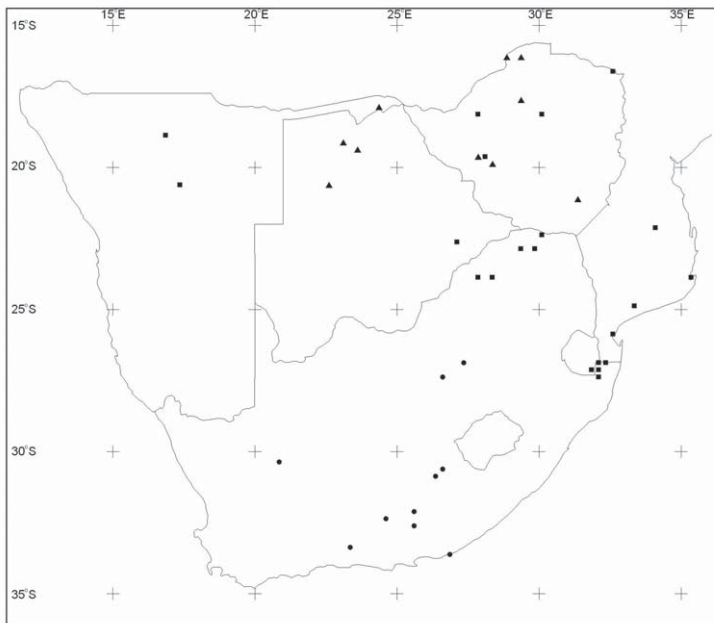


Fig 58. Distributions of southern African *Trichardis* species: ■ – *T. apicalis* Oldroyd, 1974, ▲ – *T. terminalis* Oldroyd, 1974, ● – *T. turneri* Oldroyd, 1974.



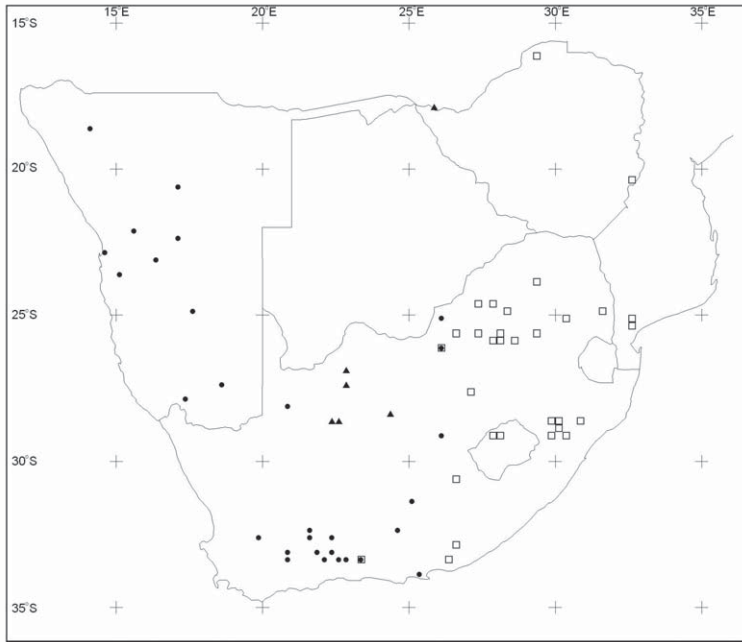


Fig 59. Distributions of southern African *Trichardis* species: □ – *T. cribrata* (Loew, 1858), ▲ – *T. effrena* sp. n., 1974, ● – *T. picta* Hermann, 1906.

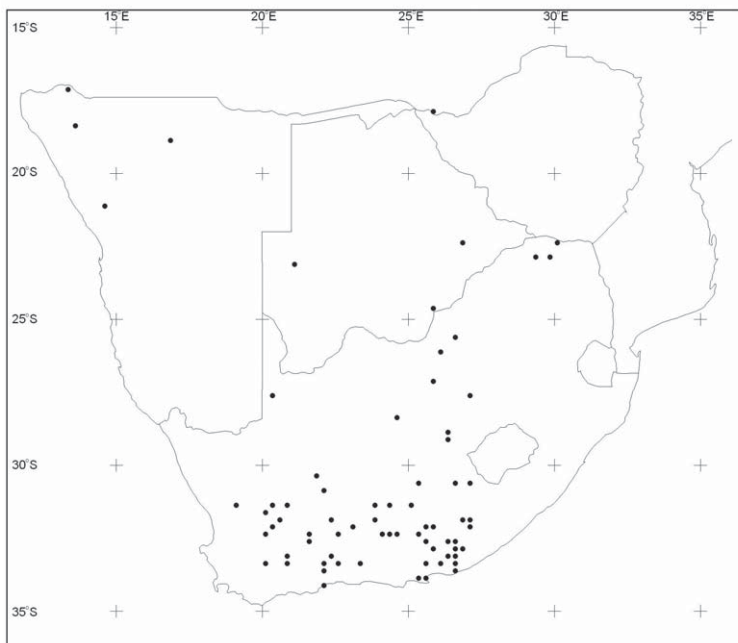


Fig 60. Distribution of *Trichardis testacea* (Macquart, 1838) in southern Africa.